

ATLAS

zur

Schiffsmaschinenkunde

von

H. Wilda.

Zweite Auflage.

Eckardt & Messtorff
Hamburg.

Biblioteka Politechniki Krakowskiej



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840



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F. Nr. 23 752



Akc. Nr:

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Ug. Nr. 23

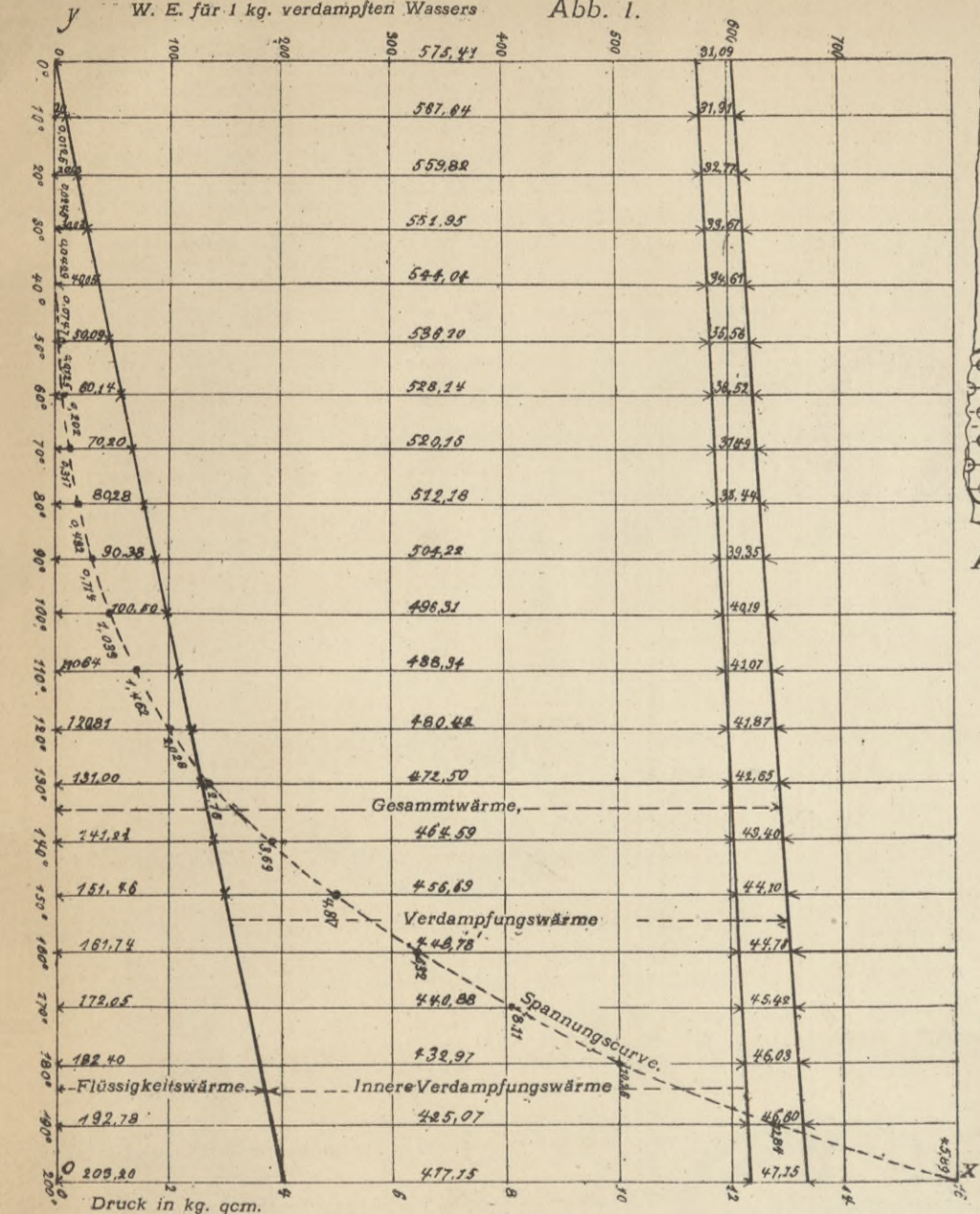


Abb. 4. Dreifache Nietung und Laschung.

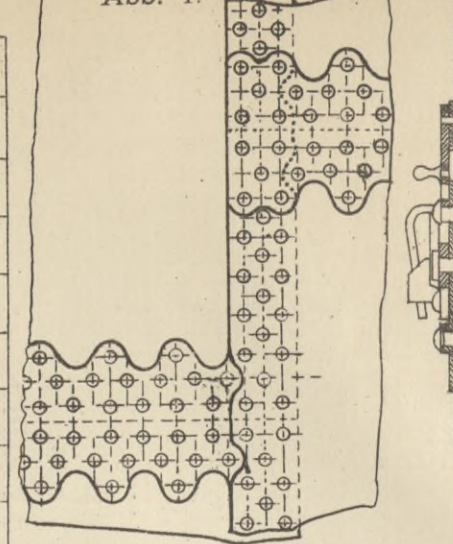


Abb. 5. Verjüngte Nietung.

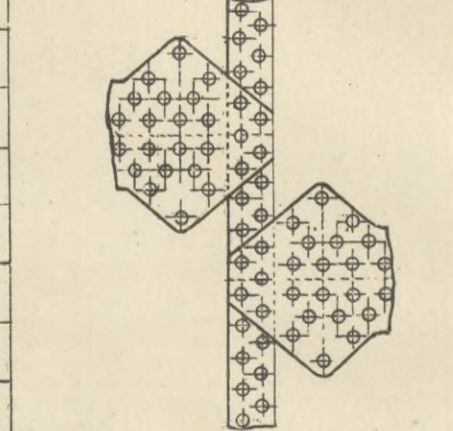


Abb. 2. Vernietung von drei Blechen.

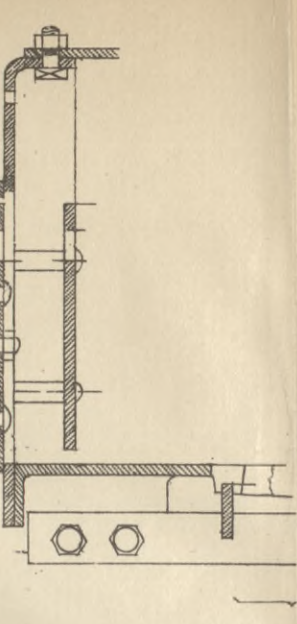
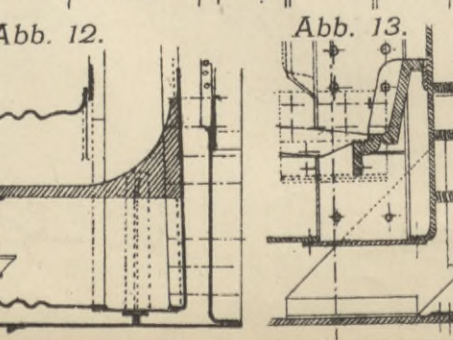
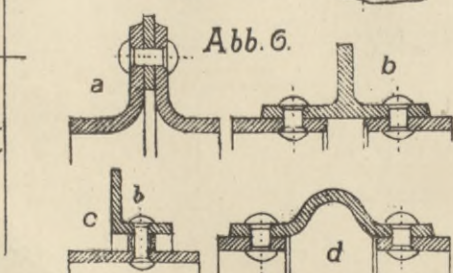
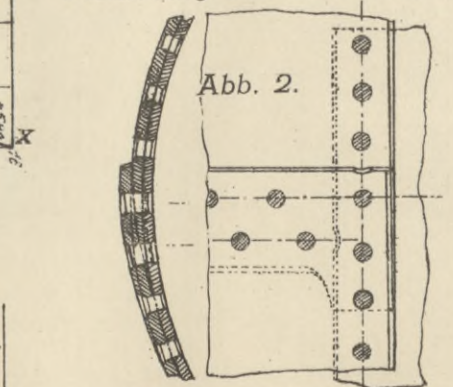


Abb. 8. Feuerhür mit Zange.

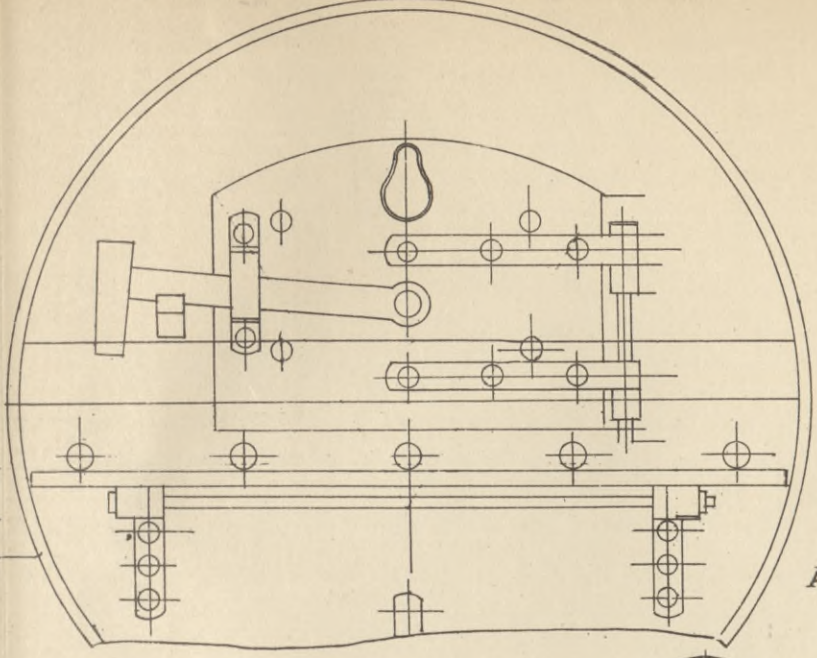


Abb. 9. Martinhür.

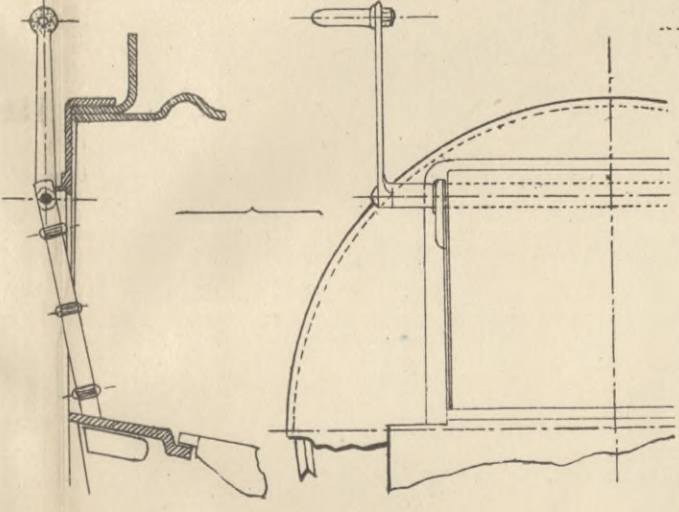


Abb. 10. Gusseiserner Roststab.

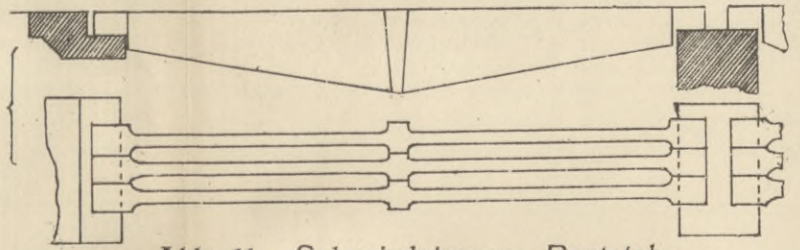
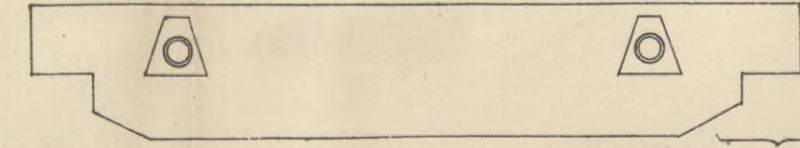
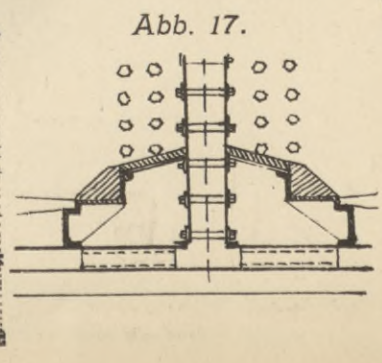
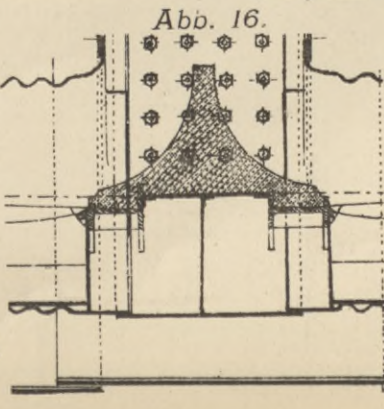
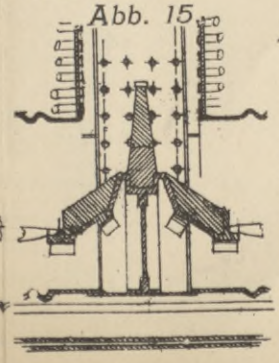
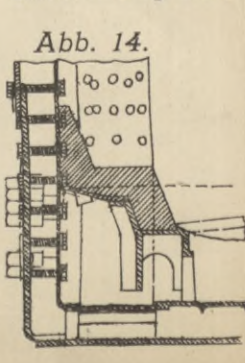


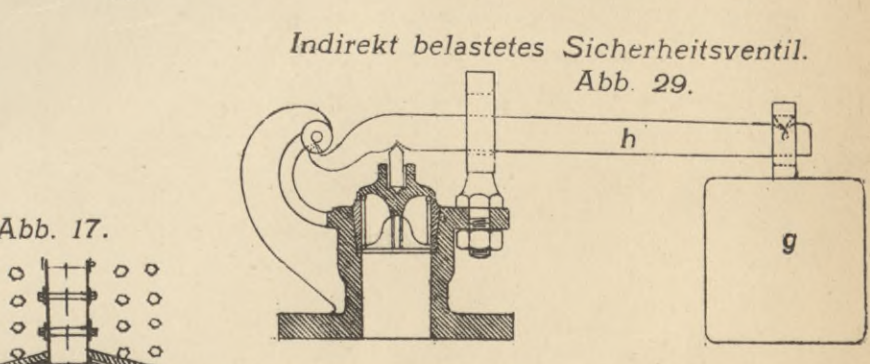
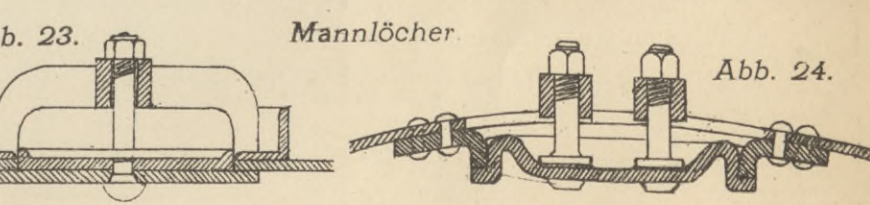
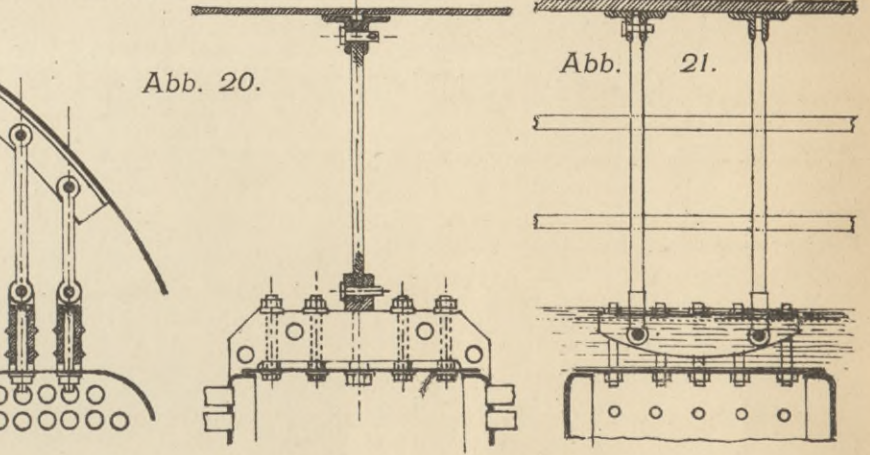
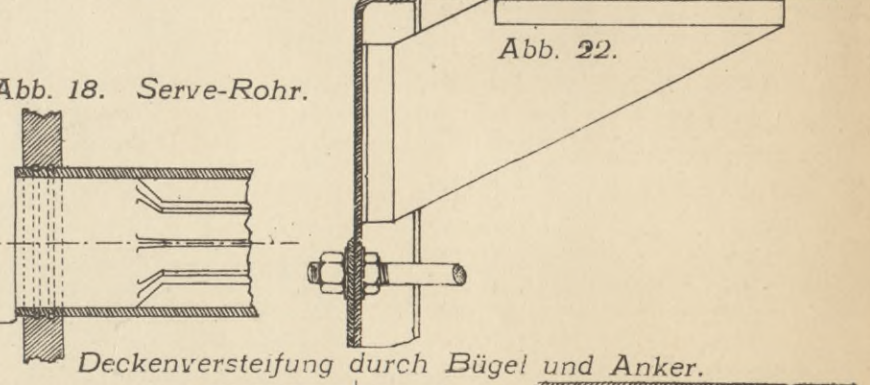
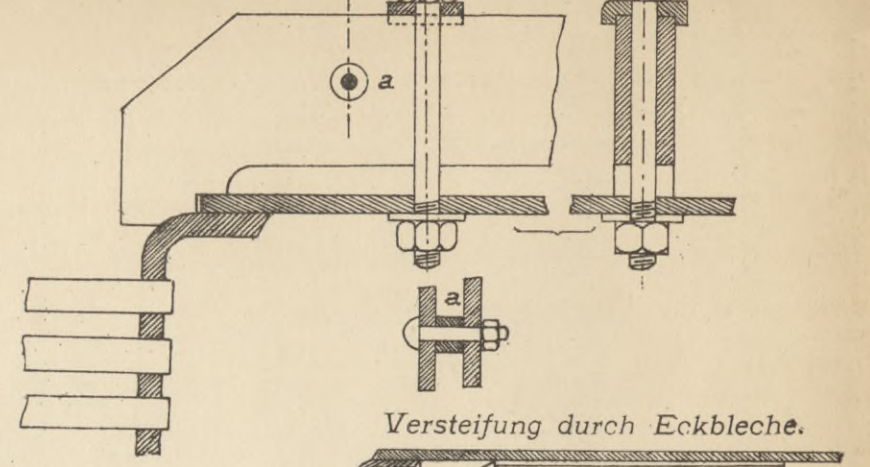
Abb. 11. Schmiedeiserner Roststab.



Anordnung von Feuerbrücken.



Deckenversteifung durch Bügel. **Tafel 1.**



Verbindung durch dreifache Überlappung und Laschung.

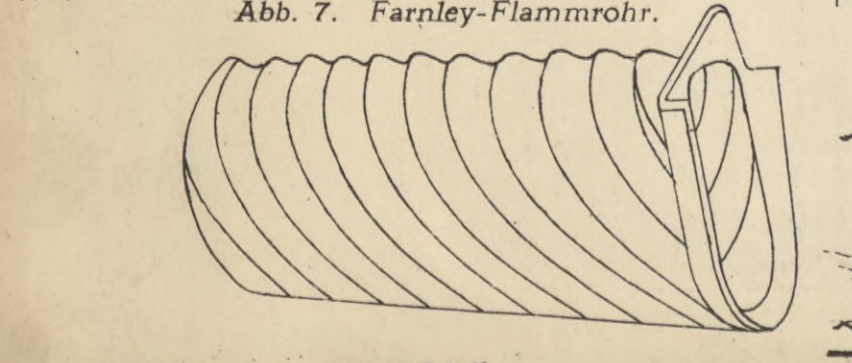
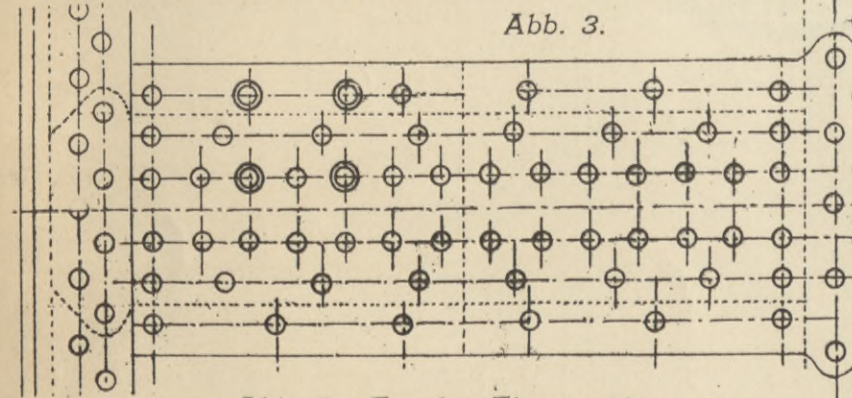


Abb. 25. Eckabsperrenteil.

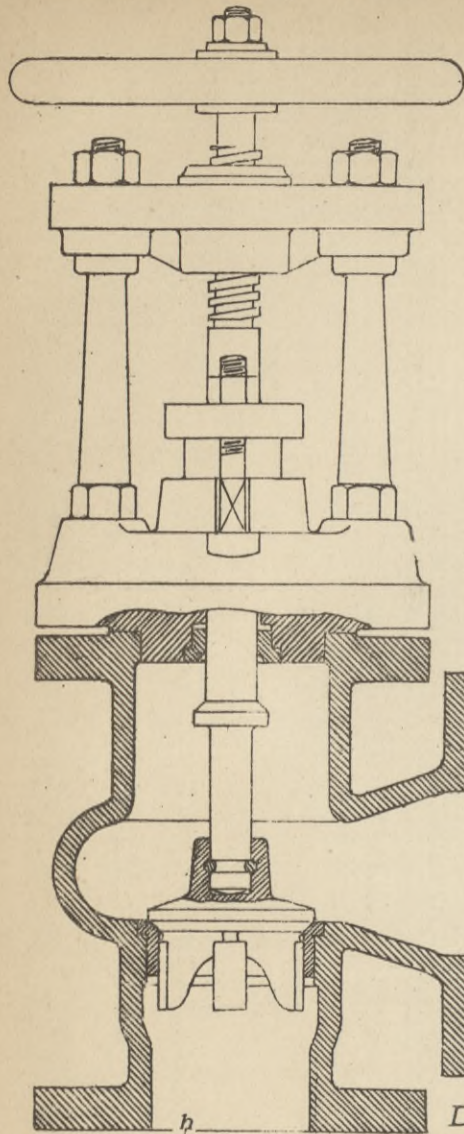
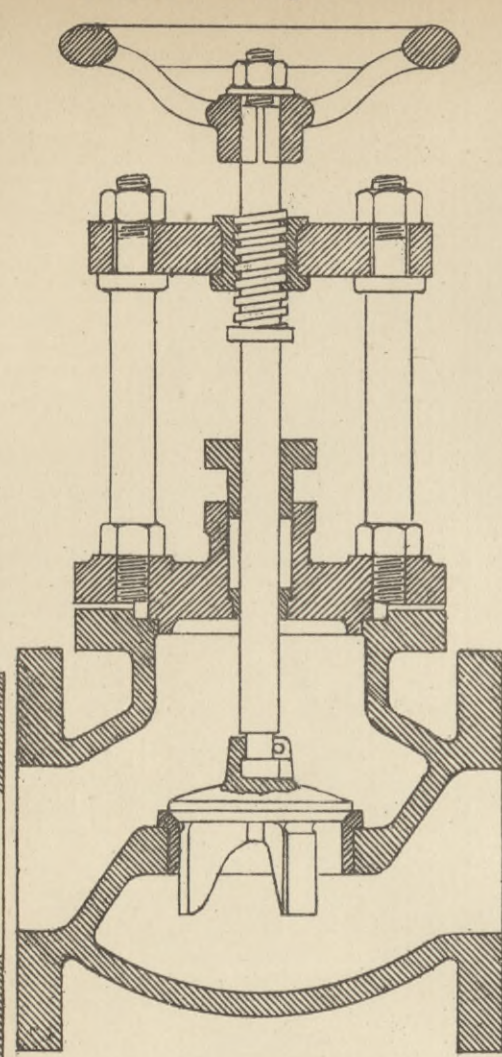
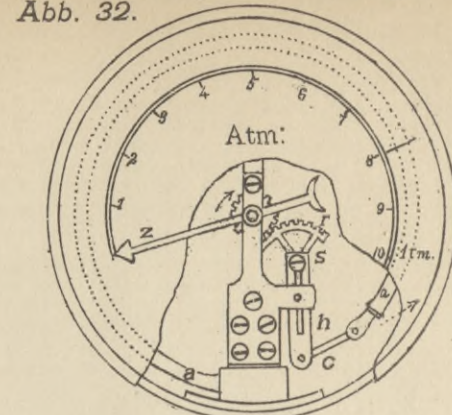


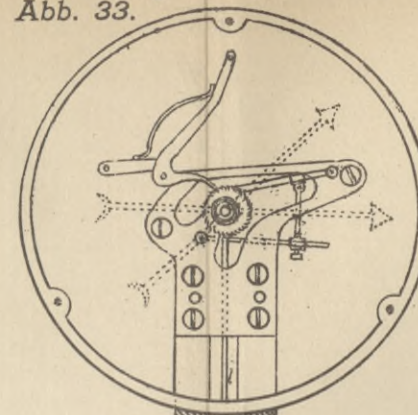
Abb. 26. Absperrventil.



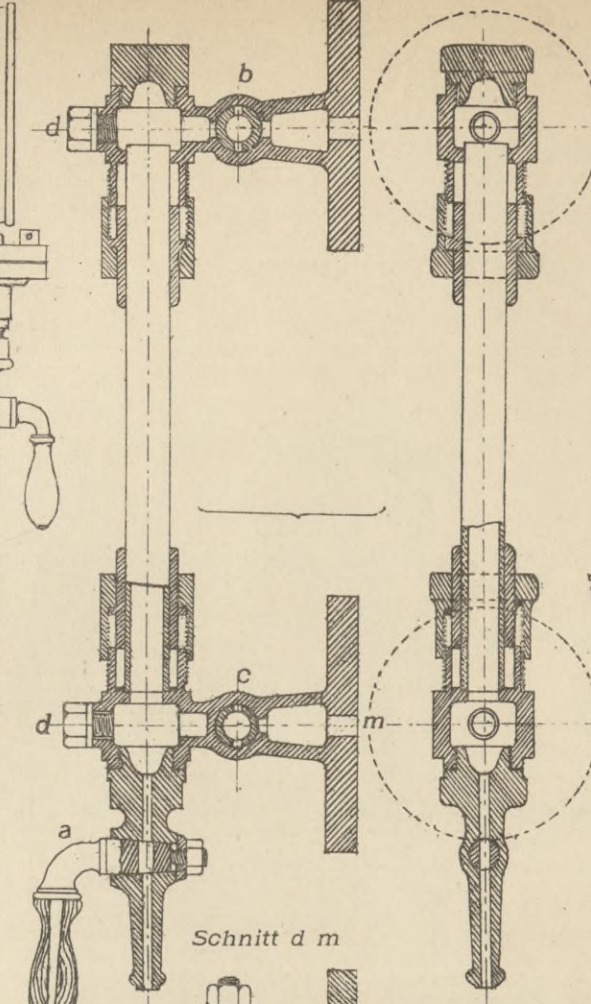
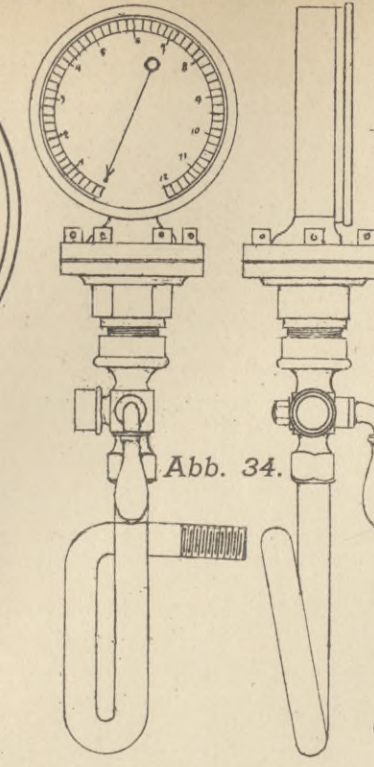
Röhrenfederanometer. Abb. 32.



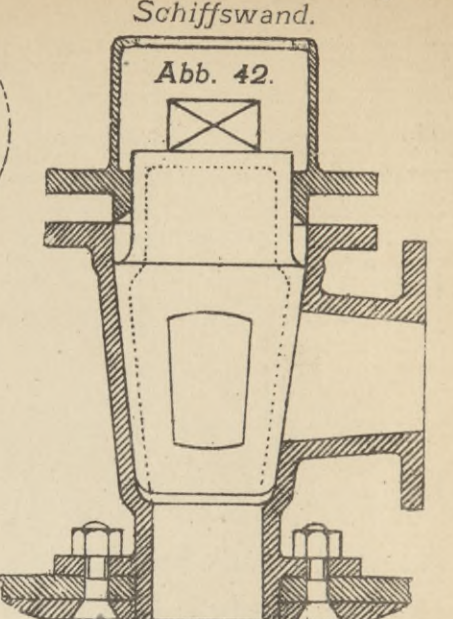
Plattenfederanometer. Abb. 33.



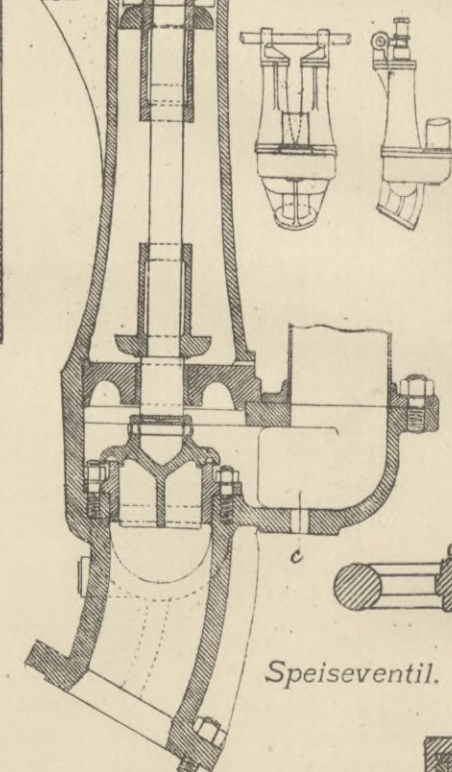
Anbringung des Manometers. Abb. 34. Wasserstandsglas.



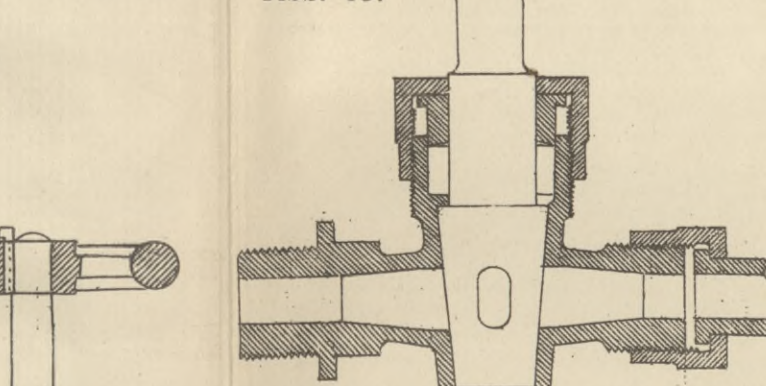
Bodenhahn an der Tafel 2. Schiffswand.



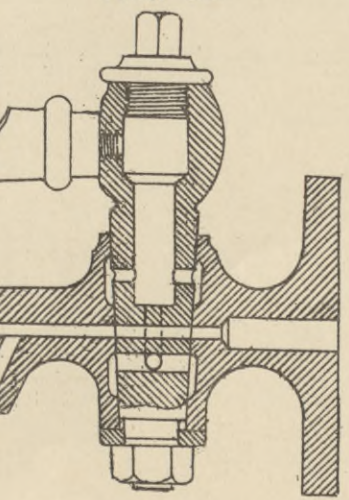
Direkt belastetes Sicherheitsventil. Abb. 28.



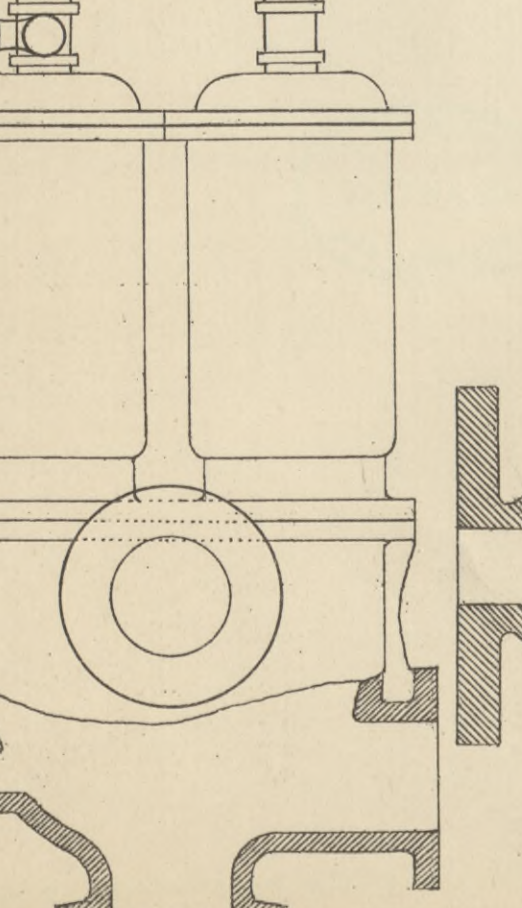
Probierhahn mit Stopfbüchse. Abb. 40.



Probierhahn mit Selbstschmierung. Abb. 39.



Direkt belastetes Sicherheitsventil. Abb. 27.



Speiseventil.

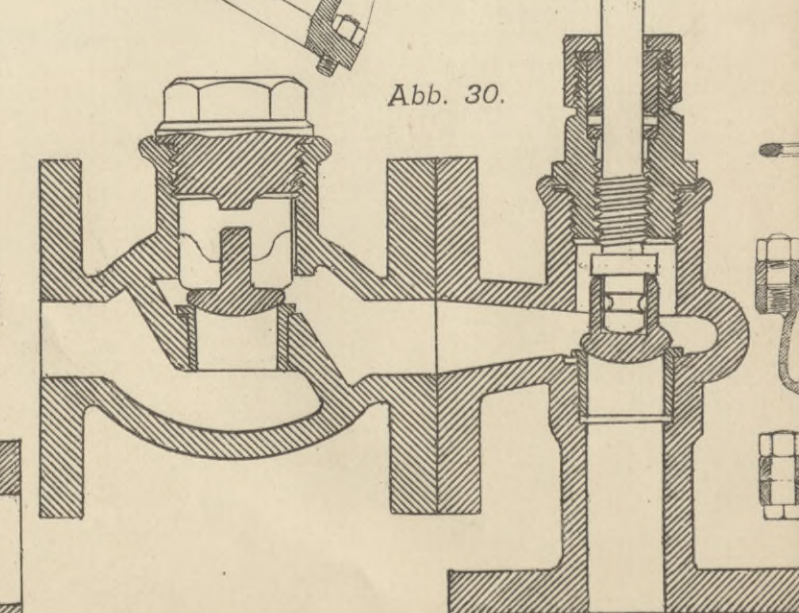
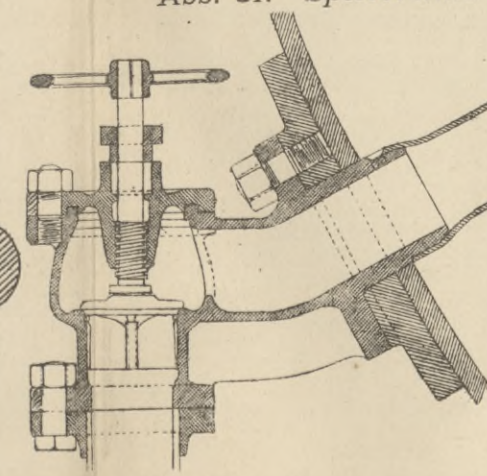


Abb. 31. Speiseventil.



Kesselablasshahn.

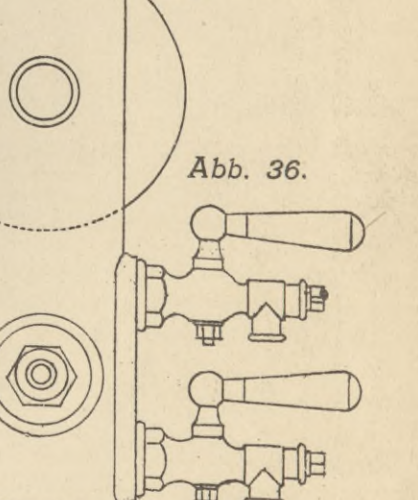
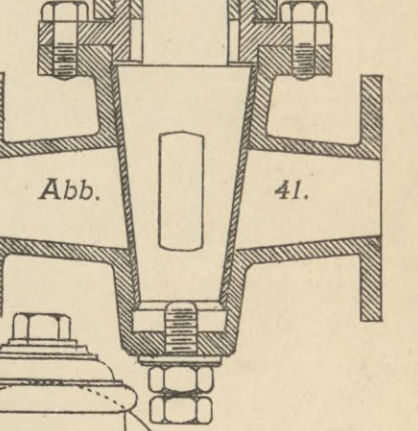
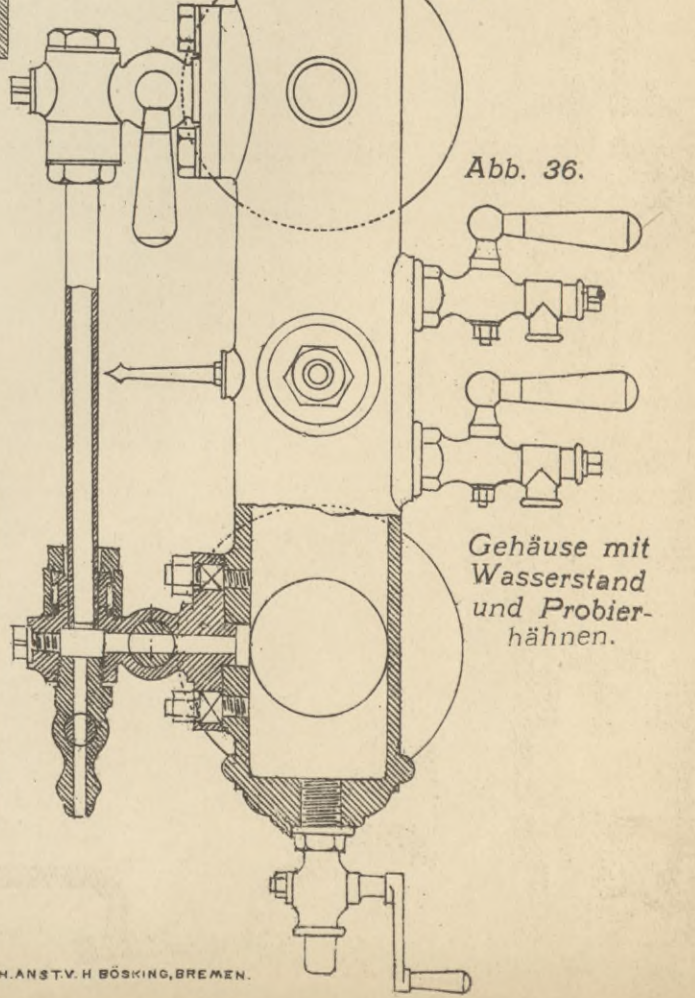


Abb. 36.



Gehäuse mit Wasserstand und Probierhähnen.

Abb. 37. Wasserstand mit Durchstossvorrichtung.

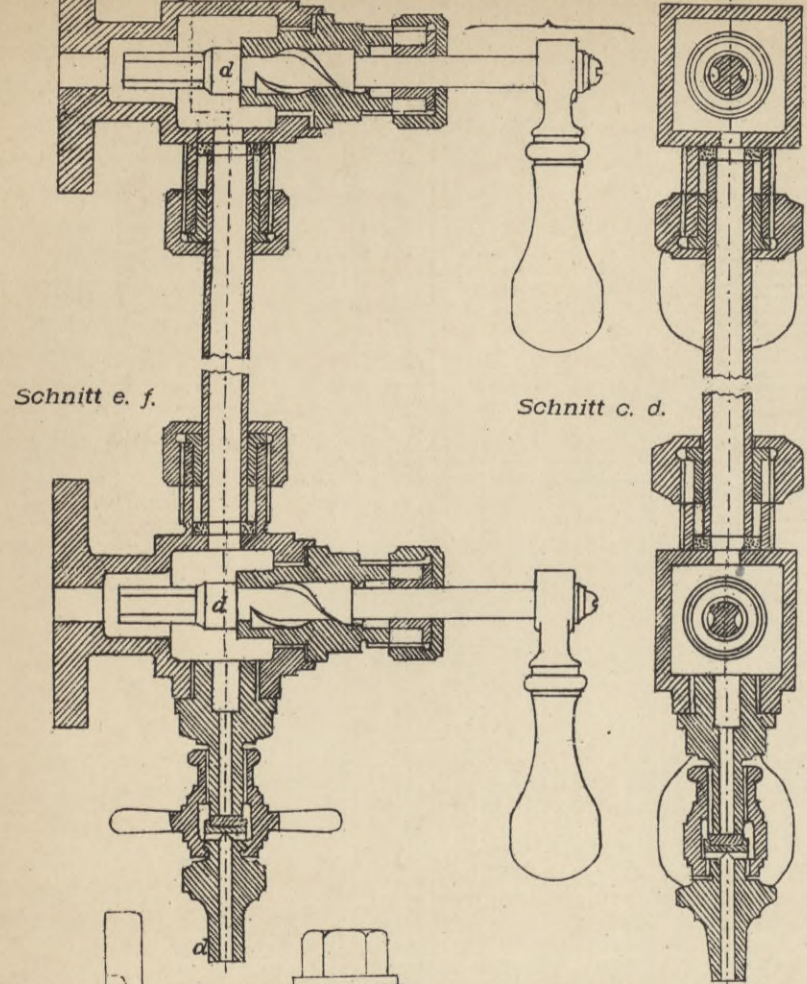
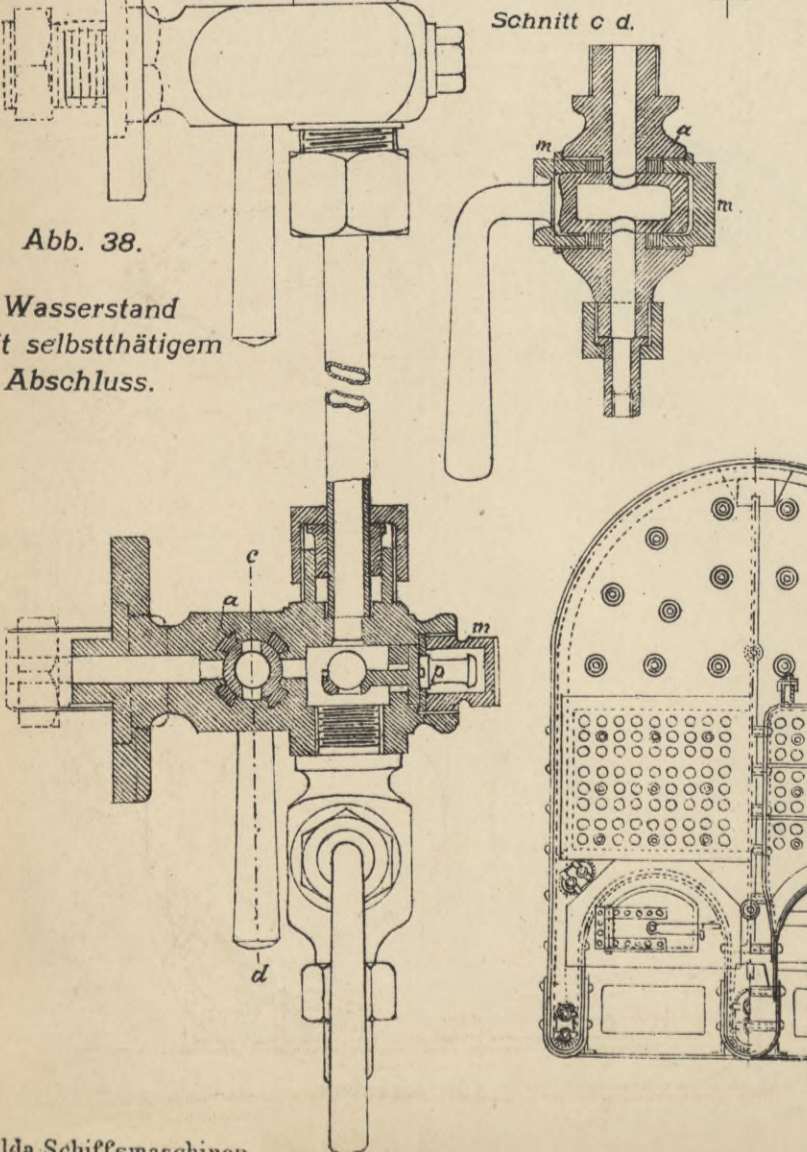


Abb. 38. Wasserstand mit selbstthätigem Abschluss.



Schnitt durch die Feuerbüchse

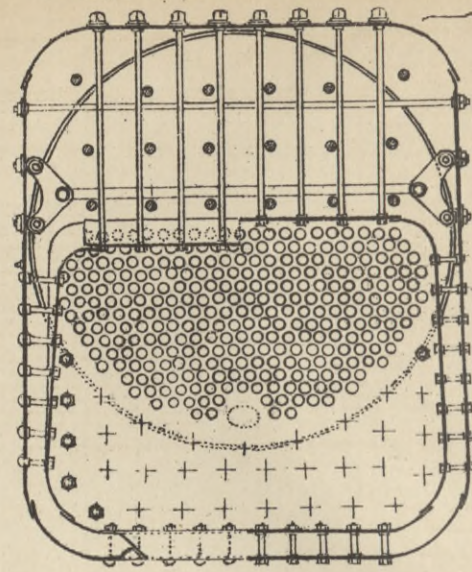


Abb. 50. Lokomotivkessel.

Längsschnitt.

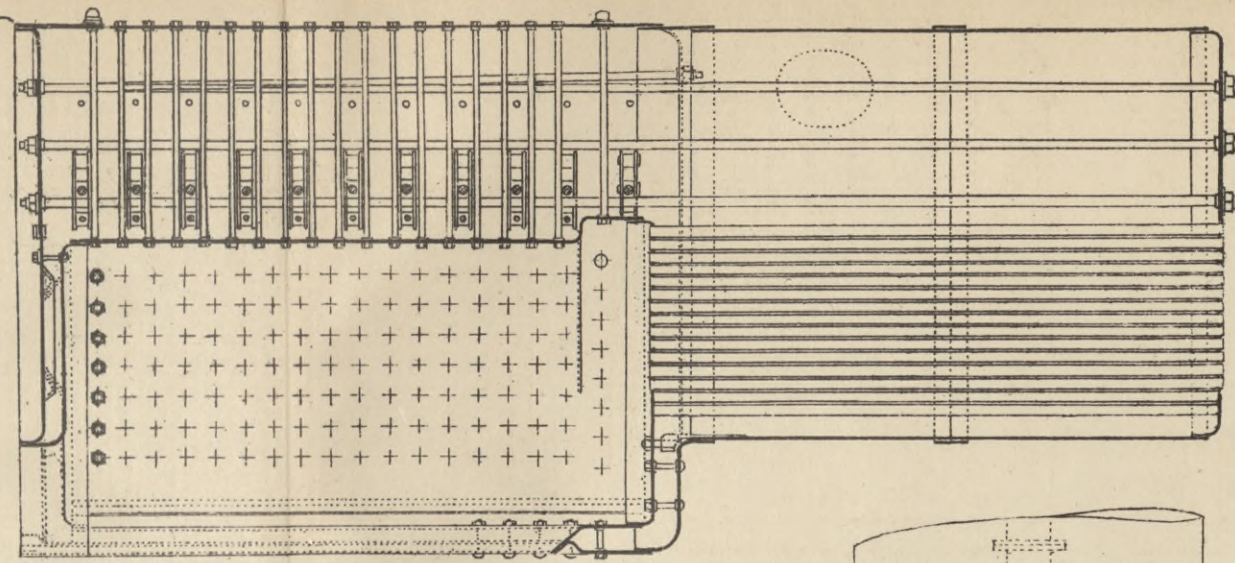


Abb. 74. Heizrohr-Reinigungsapparat. (von Essens Patent)

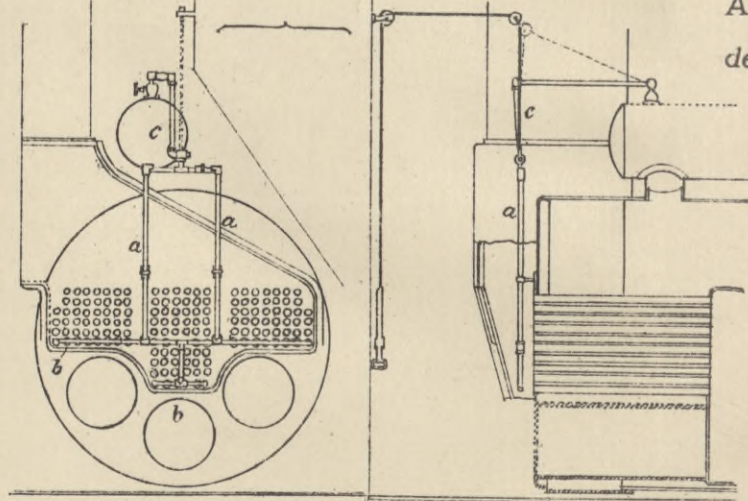


Abb. 43. Anordnung der Kesselarmatur.

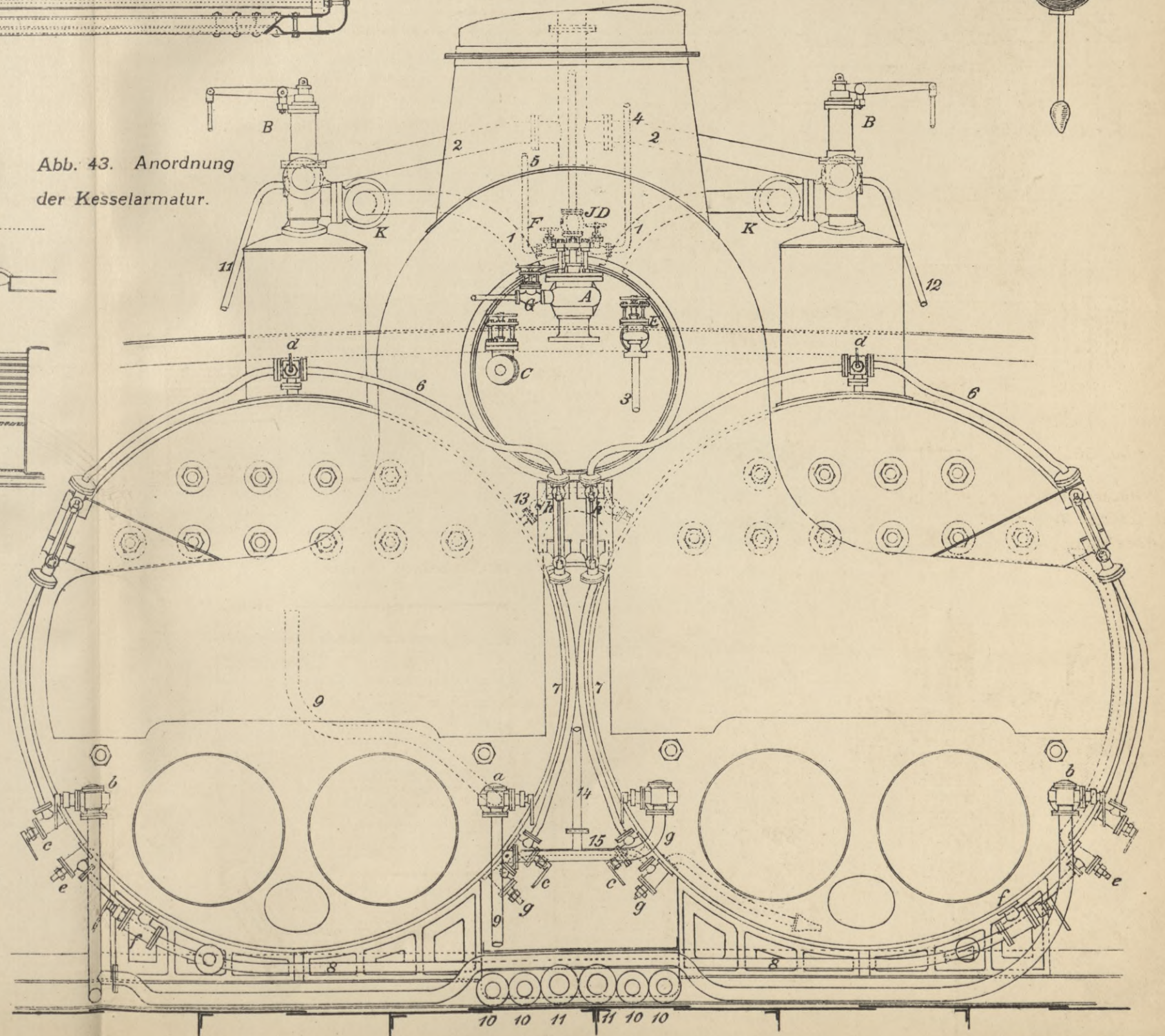


Abb. 72. Ejector zum Anwärmen des Kesselwassers.

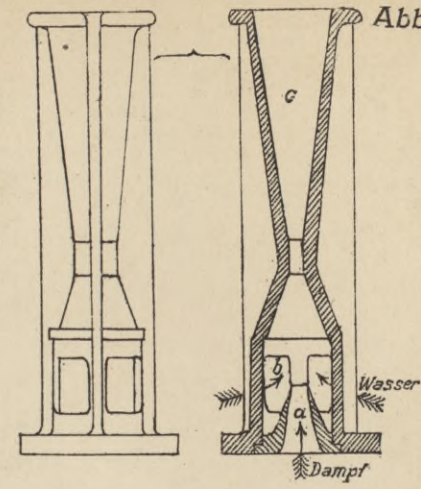


Abb. 69. Salinometer.



Abb. 44. Kofferkessel. (Fusskessel)

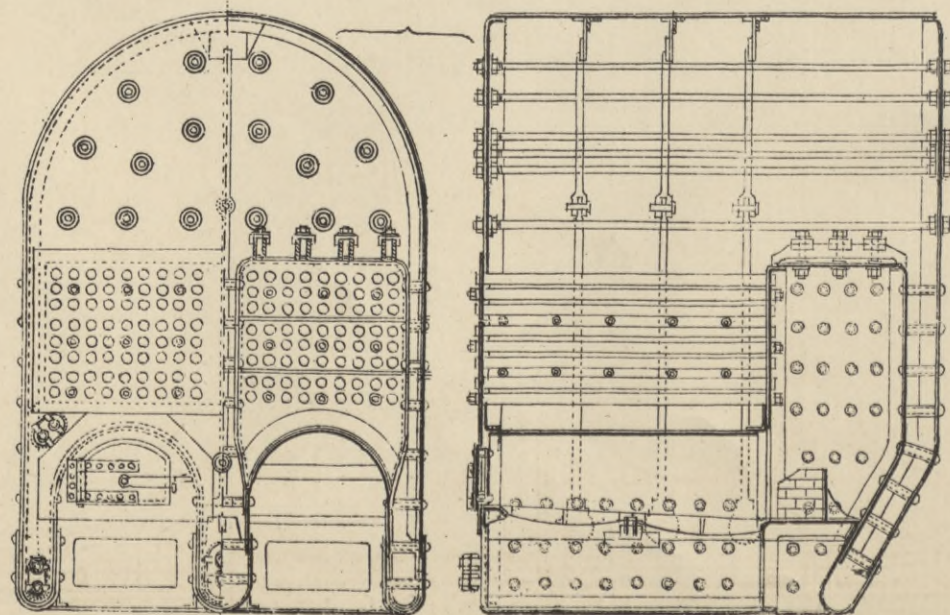


Abb. 45.

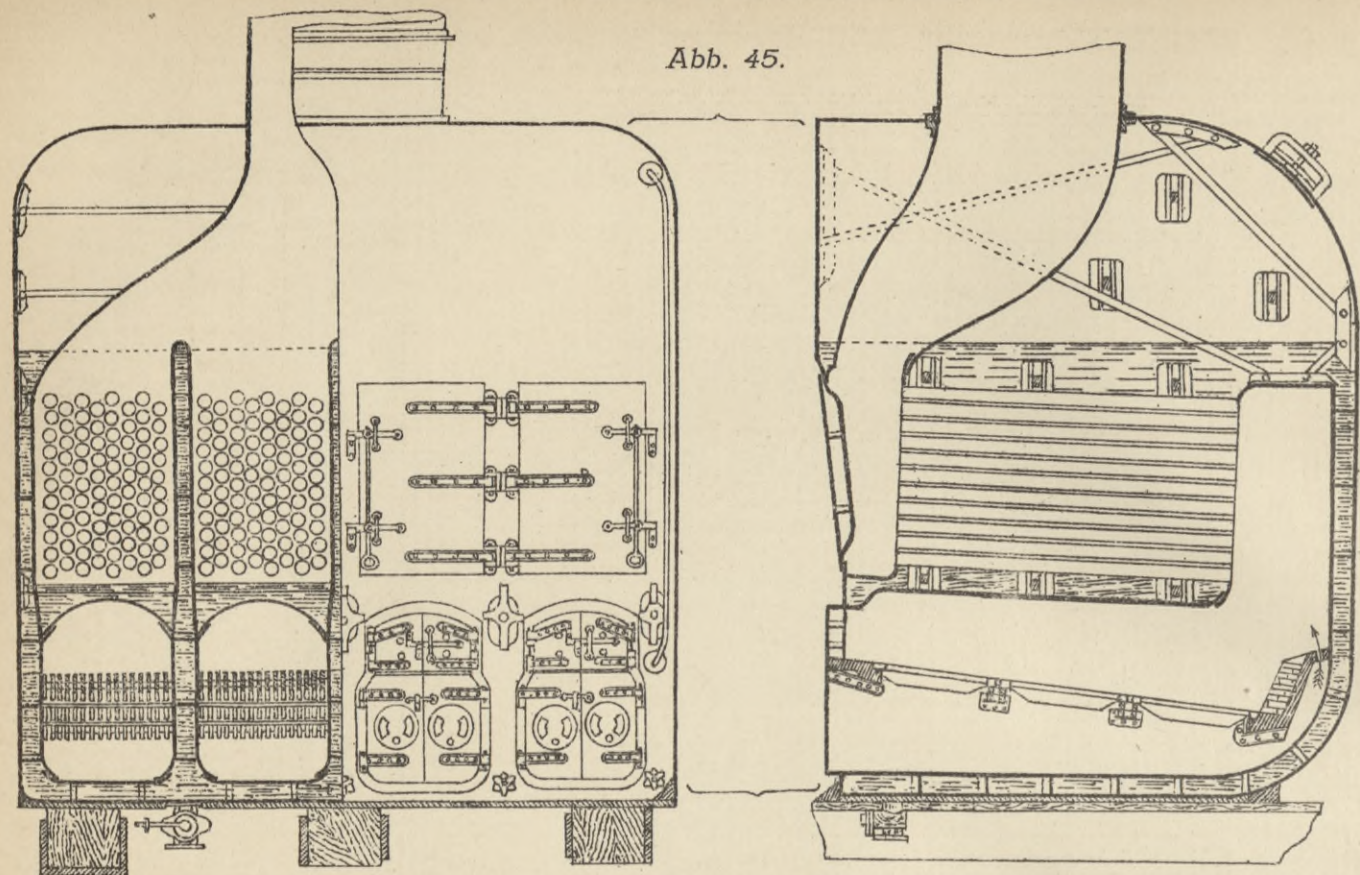


Abb. 46.

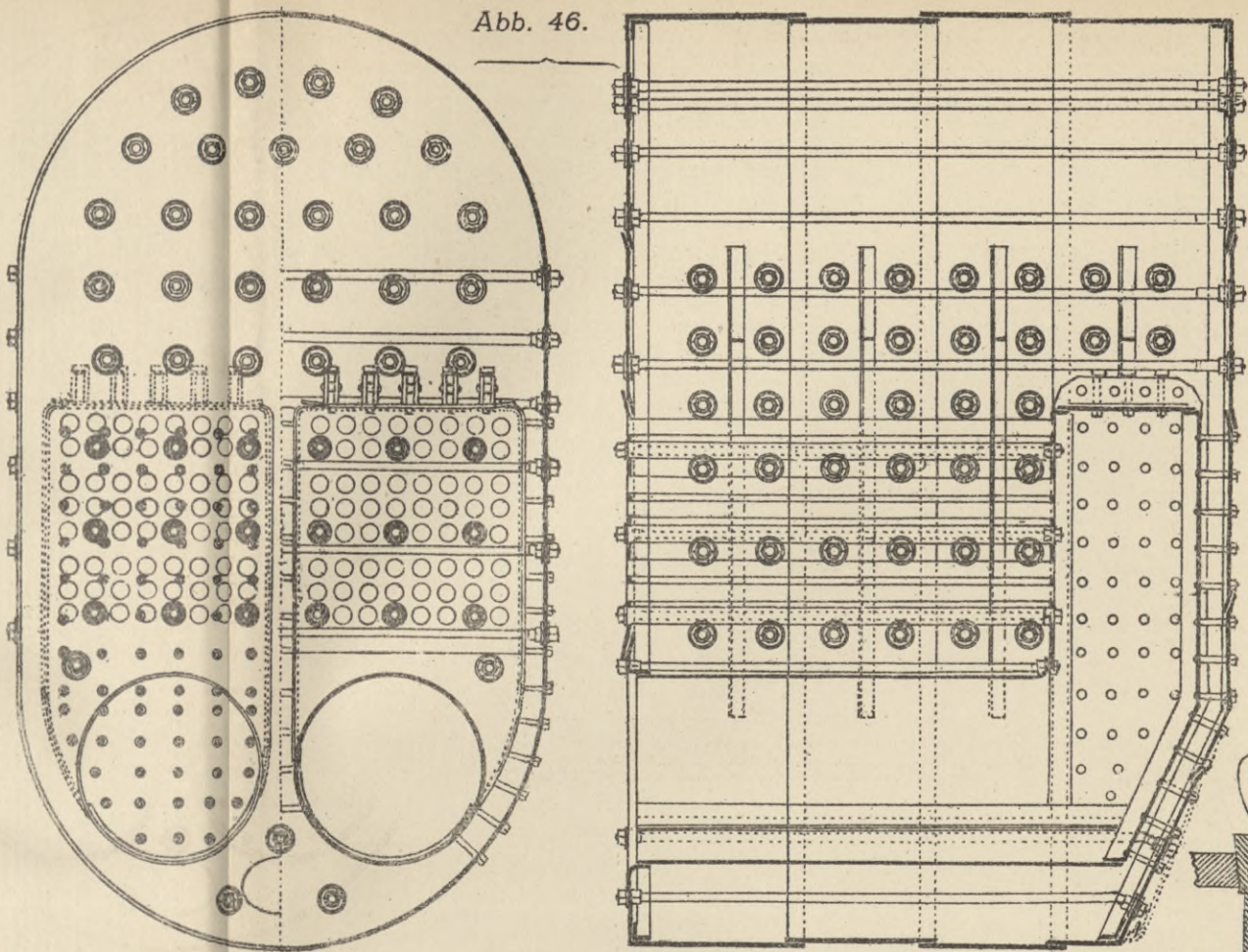


Abb. 55.

Siederrohr-Befestigung.

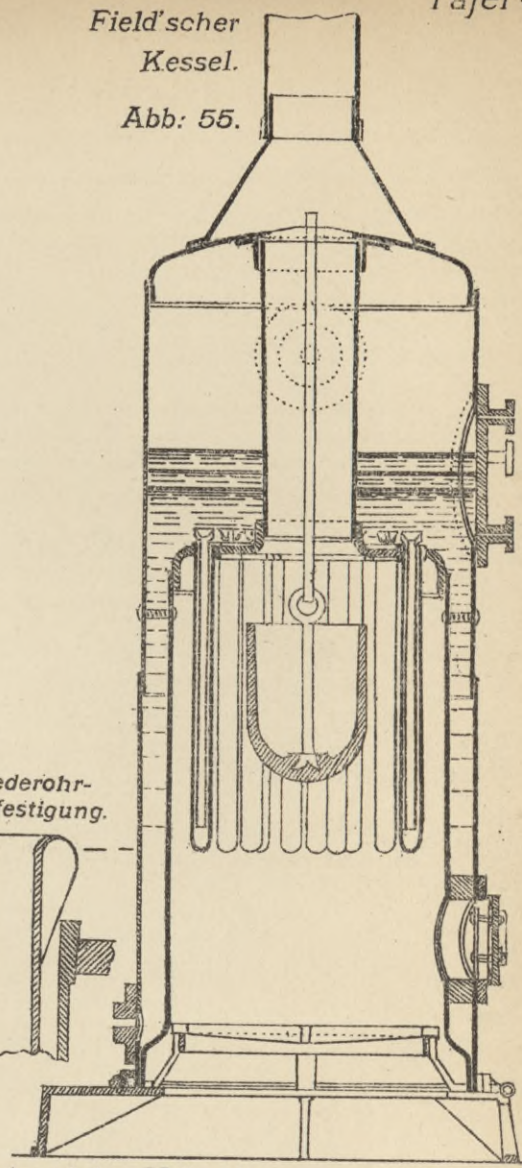
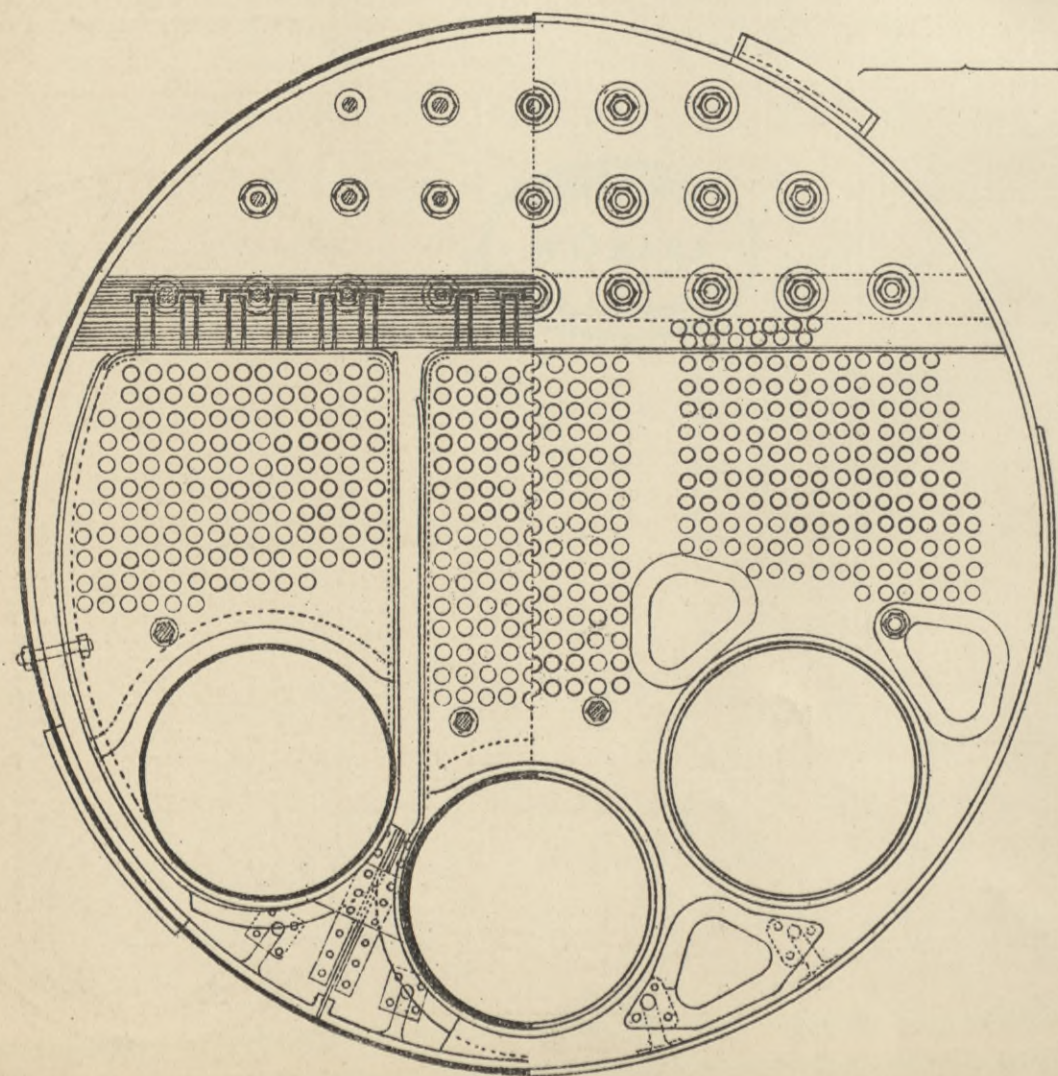
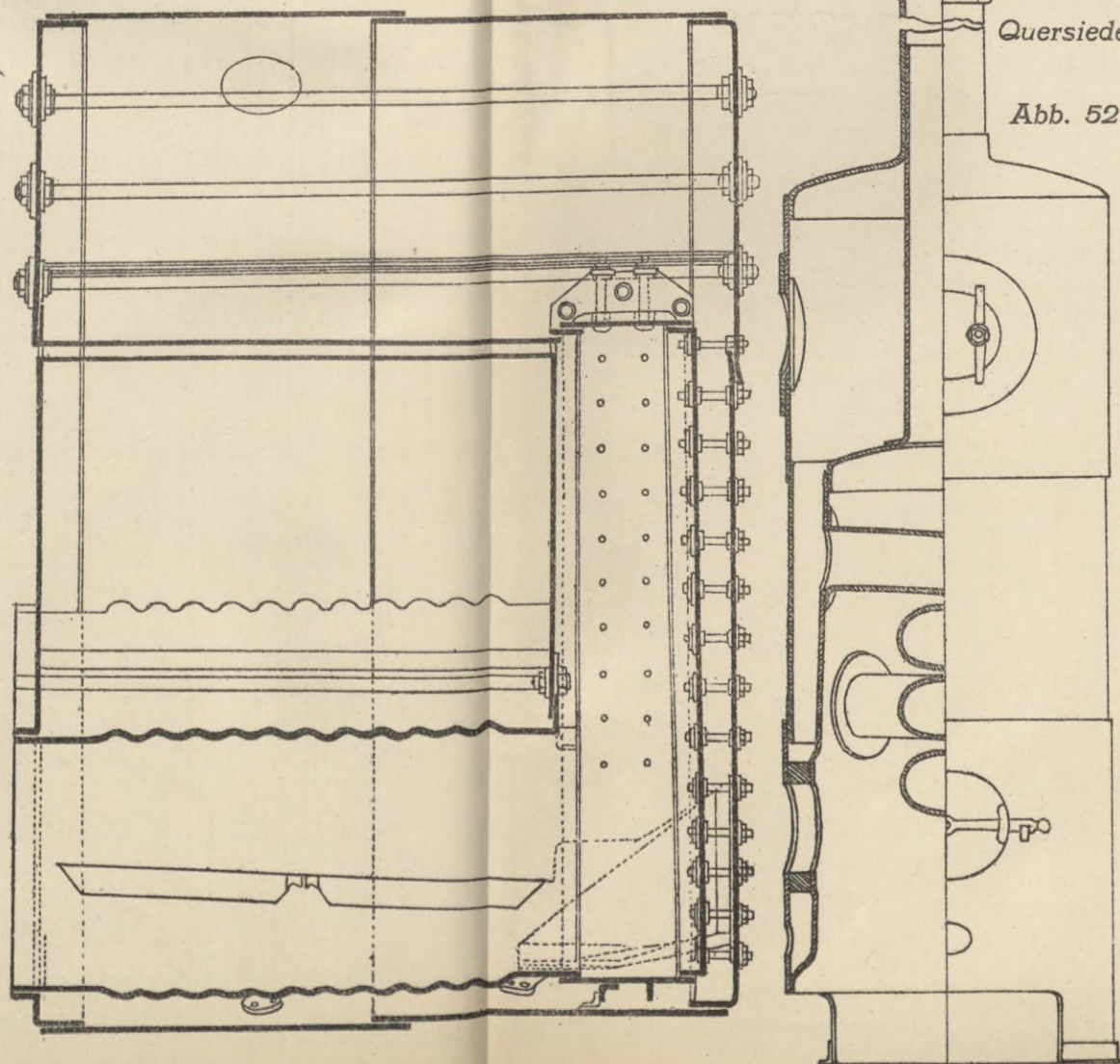


Abb. 47. Einfacher Cylinderkessel.



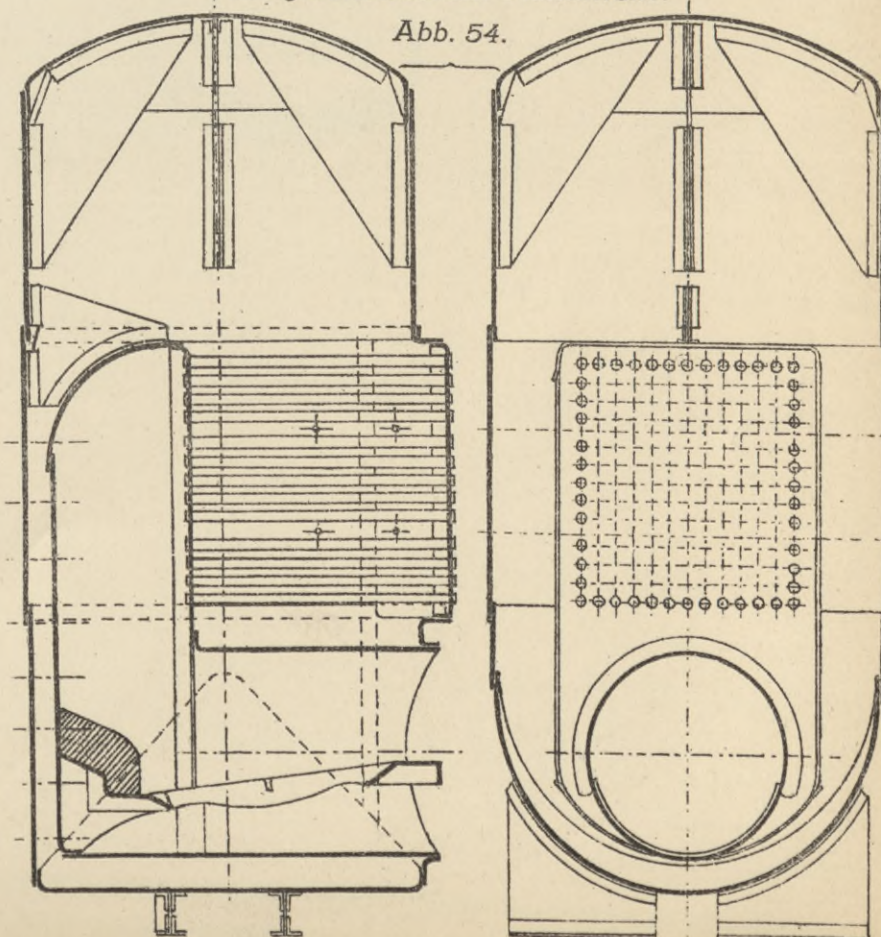
Quersiederkessel.

Abb. 52.



Stehender Kessel mit horizontalen Heizrohren und geschlossenem Flammrohr.

Abb. 54.



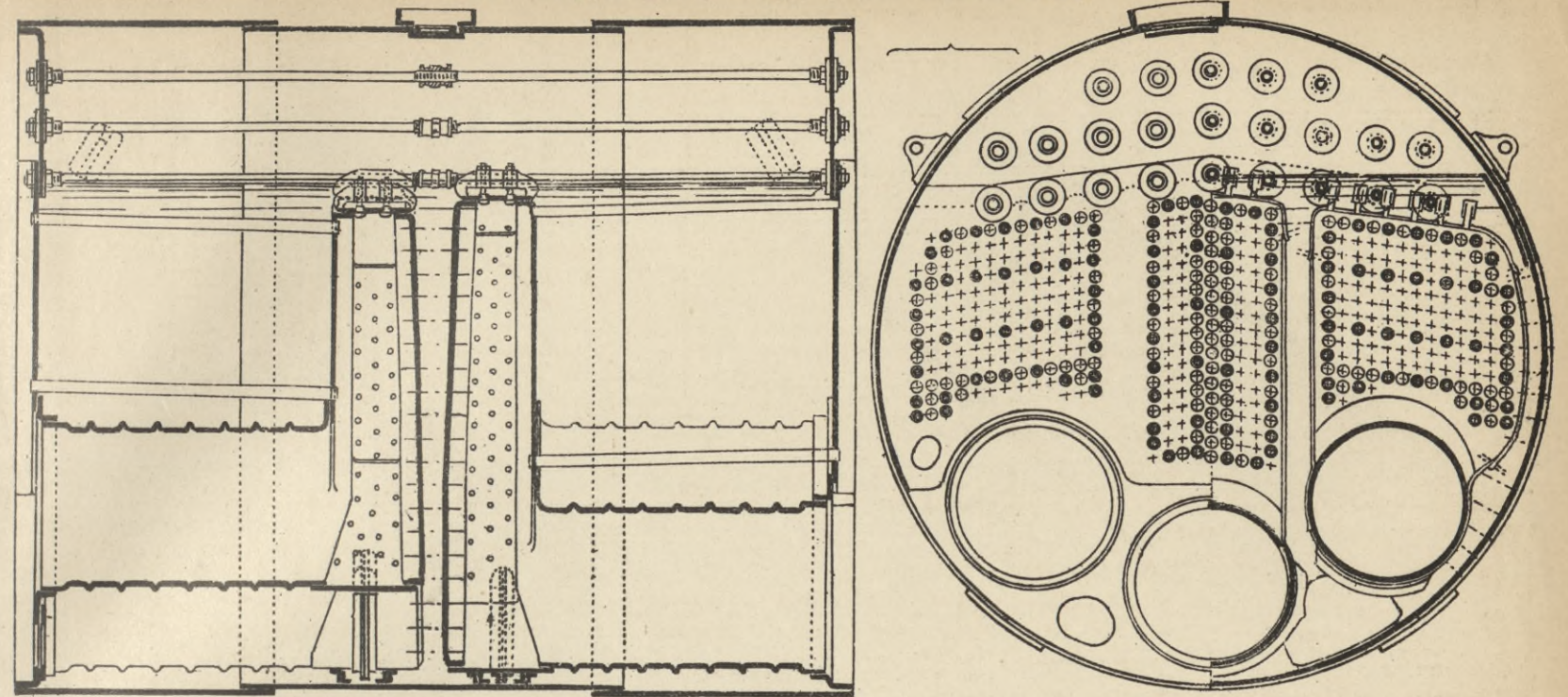
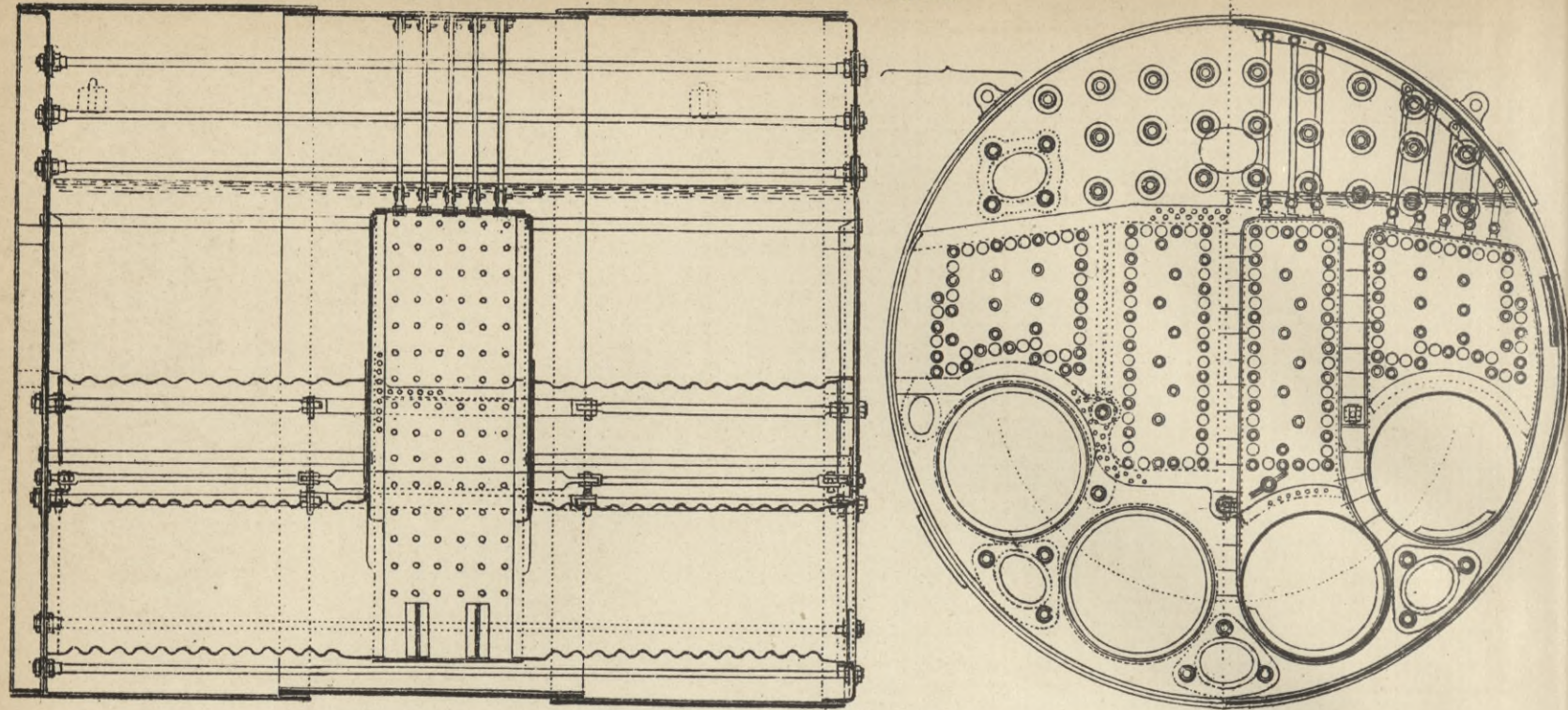


Abb. 53. Stehender Kessel mit horizontalen Heizrohren und offenem Aschfall. (Cochrane Kessel)

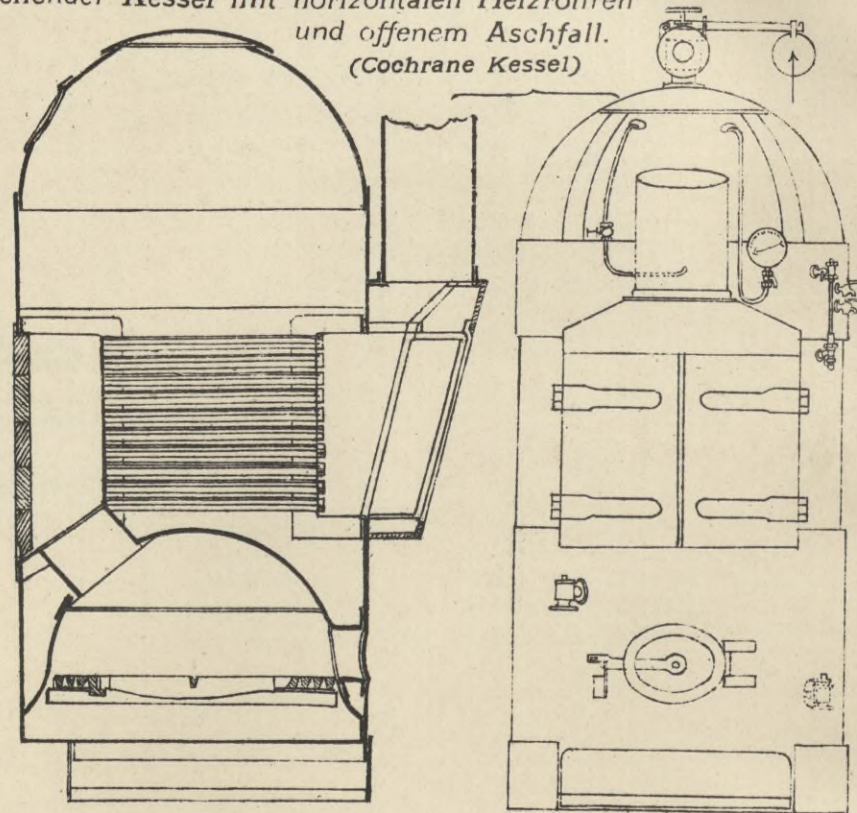


Abb. 68. Aufmessung von Kohlenbunkern.

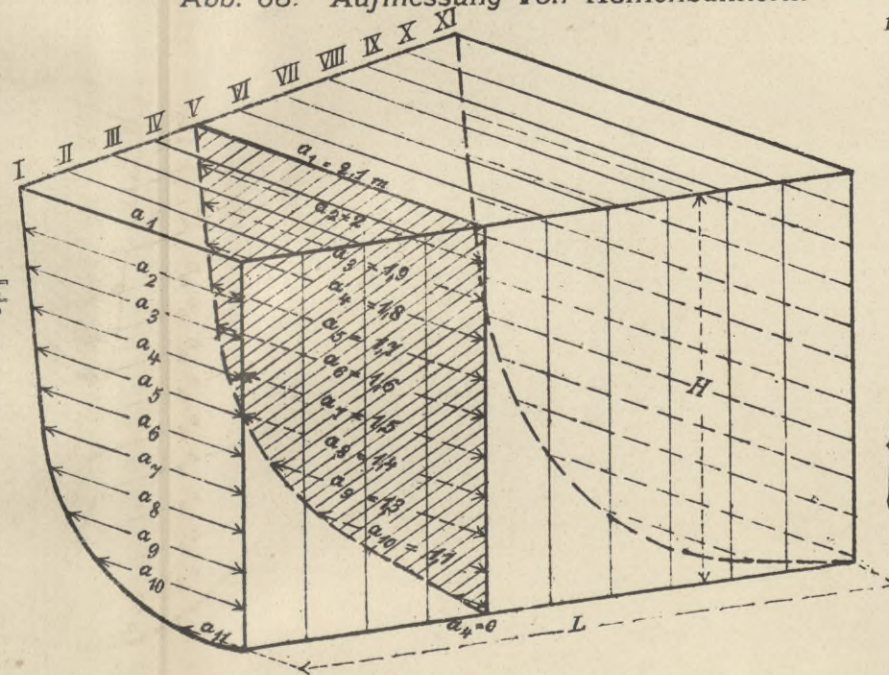


Abb. 64. Unterwindanordnung mit geschlossenem Aschfall.

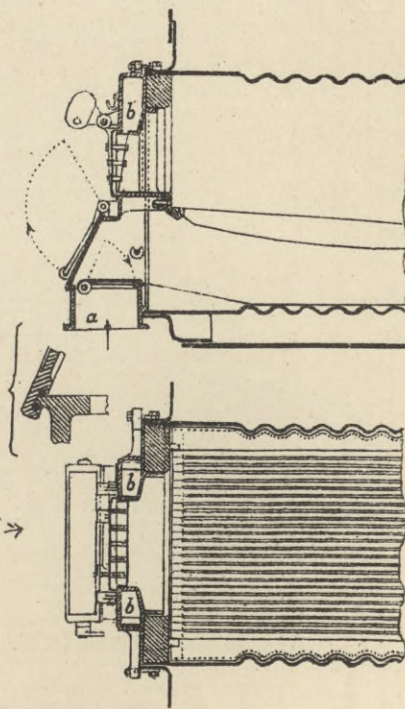


Abb. 70. Temperatenausgleicher von Howaldt.

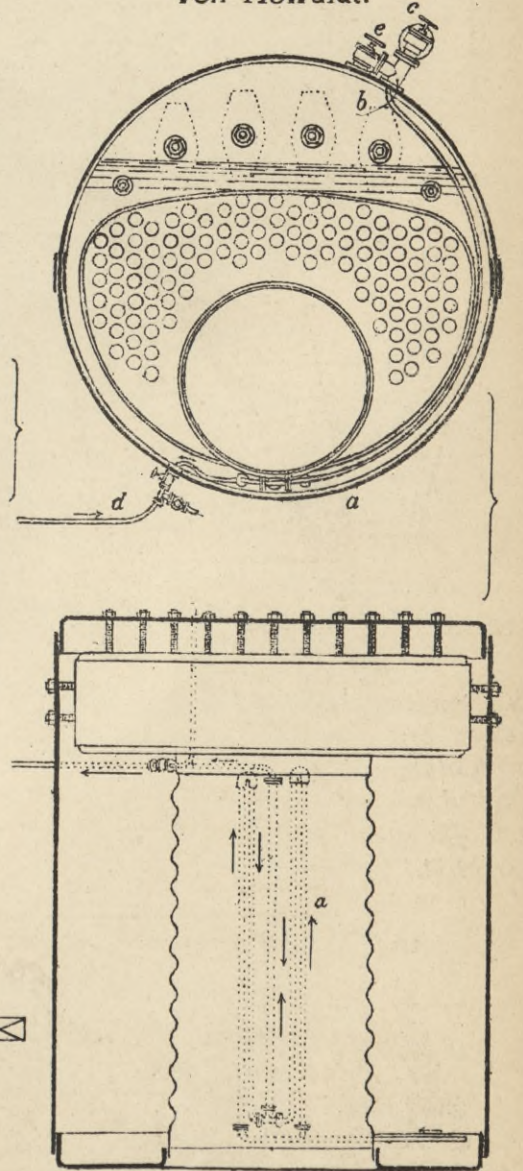


Abb. 52.

Stehender Kessel mit horizontalen Heizrohren und offenem Aschfall.

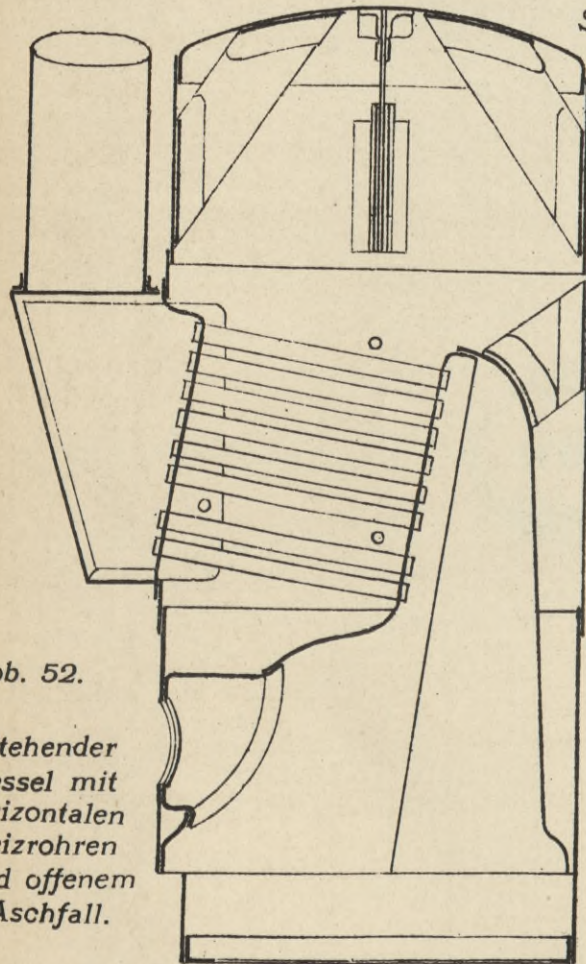


Abb. 77. Rohrverschraubung.

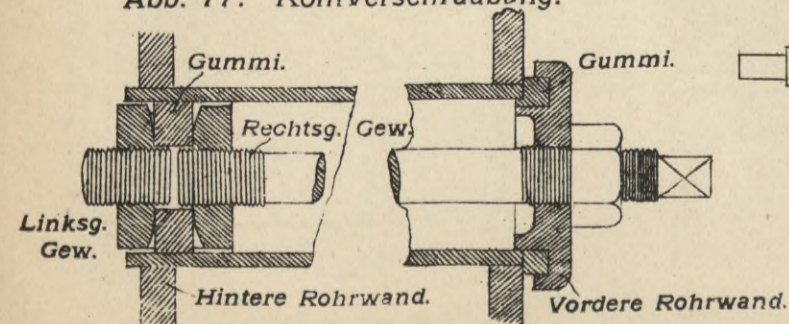


Abb. 75. Rohrstopfer von Jourdan. Kupfermanchette mit Gummidichtung

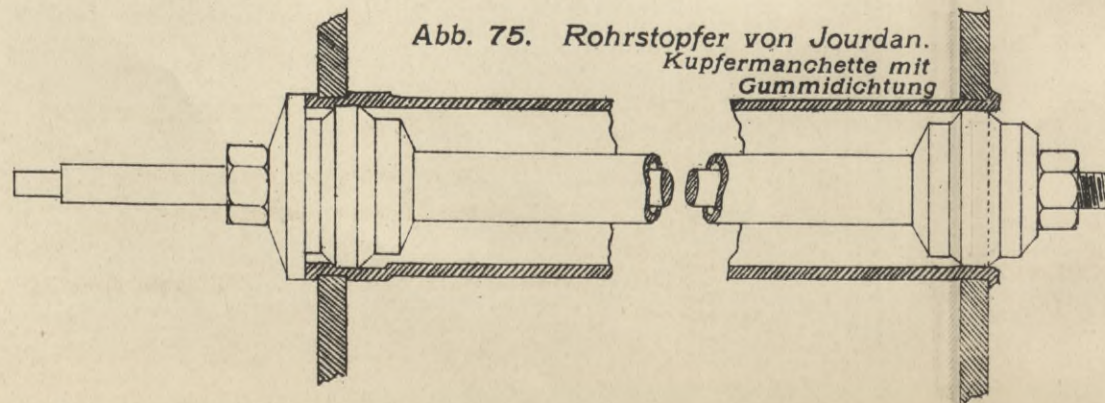
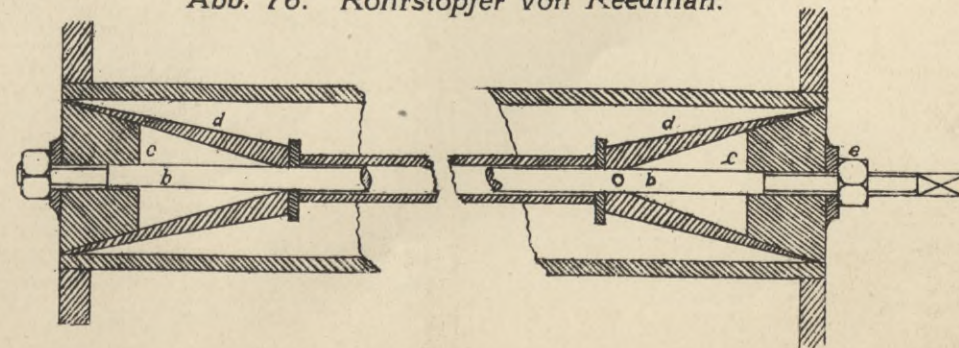
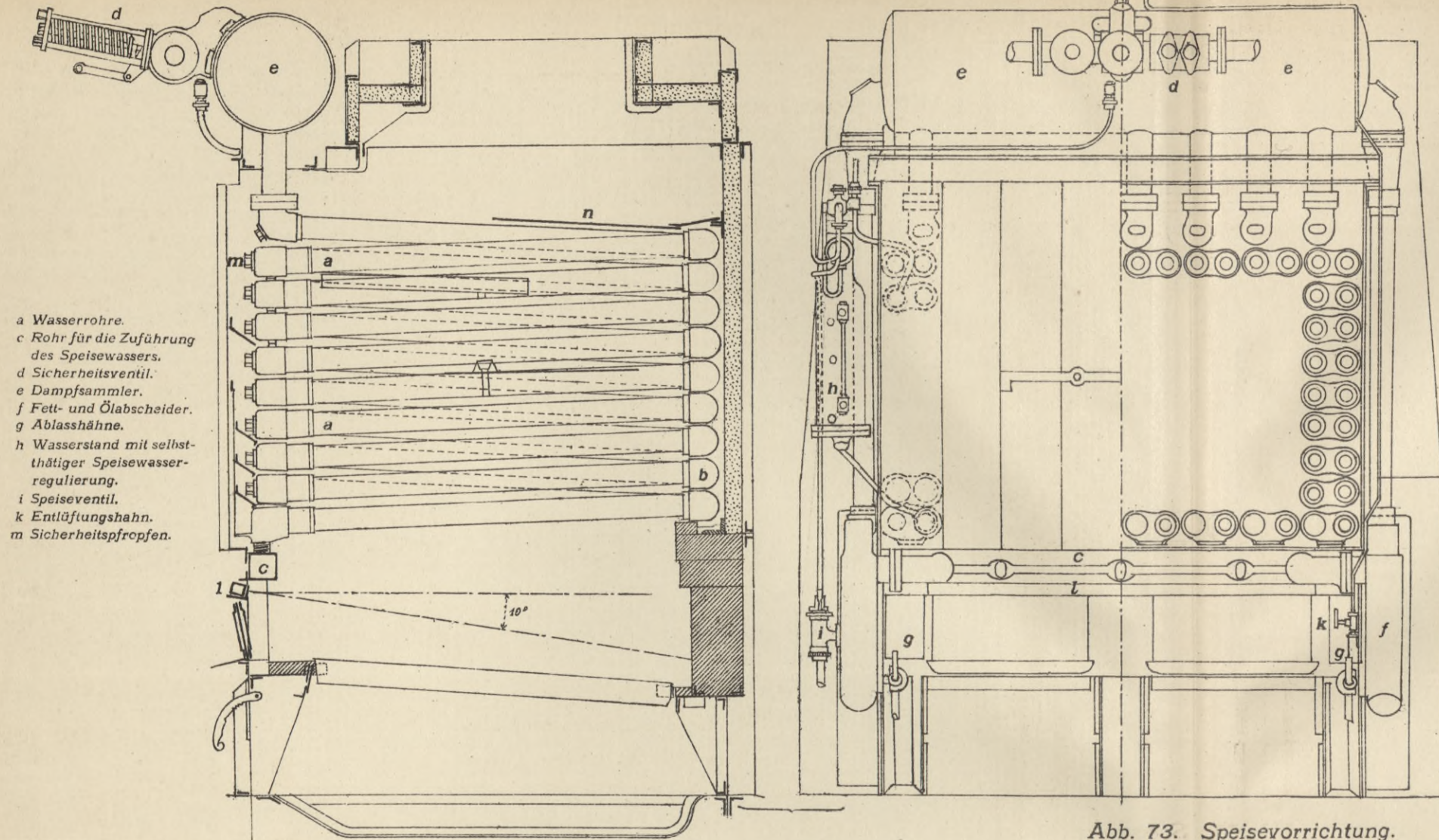


Abb. 76. Rohrstopfer von Reedman.





- a Wasserrohre.
- c Rohr für die Zuführung des Speisewassers.
- d Sicherheitsventil.
- e Dampfsammler.
- f Fett- und Ölabscheider.
- g Ablasshähne.
- h Wasserstand mit selbstthätiger Speisewasserregulierung.
- i Speiseventil.
- k Entlüftungshahn.
- m Sicherheitspfropfen.

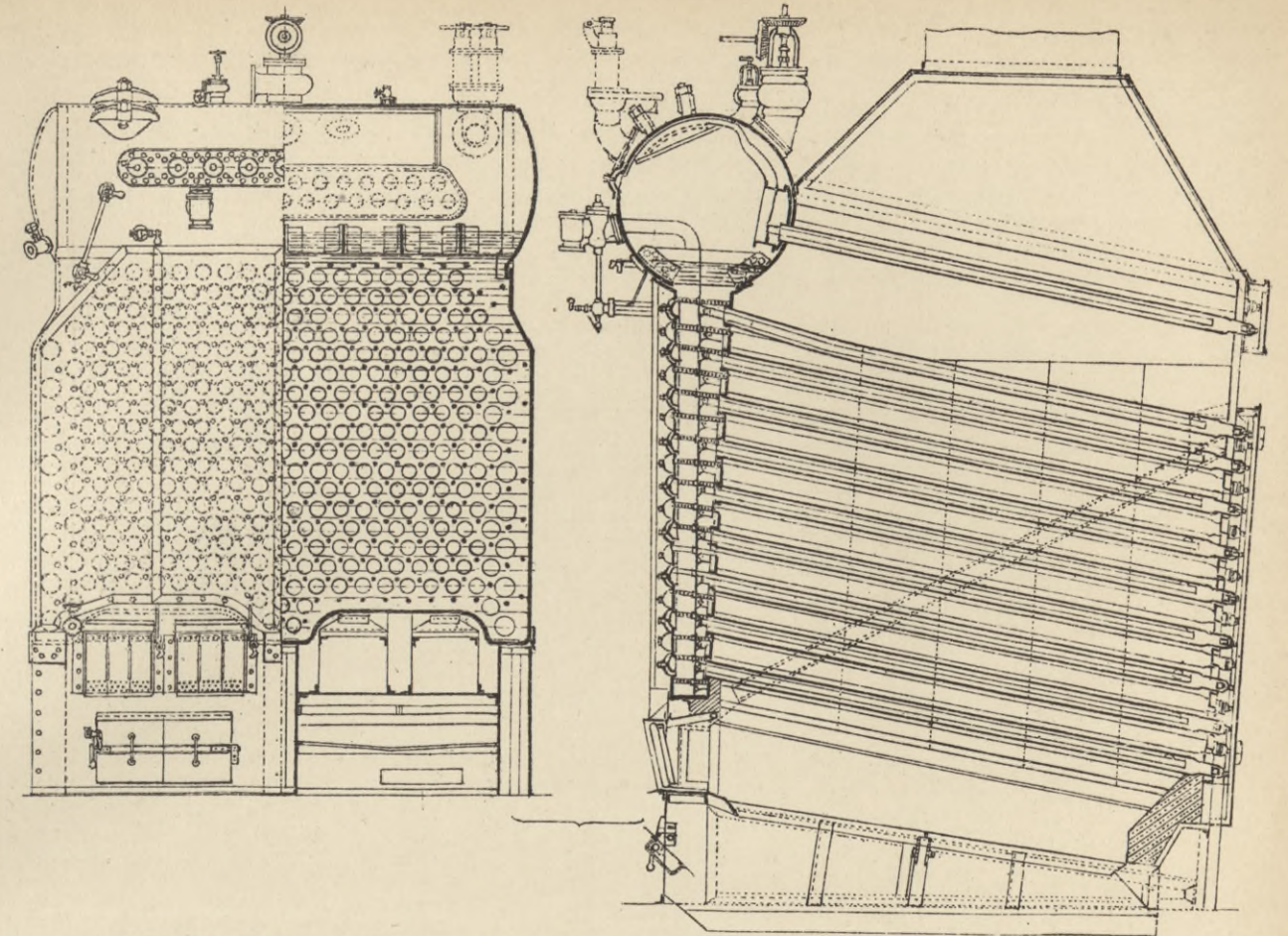


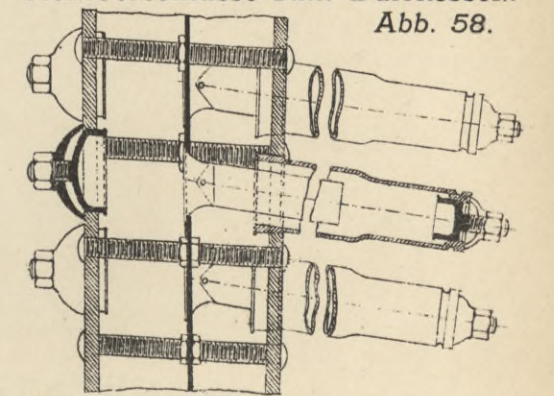
Abb. 73. Speisevorrichtung.

Unterwindanordnung und Vorwärmung der Luft, System Howden.

Rohrverschlüsse zum Dürrkessel. Abb. 58.

Abb. 65. Unterwindanordnung nach Fothergill.

Abb. 66.



Injector für flüssigen Abb. 63. Brennstoff.

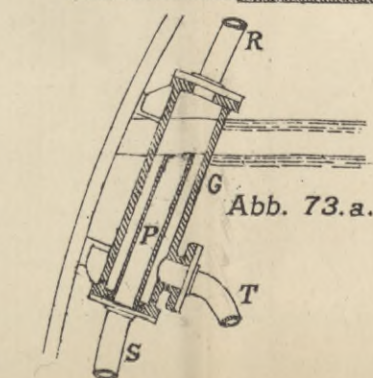
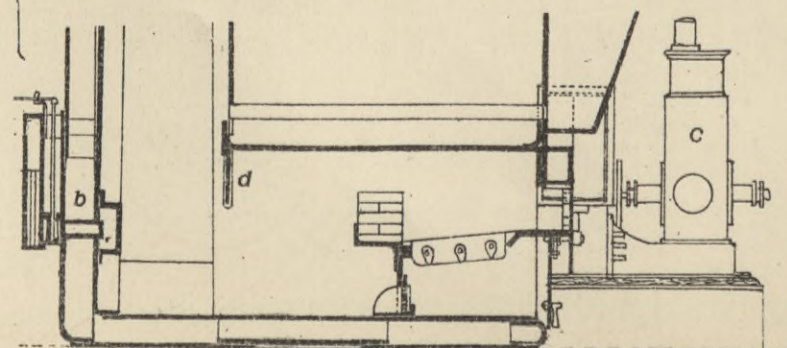
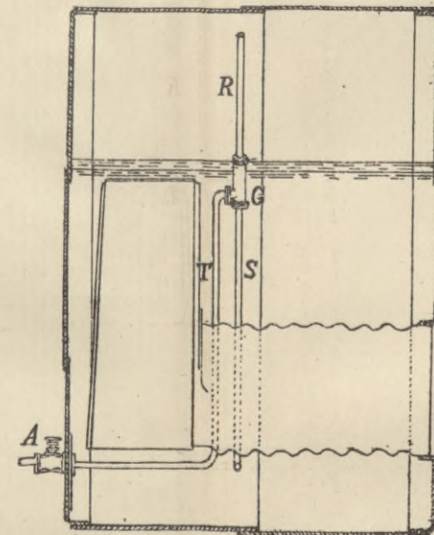
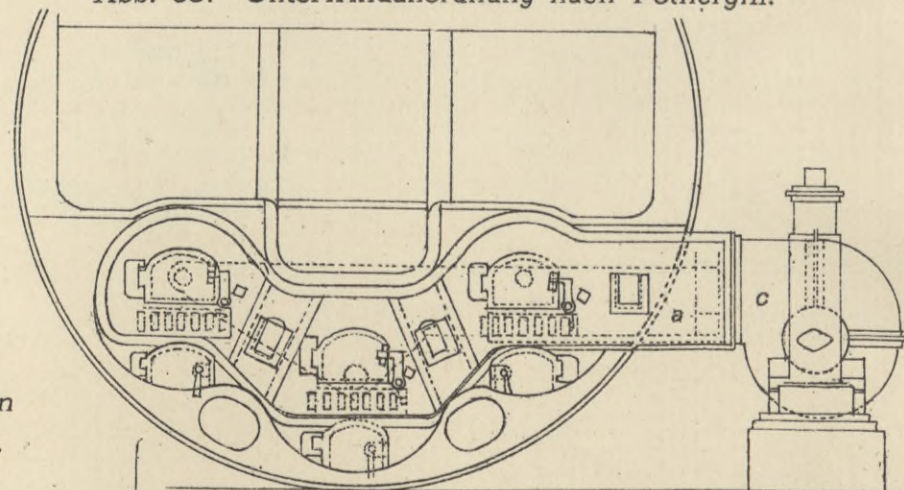
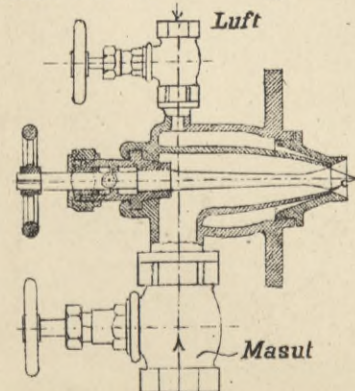


Abb. 73.a.

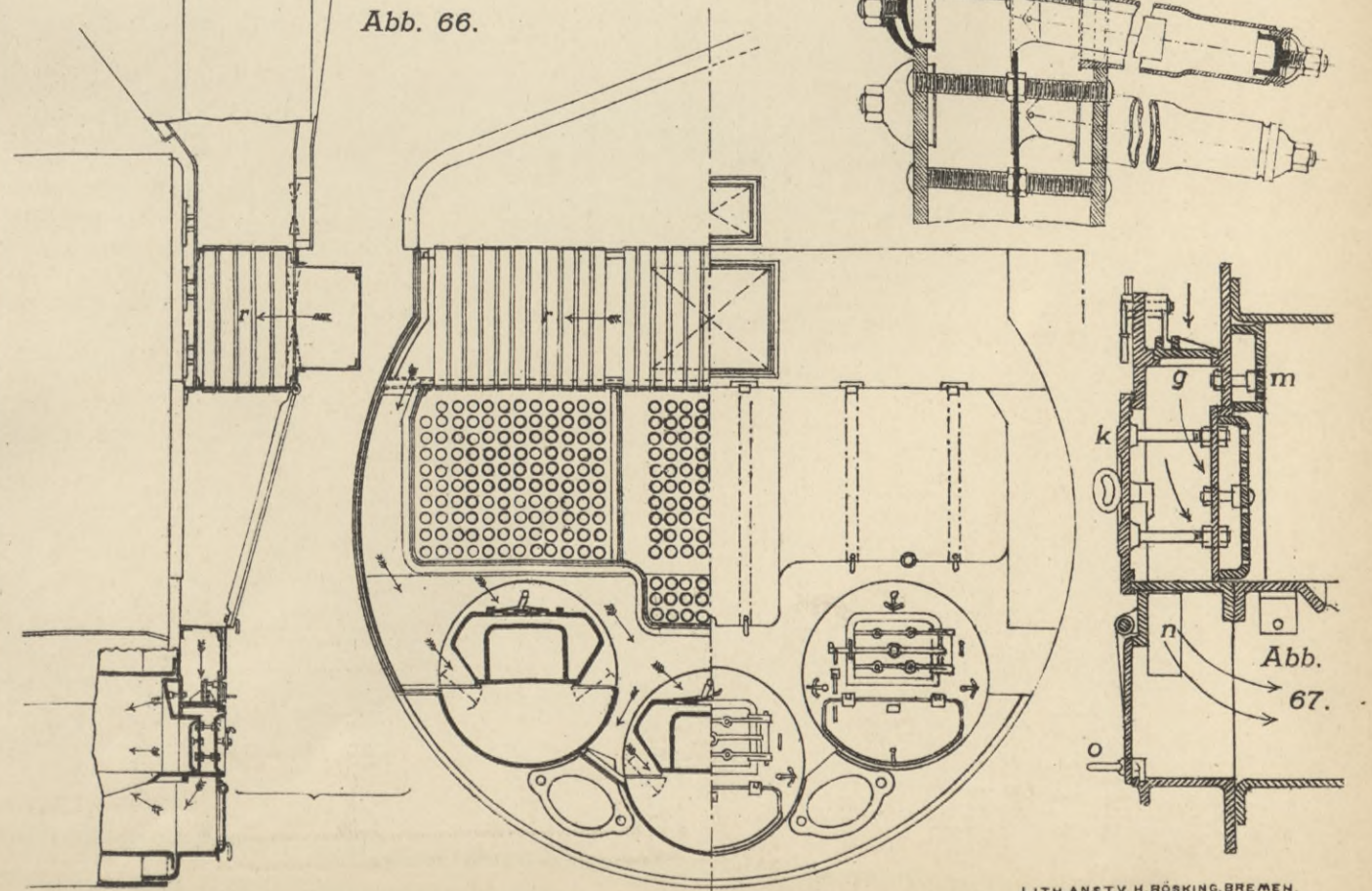


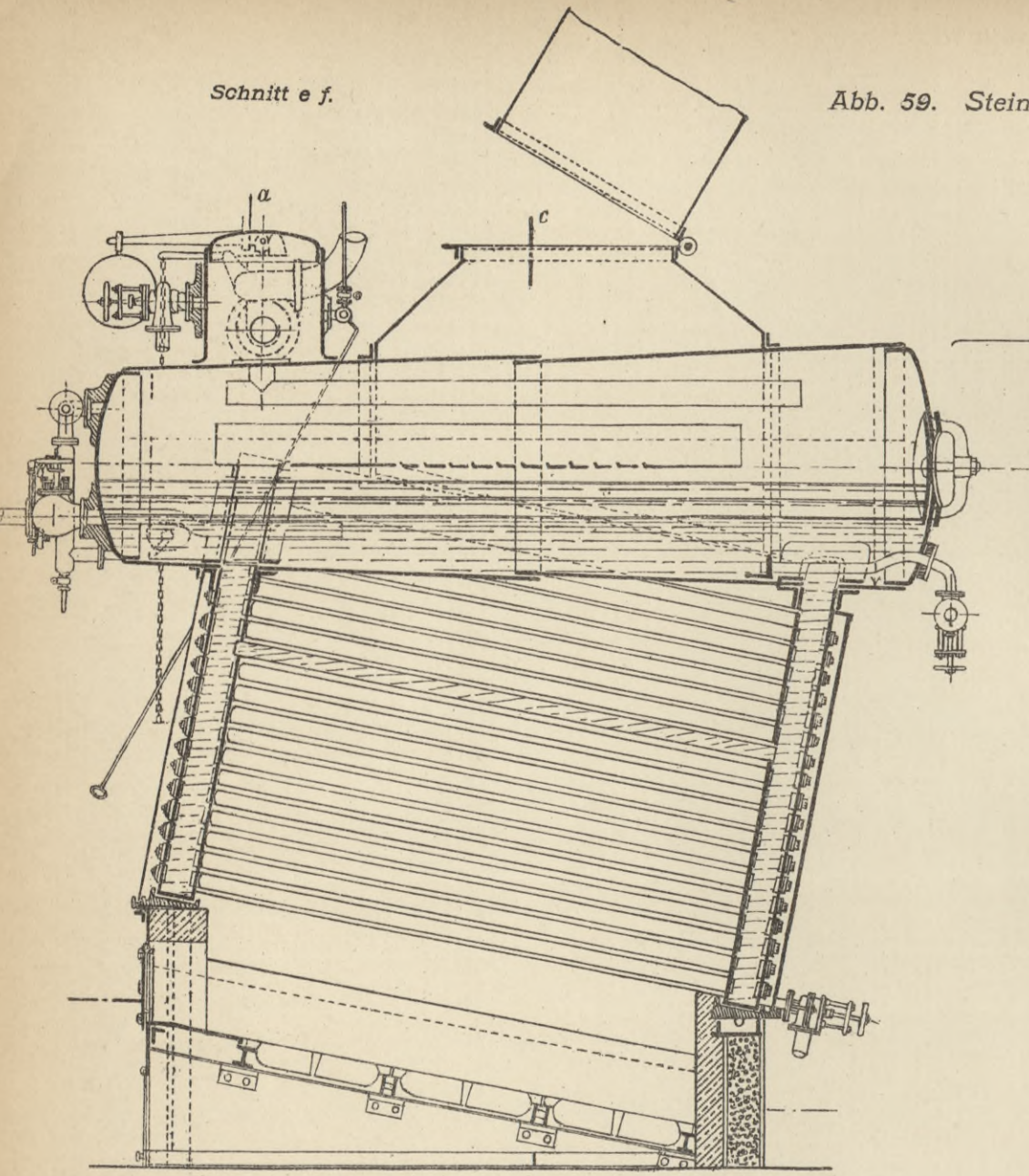
Abb. 67.

Abb. 60. Rohrverschlüsse zum Steinmüller-Kessel.

Abb. 78. Dampfzylinder, Kolben und Schieber.

Schnitt e f.

Abb. 59. Steinmüller-Kessel.



Schnitt a b.

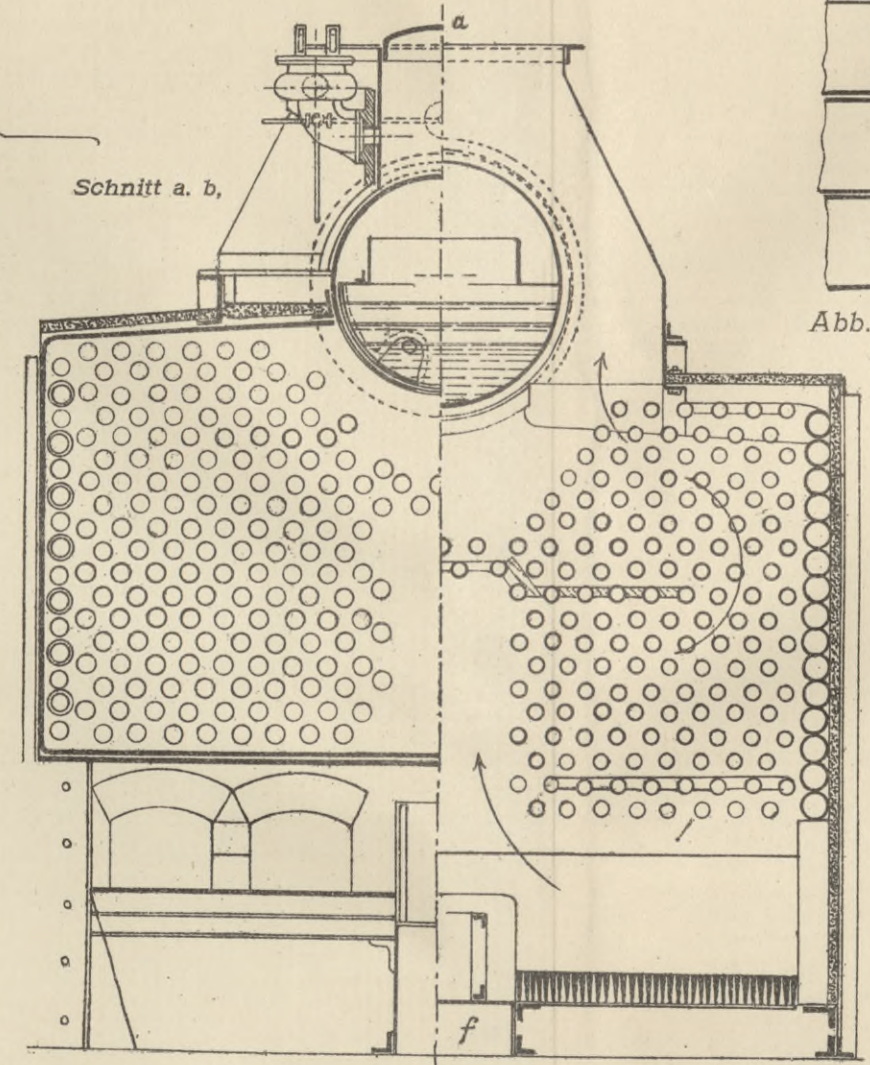
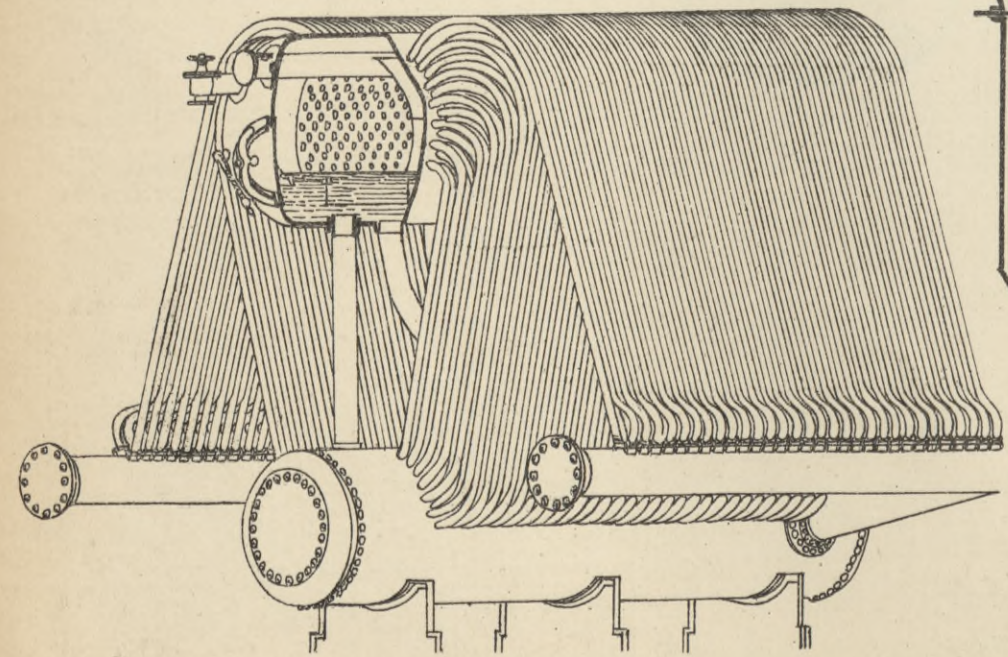


Abb. 62. Thornycroft-Kessel. Ansicht



Schnitt c d.

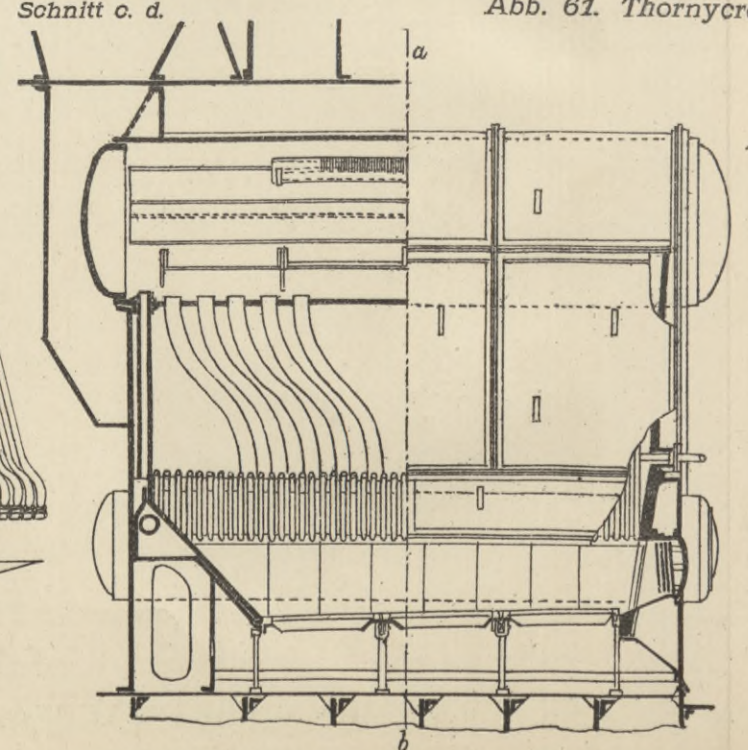


Abb. 61. Thornycroft-Kessel.

Schnitt a b.

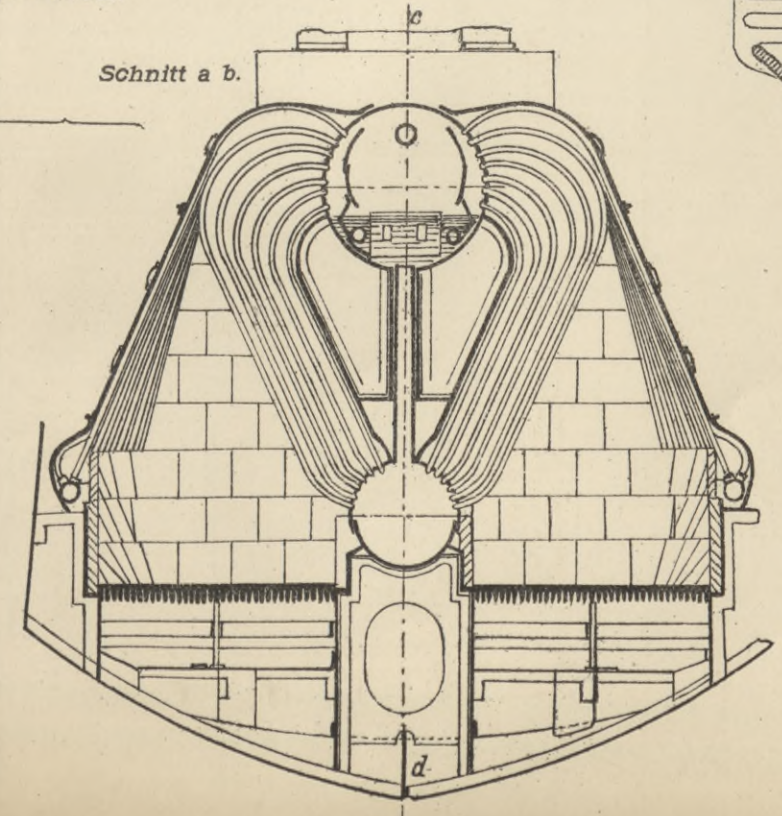


Abb. 82. Einfluss der Drosselung auf die Arbeit des Dampfes.

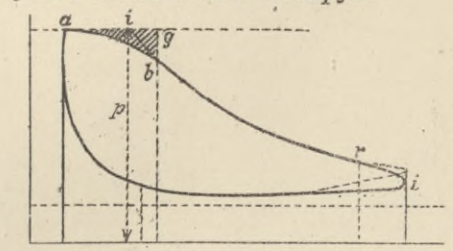


Abb. 71. Hydrokineter von Weir.

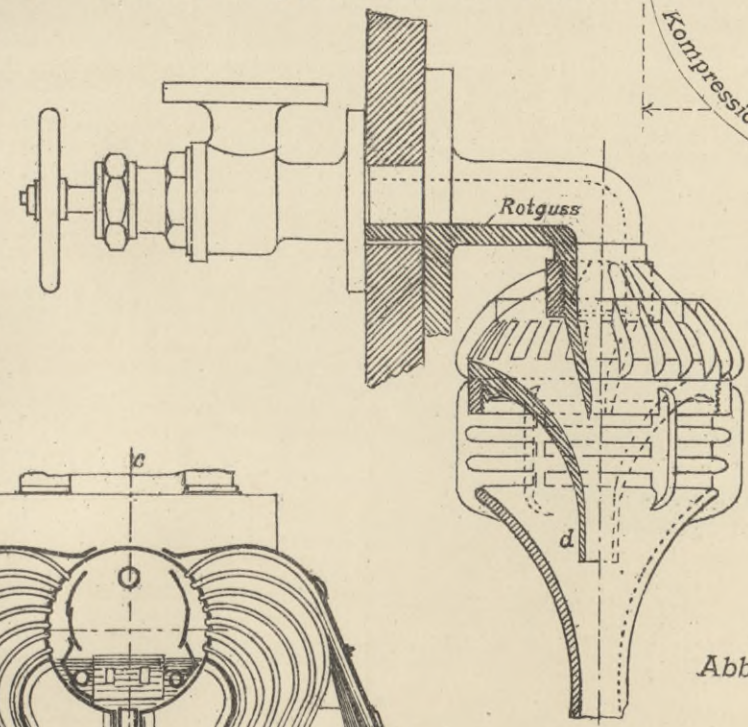


Abb. 81. Theoretisches Diagramm.



Abb. 80. Einfluss der Drosselung auf Anfang und Ende der Dampfperioden.

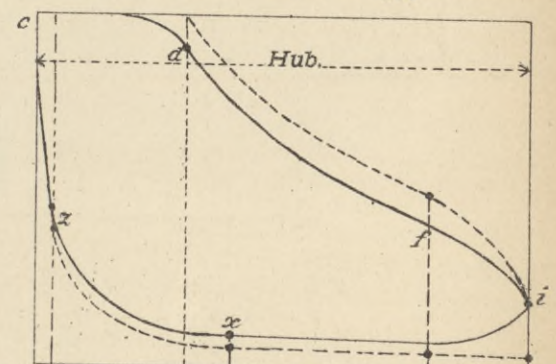


Abb. 79. Darstellung der Dampfvertheilung im Cylinder.

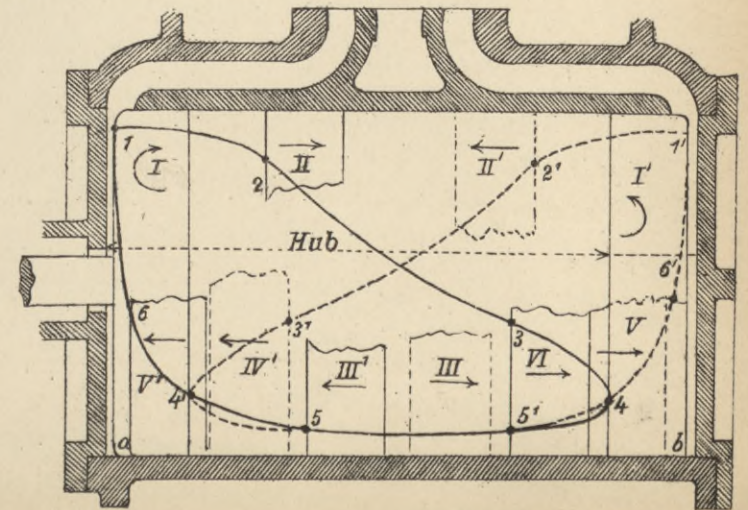
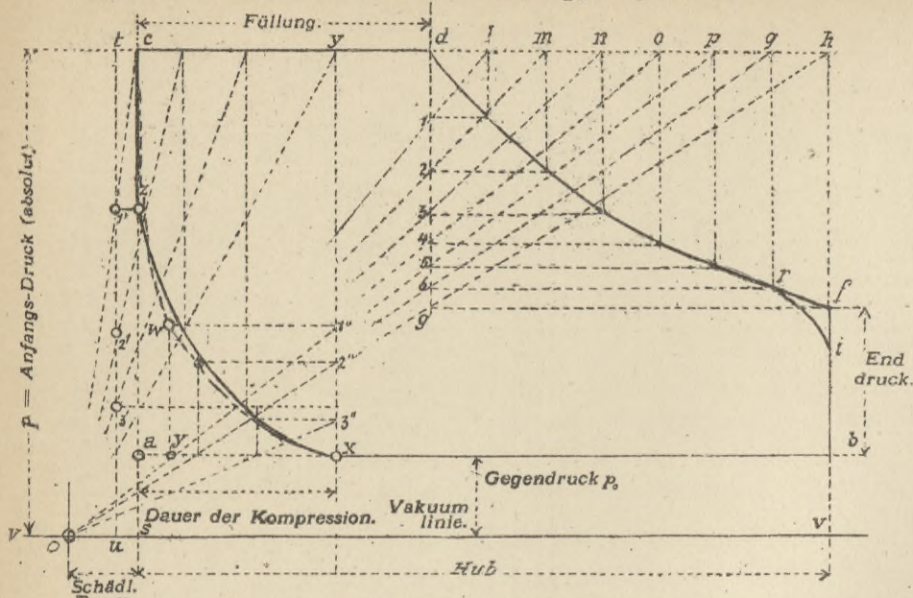
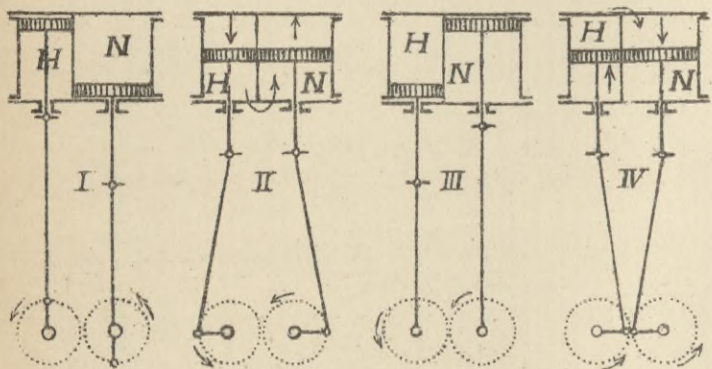




Abb. 83. Konstruktion des Dampfdiagramms.



Dampfverteilung in der Woolf'schen Maschine
Abb. 87. mit unter 180° versetzten Kurkeln.



Dampfverteilung in der Zweifach-
Abb. 88. Expansionsmaschine.

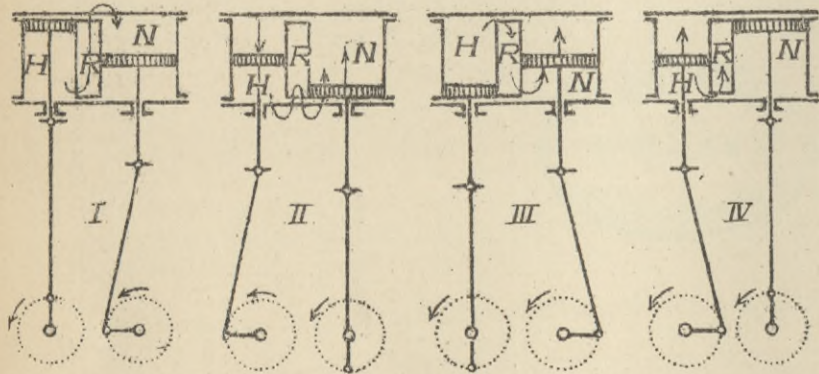
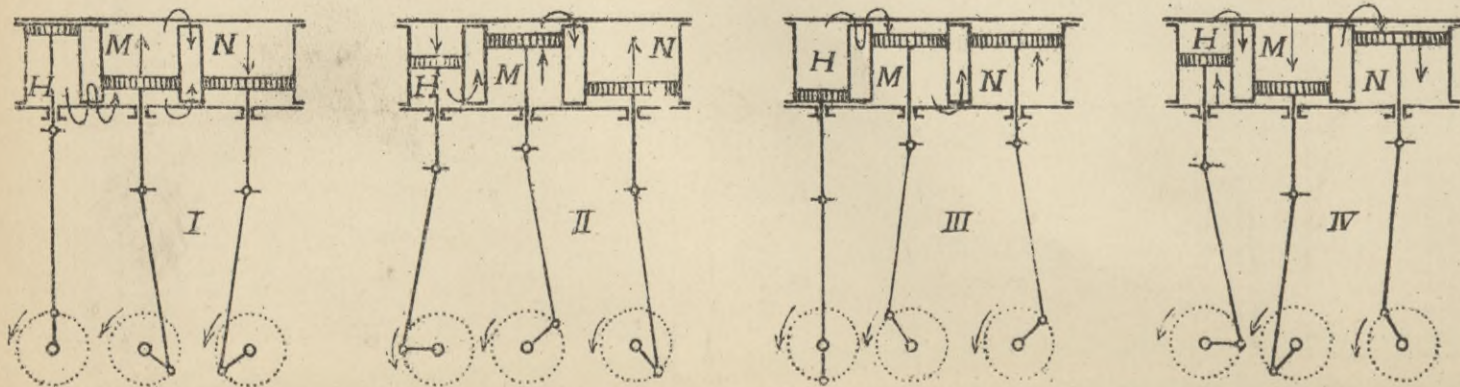
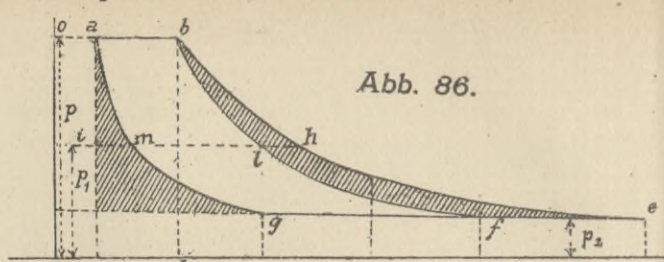


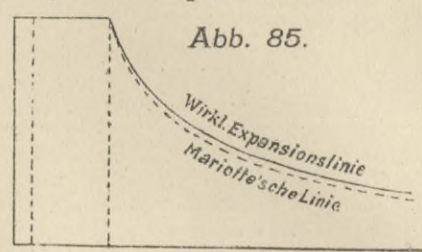
Abb. 95. Dampfverteilung einer Dreifach-Expansionsmaschine mit
Abb. 93. führender Hochdruckkurbel.



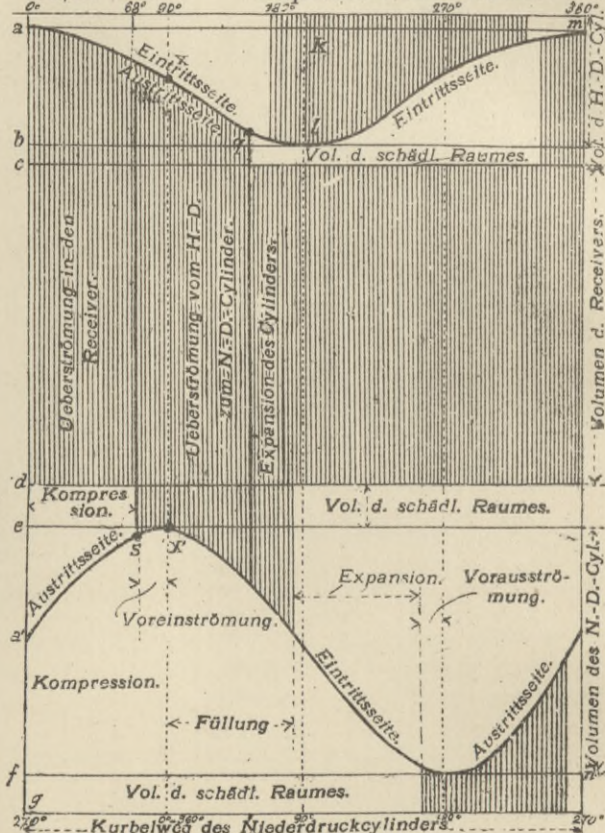
Einfluss des schädlichen Raumes.



Lage der Expansionslinie.

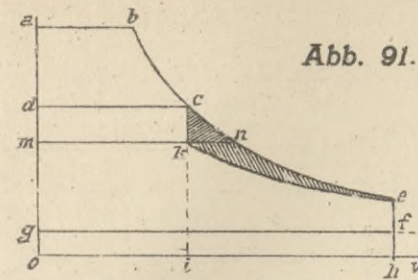


Dampfverteilung in der Zweifach-
Abb. 89. Expansionsmaschine.



Arbeitsverteilung in der
Zweifach-Expansionsmaschine.

Abb. 91.



Dampfdiagramm einer Zweifach-
Abb. 90. Expansionsmaschine.

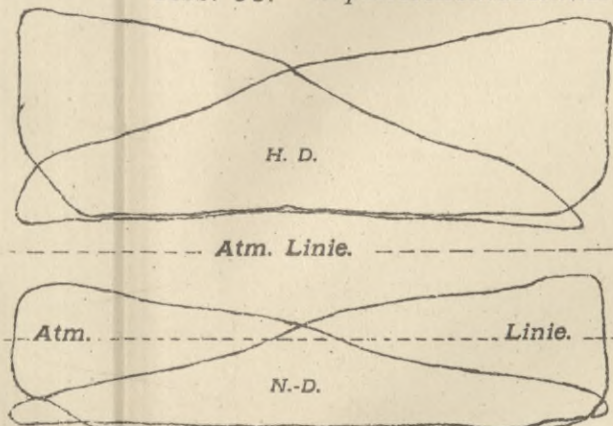
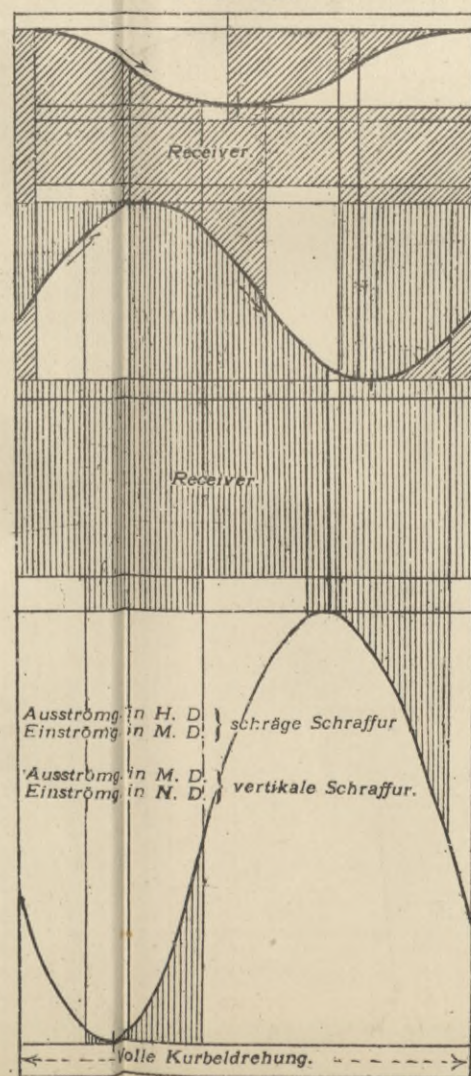
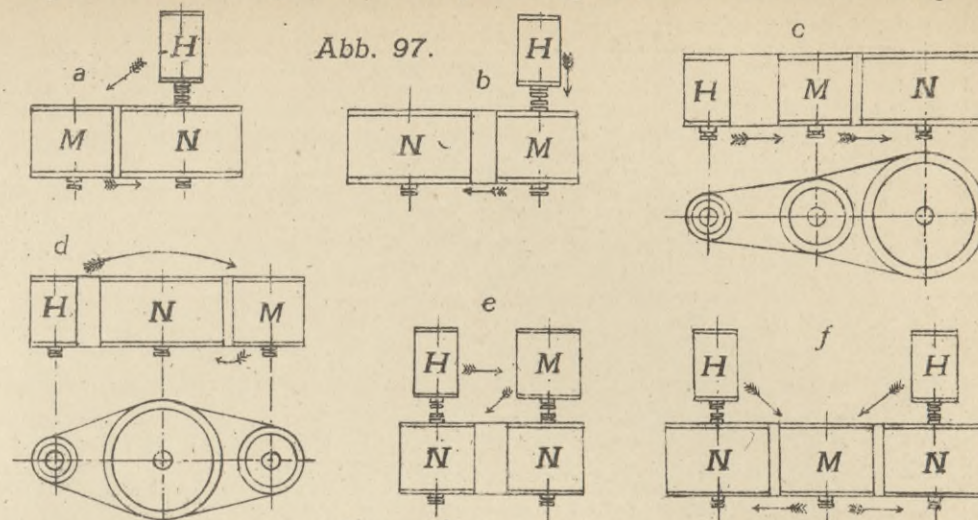


Abb. 95.



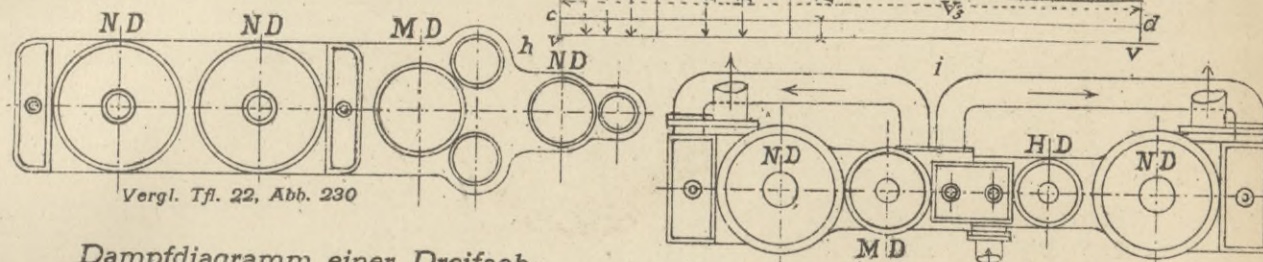
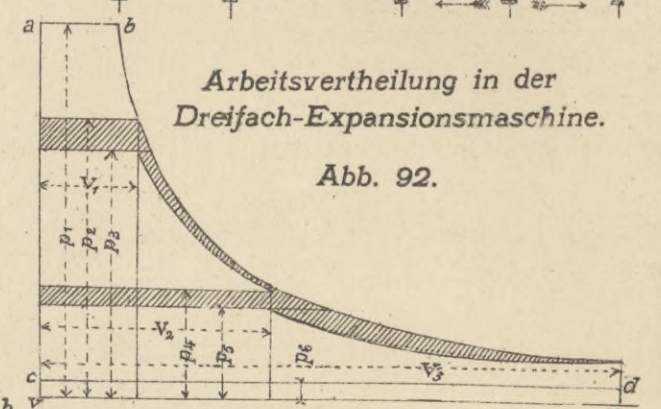
Cylinderanordnungen von Dreifach-Expansionsmaschinen. Tafel 8.

Abb. 97.

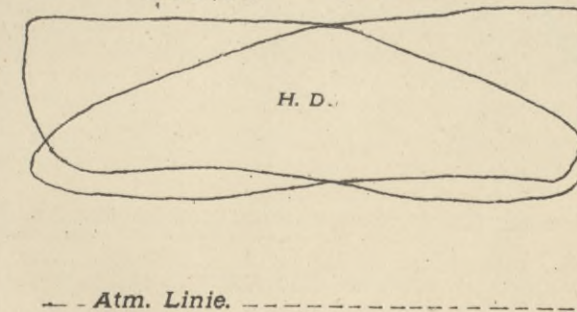


Arbeitsverteilung in der
Dreifach-Expansionsmaschine.

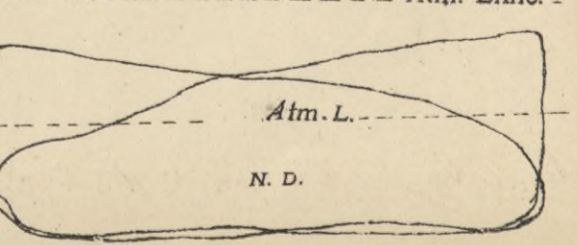
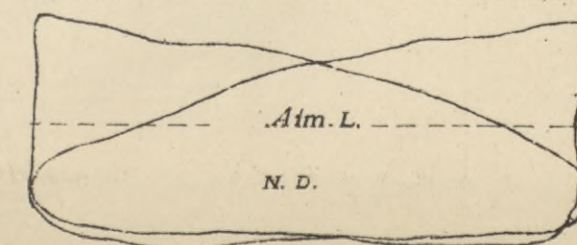
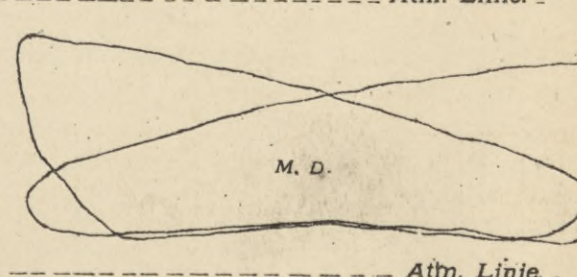
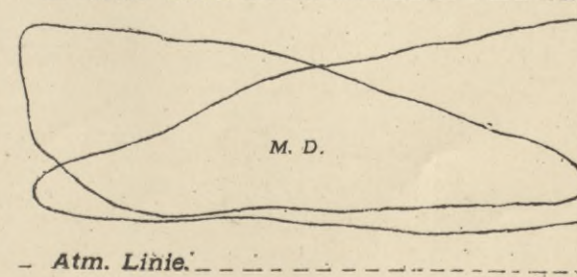
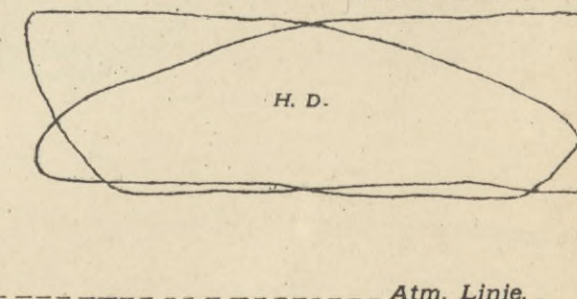
Abb. 92.



Dampfdiagramm einer Dreifach-
Abb. 94. Expansionsmaschine mit führender
Hochdruckkurbel.



Dampfdiagramm einer Dreifach-
Abb. 99. Expansionsmaschine mit führender
Niederdruckkurbel.



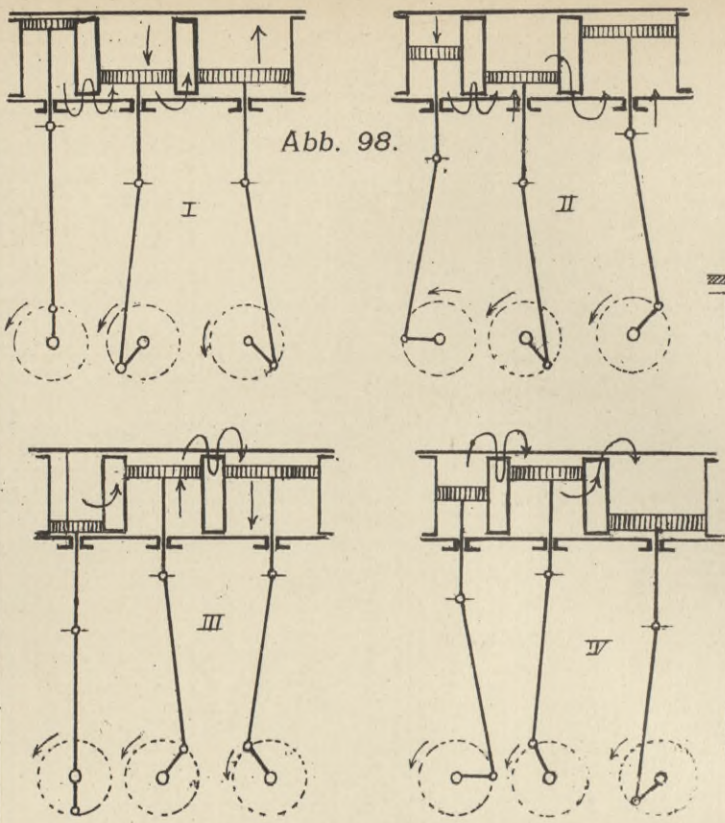
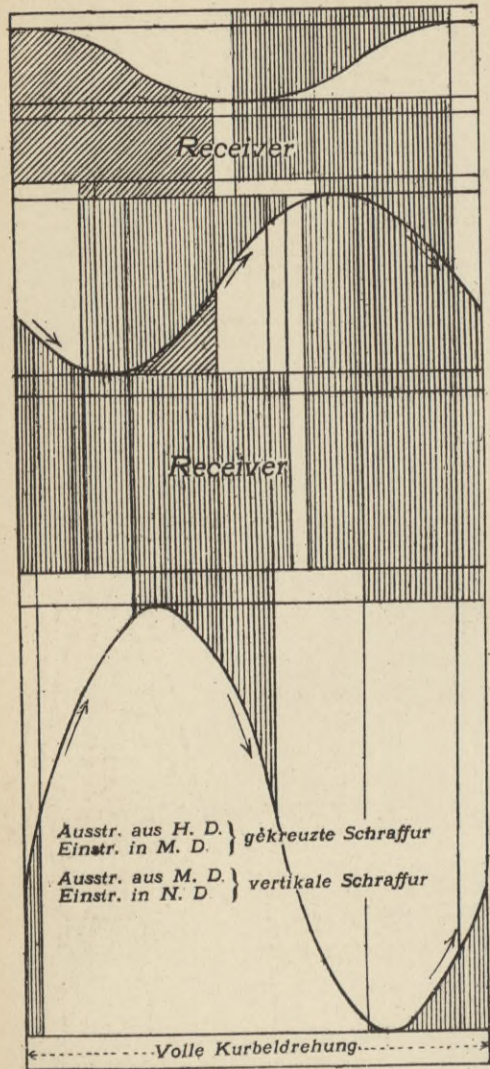
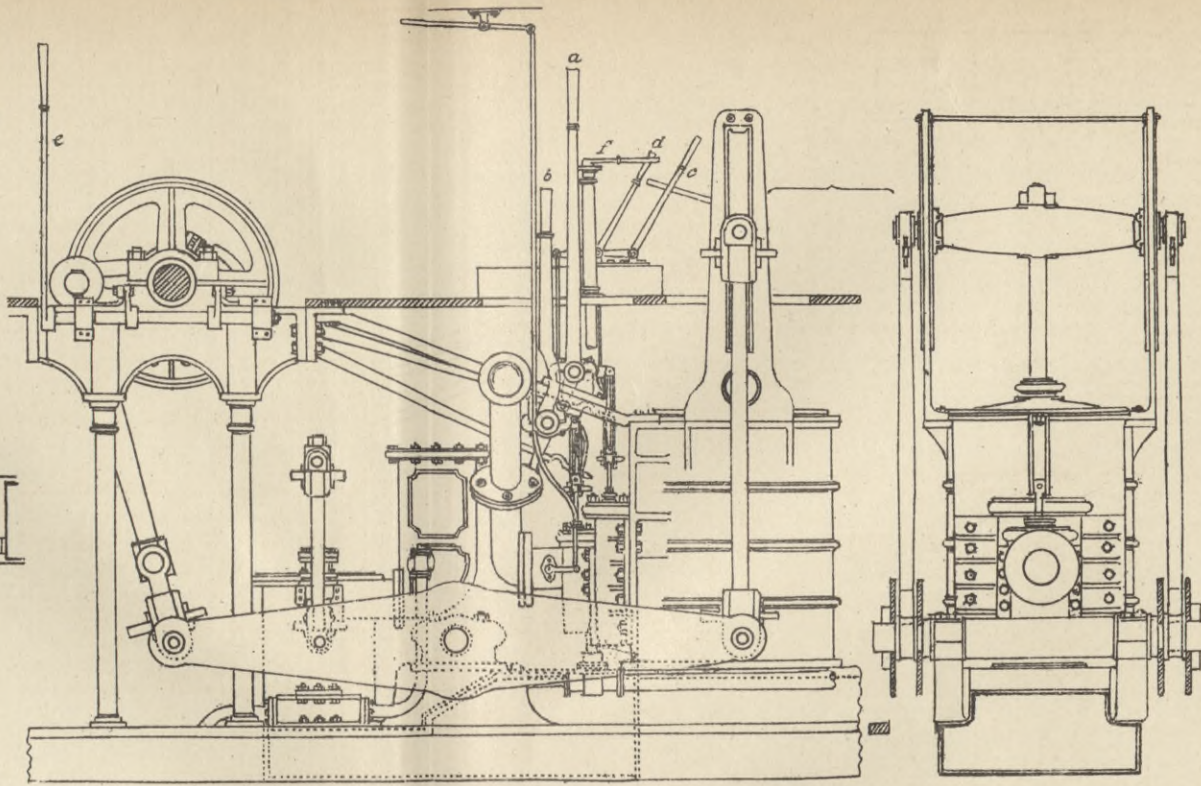
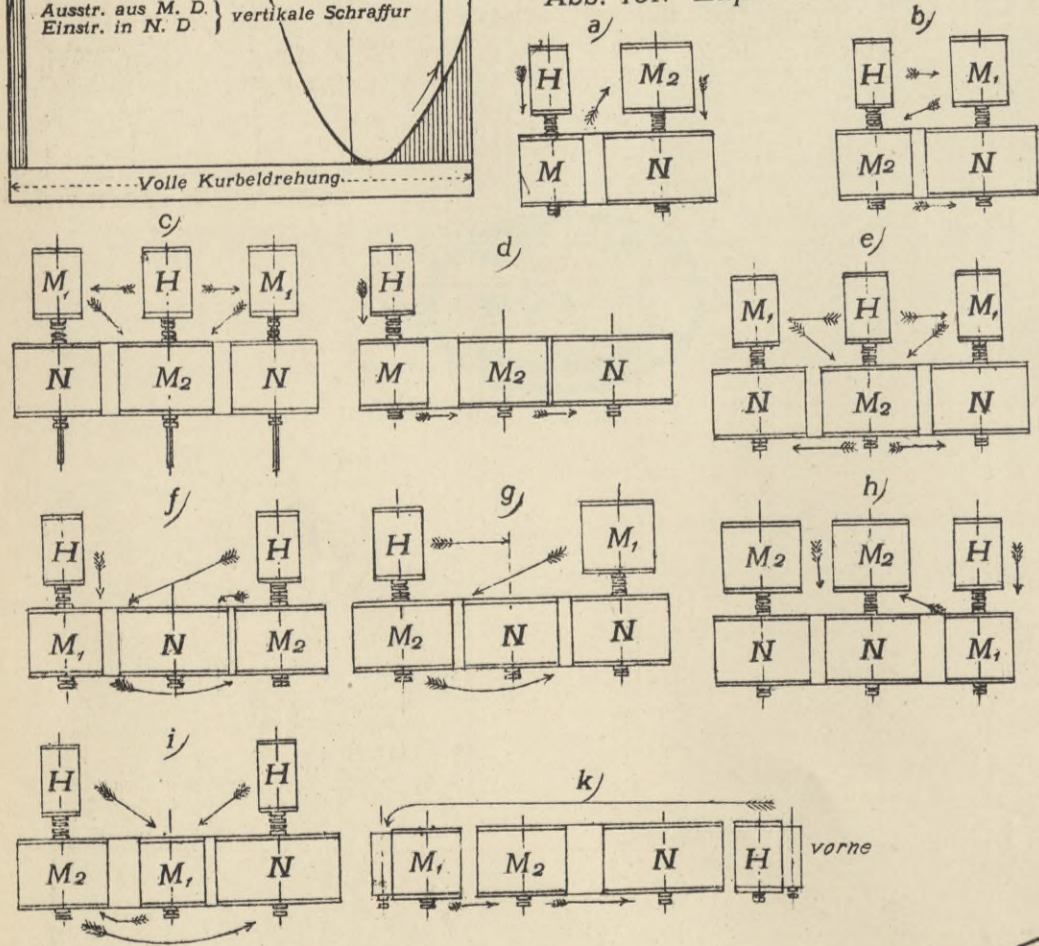


Abb. 98.

Cylinderanordnungen von Vierfach-Expansionsmaschinen.
Abb. 101.



Seitenhebelmaschine mit einarmigem Balanzier.

Abb. 104.

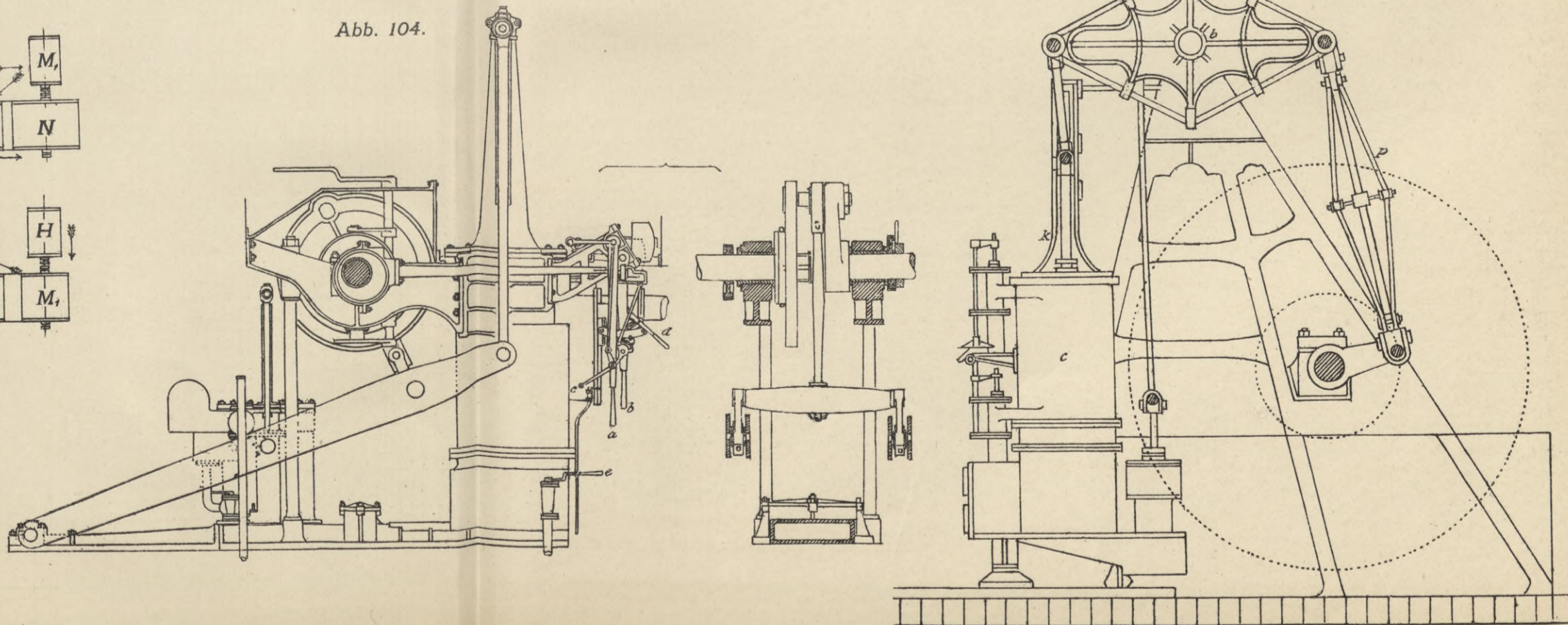
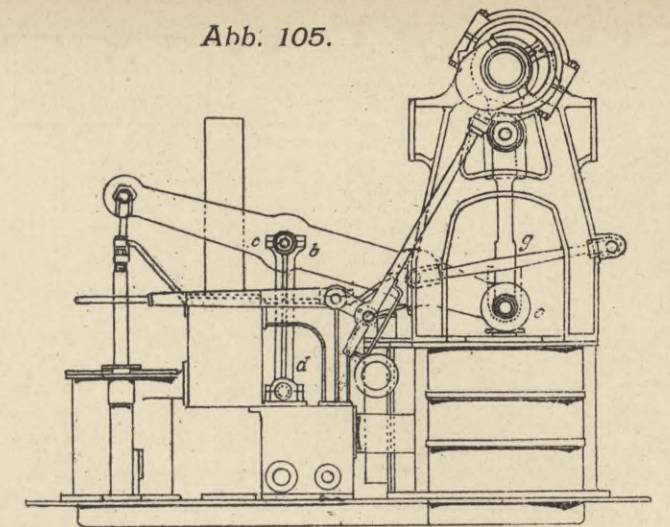
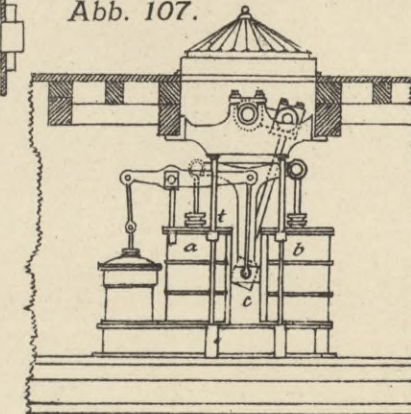


Abb. 105.



Platten-Maschine.
Abb. 107.



Maschine mit hochliegendem Balanzier.

Abb. 102.

Steeple-Maschine.

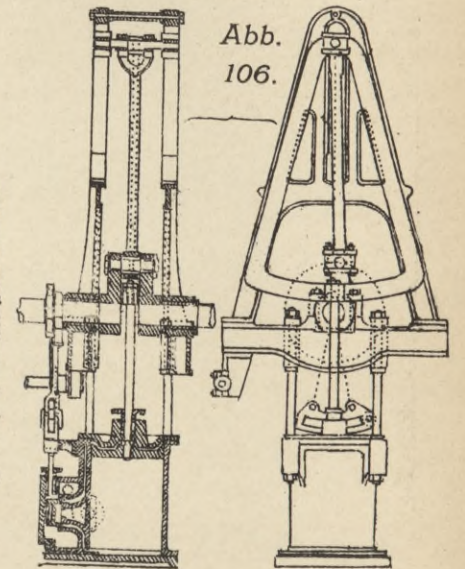


Abb. 106.



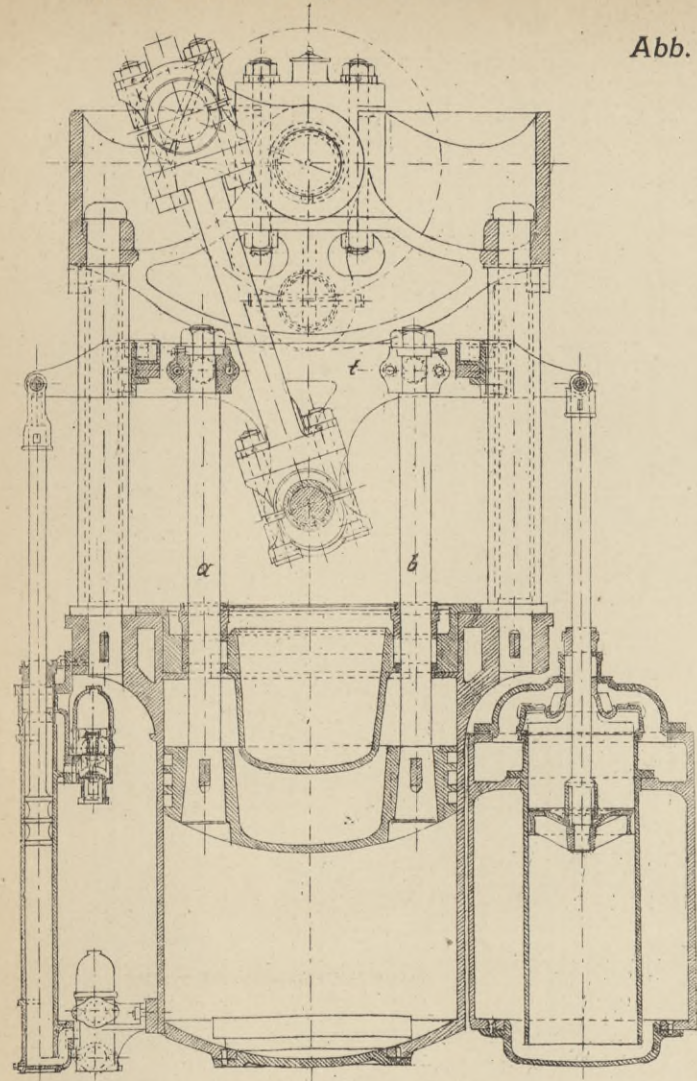


Abb. 111. Oscillierende Schraubenschiffsmaschine mit Räderübersetzung.

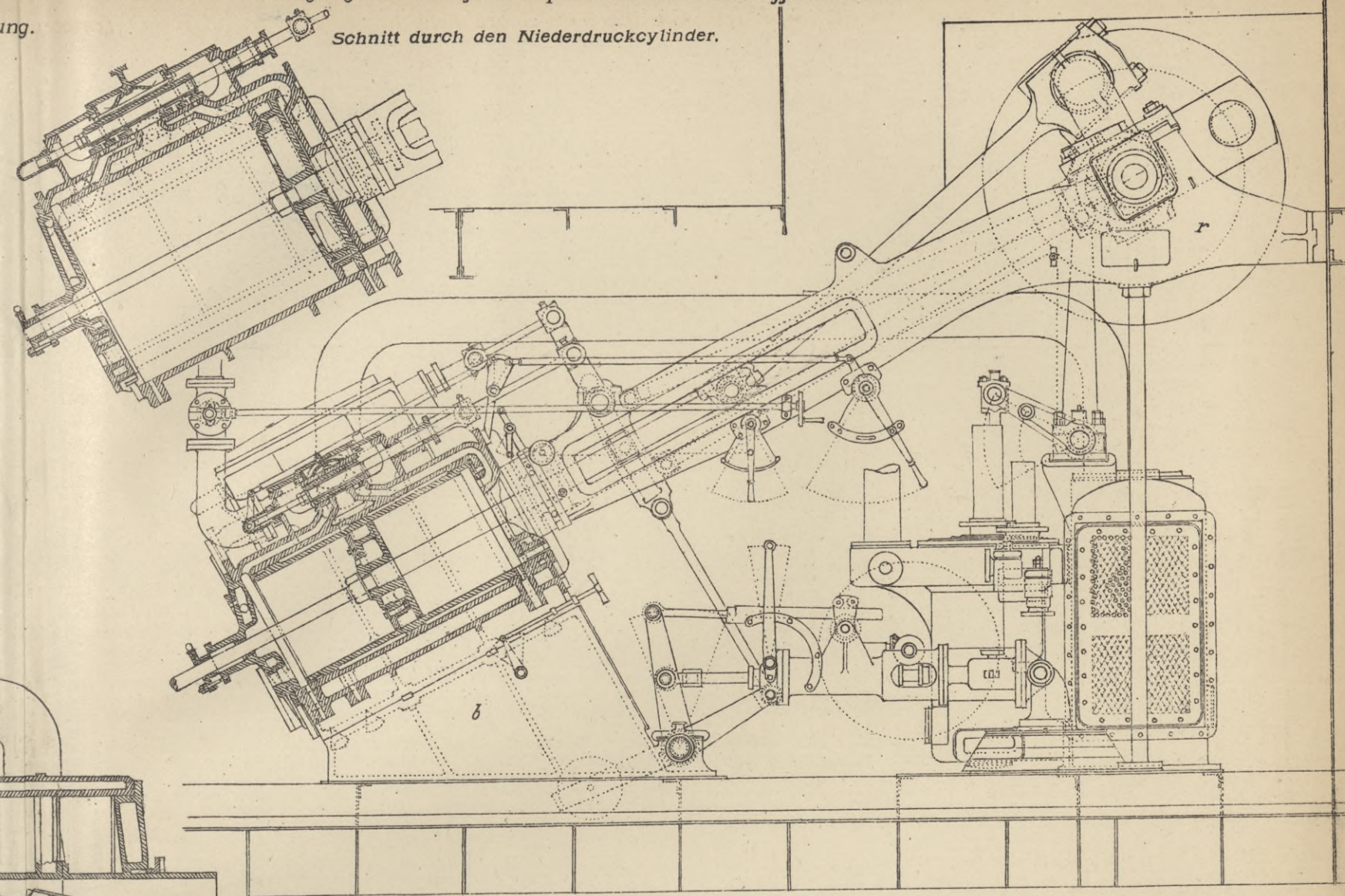
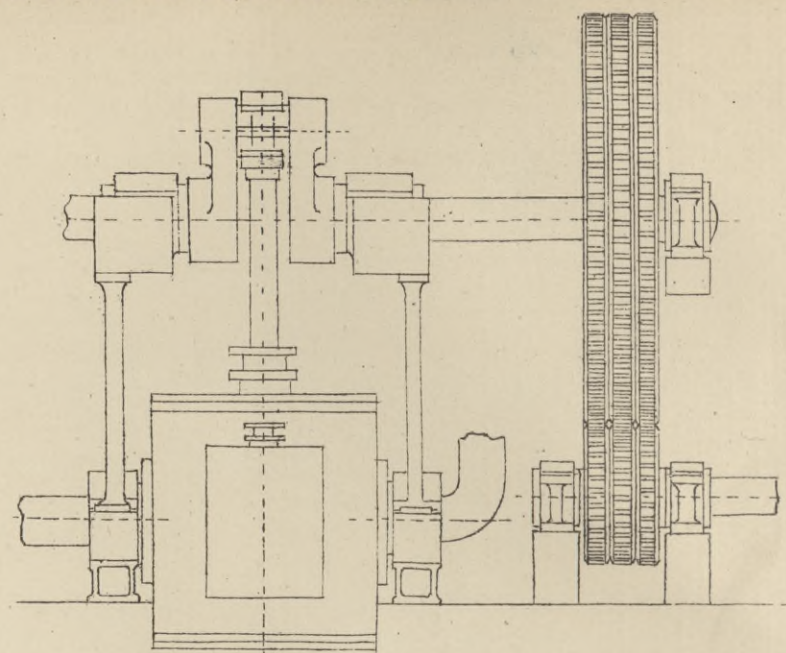


Abb. 116. Trunkmaschine von Penn.

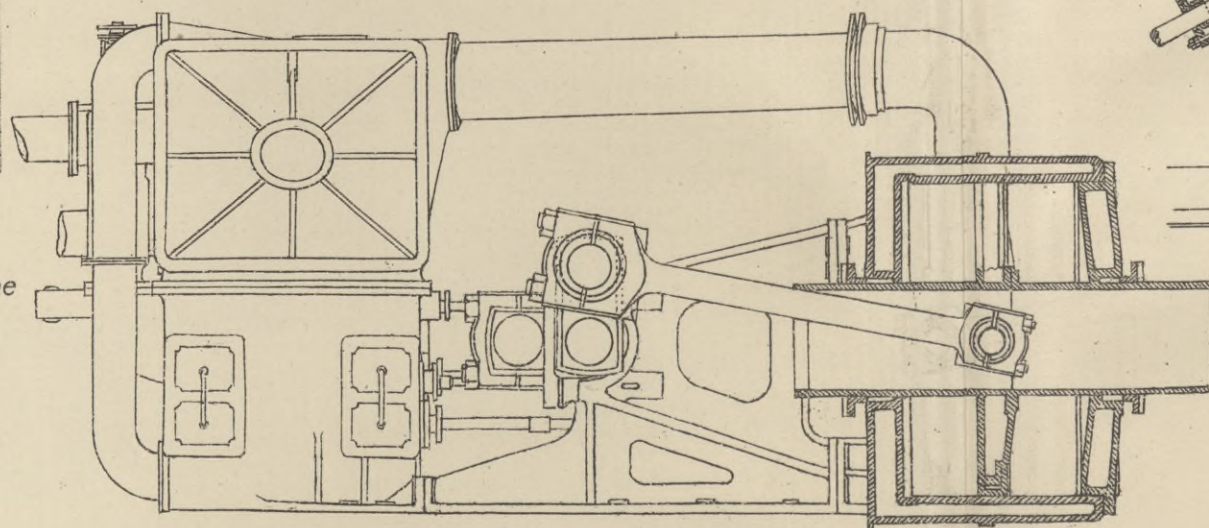


Abb. 119. Stehende Zweifach-Expansionsmaschine für Barkassen.

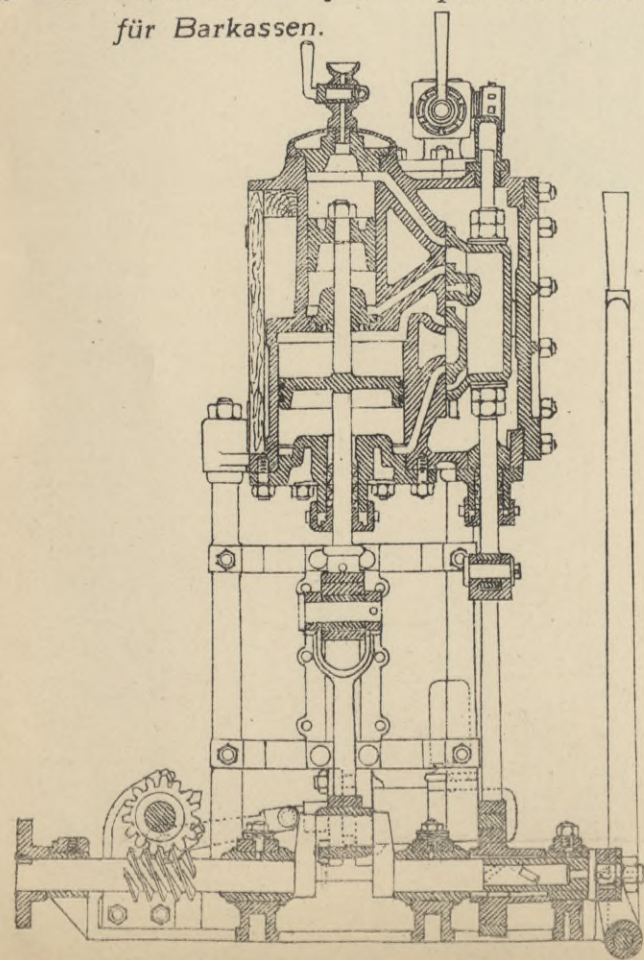


Abb. 117. Maschine mit rückkehrender Pleuelstange.

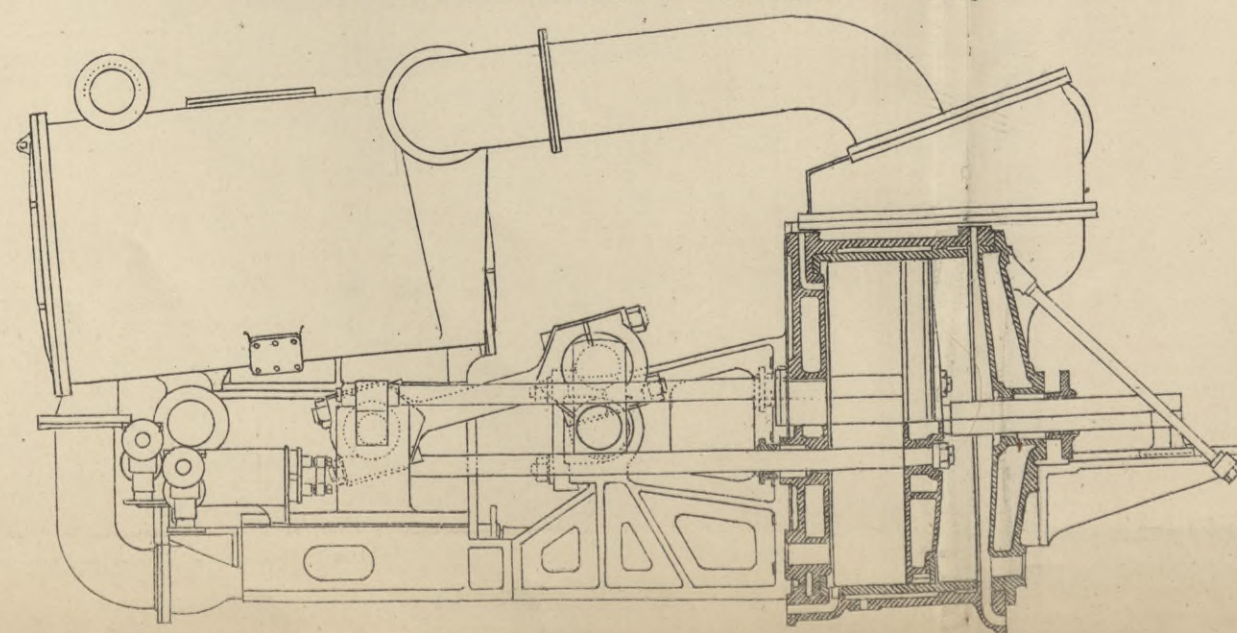
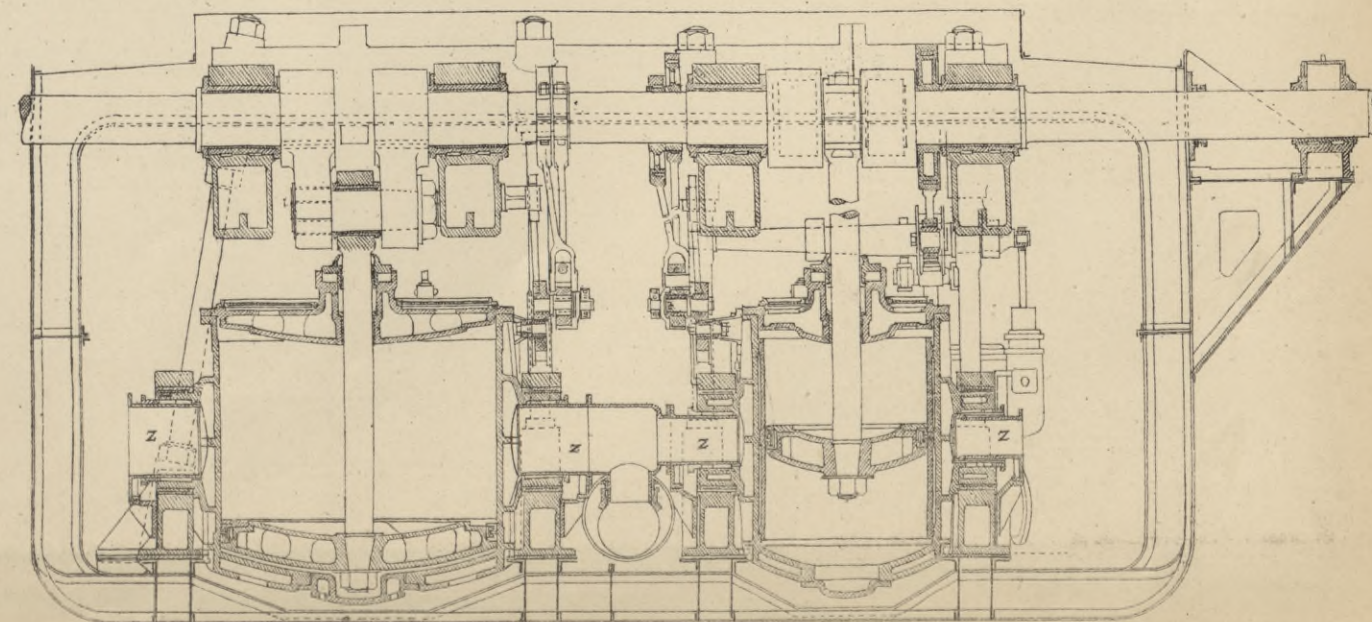


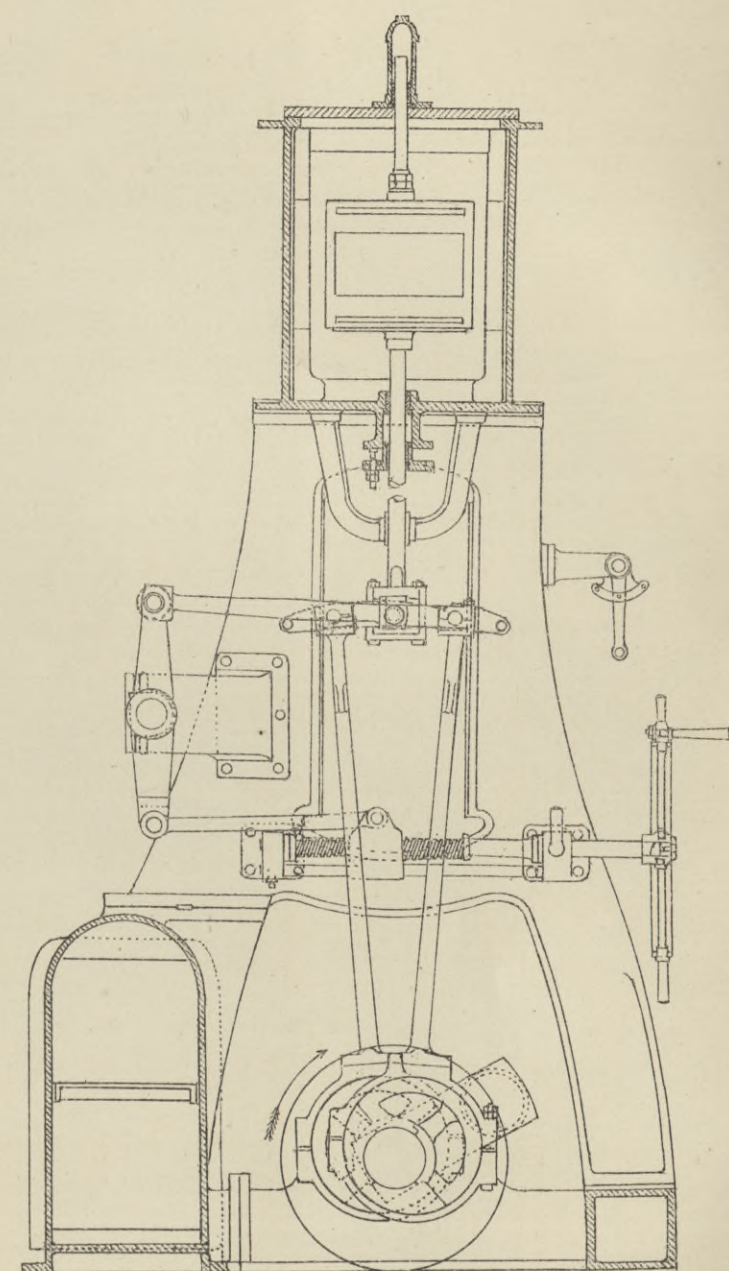
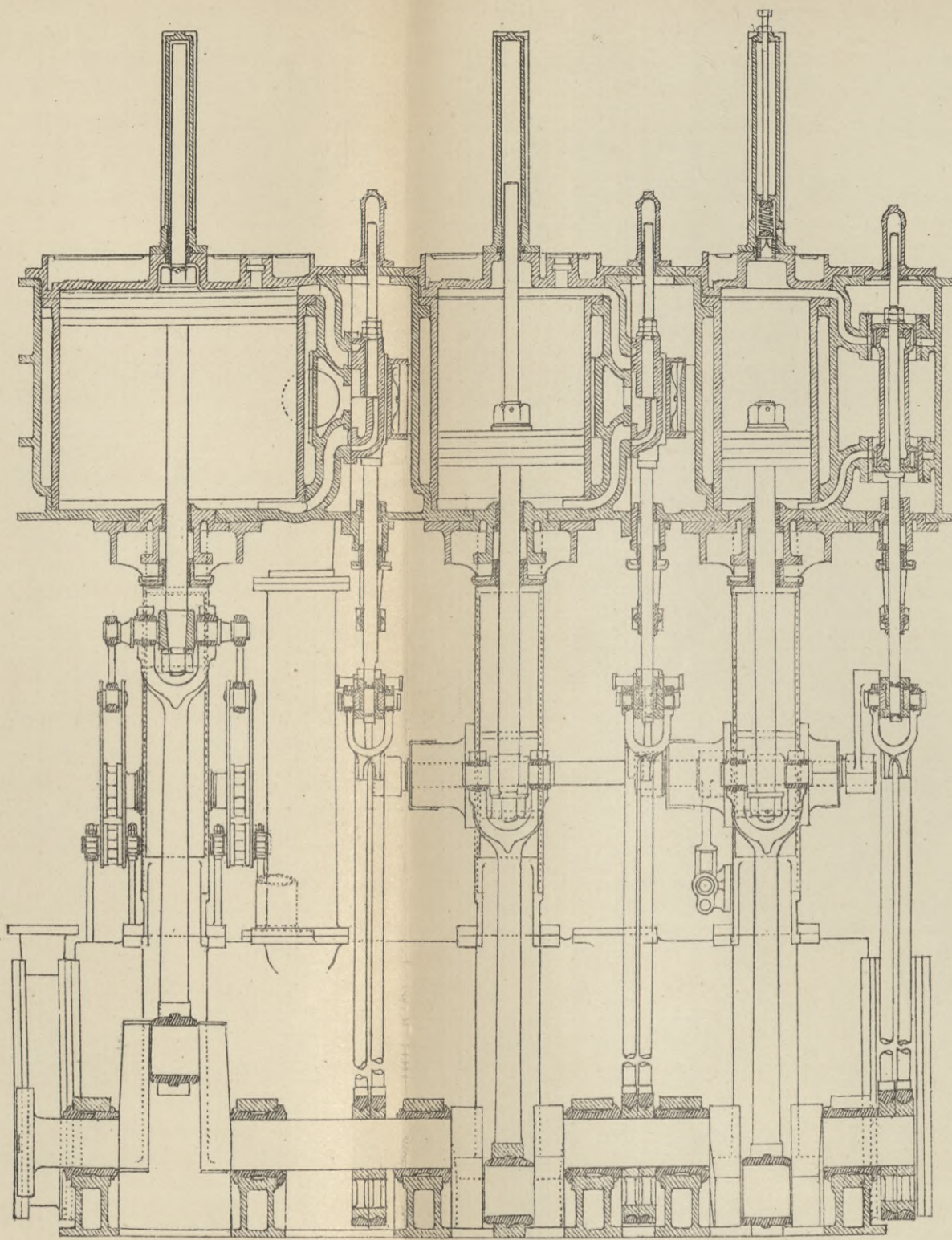
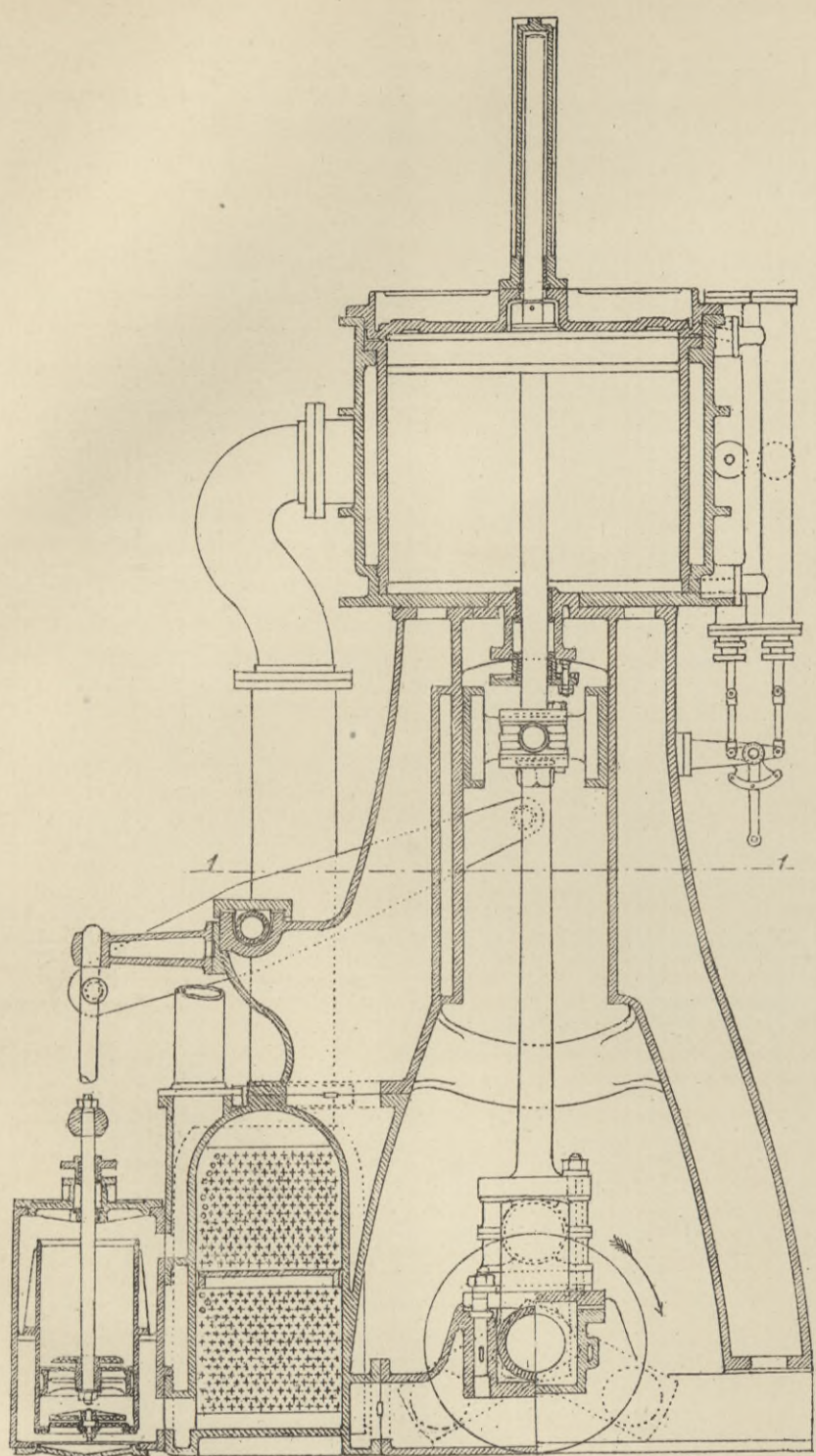
Abb. 110. Oscillierende, zweifach expandierende Radschiffsmaschine.



Querschnitt durch den Niederdruckcylinder.

Längsschnitt.

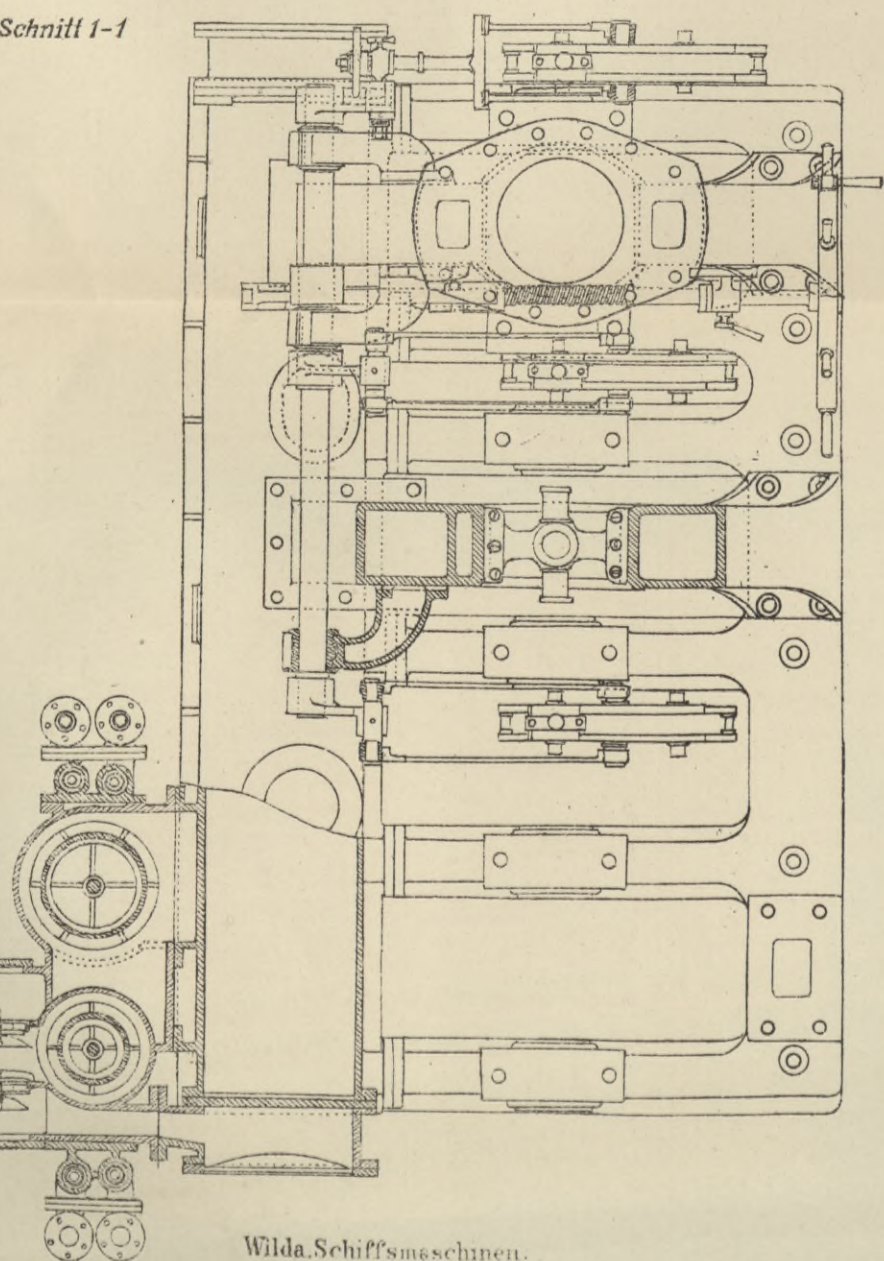
Ansicht der Steuerung.



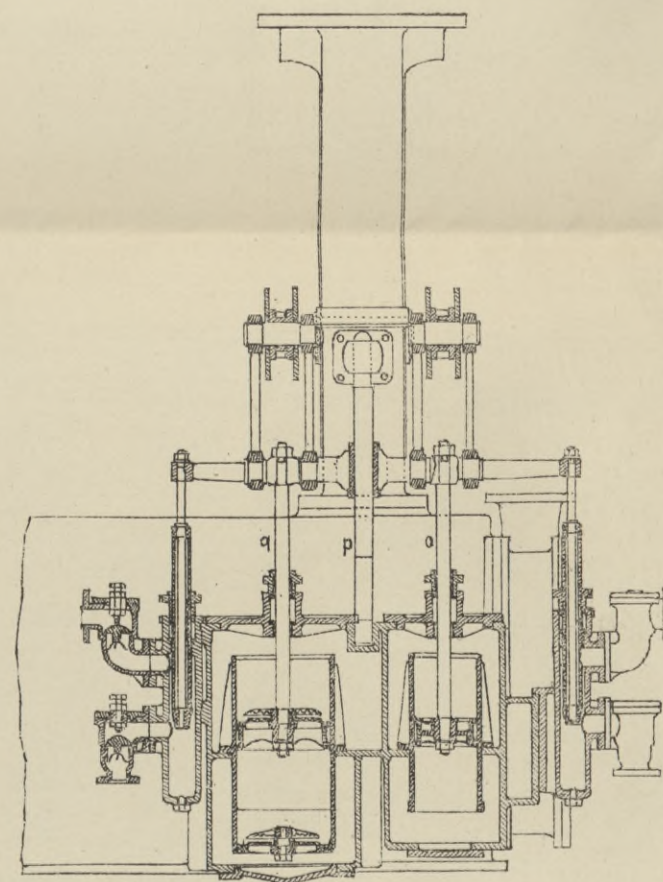
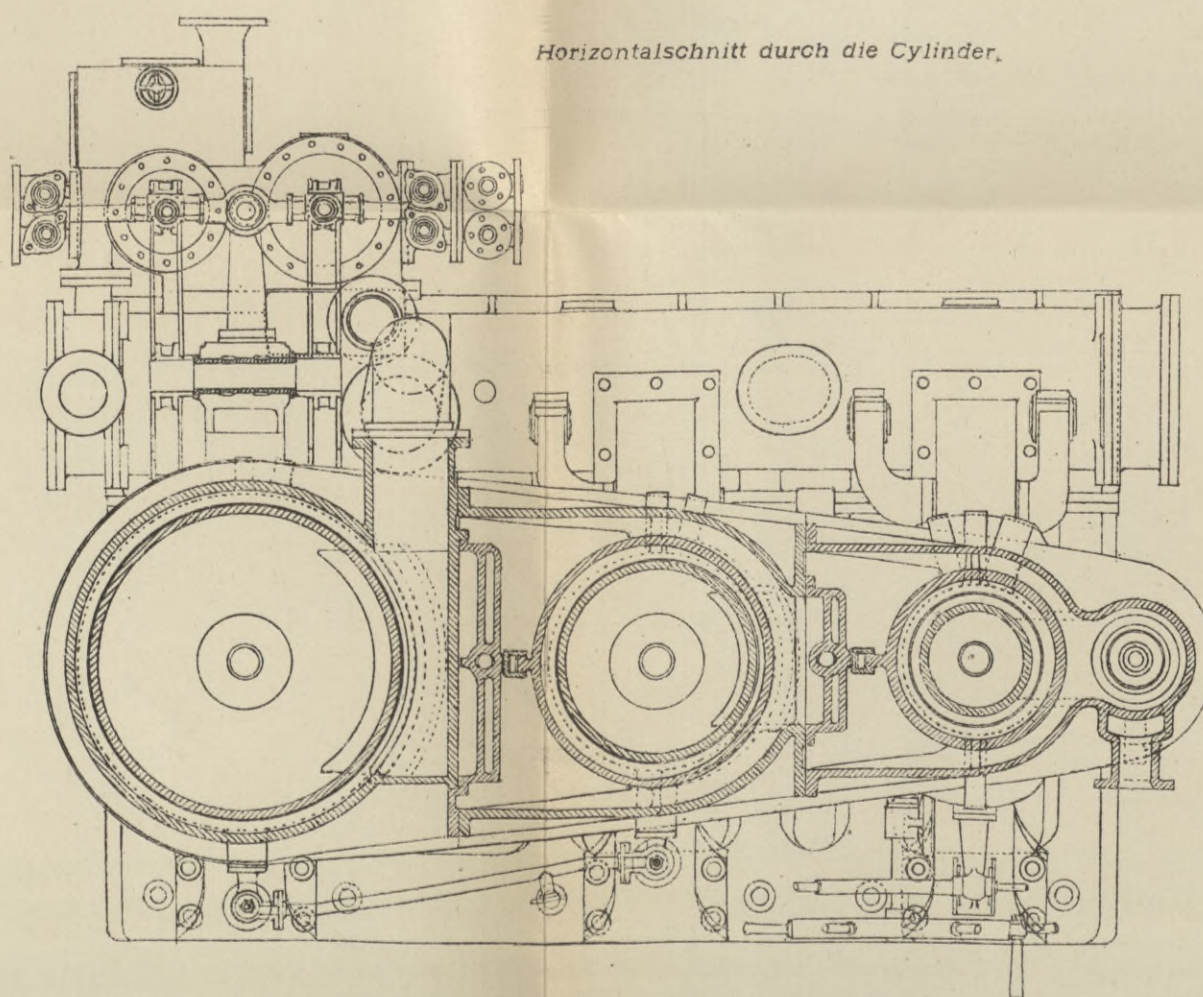
Schnitt 1-1

Abb. 112. Dreifach-Expansionsmaschine mit Stephenson'scher Kulissensteuerung.

Schnitt durch die Pumpen

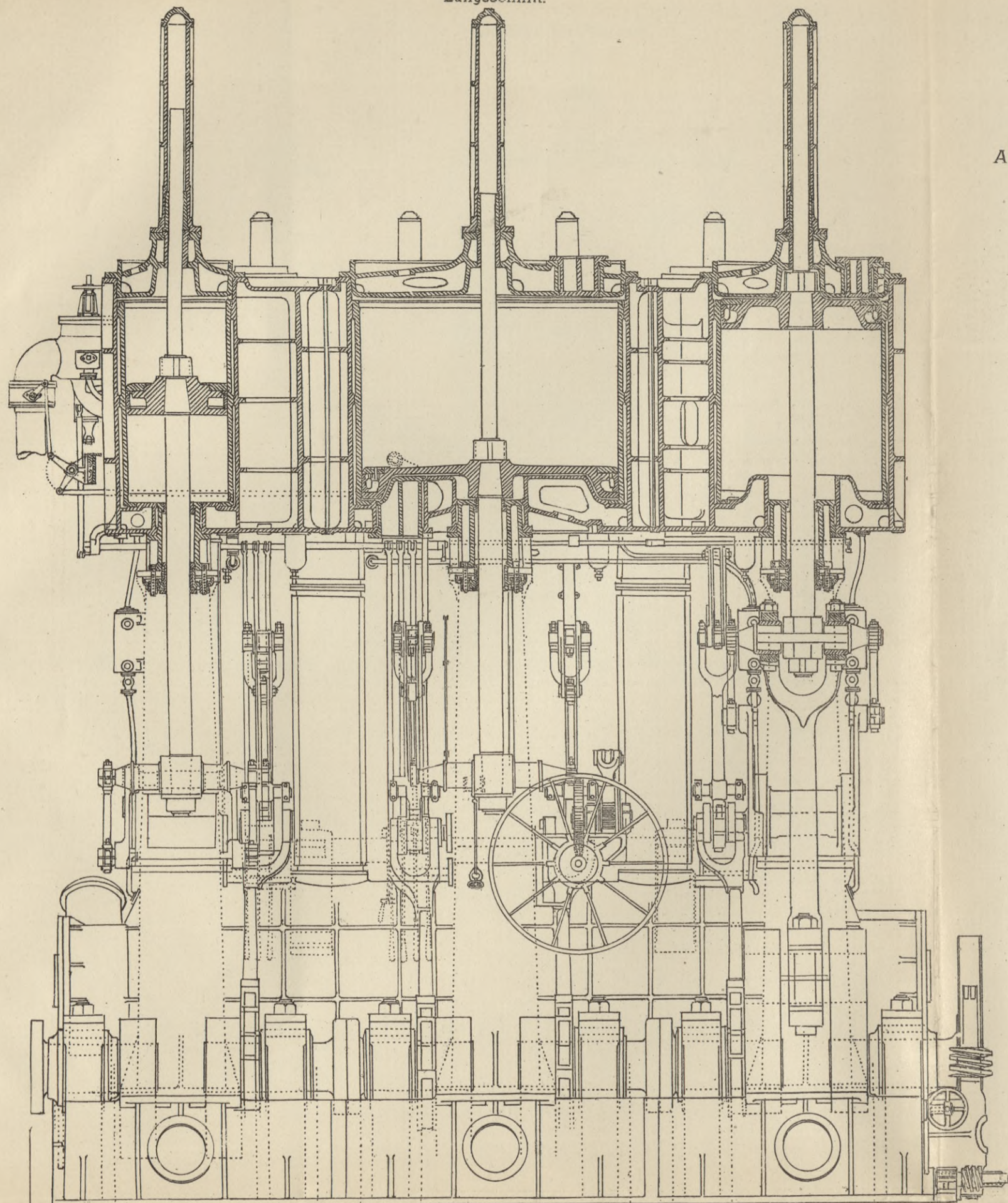


Horizontalschnitt durch die Cylinder.



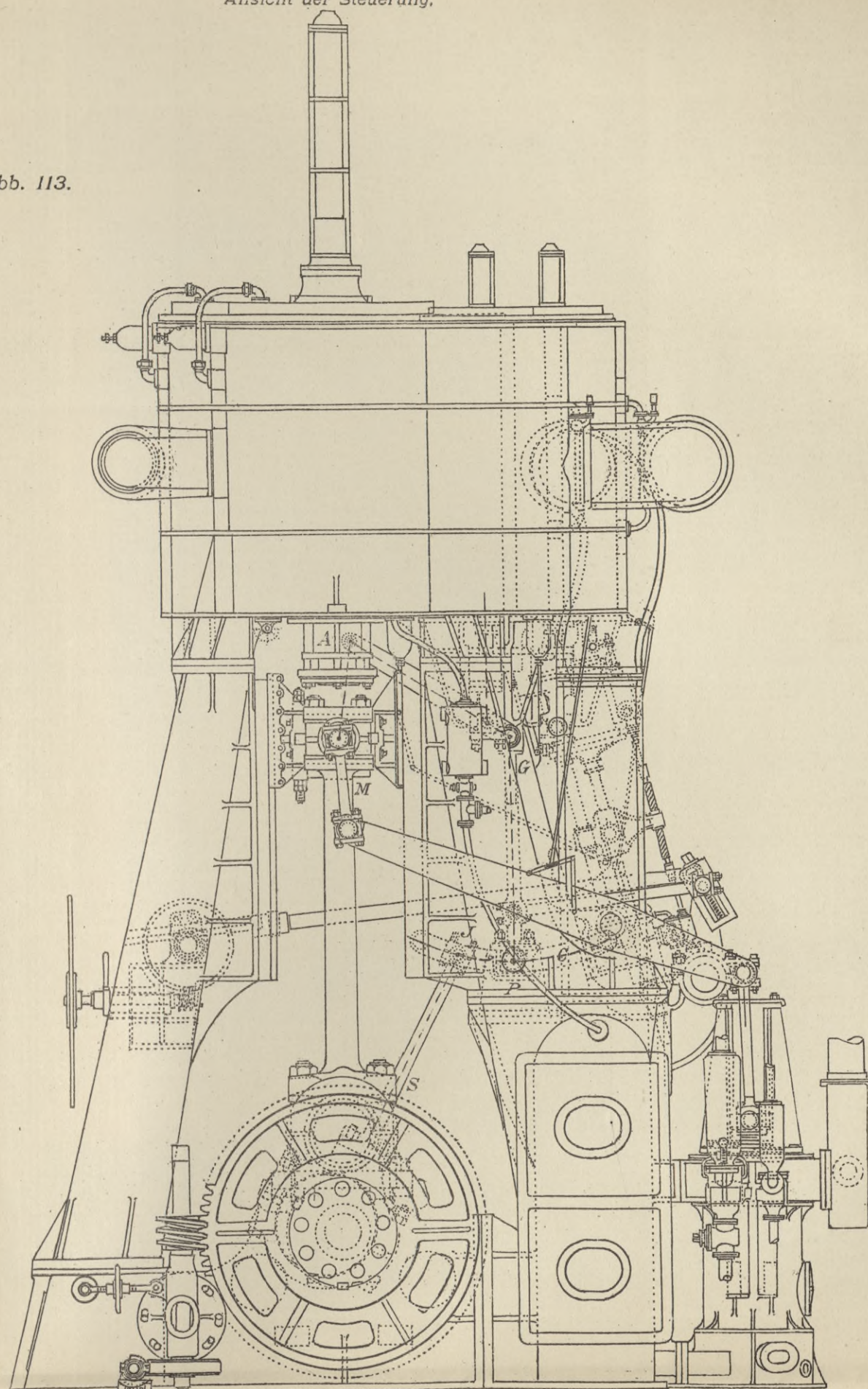
Dreifach-Expansionsmaschine mit Heusinger Steuerung.

Längsschnitt.



Ansicht der Steuerung.

Abb. 113.



Ansicht von oben.

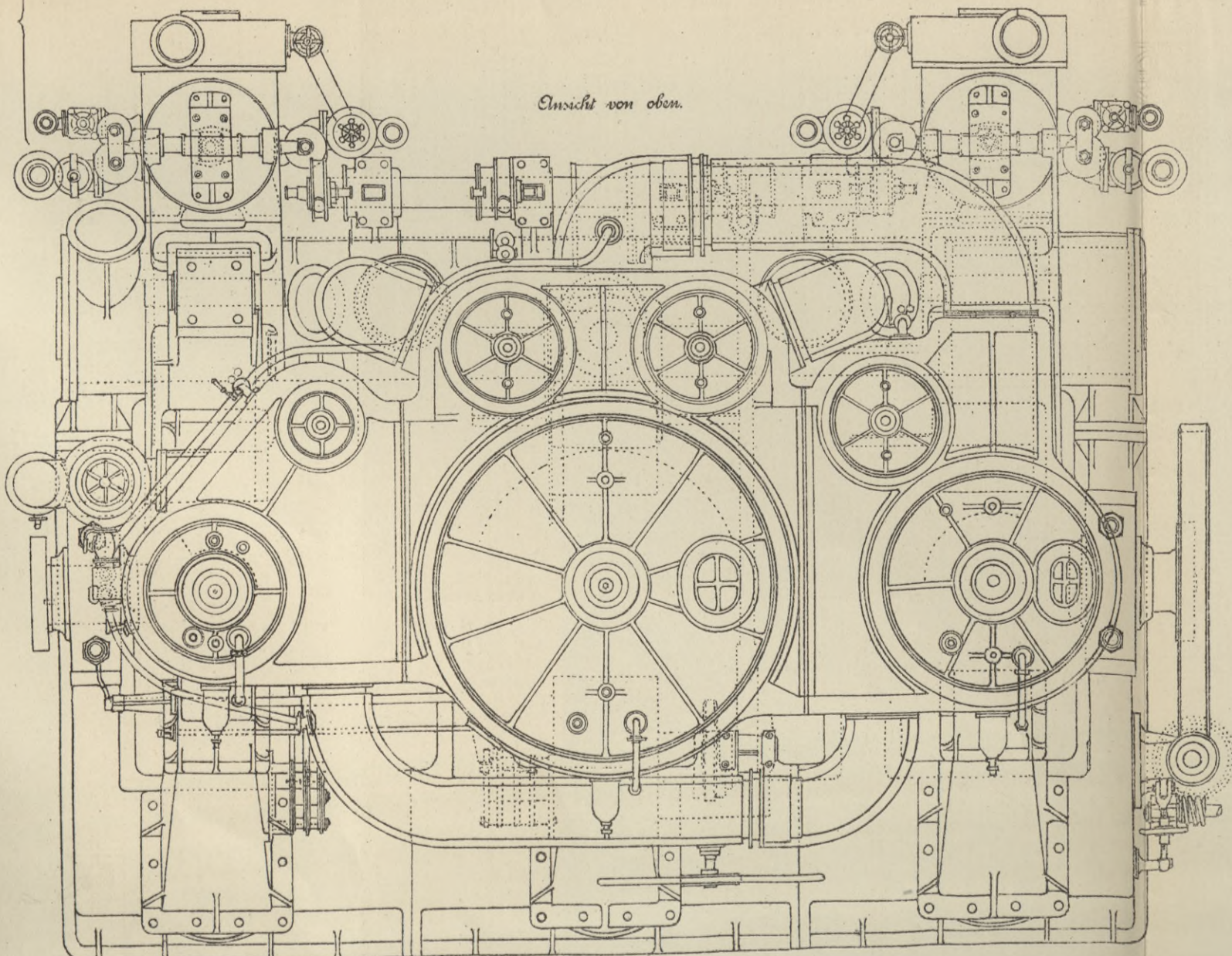
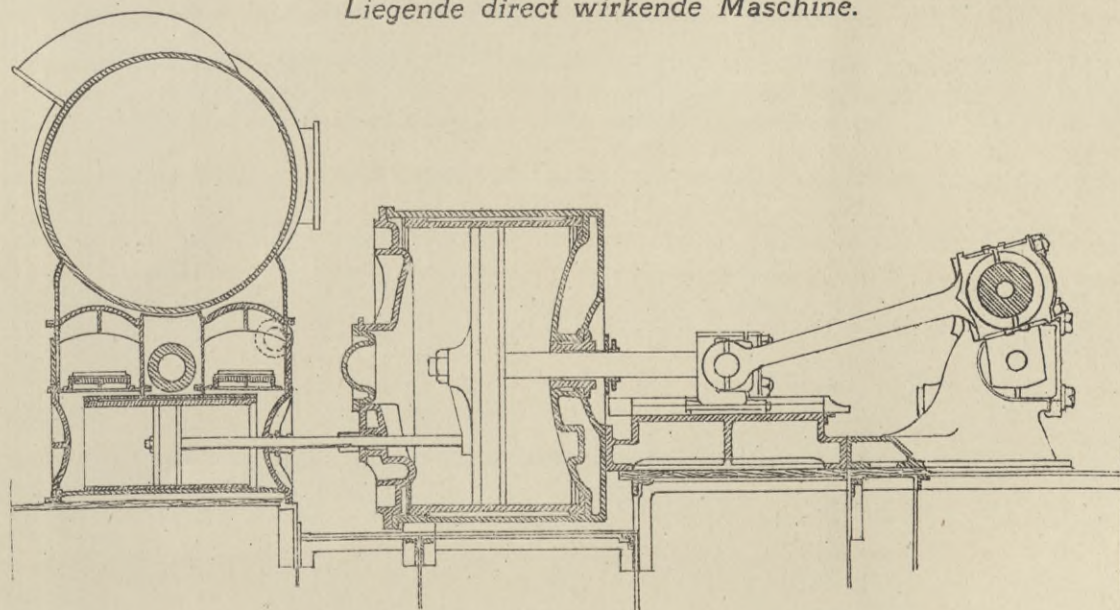


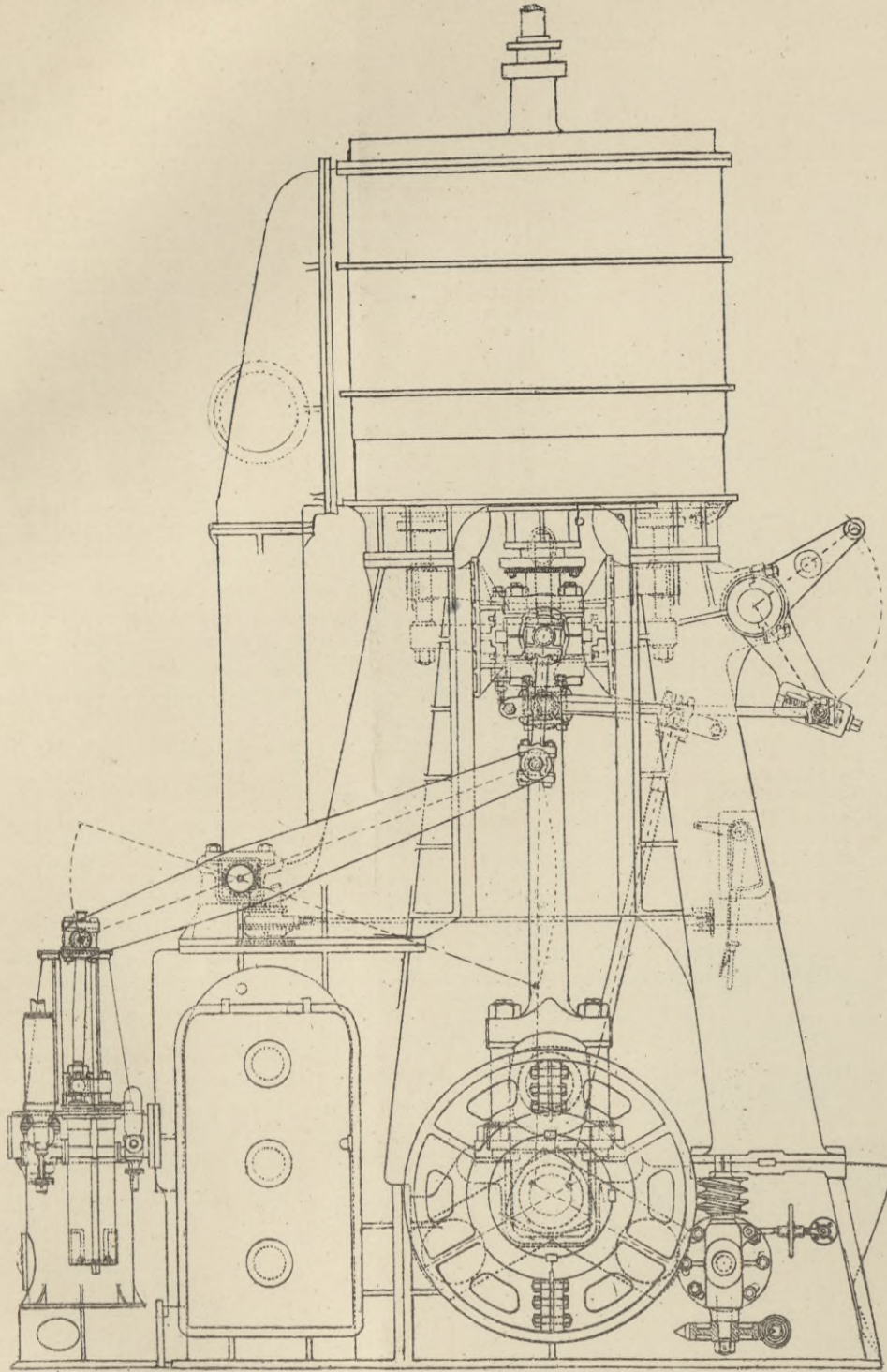
Abb. 115.

Liegende direct wirkende Maschine.

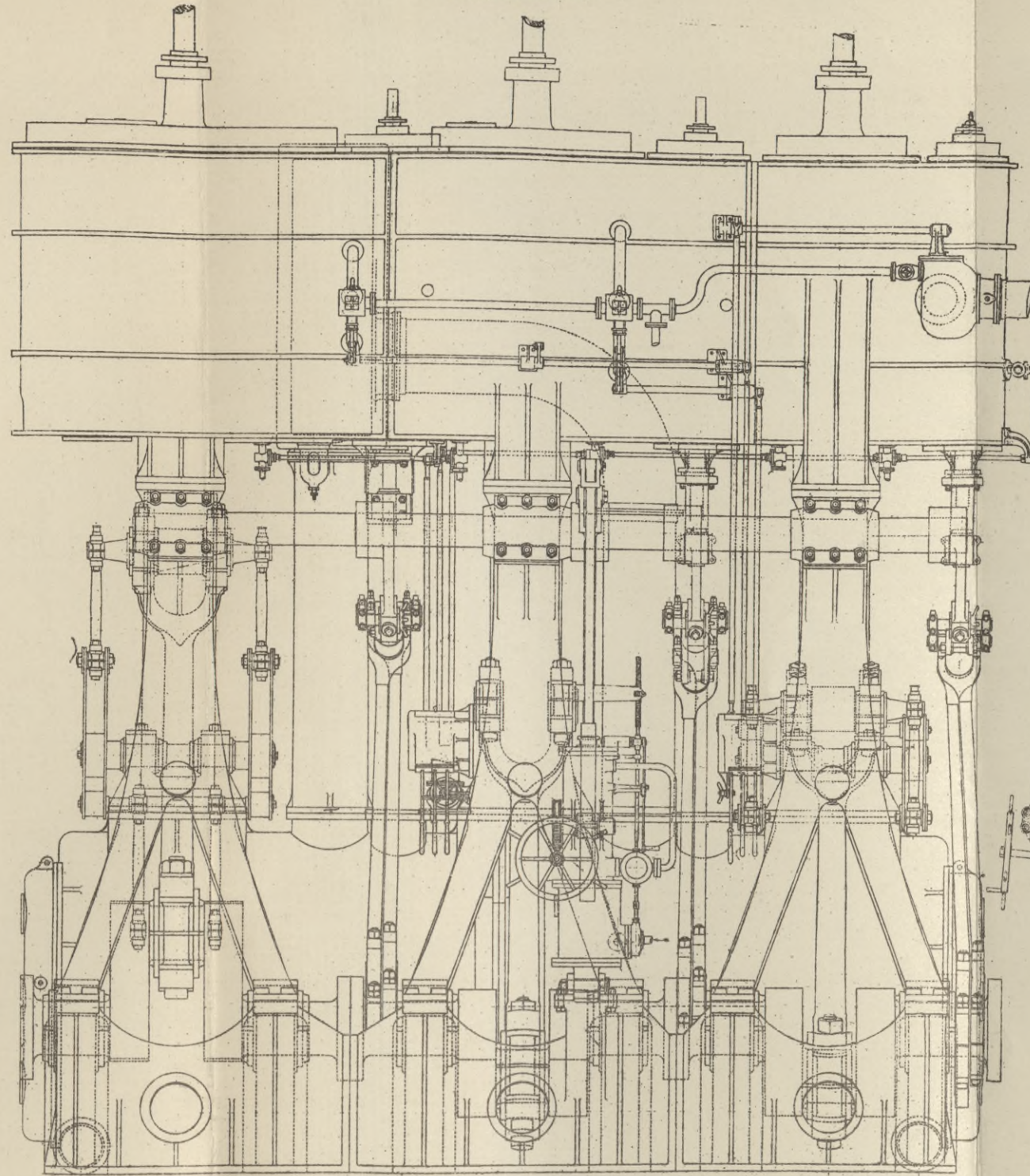




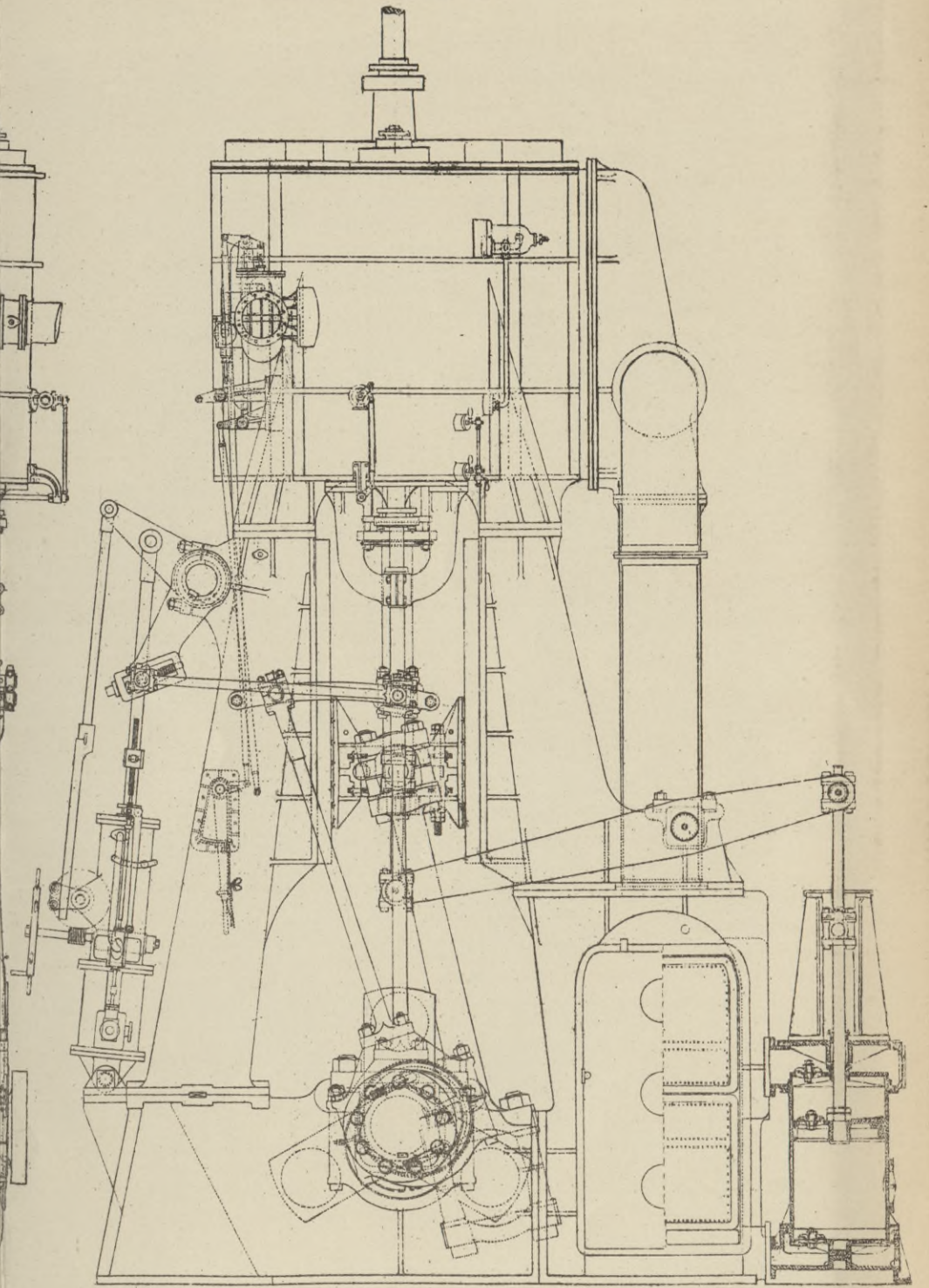
Seitenansicht des Niederdruckzylinders.



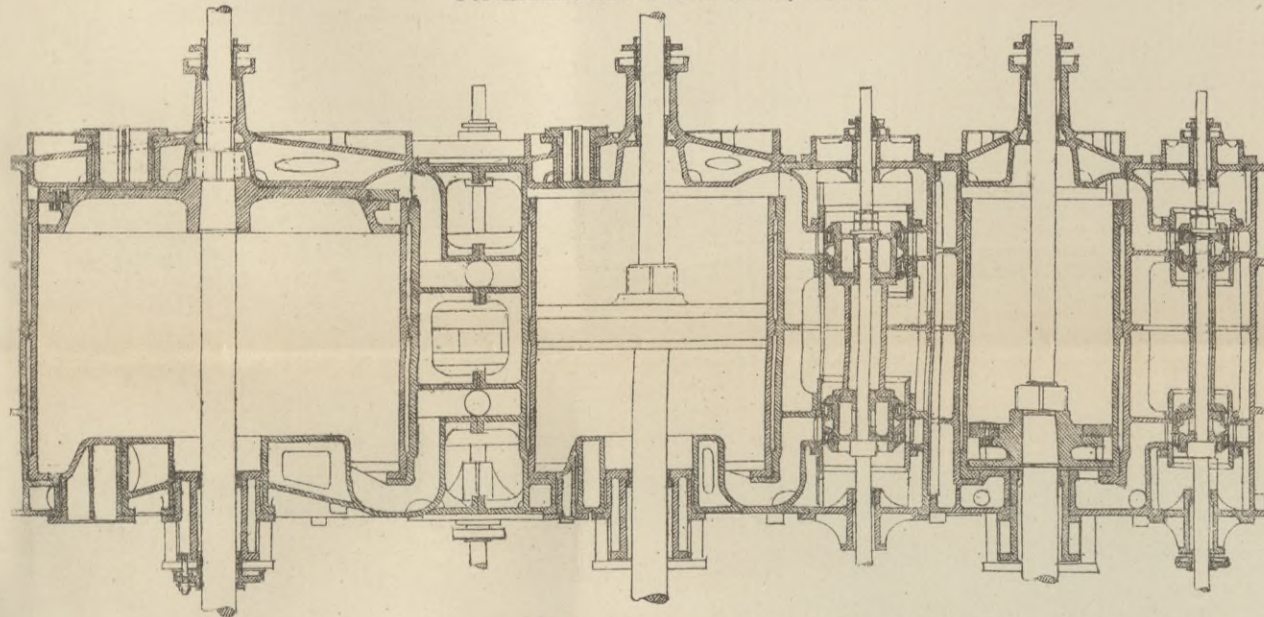
Vorderansicht.



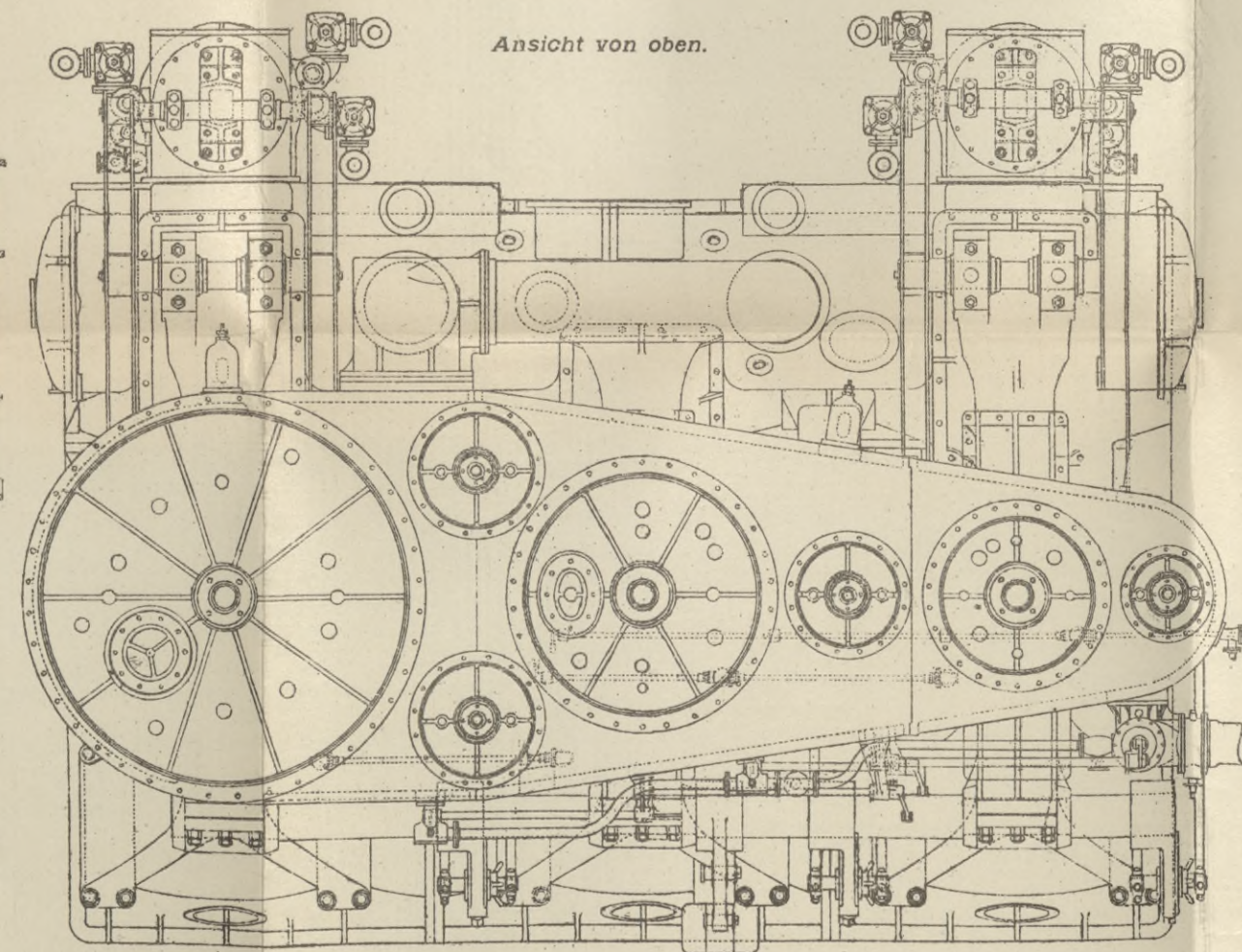
Ansicht der Steuerung.



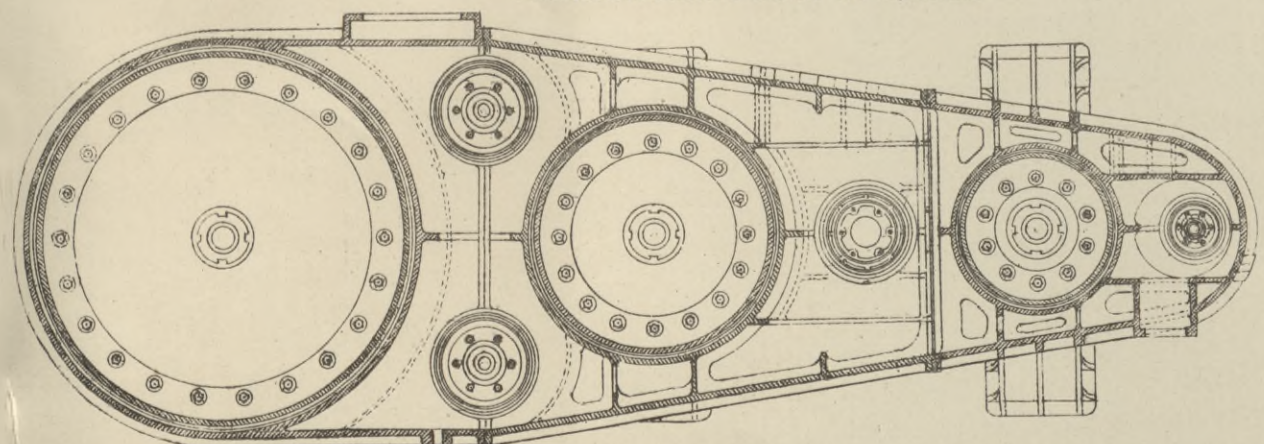
Vertikalschnitt durch die Cylinder



Ansicht von oben.



Horizontalschnitt durch die Cylinder





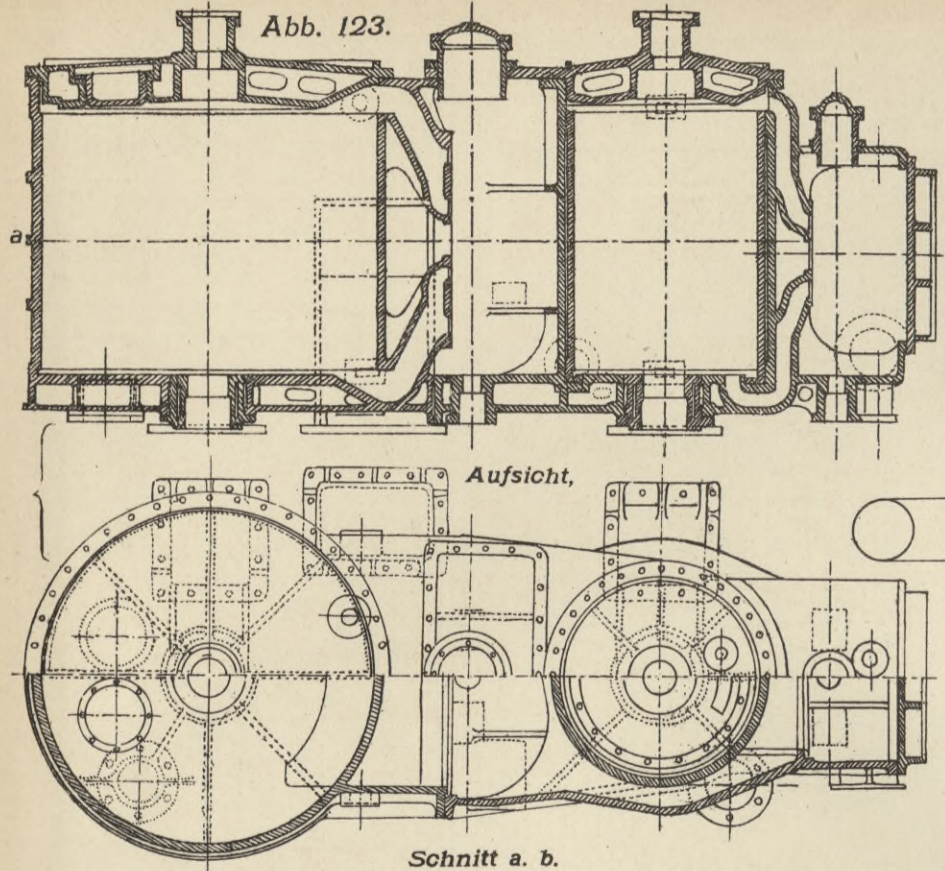
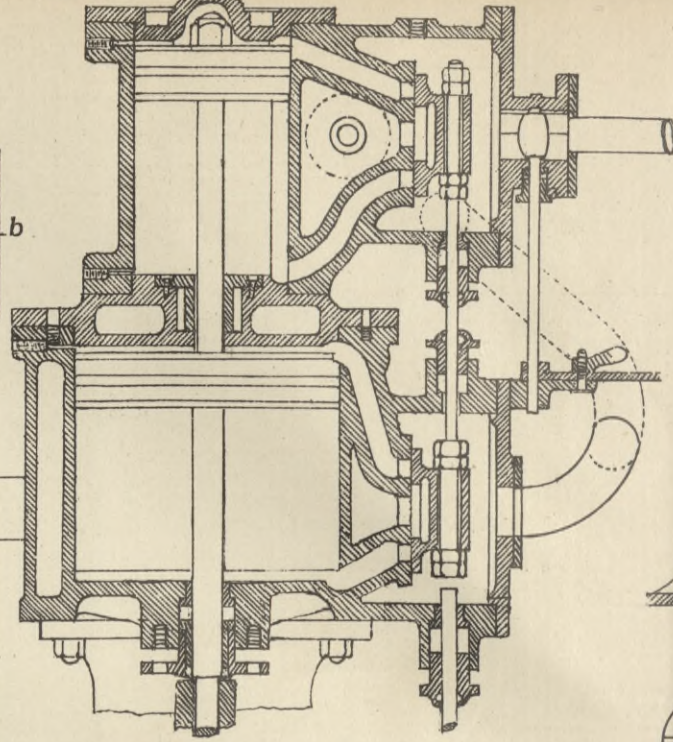


Abb. 123.

Aufsicht,

Schnitt a. b.



Abdichtungen von Arbeitszylindern.

Abb. 122.

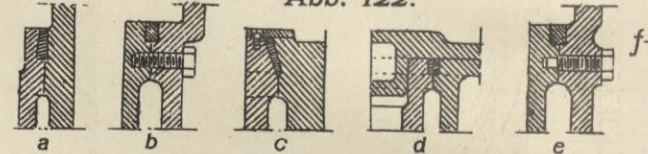
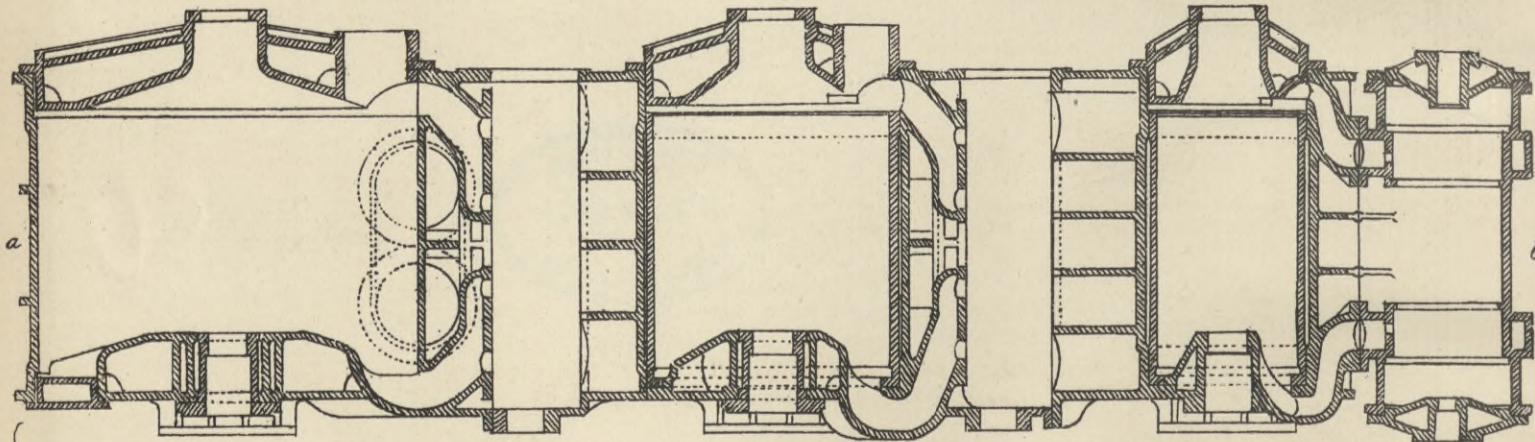
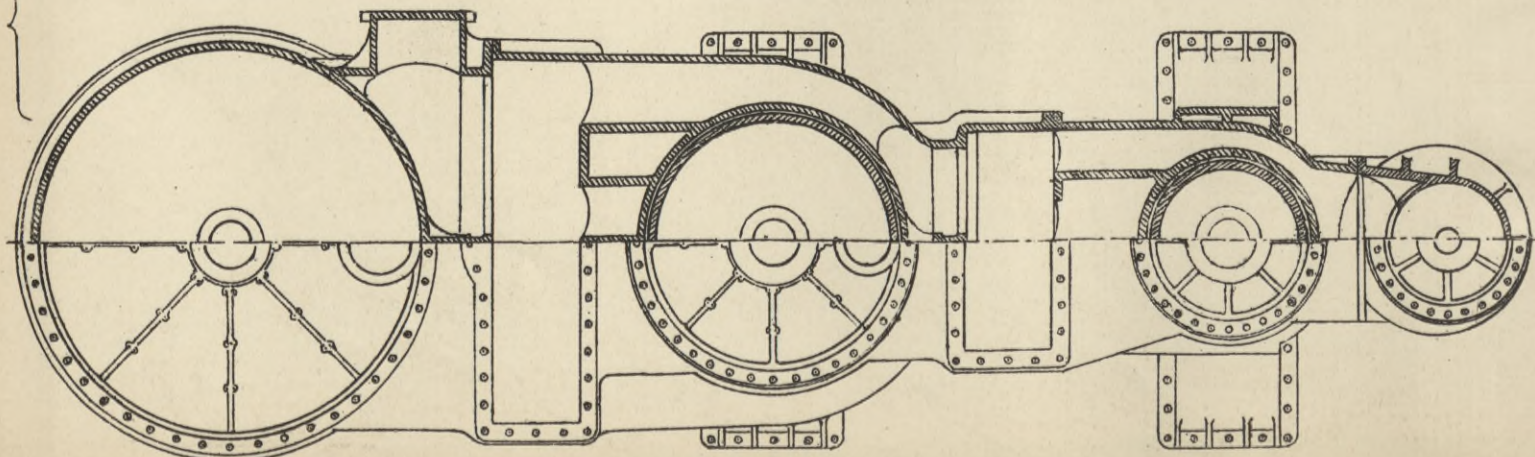


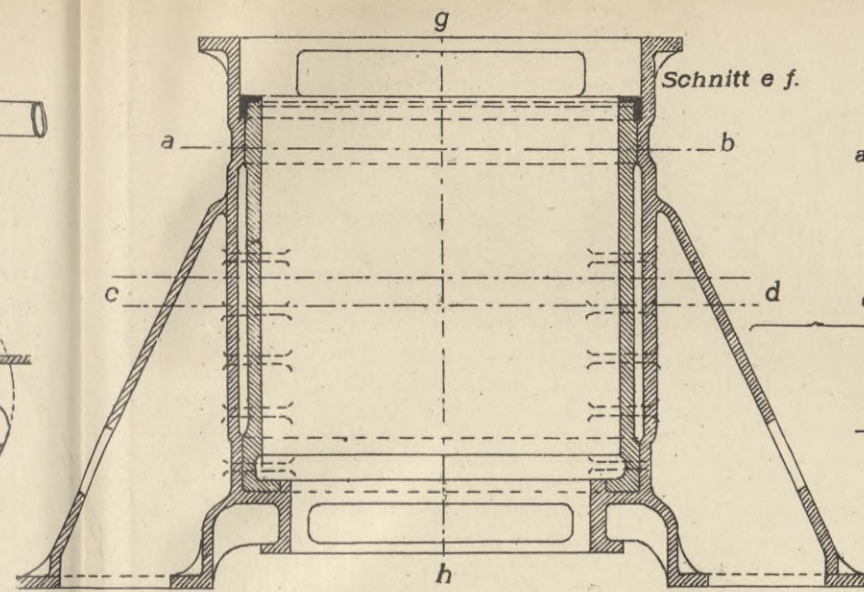
Abb. 124. Längsschnitt durch die Cylinder einer Dreifach-Expansionsmaschine.



Schnitt a. b.



Aufsicht,



Schnitt e. f.

Schnitt g. h.

Anordnung des Arbeitszylinders.

Oscillierender Cylinder

Abb. 125.

Abb. 121.

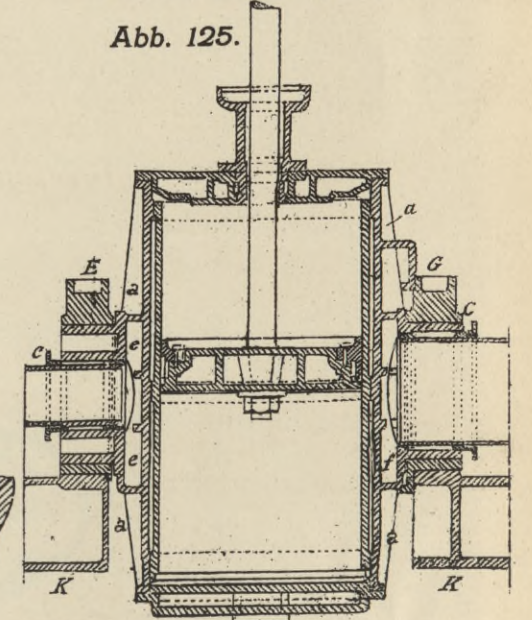


Abb. 120. Horizontalschnitt durch die Cylinder einer Dreifach-Expansionsmaschine mit seitlich liegenden Schieberkasten.

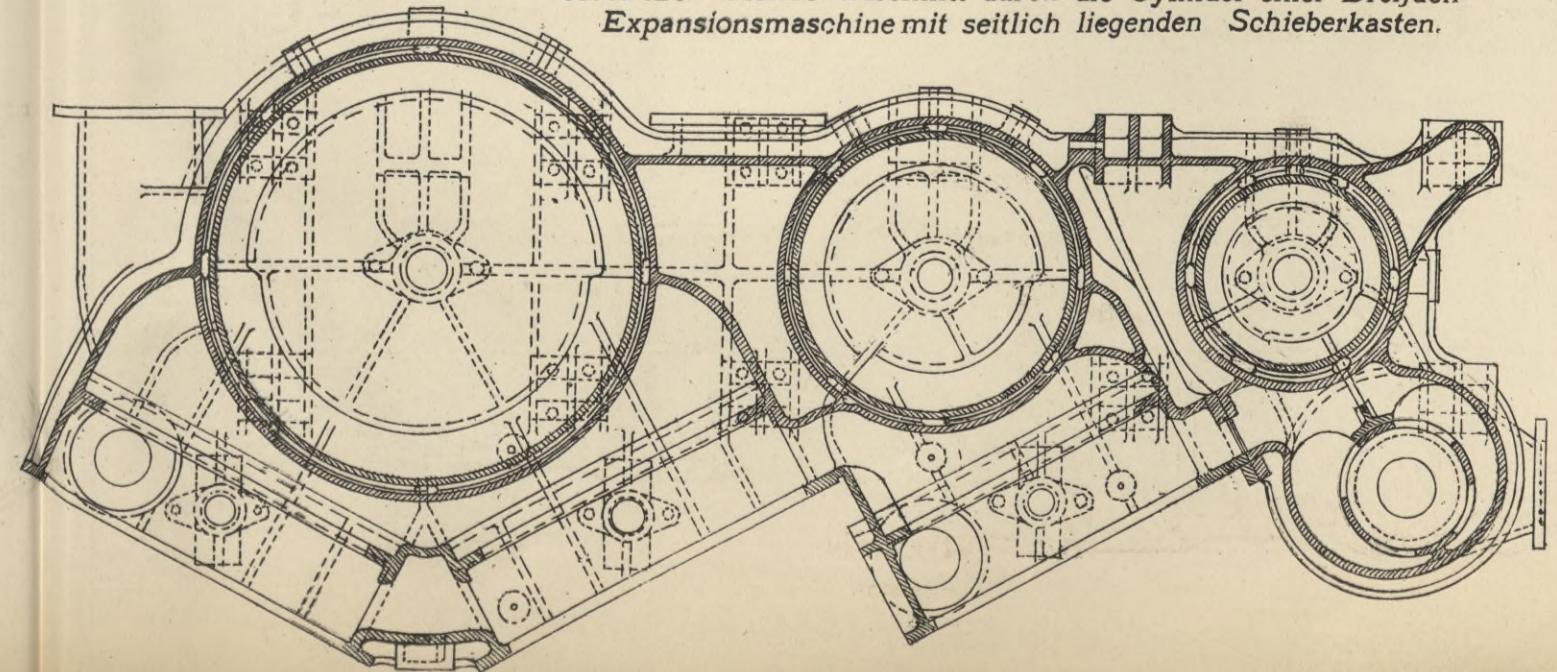


Abb. 129. Cylinderdeckel-Sicherheitsventil.

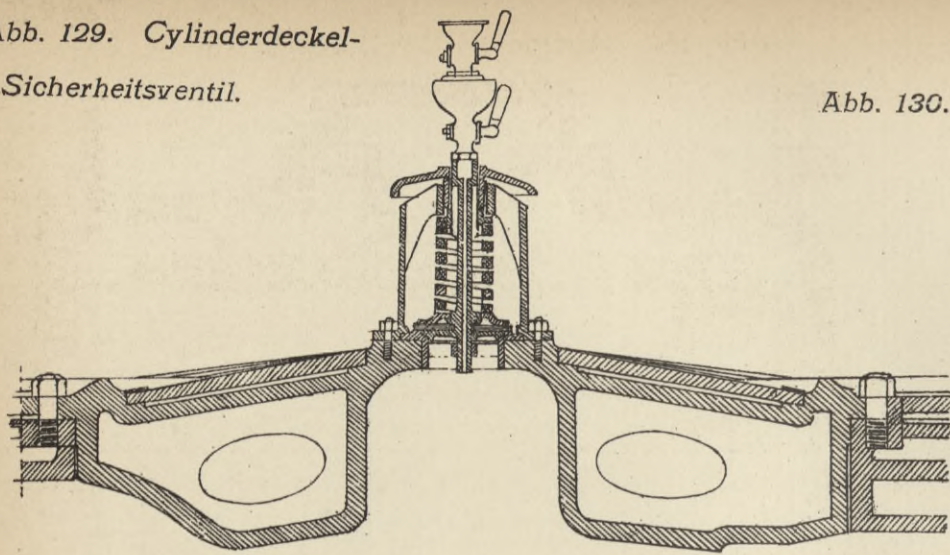


Abb. 130. Cylinderboden-Sicherheitsventil.

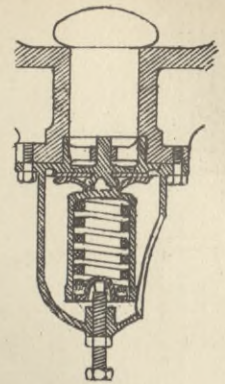


Abb. 137. Entlastetes Absperrventil (Röhrventil).

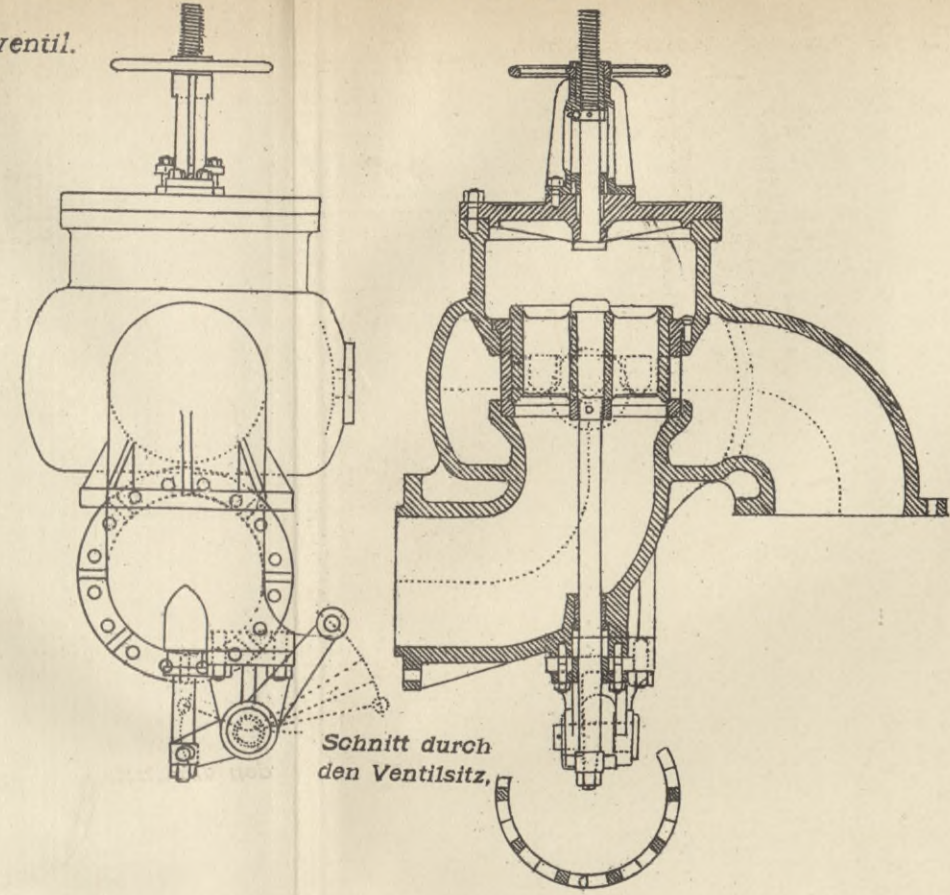


Abb. 140. Anordnung der Dampfcanäle.

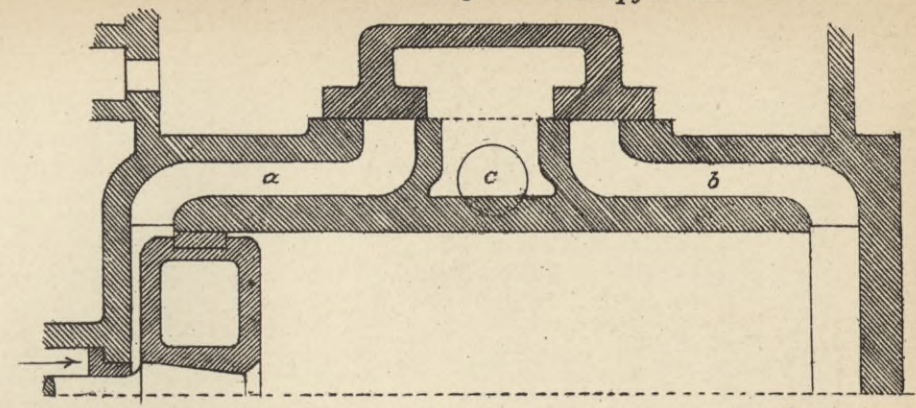


Abb. 136. Doppelsitzventil.

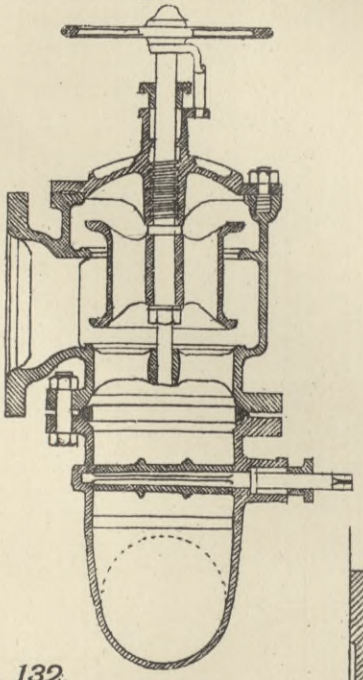


Abb. 147. Einfluss verschiedener Pleuelstangenlängen.

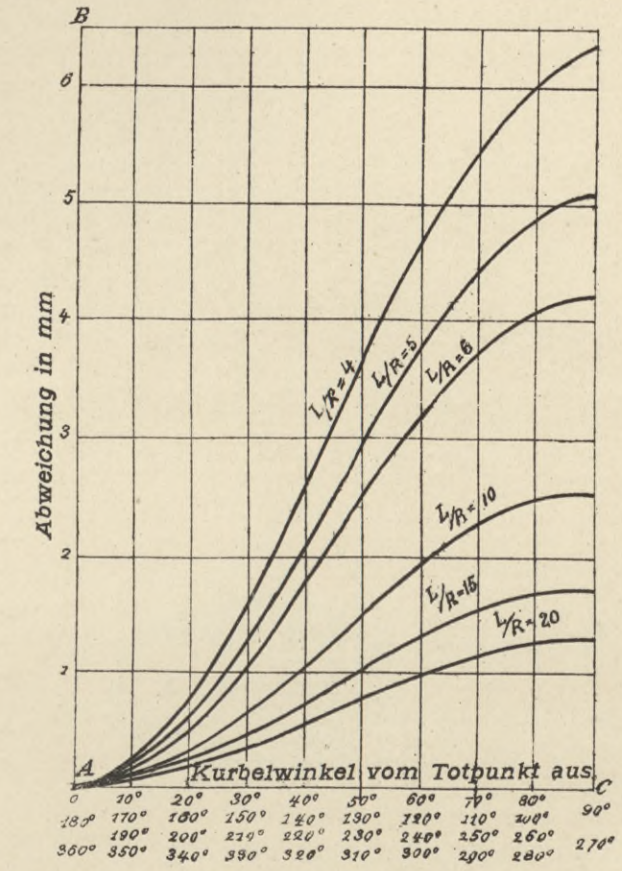


Abb. 128. Selbstthätiger Kondensationswasserableiter.

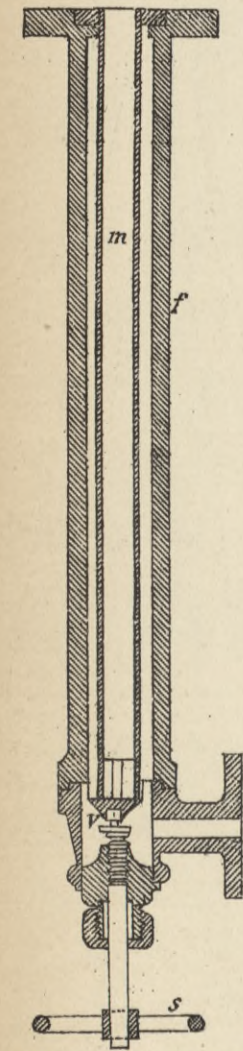


Abb. 127. Cylinderausblasehahn.

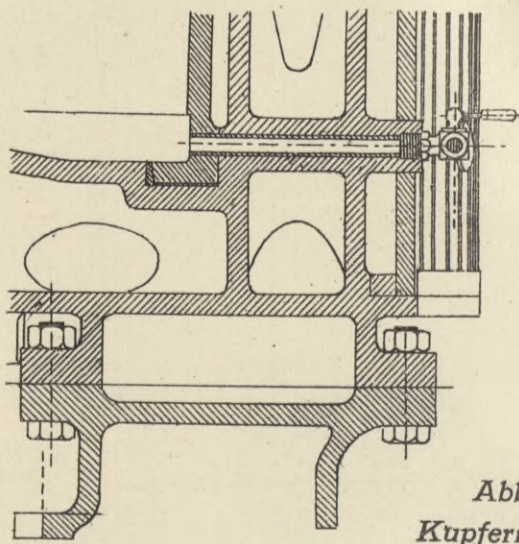


Abb. 132. Kupfernes Ausdehnungsrohr.

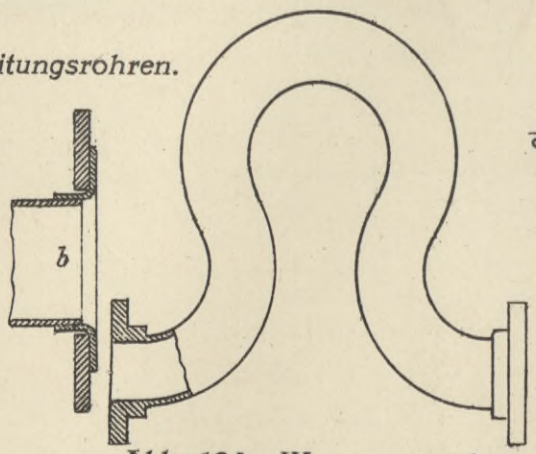


Abb. 131. Verbindung von Dampfleitungsrohren.

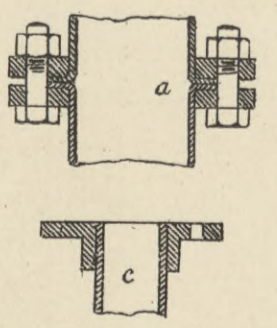


Abb. 138. Drosselklappe.

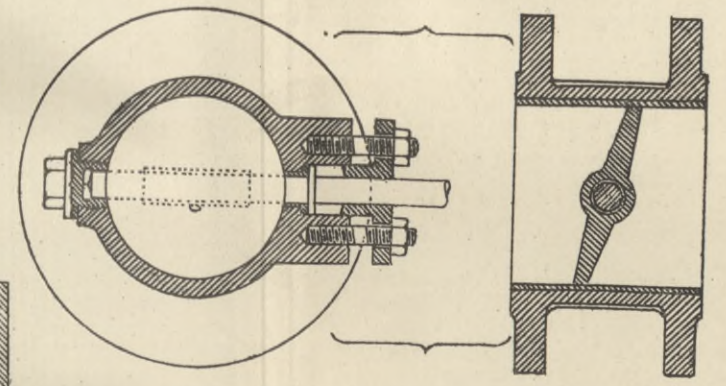


Abb. 139. Exzenter.

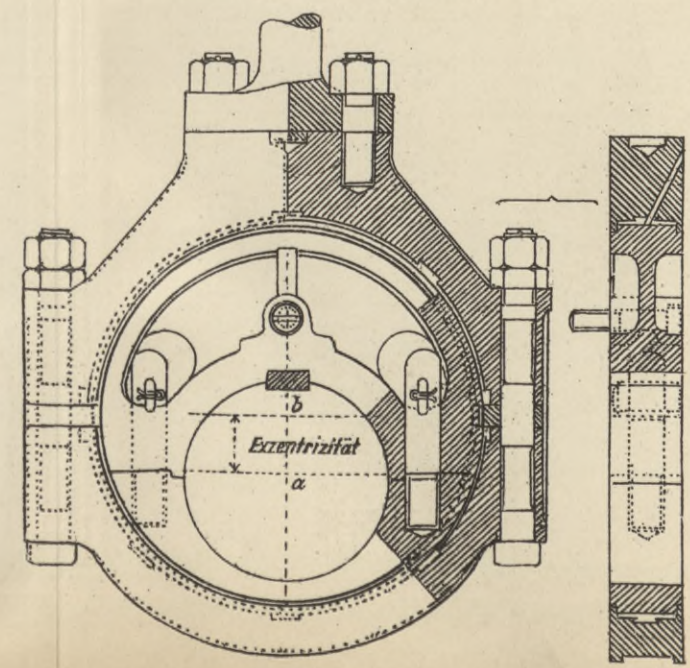
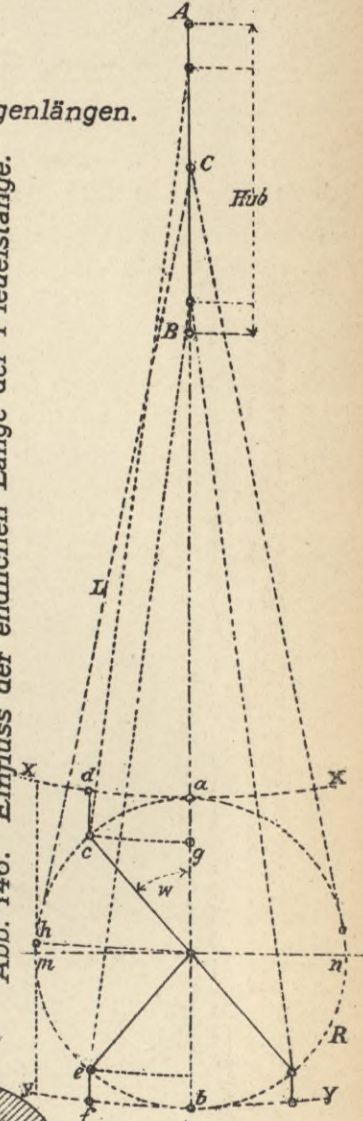


Abb. 146. Einfluss der endlichen Länge der Pleuelstange.



Darstellung der Kolben- und Schieberbewegung.

Abb. 142.

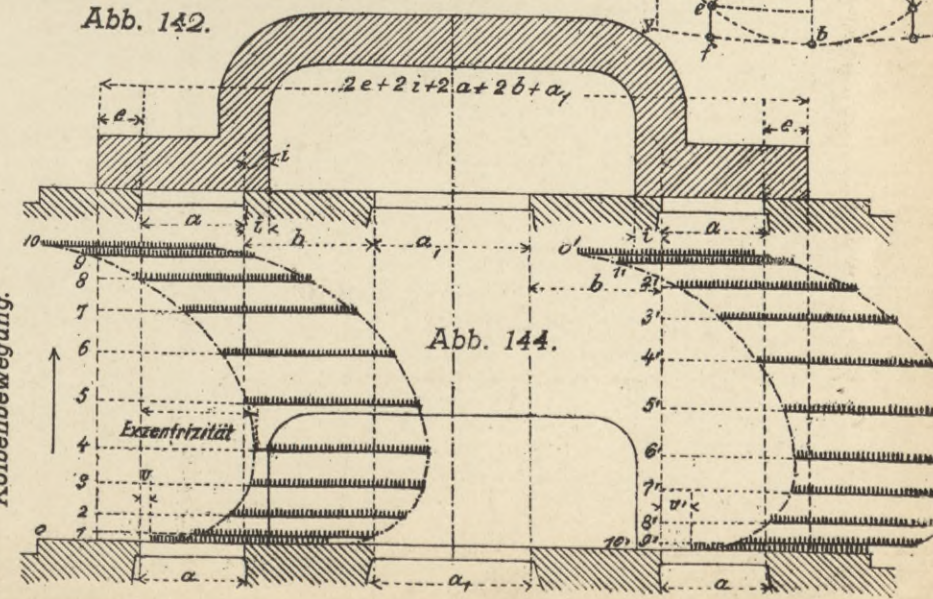


Abb. 144.

Kolbenbewegung.

Abb. 133. Rohrstopfbüchse.

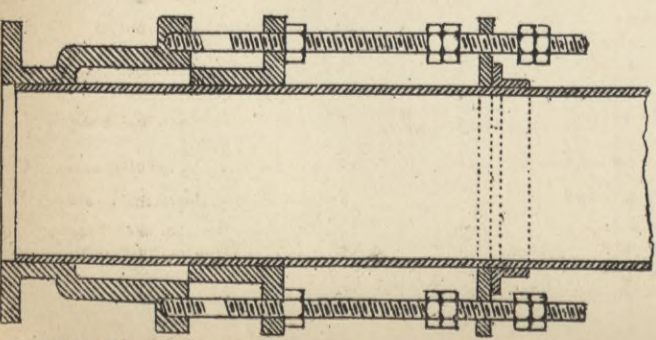


Abb. 134. Wassersammler.

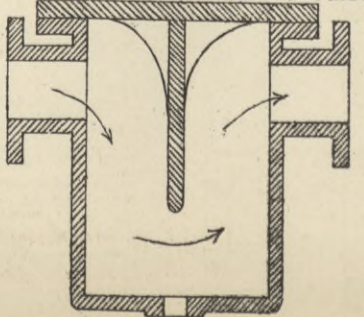


Abb. 135. Hüfsschieber. Schnitt ab.

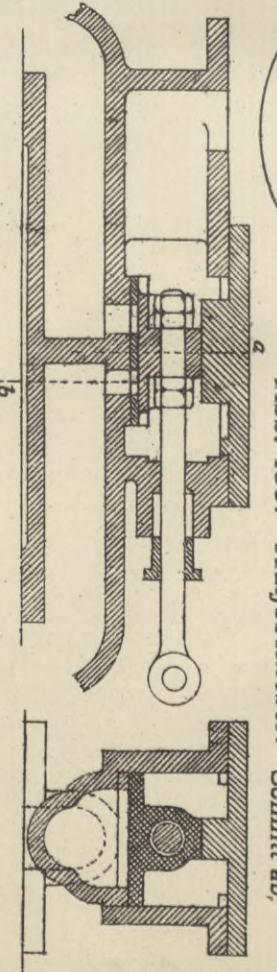
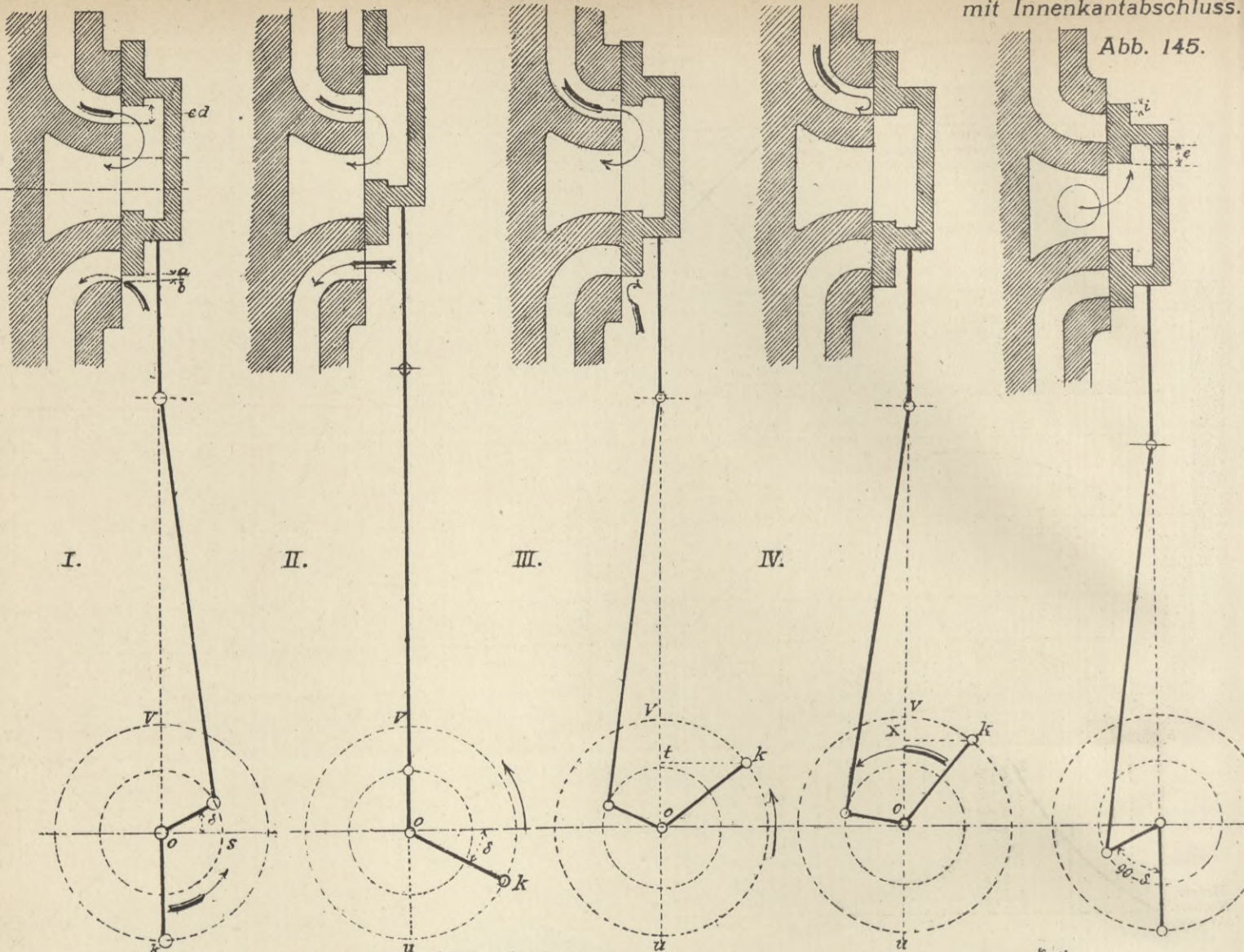


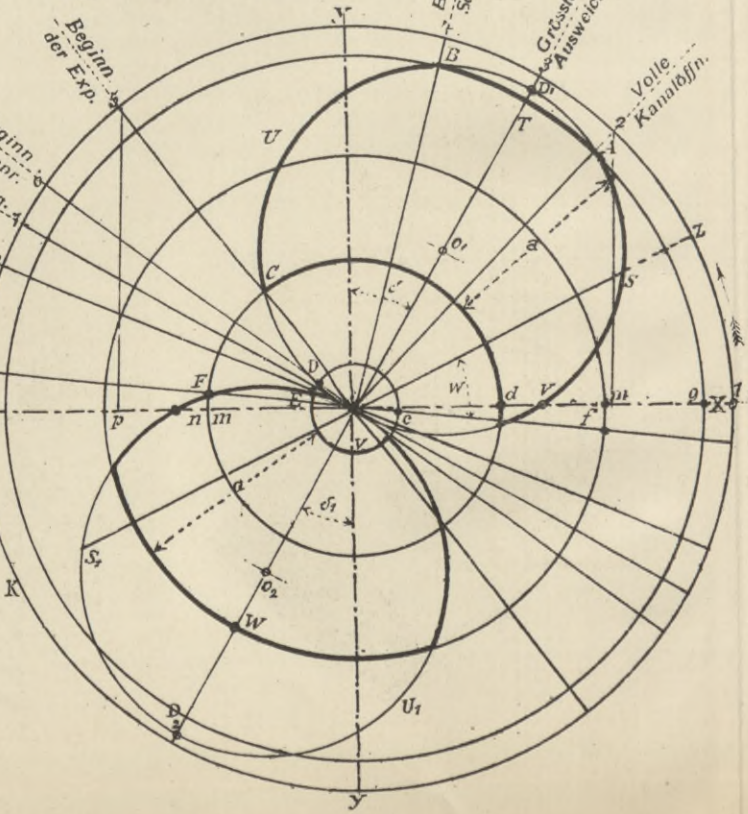
Abb. 143. Hauptstellungen des Muschelschiebers mit Ueberdeckungen.



Muschelschieber mit Innenkantabschluss.

Abb. 145.

Schieberdiagramm von Zeuner.



Hauptstellungen des Muschelschiebers ohne Ueberdeckungen.

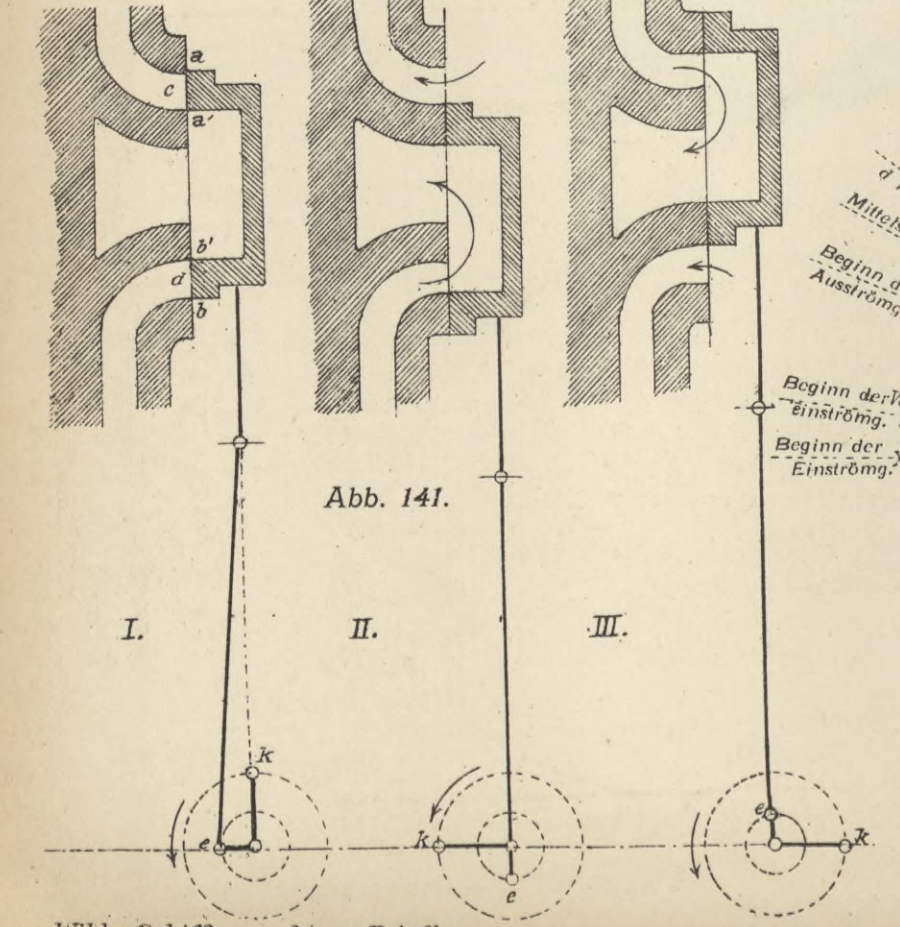


Abb. 141.

Abb. 151.

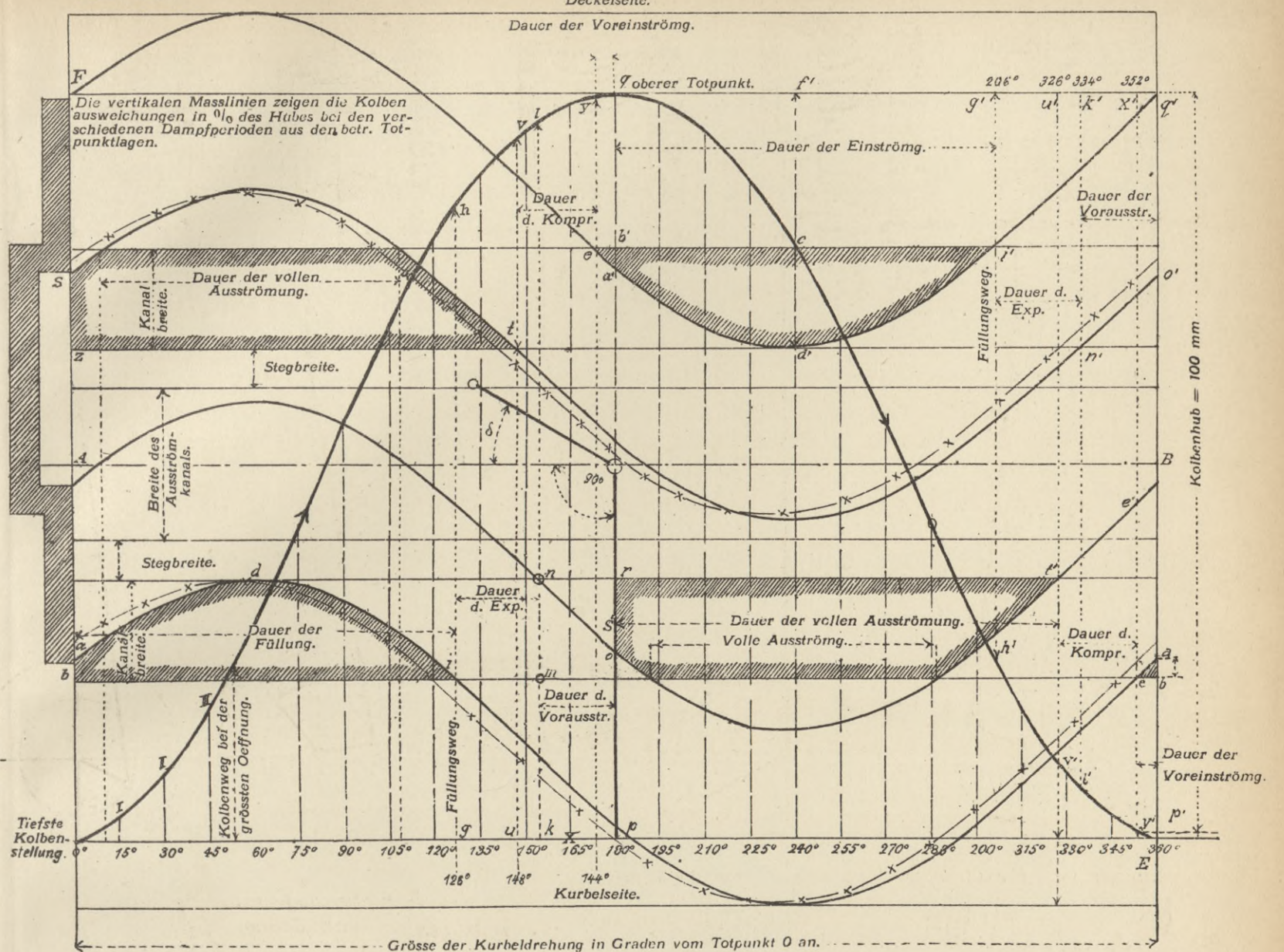


Diagramm von Müller.

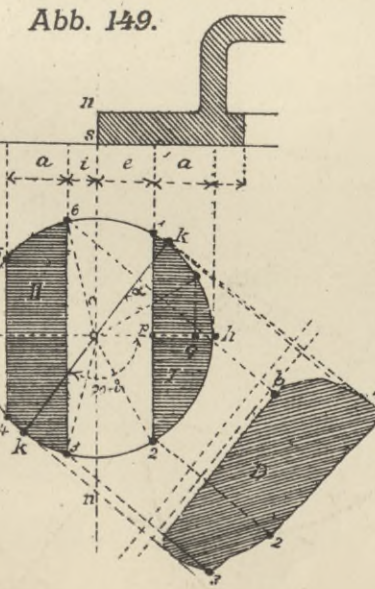
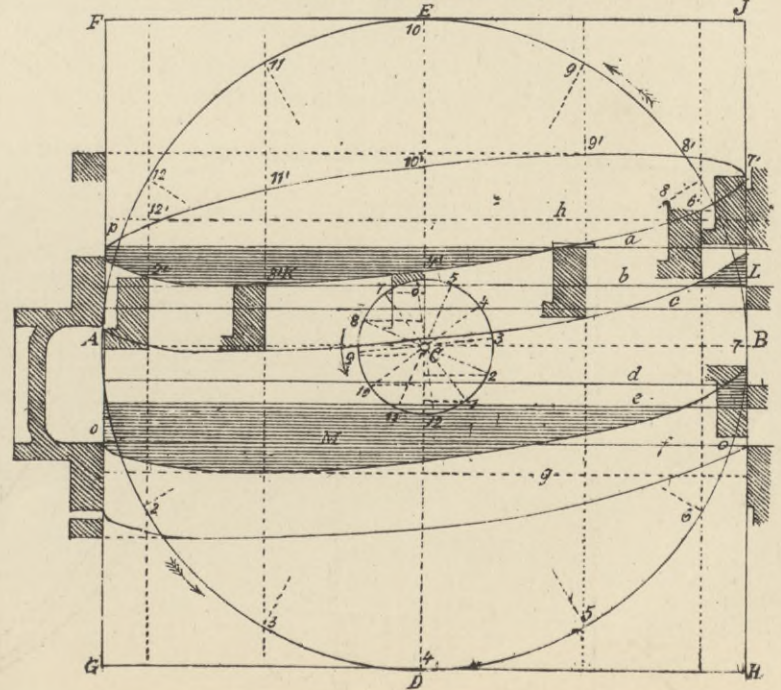
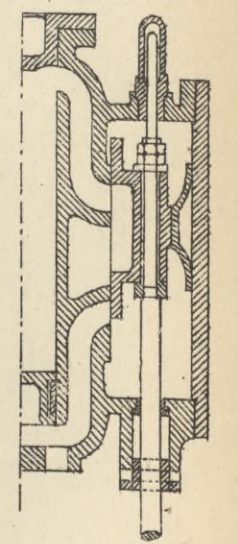


Abb. 149.

Abb. 150. Ellipsendiagramm.

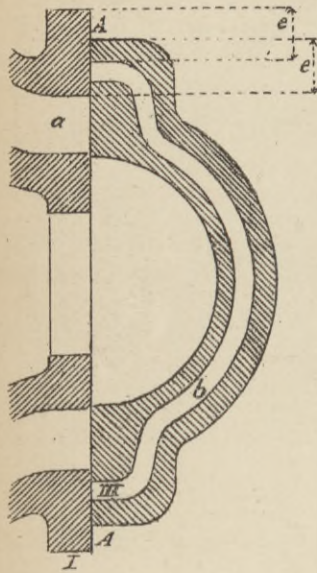


Muschelschieber Abb. 152



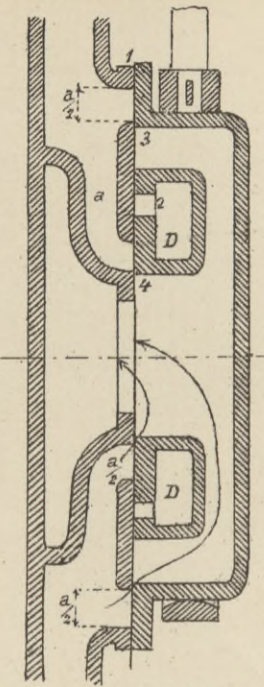
Schieber von Trick.

Abb. 153.



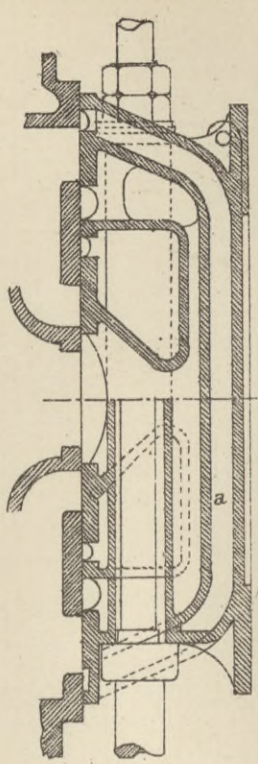
Schieber von Penn.

Abb. 154.



Schieber von Thom.

Abb. 155.



Schieber von Penn.

Abb. 157.

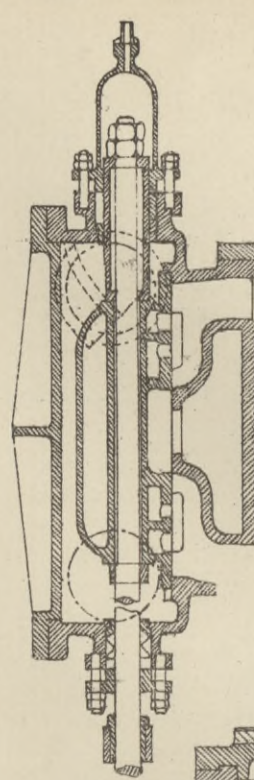
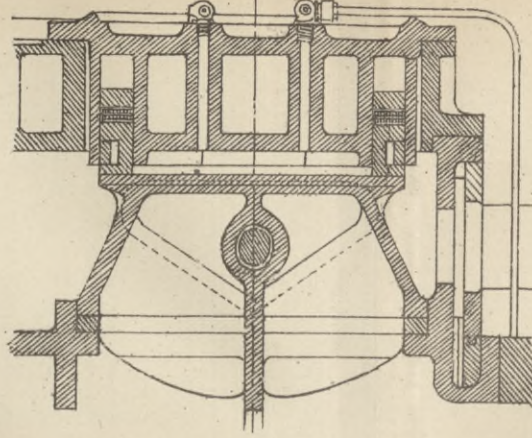


Abb. 166. Schieberentlastung.



Entlastete Penn'sche Schieber.

Abb. 158.

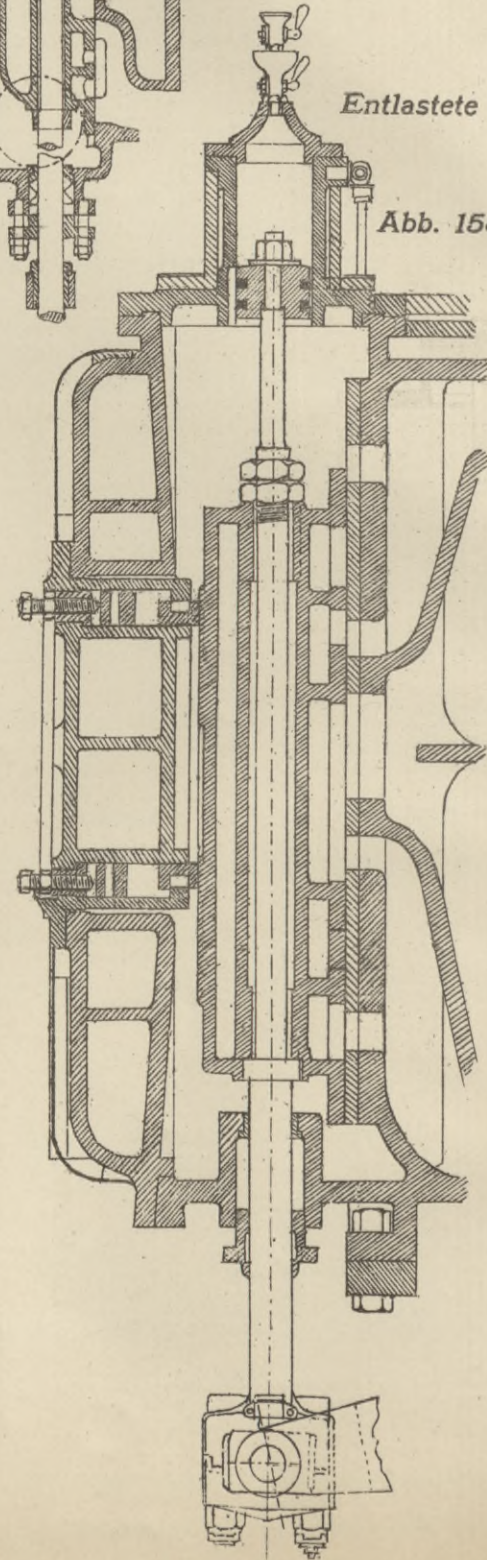


Abb. 159.

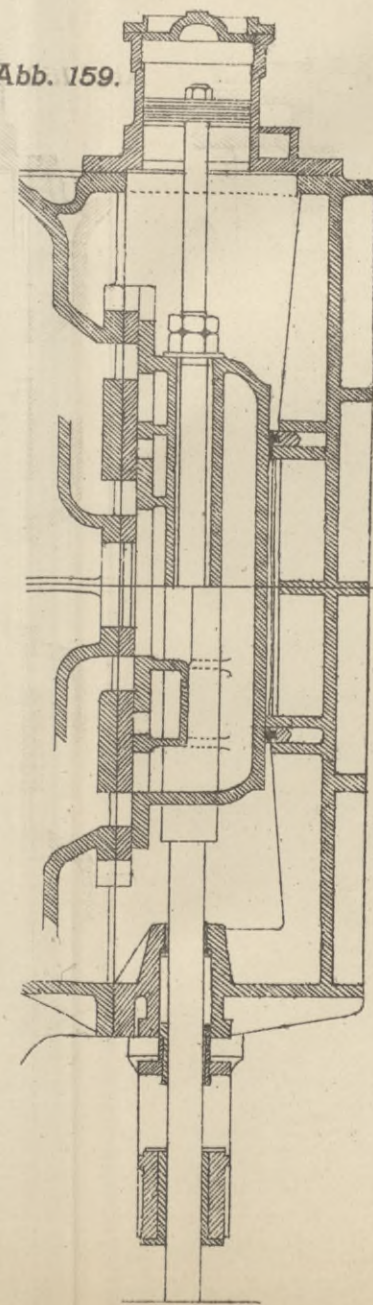
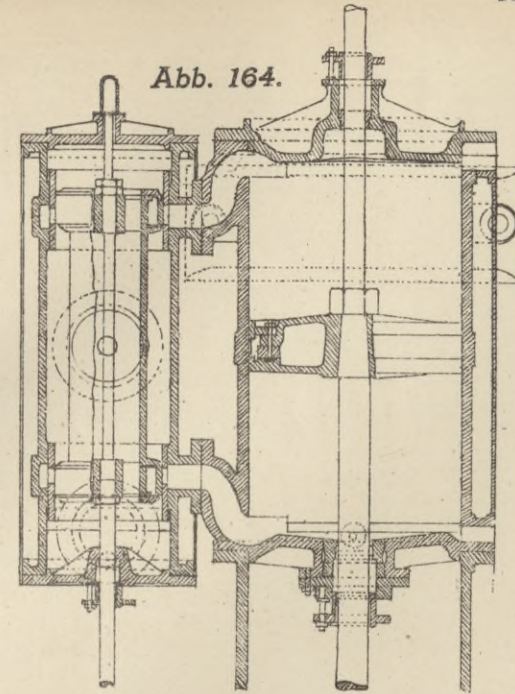


Abb. 164.



Entlasteter Penn'scher Schieber.

Abb. 159 a.

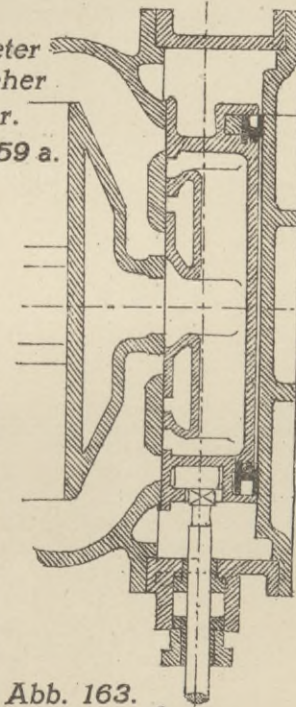


Abb. 163.

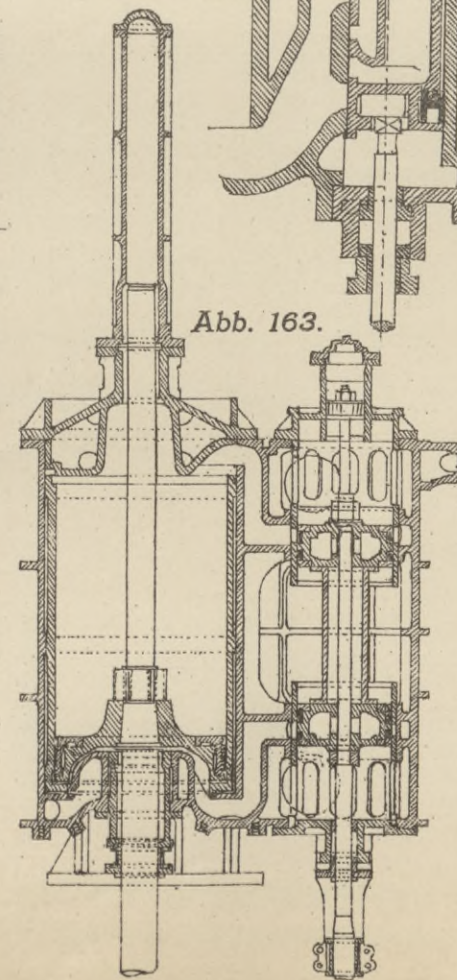


Abb. 160 - 165 Kolbenschieber.

Abb. 165.

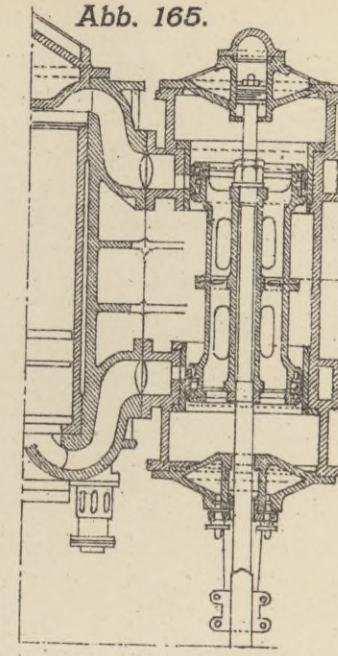


Abb. 160 a.

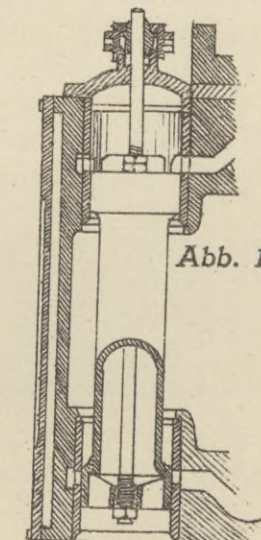


Abb. 161.

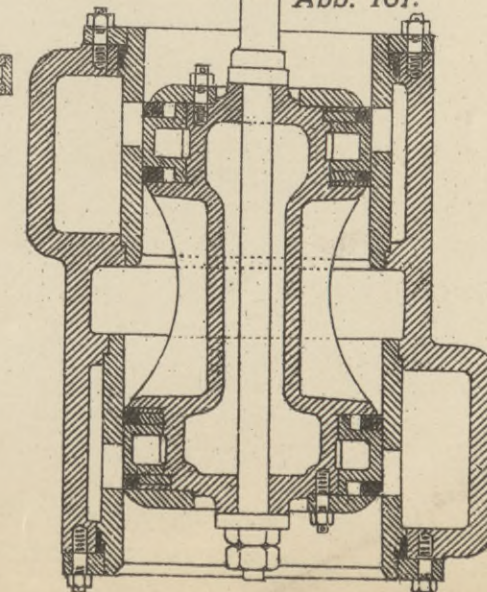


Abb. 160.

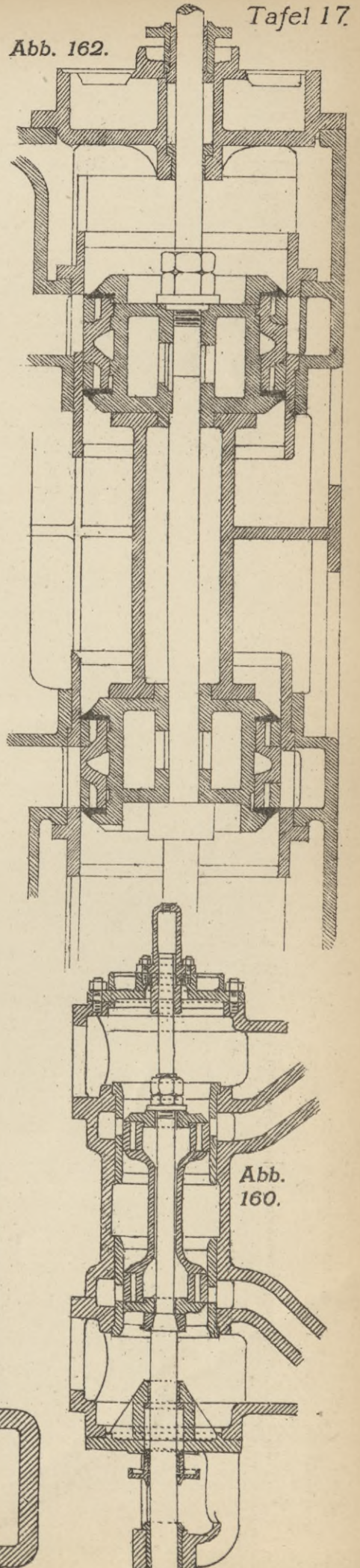
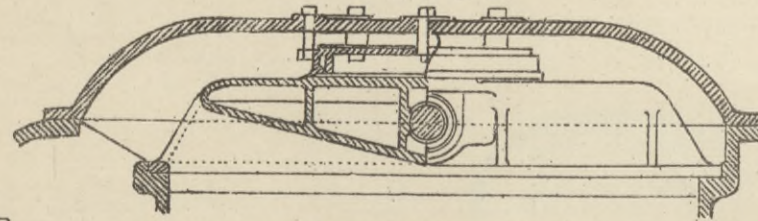


Abb. 156. Anordnung eines Penn'schen Schiebers.

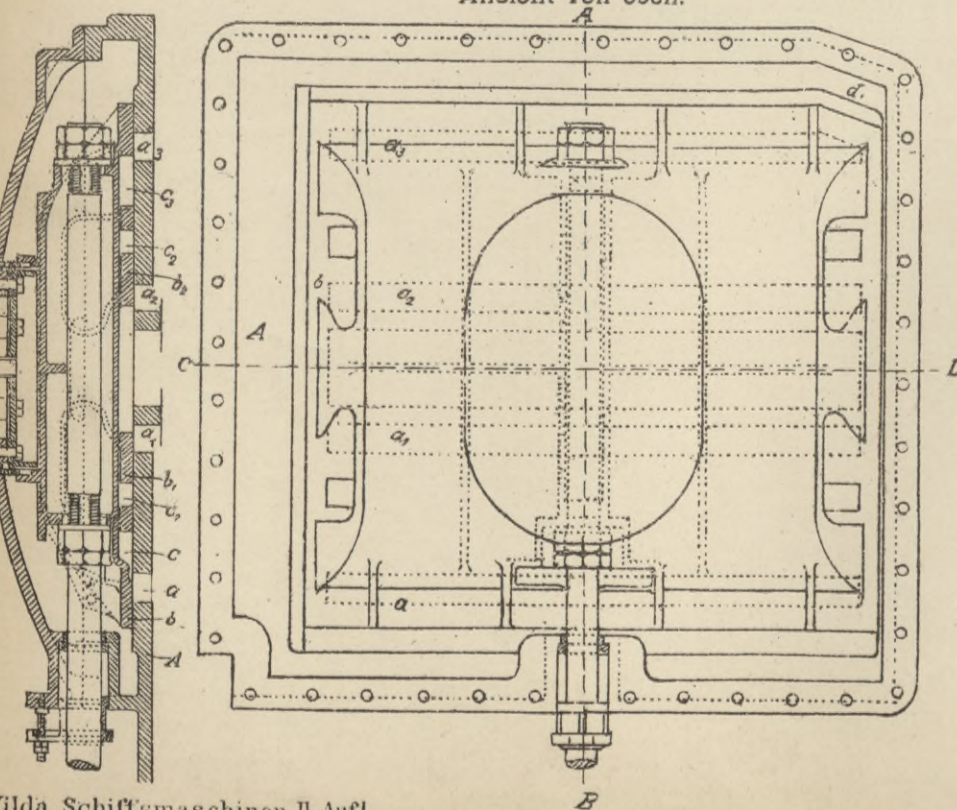
Schnitt C. D.



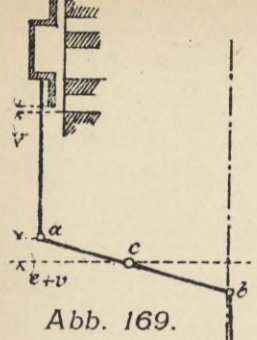
Ansicht von oben.

A

Schnitt A. B.

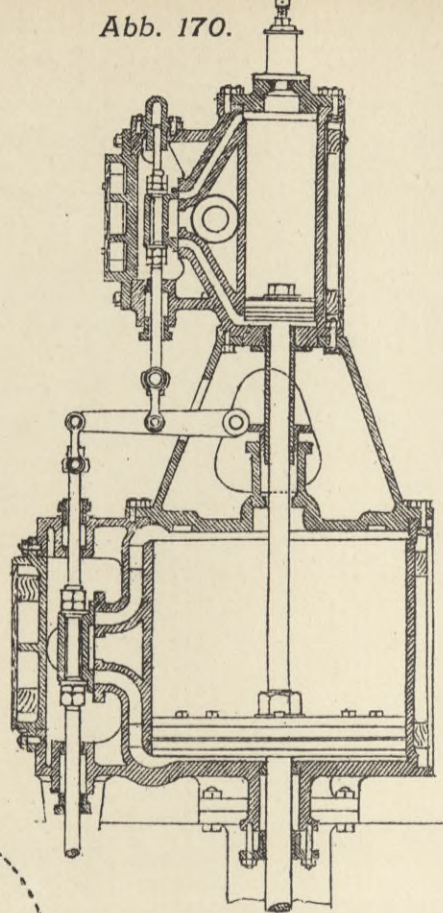


Schieberantrieb durch Hebeleinschaltung.



Schieberantrieb einer Maschine in Tandemaufstellung durch einarmigen Hebel.

Abb. 170.

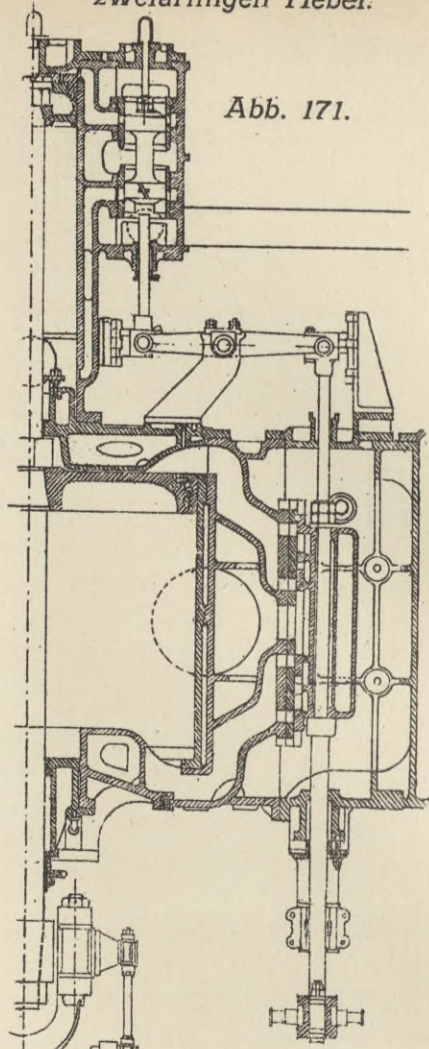


Rückenentlastung

Abb. 168.

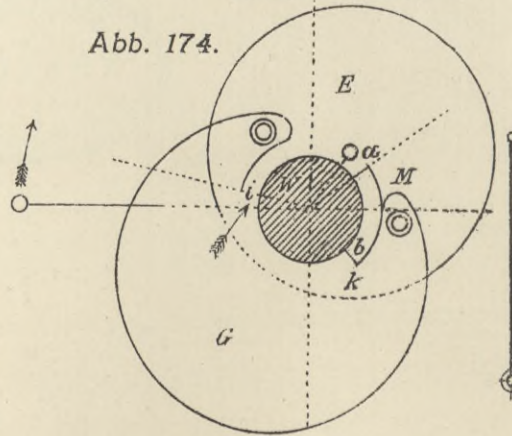
Schieberantrieb einer Maschine in Tandemaufstellung durch zweiarmigen Hebel.

Abb. 171.



Loses Exzenter.

Abb. 174.



Wirkungsweise von zwei Exzentrern.

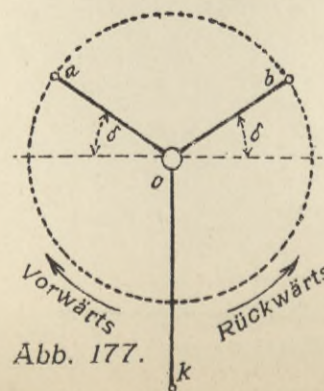
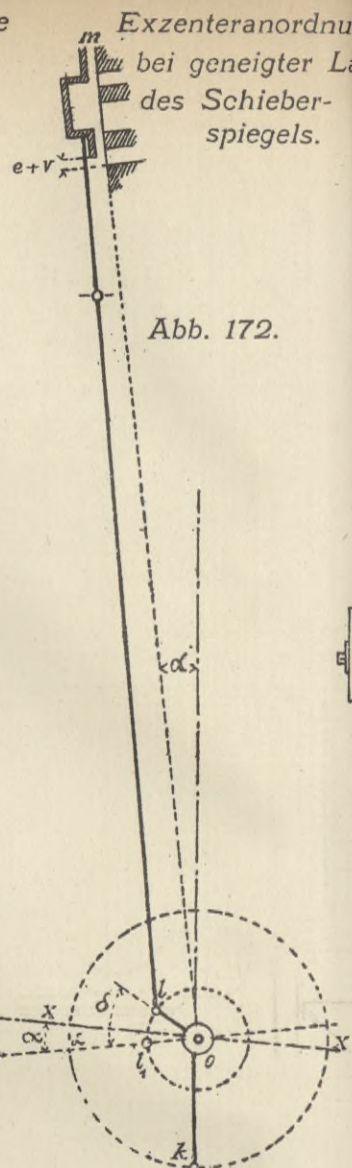


Abb. 177.

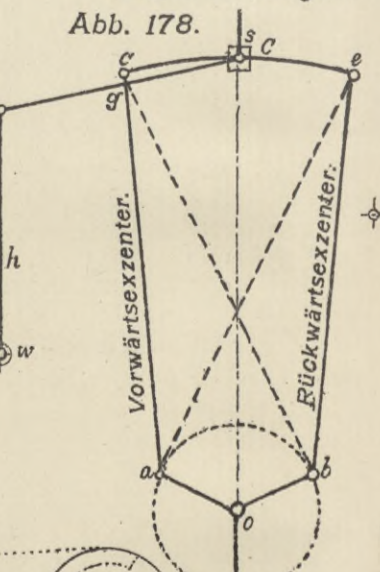
Exzenteranordnung bei geneigter Lage des Schieber spiegels.

Abb. 172.



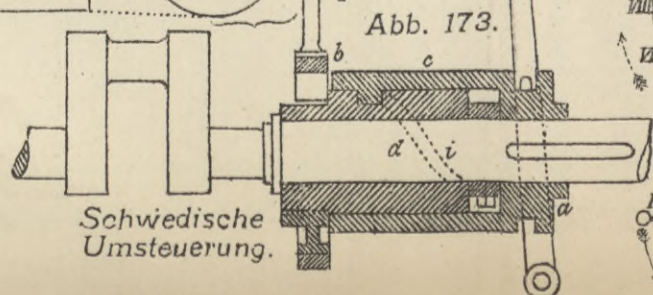
Offene und gekreuzte Exzenterstangen.

Abb. 178.



Vorwärtsexzenter. Rückwärtsexzenter.

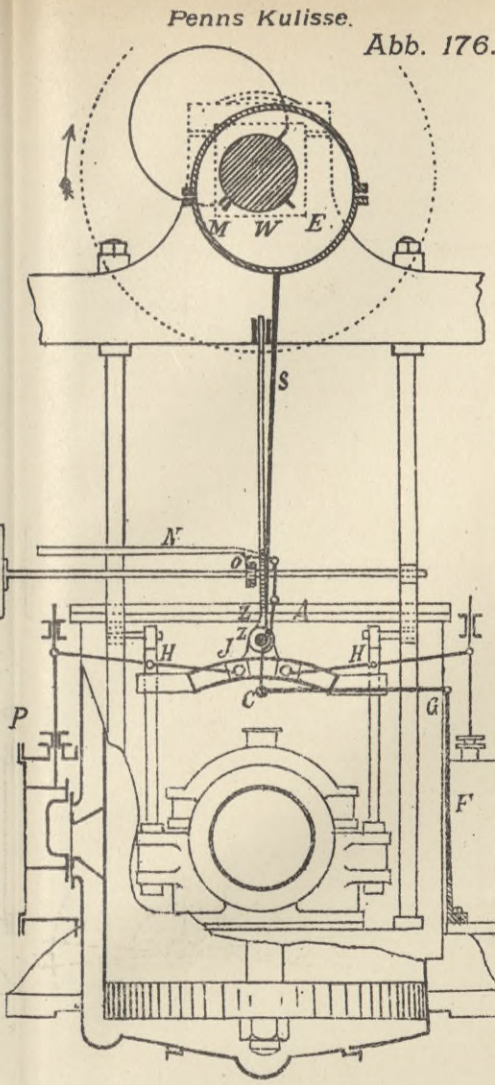
Abb. 173.



Schwedische Umsteuerung.

Steuerung mit losem Exzenter für oszillierende Maschinen.

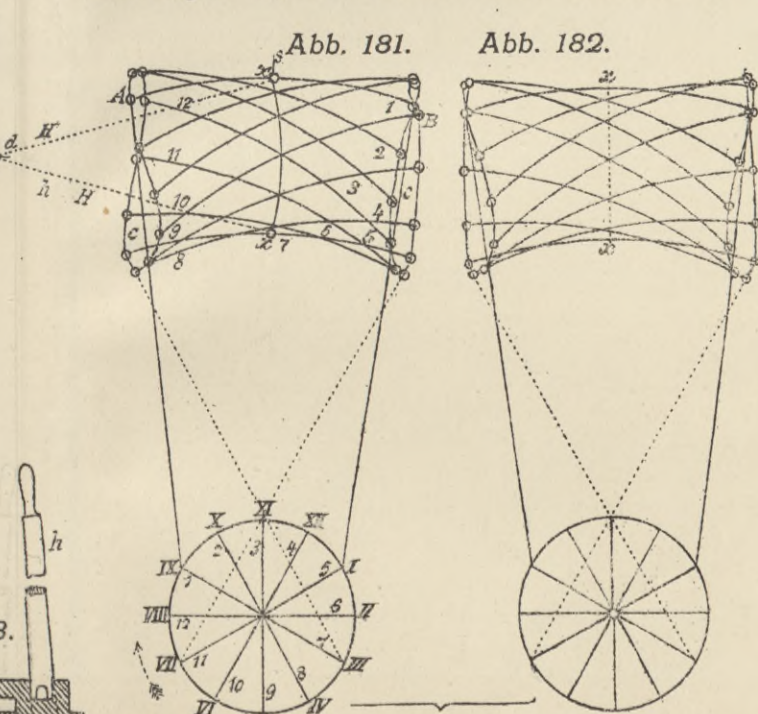
Abb. 176.



Die Lagen der Kulisse bei einer Umdrehung.

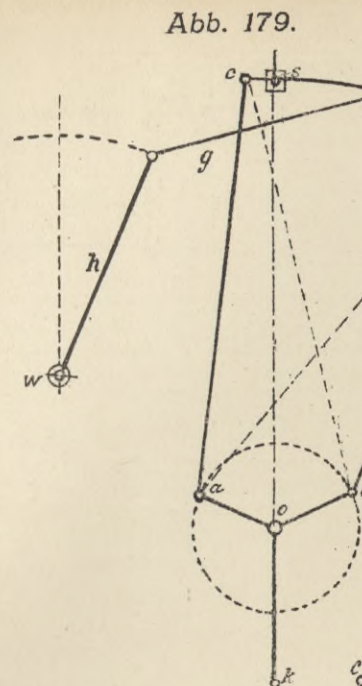
Abb. 181.

Abb. 182.



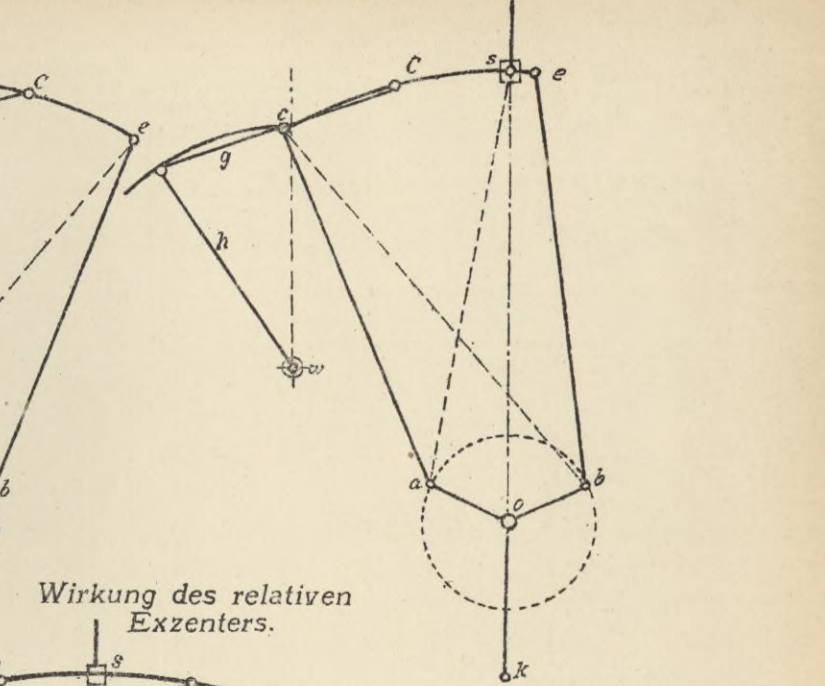
Lage der Kulisse für Vorwärtsgang.

Abb. 179.



Lage der Kulisse für Rückwärtsgang. Tafel 18.

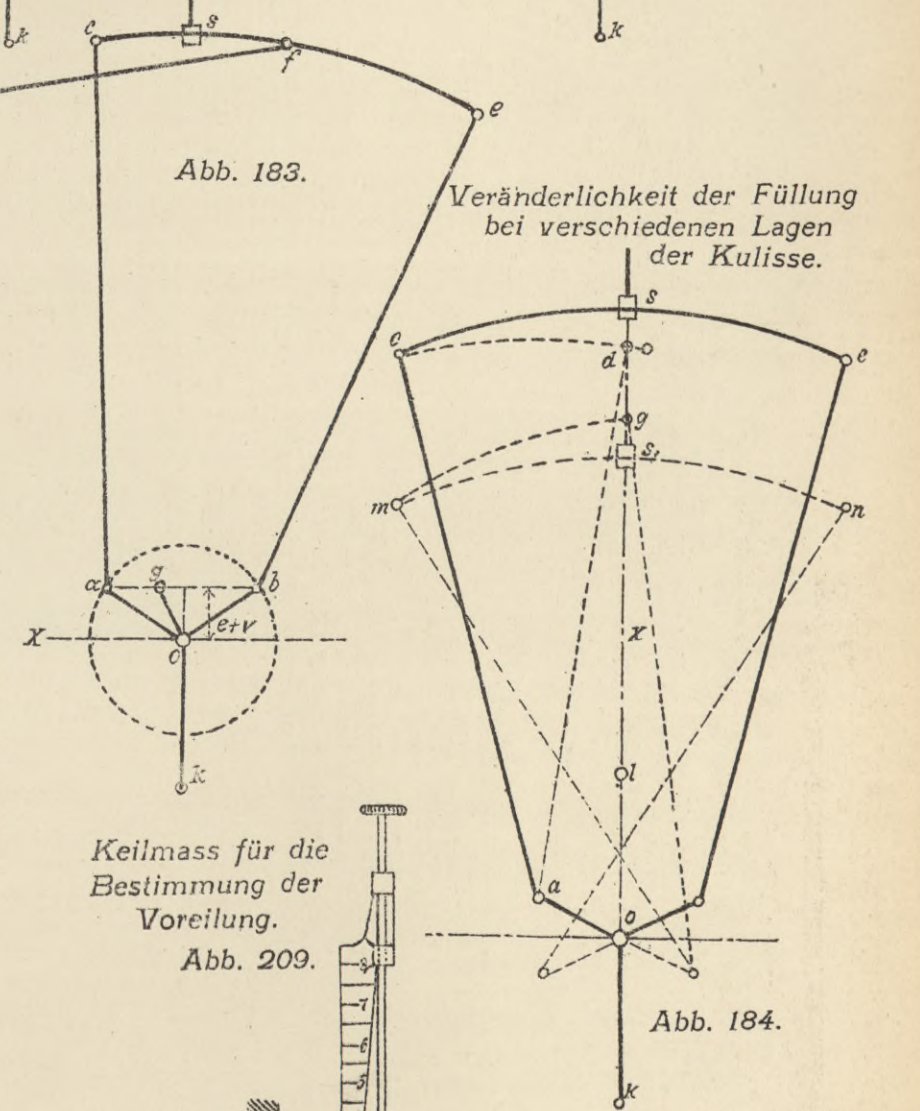
Abb. 180.



Wirkung des relativen Exzentrers.

Abb. 183.

Veränderlichkeit der Füllung bei verschiedenen Lagen der Kulisse.



Keilmass für die Bestimmung der Voreilung.

Abb. 209.

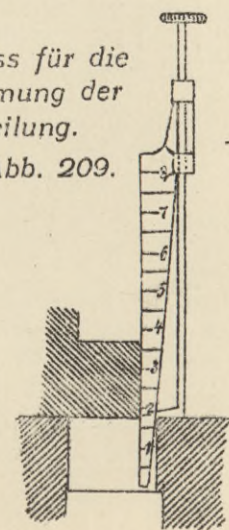
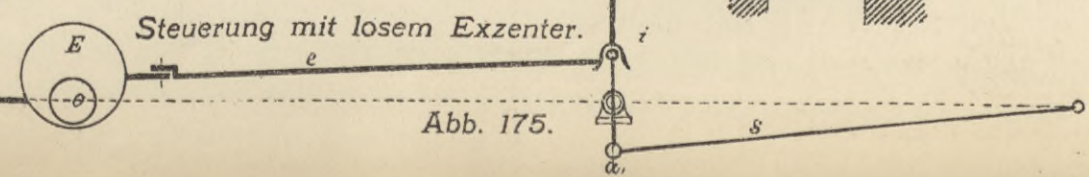


Abb. 184.

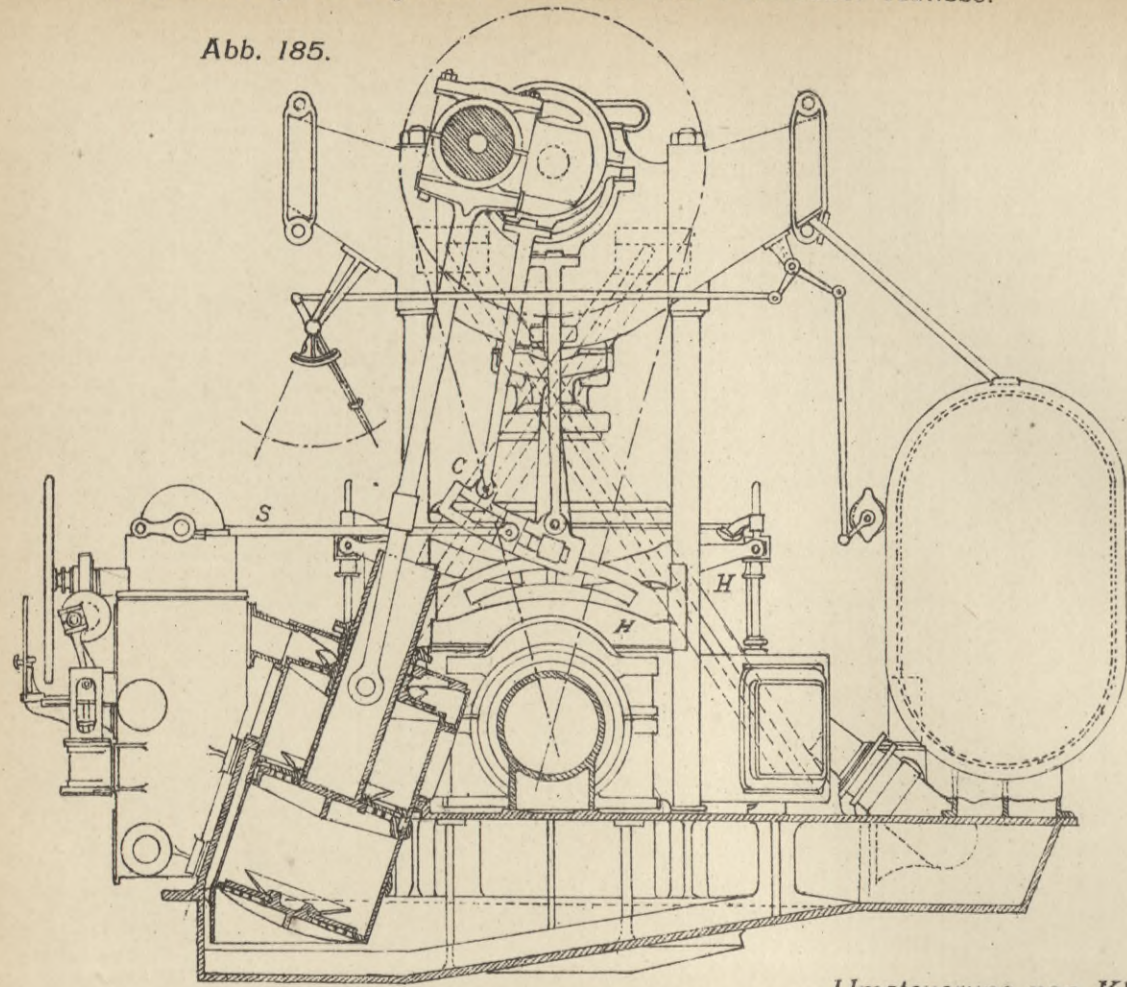
Steuerung mit losem Exzenter.

Abb. 175.

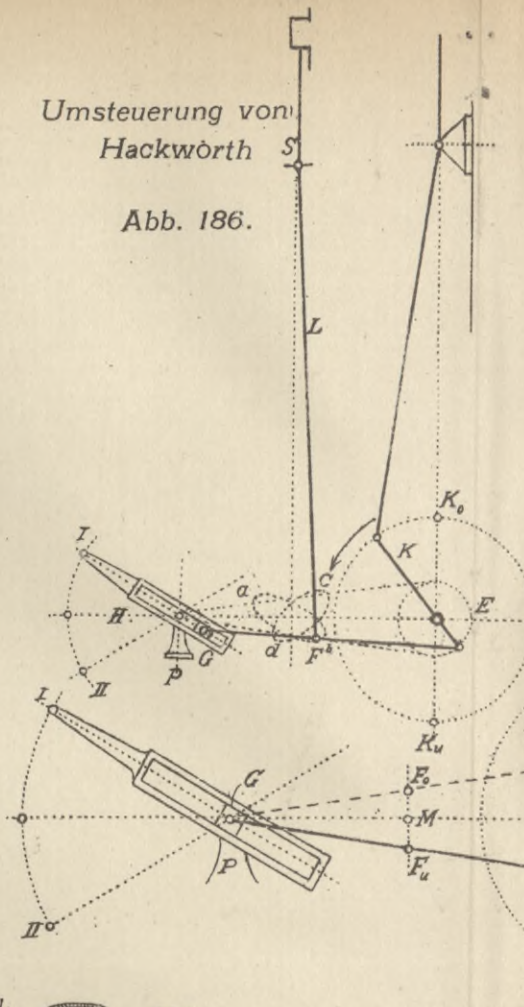


Umsteuerung mit 2 festen Exzentrern und Pennischer Kulissee.

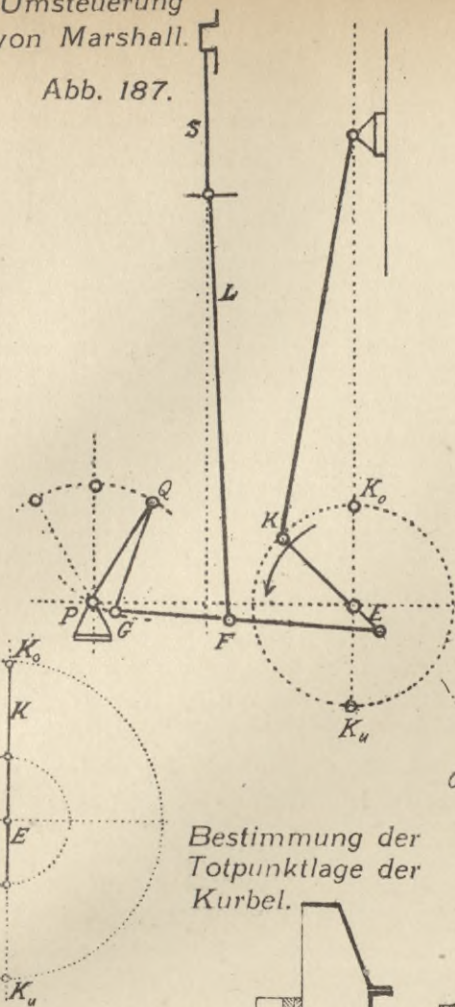
Abb. 185.



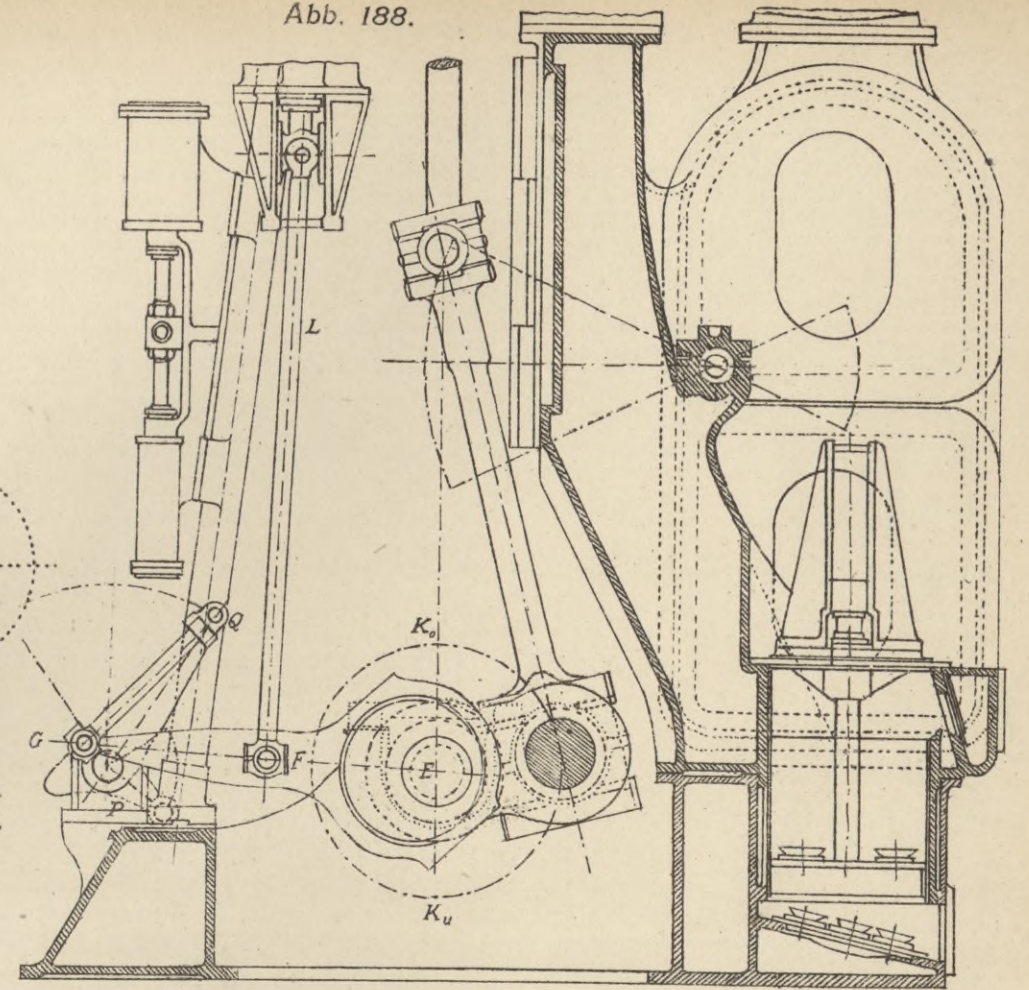
Umsteuerung von Hackwörth
Abb. 186.



Umsteuerung von Marshall.
Abb. 187.



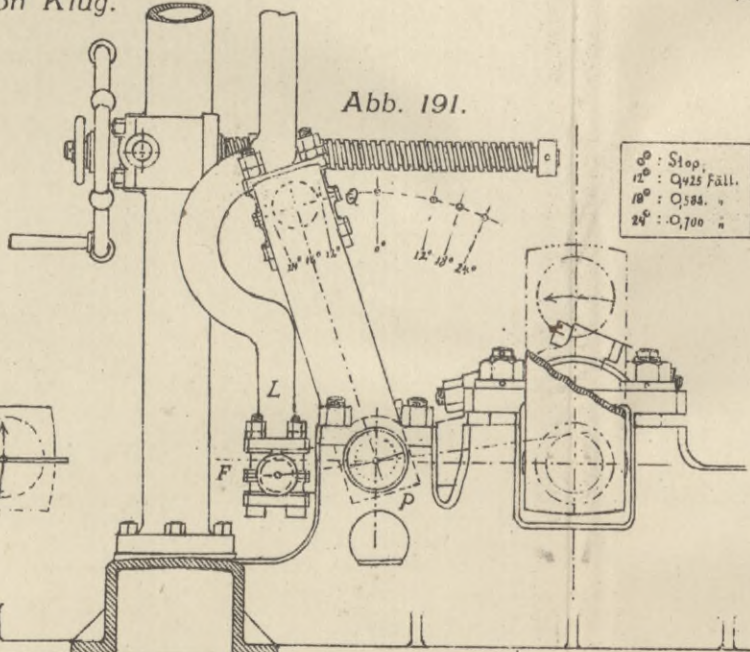
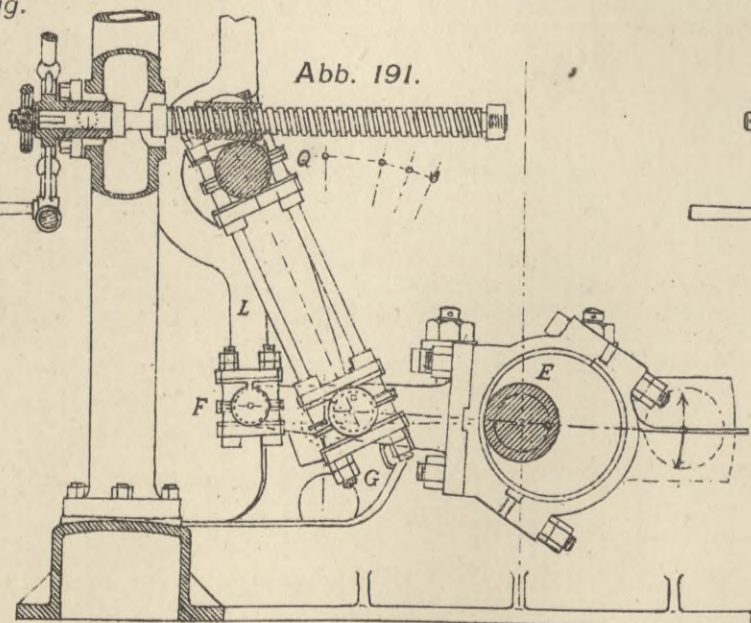
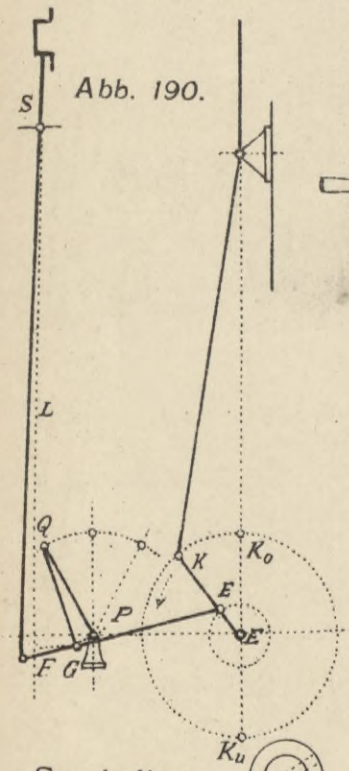
Umsteuerung von Marshall.
Abb. 188.



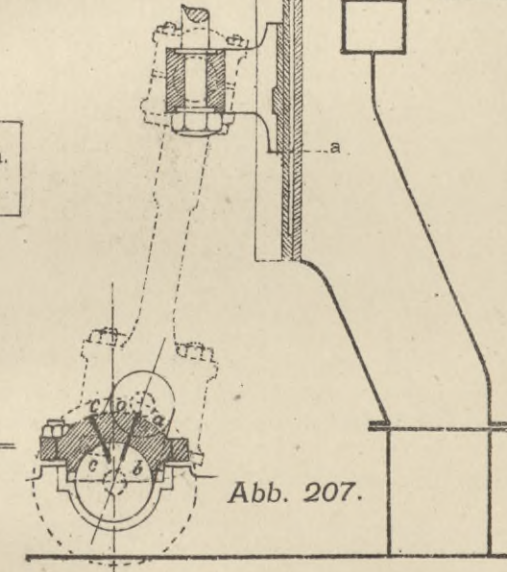
Bestimmung der Totpunktlage der Kurbel.

Umsteuerung von Klug.

Umsteuerung von Klug.



Stop
12° : 0,25 Fall.
18° : 0,584
24° : 0,700



Umsteuerung von Marshall.

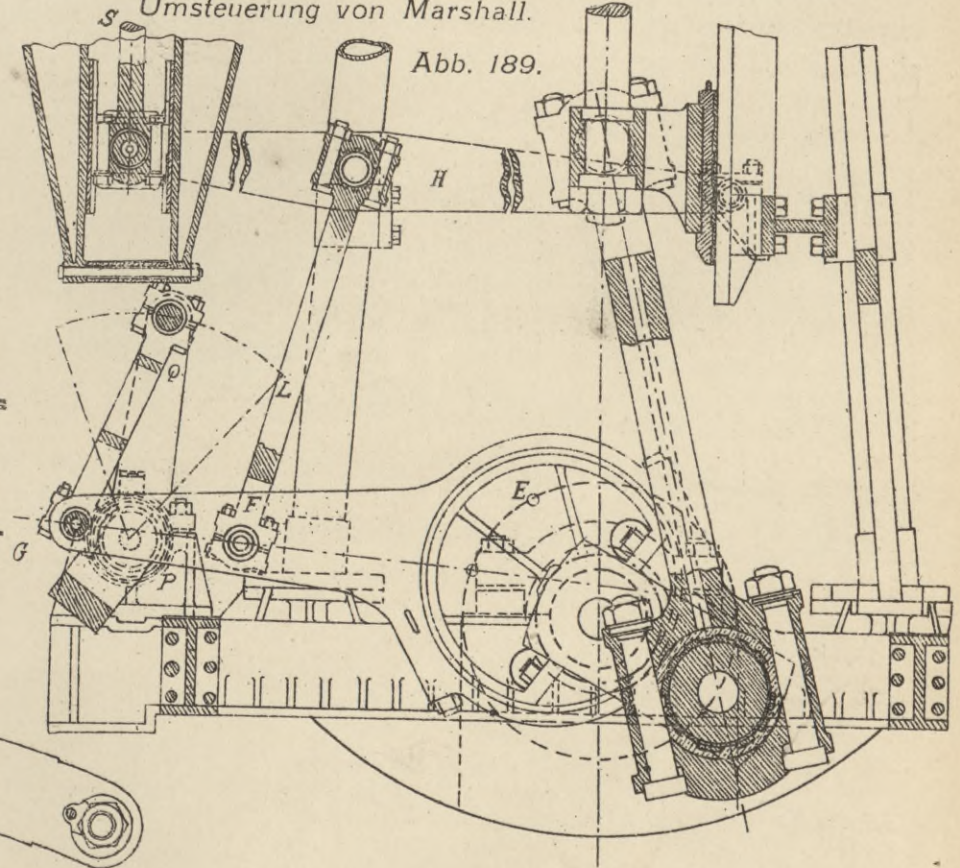


Abb. 199. Stangenkulissee.

Abb. 198. Spurkulissee

Kulisseeinsein.
Abb. 200.

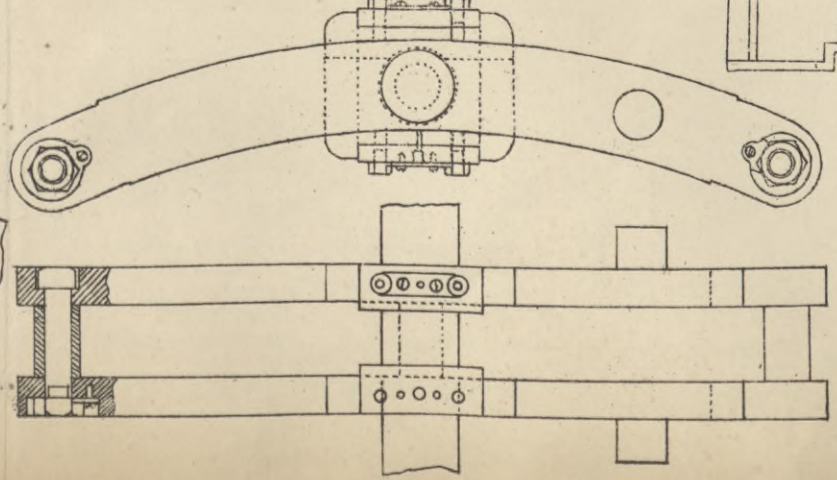
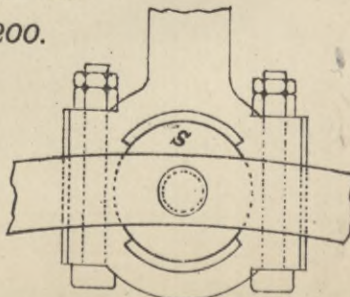
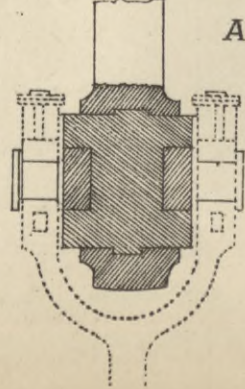
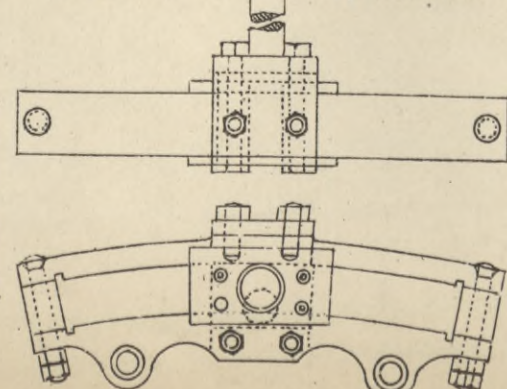
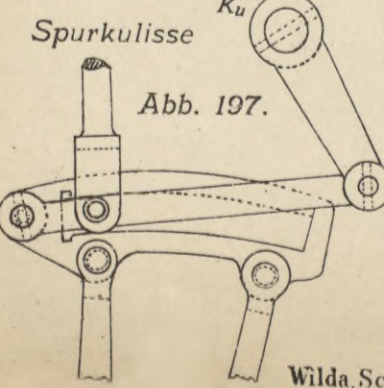
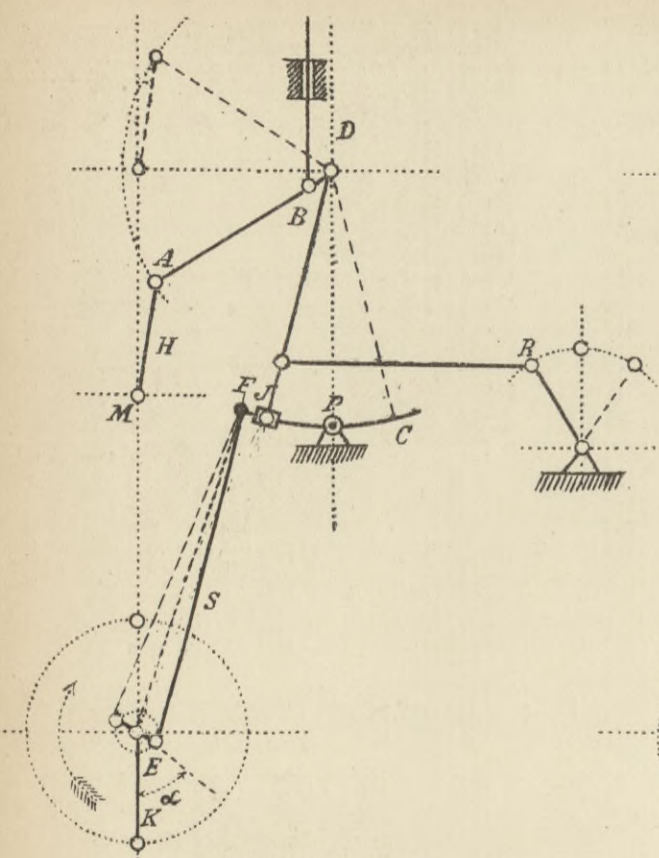


Abb. 192. Heusingersteuerung mit Innenkantabschluss.



Schematische Anordnung der Joyststeuerung.

Abb. 195.

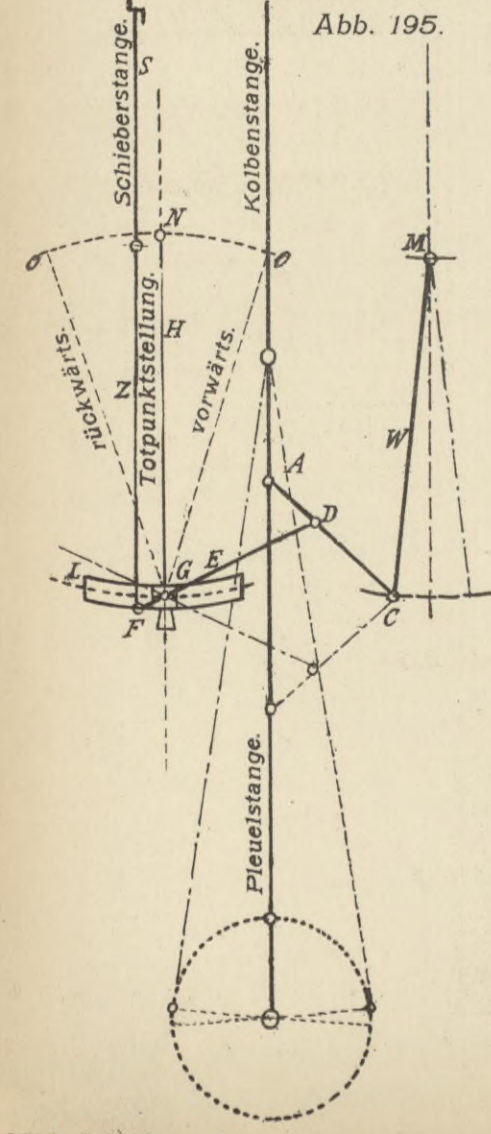
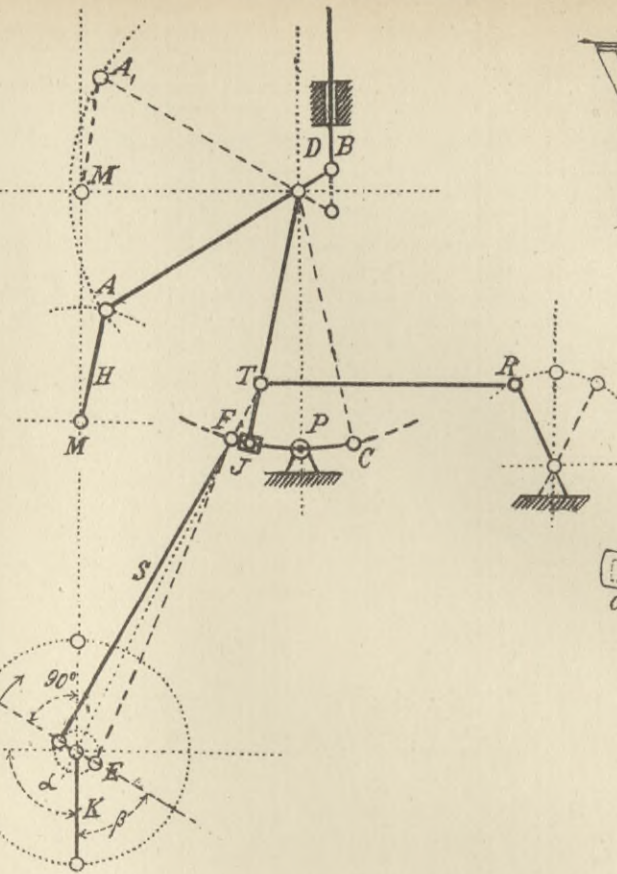


Abb. 193. Heusingersteuerung mit Aussenkantabschluss.



Joyststeuerung.

Abb. 196.

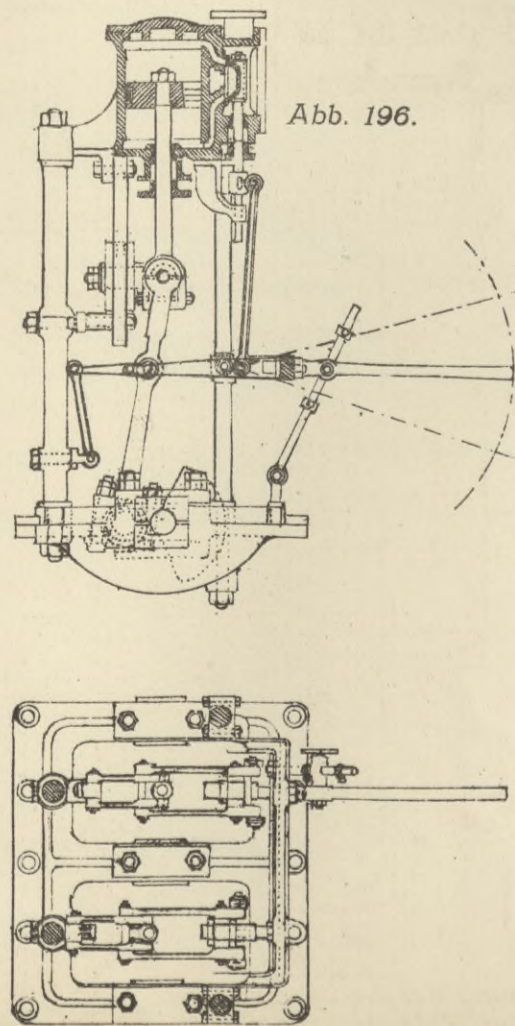


Abb. 194. Heusingersteuerung mit Aussenkantabschluss.

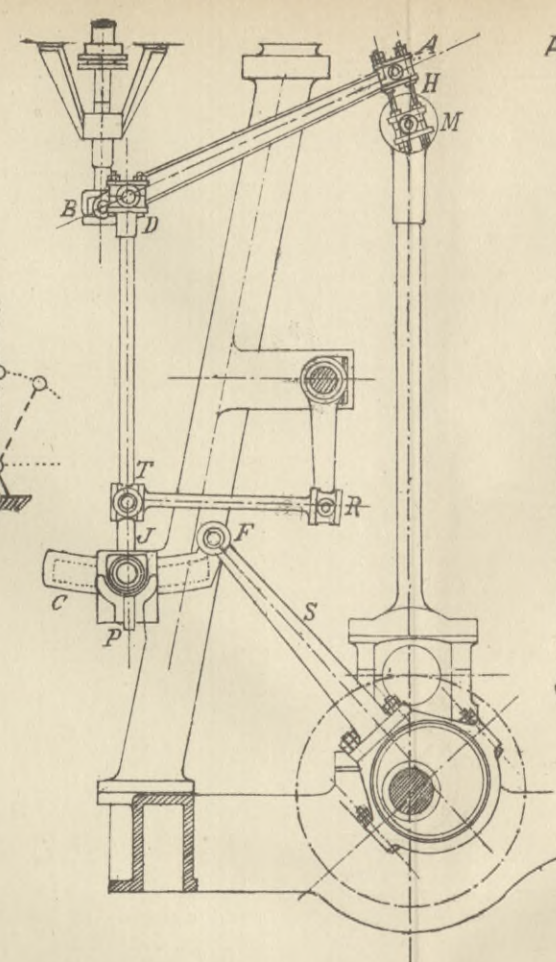
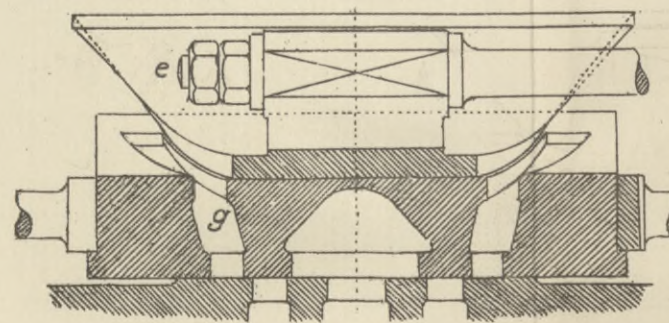
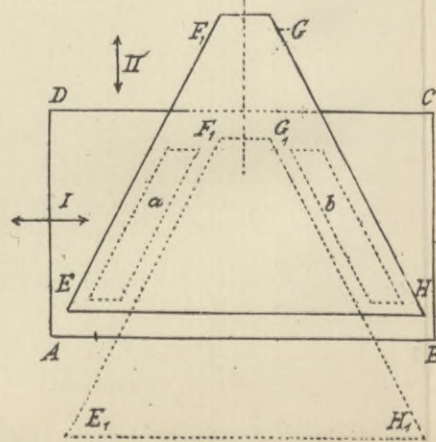


Abb. 203. Expansionssteuerung von Rider.

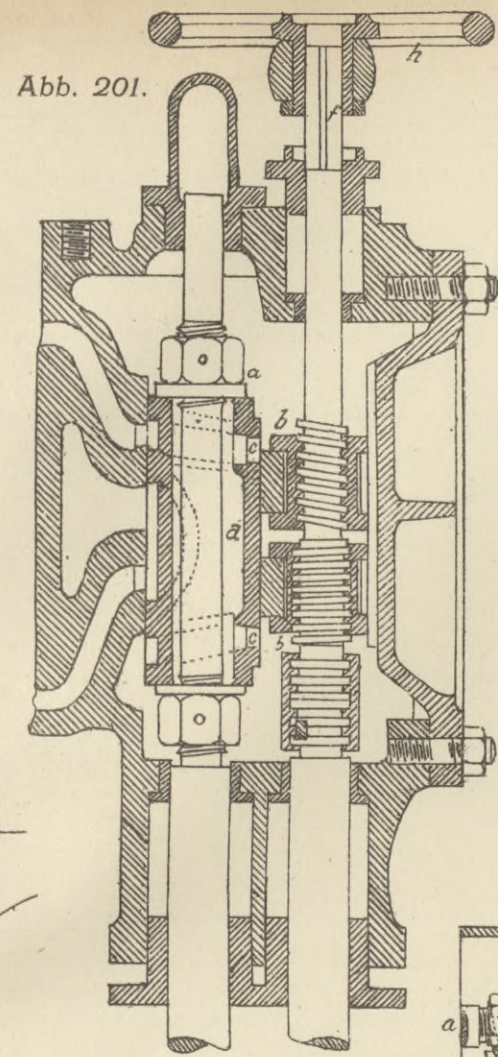


Abwicklung der Schieberflächen.



Expansionssteuerung von Meyer.

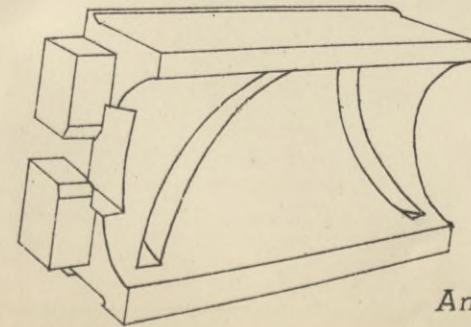
Abb. 201.



Querschnitt,

Ansicht des Grundschiebers der Ridersteuerung.

Abb. 206.



Anordnung der Schieberstangen Kolbendeckel mit Ramsbotten bei Meyers Expansionssteuerung. dichtung und Deckelschraubensicherung. Tafel 20.

Expansionsstange,

Grundschieberstange.

Abb. 202.

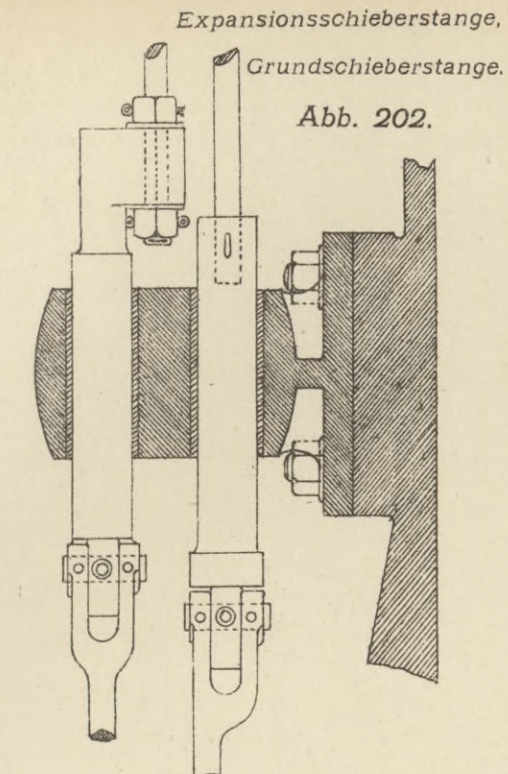
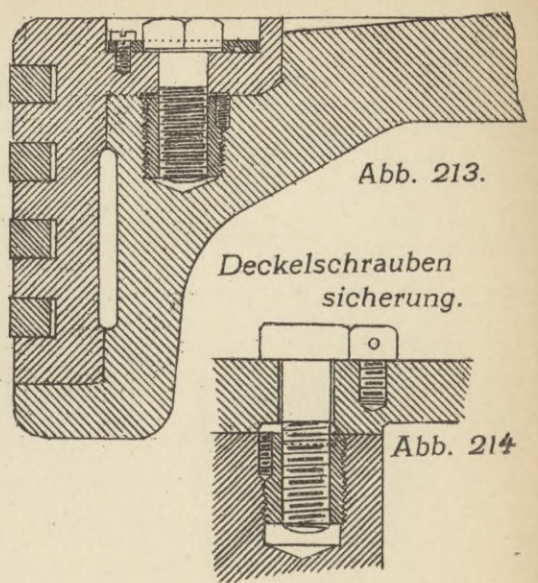


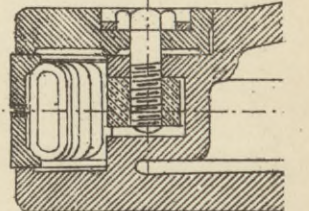
Abb. 213.

Deckelschraubensicherung.

Abb. 214.



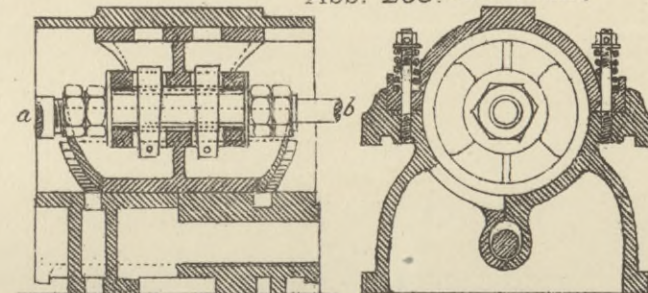
Aeltere Buckleydichtung. Abb. 215.



Entlastete Ridersteuerung.

Abb. 205. Querschnitt,

Längsschnitt,



Kolbenschlösser. Abb. 217.

Gewinde.

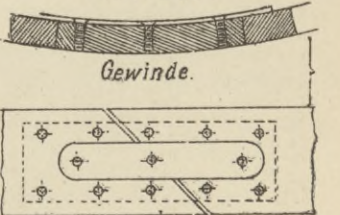
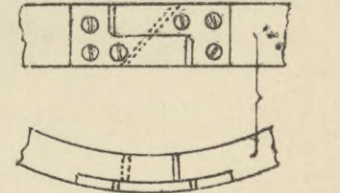
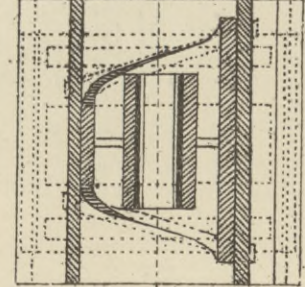


Abb. 217a



Schnitt a b.



Neuere Buckleydichtung.

Abb. 215.

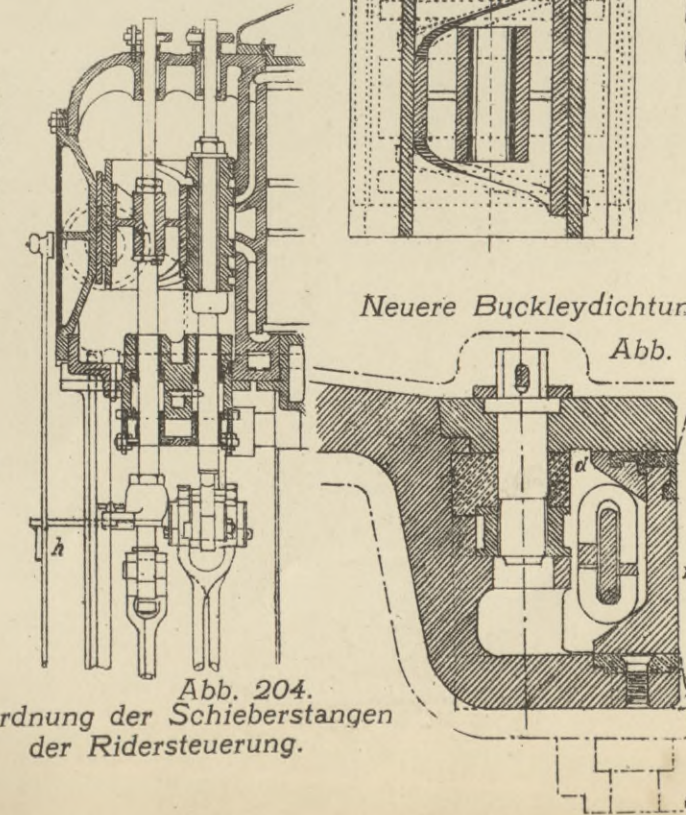
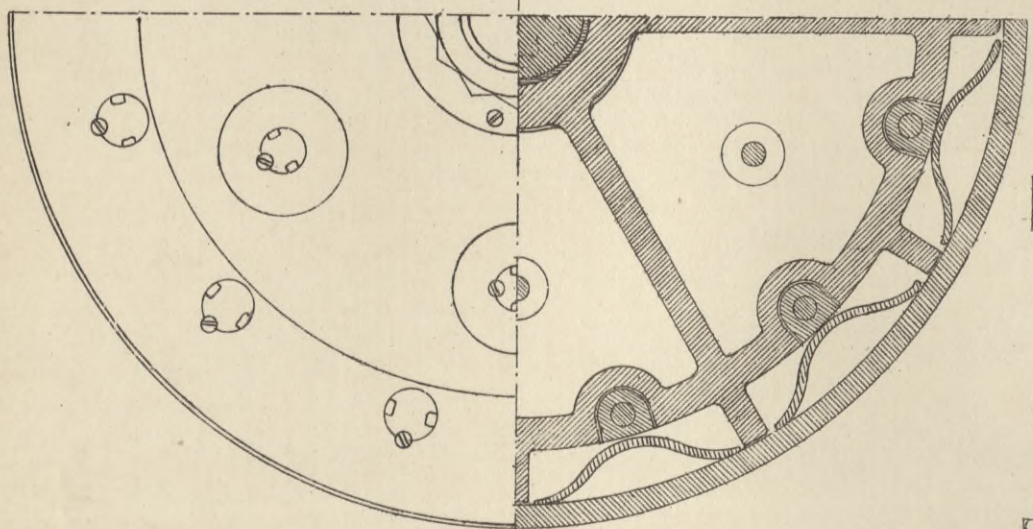
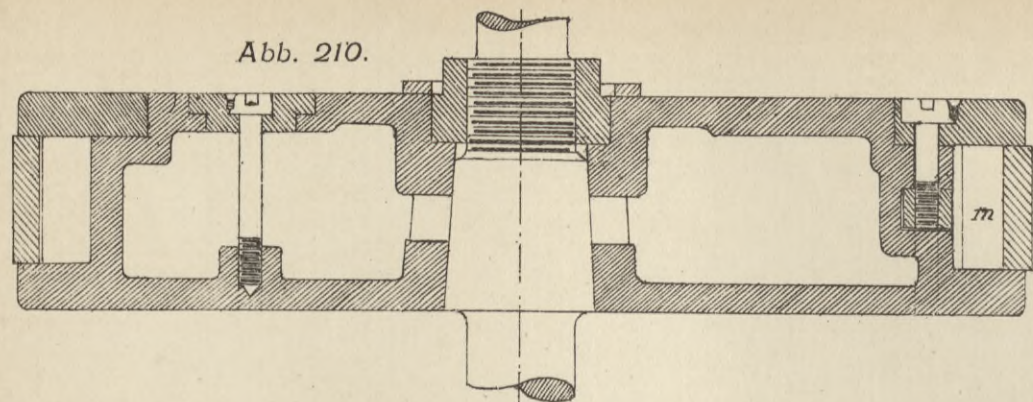


Abb. 204. Anordnung der Schieberstangen der Ridersteuerung.

Gusseiserner Kolben.

Abb. 210.



Gusseiserner Kolben.

Abb. 211.

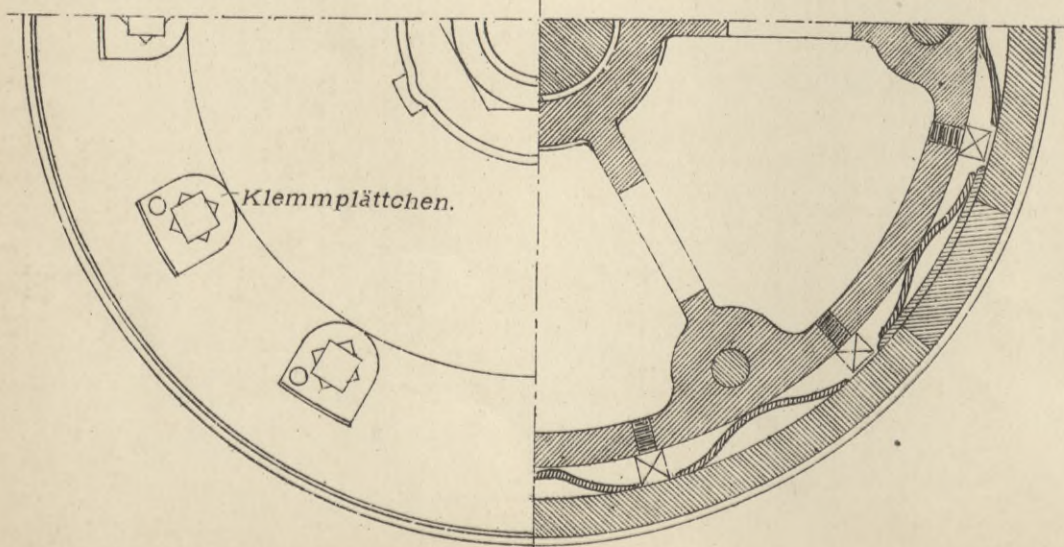
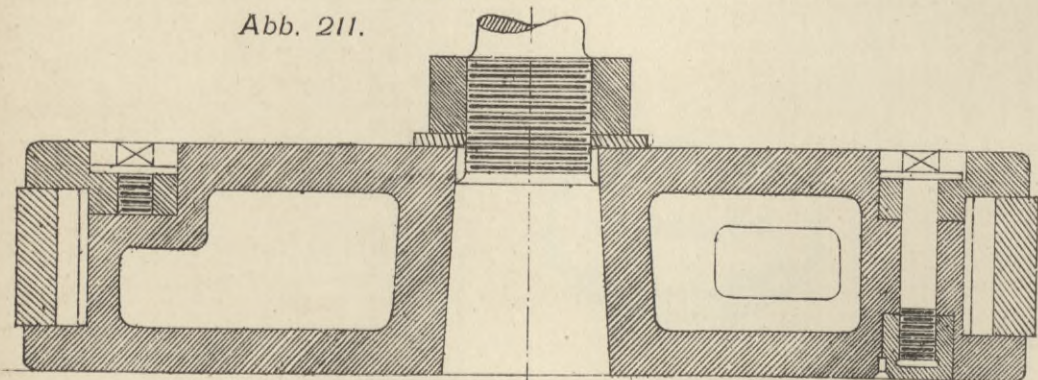
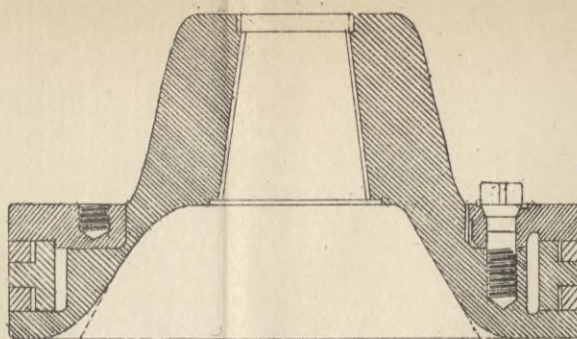


Abb. 212. Stahlgusskolben.



Schraubensicherung von Penn. Pleuelstange mit geschlossenem Kopf.

Abb. 218.

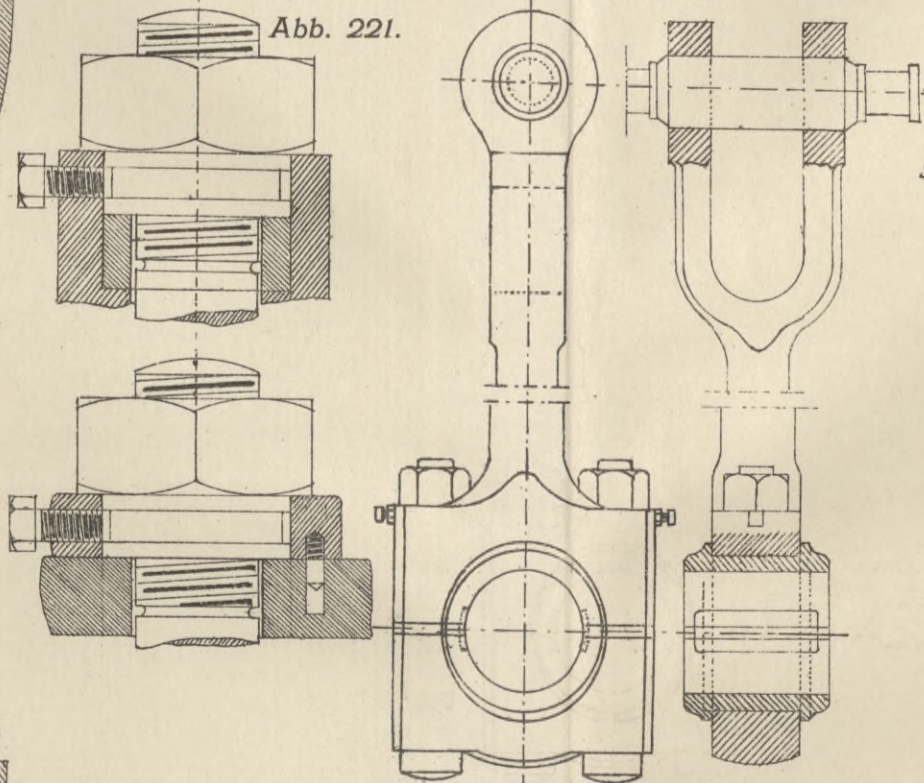
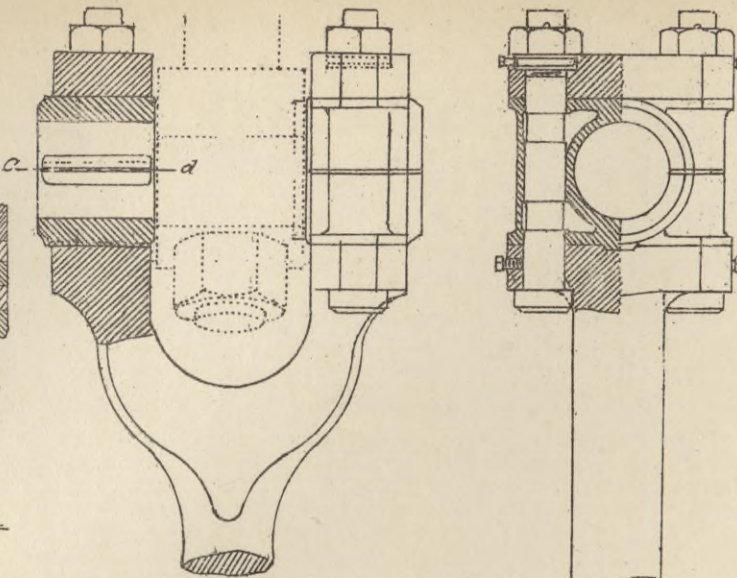
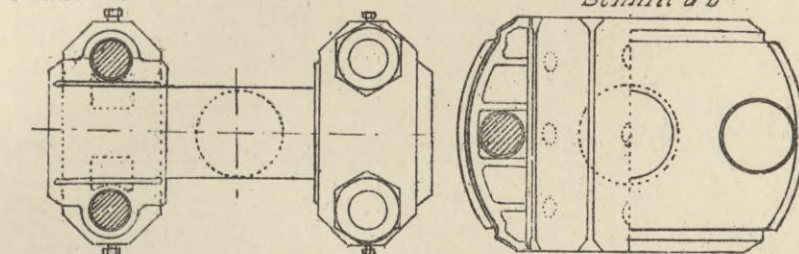


Abb. 219. Offener Pleuelstangenkopf.



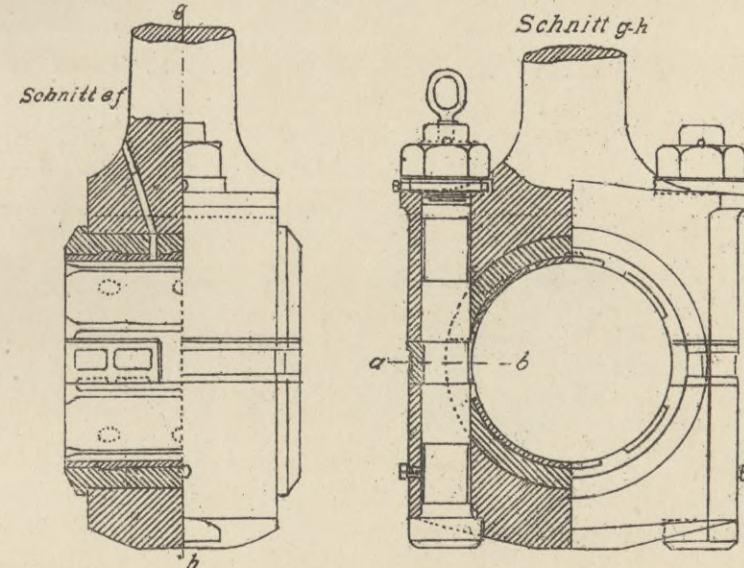
Schnitt cd

Schnitt ab



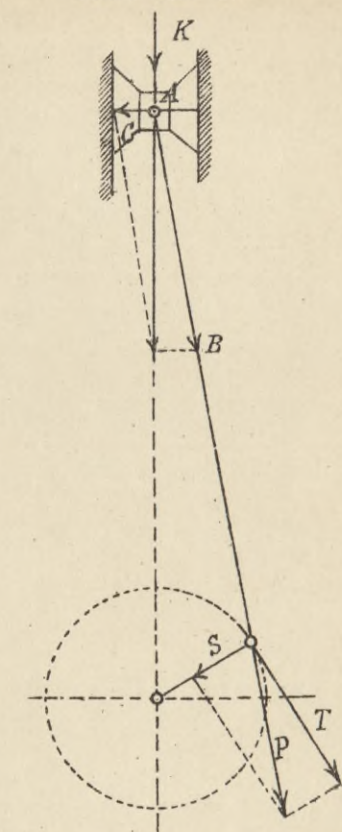
Schnitt ef

Schnitt gh



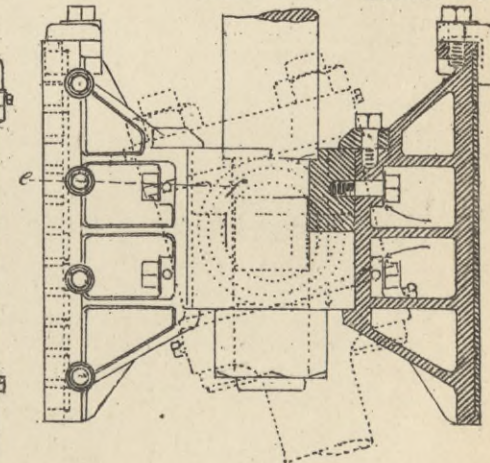
Druck auf die Gleitbahn.

Abb. 227 a.



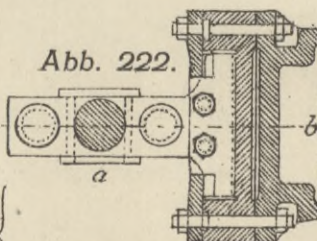
Zweigleisige Kreuzköpfe.

Abb. 227. Schnitt a-b



Eingleisige Kreuzköpfe. Abb. 224.

Abb. 222.



Schnitt a b.

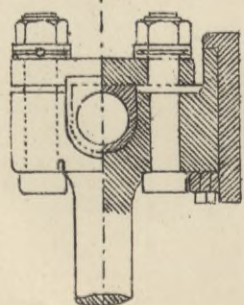


Abb. 223.

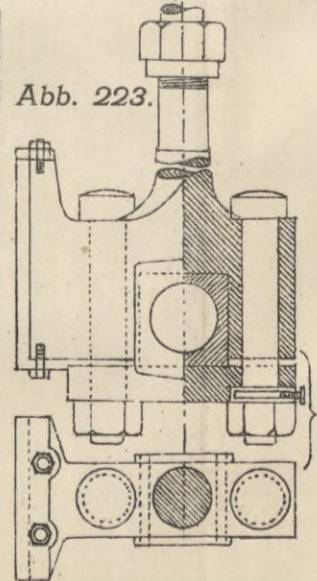
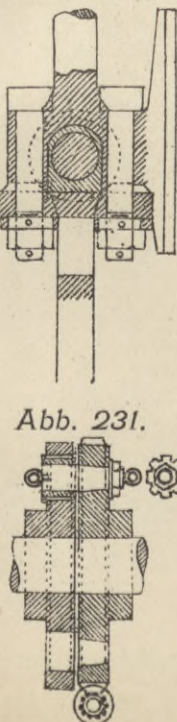


Abb. 231.



Konischer Kupplungsbolzen.

Zweigleisige Kreuzköpfe. Abb. 225.

Abb. 226. Schnitt a b.

Schnitt e f.

Schnitt e f.

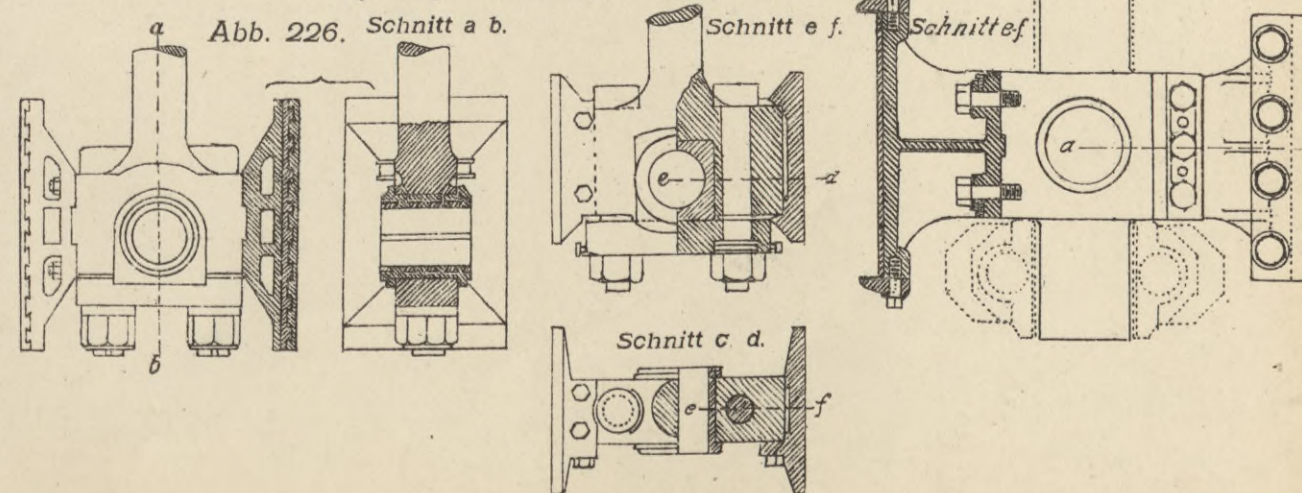
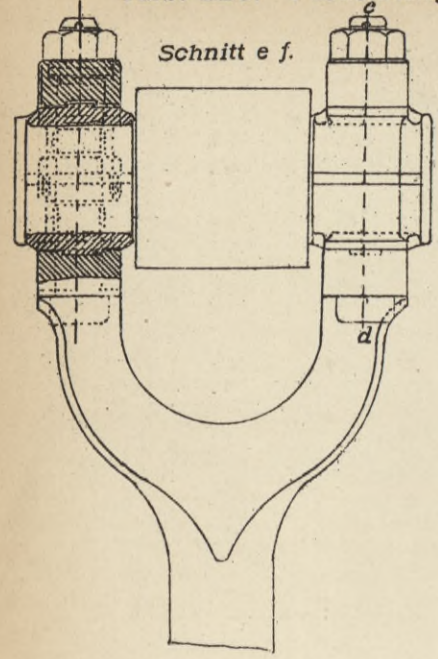
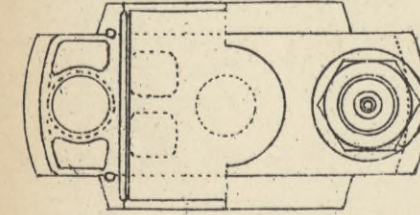




Abb. 220. Pleuelstange mit offenem Kopf.



Schnitt i k Oberansicht.



Anordnung von Doppelschrauben.

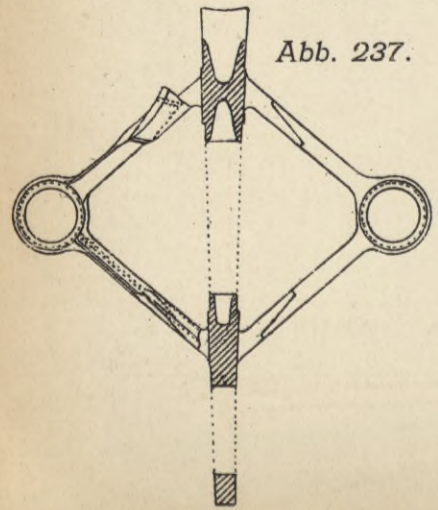


Abb. 228. Kurbelwelle einer Dreifach-Expansionsmaschine. Wellenrohr für Doppelschrauben.

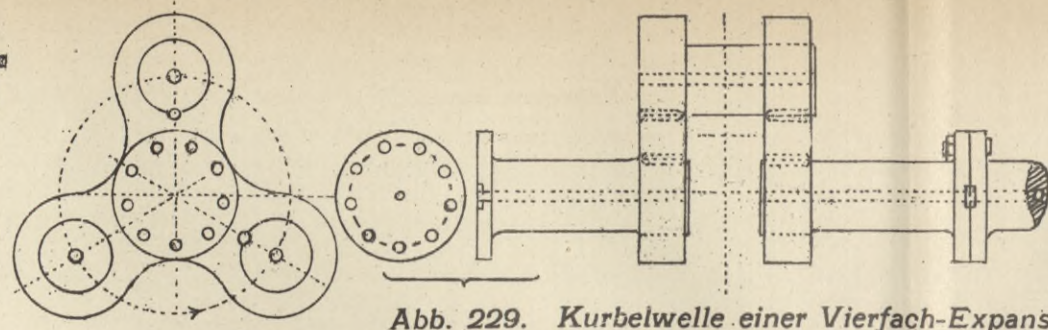
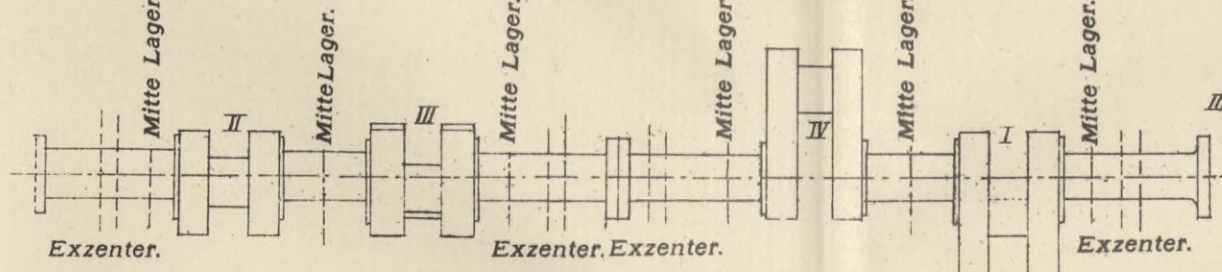


Abb. 229. Kurbelwelle einer Vierfach-Expansionsmaschine.



Kurbelwelle einer Dreifach-Expansionsmaschine mit 4 Cylindern.

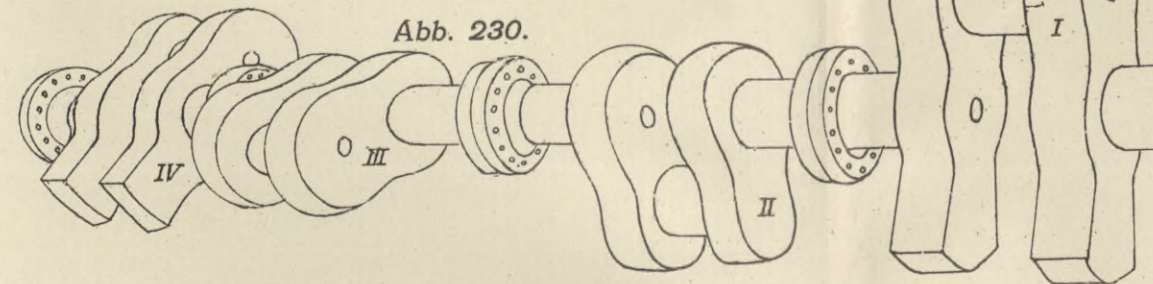


Abb. 230.

Ausrückbare Kupplung für Raddampfer.

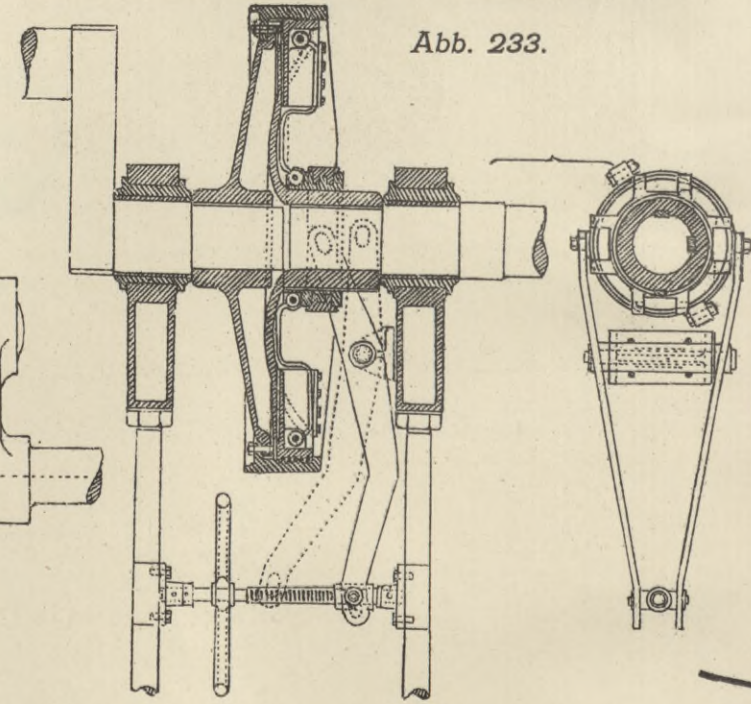
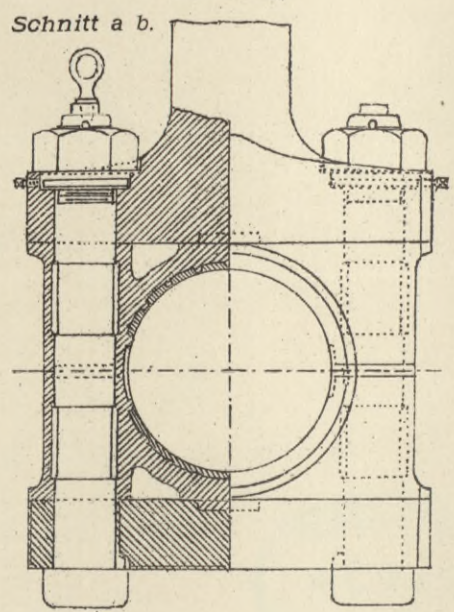
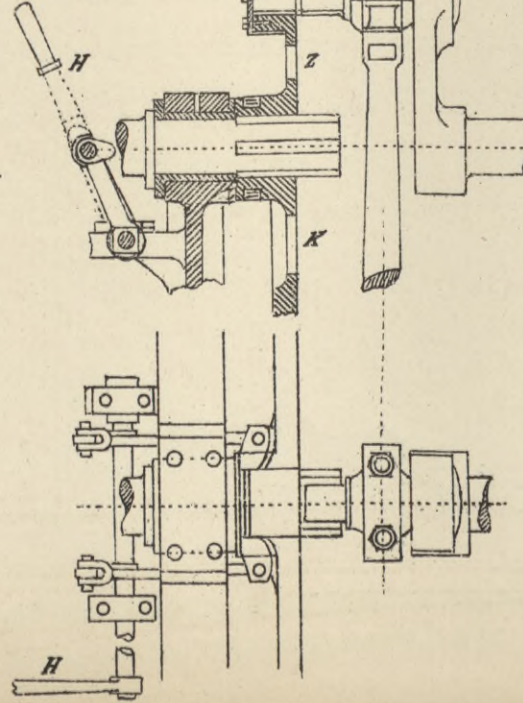


Abb. 233.



Ausrückbare Kurbelwelle für Raddampfer.

Abb. 232.



Wellenrohr für Doppelschrauben.

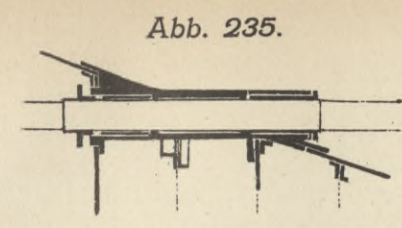


Abb. 238. Frame für eine Zweifach-Expansionsmaschine. Tafel 22

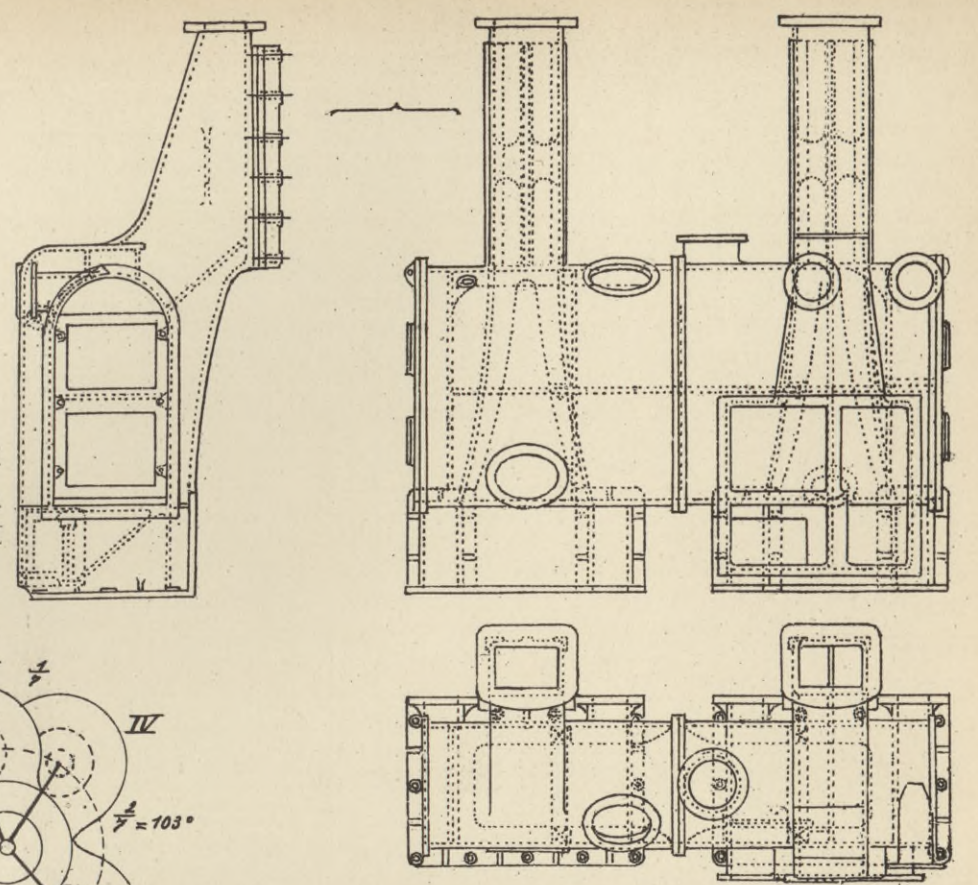


Abb. 234. Stevenrohr.

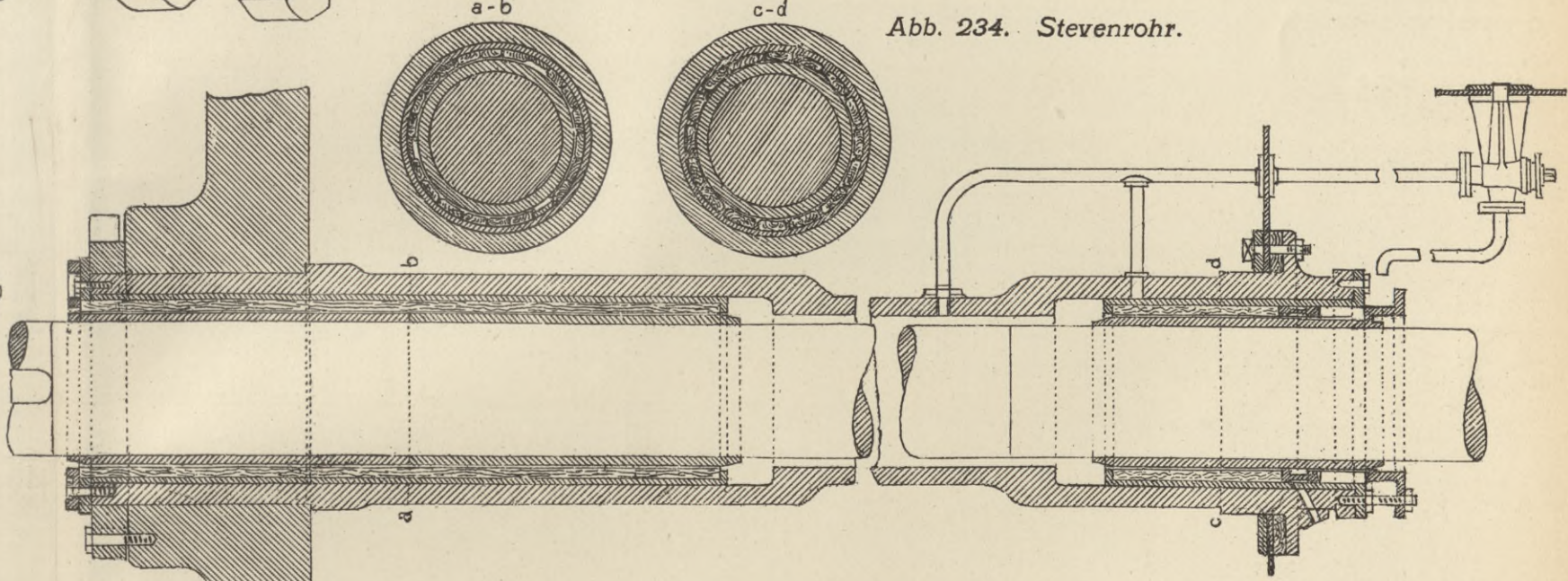


Abb. 236. Wellenrohr für Doppelschrauben.

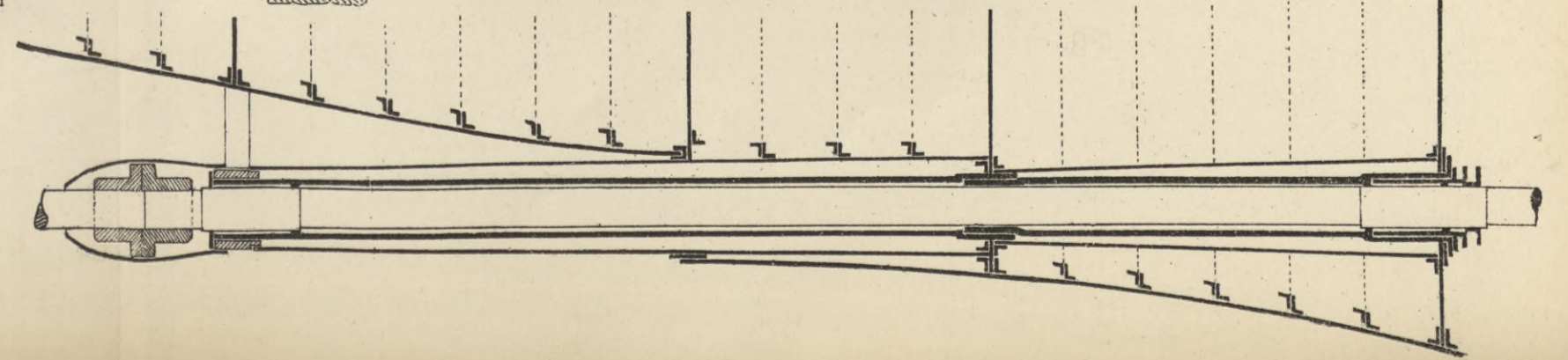
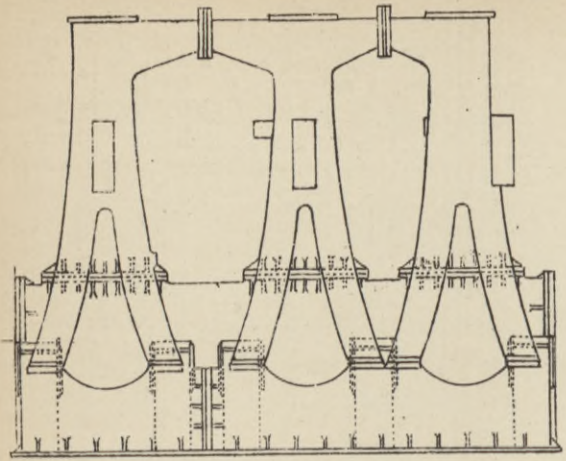


Abb. 239. Grundplatte und Frame einer Dreifach-Expansionsmaschine.



Schnitt durch Frame und Kondensator.

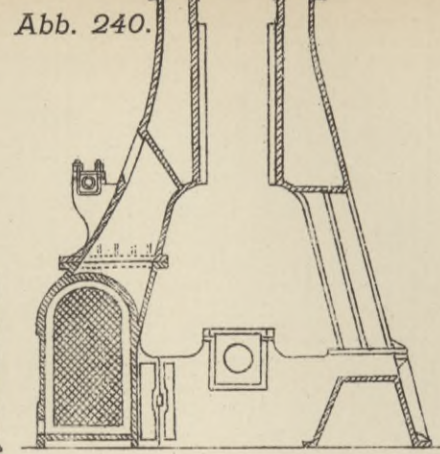


Abb. 241. Frameanordnung für eine Dreifach-Expansionsmaschine.

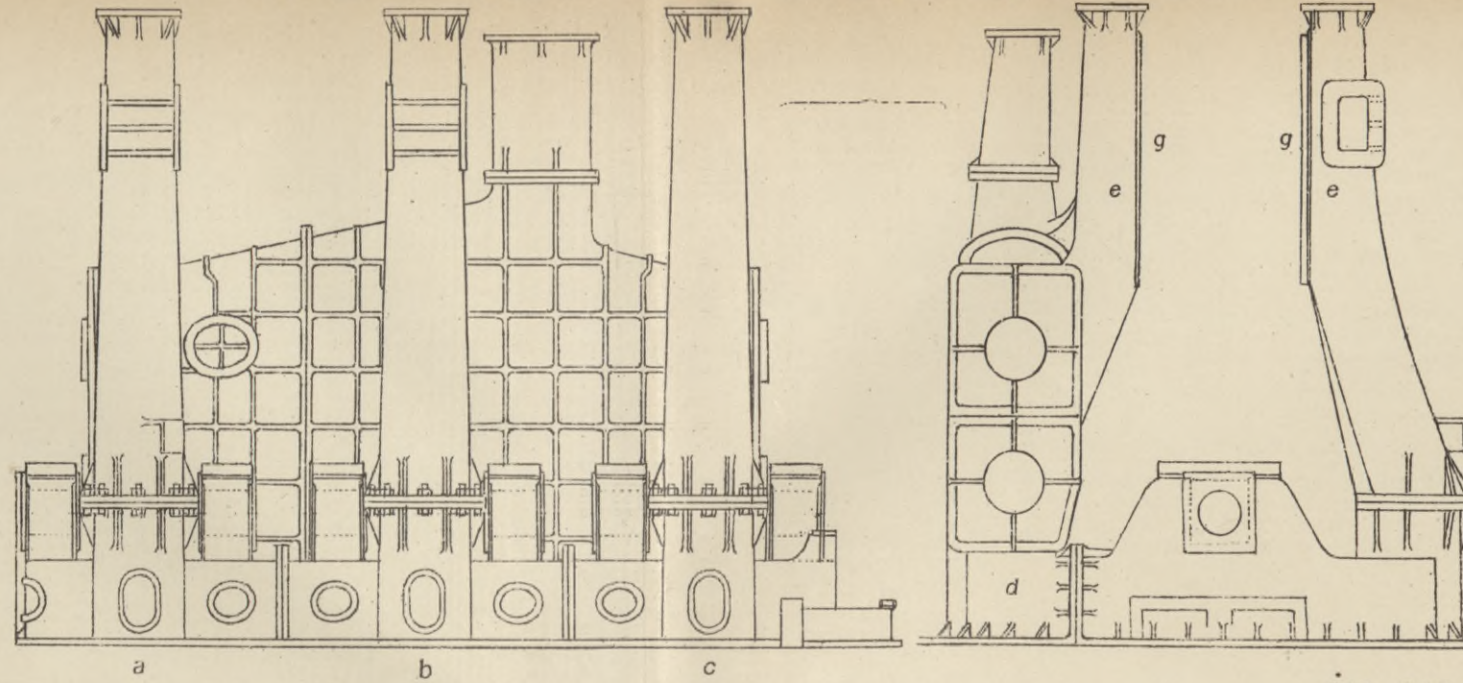
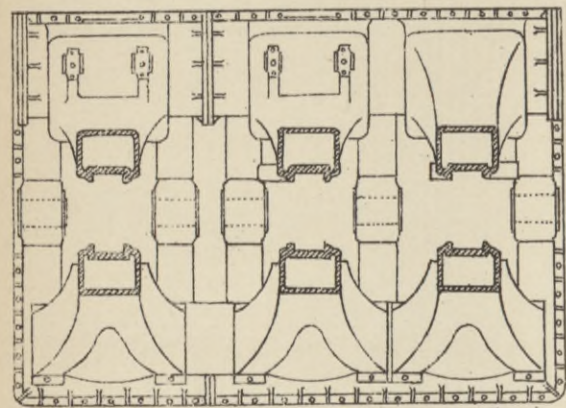
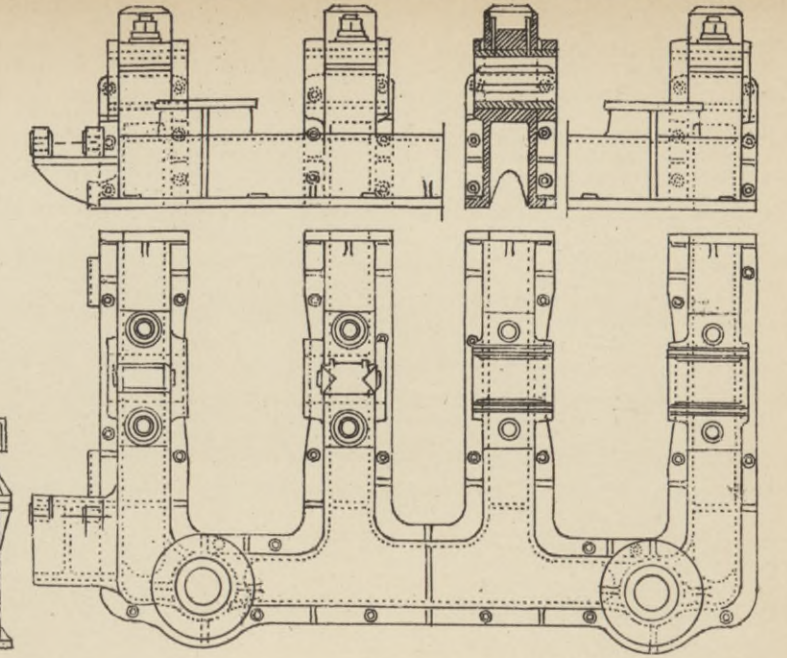


Abb. 244. Grundplatte mit Grundlagern.



Thomsonventil.

Abb. 266.

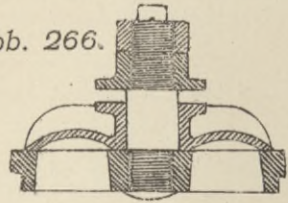


Abb. 247. Grundlager.

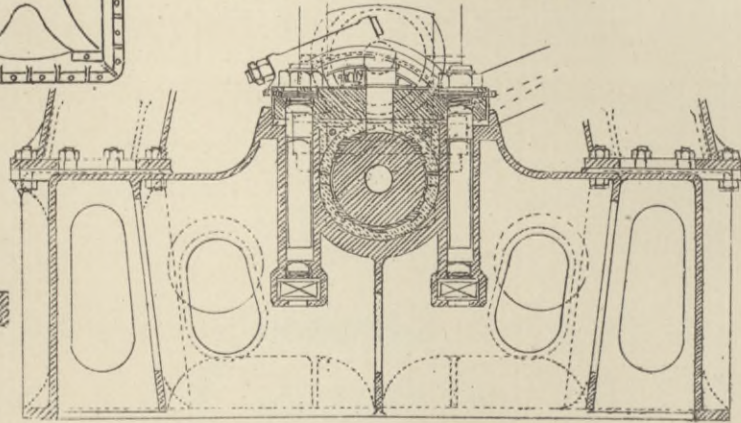


Abb. 242. Frame für eine Dreifach-Expansionsmaschine.

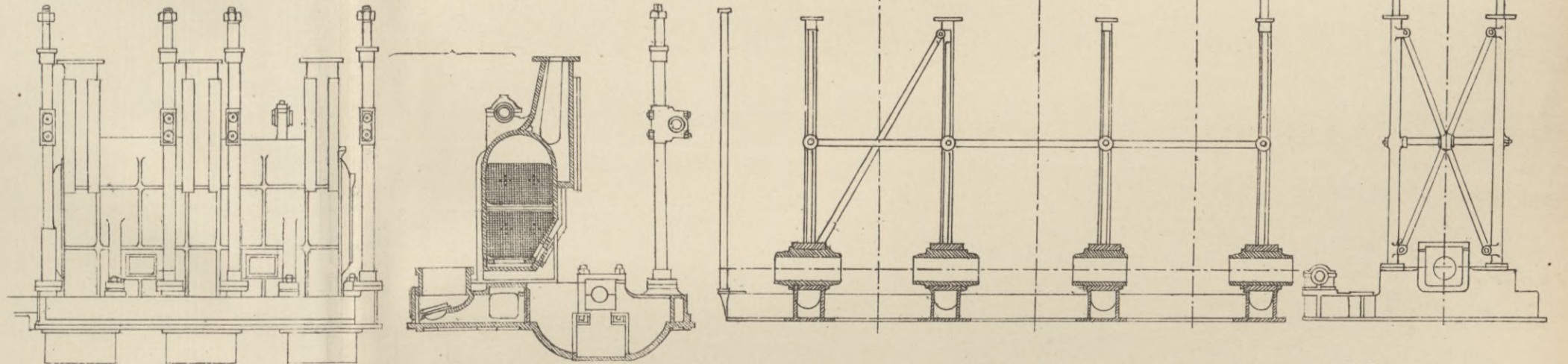


Abb. 243. Säulenframe.

Beldamventil.

Abb. 268.

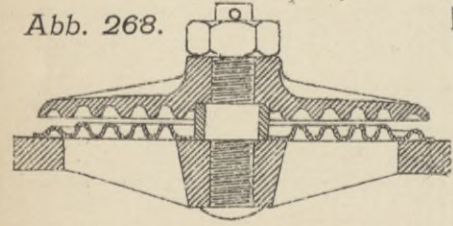


Abb. 245. Grundlager mit Wasserkühlung.

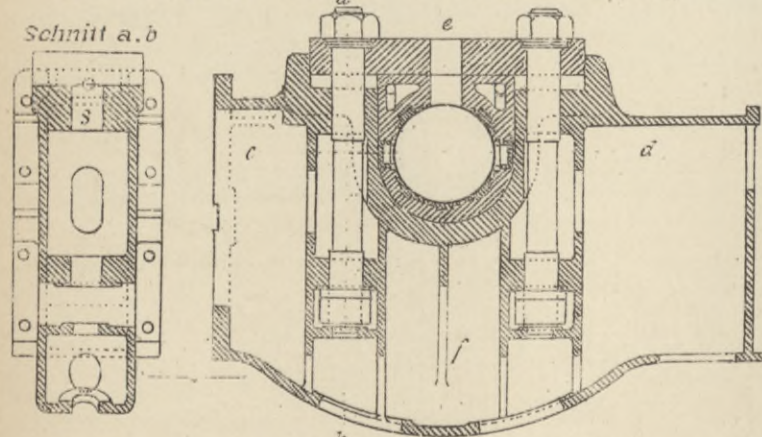


Abb. 246. Lagerschale für Grundlager.

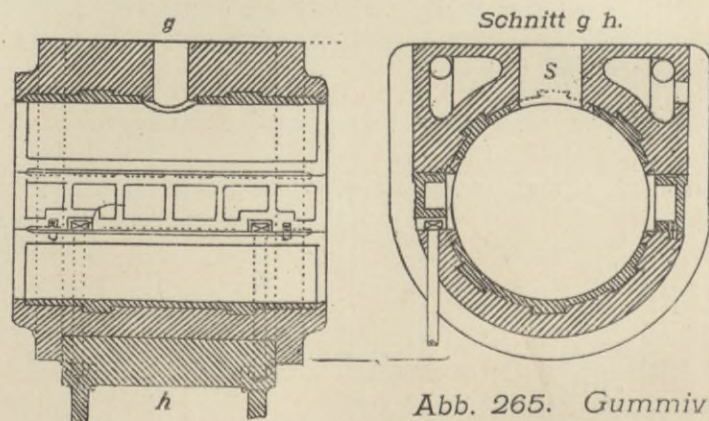


Abb. 265. Gummiventil.

Kinghornventil.

Abb. 267. a.

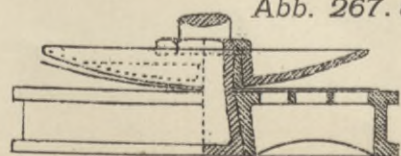


Abb. 267. b.

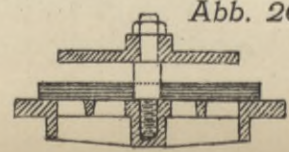
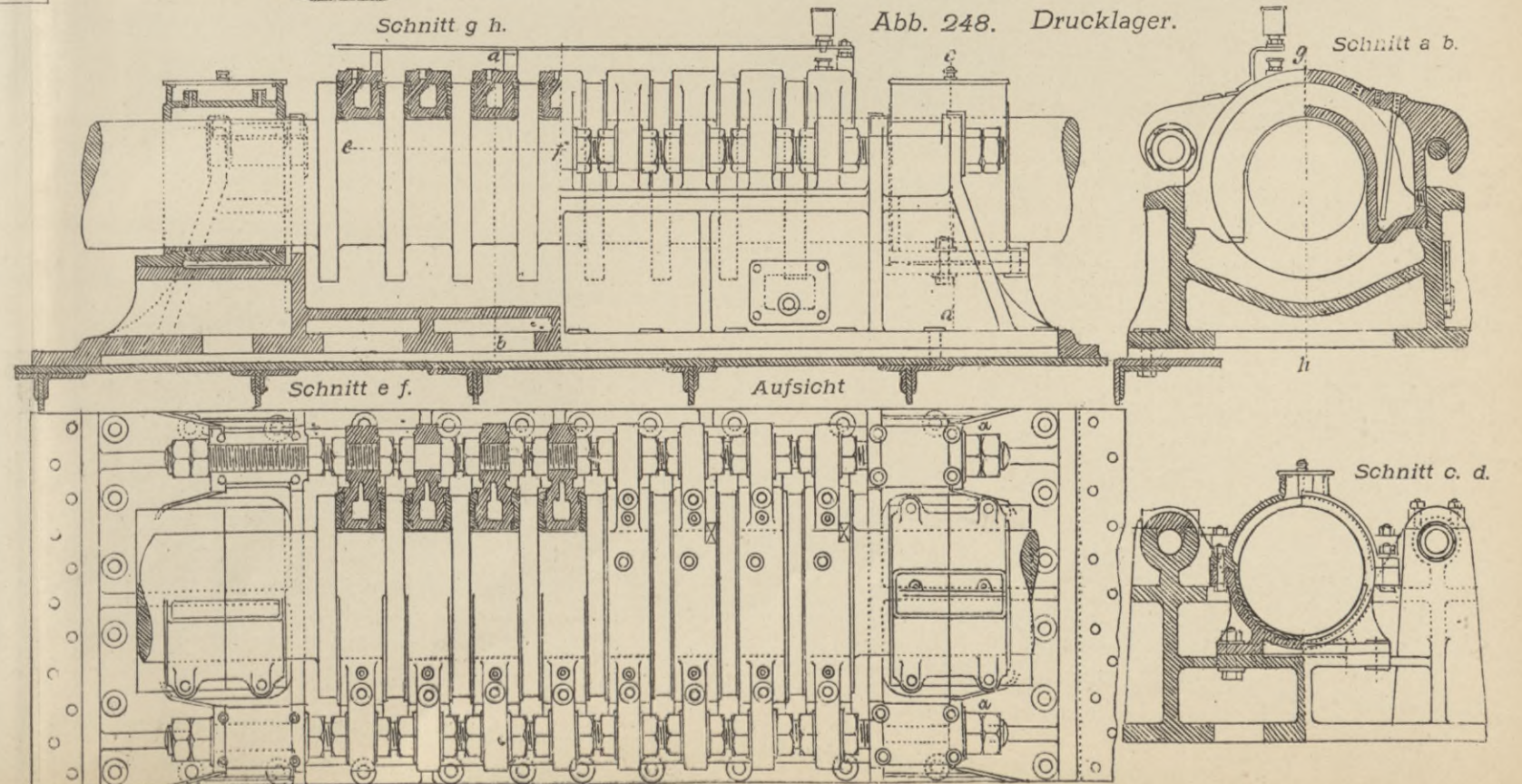
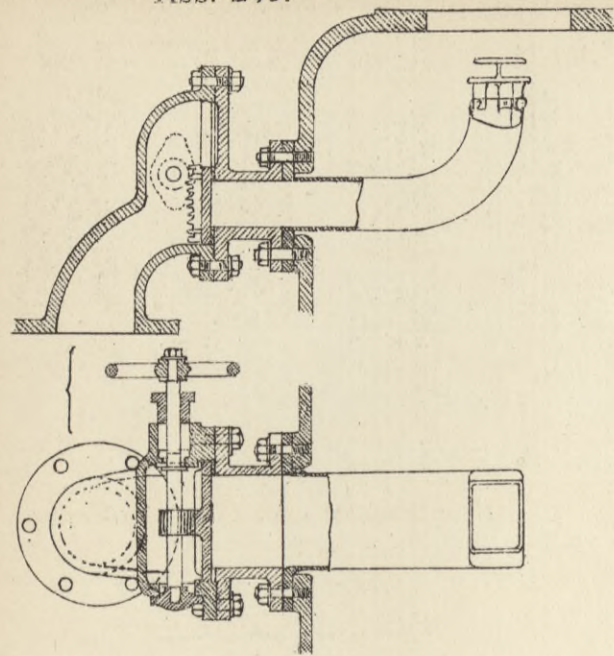


Abb. 248. Drucklager.



Einspritzventil für Kondensator.

Abb. 249.



Oberflächenkondensator.

Abb. 250.

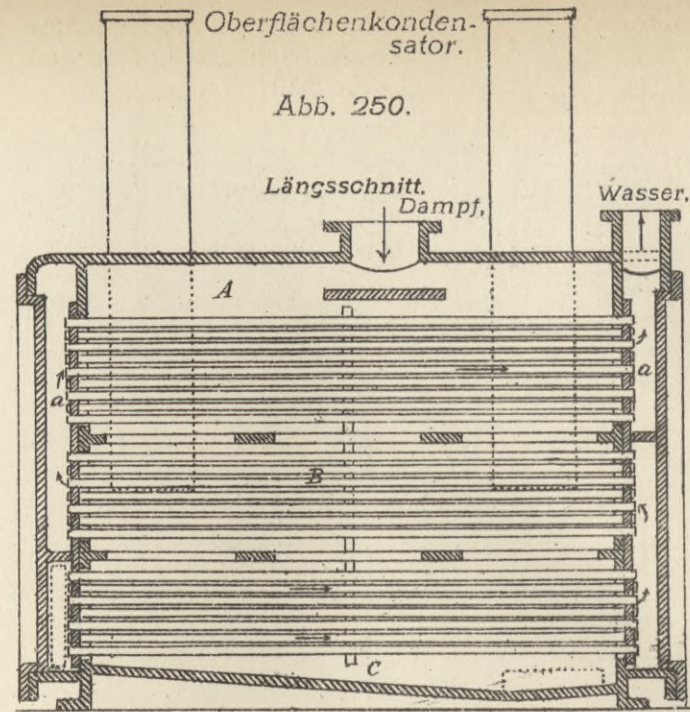


Abb. 251. Oberflächenkondensator.

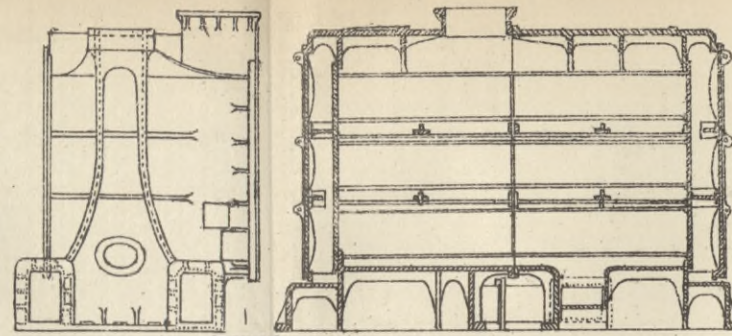
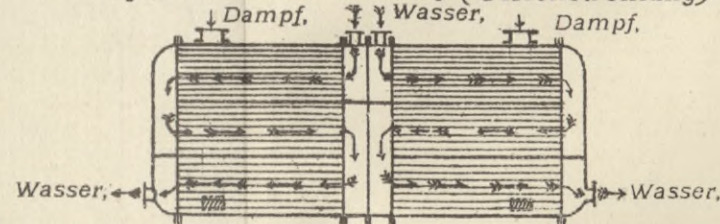
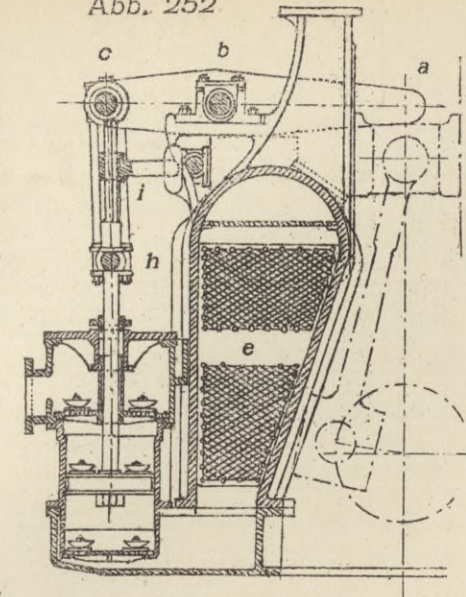


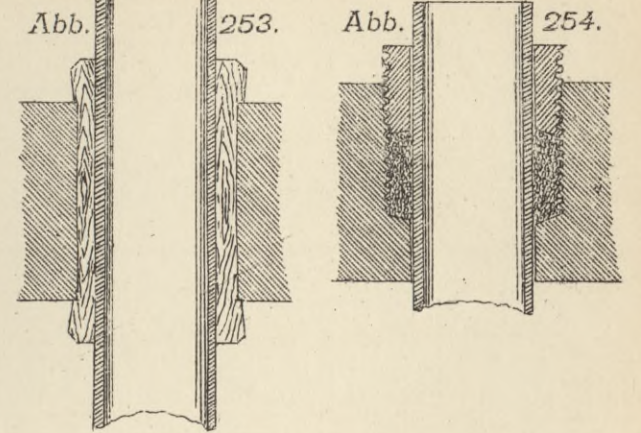
Abb. 255. Geteilter Kondensator mit dreifacher Durchströmung (Gleichströmung)



Schnitt durch Kondensator und Antrieb der Luftpumpe. Abb. 252

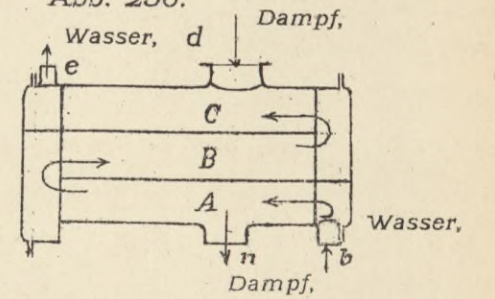


Eindichtung von Kondensatorrohren.

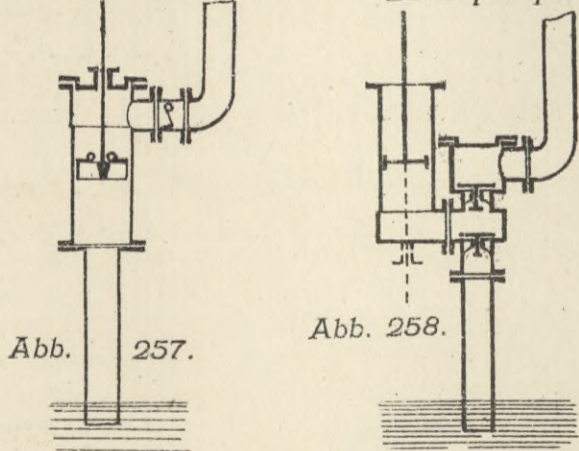


Kondensator mit Gegenströmung.

Abb. 256.



Einfach wirkende Hubpumpe. Einfach wirkende Druckpumpe.



Doppeltwirkende Pumpen.

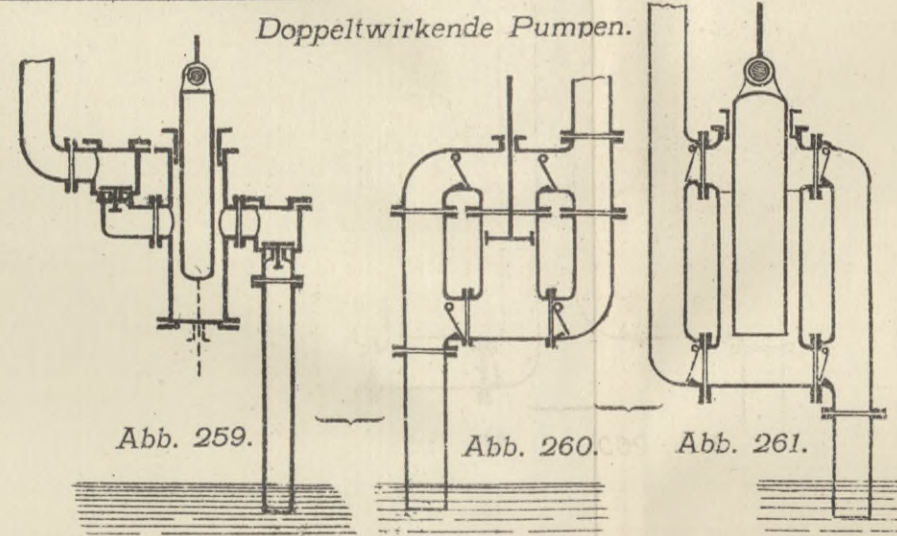
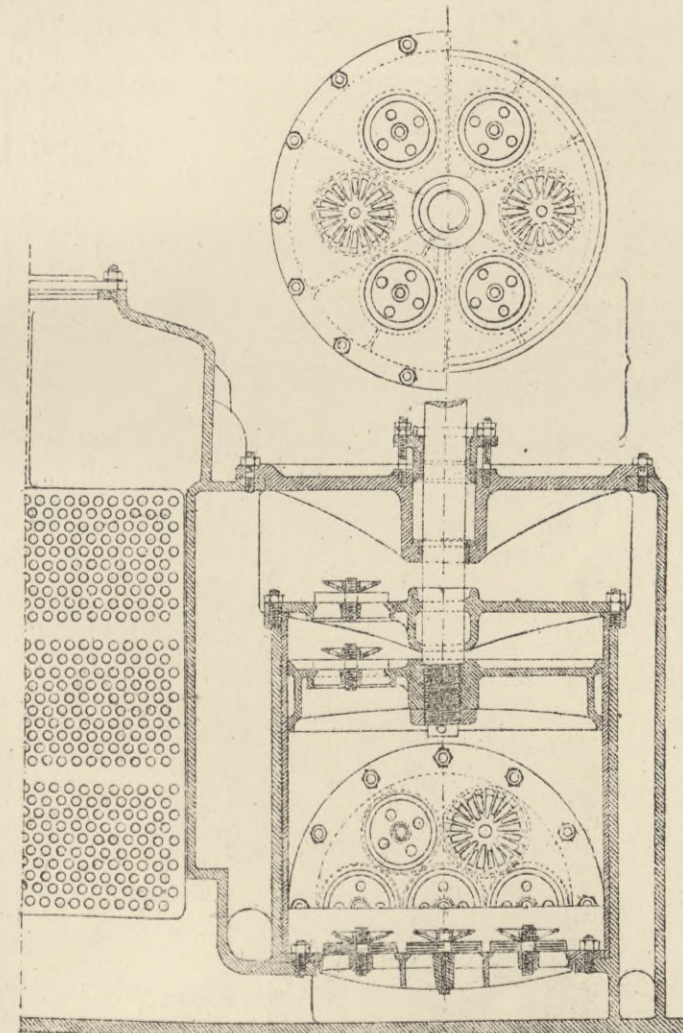


Abb. 263. Luftpumpe.



Luftpumpe.

Abb. 264.

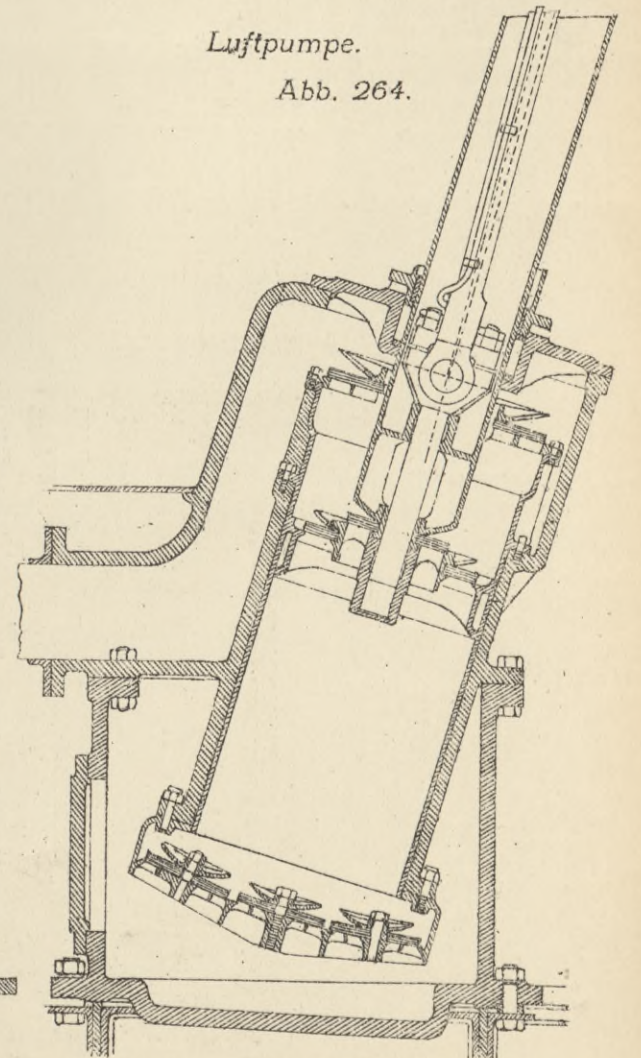
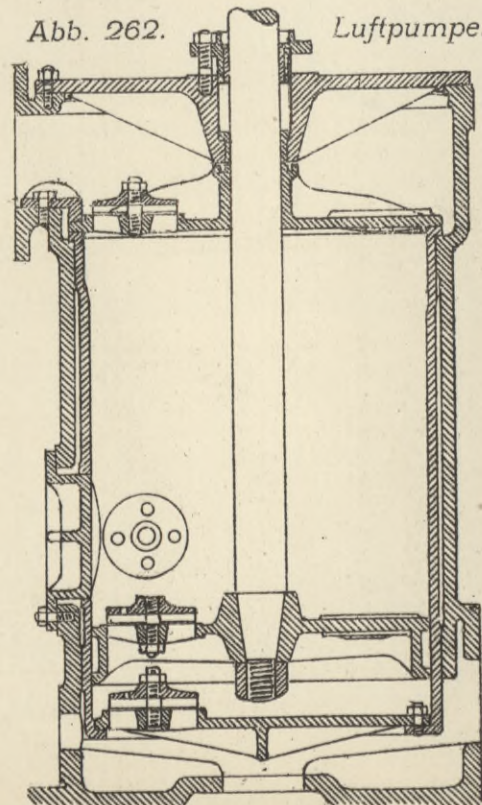


Abb. 262. Luftpumpe.



Ausgussventil der Luftpumpe.

Abb. 271.

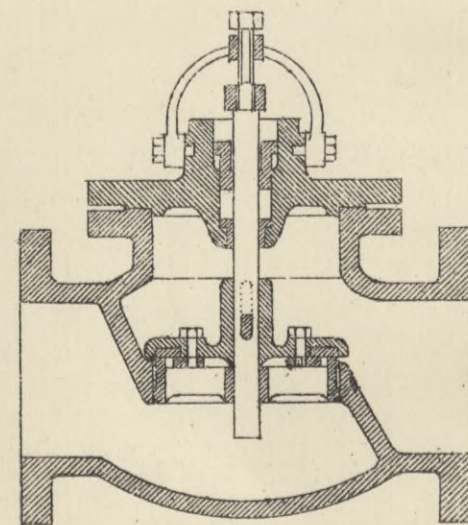


Abb. 273. Circulationspumpe.

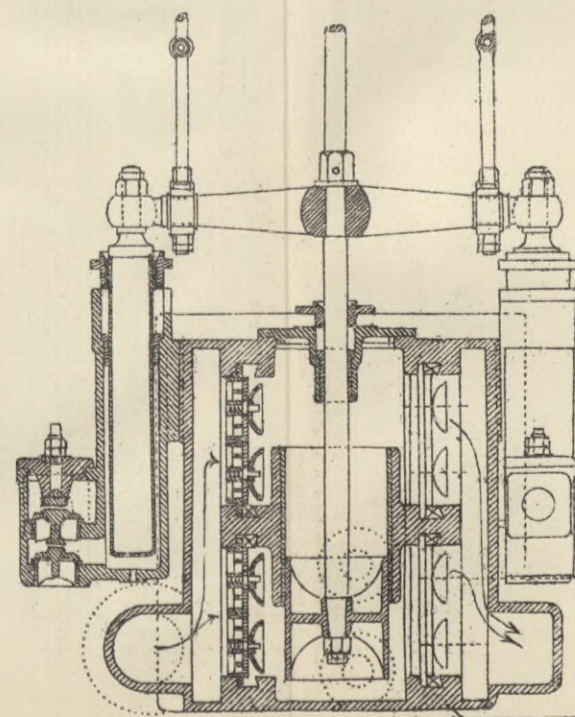
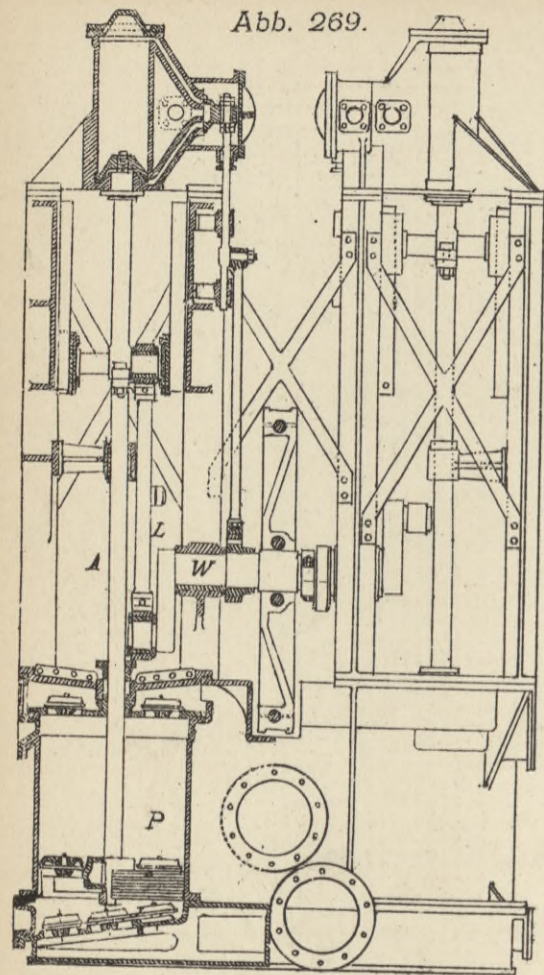


Abb. 269.



Andordnung von Luft-Circulations- und Speisepumpe. Abb. 272.

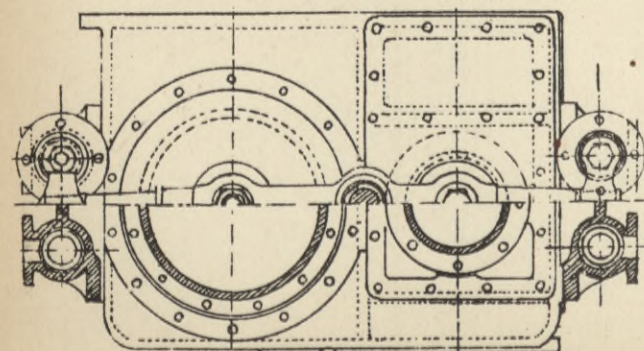
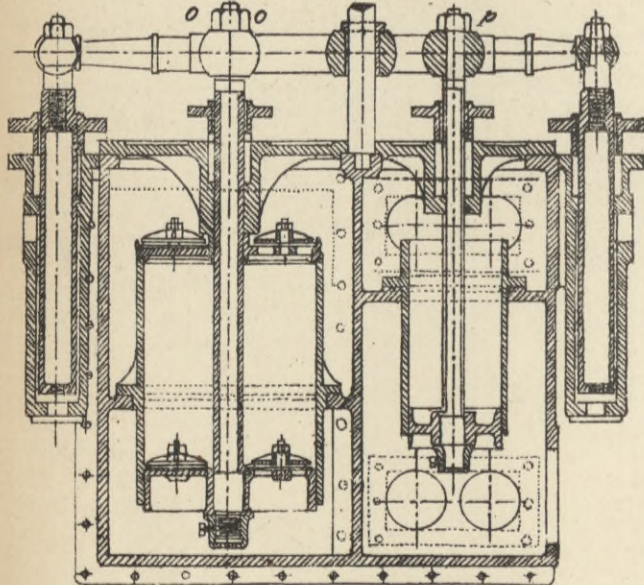


Abb. 270. Luftpumpe von Blake.

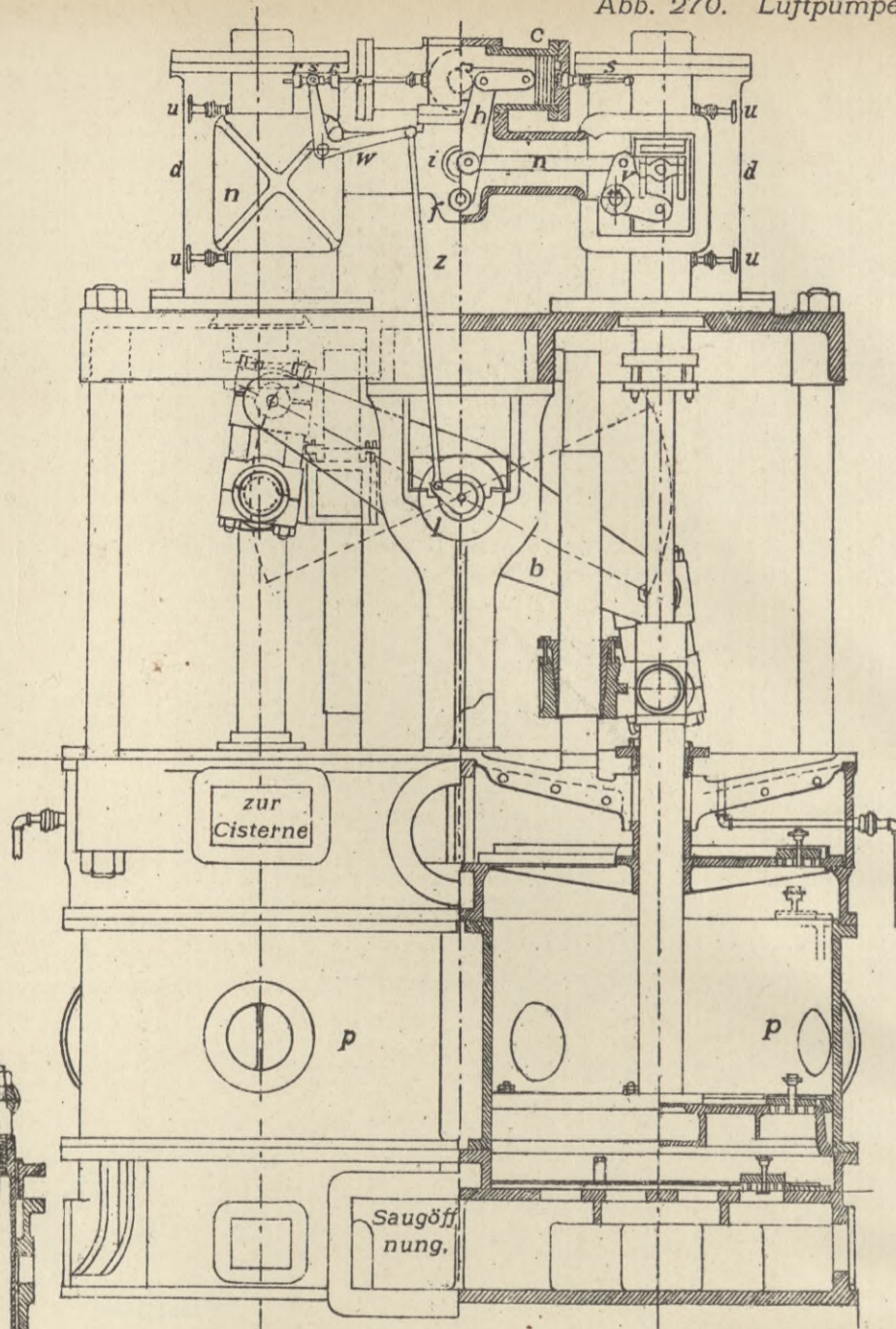
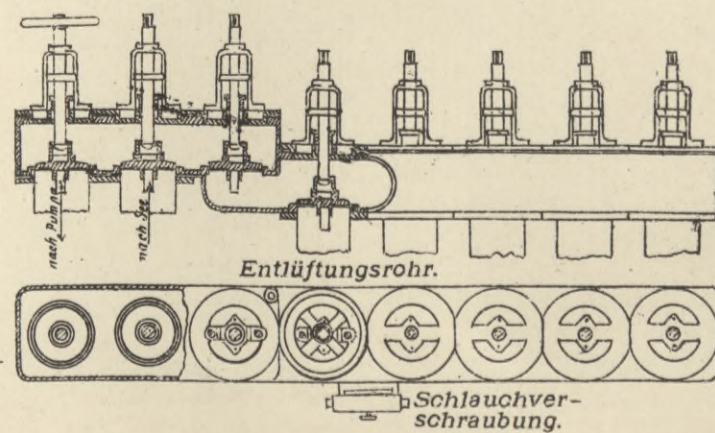
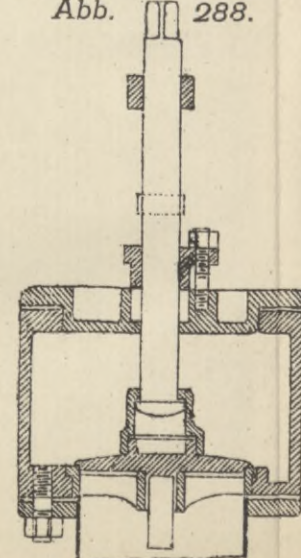


Abb. 287. Wechselkasten.



Niederschraubventil für Wechselkasten. Abb. 288.



Schnitt a b.

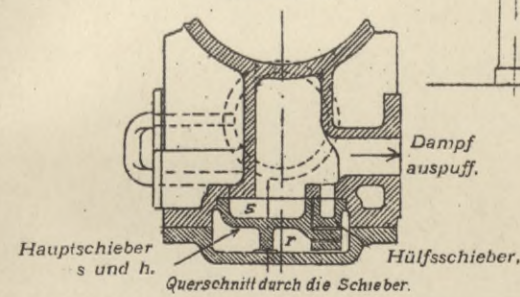


Abb. 289. Bilgekasten

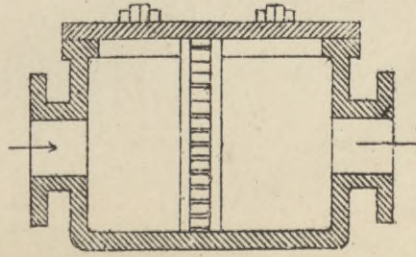
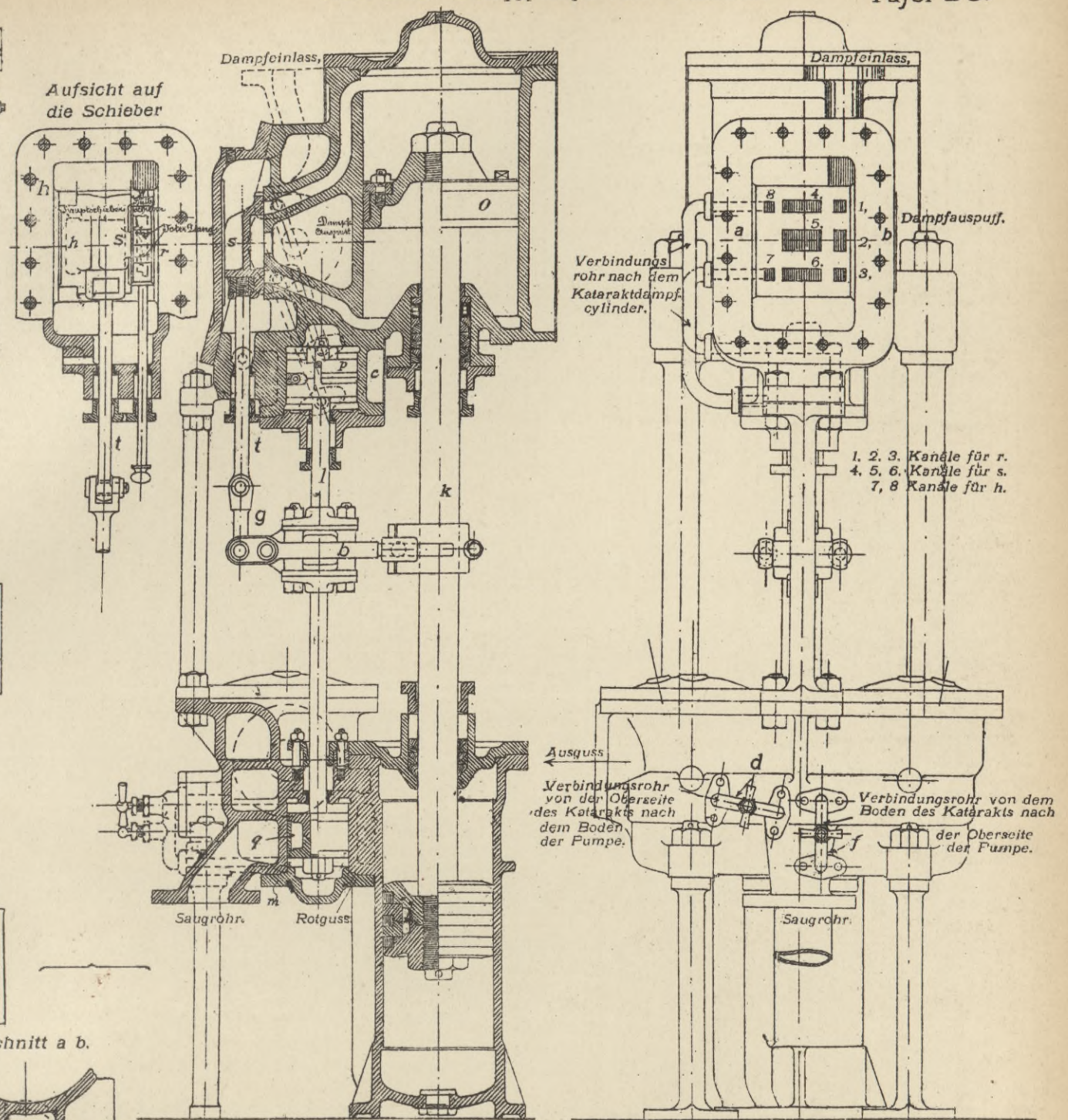


Abb. 286. Dampfpumpe von Patterson.



Wirkungsweise der Dampfstrahlpumpe. Abb. 291.

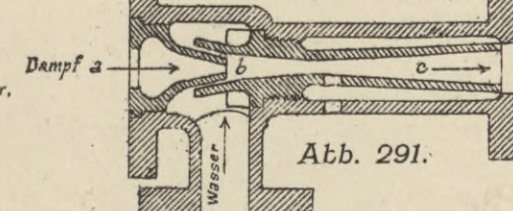
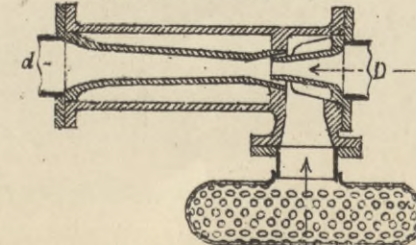
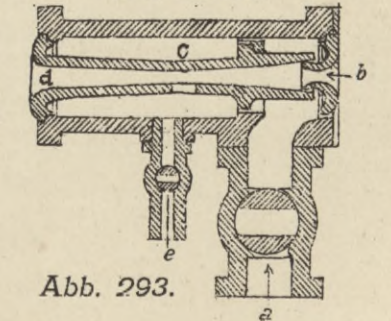
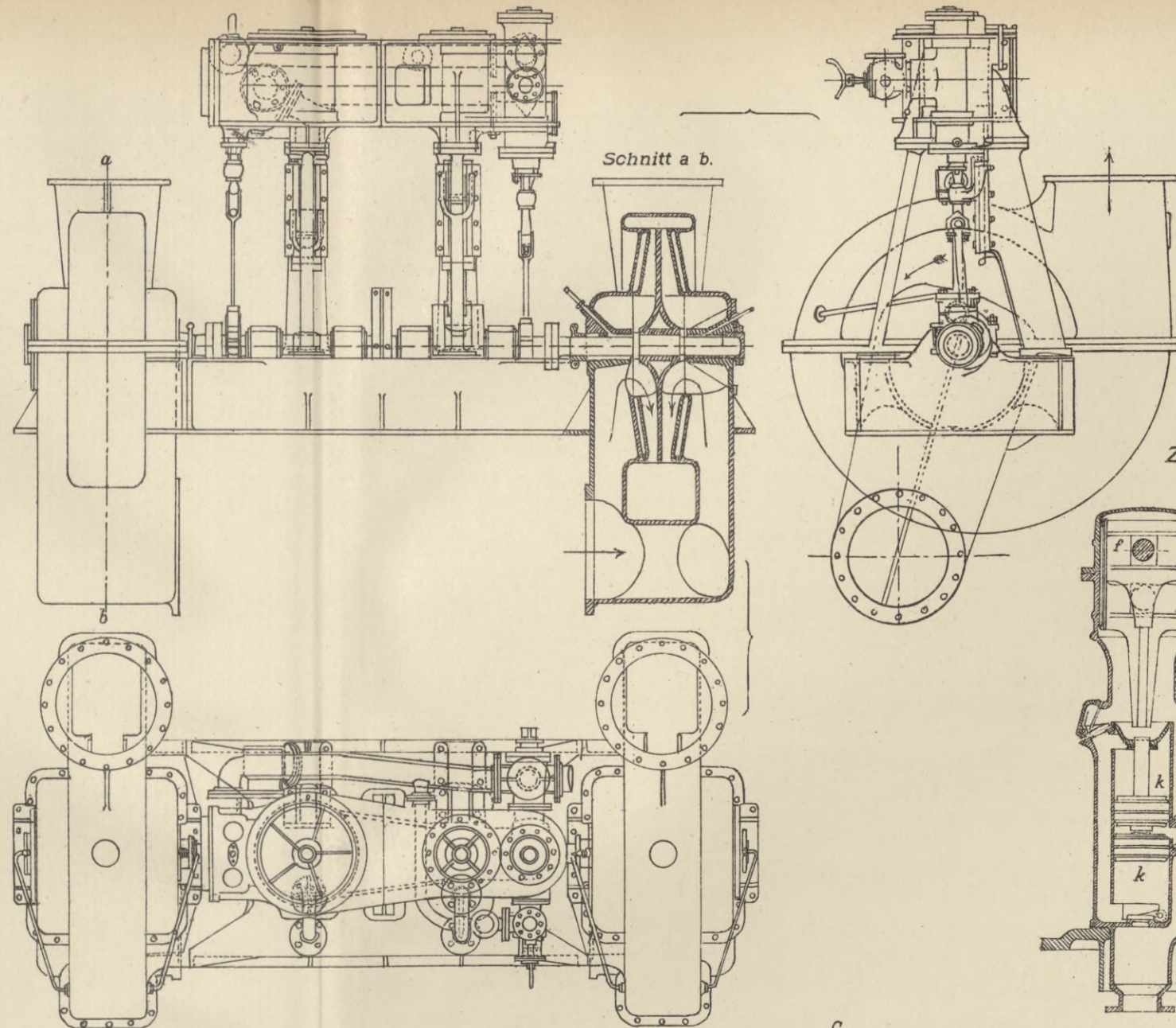
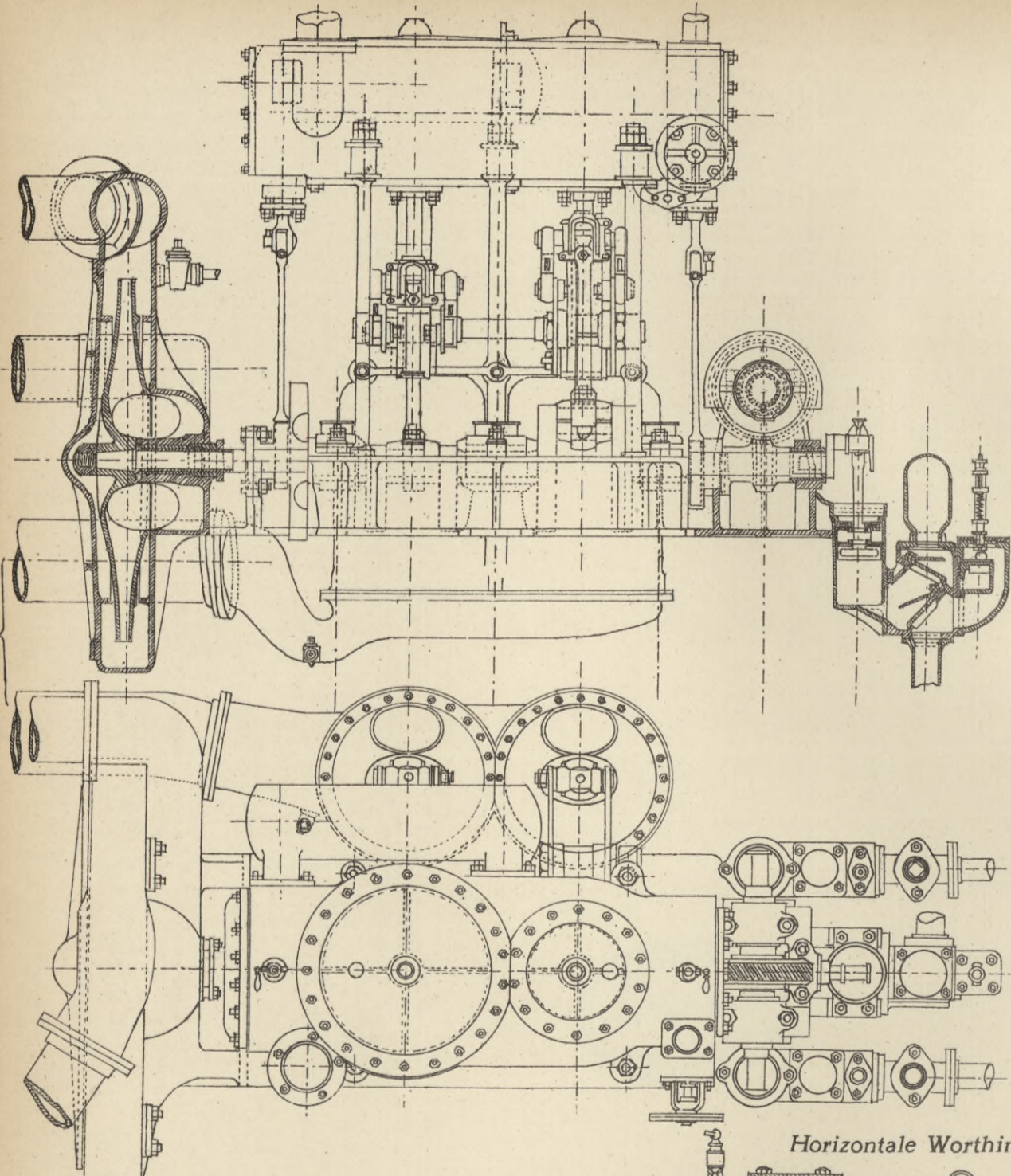


Abb. 292. Ejector.



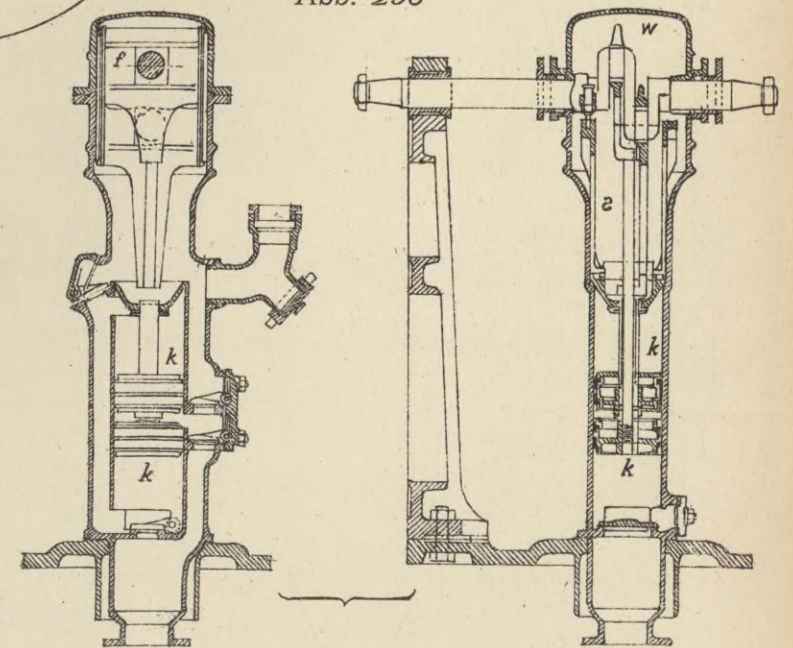
Nichtsaugender Injector von Schau. Abb. 293.





Zweikolbige Handpumpe von Stone.

Abb. 290



Centrifugalpumpe

Schnitt c. d.

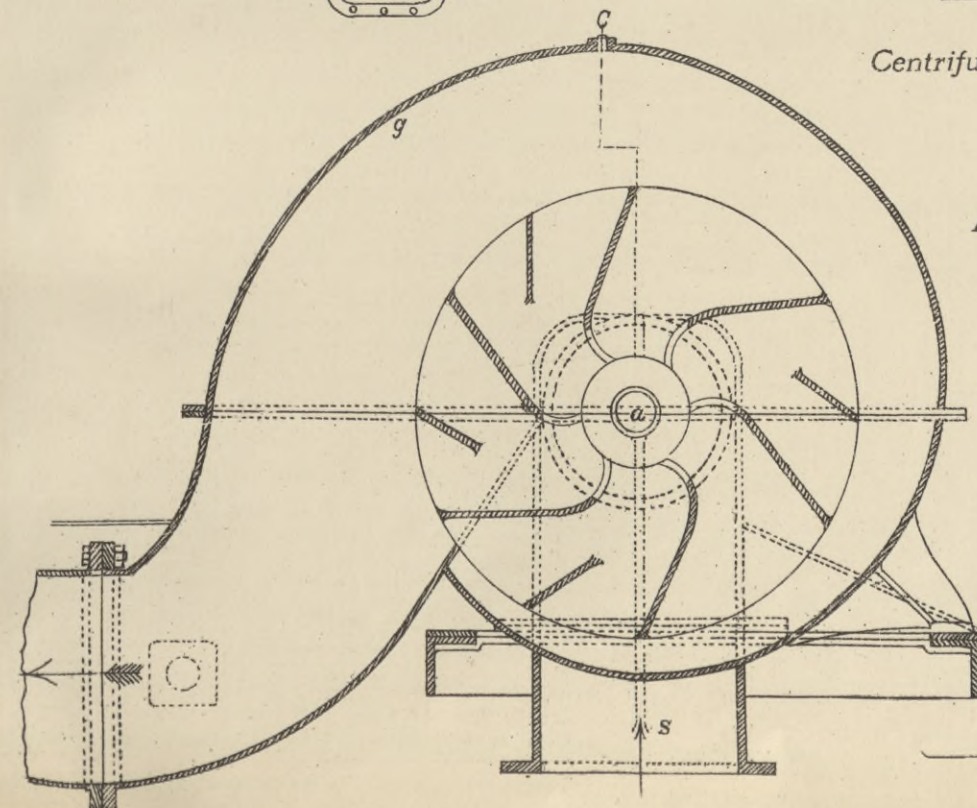
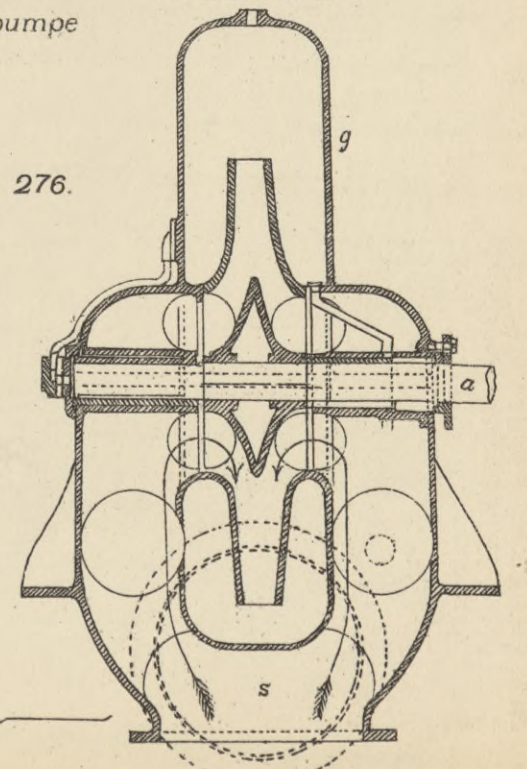
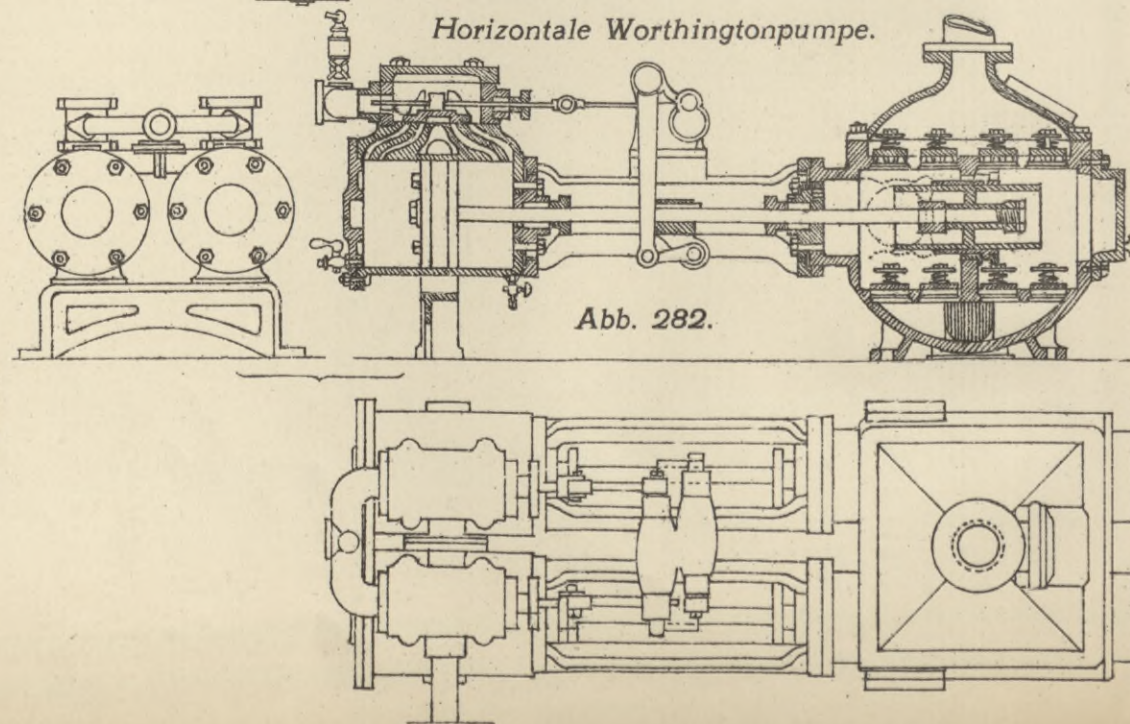


Abb. 276.



Horizontale Worthingtonpumpe.

Abb. 282.



Maschinenspeisepumpe mit Trümpkolben.

Abb. 277.

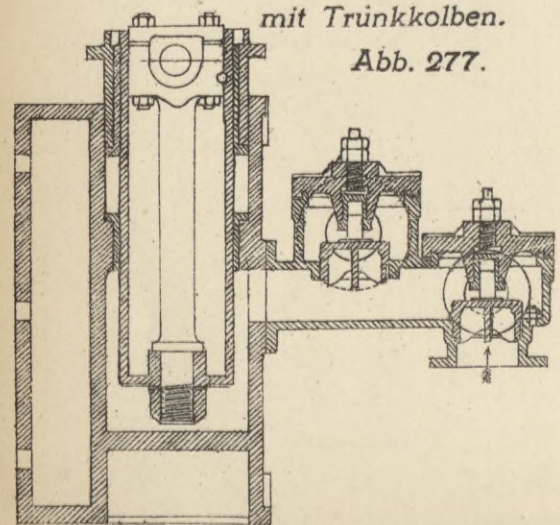


Abb. 278.

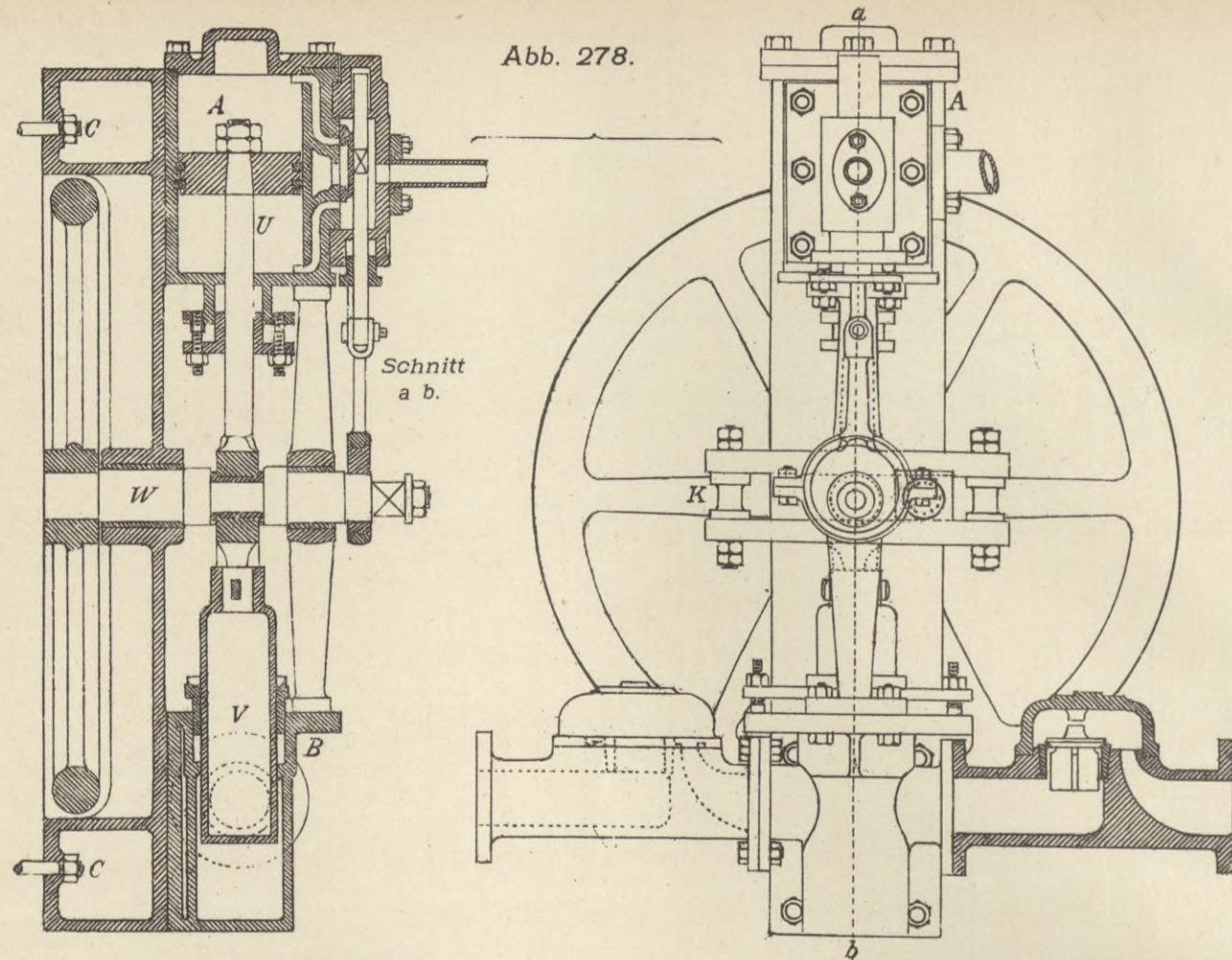
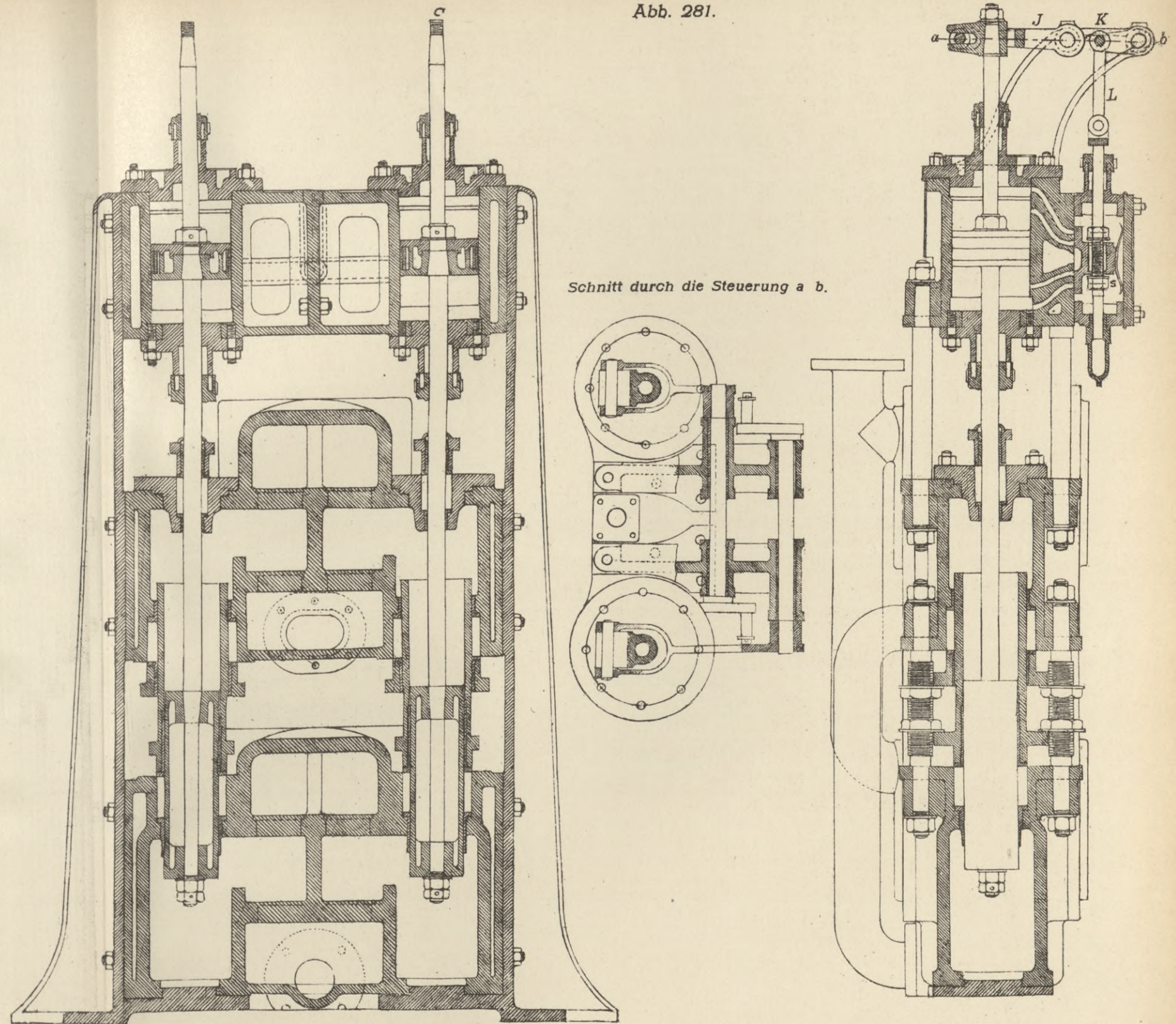
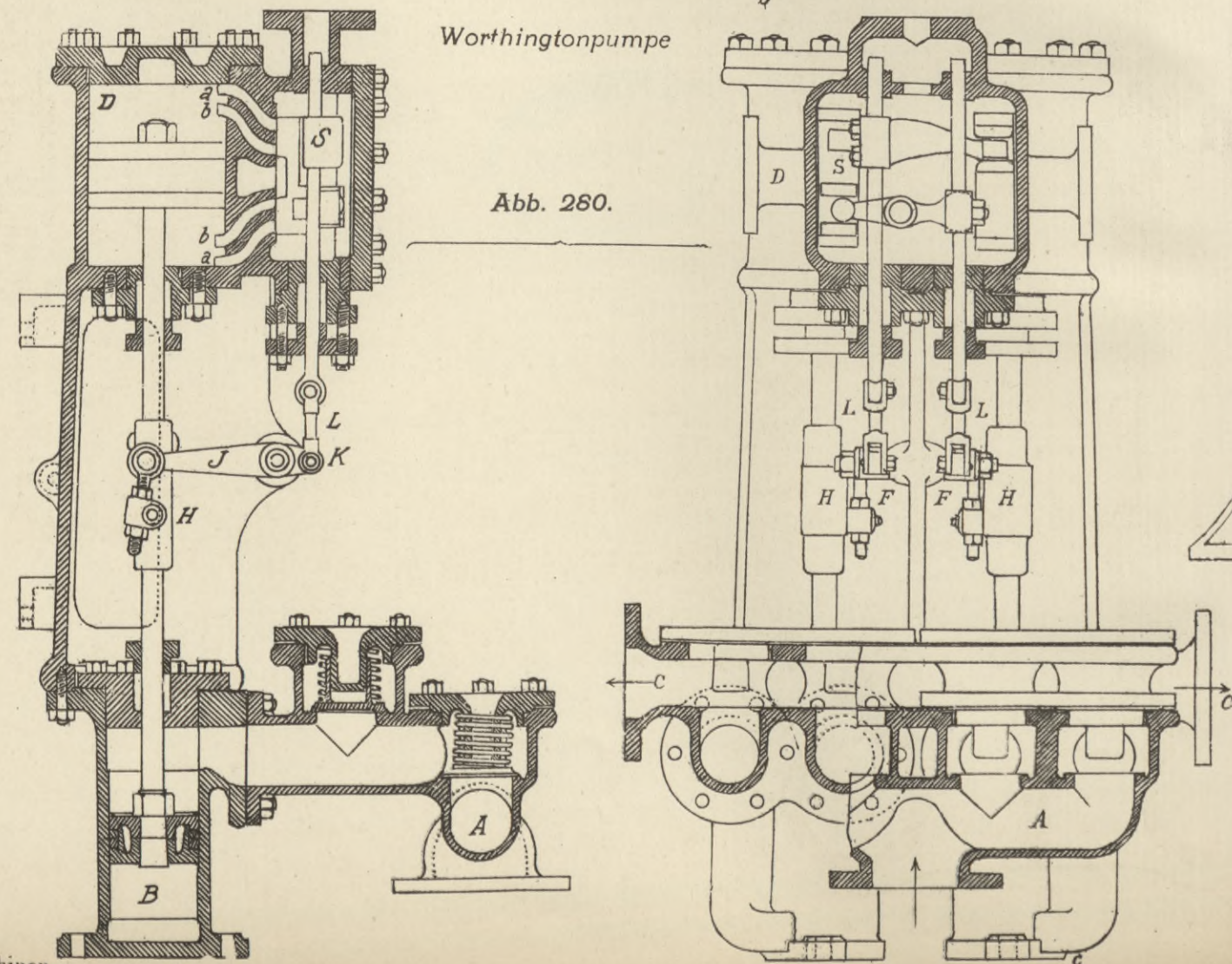


Abb. 281.



Worthingtonpumpe

Abb. 280.



Horizontalschnitt durch Cylinder und Schieberkasten

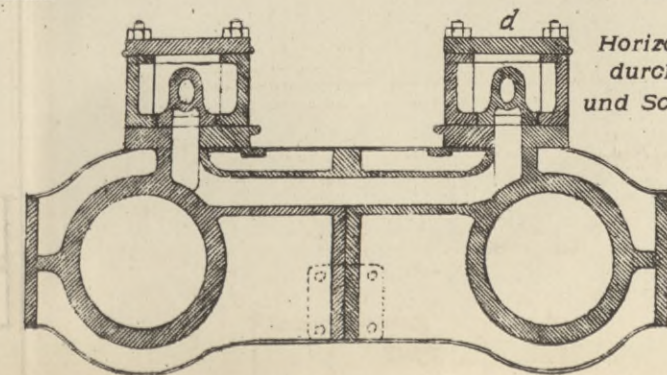


Abb. 284. Speisepumpe von Weir.

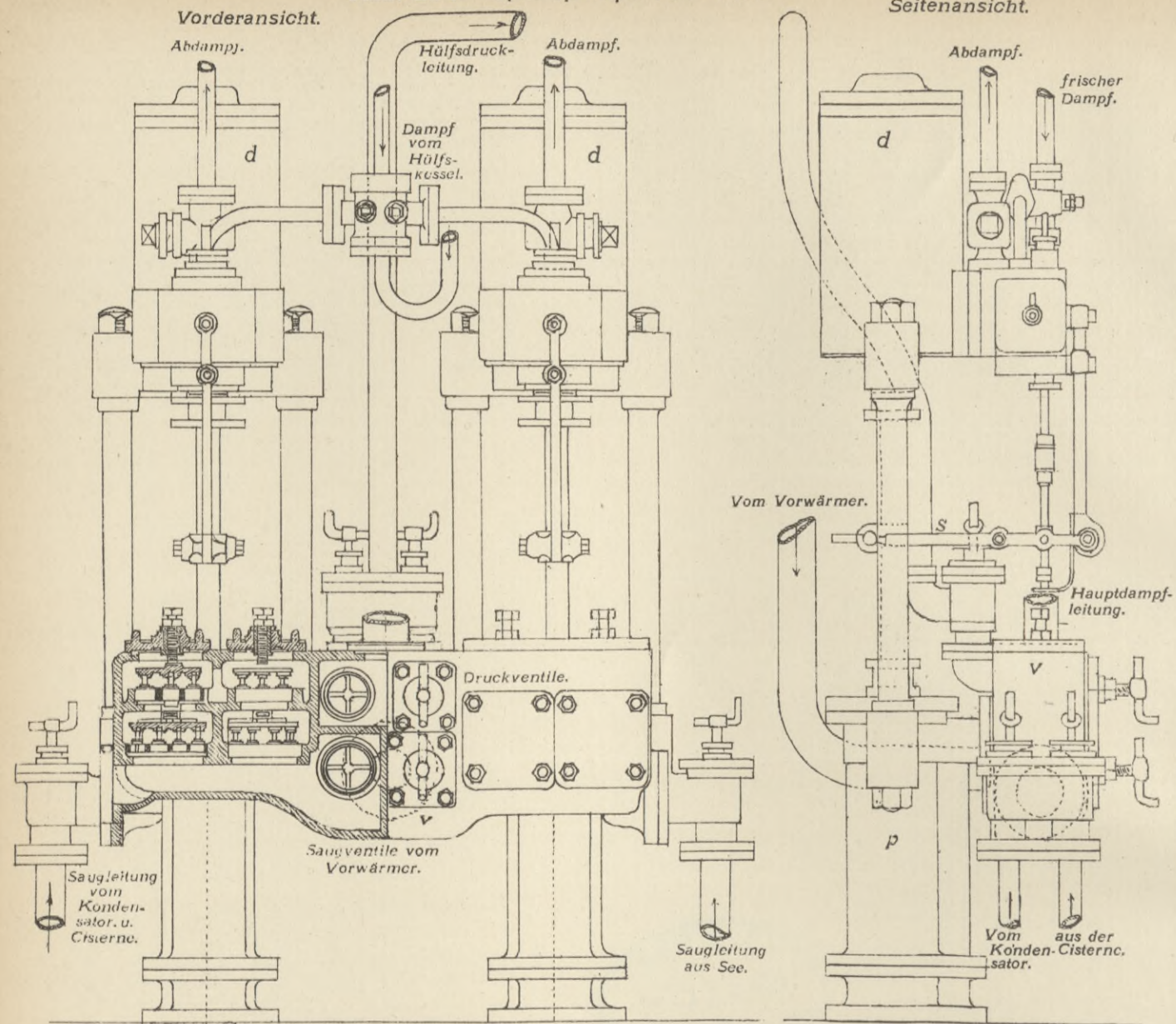


Abb. 283. Speisepumpe von Weir.

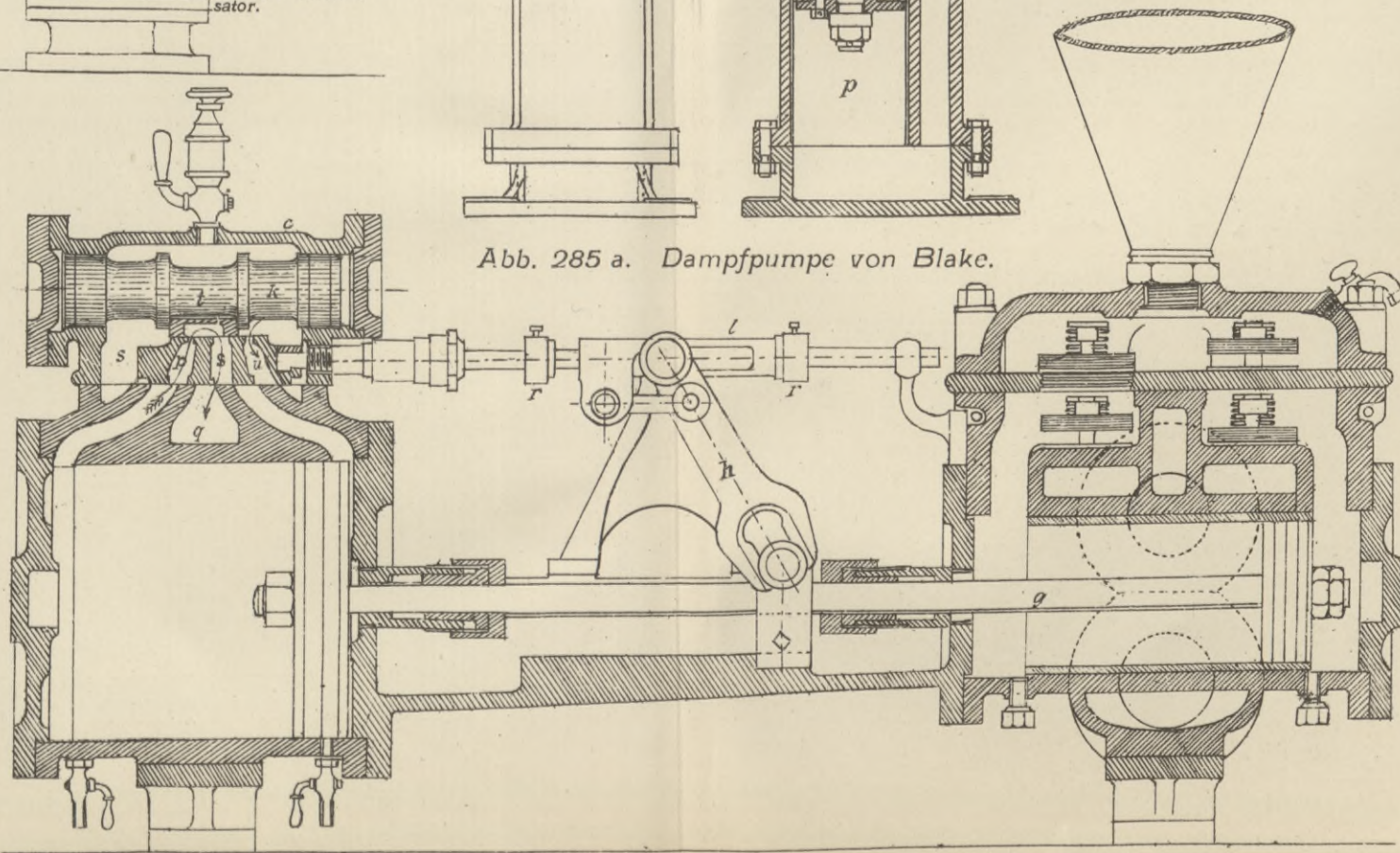
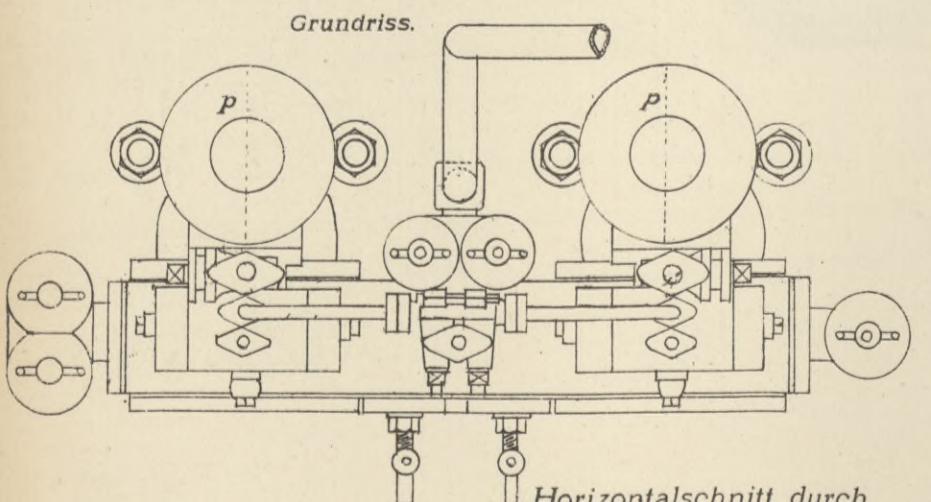
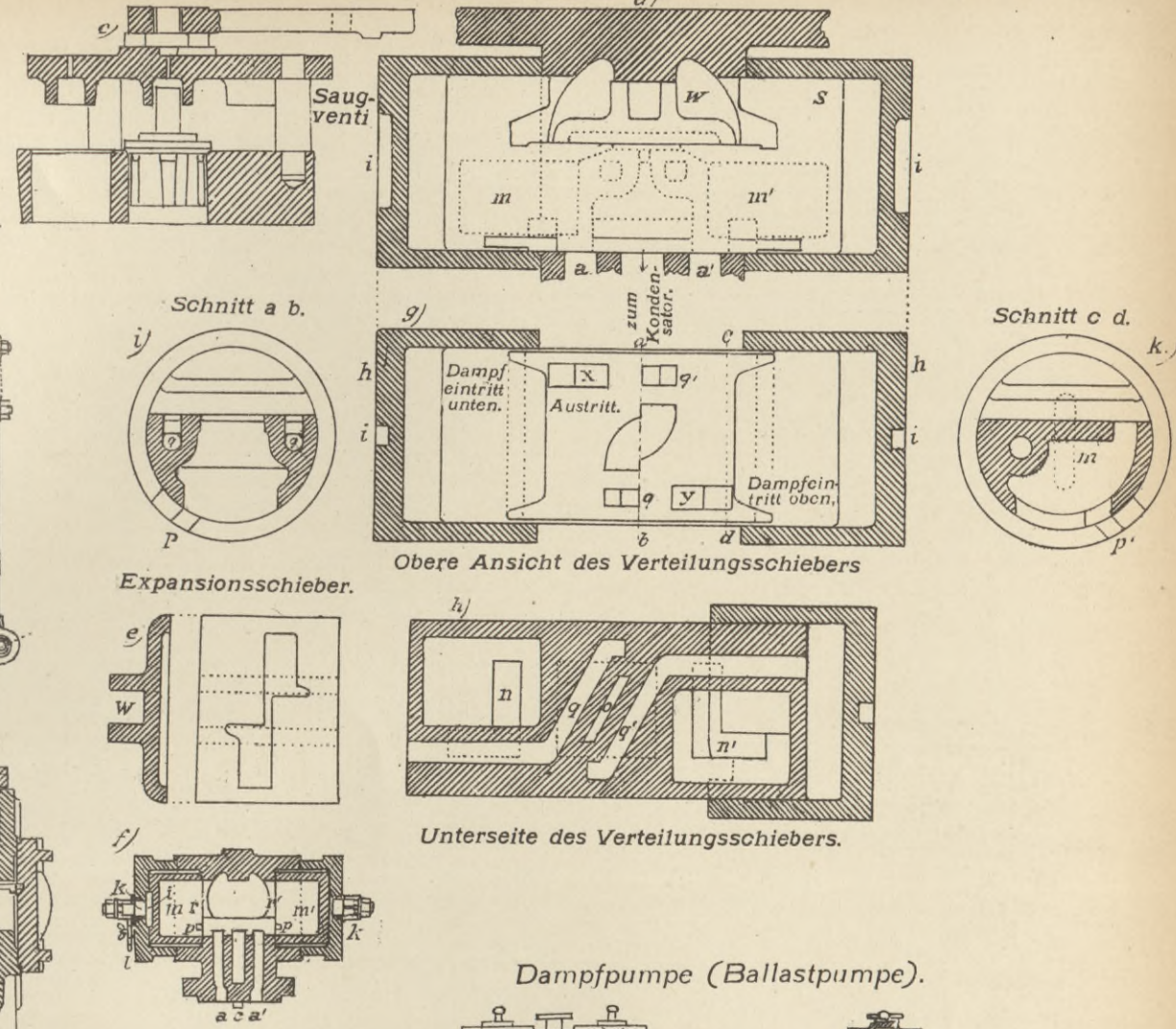


Abb. 285 a. Dampfpumpe von Blake.

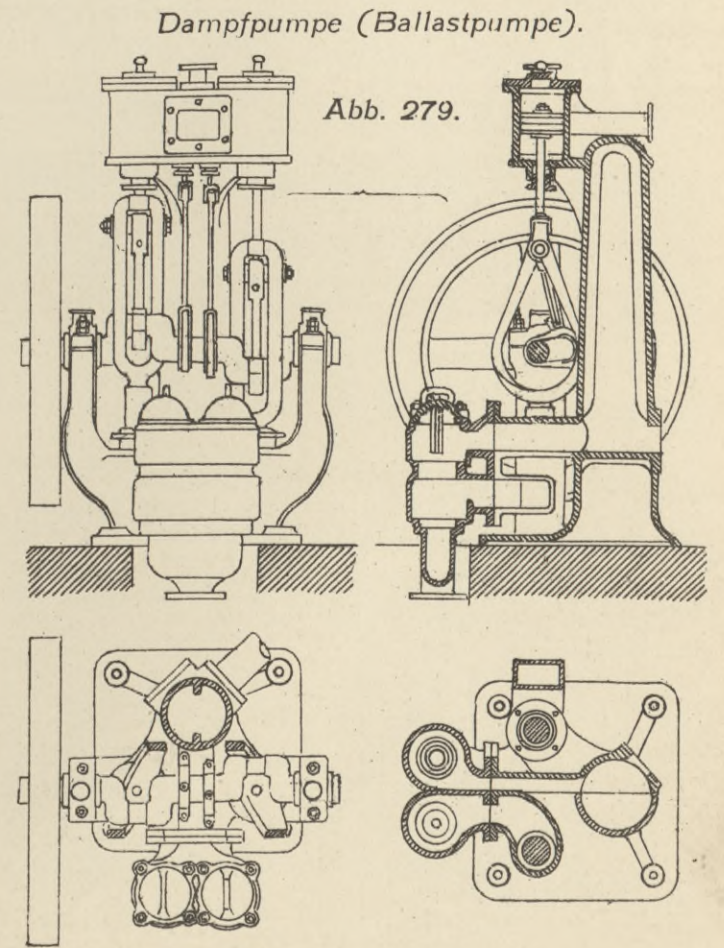


Abb. 279.

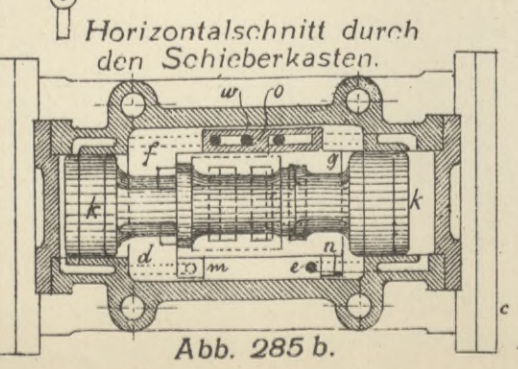
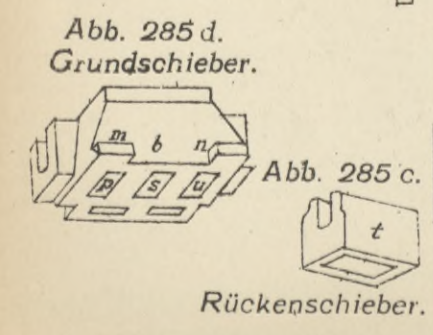


Abb. 285 b.

Abb. 294. Einfach wirkender saugender Injector von Blanke.

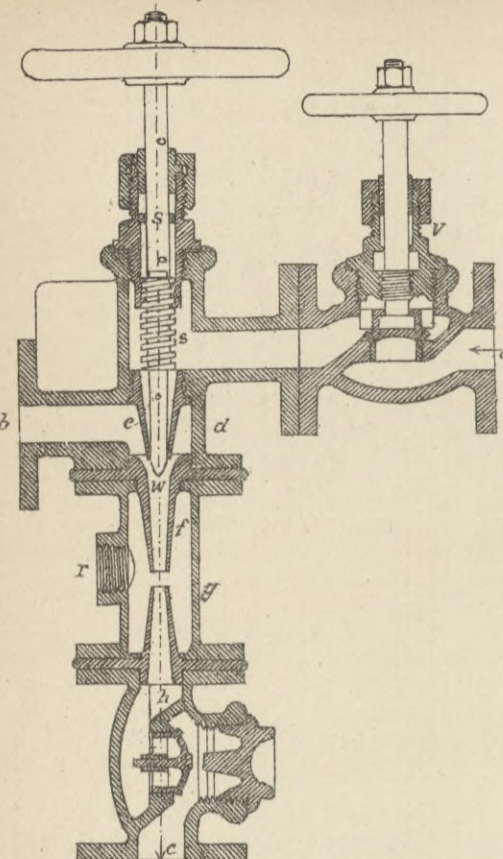


Abb. 295. Doppelinjector von Körting.

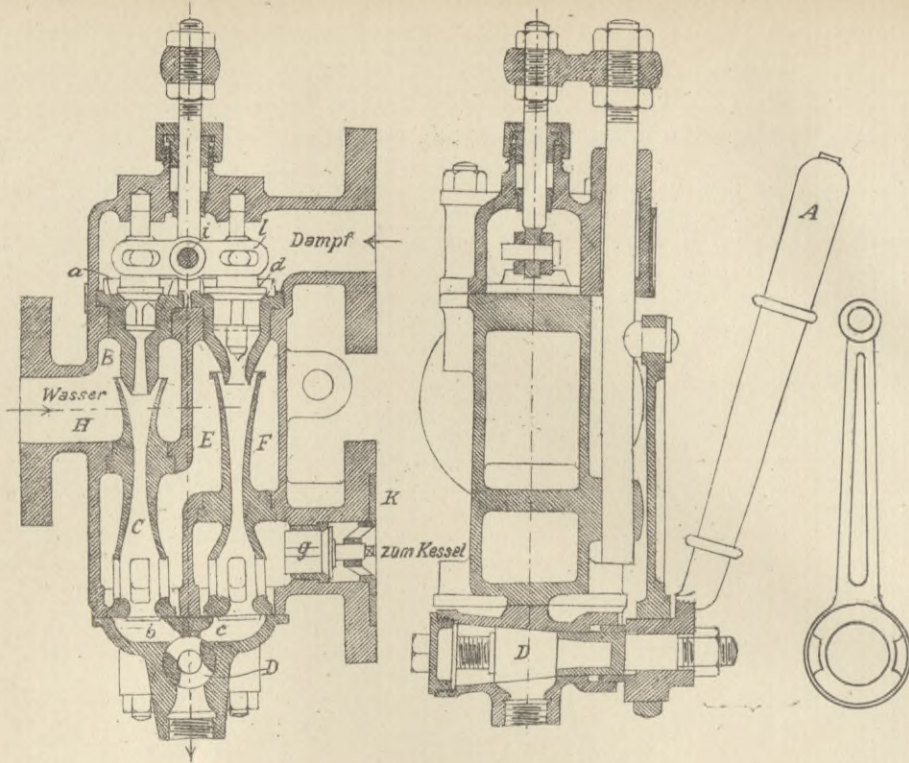


Abb. 296. Pulsometer von Neuhaus.

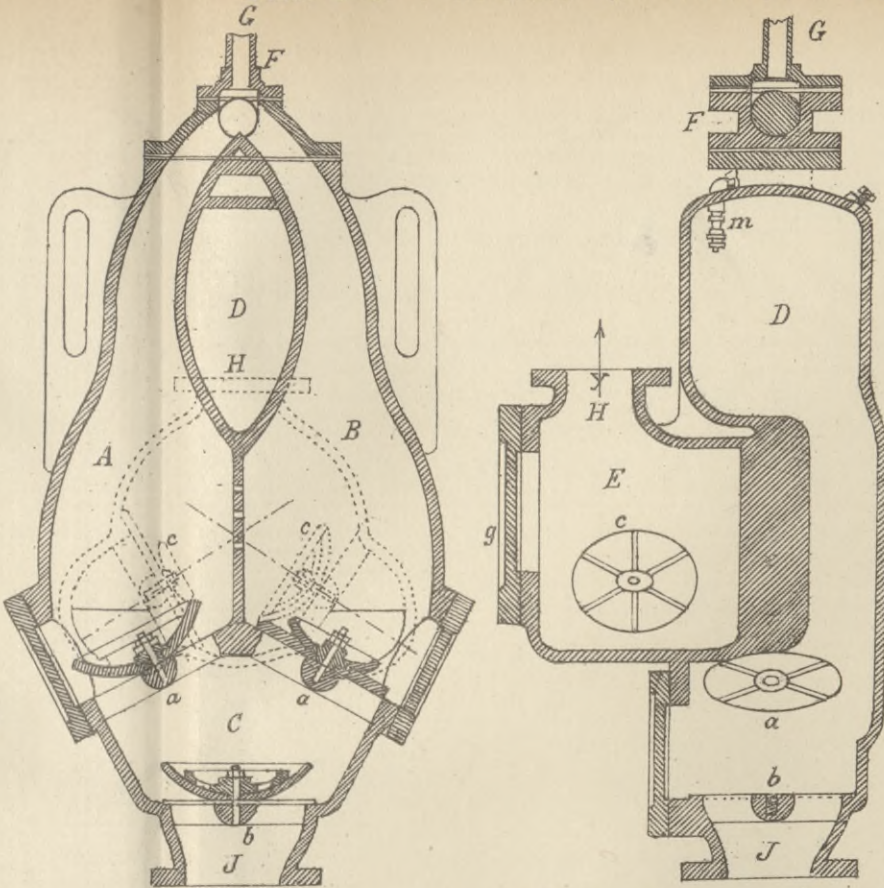


Abb. 301. Indikator von Rosenkranz.

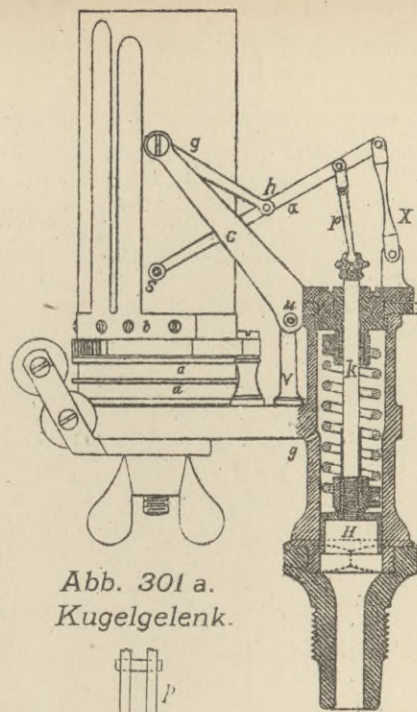


Abb. 301 c. Papiercylinder.

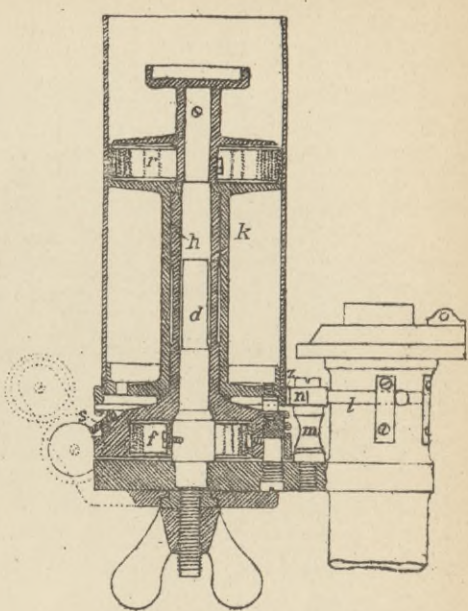


Abb. 297. Pulsometer von Schäffer & Budenberg.

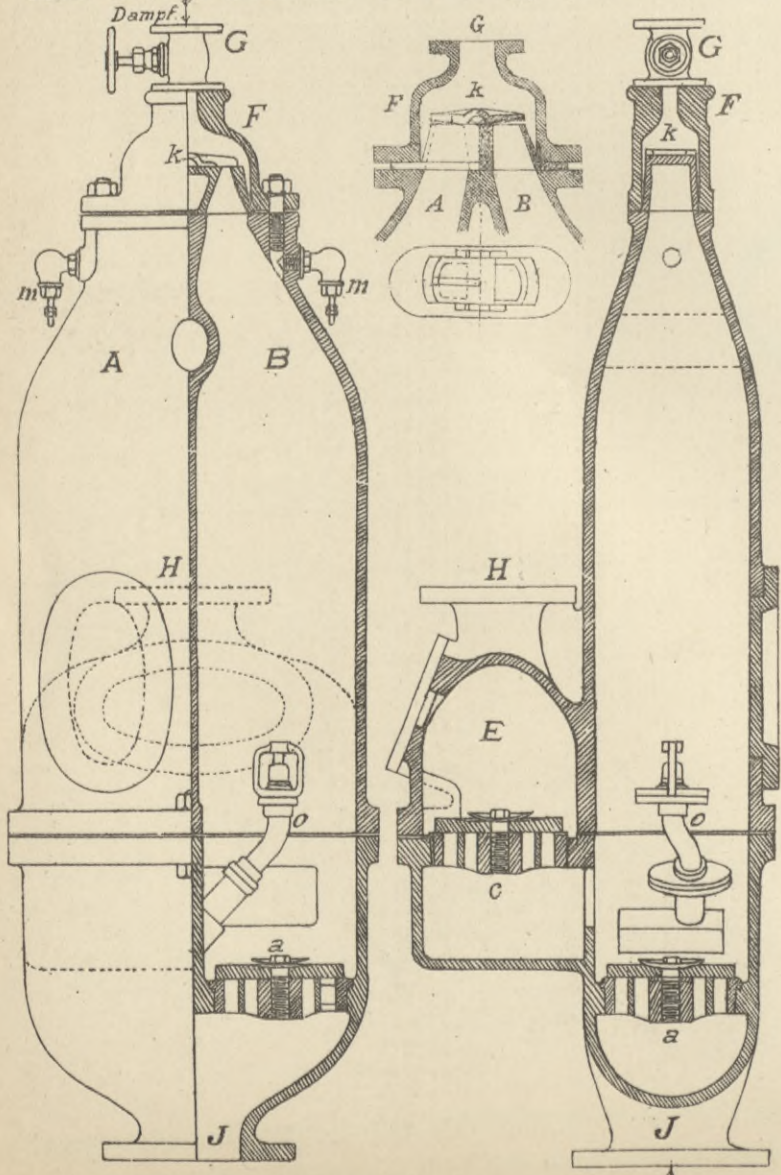


Abb. 298. Pulsometer von Körting.

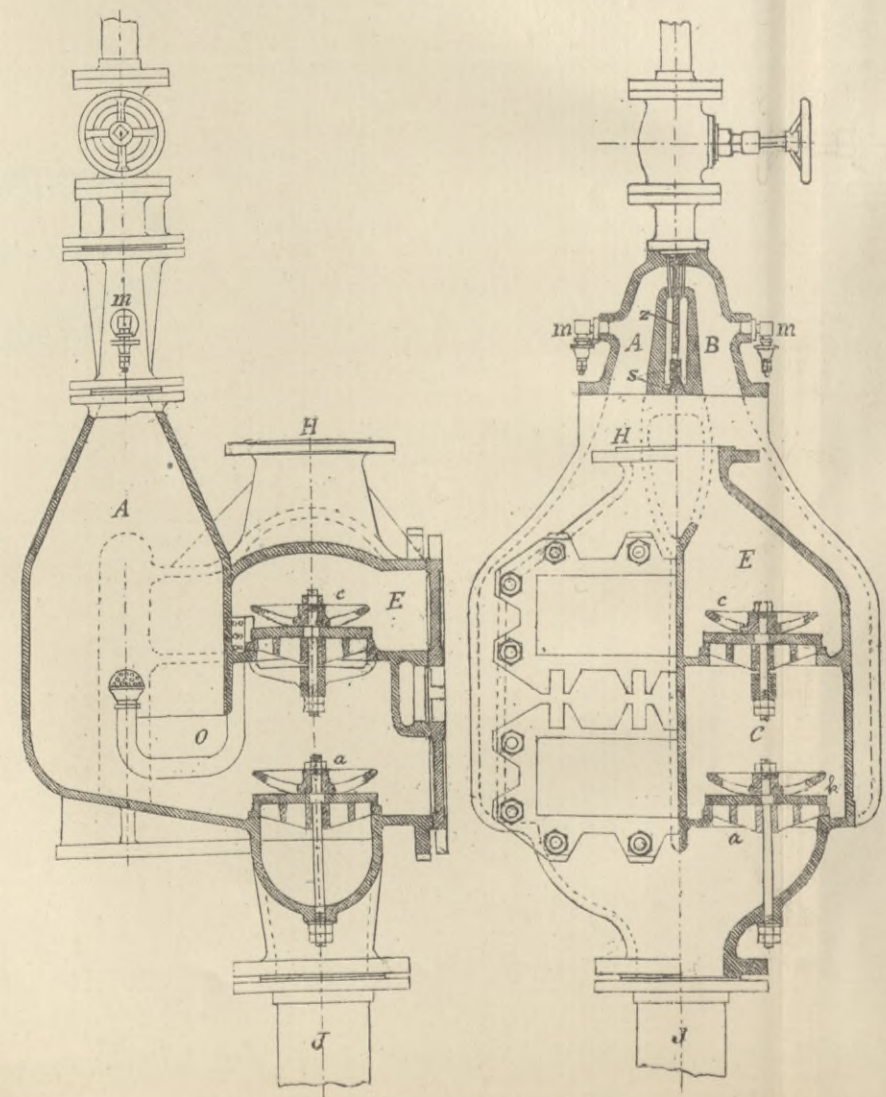


Abb. 299. Indikator von Richards.

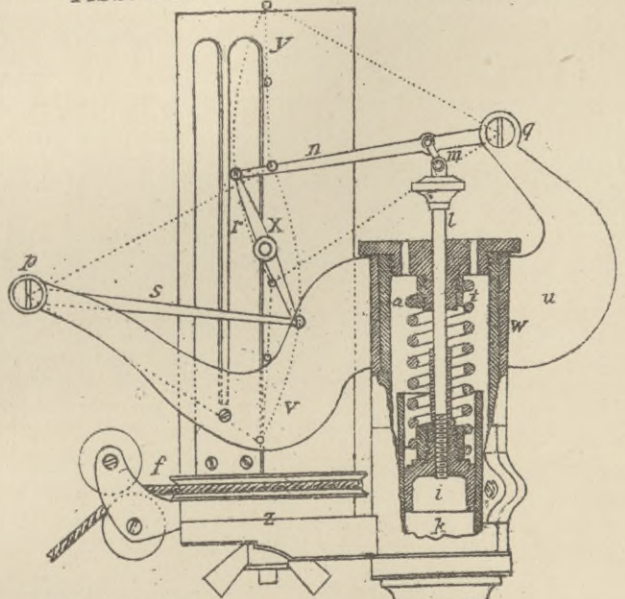


Abb. 300. Indikator von Thompson.

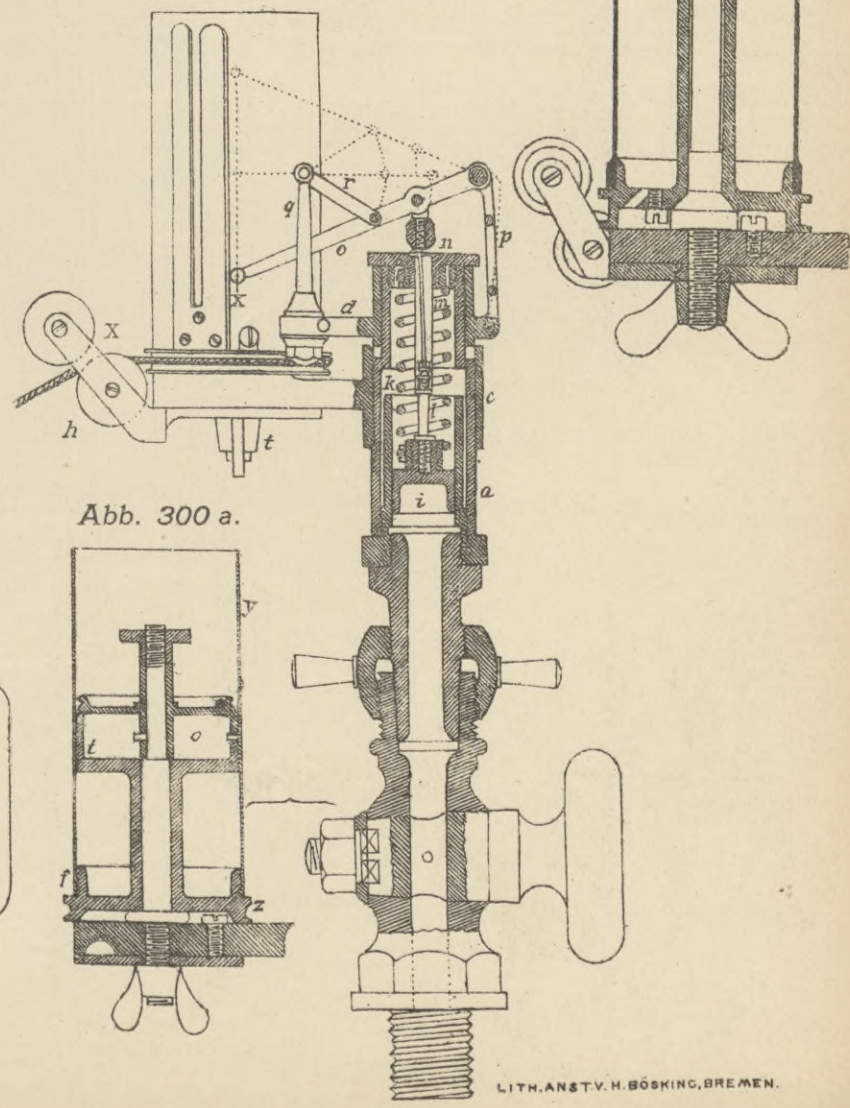


Abb. 299 a. Schnitt durch den Indikatorhahn.

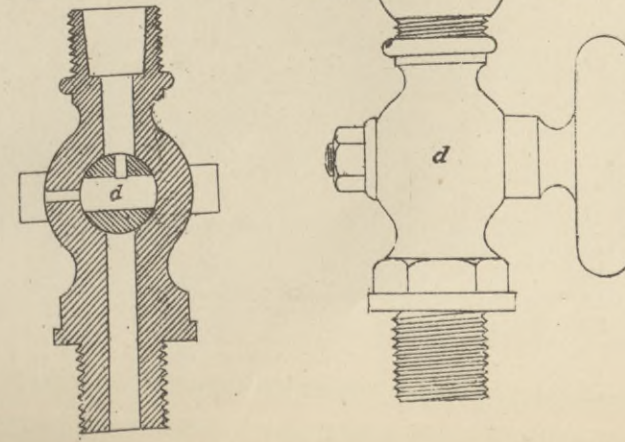
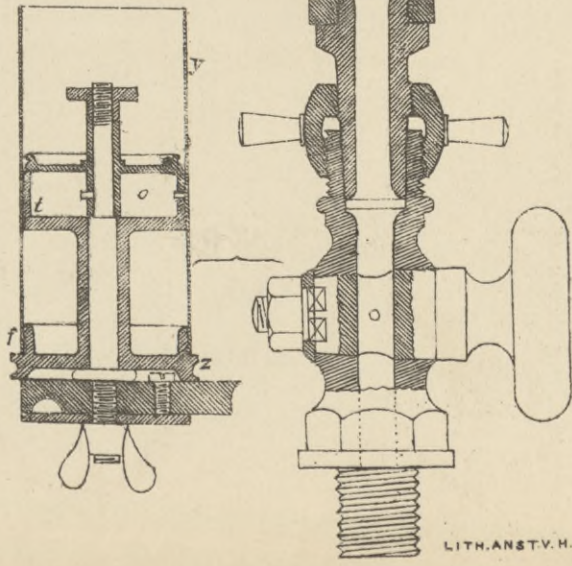


Abb. 300 a.



Crosby-Indikator.

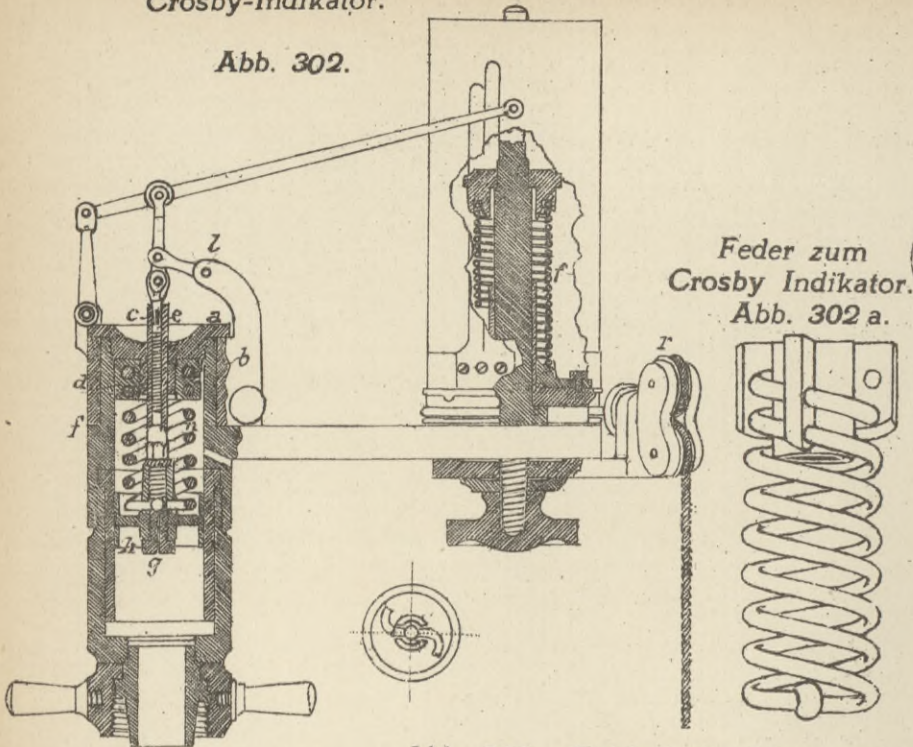


Abb. 302.

Abb. 303. Schnurspanner.

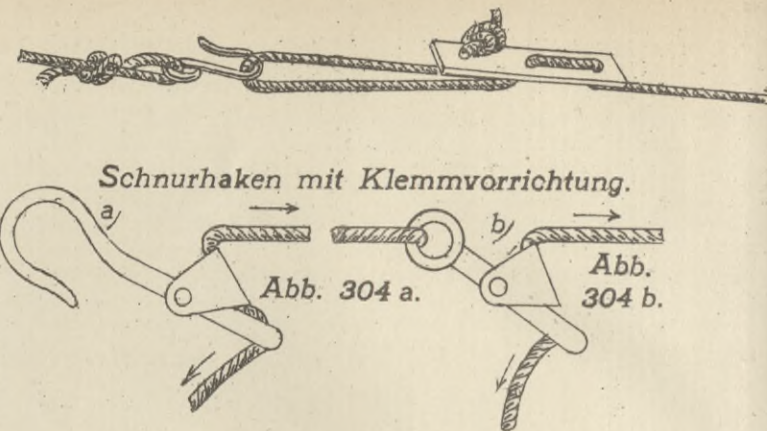
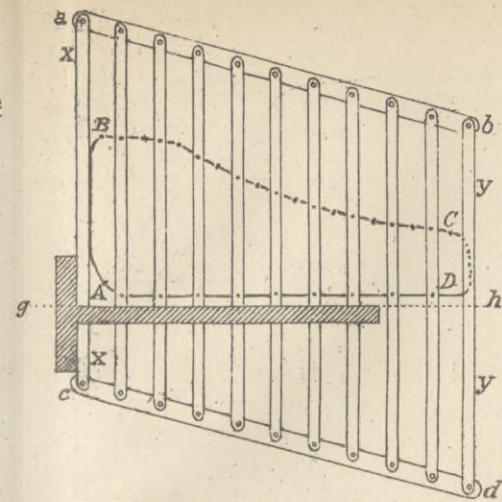
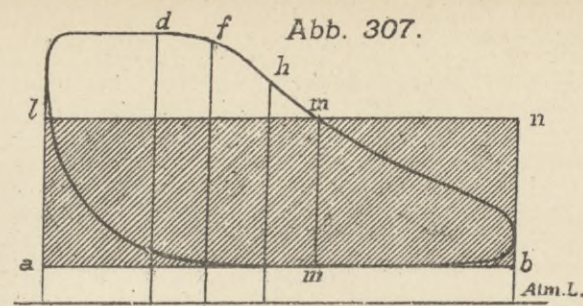


Abb. 308. Teillineal (Rostrat)



Bestimmung des mittleren Druckes.



Verstrecken (Rankinisieren) von Diagrammen. Abb. 310.

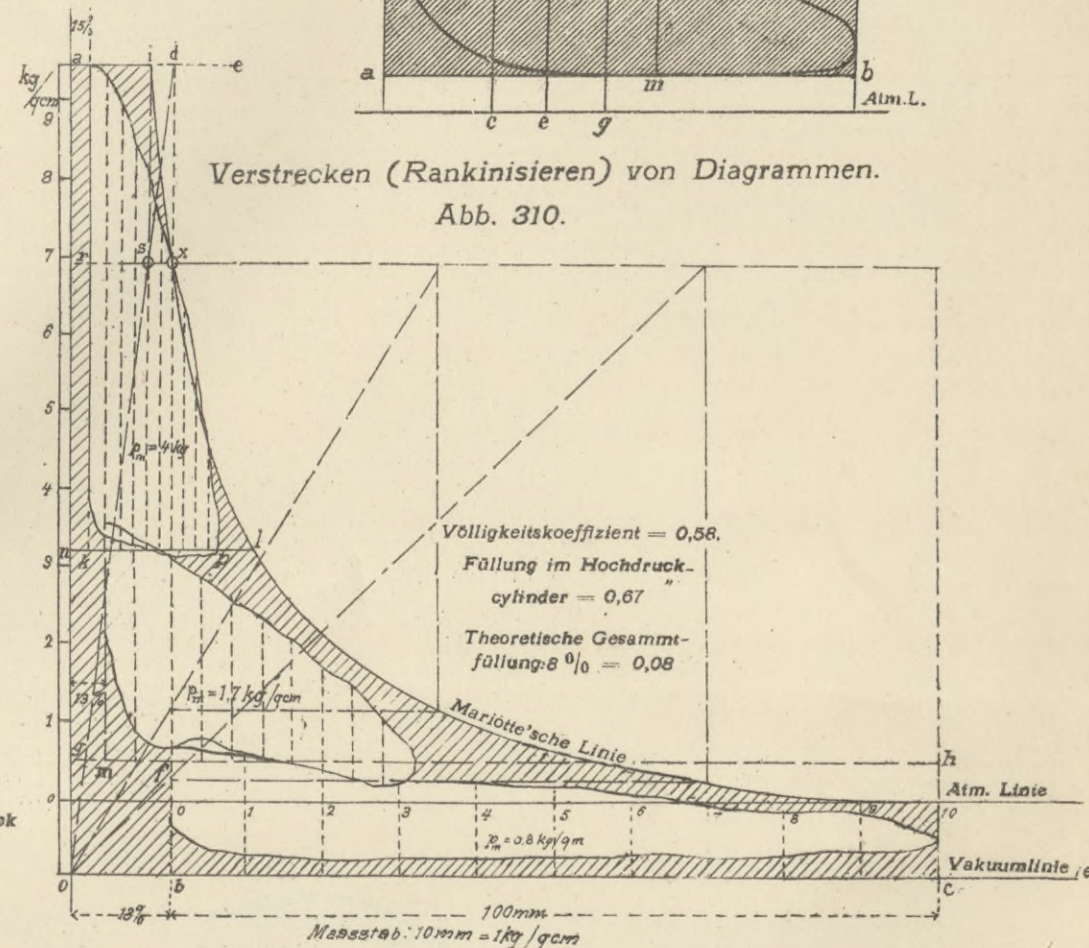
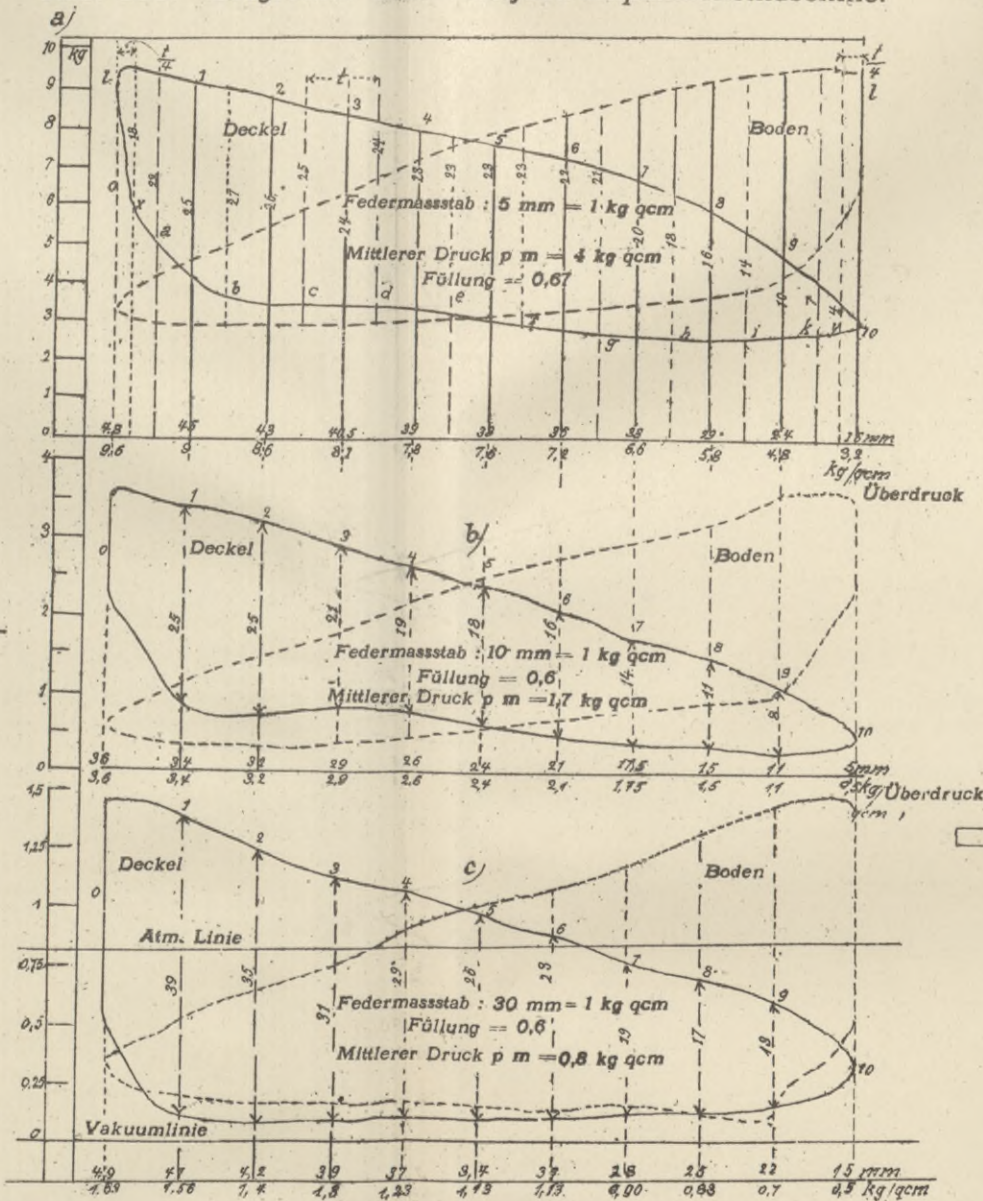


Abb. 305. Diagramm einer Dreifach-Expansionsmaschine.



Kurbelanordnung nach Schlick.

Abb. 313 a.

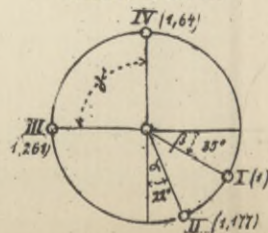


Abb. 306. Fehlerhafte Diagramme.

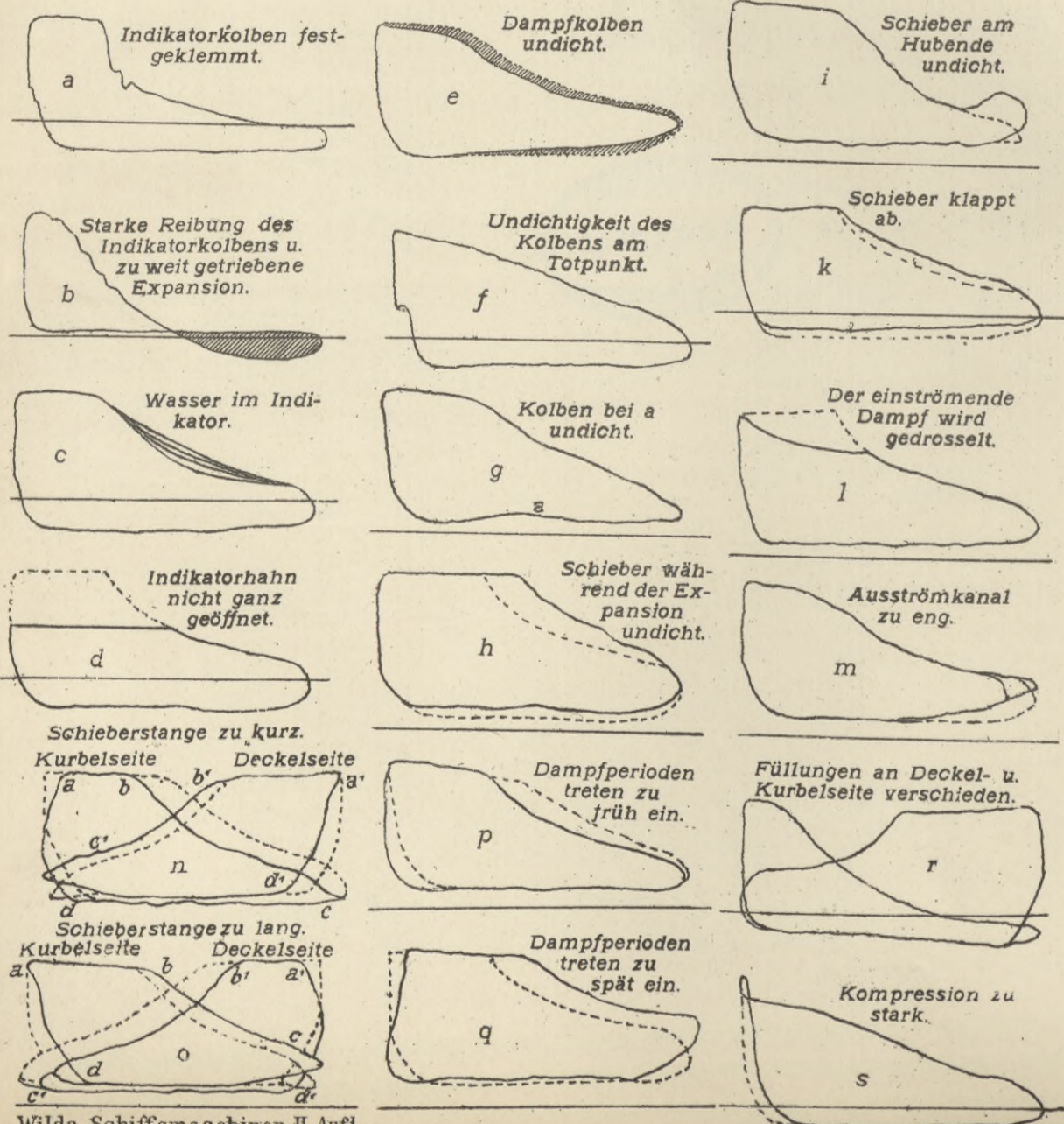


Abb. 309. Planimeter.

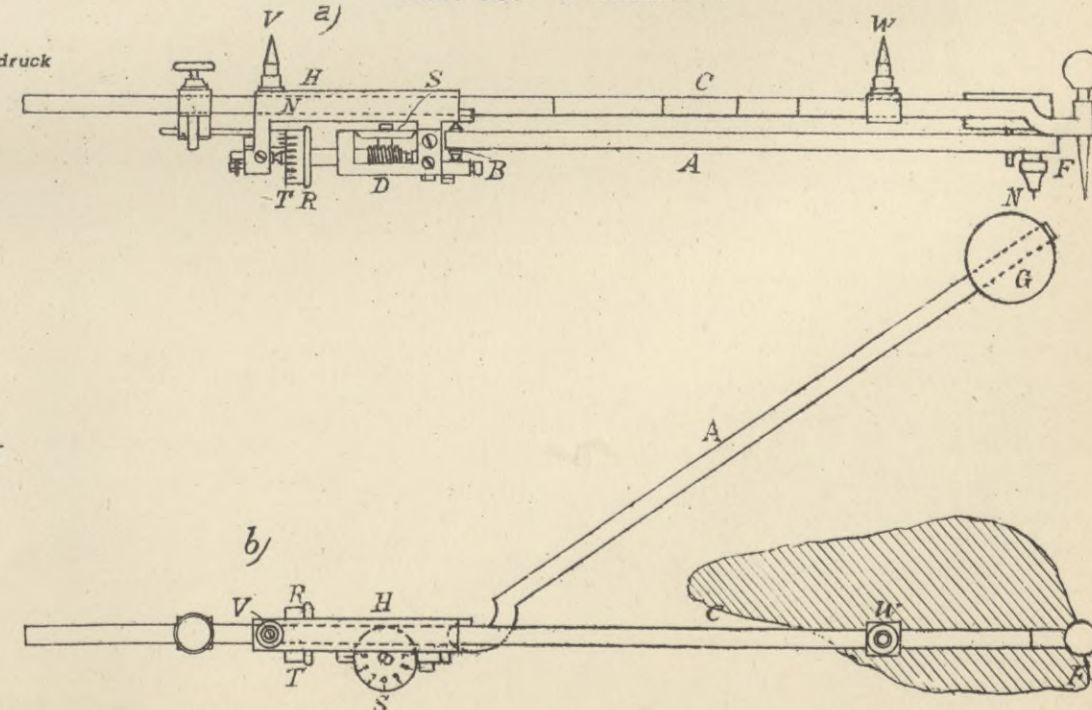


Abb. 311. Einfluss der bewegten Massen auf die Dampfvertheilung.

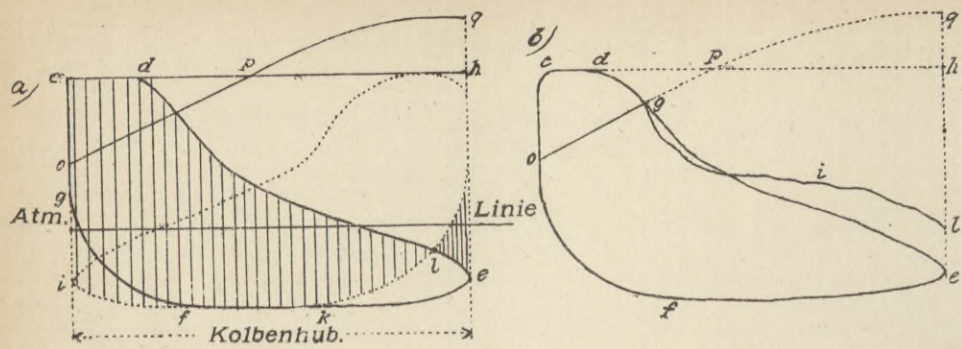


Abb. 313. Tangentialdruckdiagramm.

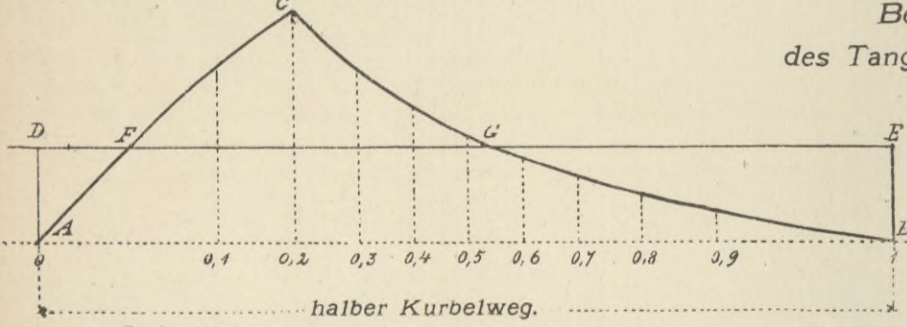


Abb. 315.

Schieberdiagramm.

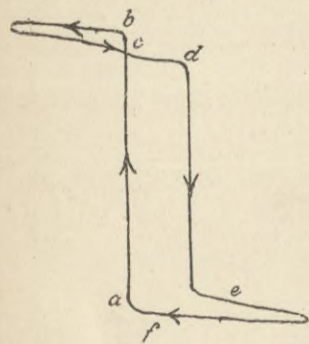


Abb. 317 a. Diagramm einer Luftpumpe.

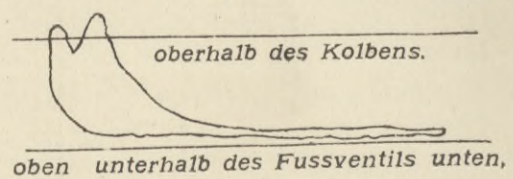


Abb. 316. Pumpendiagramm.

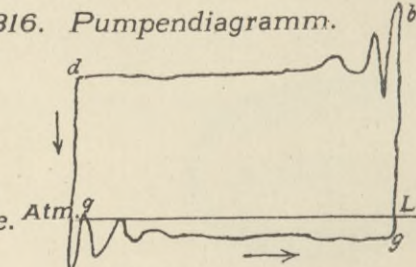


Abb. 318. Diagramm einer doppelwirkenden Circulationspumpe.

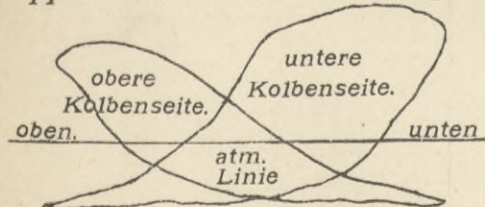


Abb. 319

Metallpackung von Howaldt.

Abb. 319 a. Metallpackung von Howaldt.

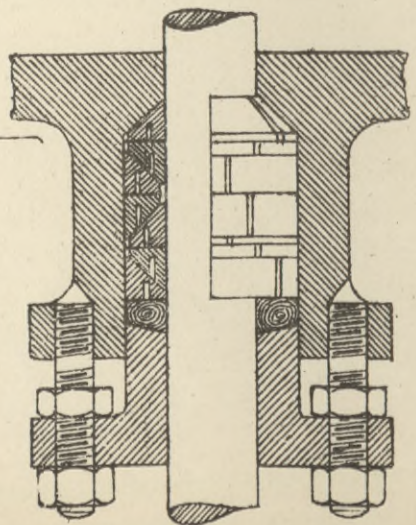
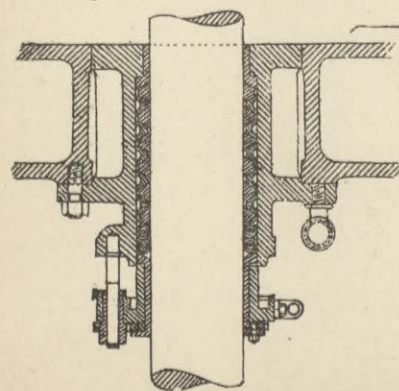


Abb. 314. Ueberdruckdiagramm.

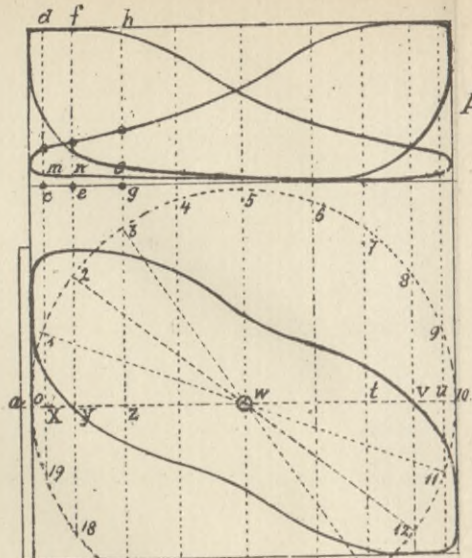


Abb. 312.

Bestimmung des Tangentialdrucks.

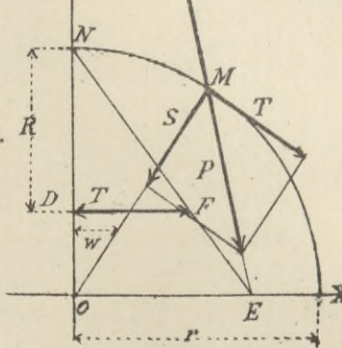


Diagramm einer Lenzpumpe.

Abb. 317 b.

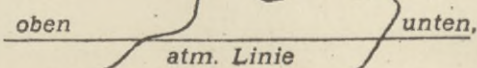


Abb. 320.

Schmierhahn von Gminder.

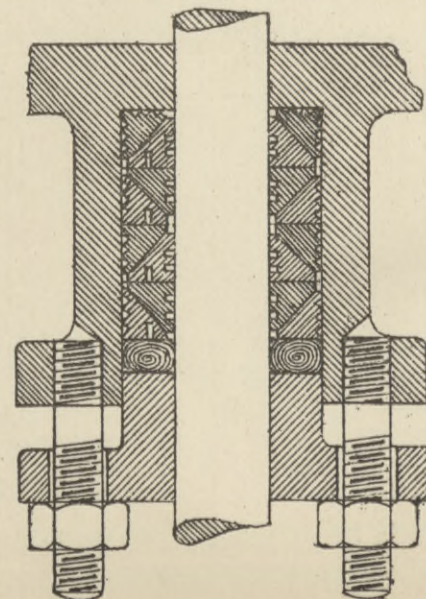


Abb. 323 a. Abb. 323 b.

Anziehvorrichtung für Stopfbüchsen.

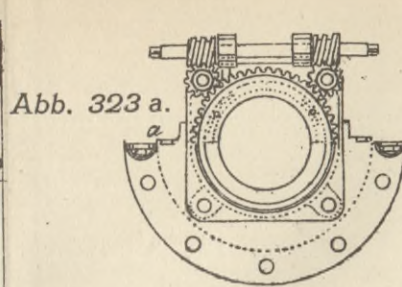


Abb. 323 b.

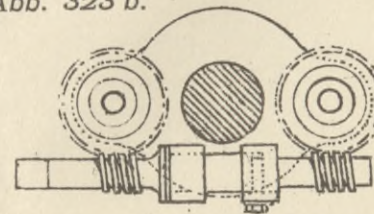


Abb. 321. Metallpackung der U. S. Packing Co. " " 322)

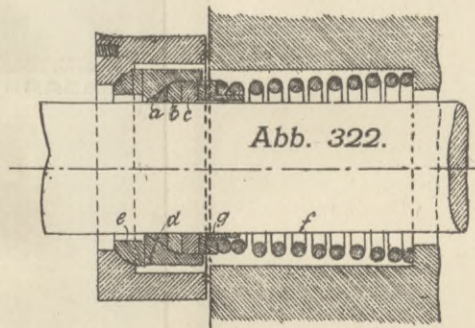
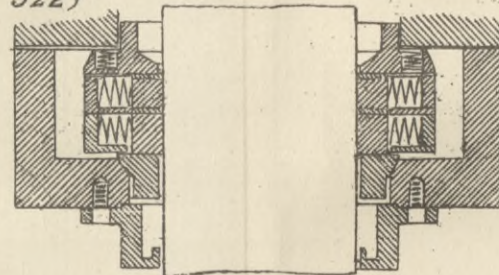
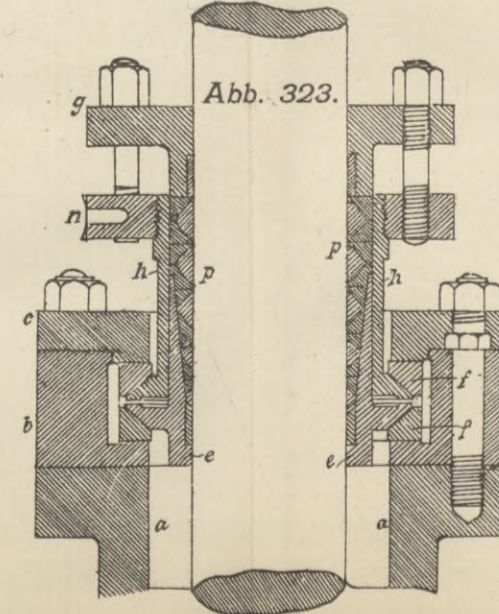


Abb. 323.

Metallpackung von Macbeth.



Schmierhahn von Wilson.

Abb. 324.

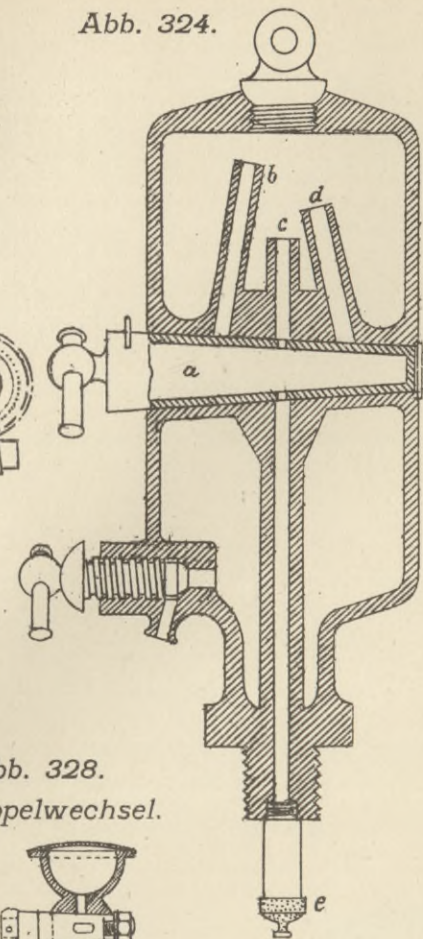
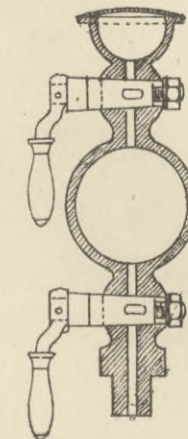


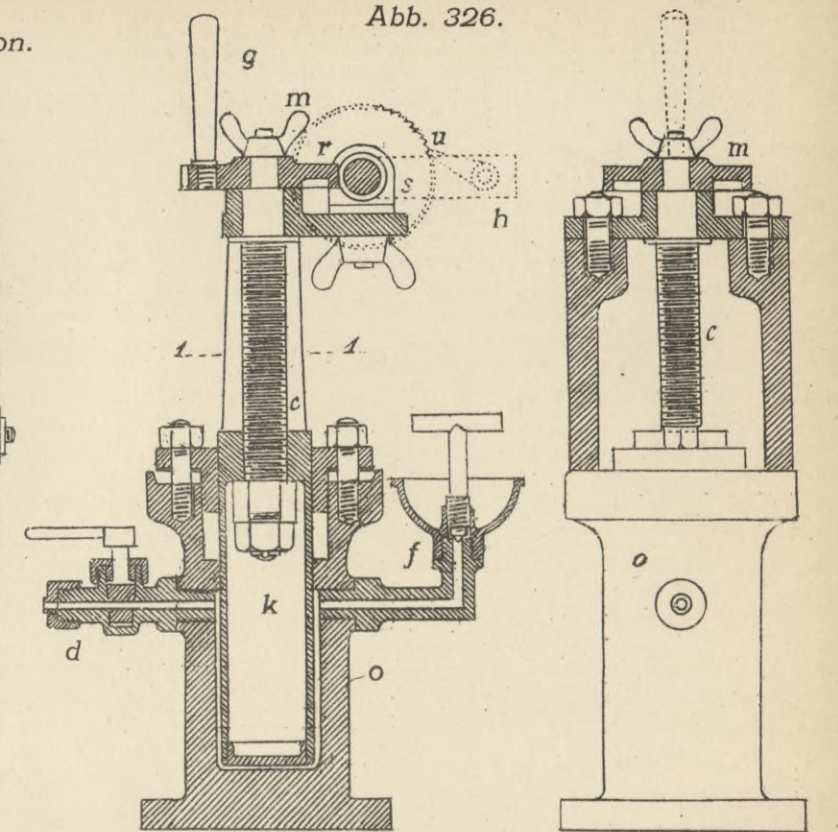
Abb. 328.

Doppelwechsel.

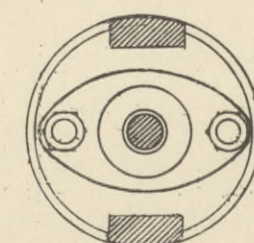


Schmierpumpe von Mollerup. Tafel 31

Abb. 326.



Schnitt 1-1.



Schnitt Durch die Schaltvorrichtung.

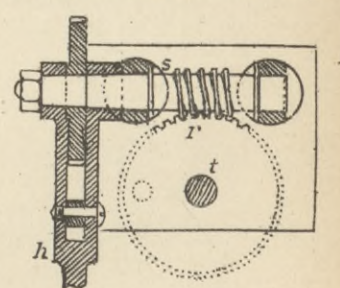
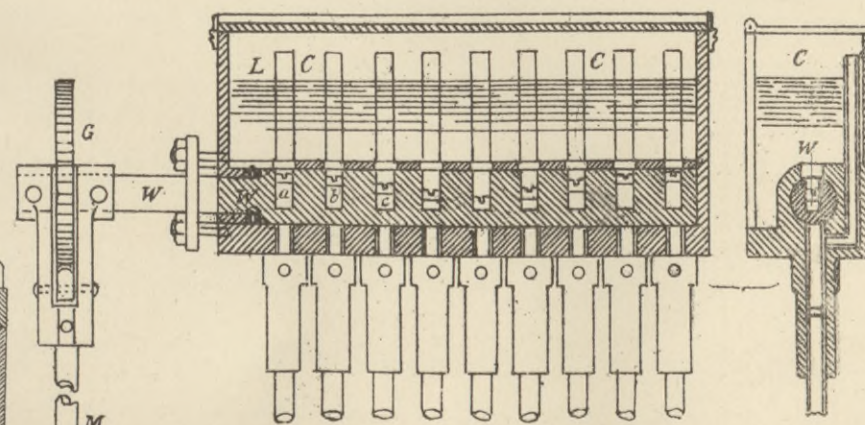


Abb. 327. Centralschmierapparat von Möller.



Dampfschmierapparat von Schäffer & Budenberg. Abb. 325.

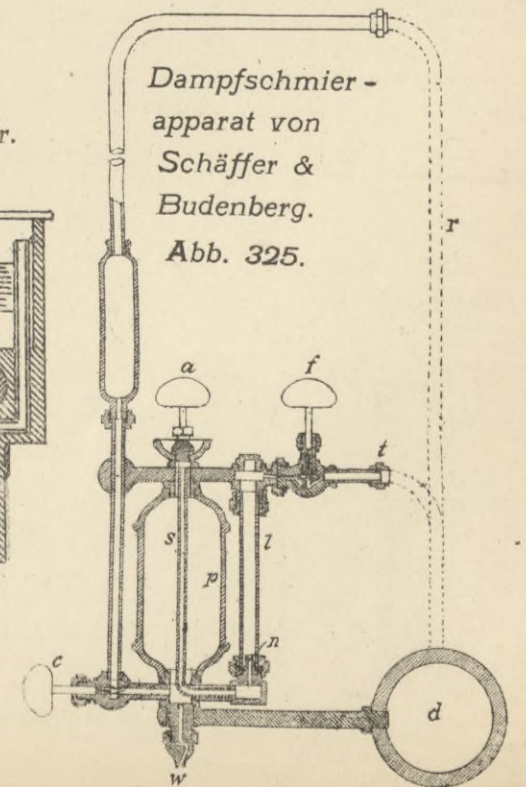


Abb. 329. Rad mit festen Schaufeln.

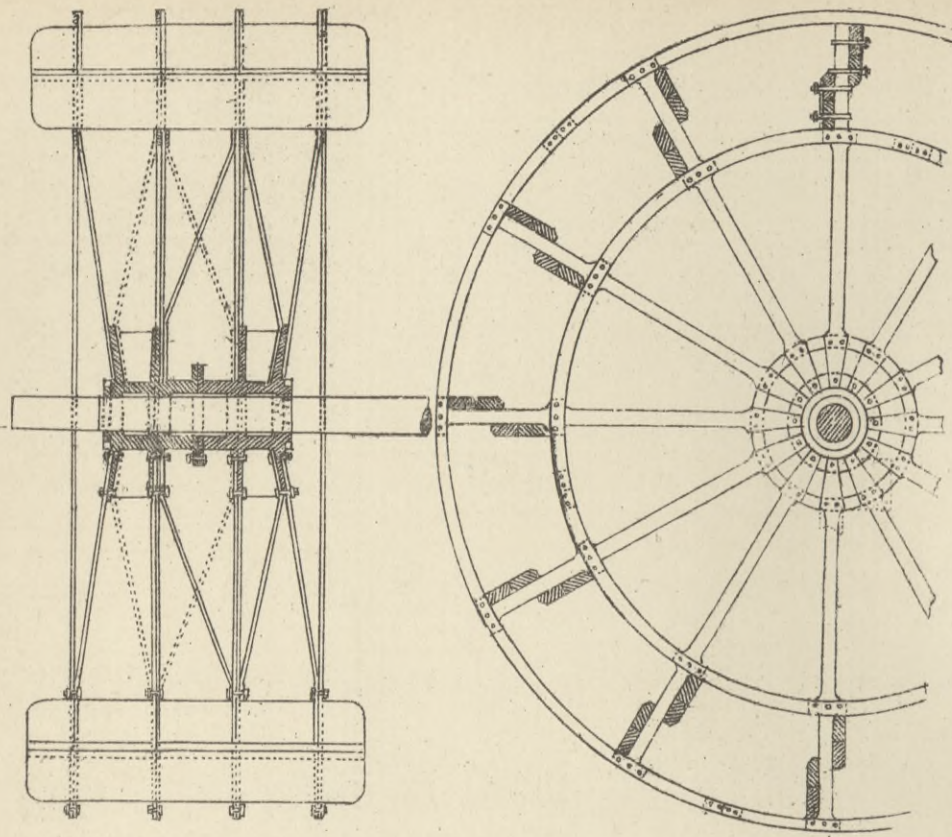
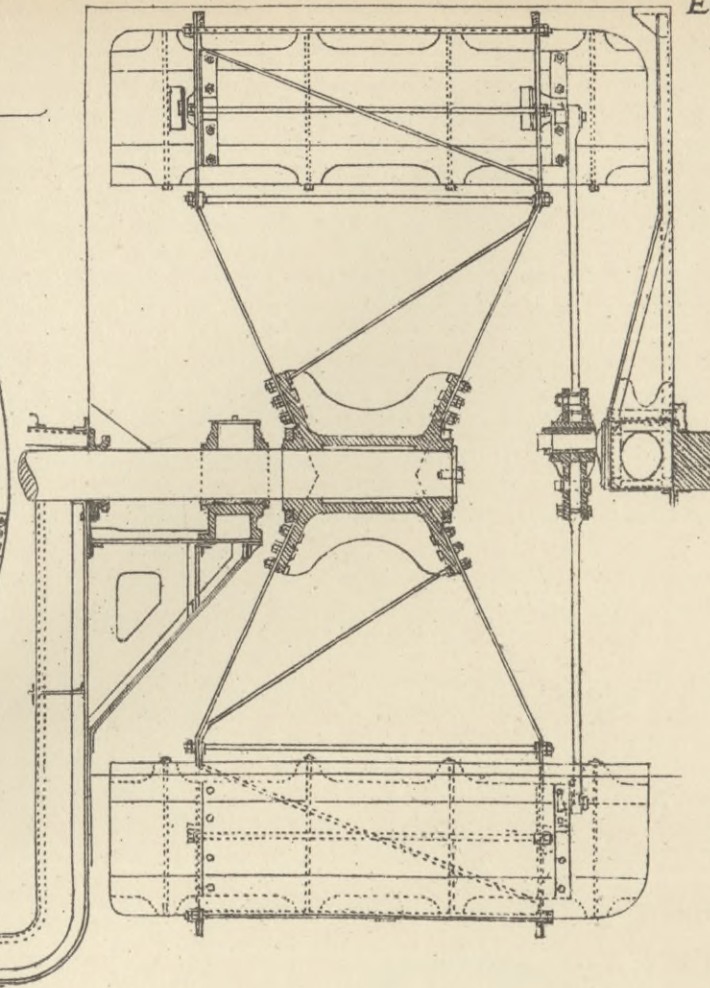
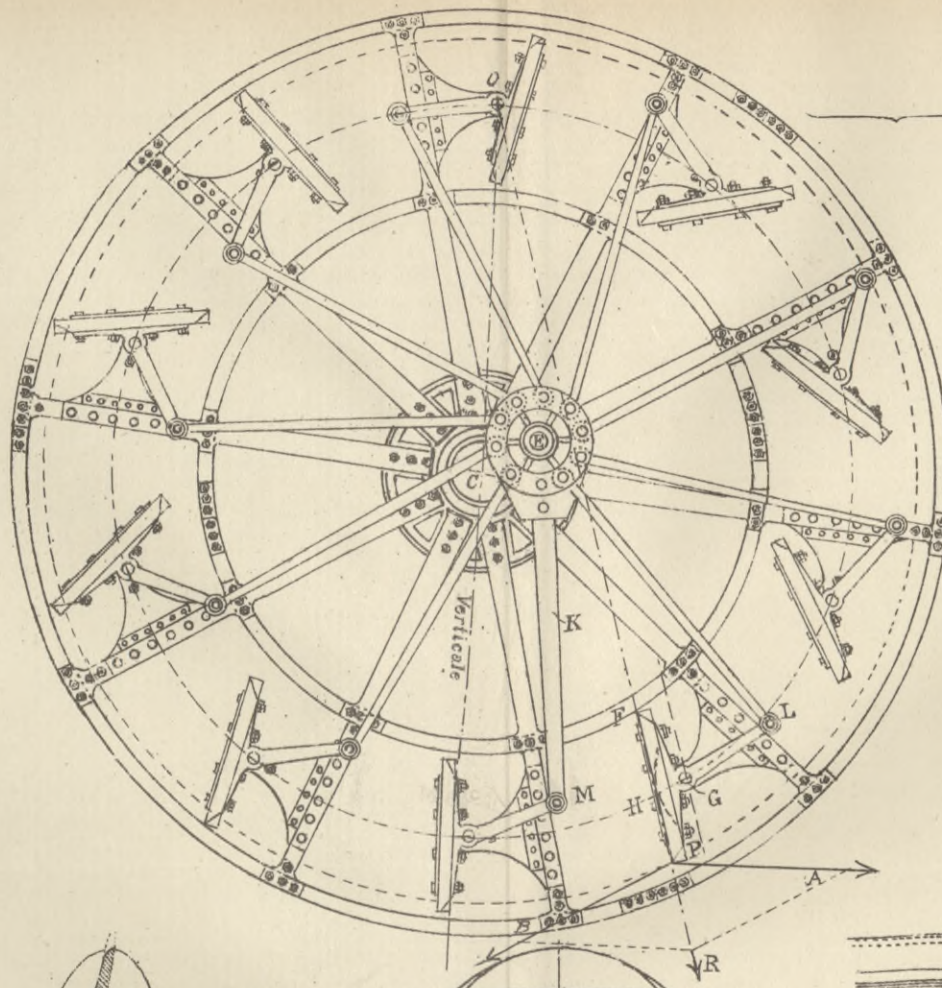


Abb. 330. Rad mit beweglichen Schaufeln.



Entstehung der mathemat.

Abb. 331. Schraube.

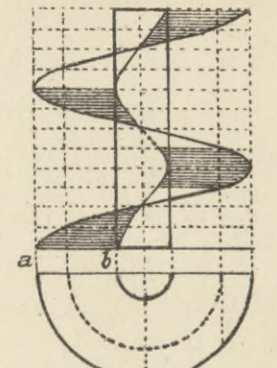
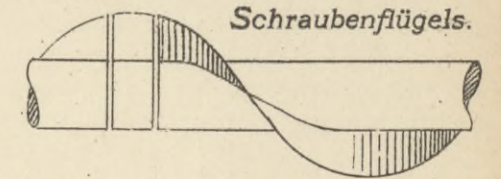
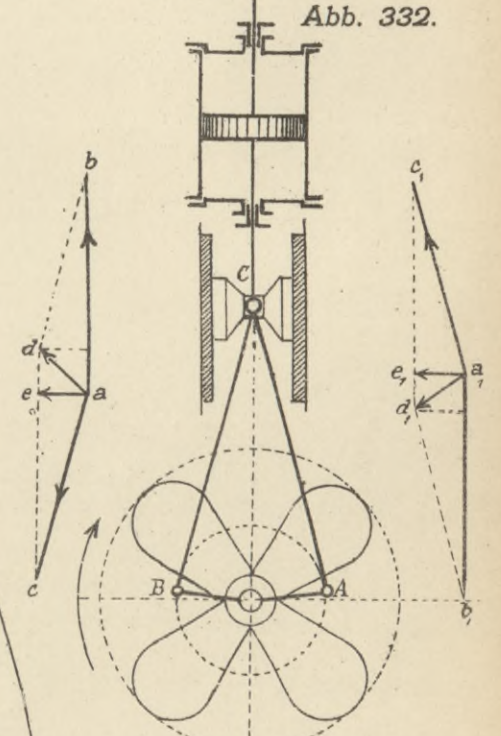


Abb. 333 Entstehung eines Schraubenflügels.



Einfluss der Drehrichtung der Schraube.

Abb. 332.



Sicherung von Flügel-schrauben.

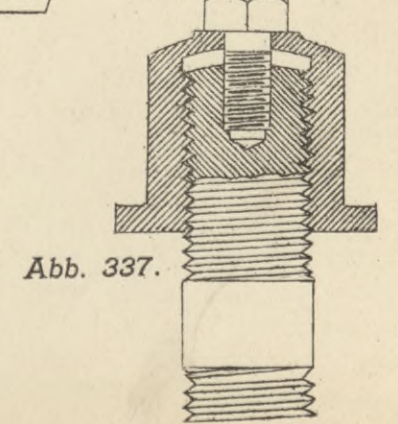
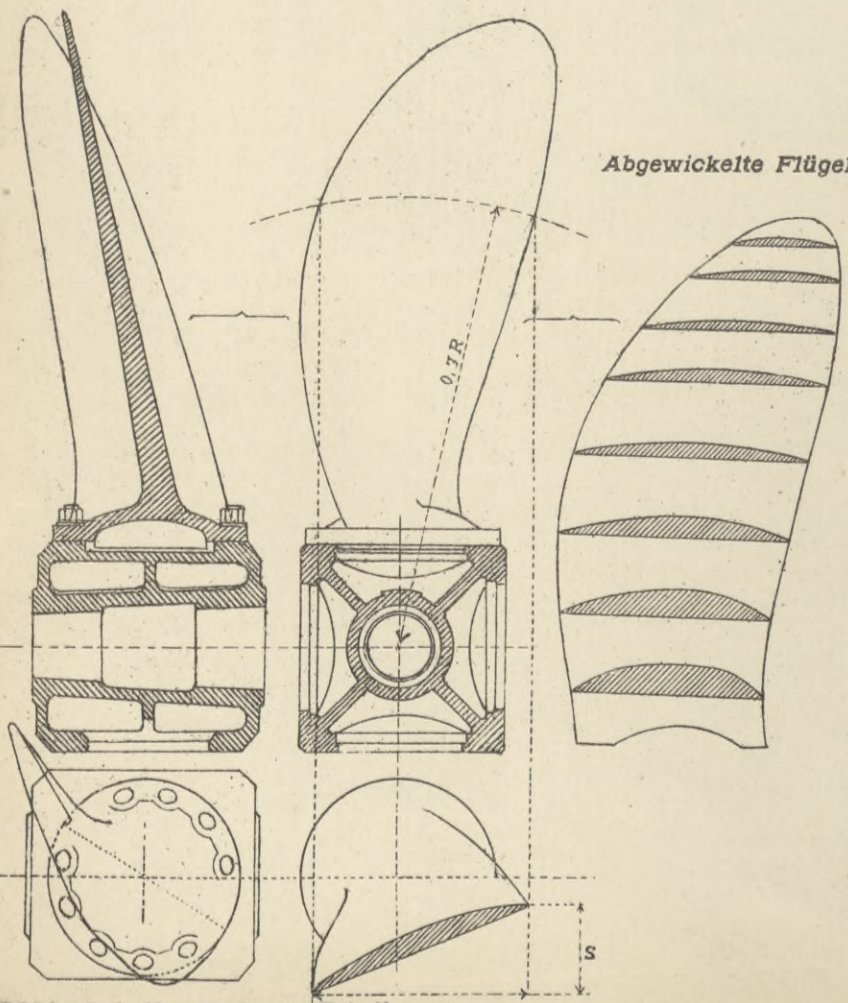


Abb. 337.

Abb. 334. Schraube mit 4 Flügeln.

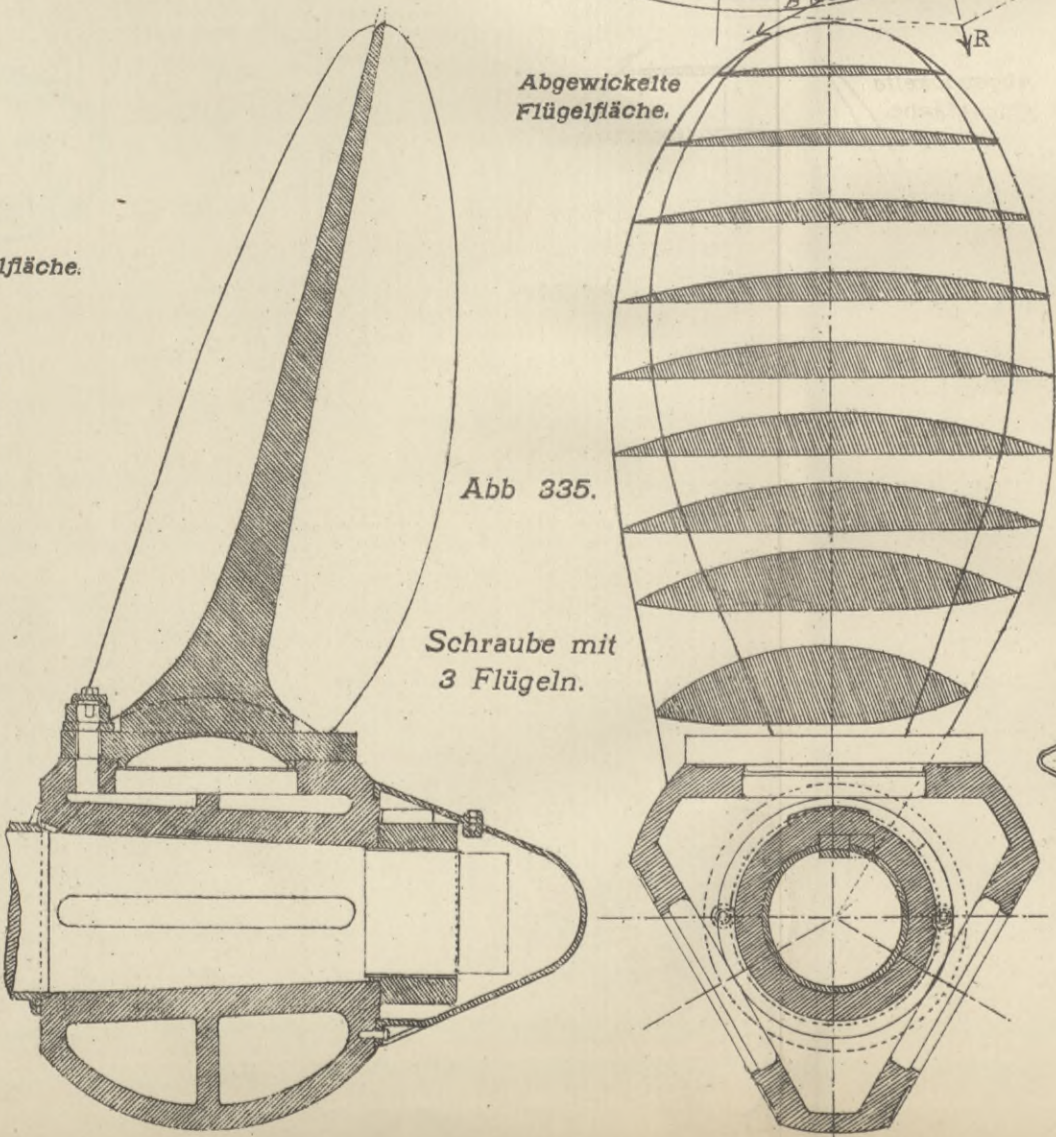


Abgewickelte Flügel-fläche.

Abgewickelte Flügel-fläche.

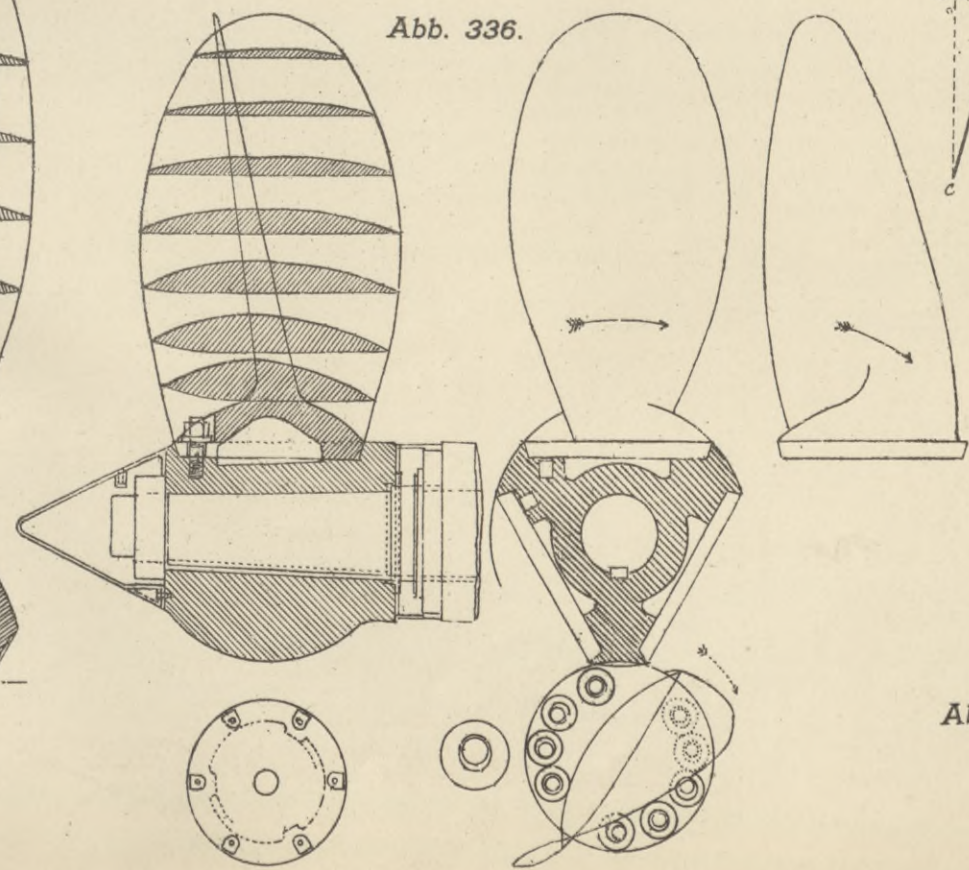
Abb. 335.

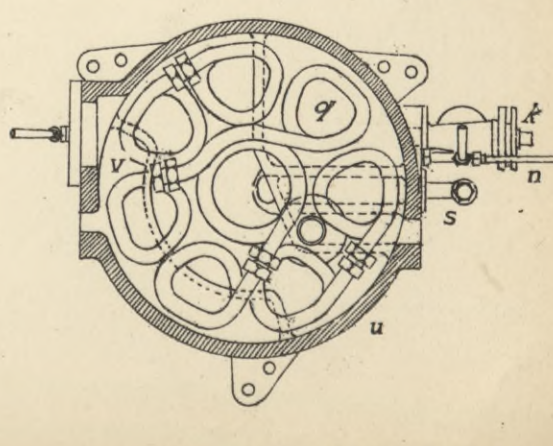
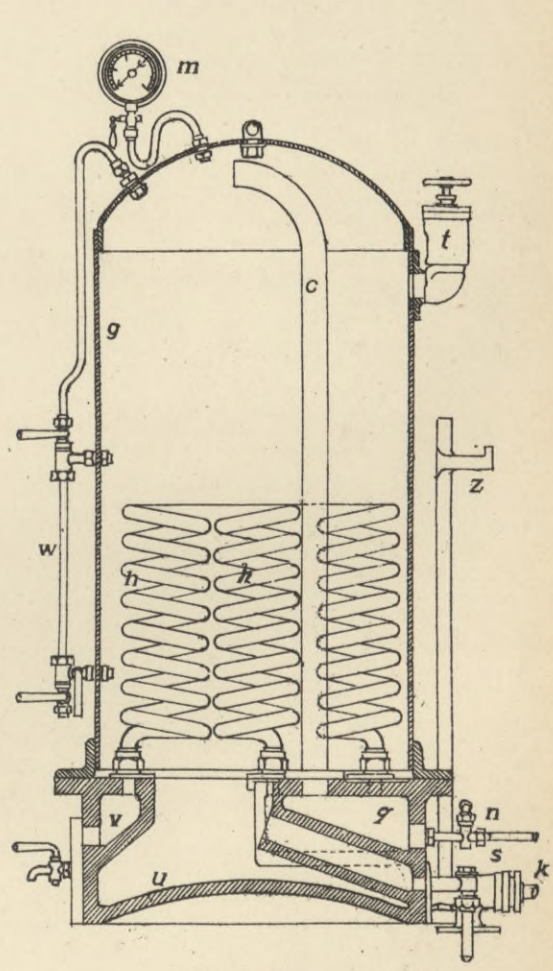
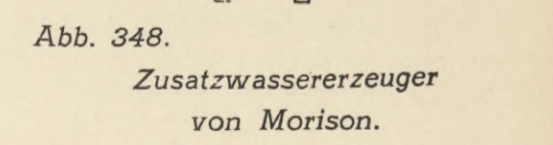
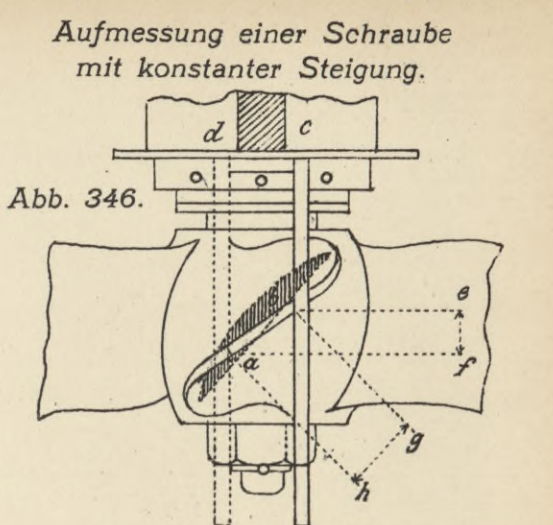
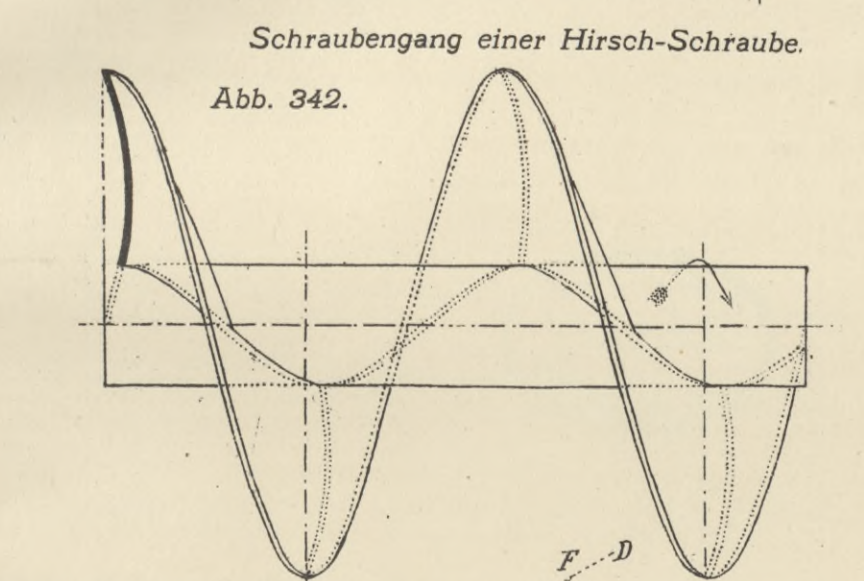
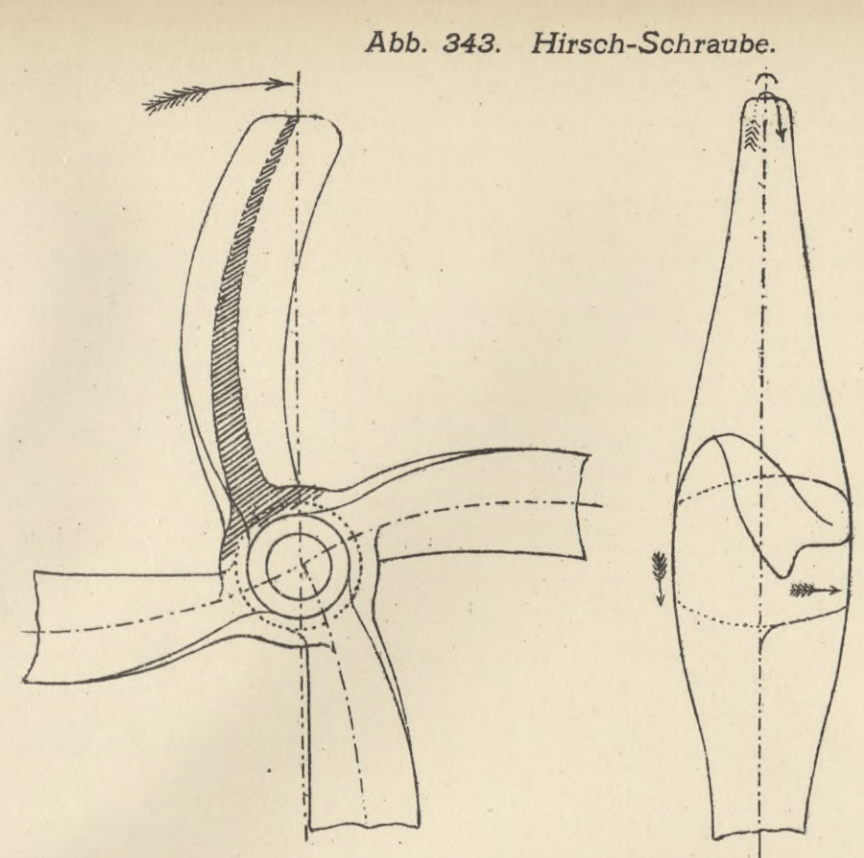
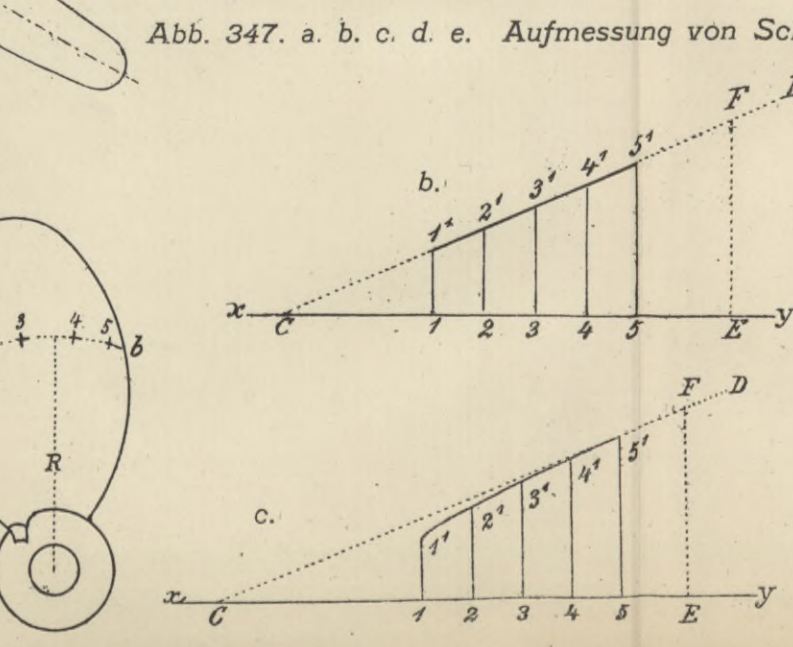
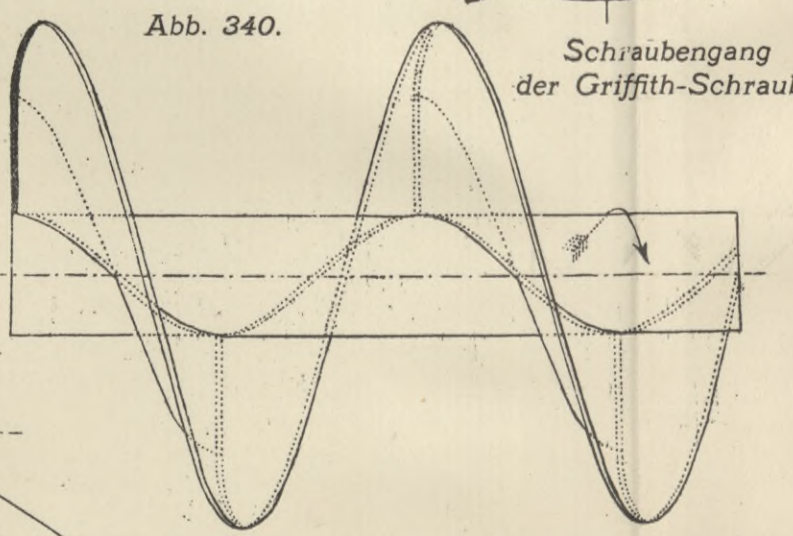
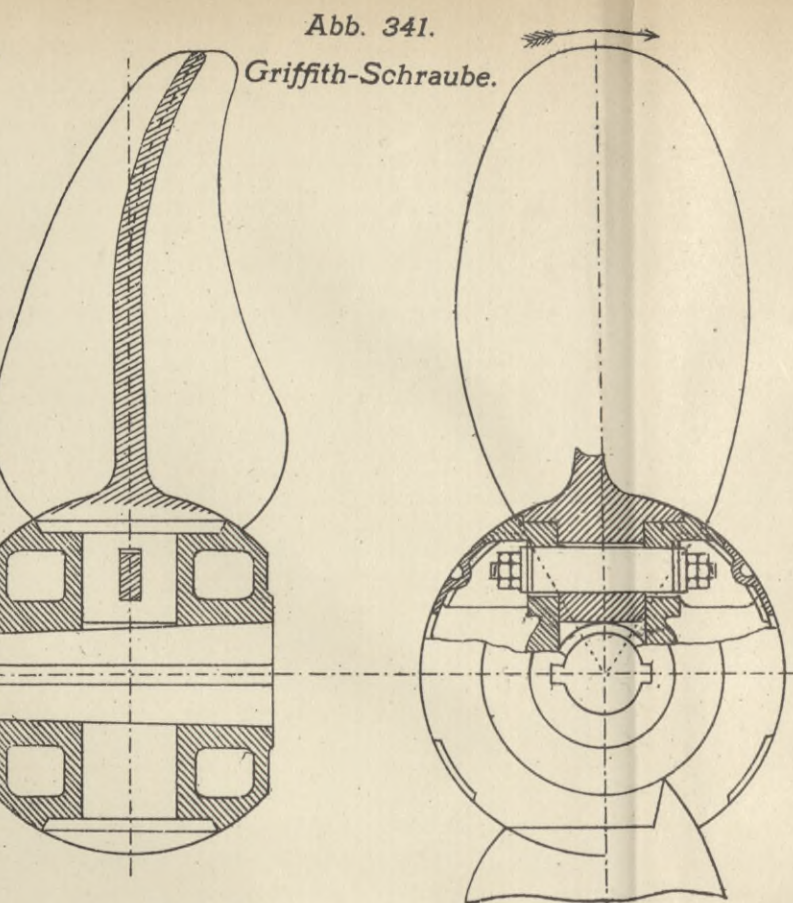
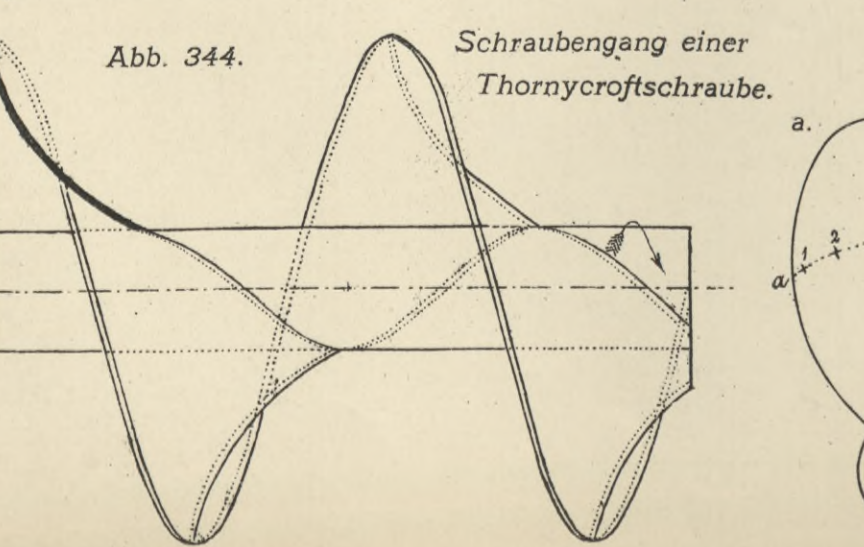
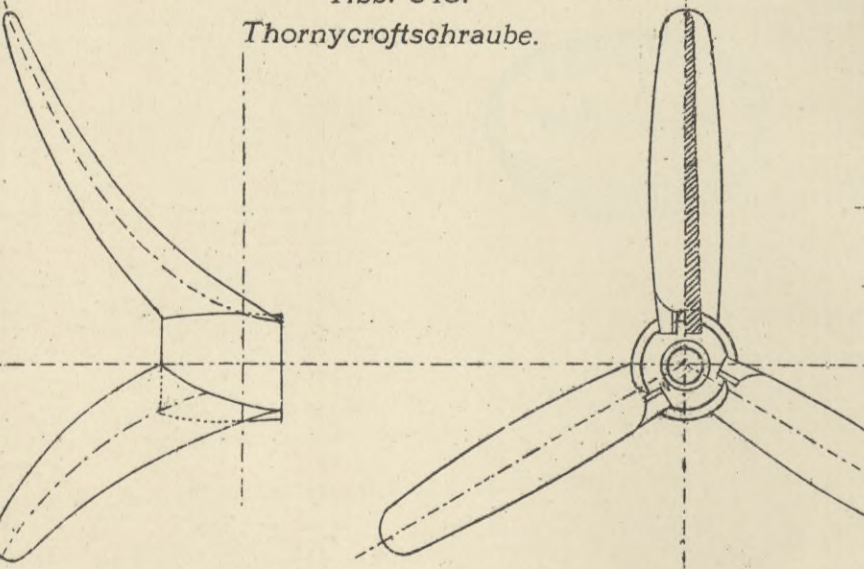
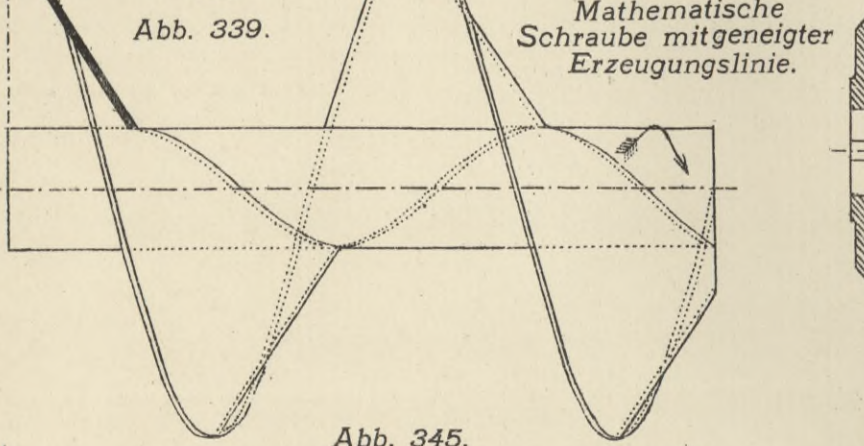
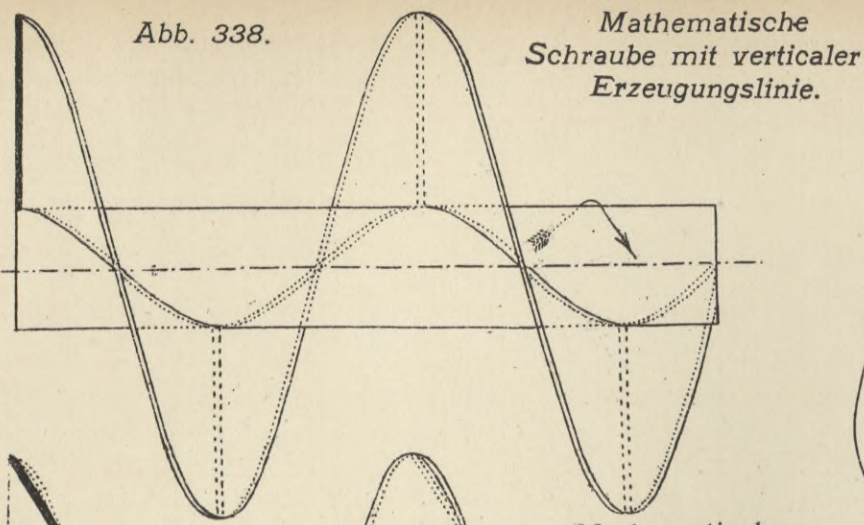
Schraube mit 3 Flügeln.



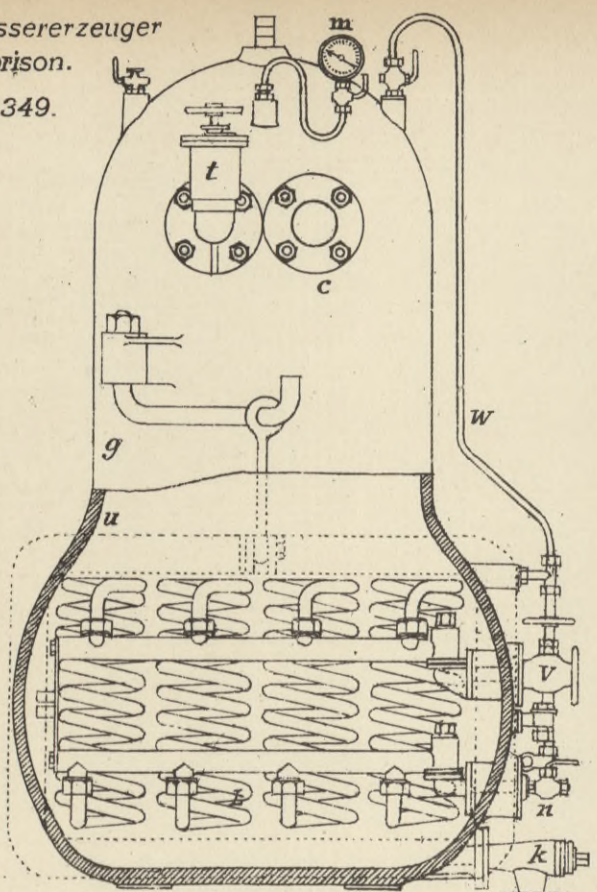
Schraube mit 3 Flügeln.

Abb. 336.





Zusatzwassererzeuger von Morison.
Abb. 349.



Anordnung von Evaporator und Vorwärmer nach Morison.

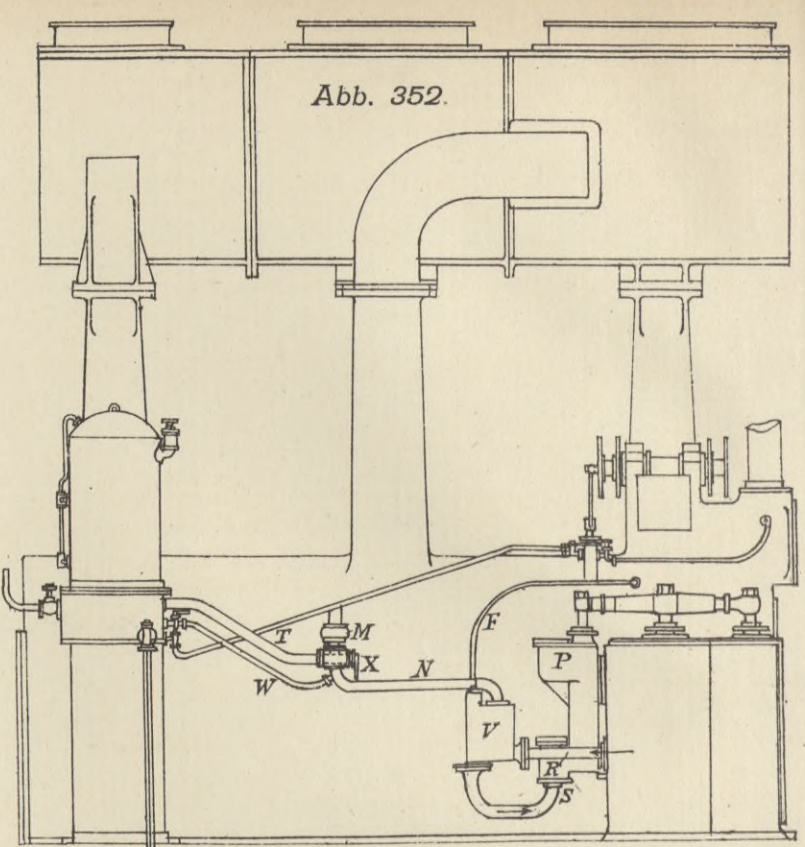


Abb. 352.

Abb. 353. Zusatzwassererzeuger von Weir.

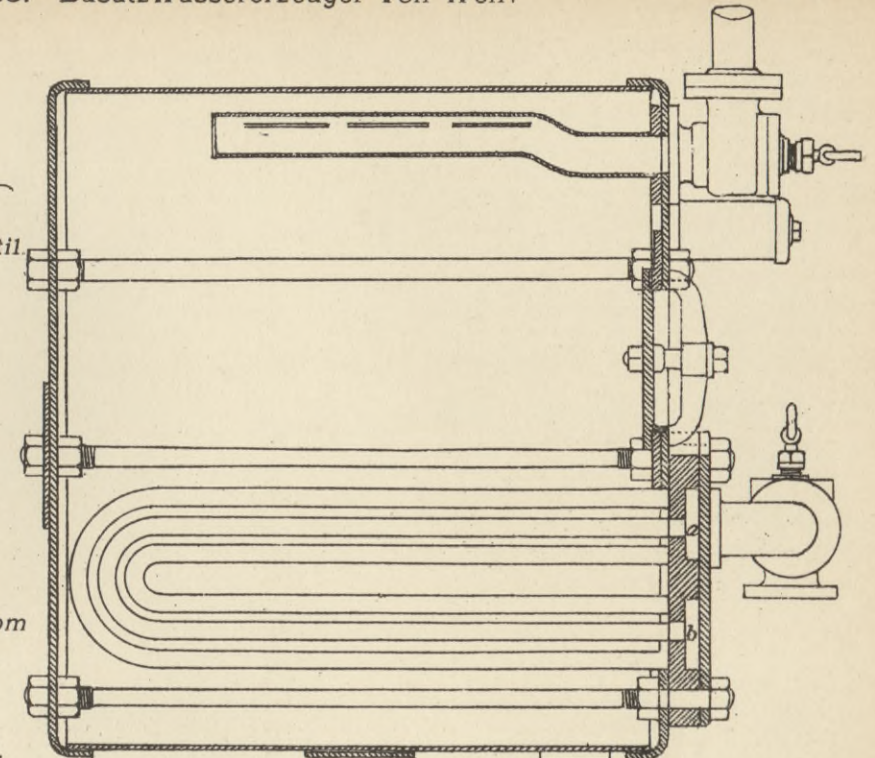


Abb. 357.

Dampfausströmung zum Kondensator oder N.-D.-Cylinder.

Manometer,

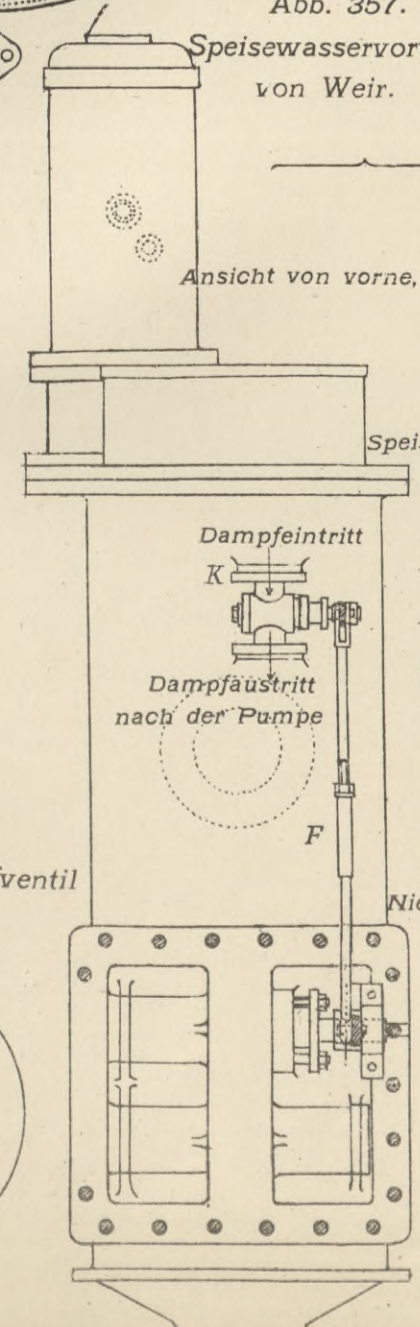
Speiseventil

Abschäumhahn.

Dampf vom Receiver.

Rohrentwässerung.

Speisewasservorwärmer von Weir.



Ansicht von vorne.

Speisewasser einströmung.

Dampfeintritt K

Dampfaustritt nach der Pumpe

F

Dampf vom Niederdruckreceiver.

Speisewasserauslass nach der Pumpe.

Schnitt a b.

Speisewassereinlass.

Kesseldampf Regulierventil.

Dampfaustritt nach der Pumpe.

S

M

Abb. 354. |
Abb. 355. |

Zusatzwassererzeuger von Kirkaldy.

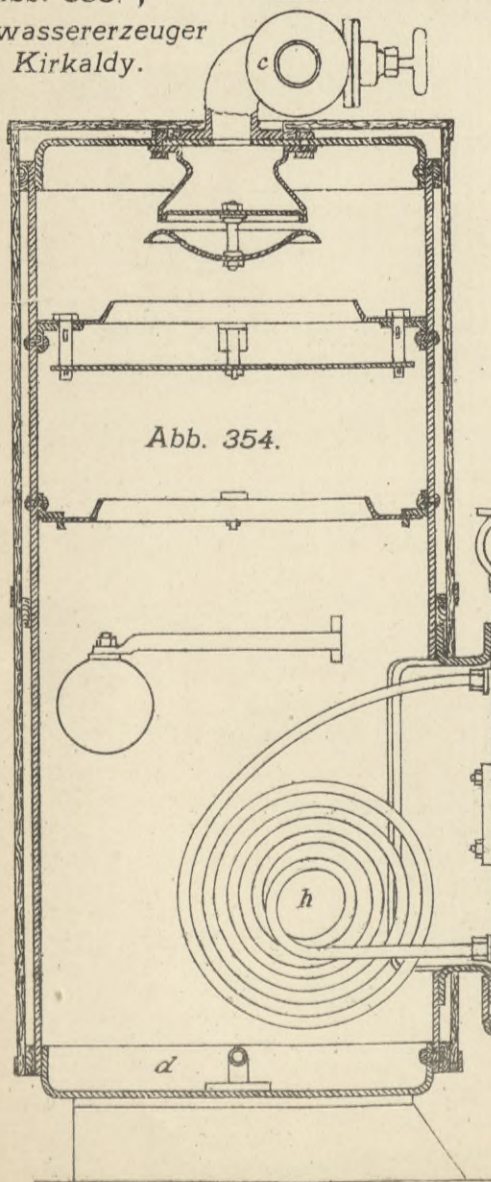


Abb. 354.

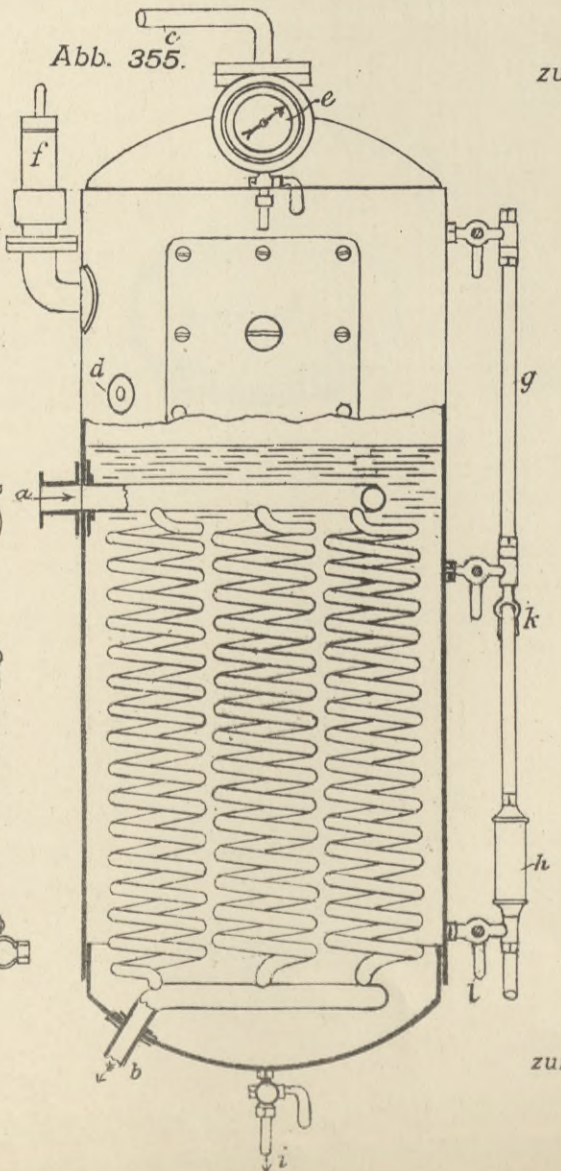
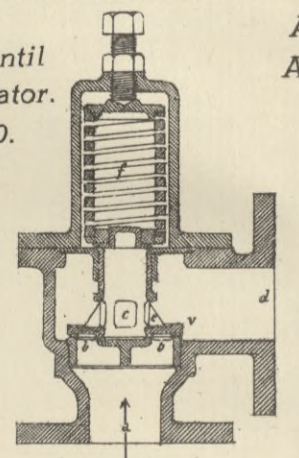


Abb. 355.

Reduzirventil zum Evaporator.
Abb. 350.



Abblasehahn.
Abb. 351.

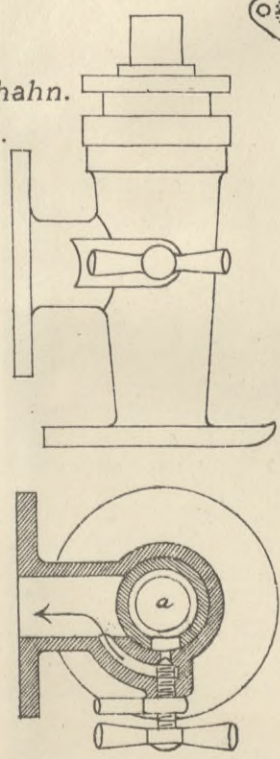
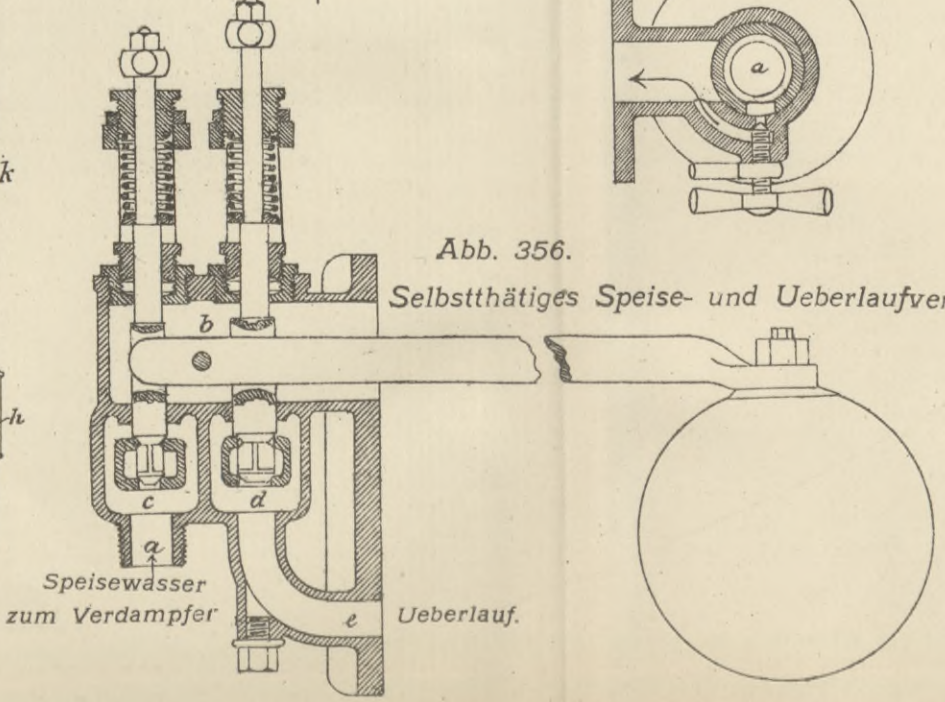


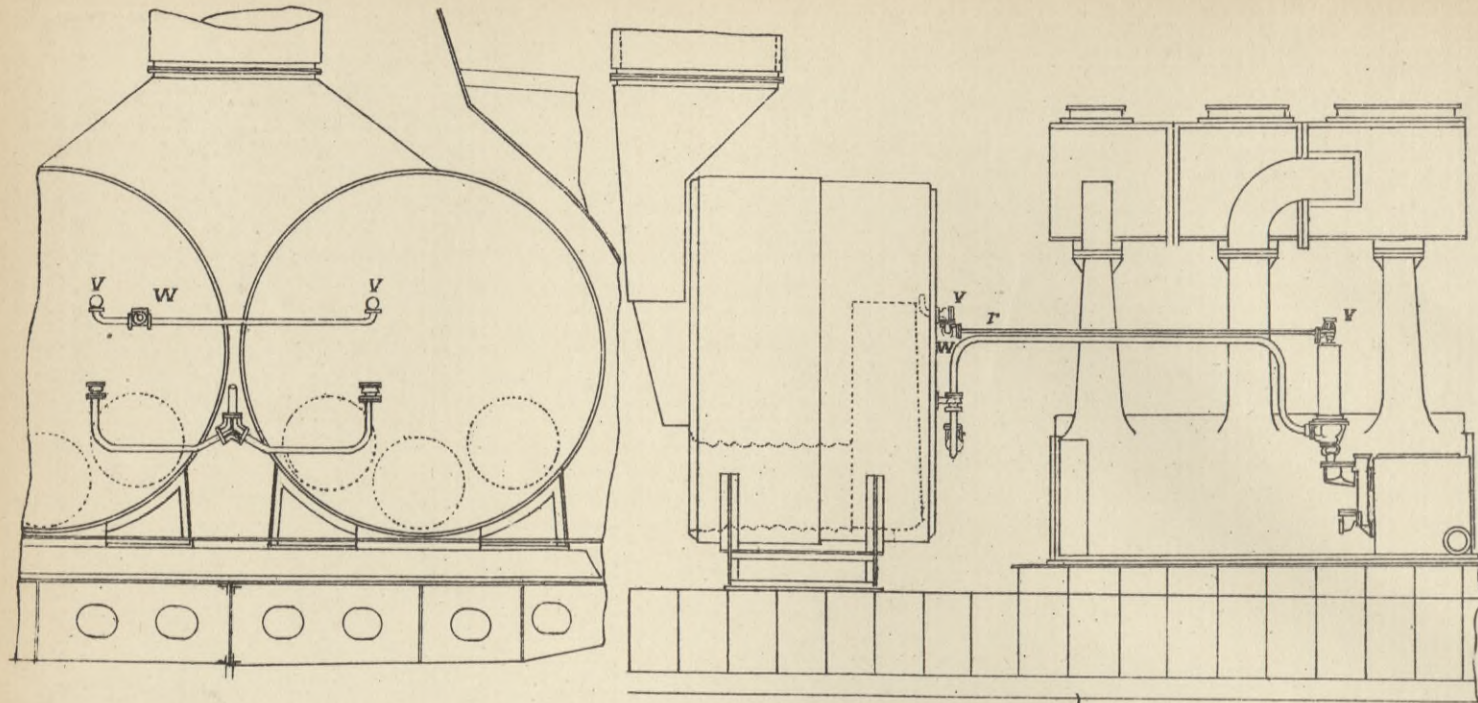
Abb. 356.

Selbstthätiges Speise- und Ueberlaufventil



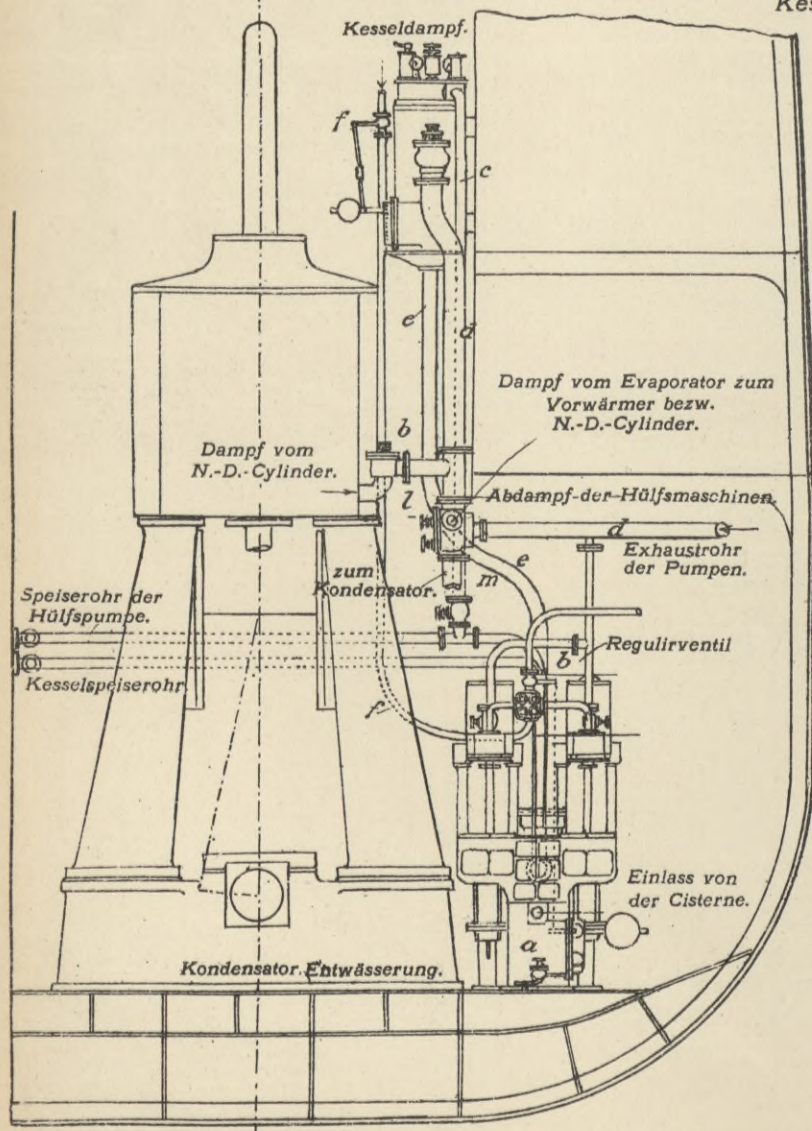
Speisewasser zum Verdampfer

Ueberlauf.



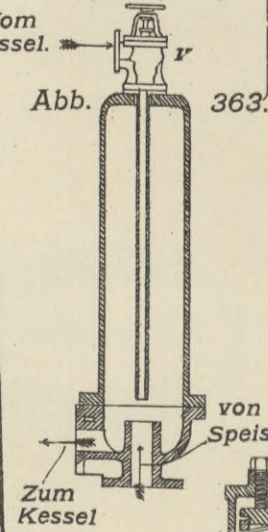
Anordnung von Verdampfer und Vorwärmer nach Weir.

Abb. 358.



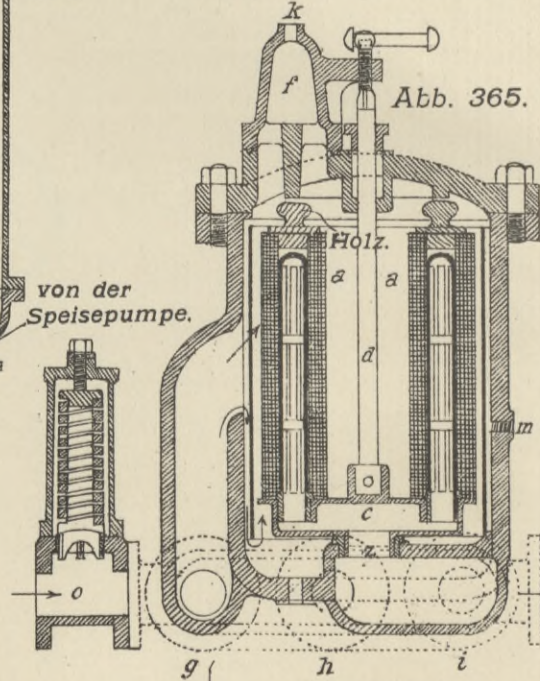
Windkessel der Speisepumpe.

Abb. 363.



Speisewasserfilter von Alley und Maclellan.

Abb. 365.



von der Speisepumpe.

Zum Kessel

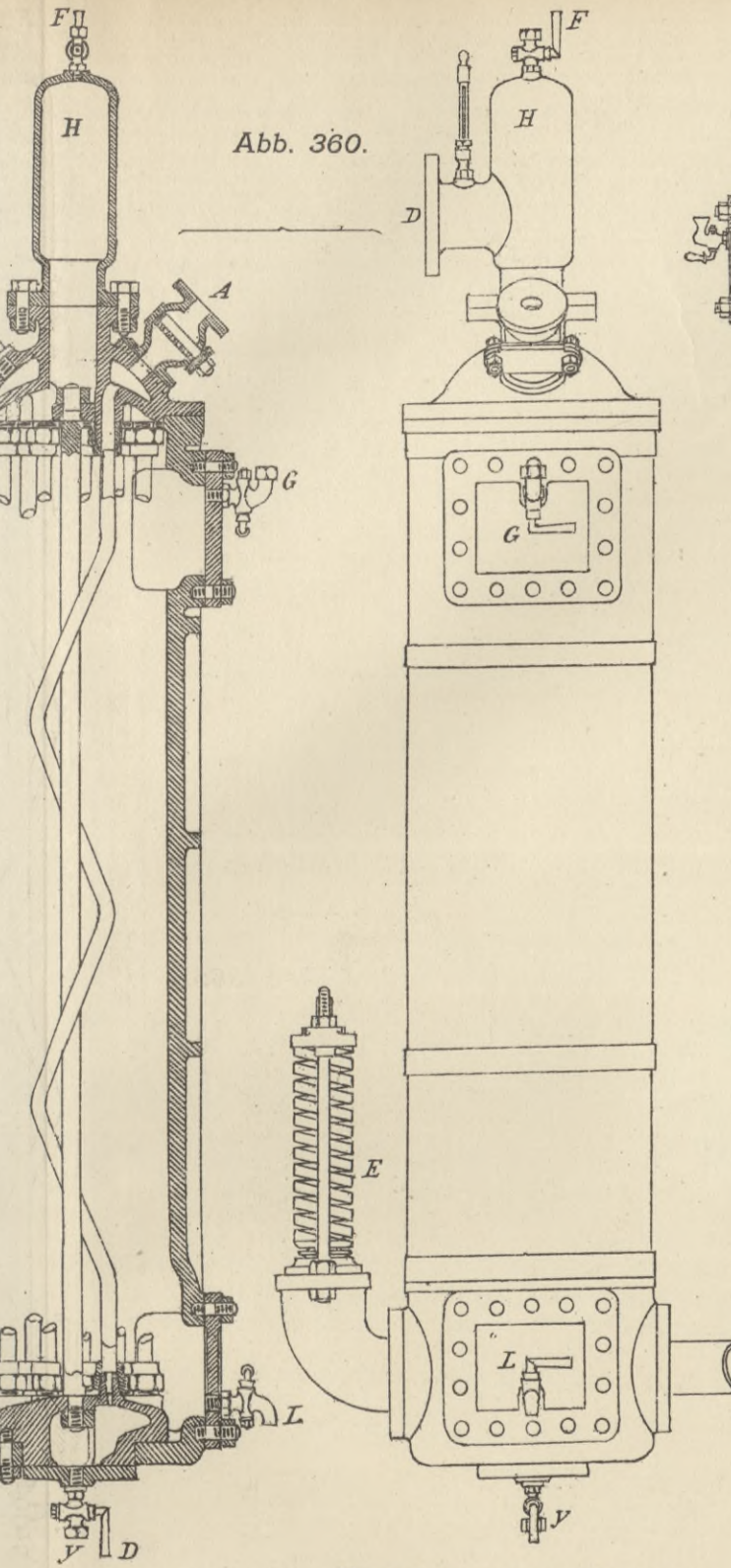
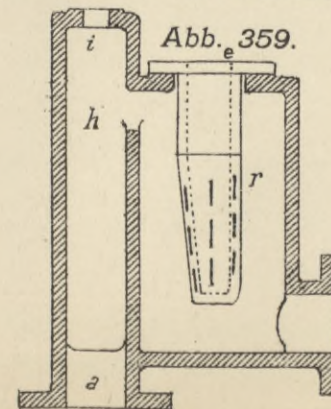


Abb. 360.

Vorwärmer von Morison.

Abb. 359.



Absperrventil.

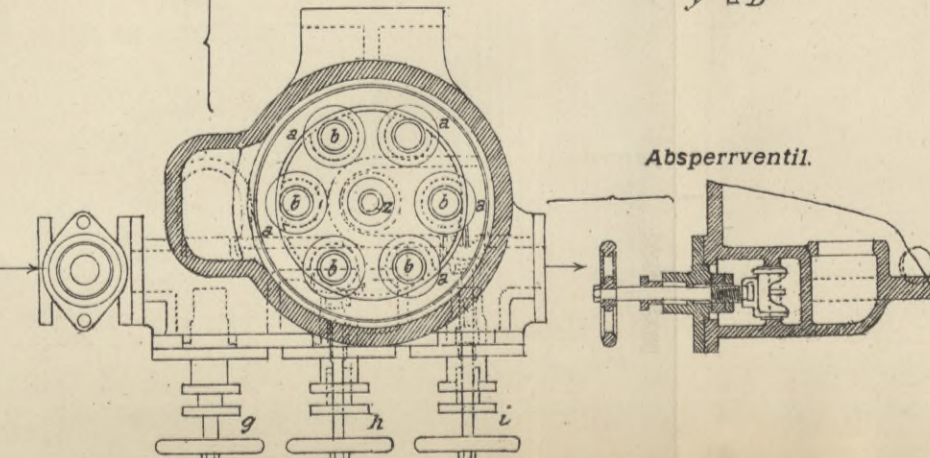
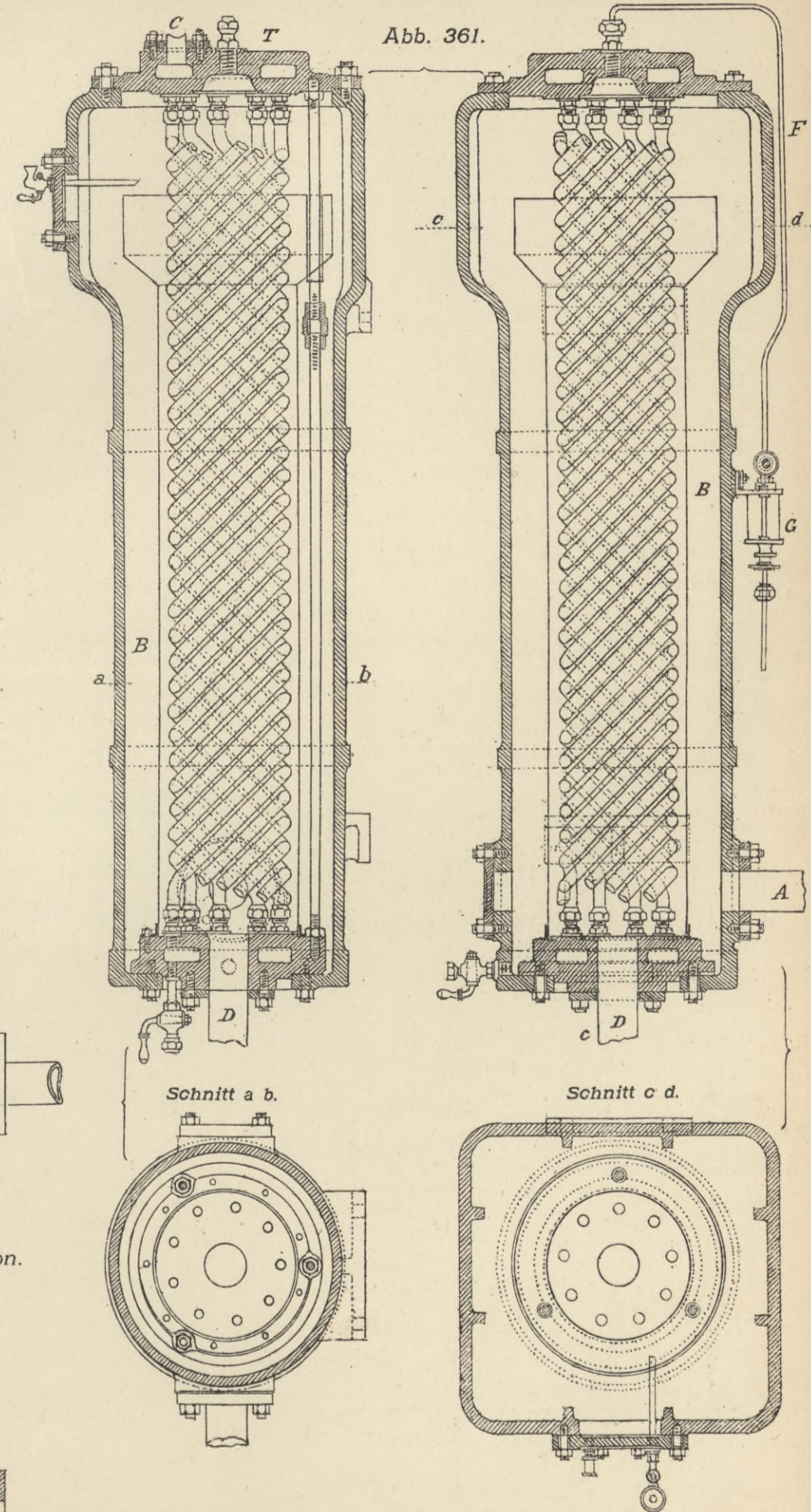
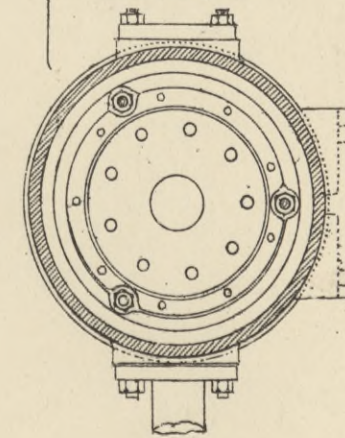


Abb. 361.



Schnitt a b.



Schnitt c d.

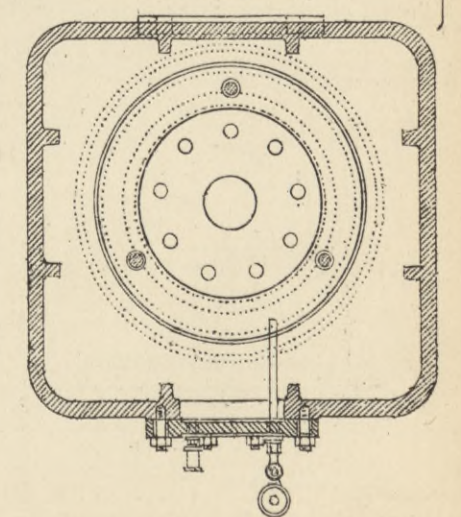


Abb. 364. Speisewasserreiniger von Howaldt.

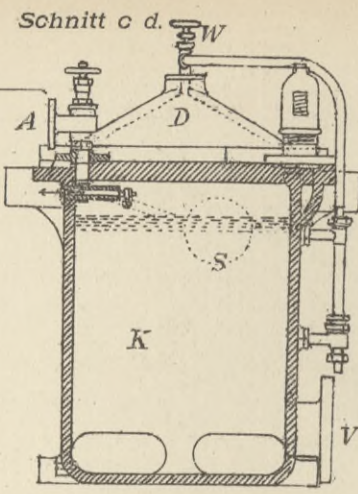
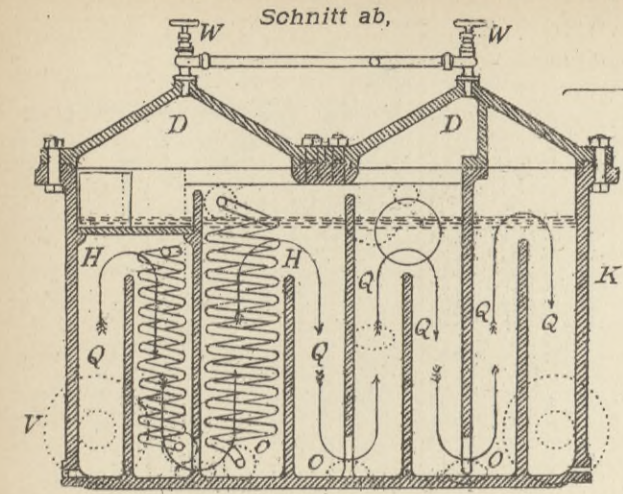
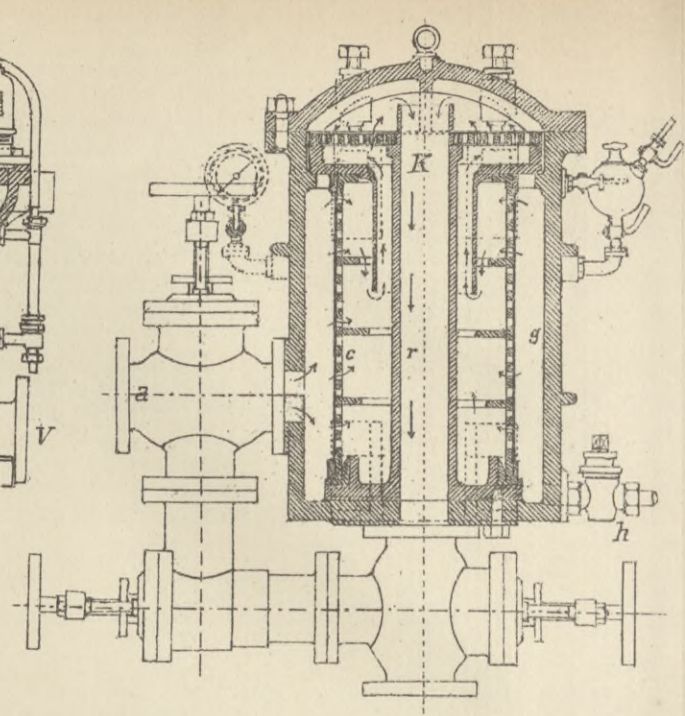
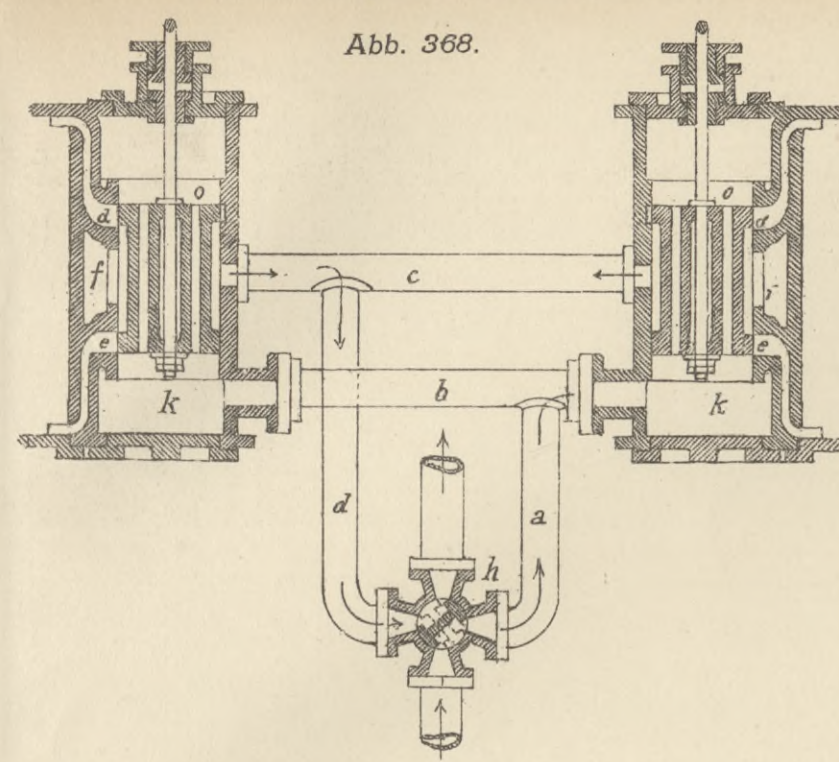


Abb. 366. Filter von Edmiston.



Umsteuerung durch Wechselhahn.



Aschwinde vom Vulkan, Stettin. Tafel 36

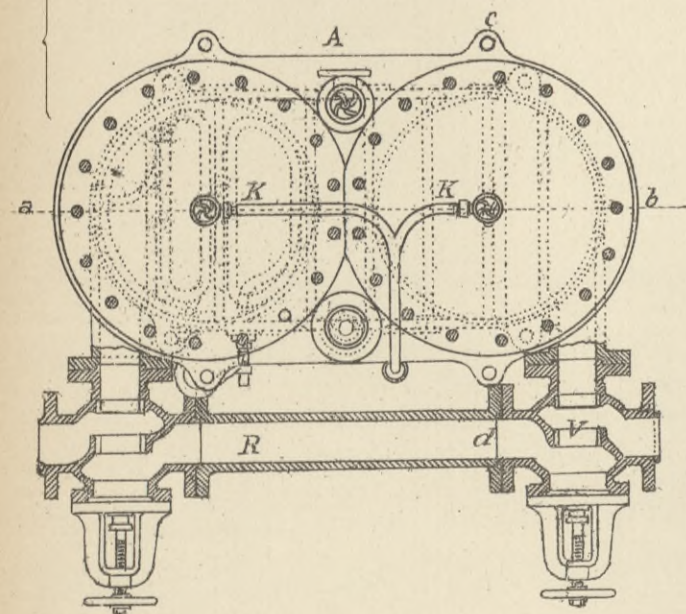
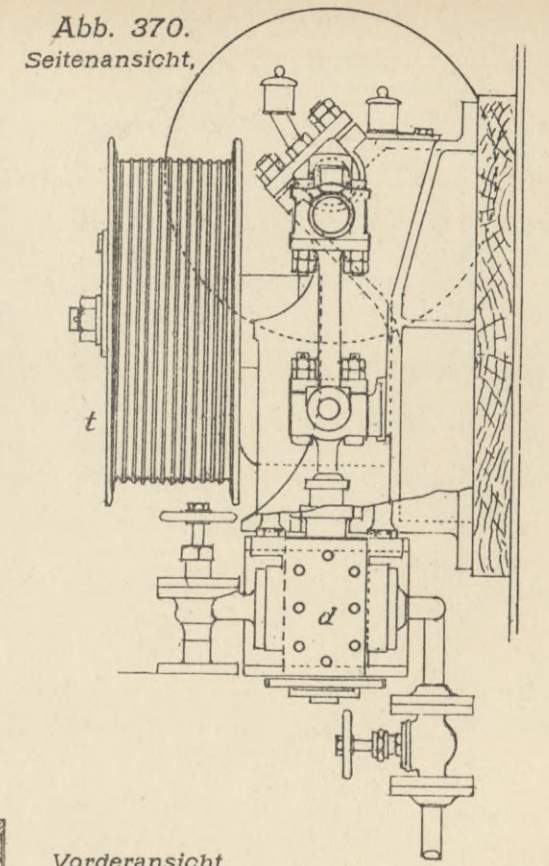


Abb. 369. Ascheheissmaschine von Blohm & Voss.

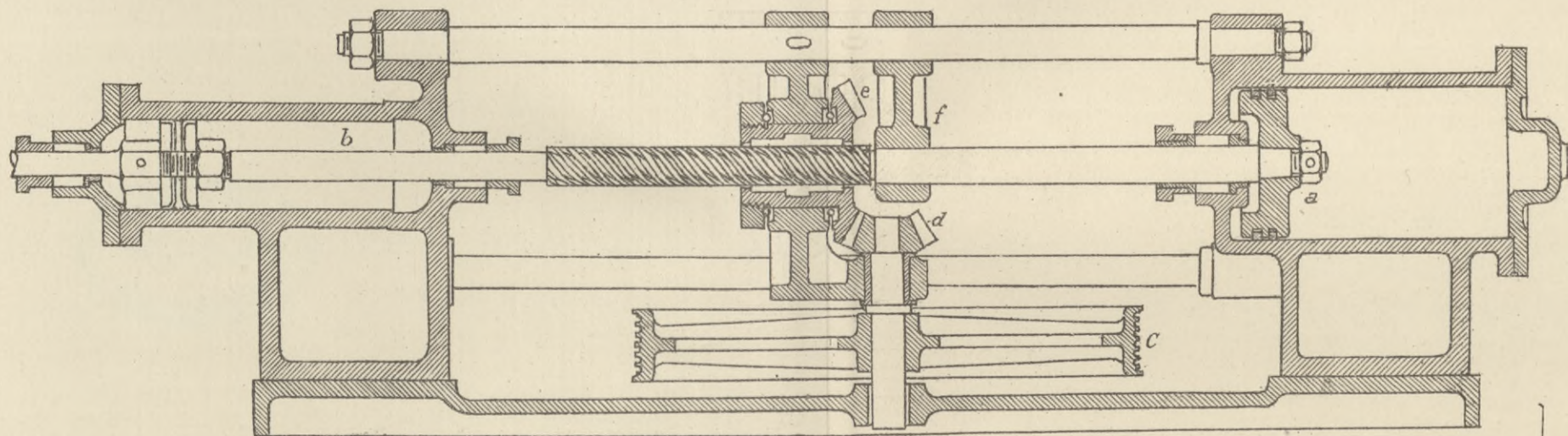


Abb. 371. Aschejector von See.

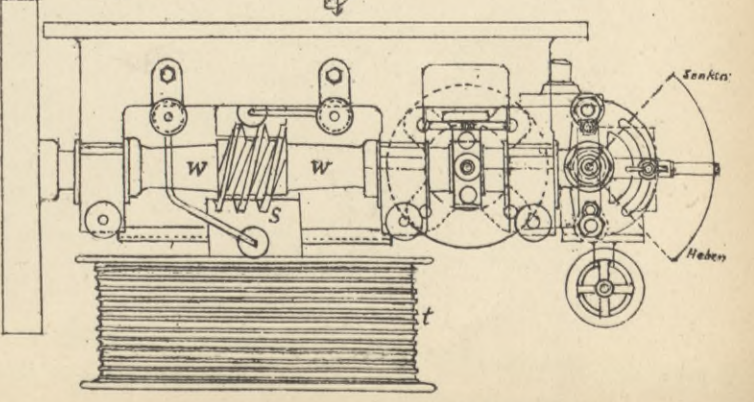
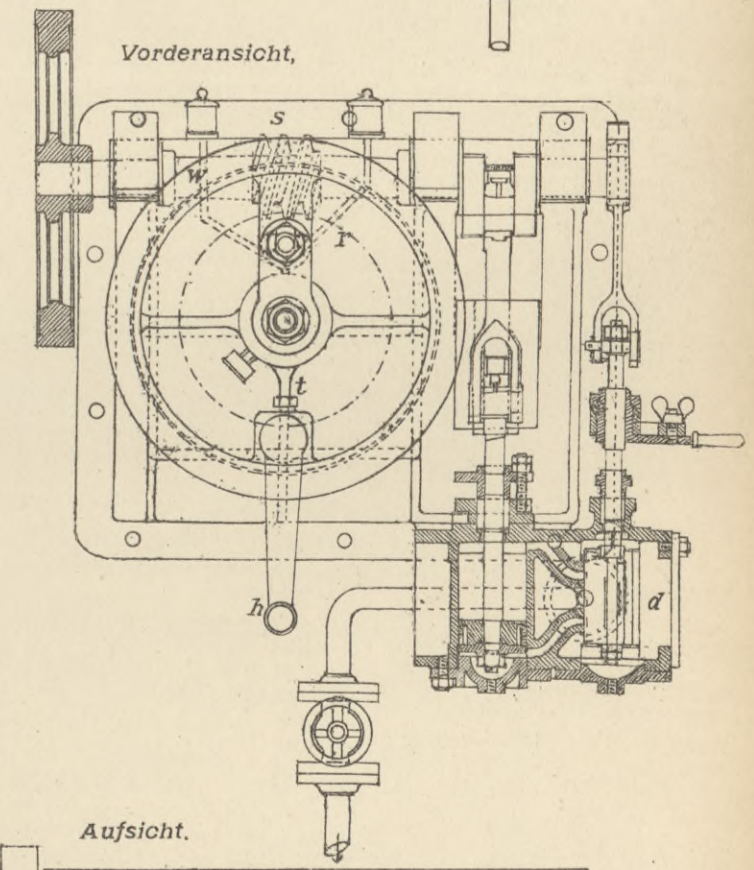
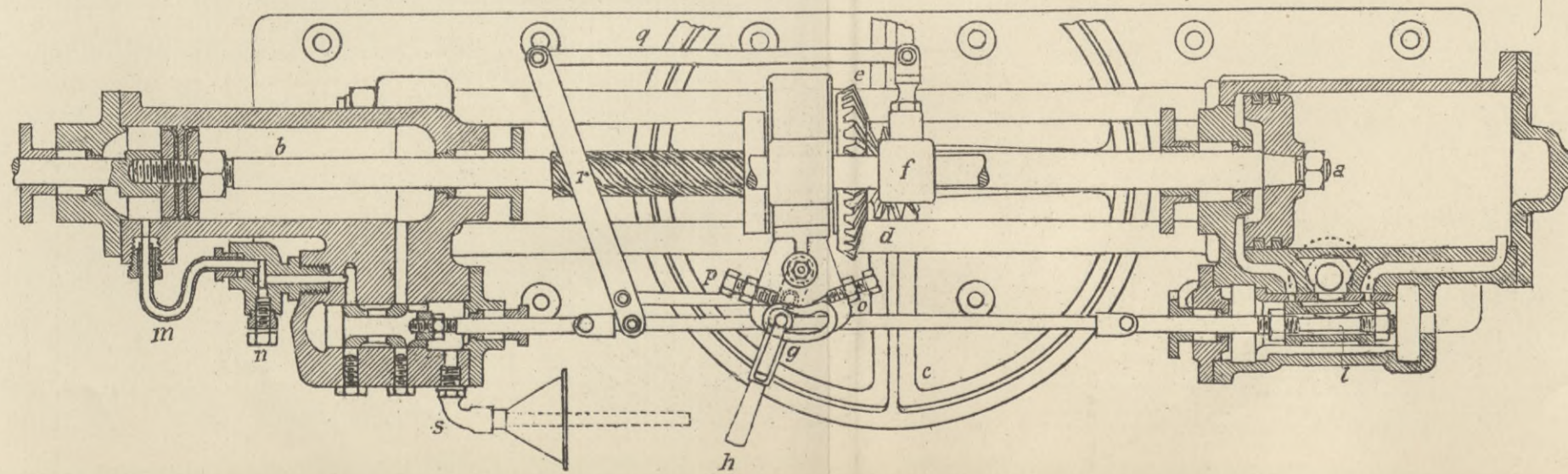
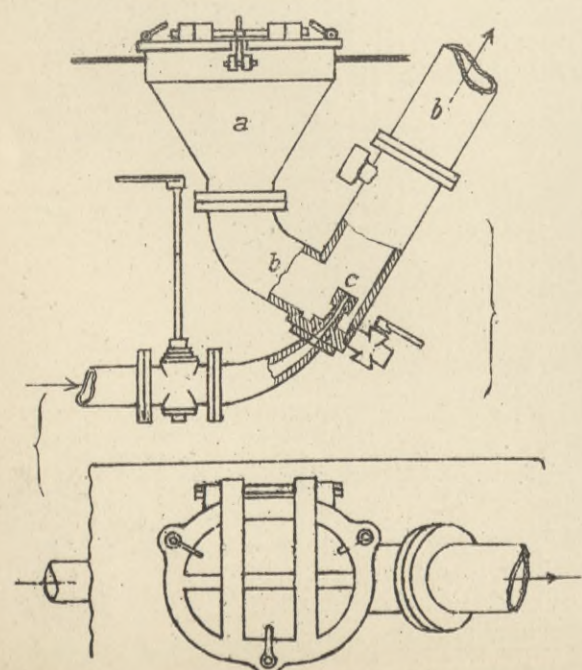
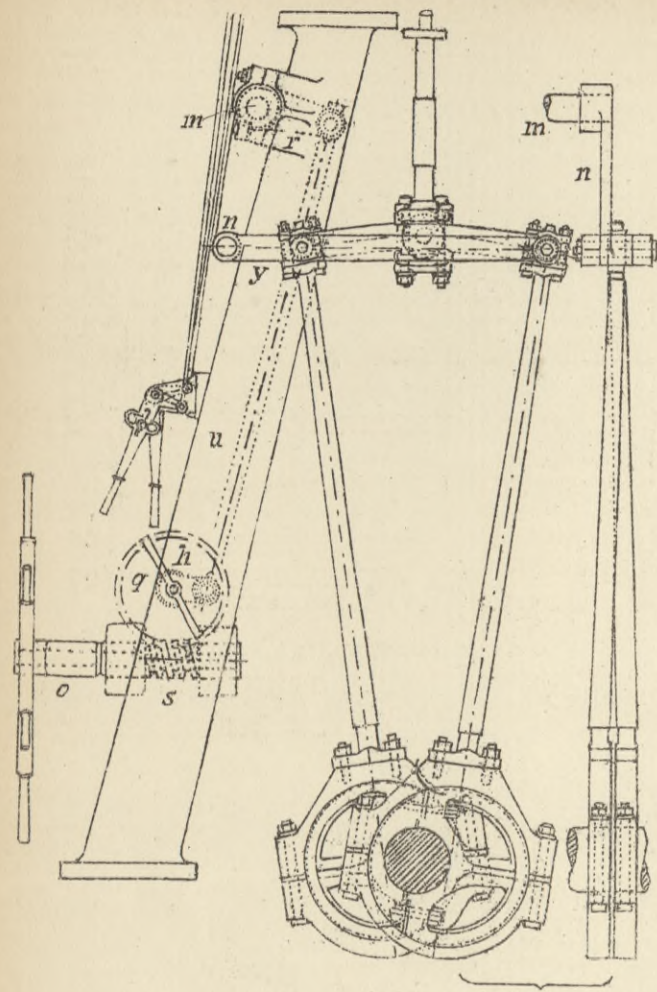
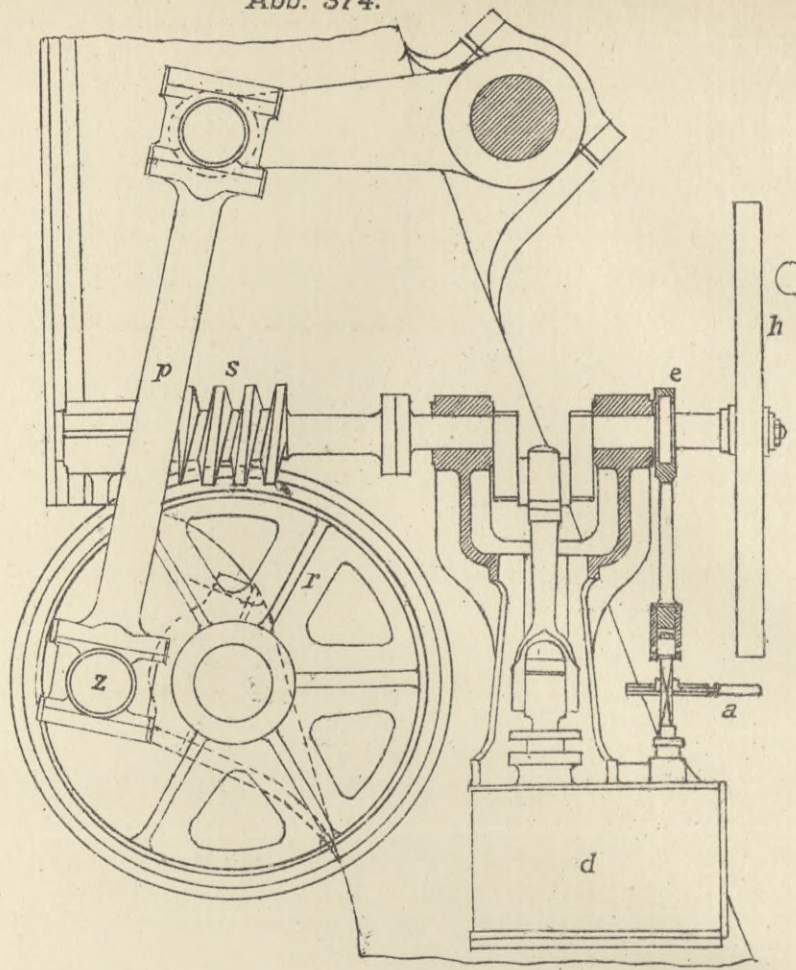


Abb. 372 Handumsteuerung.



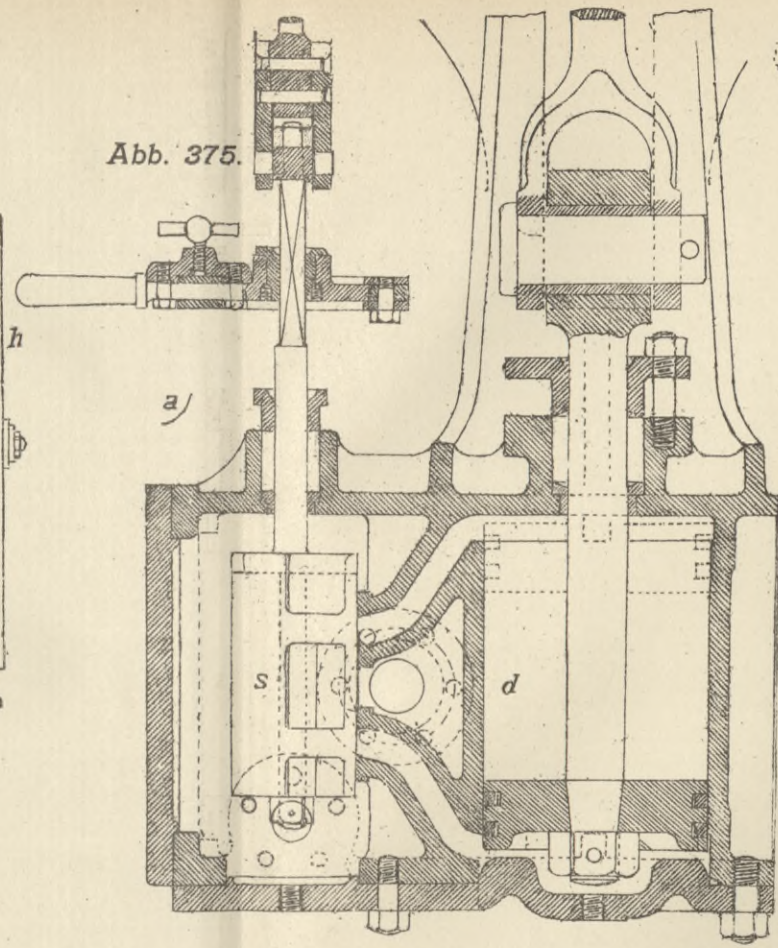
Umsteuerungsmaschine von Blohm & Voss.

Abb. 374.



Umsteuerung durch Drehschieber.

Abb. 375.



Ansicht von oben.

Abb. 378.
Abb. 379.

Umsteuerungsmaschine von Stephens & Son.

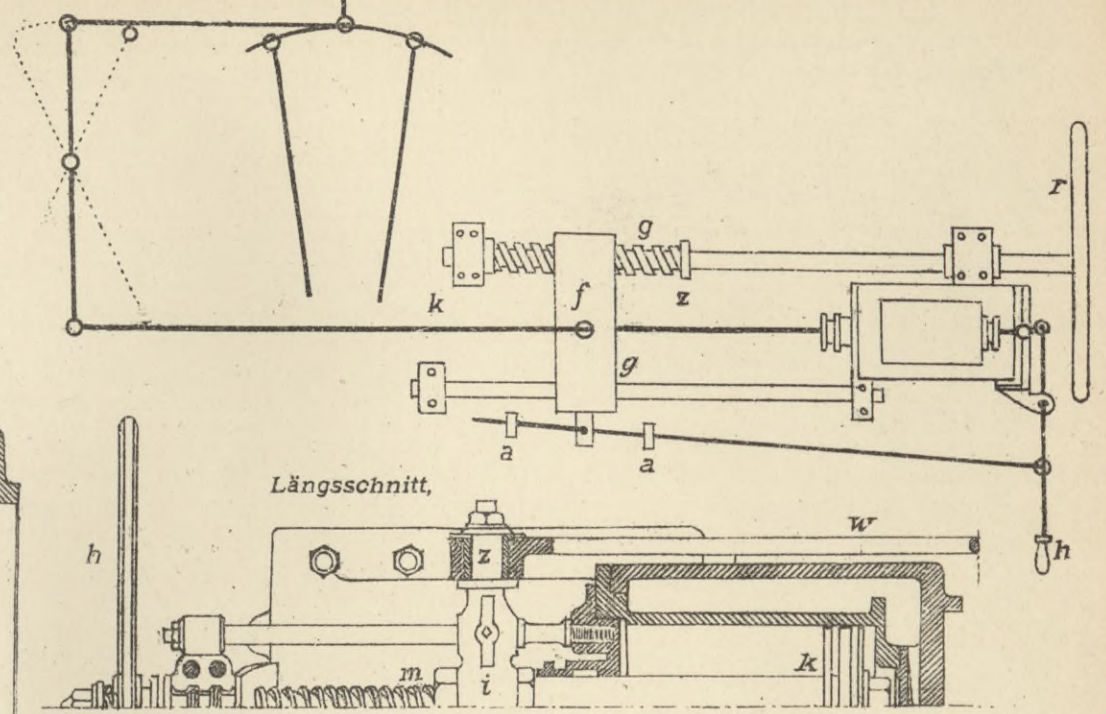
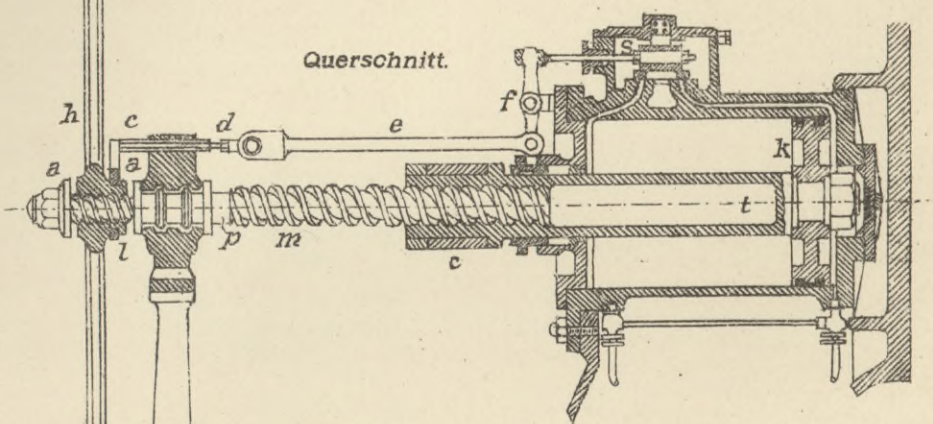


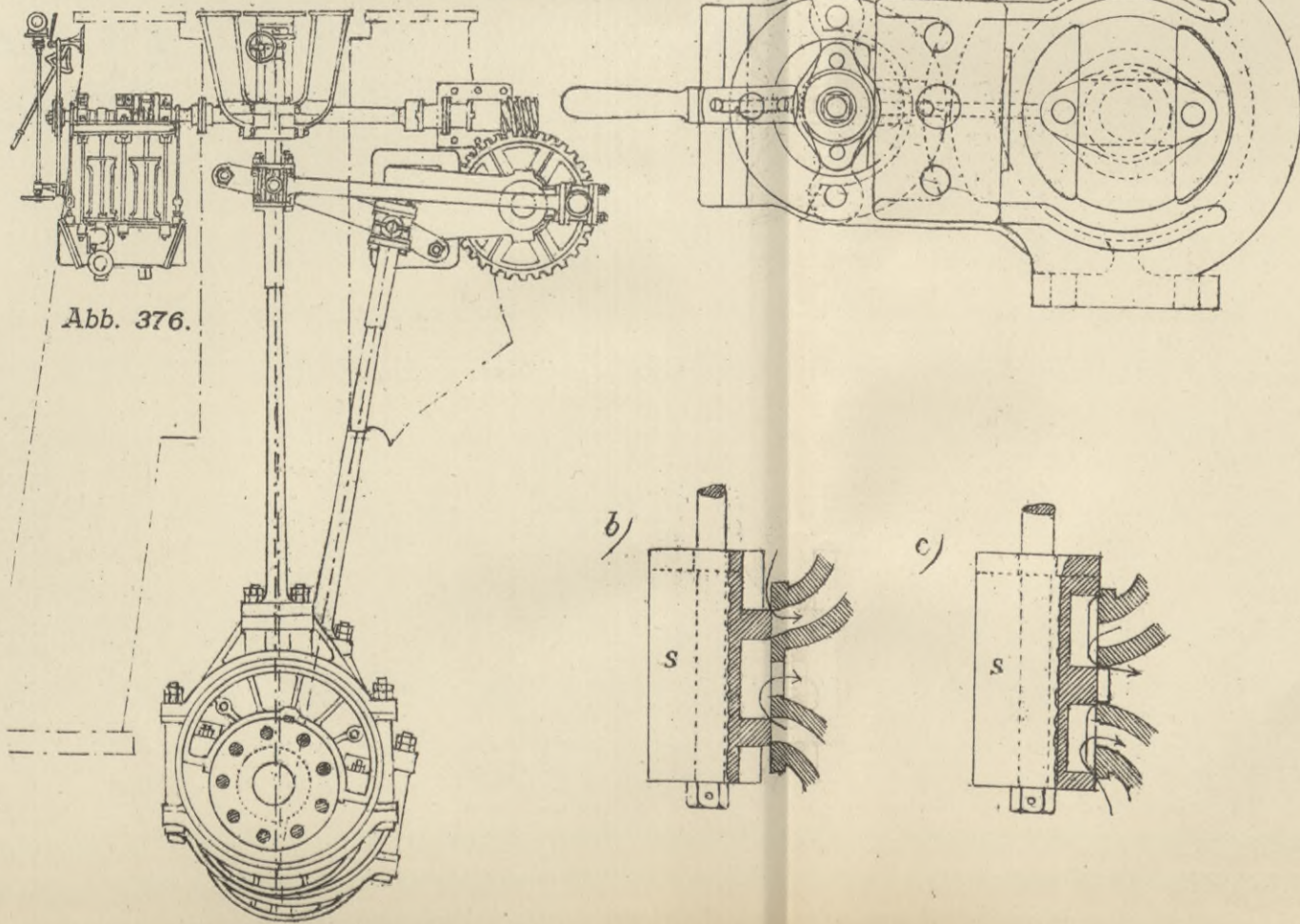
Abb. 379.

Querschnitt.



Umsteuerungsmaschine mit rotierender Welle.

Abb. 376.



Umsteuerungsmaschine mit rotierender Welle.

Abb. 373.

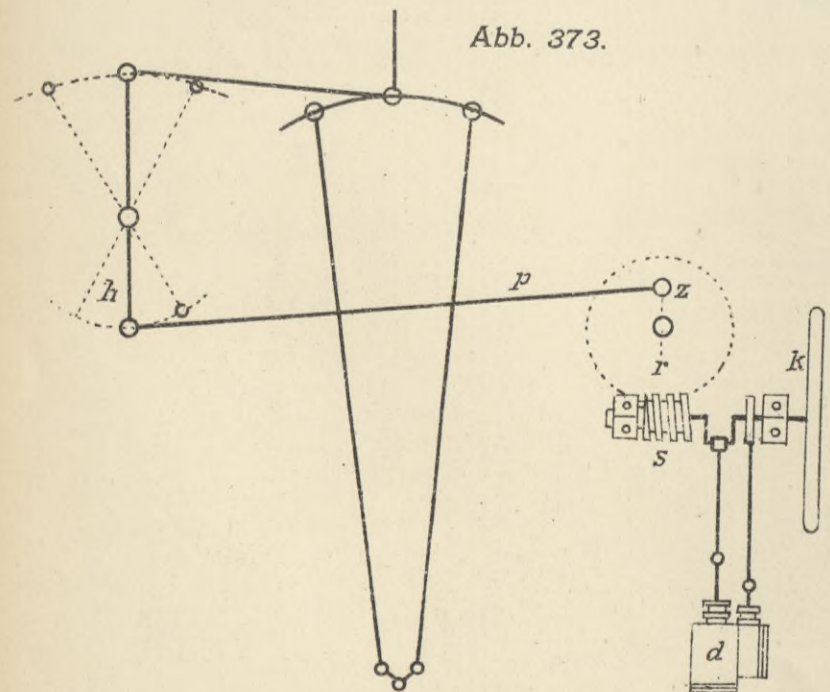


Abb. 380. } Umsteuerungsmaschine von Brown.
Abb. 381. }

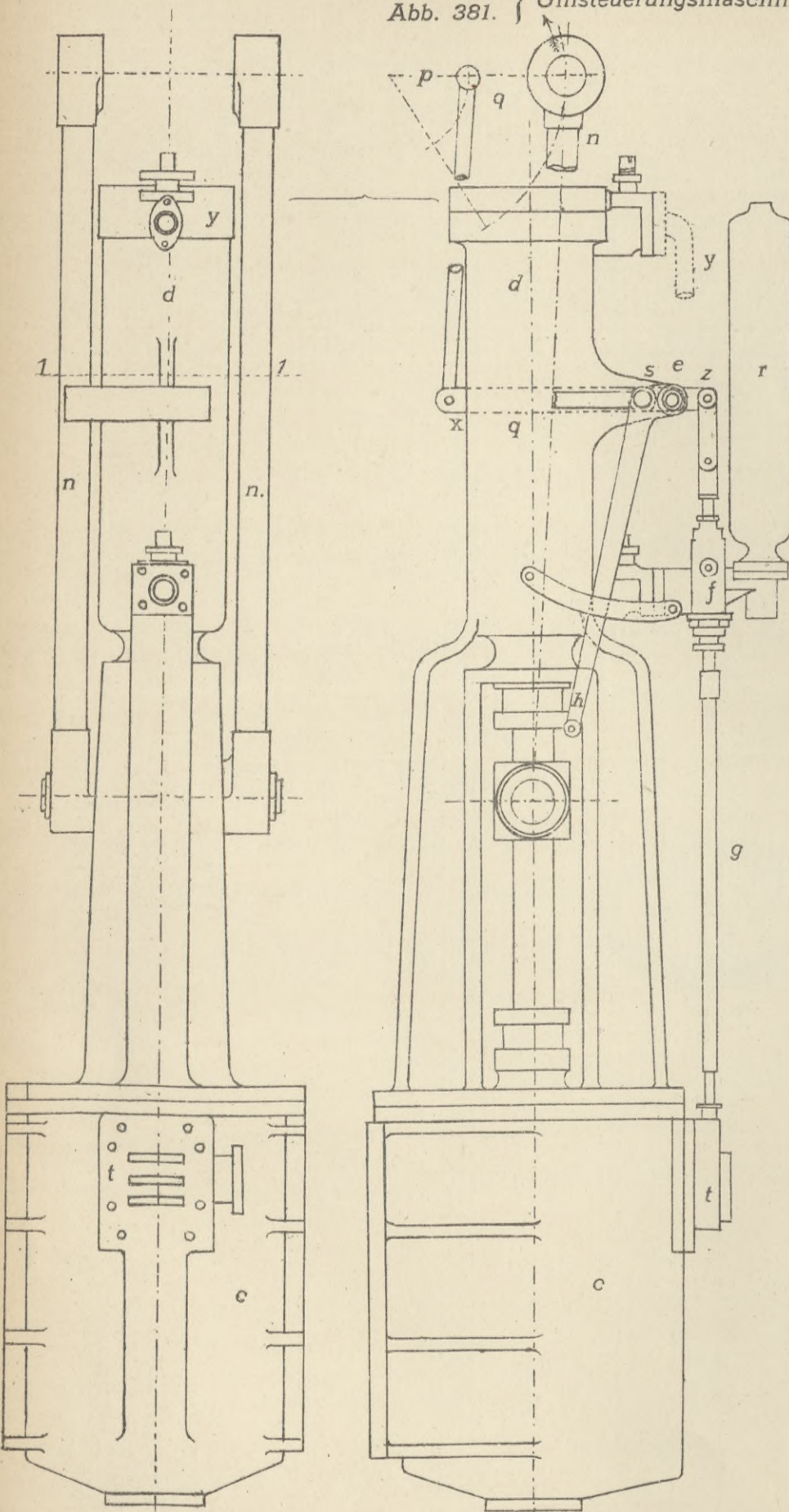


Abb. 382 Umsteuerungsmaschine von Brown mit Handumsteuerung.

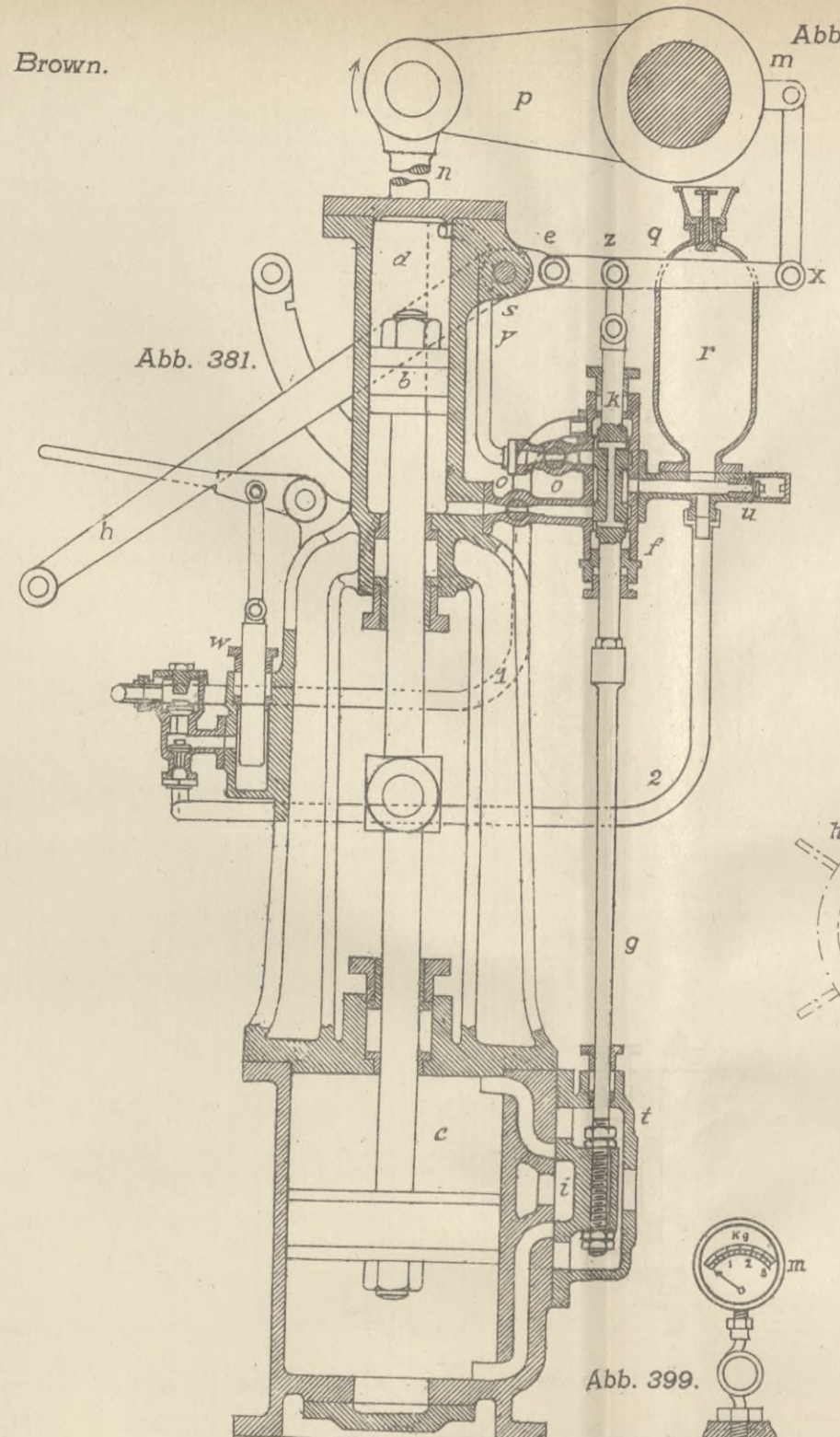
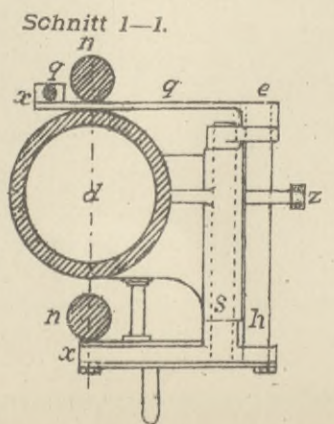
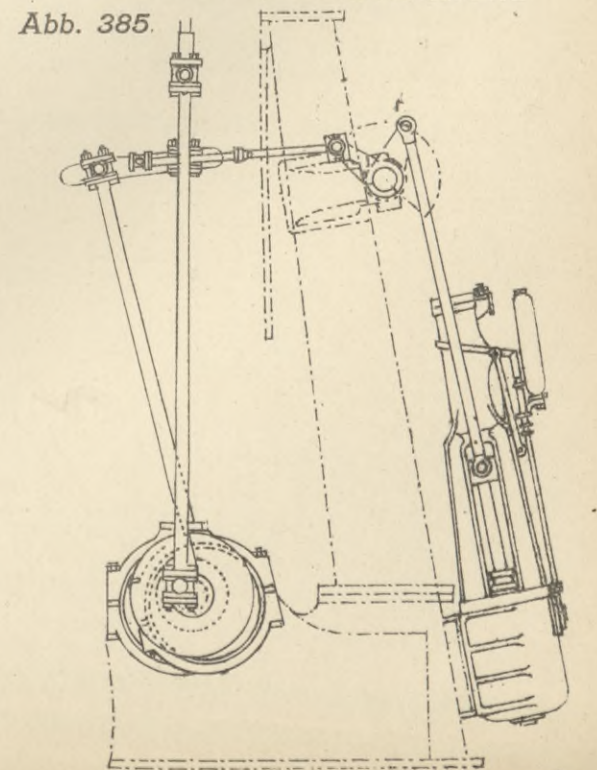
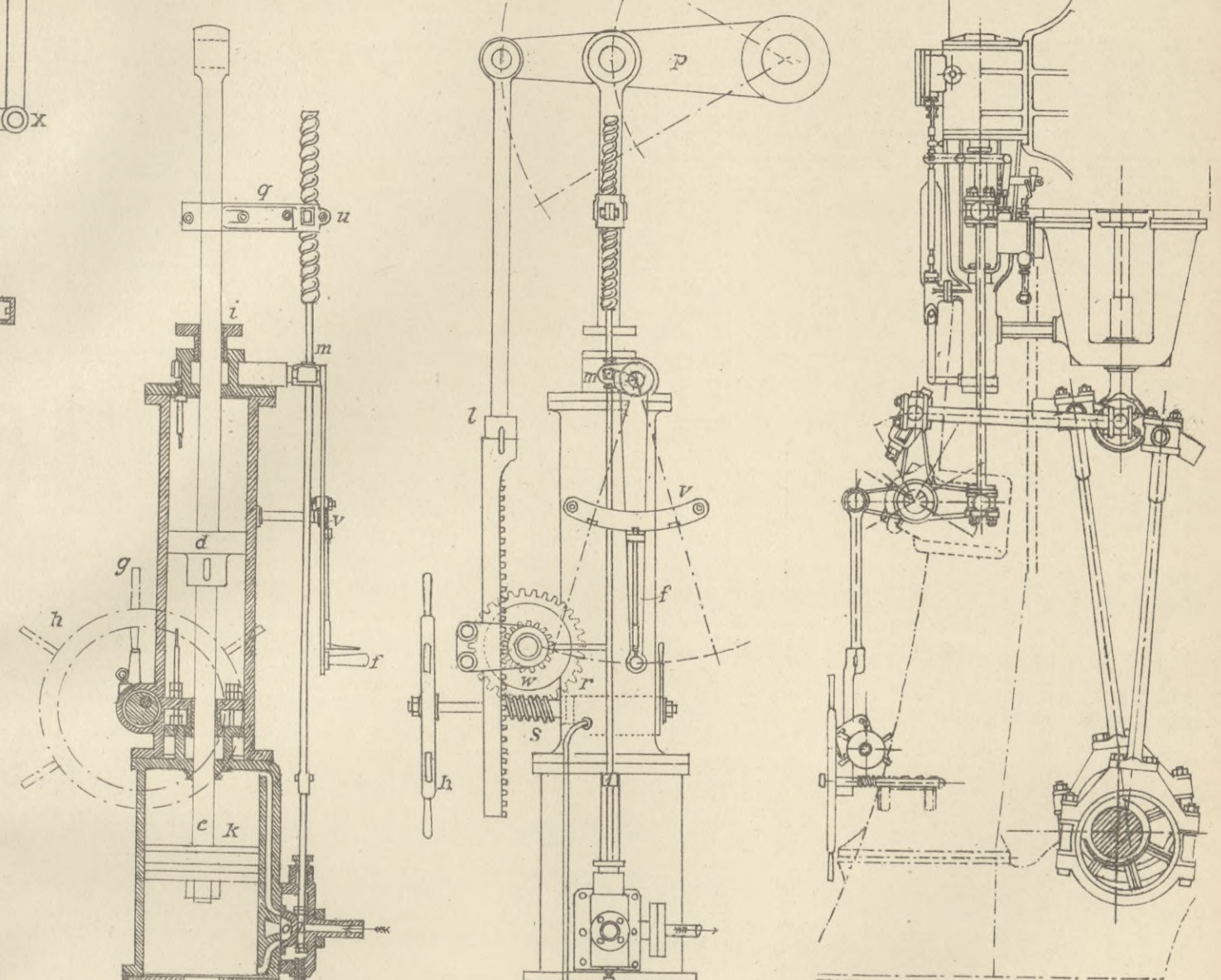


Abb. 385. } Anordnung von Brown'schen
Abb. 386. } Umsteuerungsmaschinen.



Dampfdruck-
Verminderungsventil
von Dreyer,
Rosenkranz & Droop.

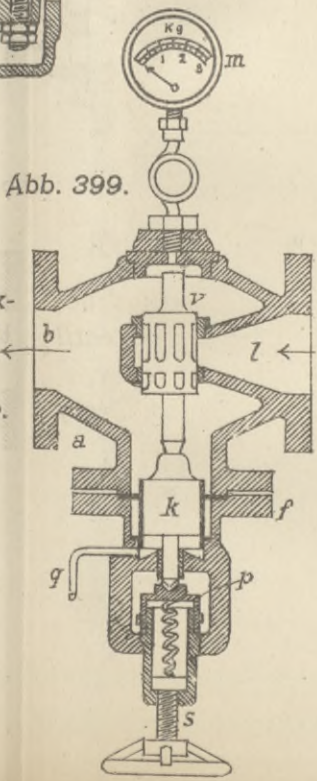
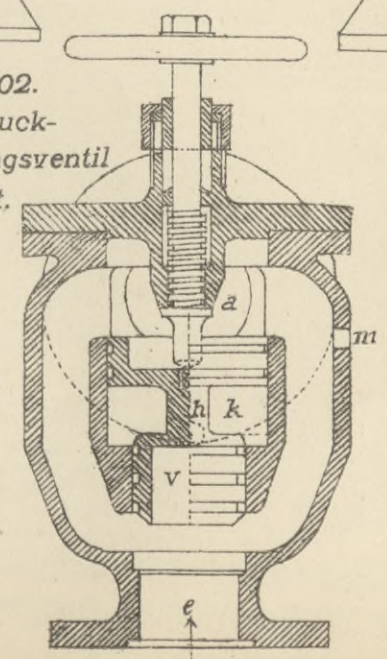


Abb. 402.
Dampfdruck-
Verminderungsventil
von Herquet.



Maschinenstopvorrichtung
Abb. 387. von Brown.

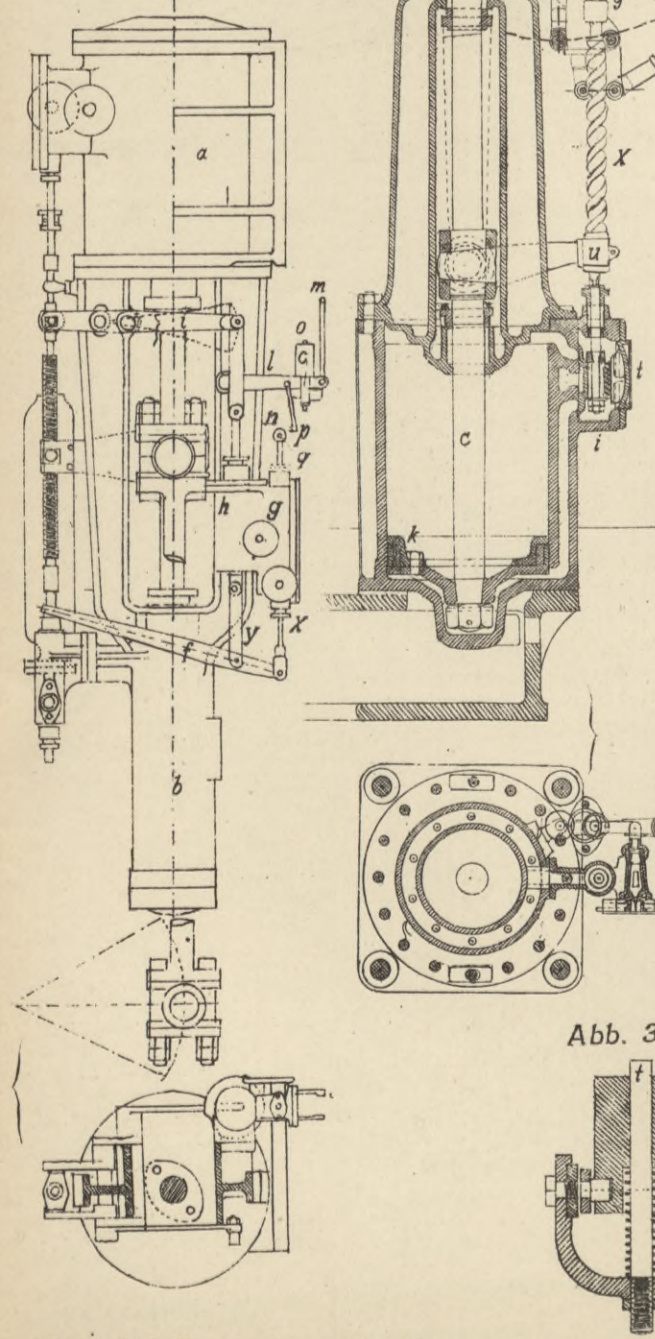
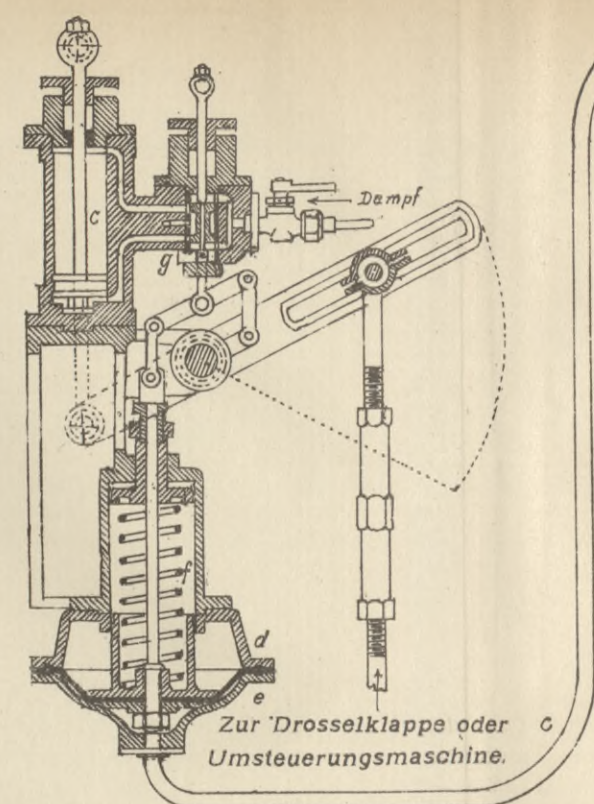
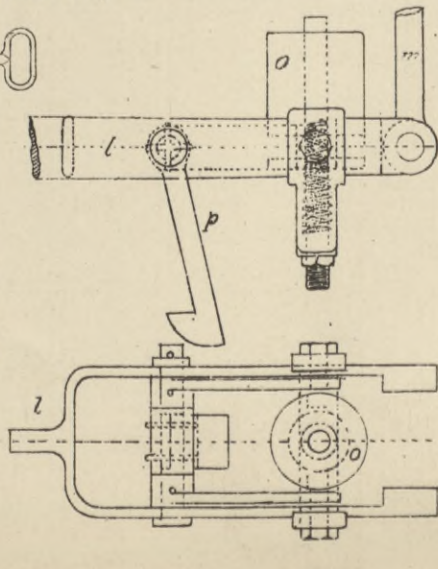


Abb. 388 a. } Einzelheiten zu Abb. 387
Abb. 388 b. }

Stopvorrichtung
mit
Wechselhahn
von Brown.
Abb. 389.



Regulator von Durham & Churchill.
Abb. 391.

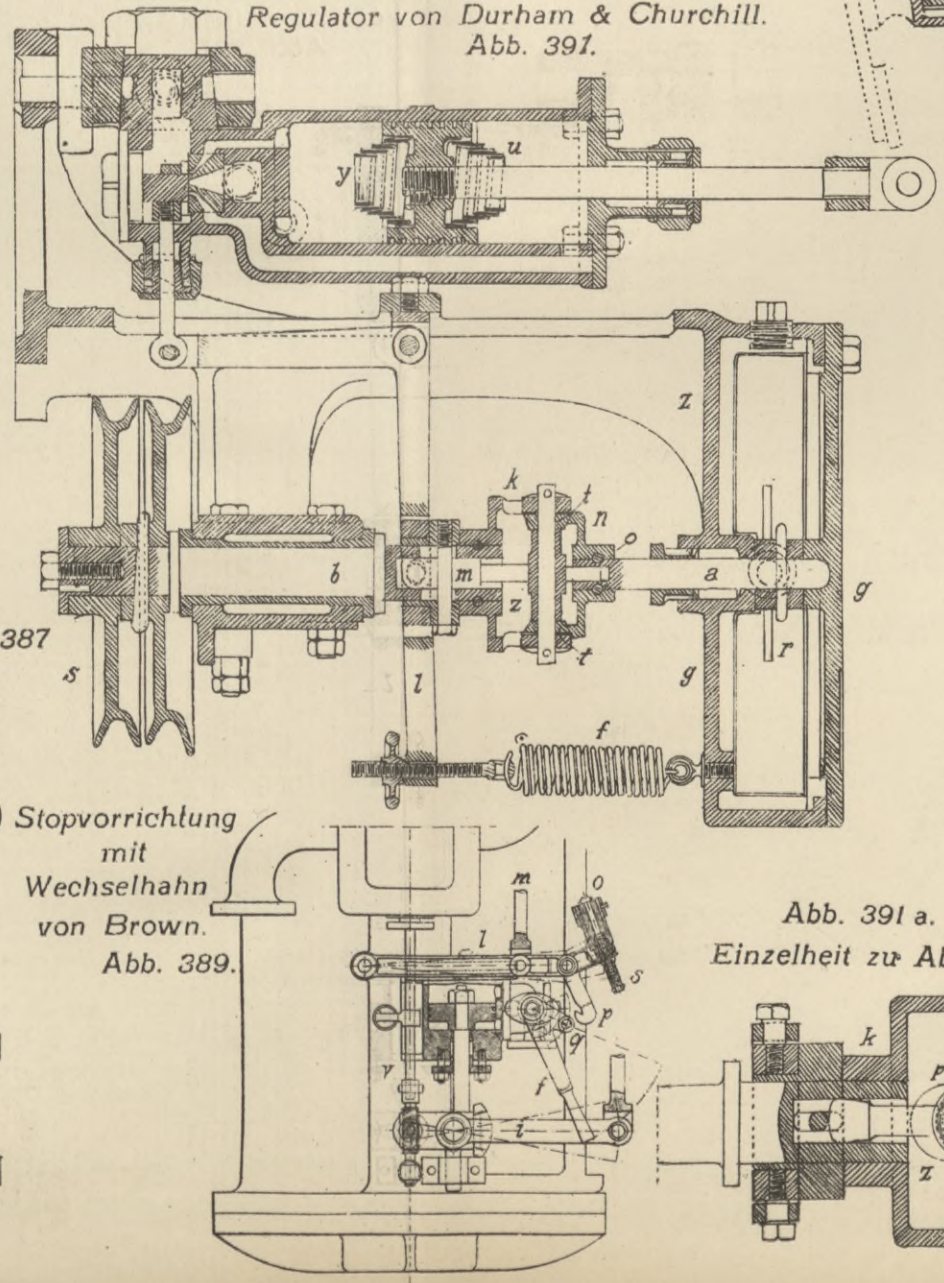
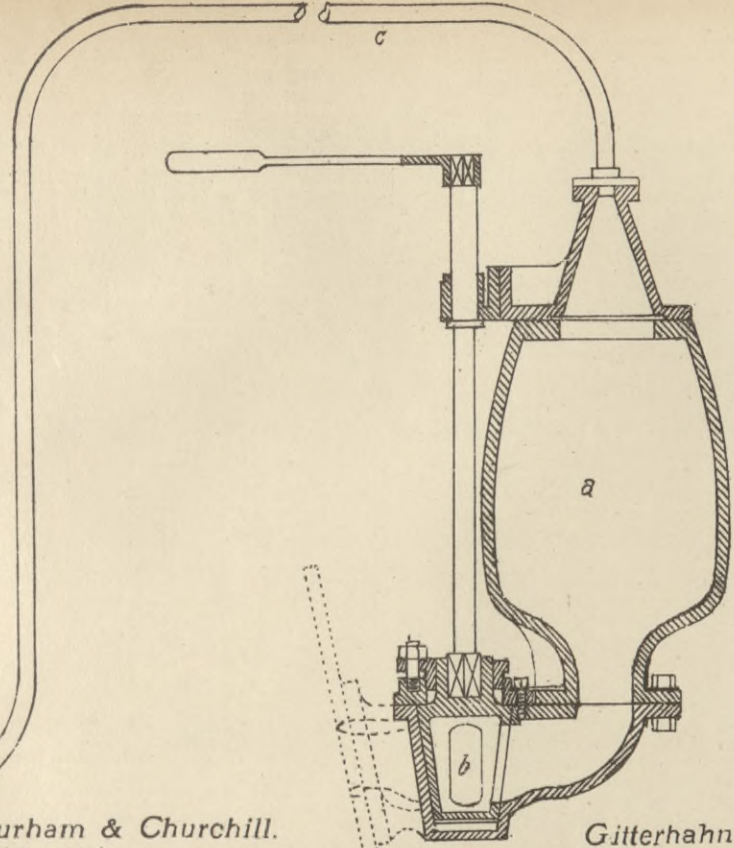
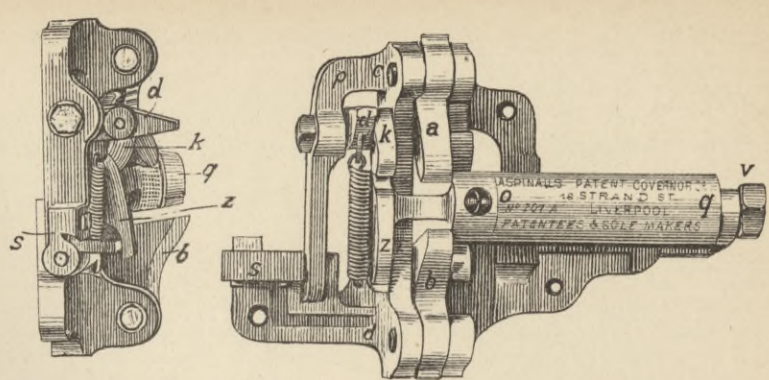


Abb. 391 a.
Einzelheit zu Abb. 391.



Gitterhahn von
Durham & Churchill.
Abb. 392.



Einzelheit zu Abb. 393.
Abb. 393a. Anbringung des Regulators
Abb. 393b. von Aspinall.

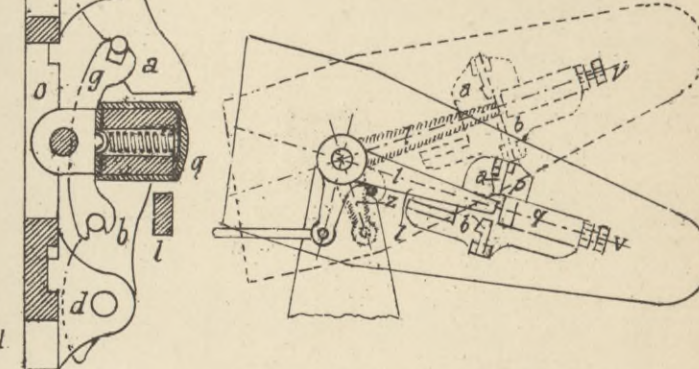


Abb. 393 c. } Anordnungen des Regulators
Abb. 393 d. } von Aspinall.

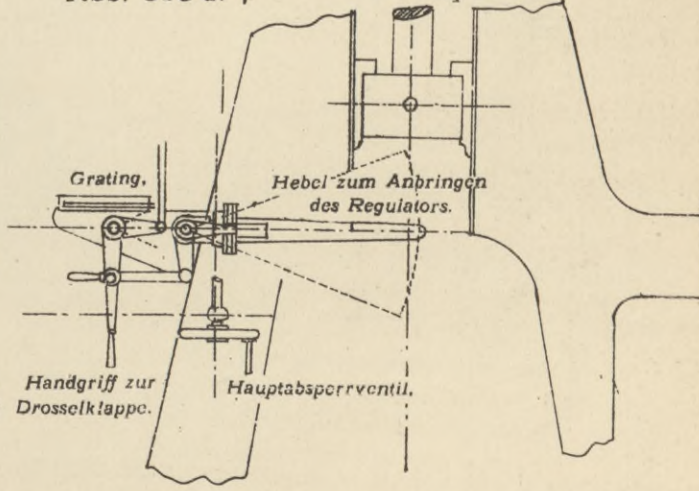
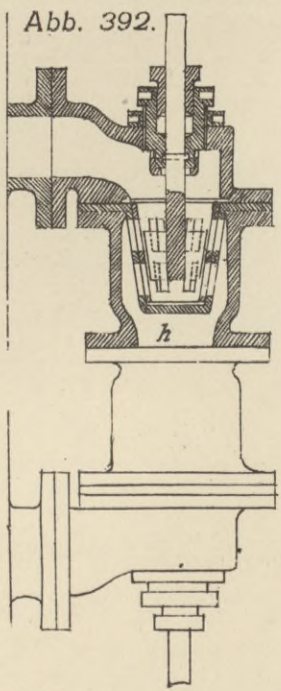
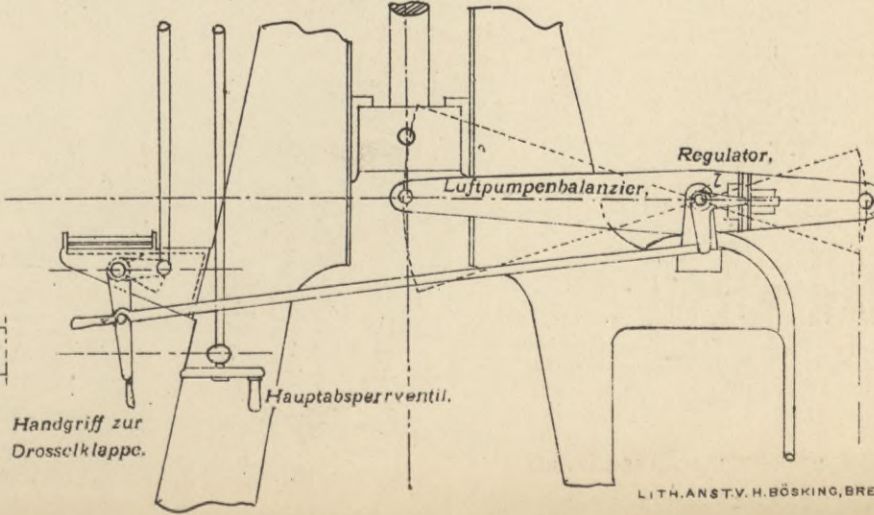


Abb. 393 d.



Handgriff zur
Drosselklappe.

Reduzierventil von Schäffer & Büdenberg.

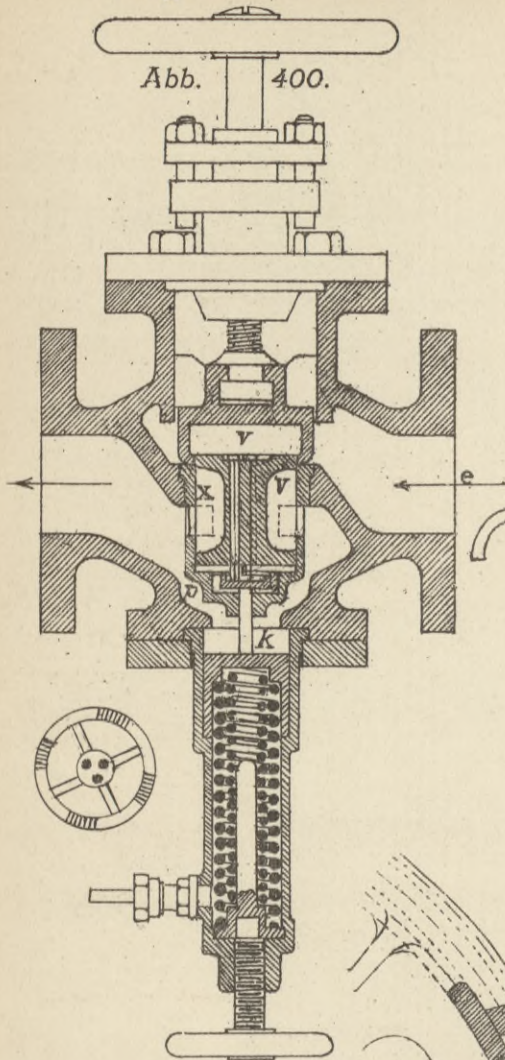


Abb. 400.

Reduzierventil von Strube. Abb. 401.

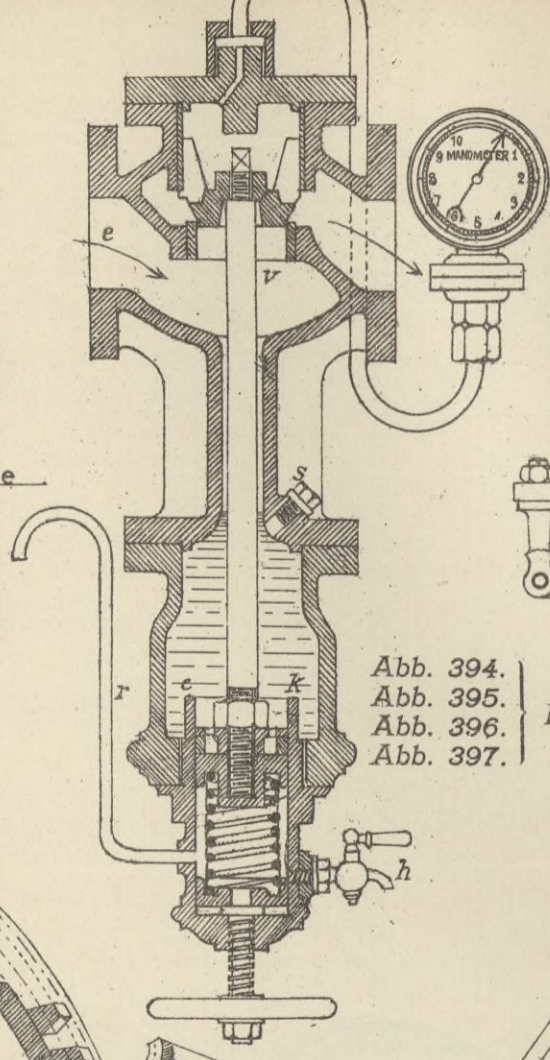
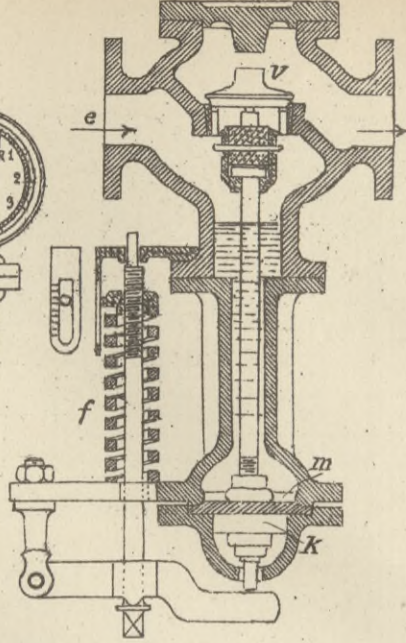


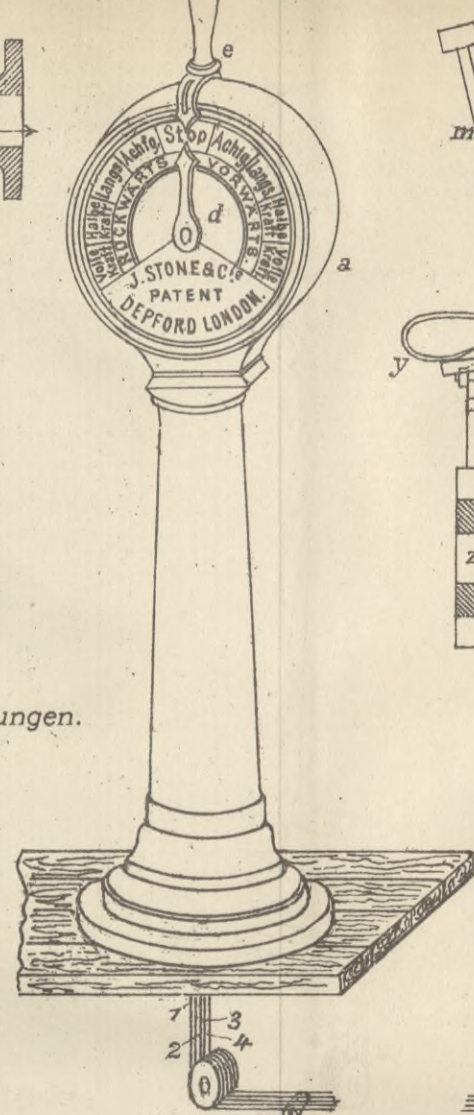
Abb. 394.
Abb. 395.
Abb. 396.
Abb. 397.

Reduzierventil von Auld. Maschinentelegraph. Abb. 403.



Maschinendrehvorrichtungen.

Glocke zum Maschinentelegraphen. Abb. 404 a.



1
2
3
4
0

Dampfpfeife.

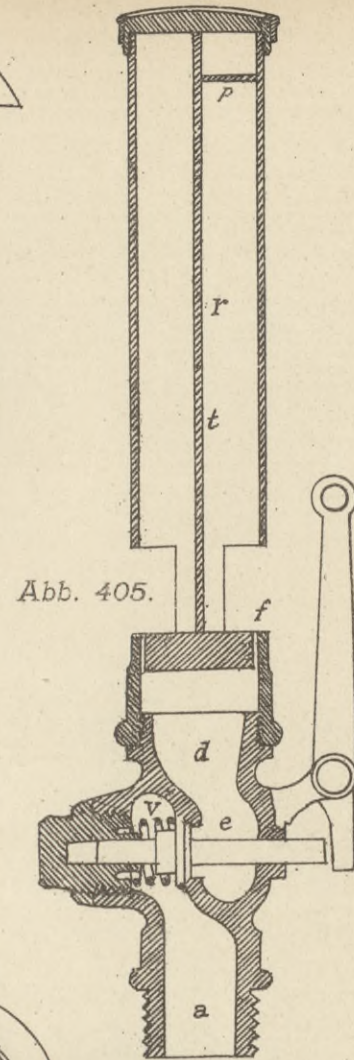


Abb. 405.

Electrische Schiffswinde. Tafel 40. Abb. 411 a.

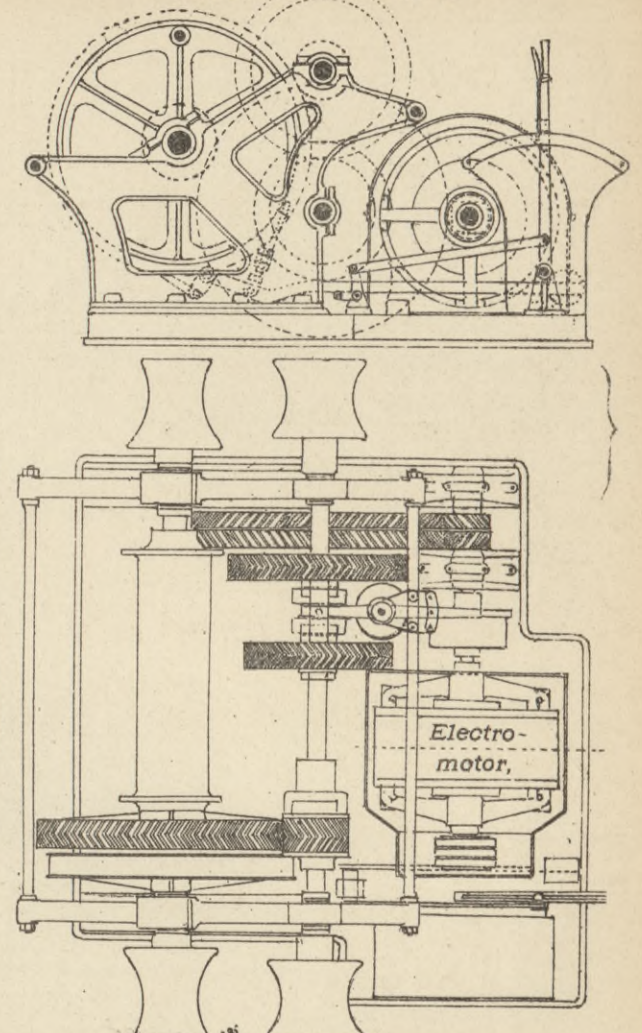
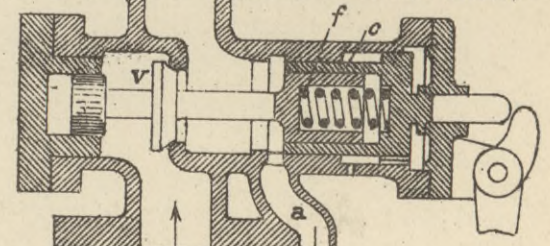


Abb. 406. Dampfpfeifenentwässerung. Patent Möller.



Dampfsirene.

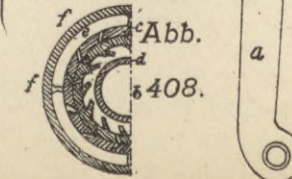


Abb. 408.

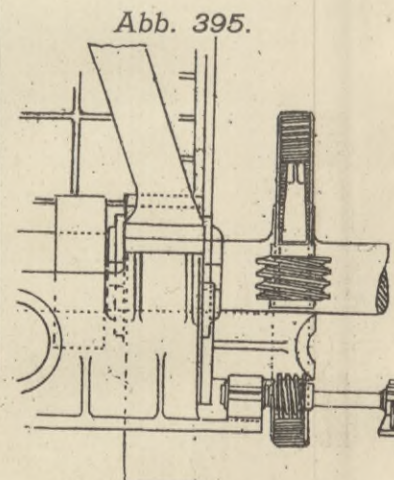


Abb. 395.

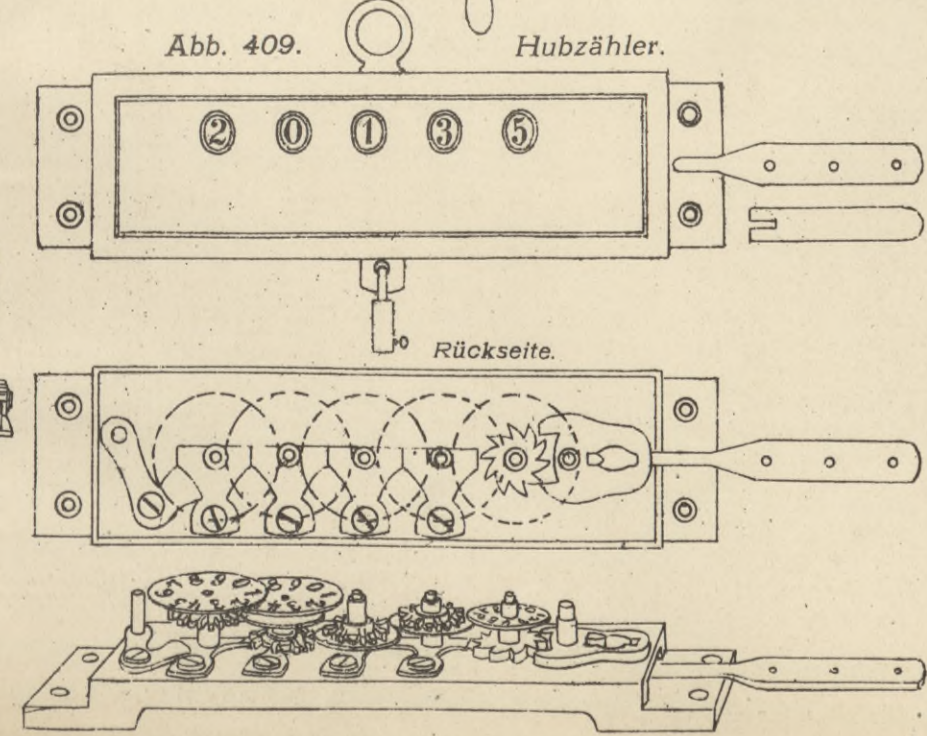


Abb. 409.

Hubzähler.

Rückseite.

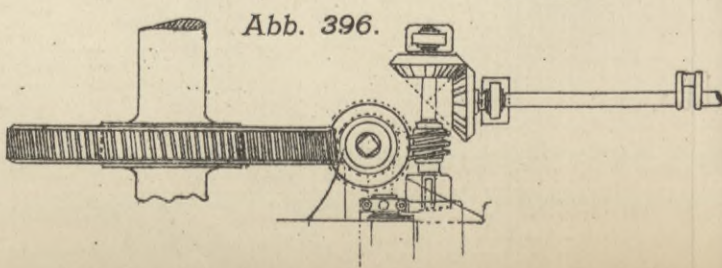


Abb. 396.

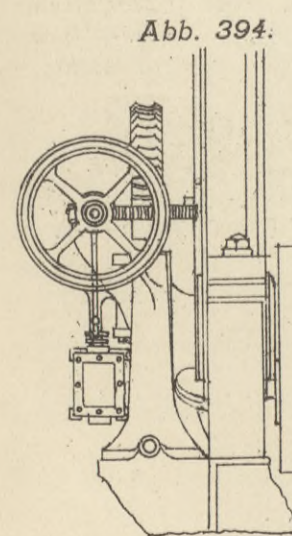


Abb. 394.

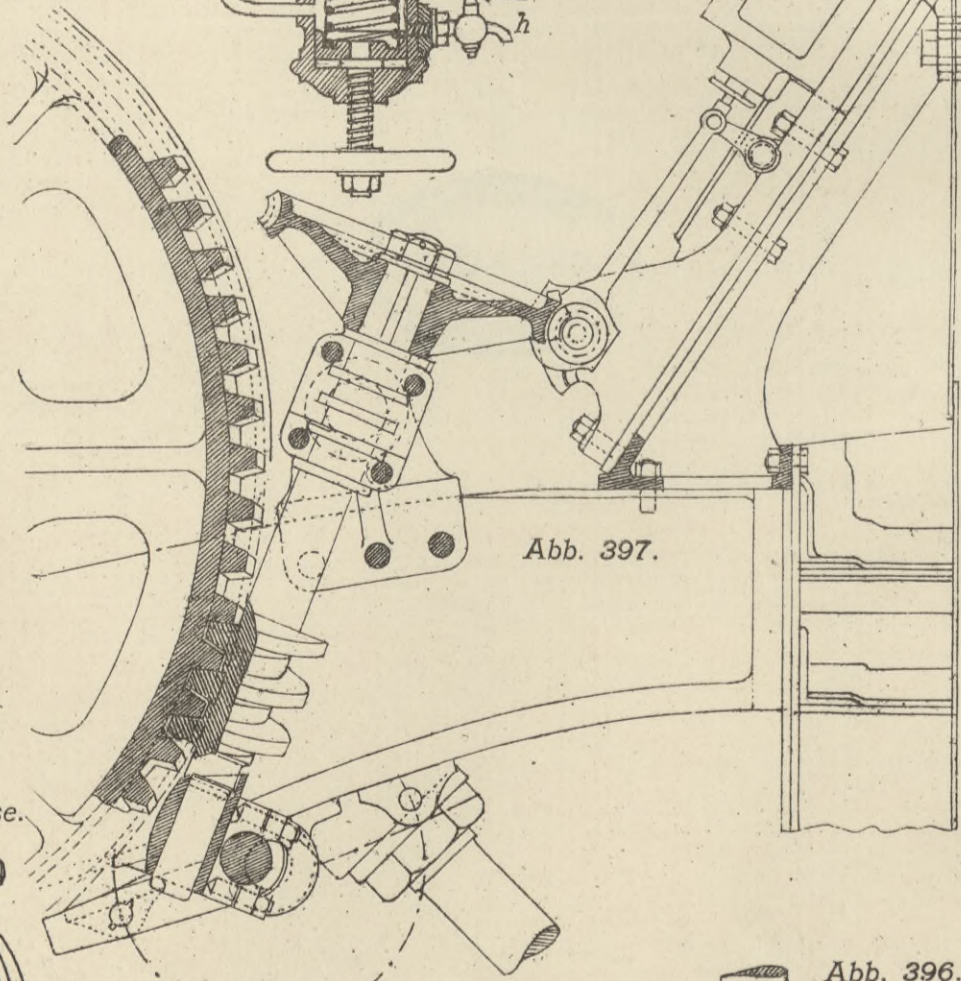


Abb. 397.

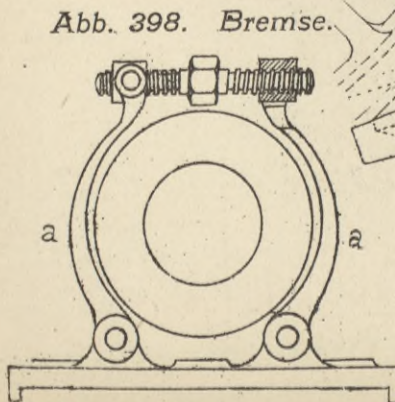
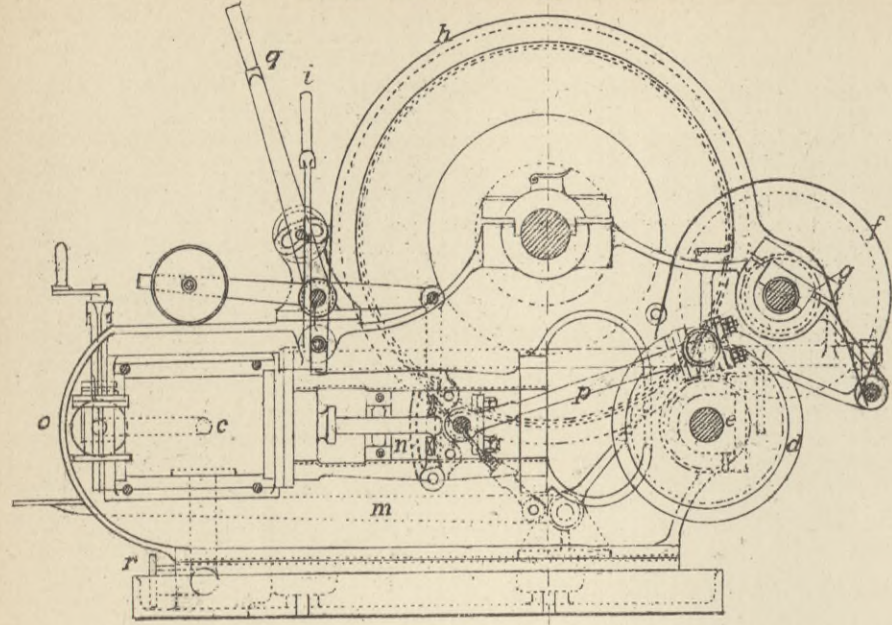


Abb. 398. Bremse.

Abb. 410. Dampfwinde.



Grundriss.

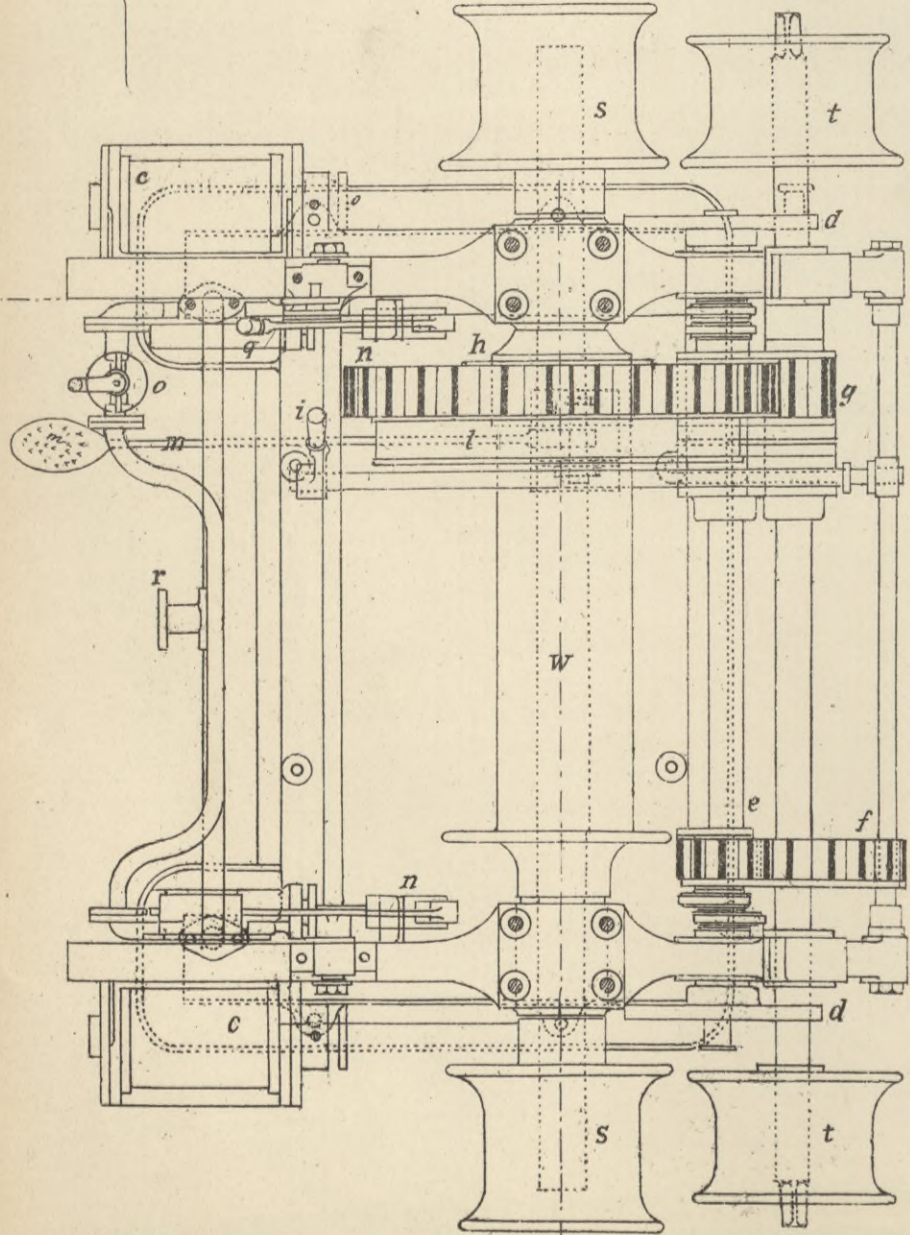


Abb. 411. Dampfwinde von Clarke, Chapman & Co.

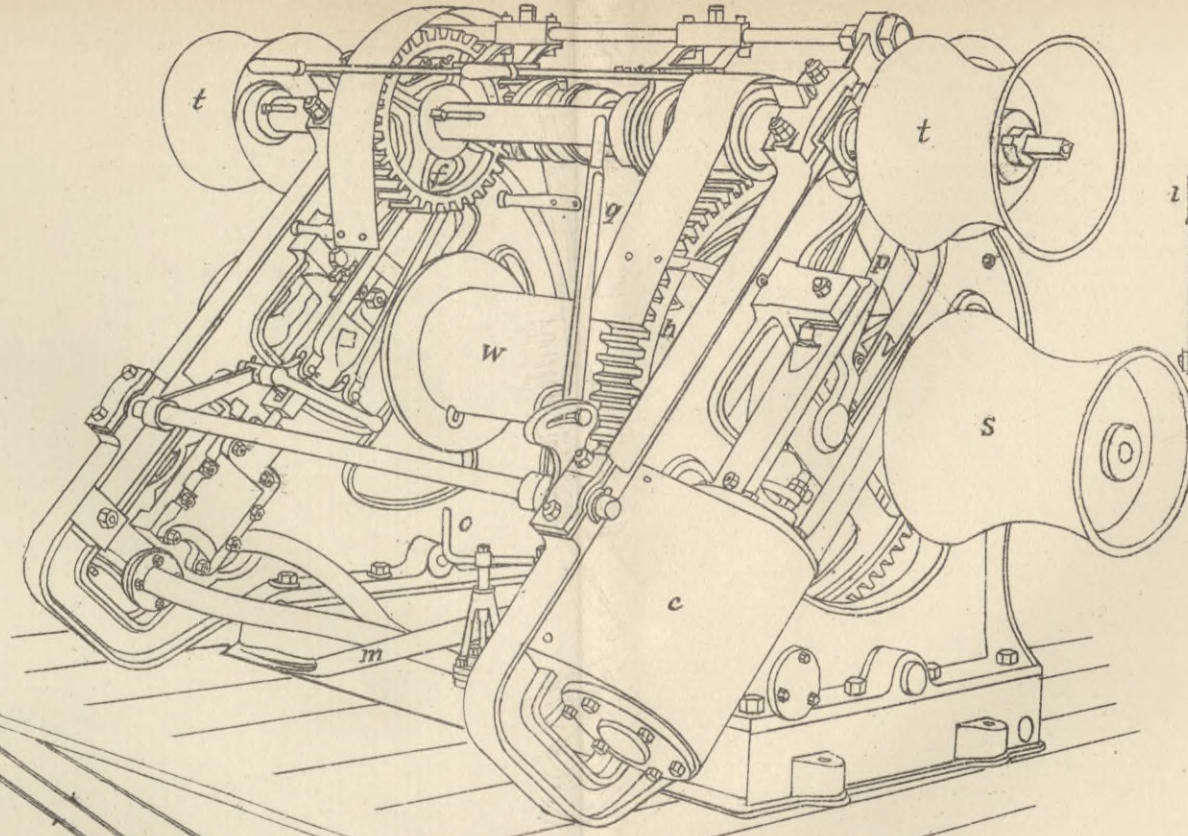


Abb. 414.

Drehkahn mit electricischem Antrieb.

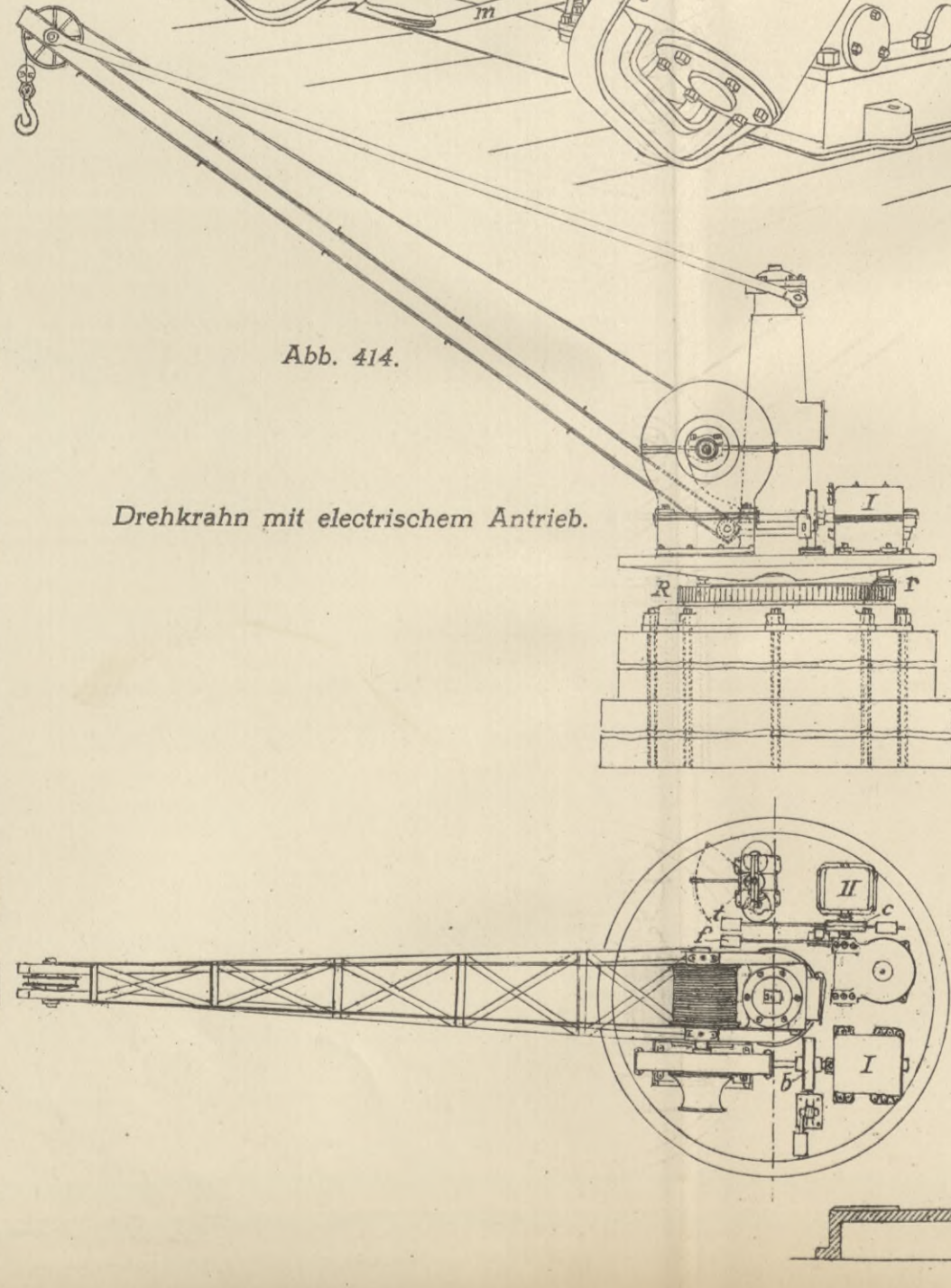
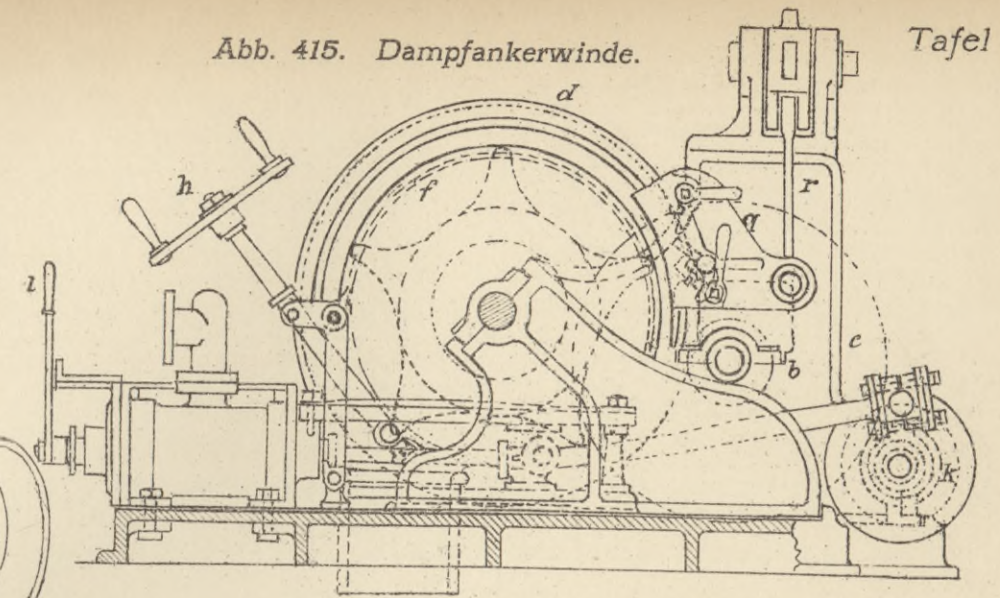


Abb. 415. Dampfankerwinde.



Grundriss.

Schnitt A.-B.

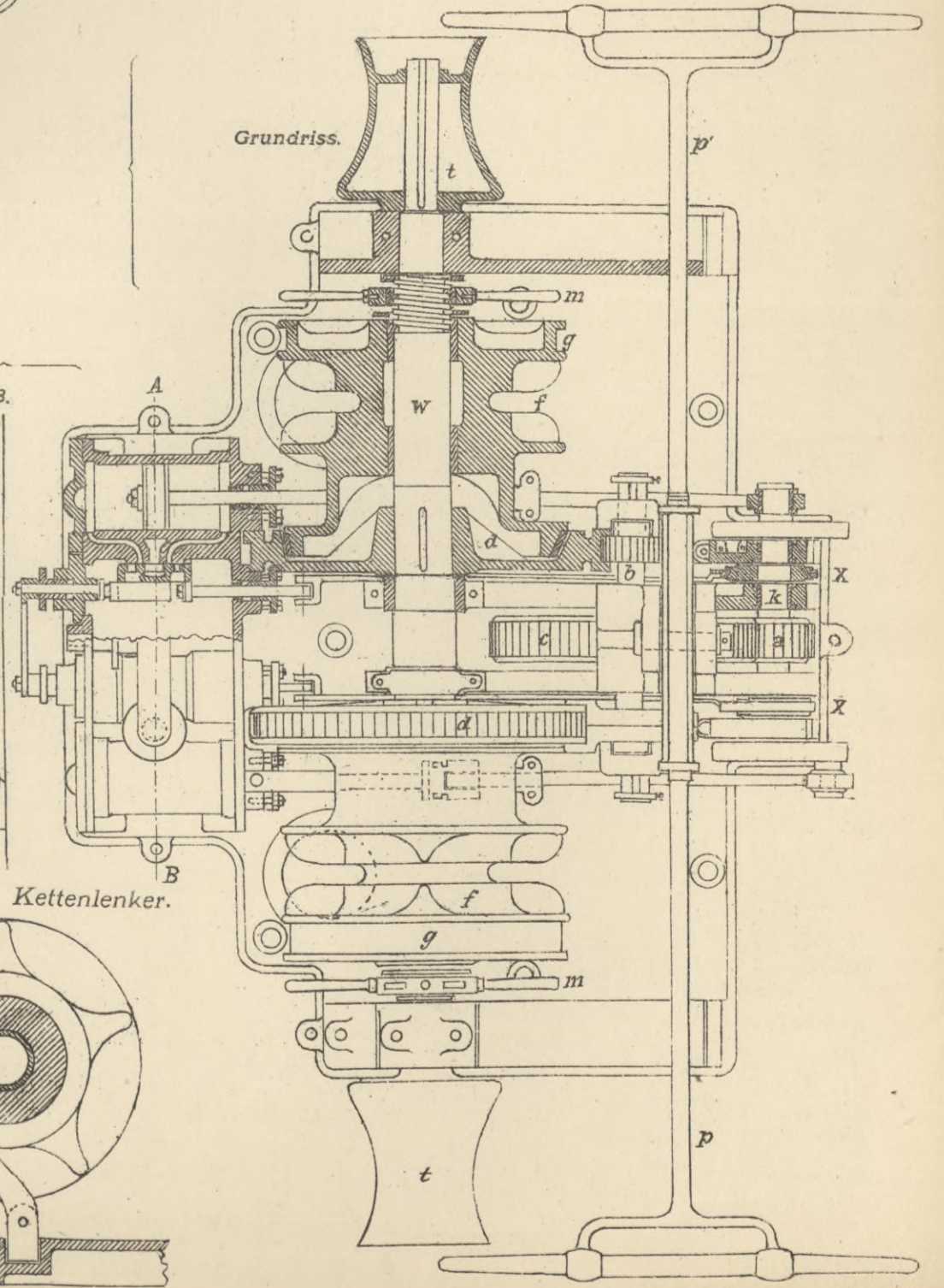
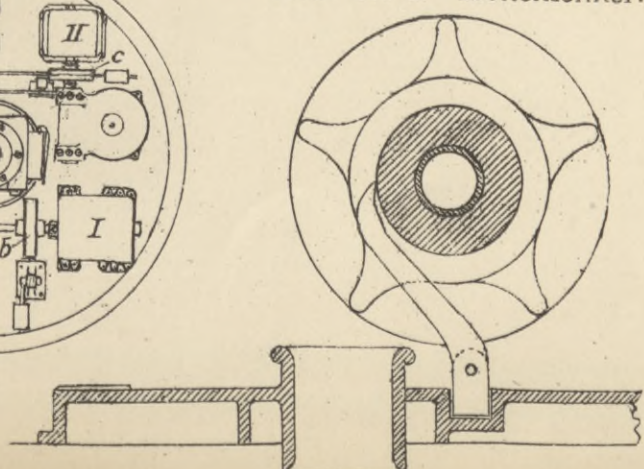


Abb. 415 a. Kettenlenker.



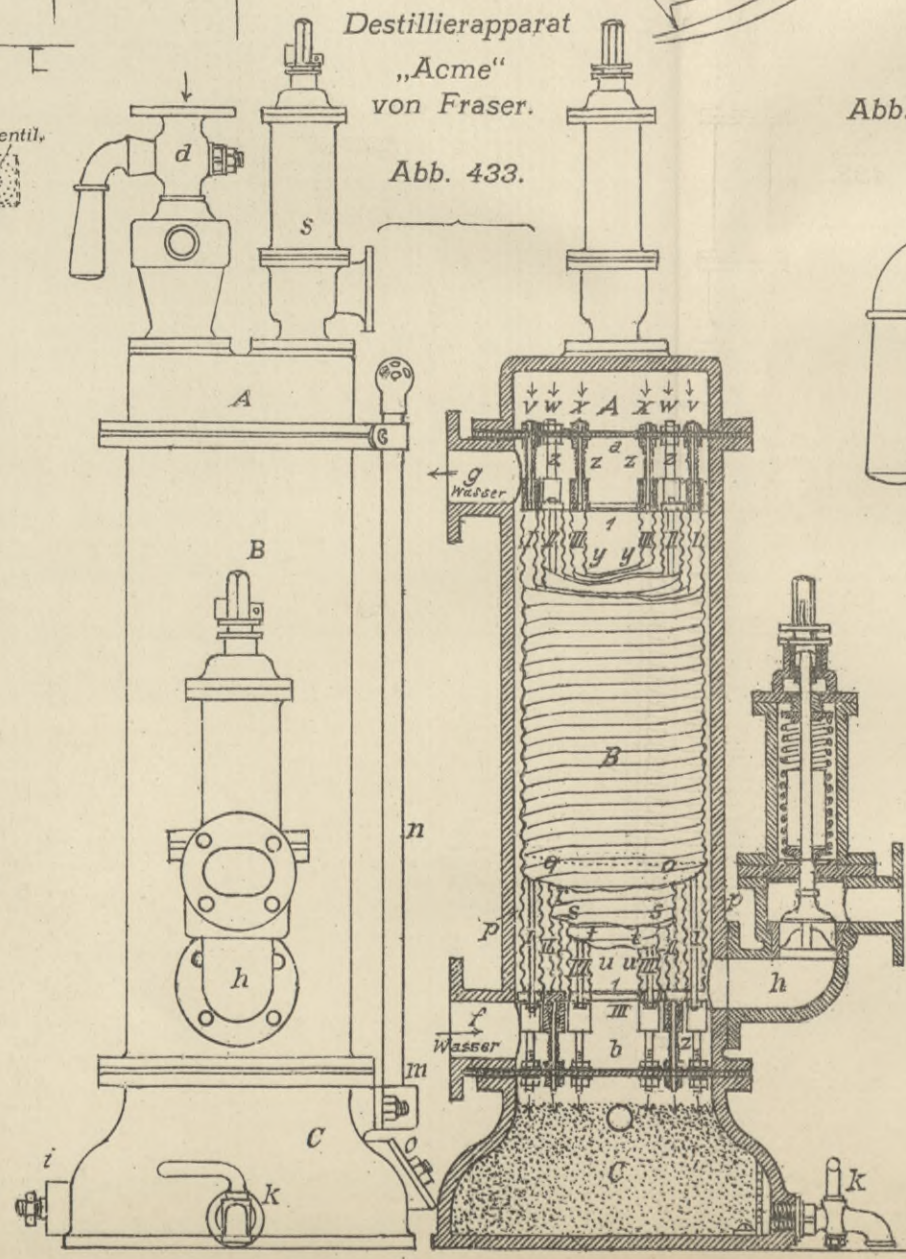
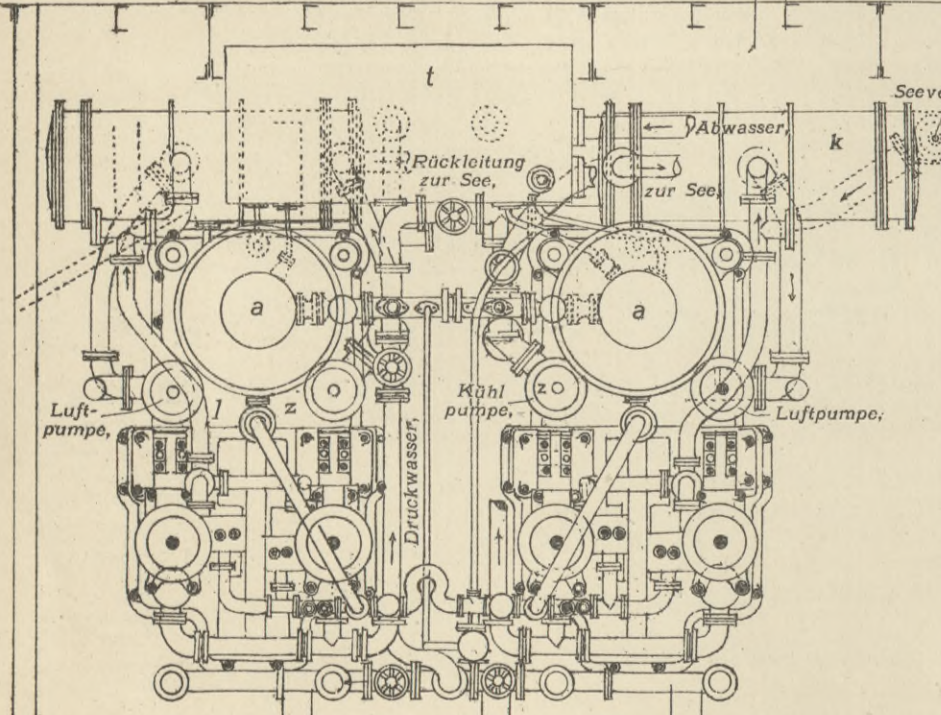
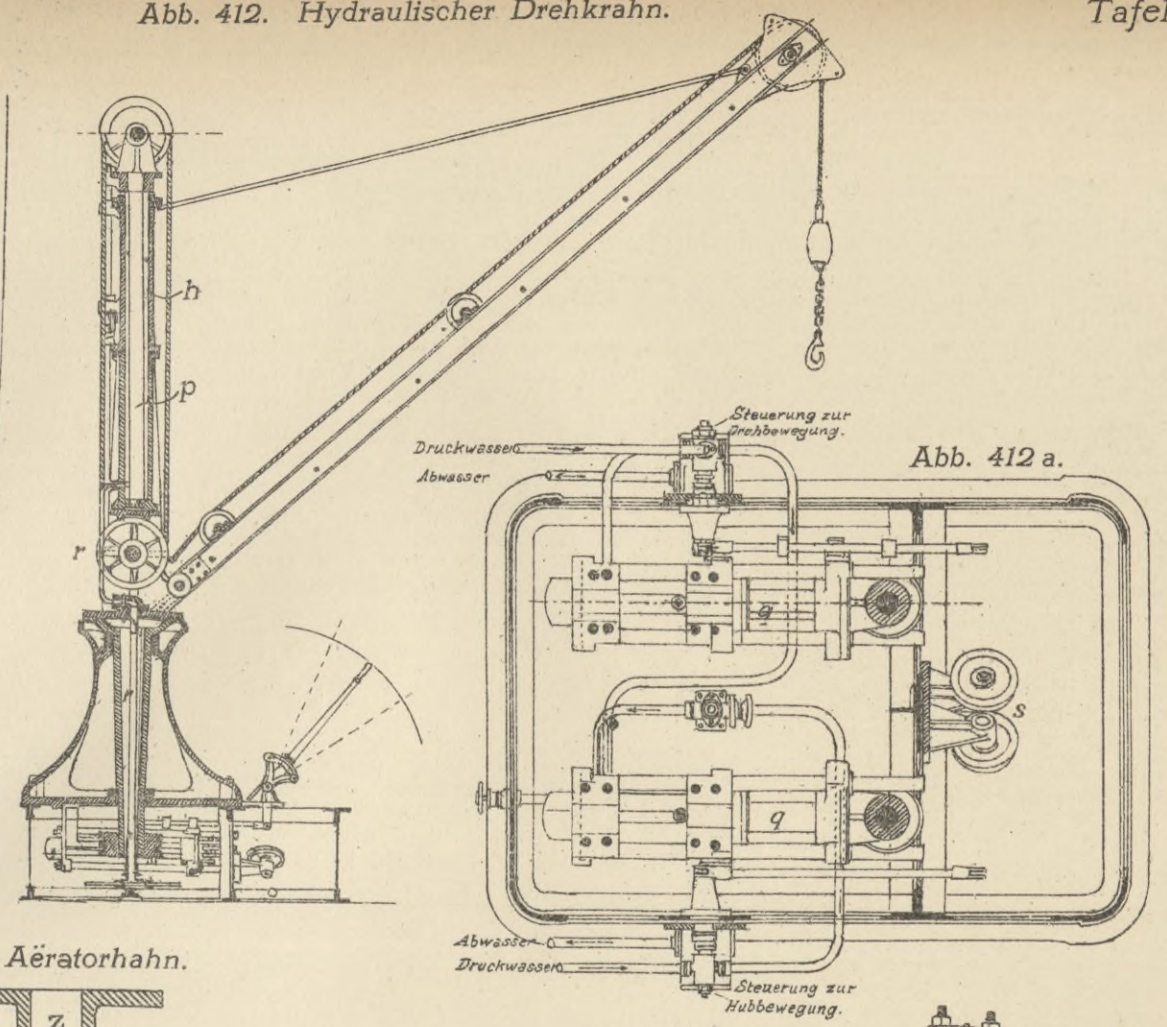
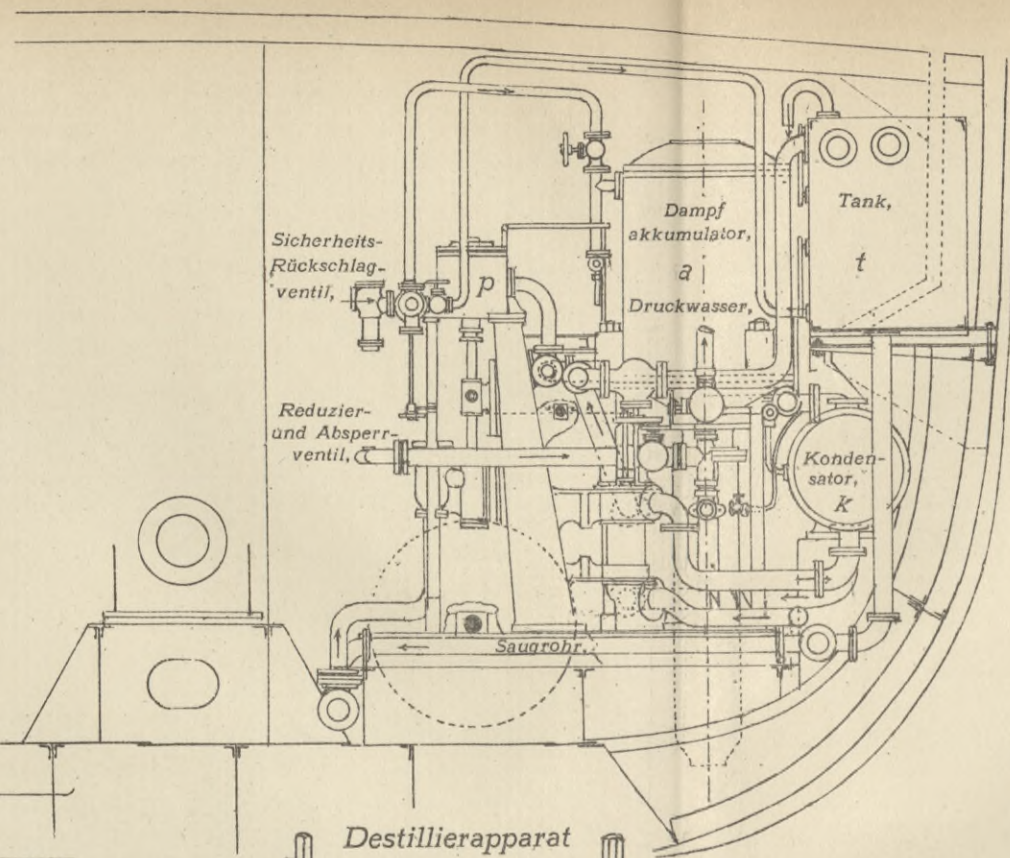
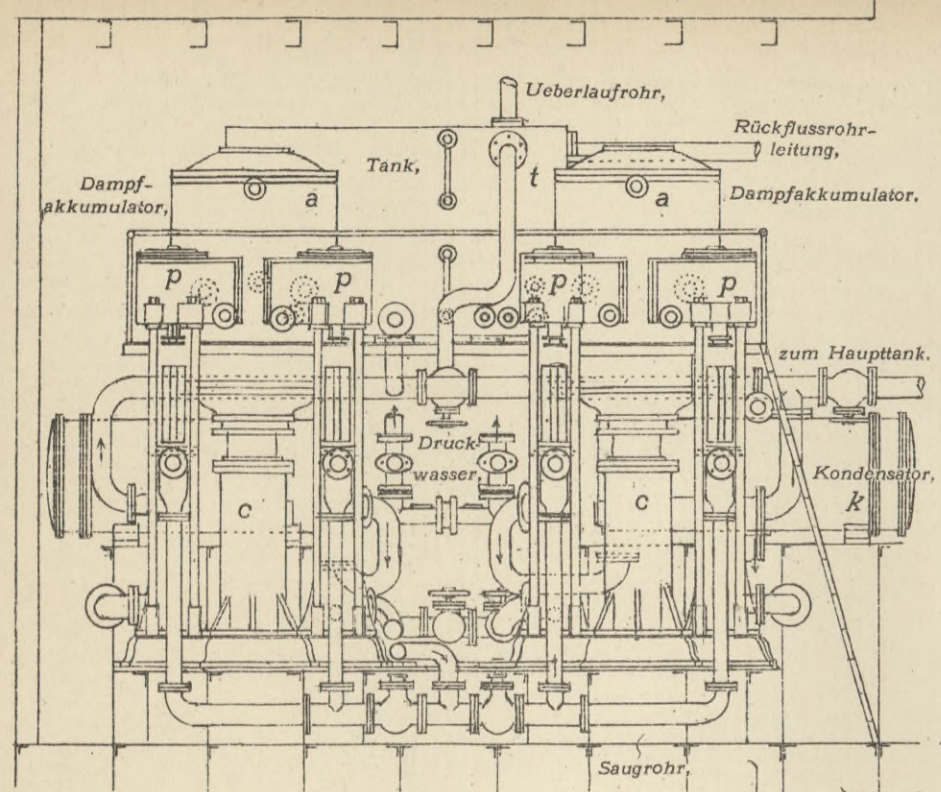
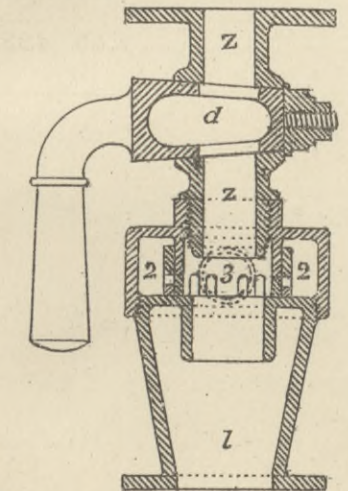
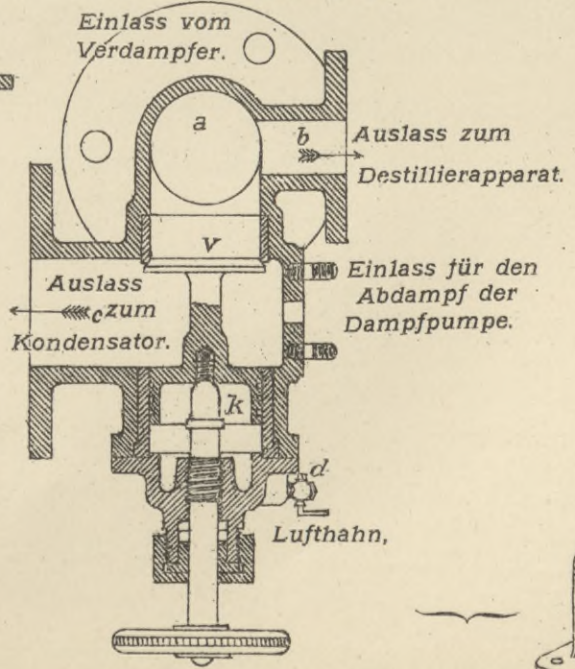


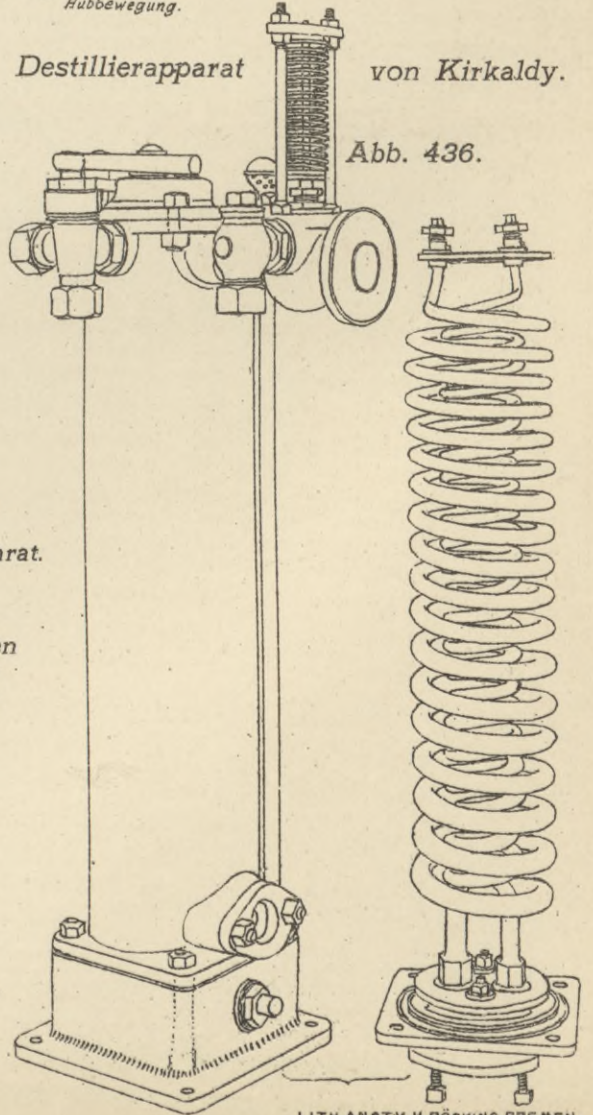
Abb. 434. Aërorhahn.



Kombiniertes Ausgleich- und Absperrventil. Abb. 437.



Destillierapparat von Kirkaldy. Abb. 436.



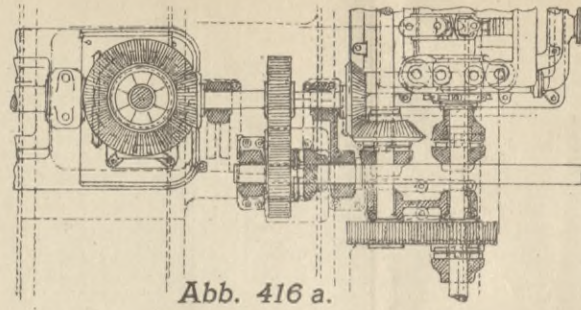
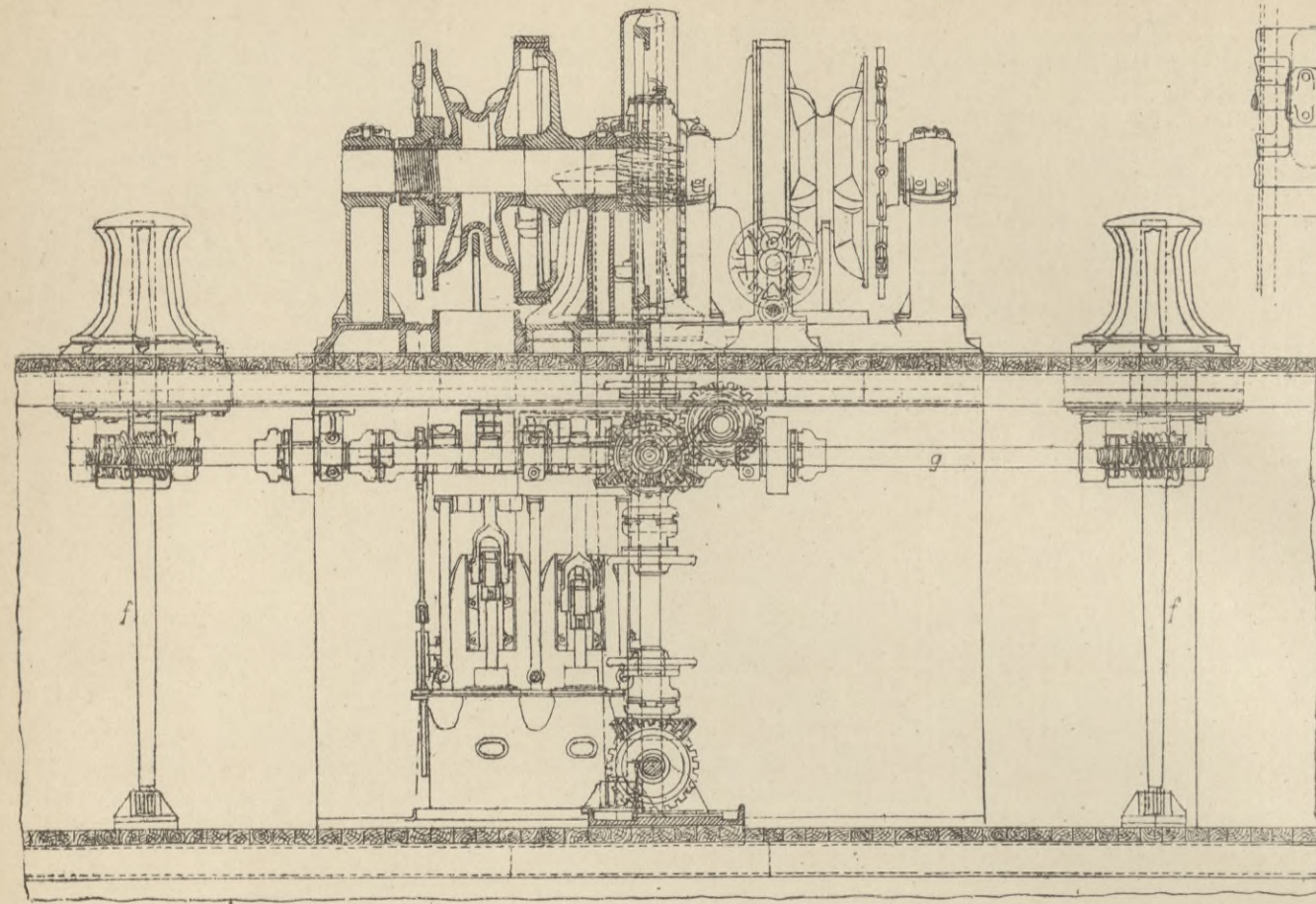


Abb. 416 a.

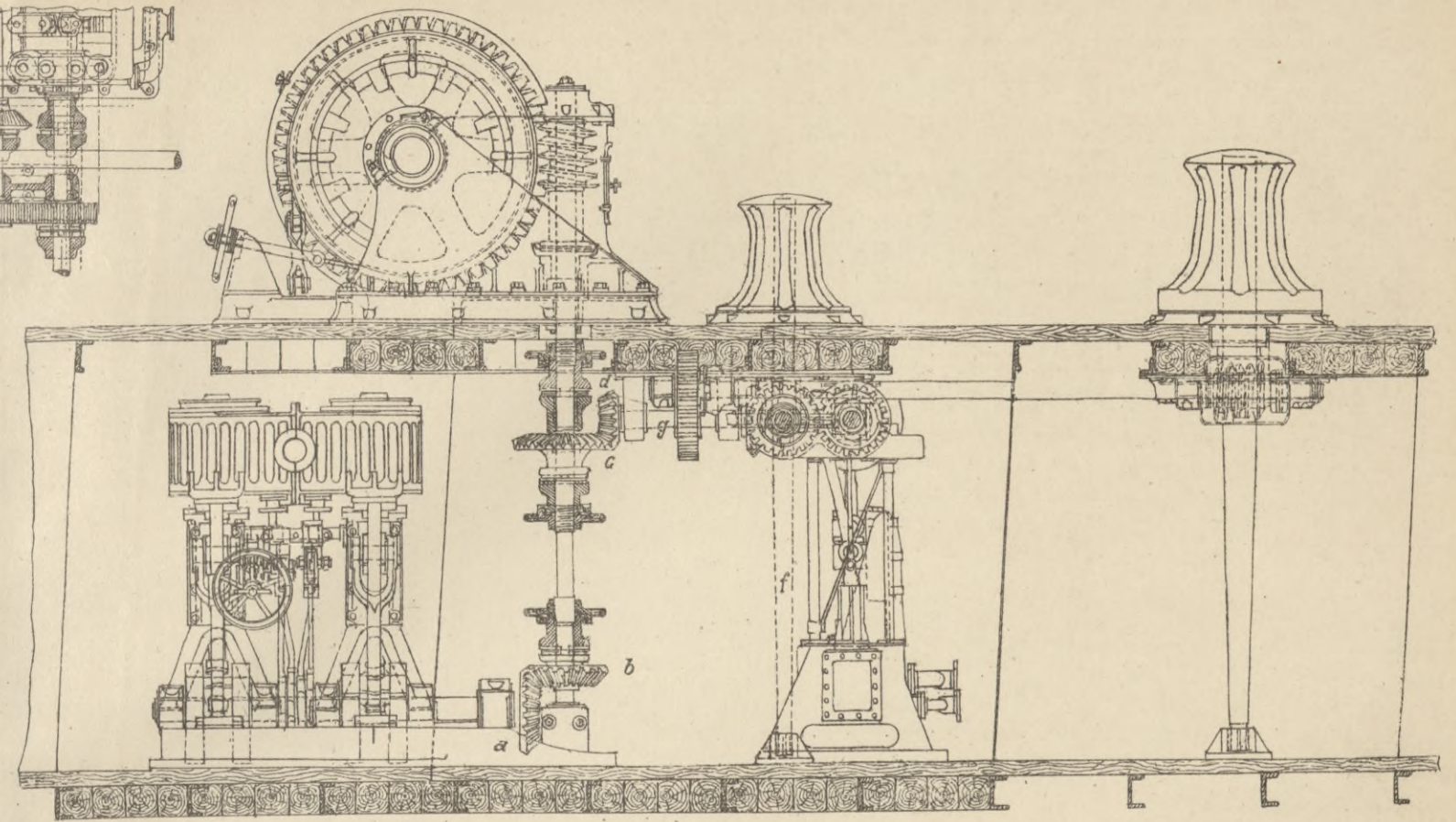


Abb. 418. Anordnung eines Ankerspills.
vergl. Tfl. 44., Abb. 419.

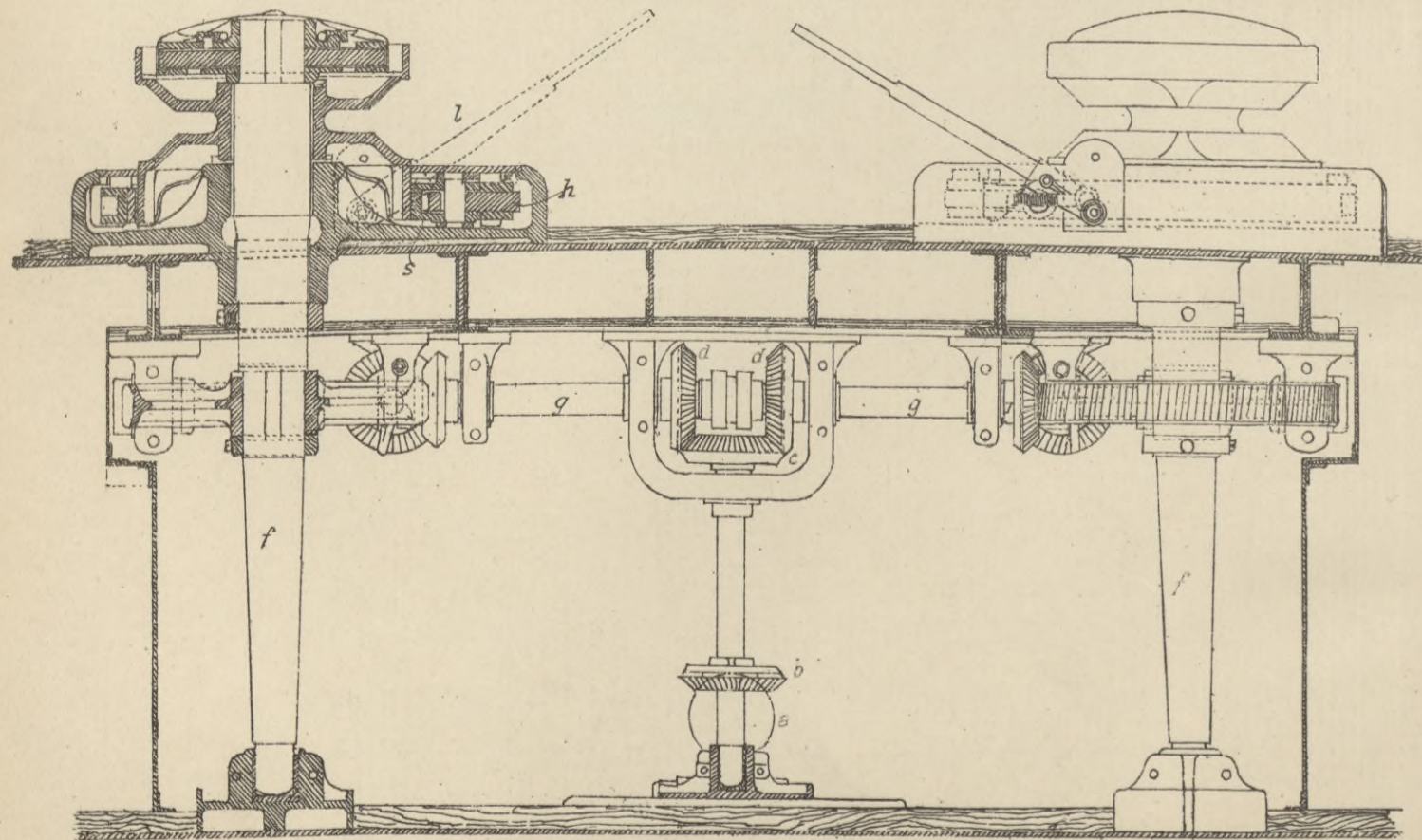
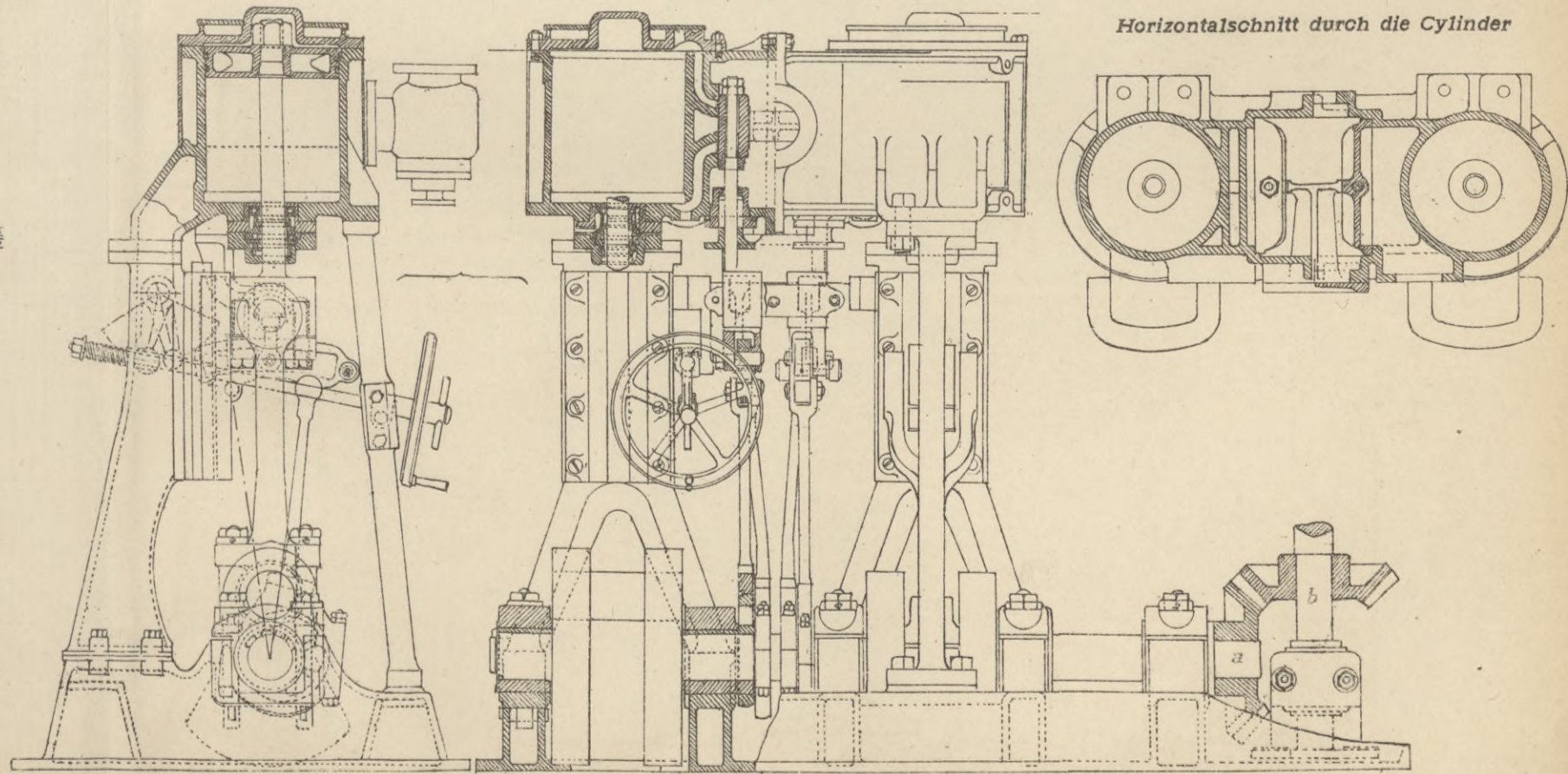
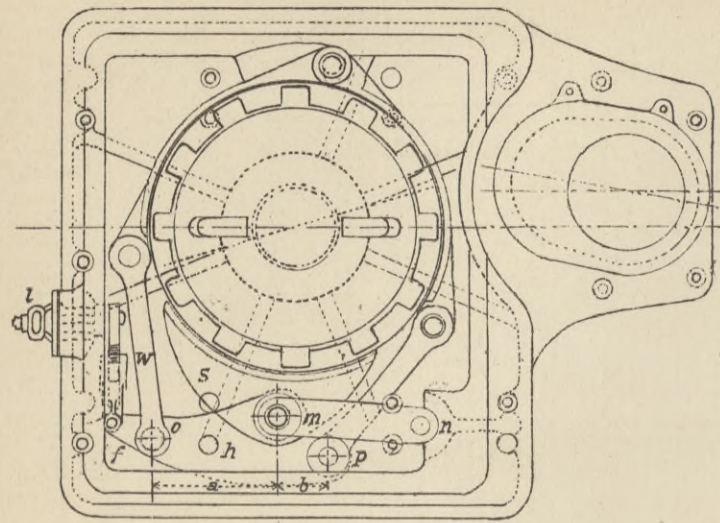


Abb. 417. Zwillingsdampfmaschine zum Antrieb einer Ankerlichtmaschine.



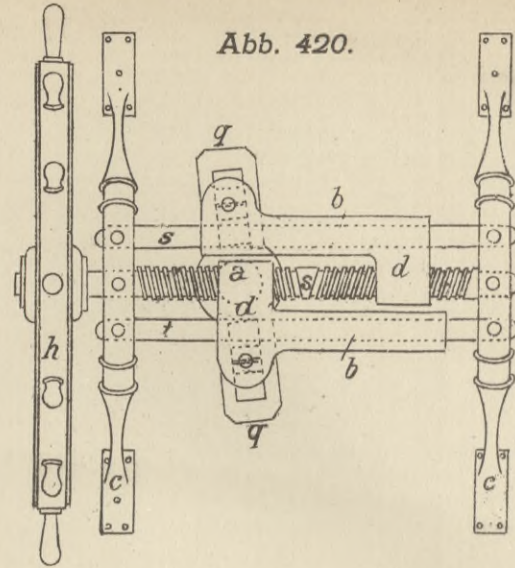
Horizontalschnitt durch die Cylinder

Abb. 419. Differentialbremse von Napier.



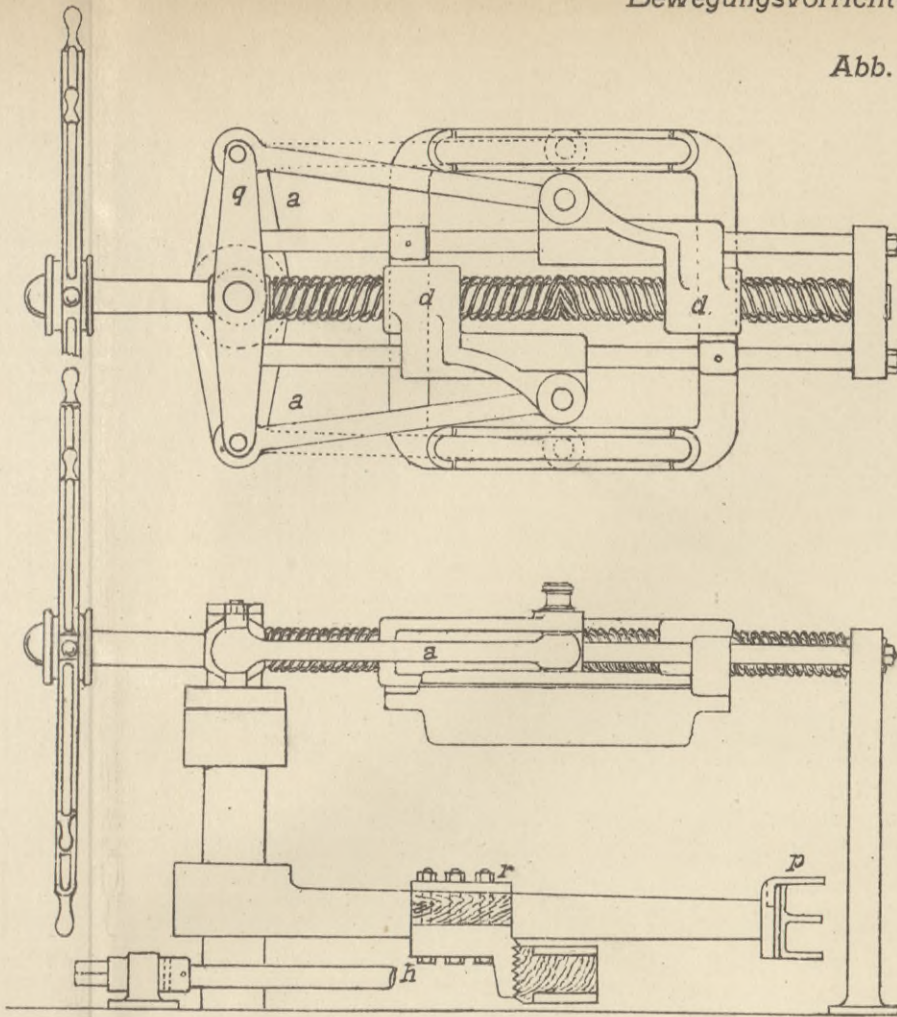
Bewegungsvorrichtung für das Ruder.

Abb. 420.

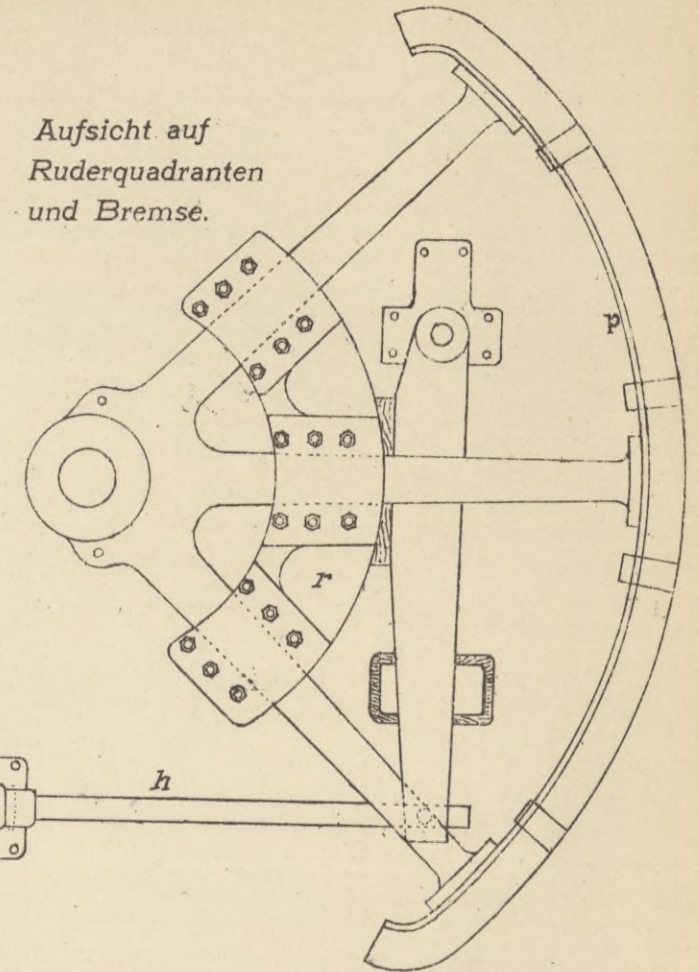


Bewegungsvorrichtung für das Ruder.

Abb. 421.

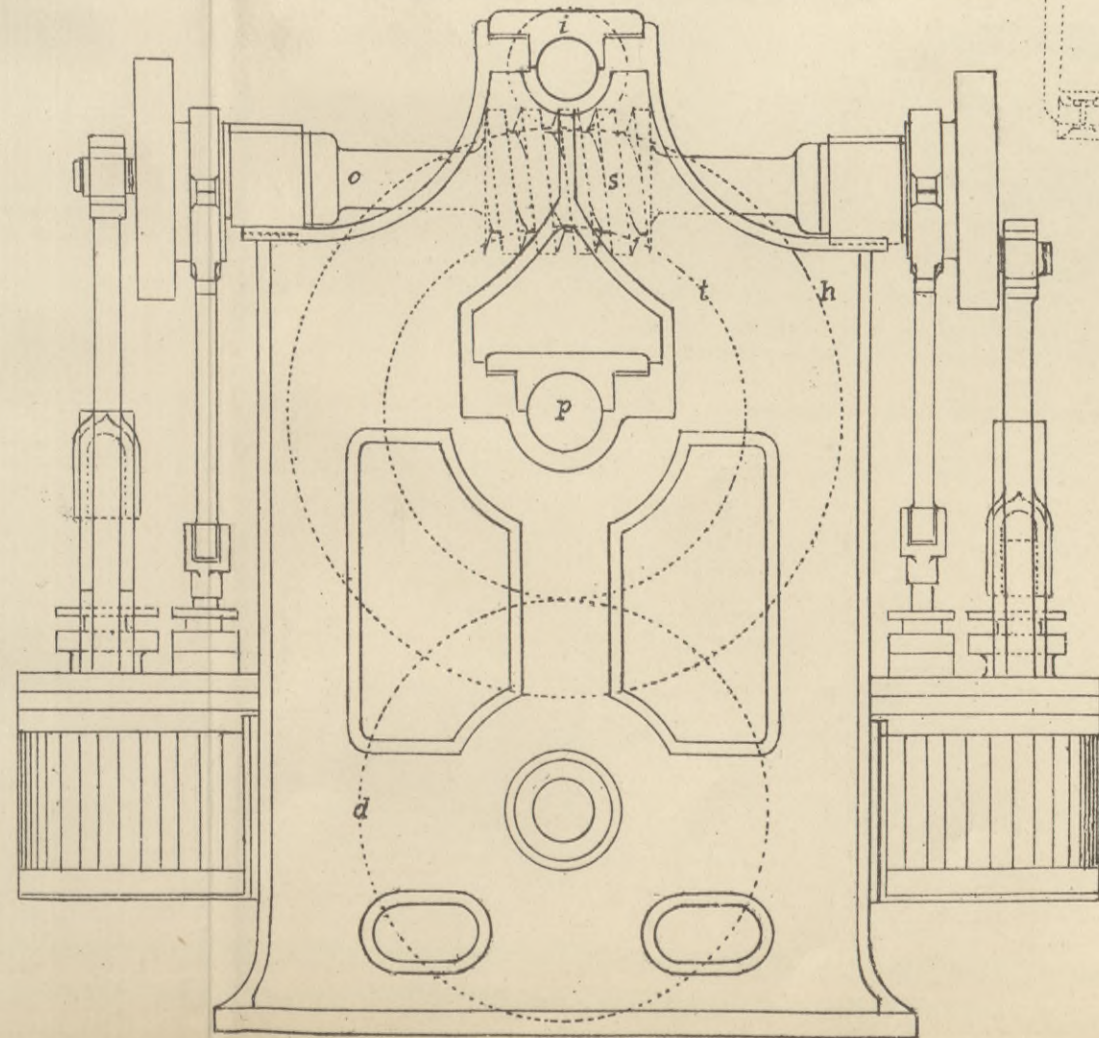
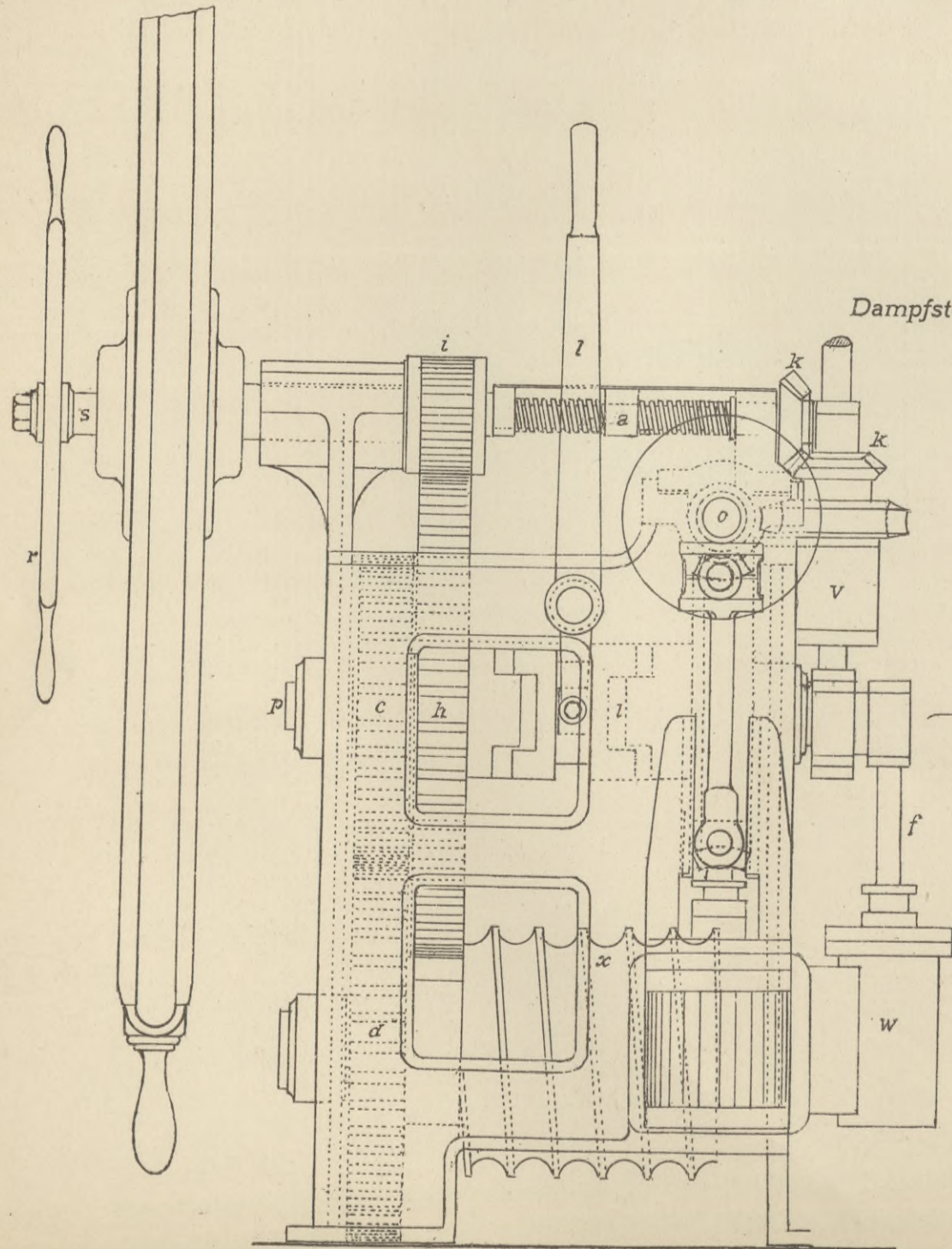


Aufsicht auf Ruderquadranten und Bremse.



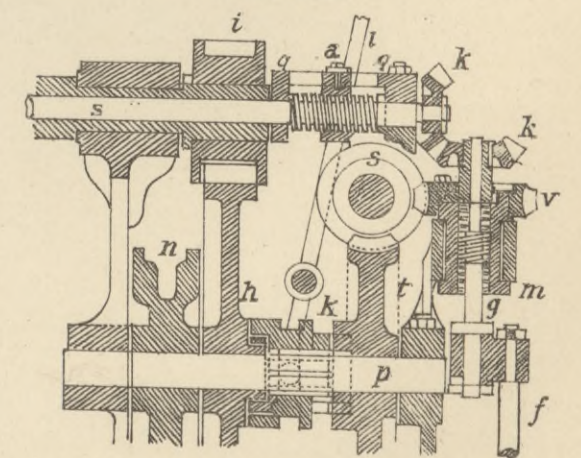
Dampfsteuerapparat von Davis.

Abb. 425.



Schnitt durch die Arretiervorrichtung.

Abb. 426.



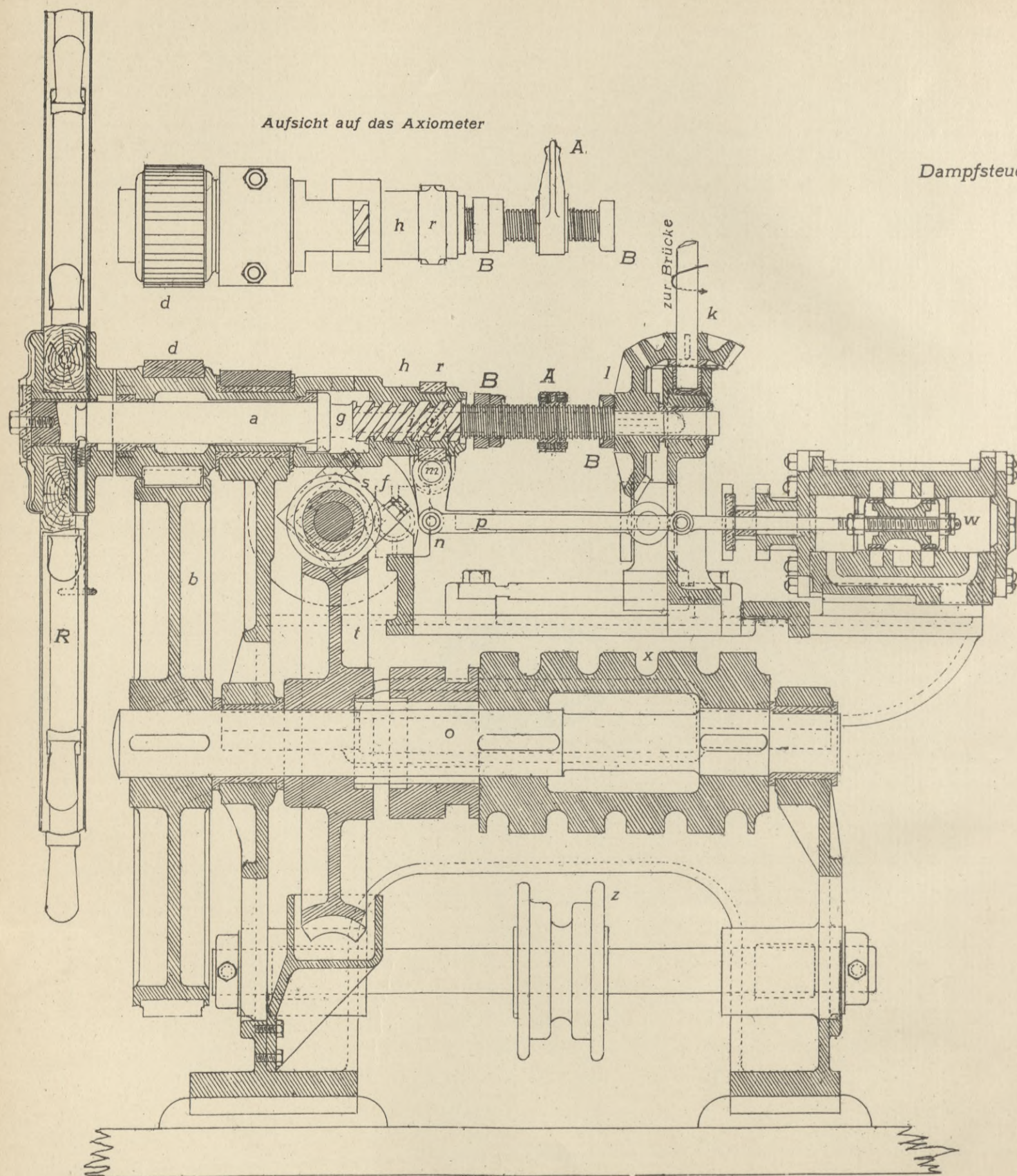


Abb. 422.

Dampfsteuerapparat von Clarke Chapman & Co.

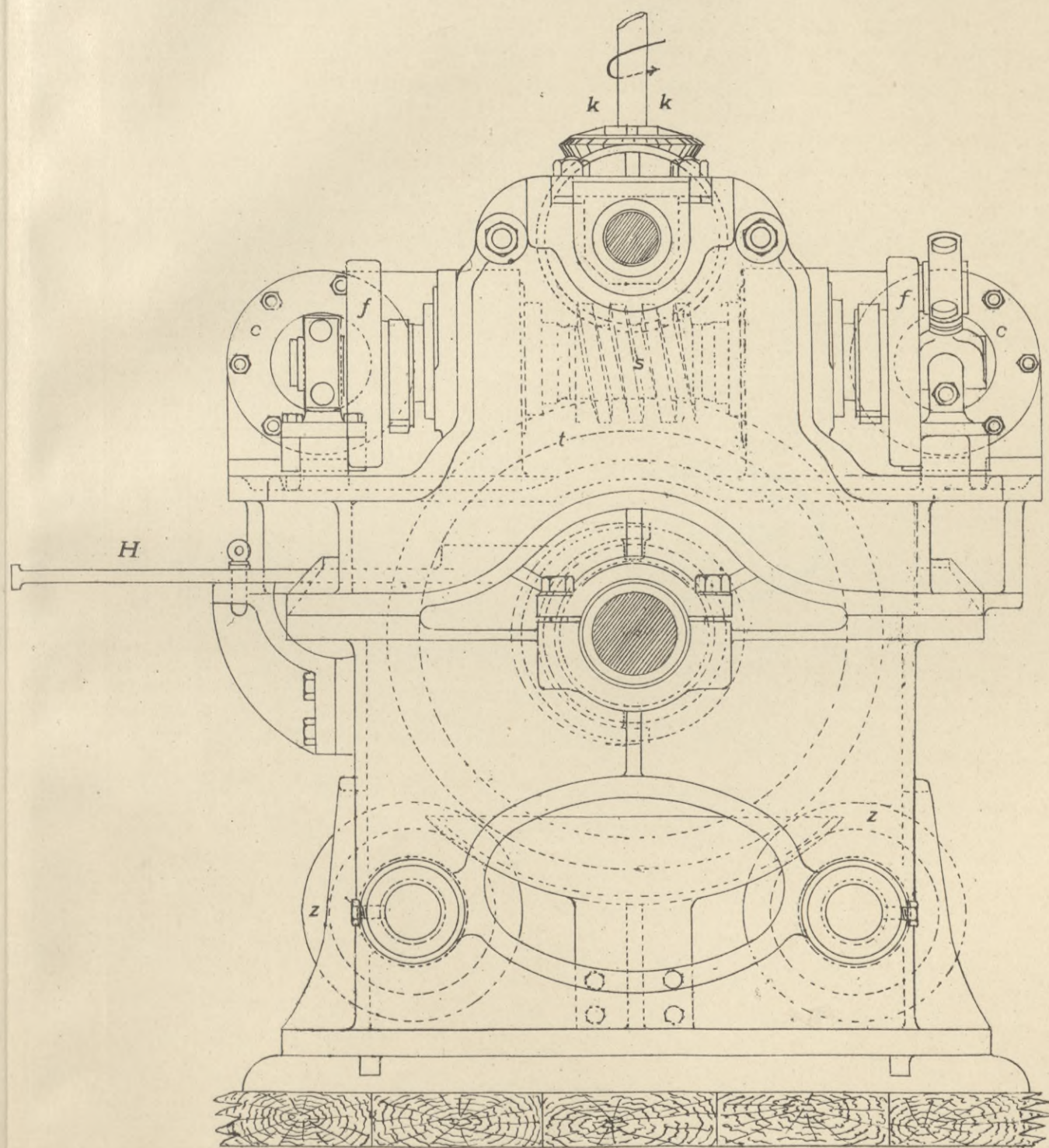


Abb. 423.

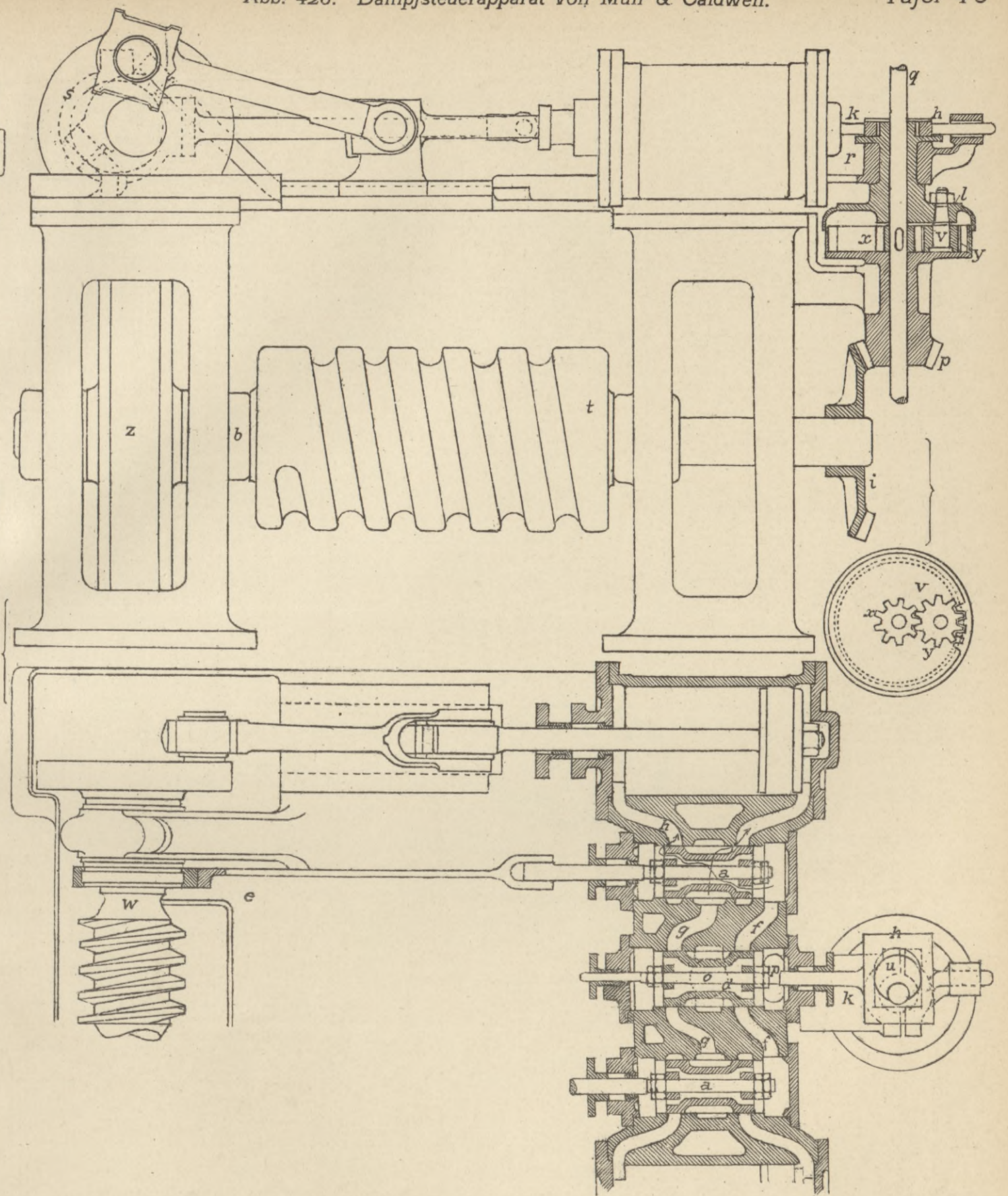
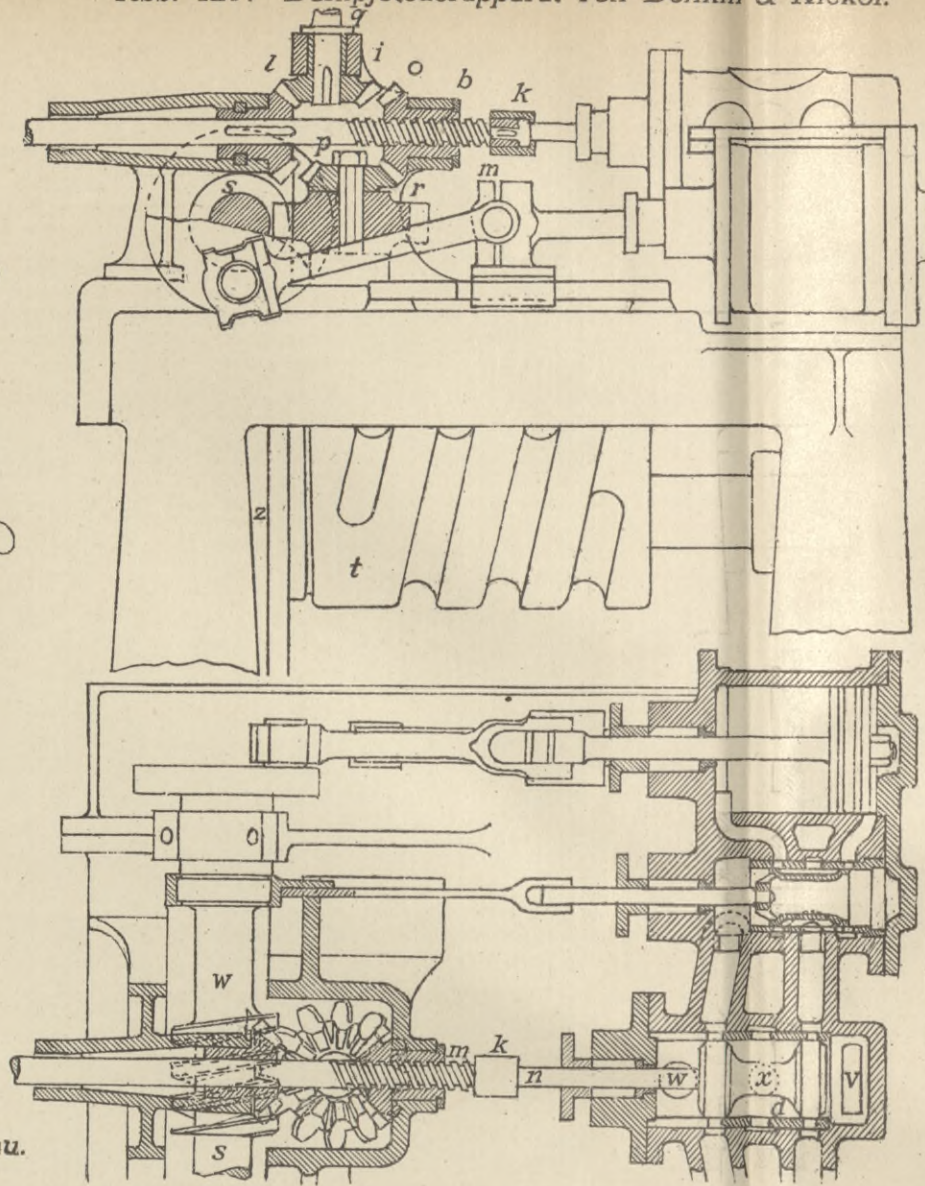
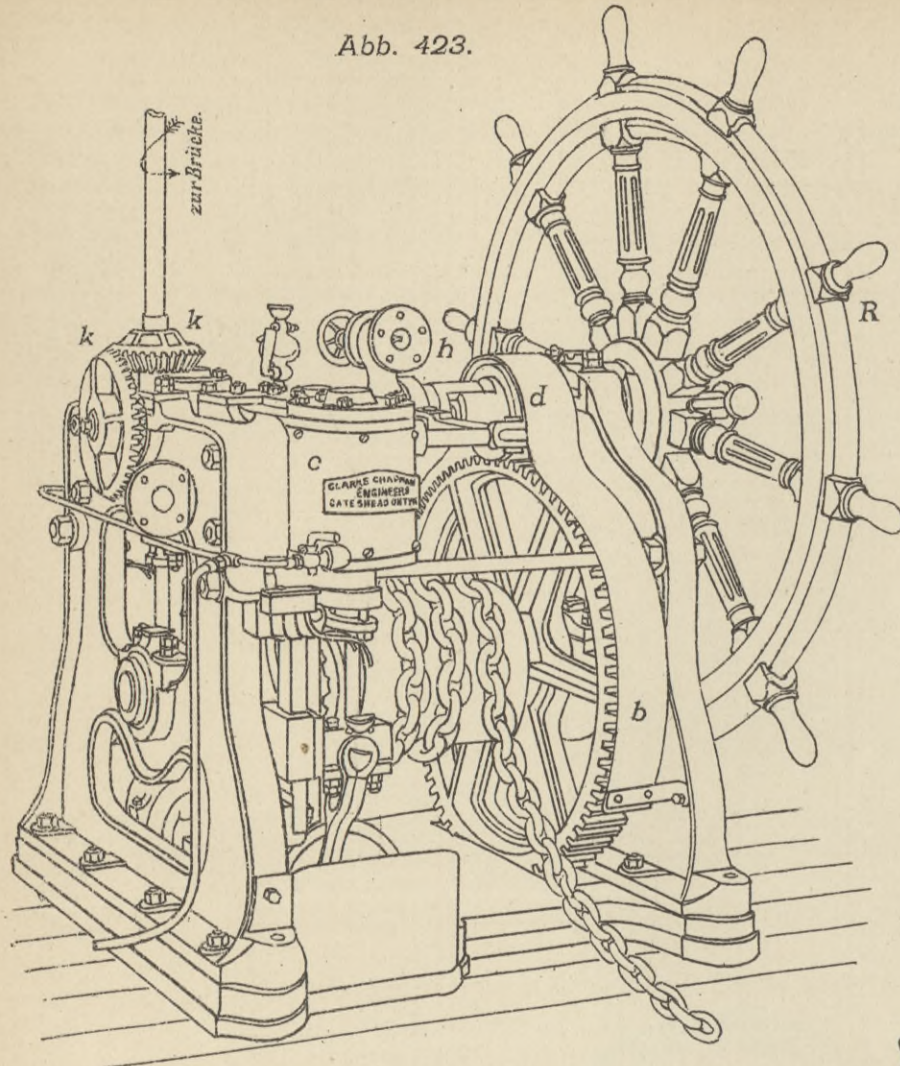
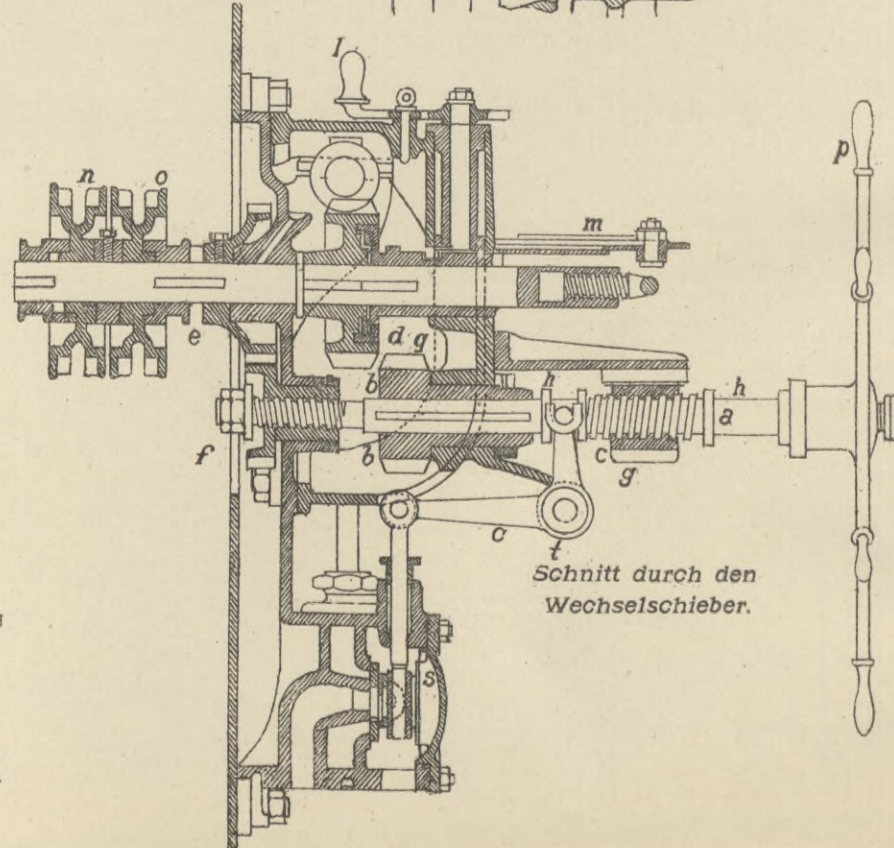
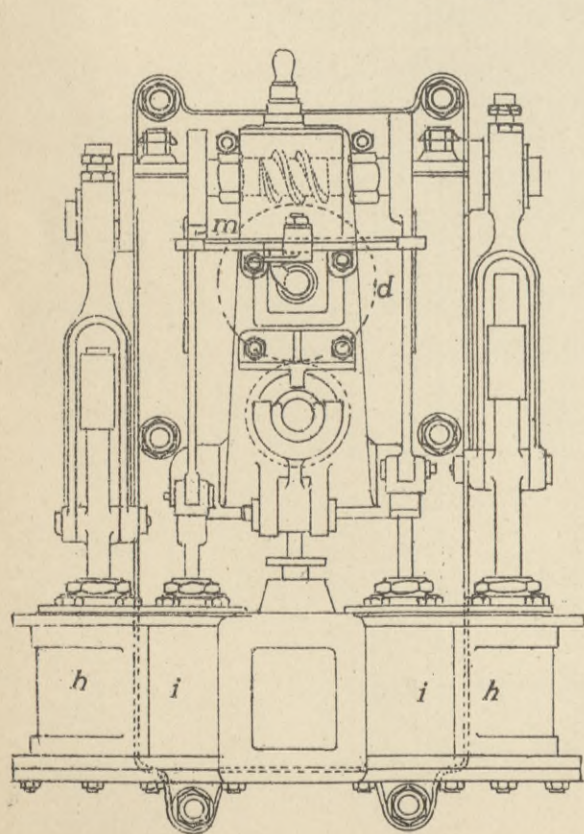


Abb. 424. Dampfsteuerapparat von Schichau.



Schnitt durch den Wechselschieber.

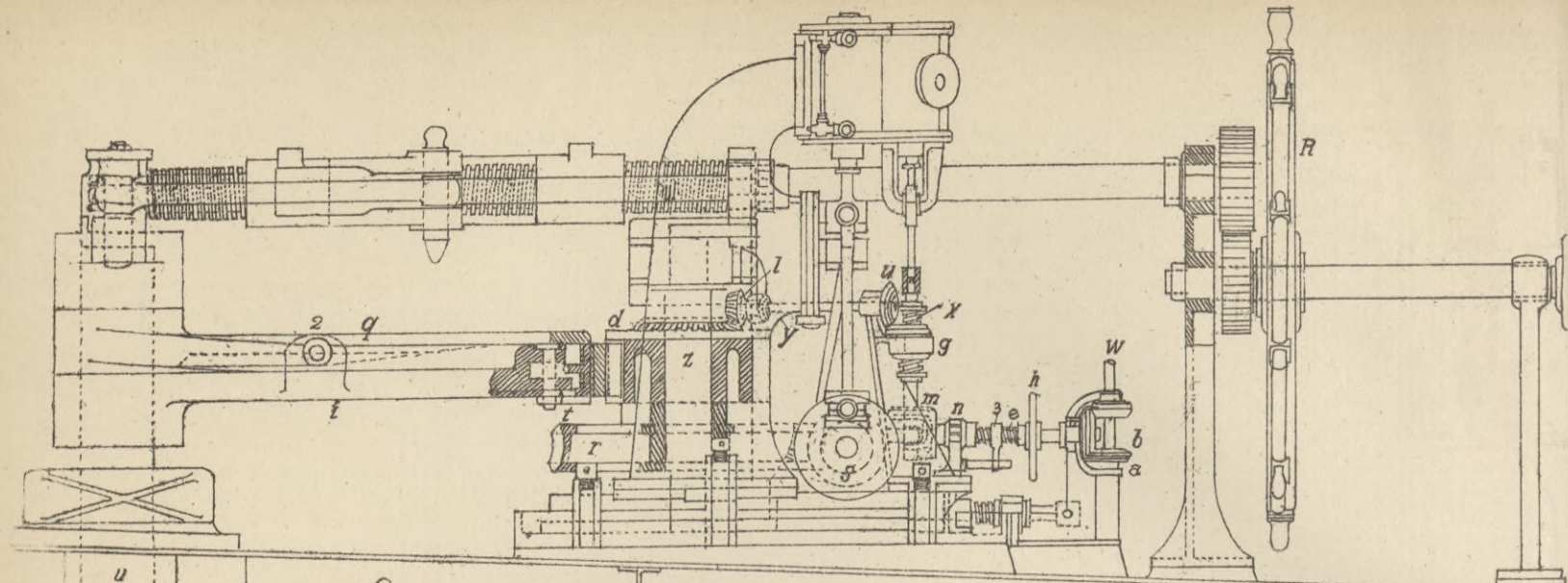


Abb. 428 a.

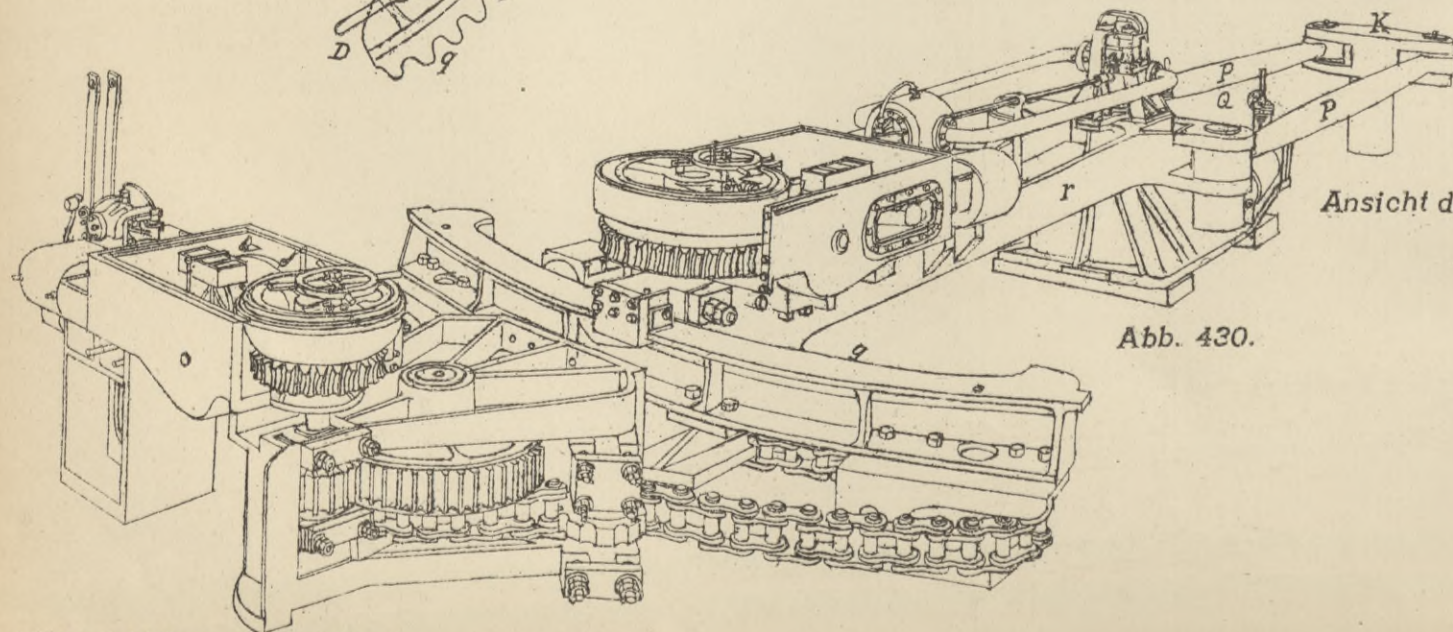
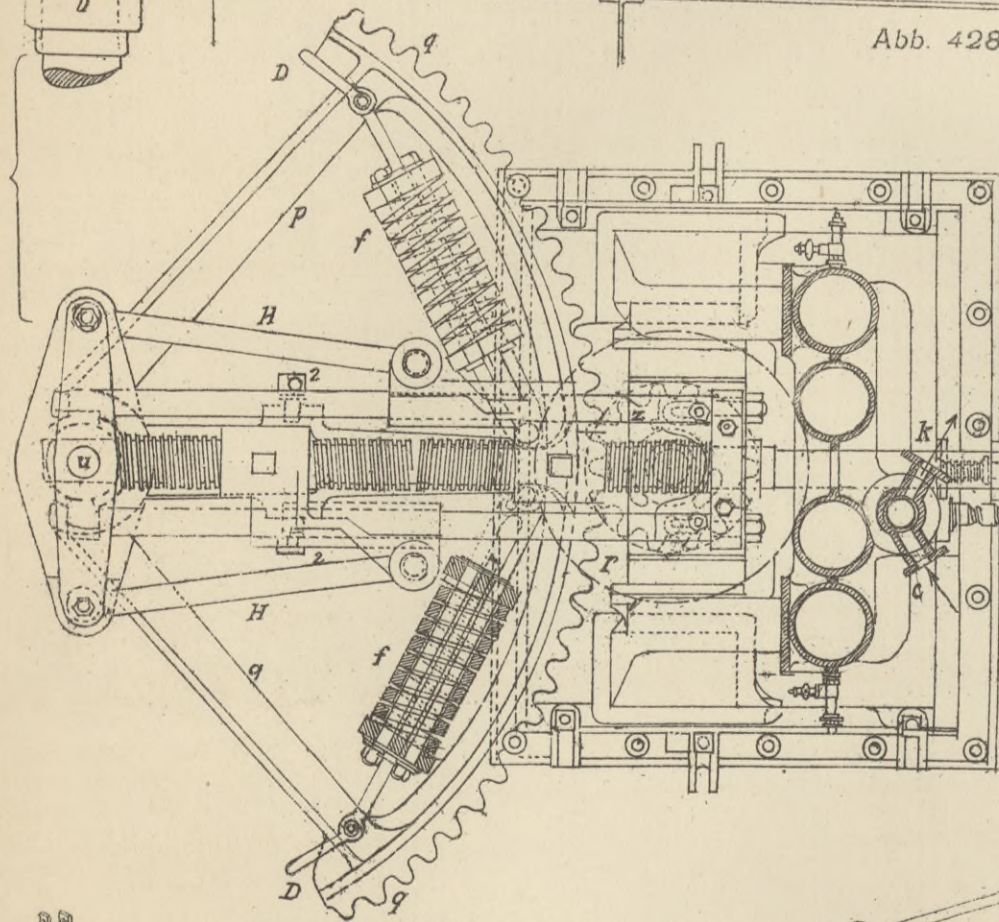
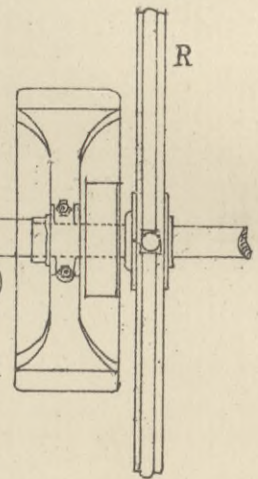
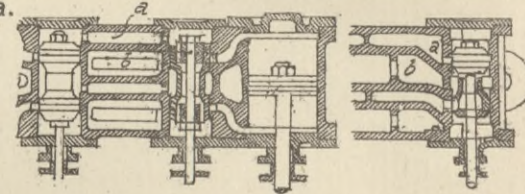
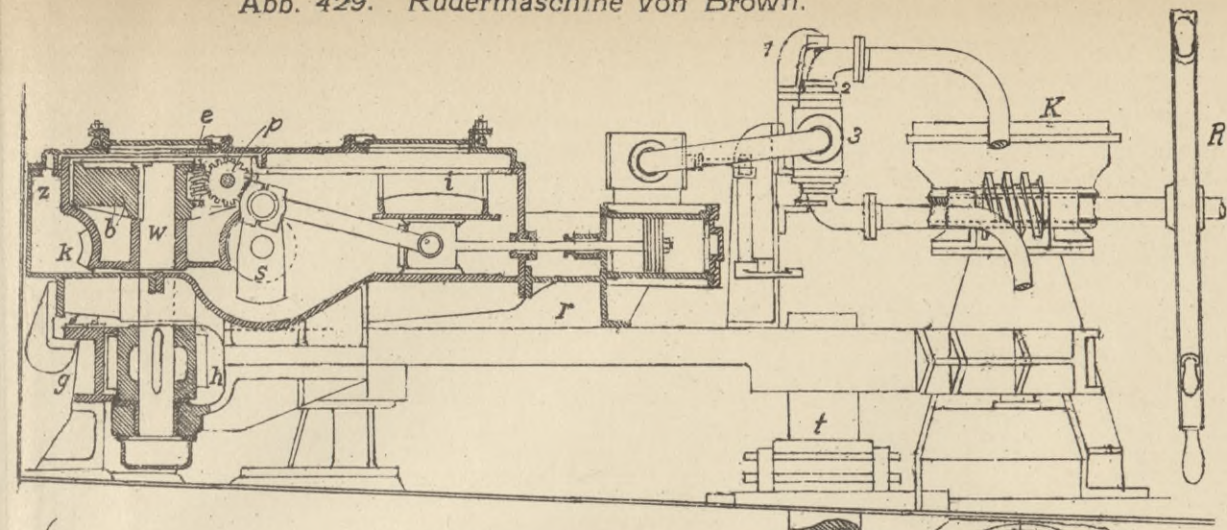


Abb. 430.

Ansicht der Rudermaschine von Brown.



Telemotor siehe Tafel 48

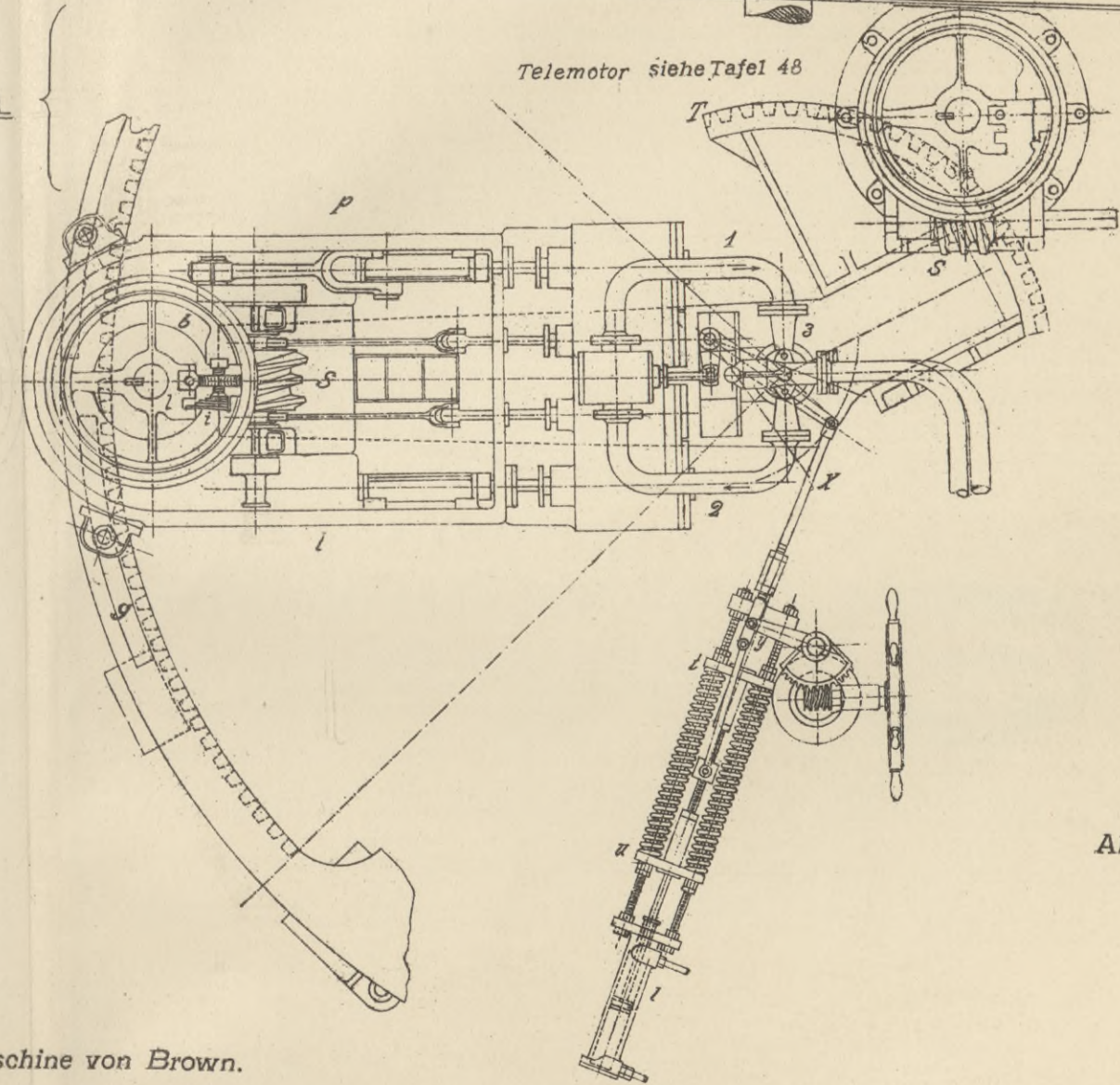


Abb. 430 a.

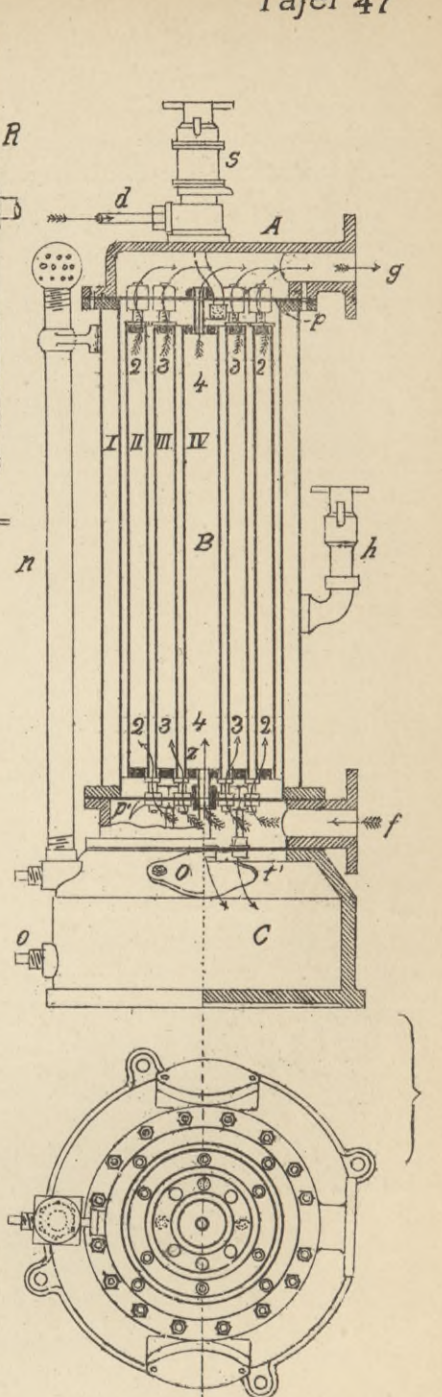
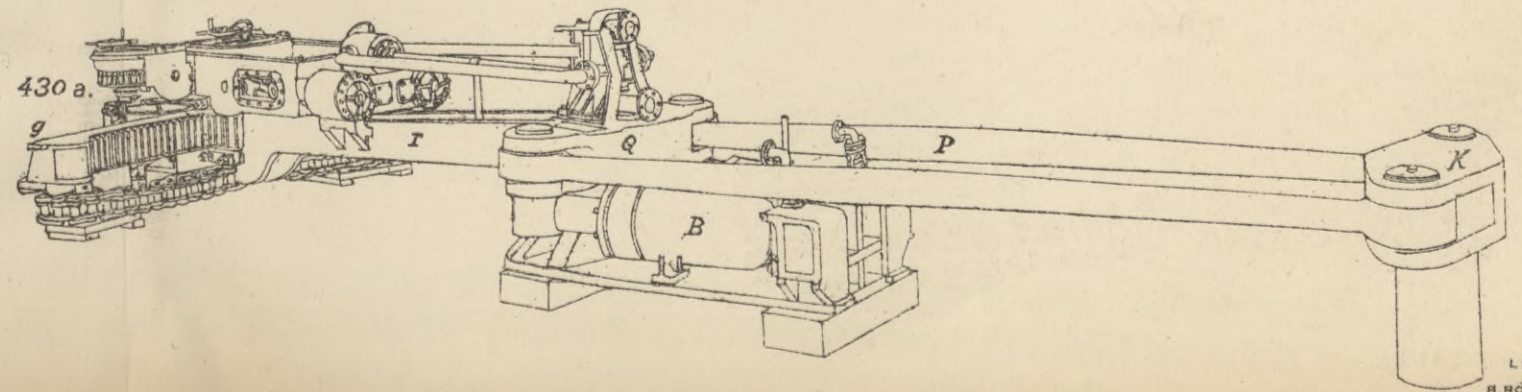


Abb. 435. Destillierapparat von Hocking.

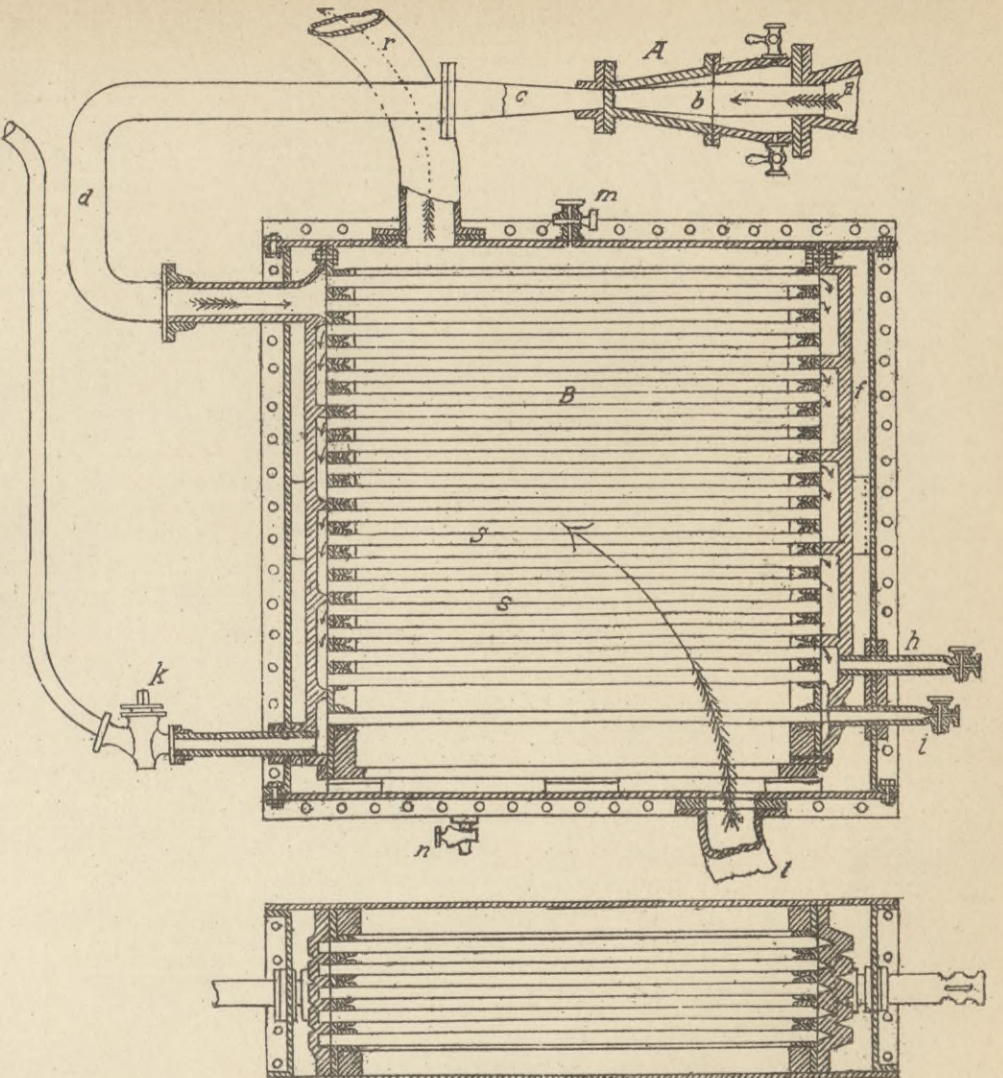
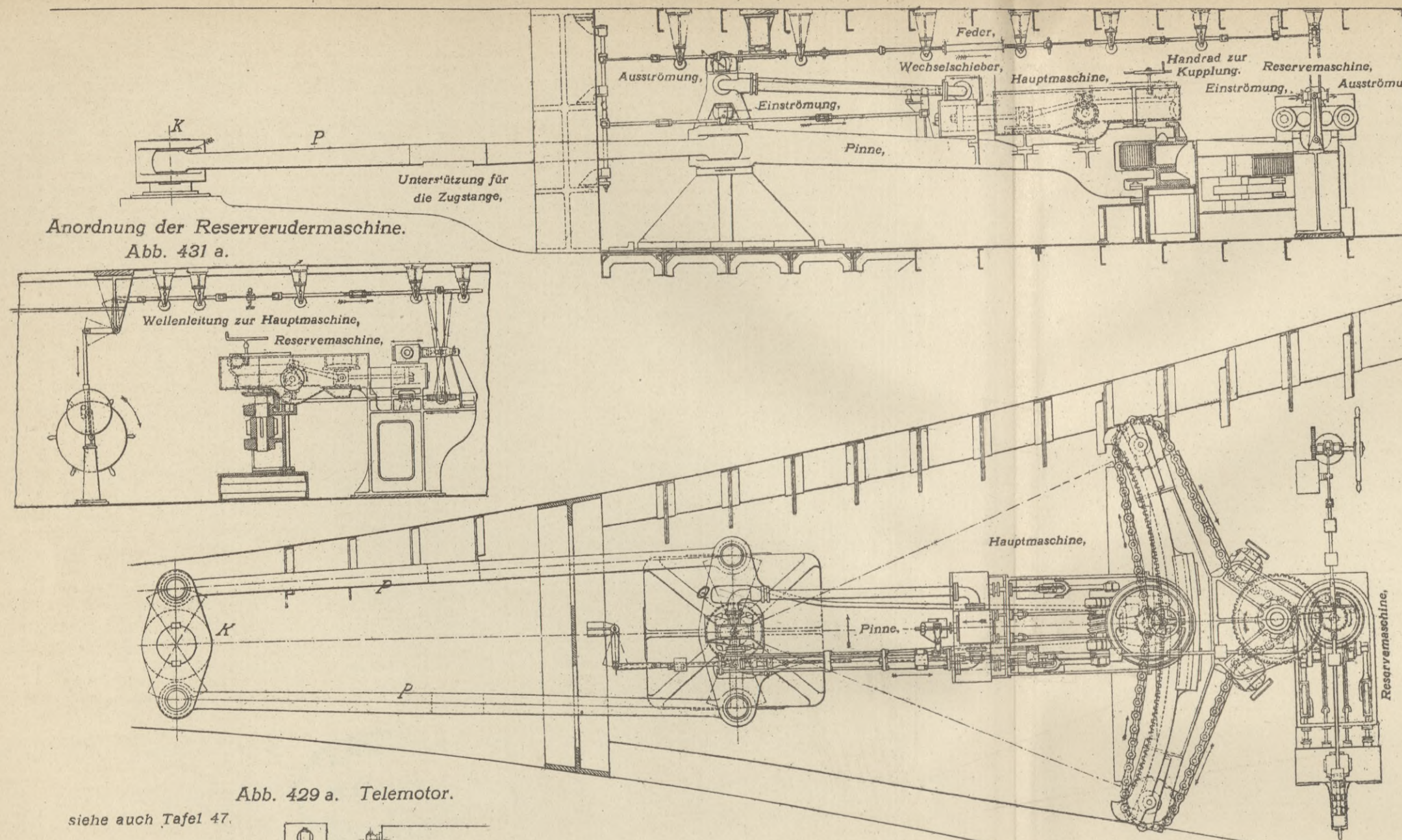


Abb. 458. Ventilatoranordnung für einen Heizraum.

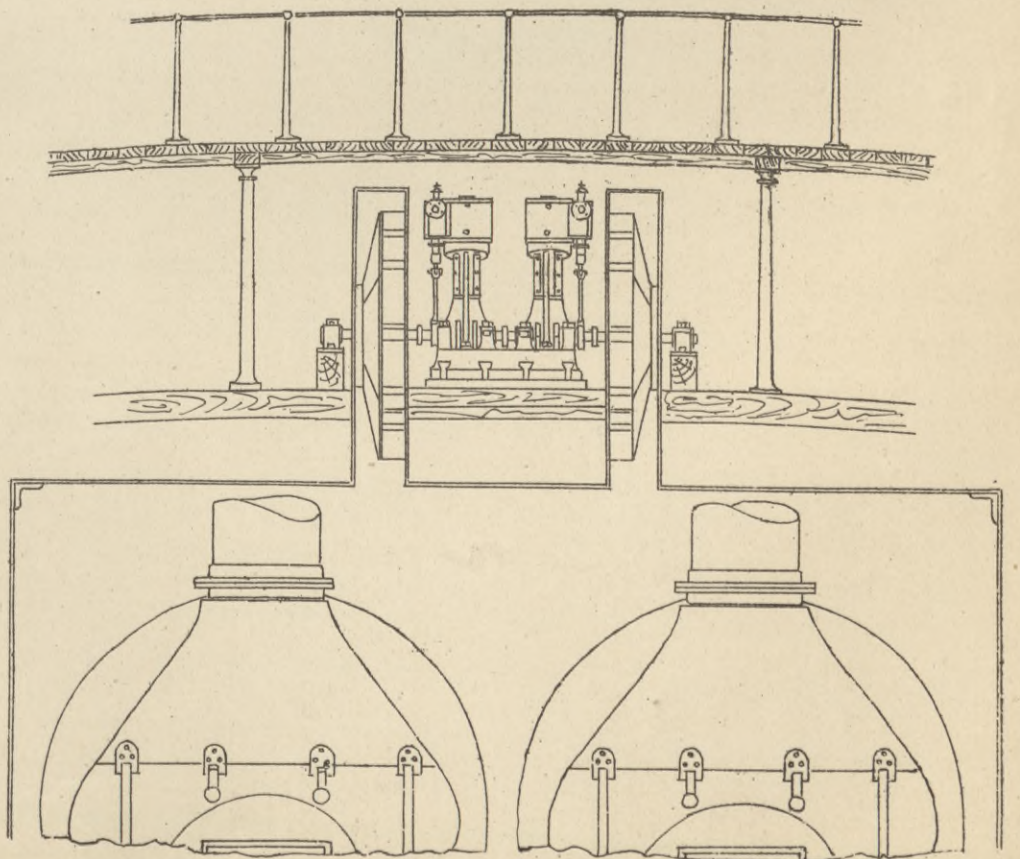
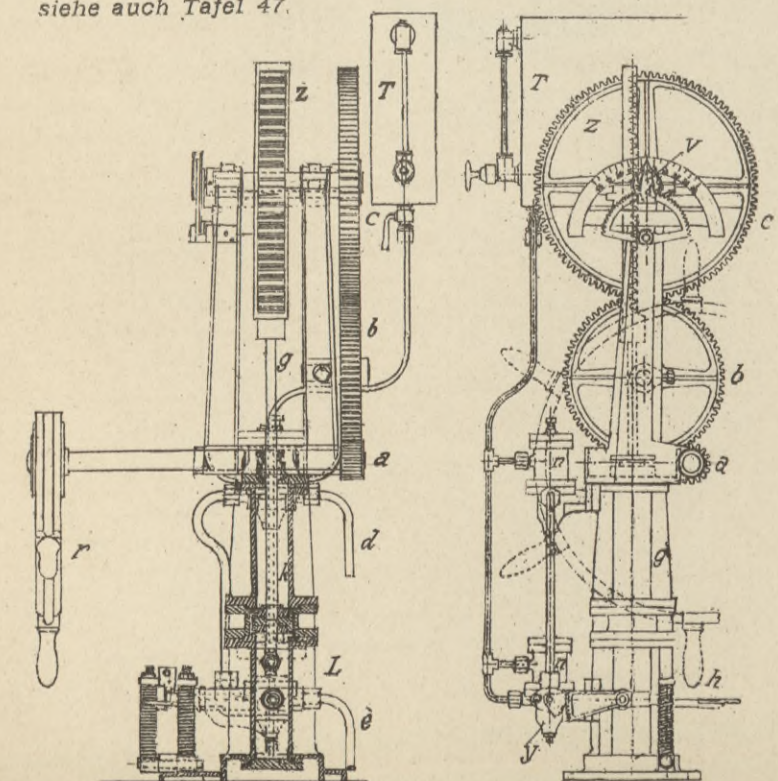


Abb. 429 a. Telemotor.

siehe auch Tafel 47.



Aspiratoren.

Abb. 449. Windrohr.

Abb. 450.

Abb. 451.

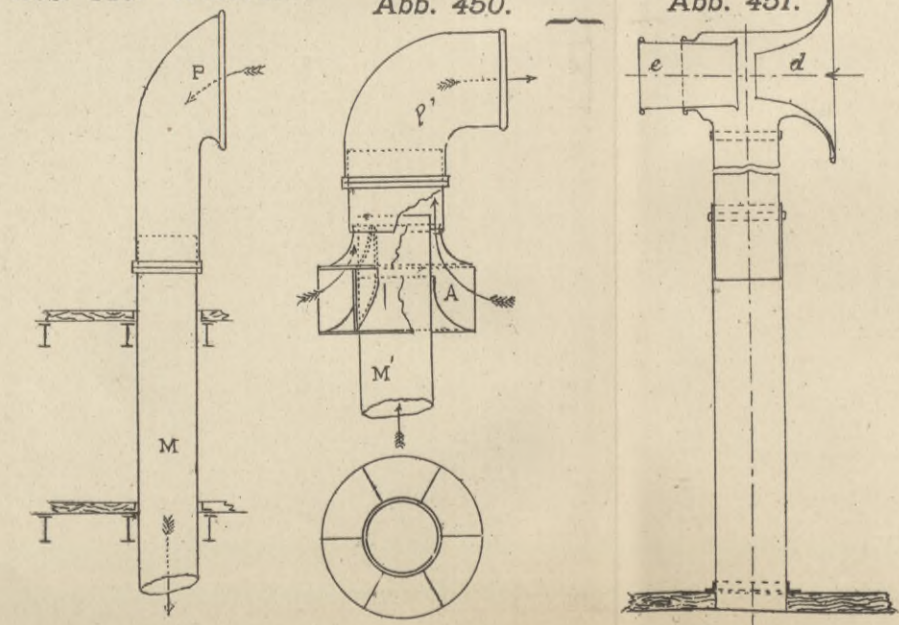


Abb. 438.

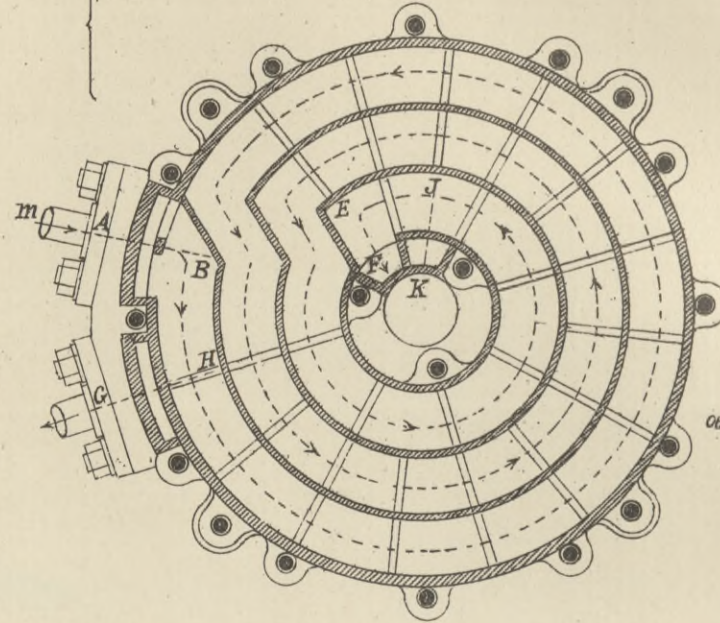
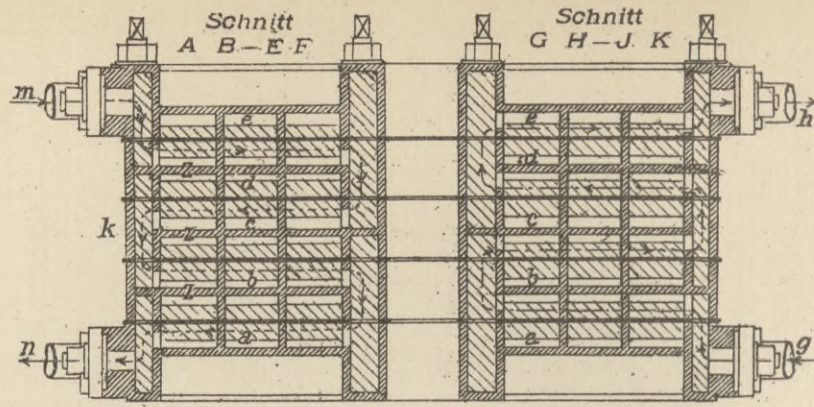
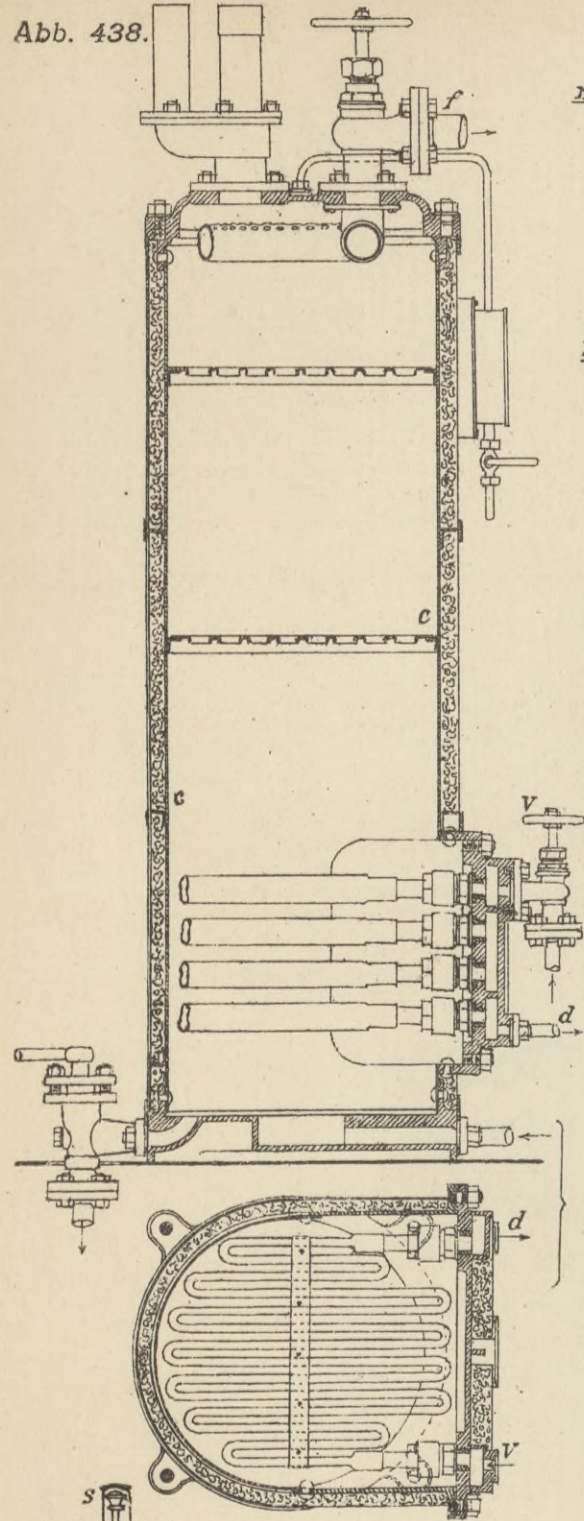
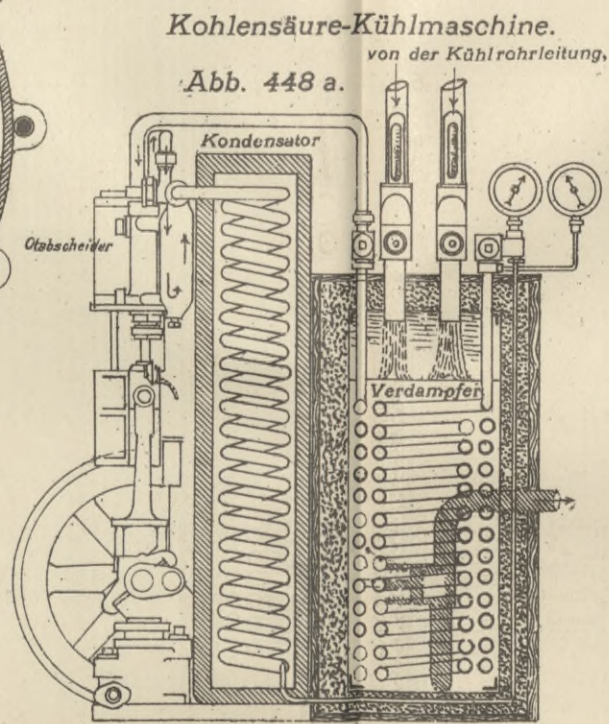
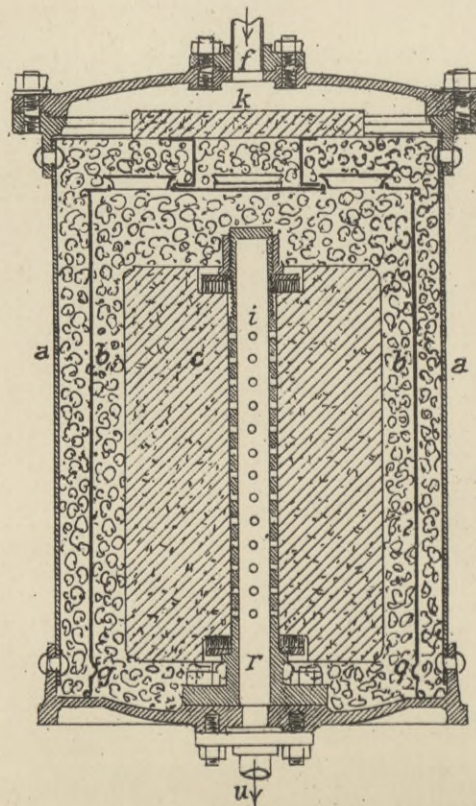


Abb. 440. Filter zu Abb. 438.



Kohlensäure-Kühlmaschine.
Abb. 448 a.

Schematische Darstellung einer
Kohlensäure-Kaltdampfmaschine.

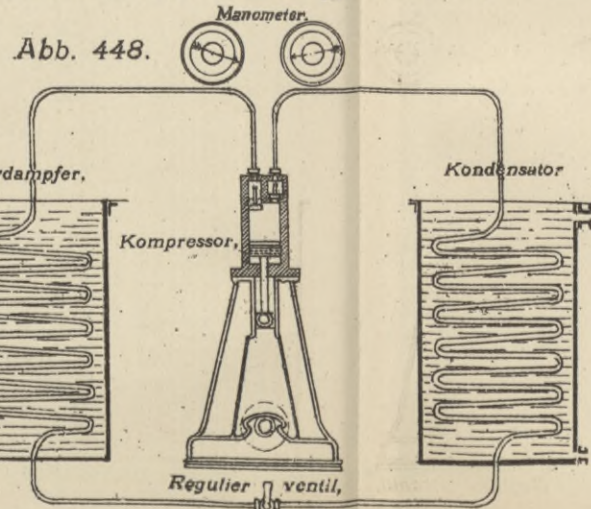
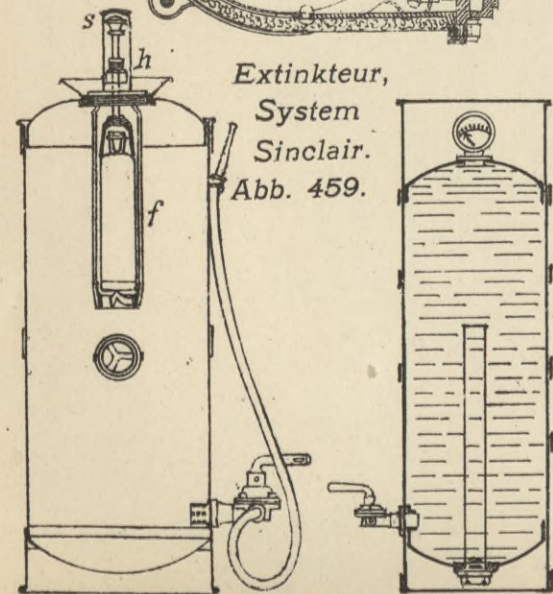
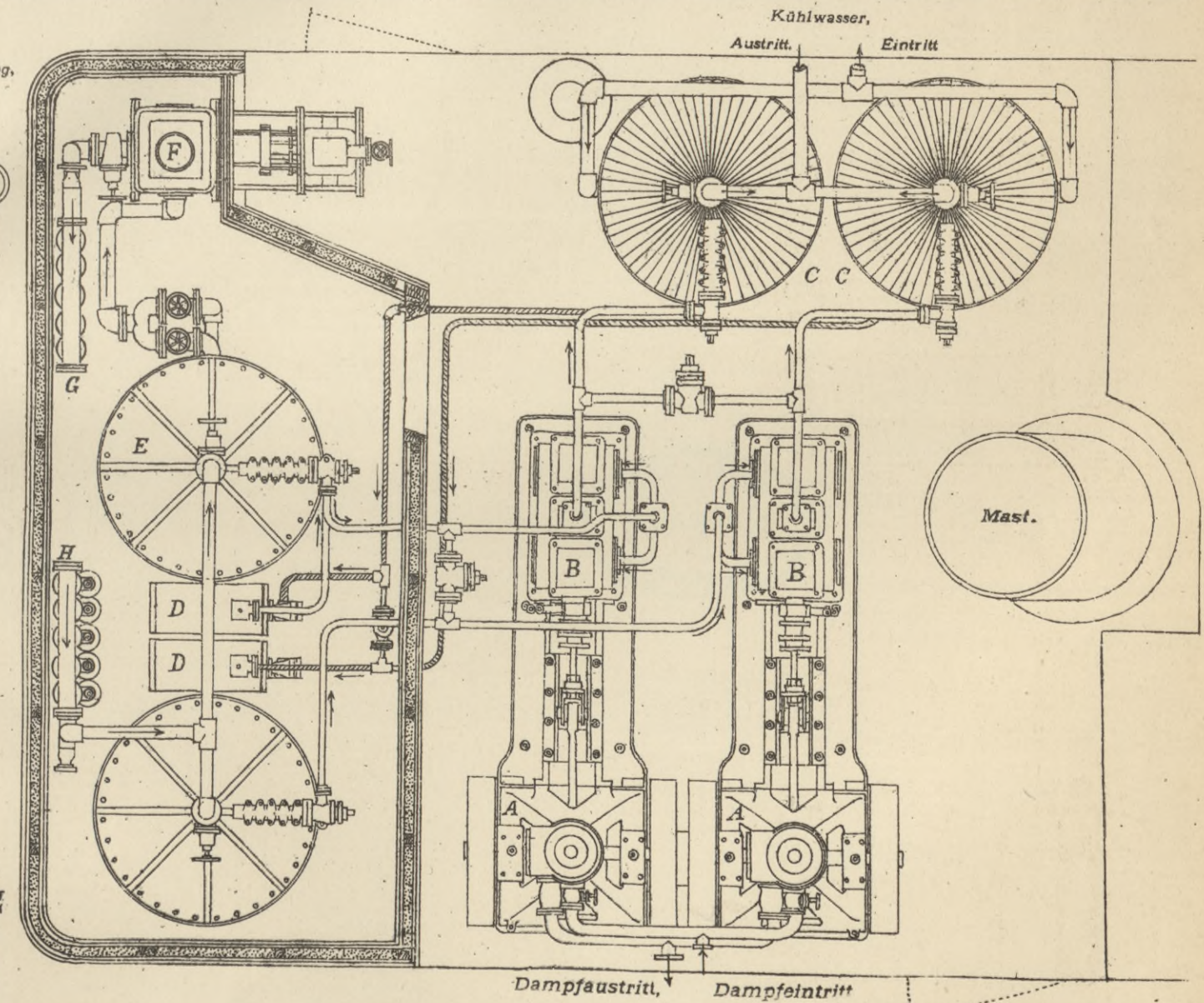
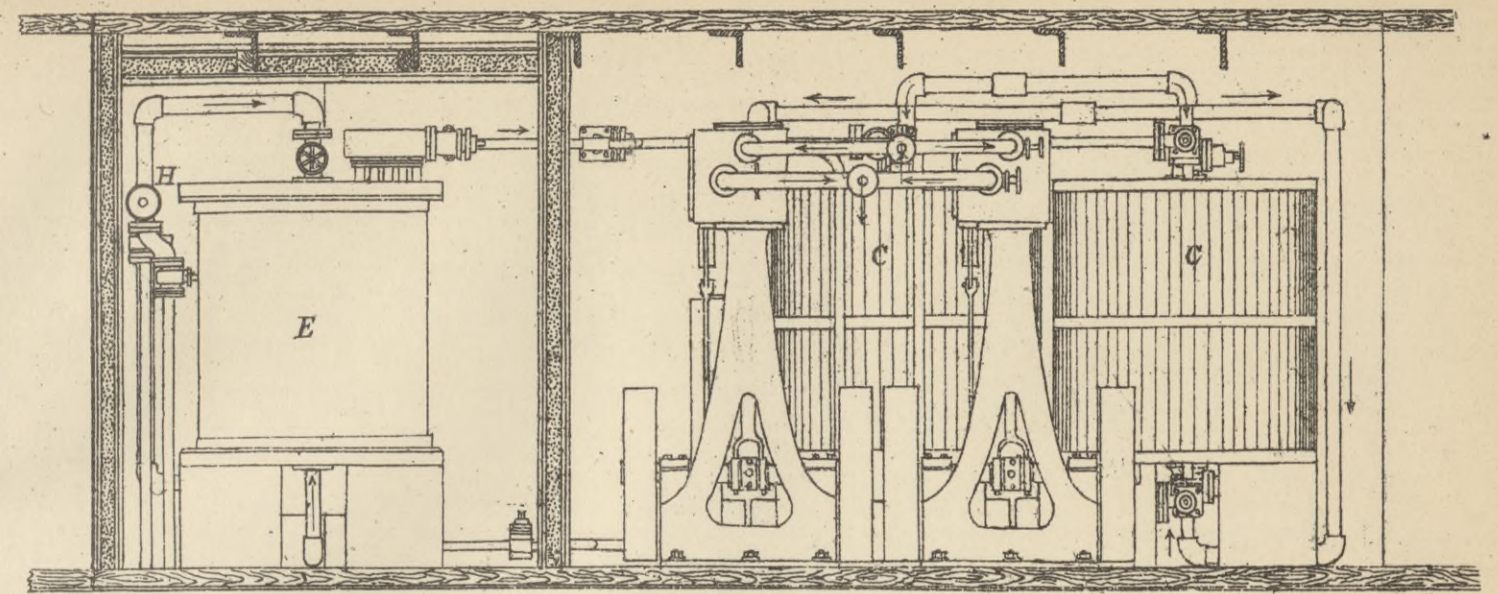
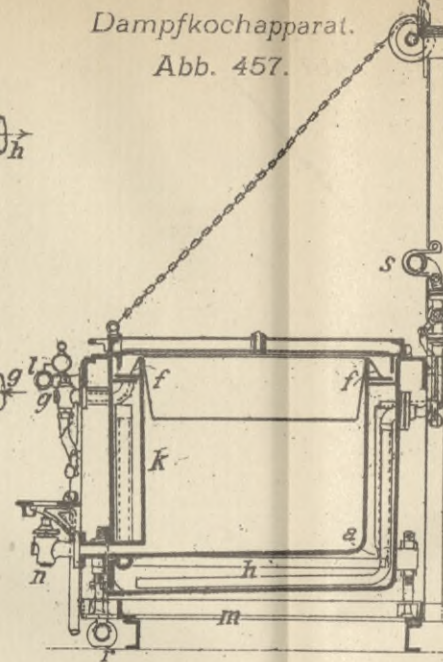


Abb. 448.



Extinkteur,
System
Sinclair.
Abb. 459.

Schematische Darstellung einer Kompressions-Kaltdampfmaschine.

Abb. 441.

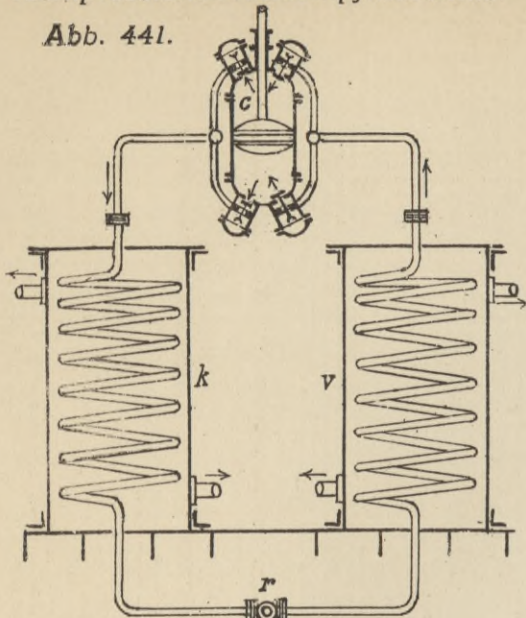


Abb. 442. Kompressorzylinder.

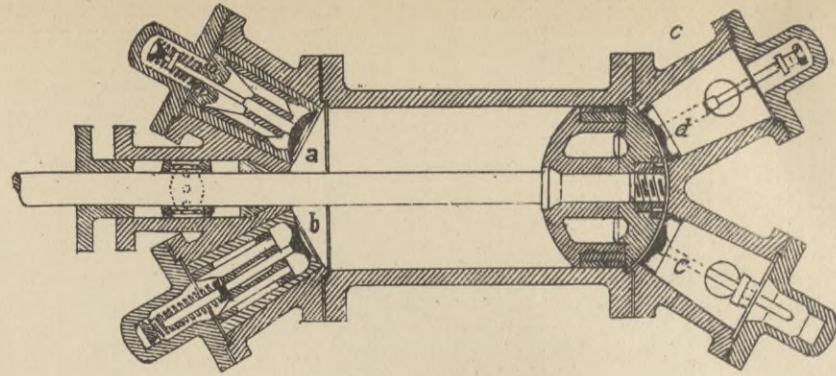
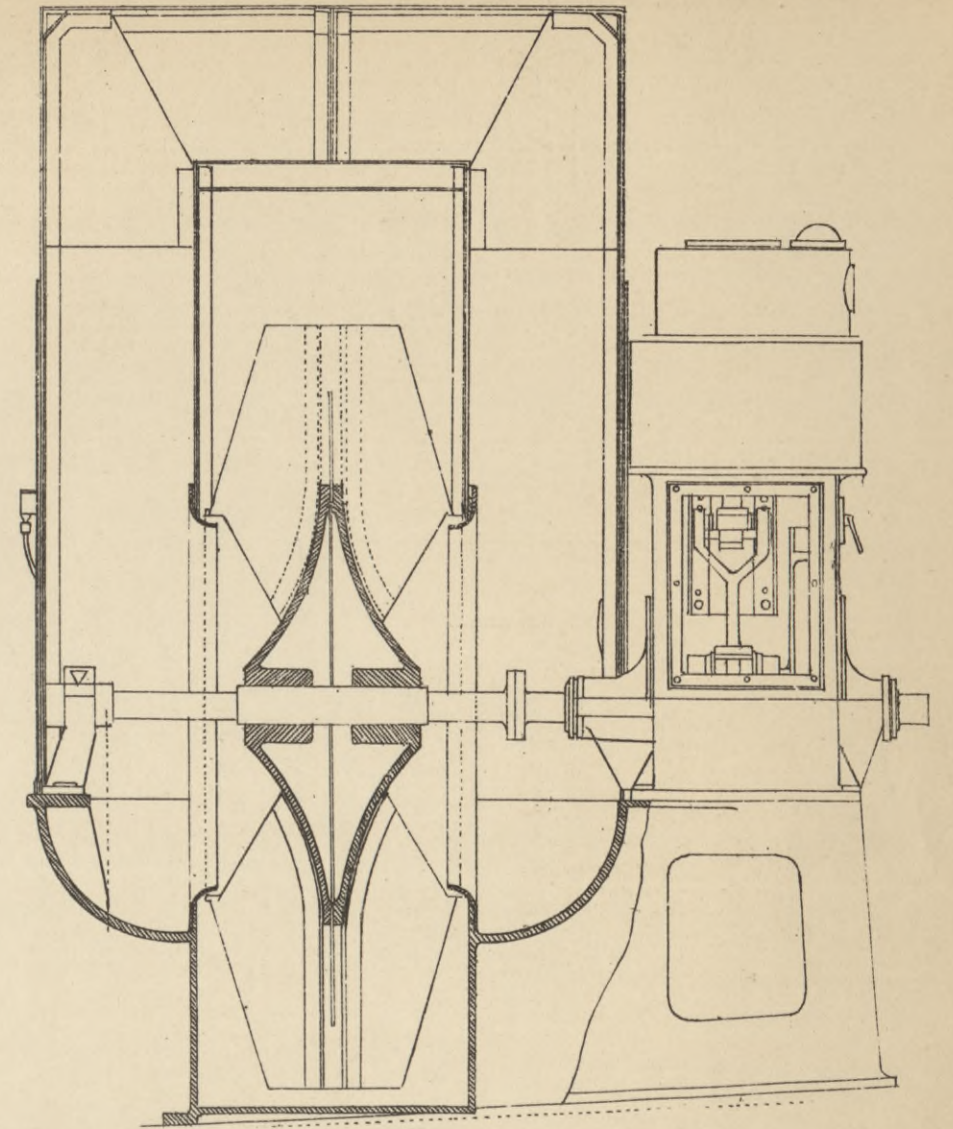
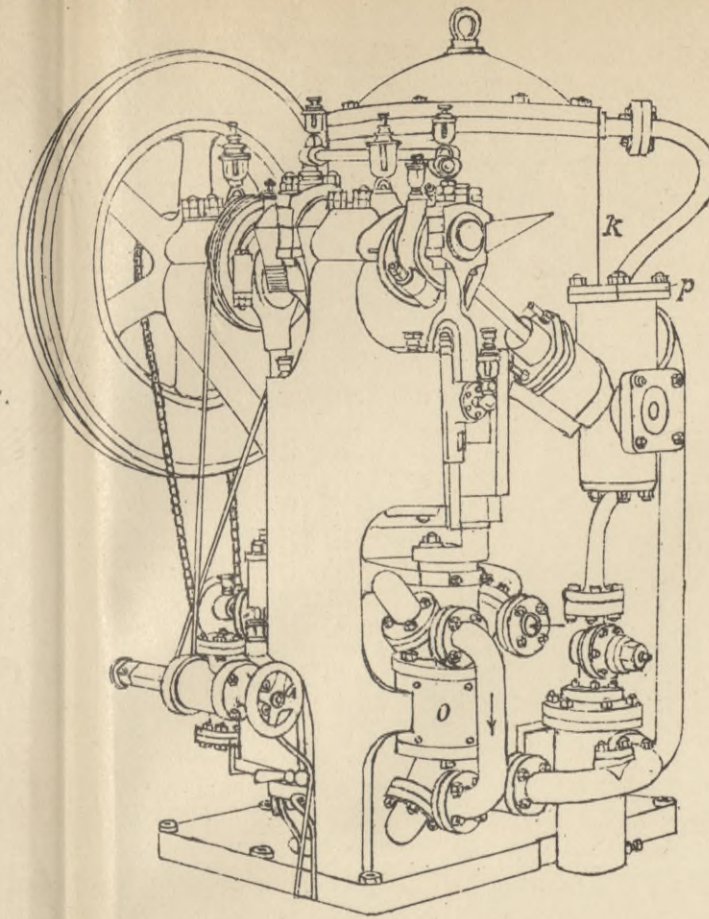


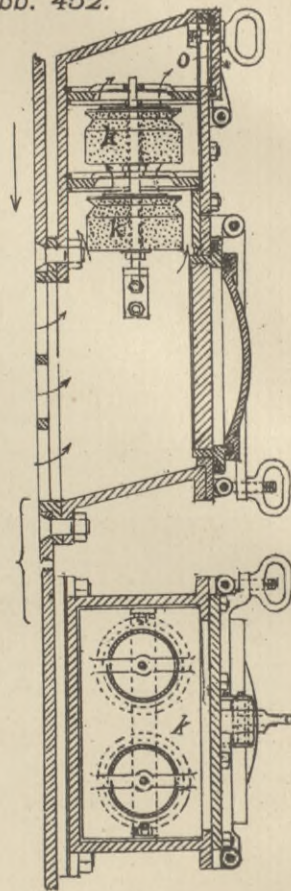
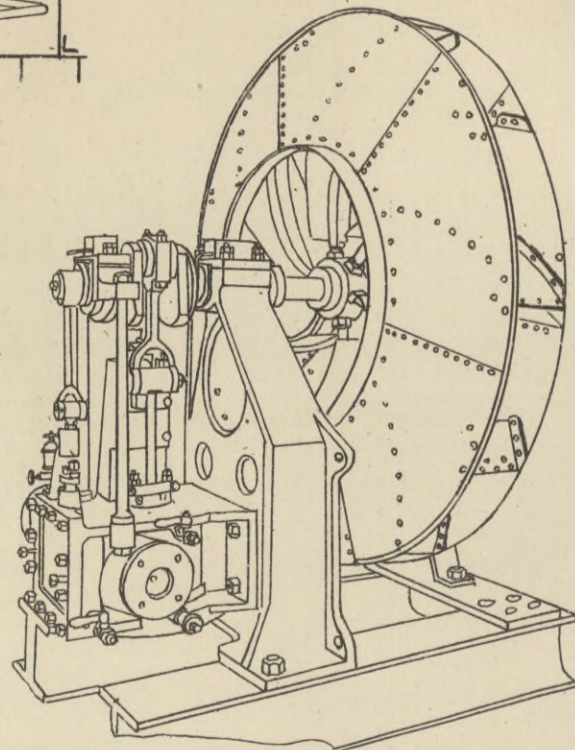
Abb. 446. Schiffskühlmaschinen, System Linde.
Abb. 446 a.



Ventilationseinrichtung von Utley.

Abb. 453. Offener Ventilator.

Abb. 452.



Stopfbüchse für Kompressor.

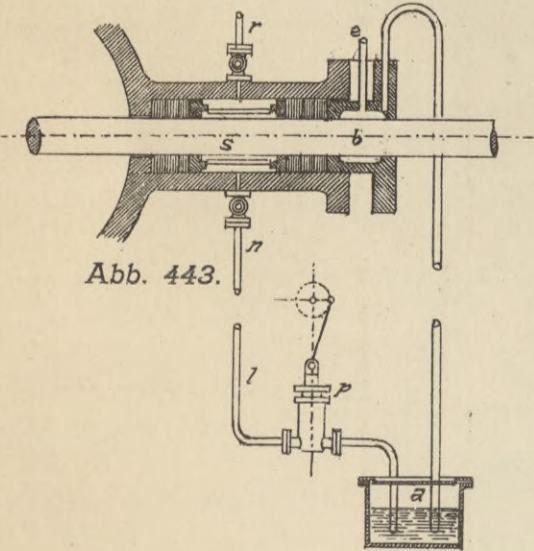


Abb. 446 a.

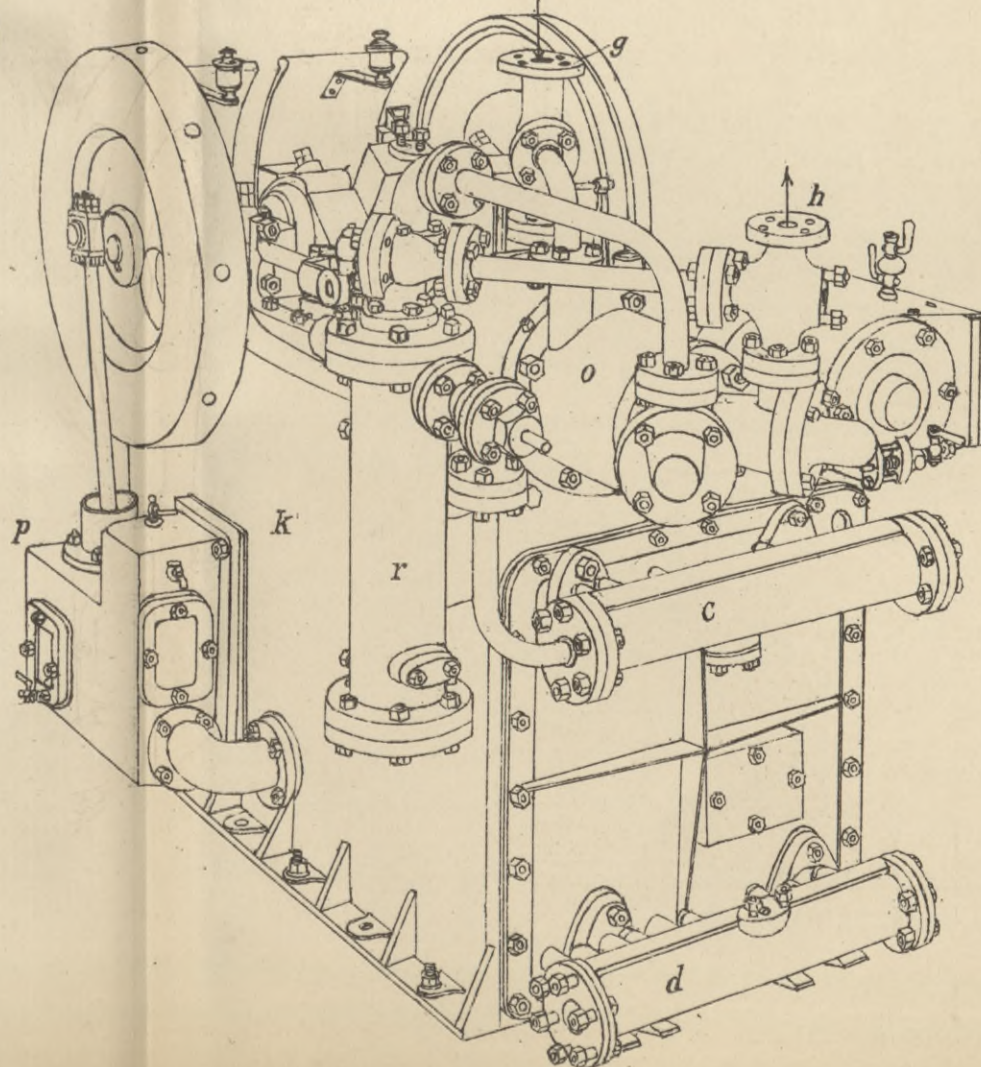
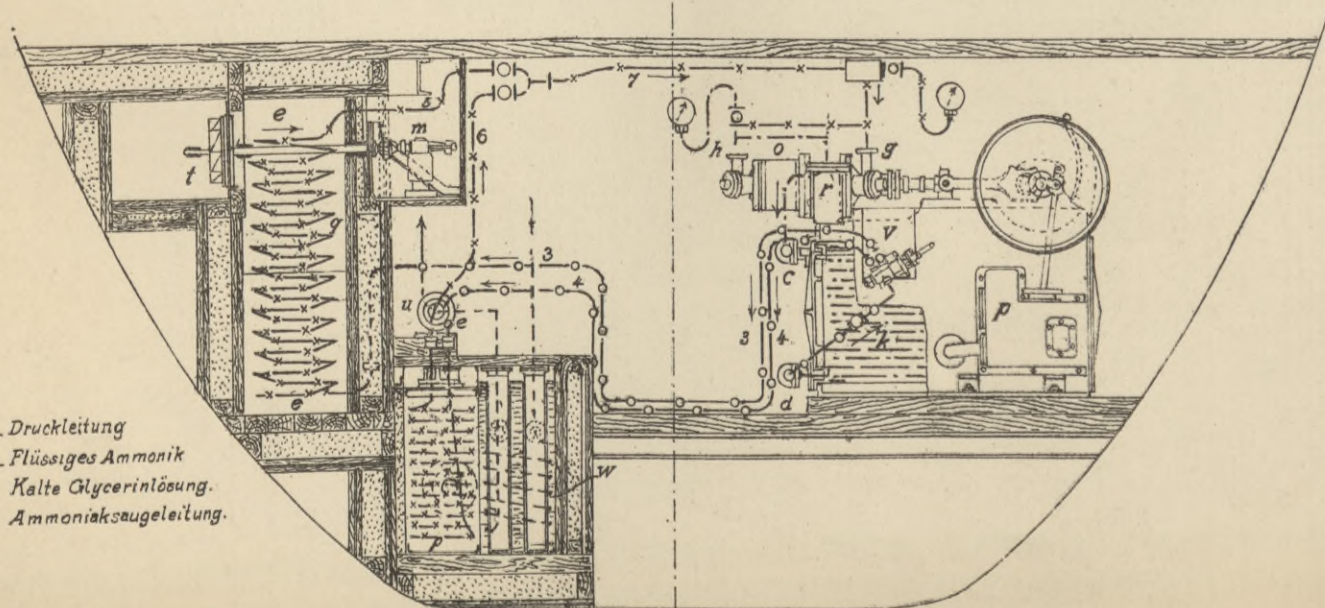


Abb. 445. Kühlanlage.



- Druckleitung
- Flüssiges Ammonik
- Kalte Glycerinlösung.
- x-x Ammoniaksaugleitung.

Regulierventile.

Abb. 444 a.

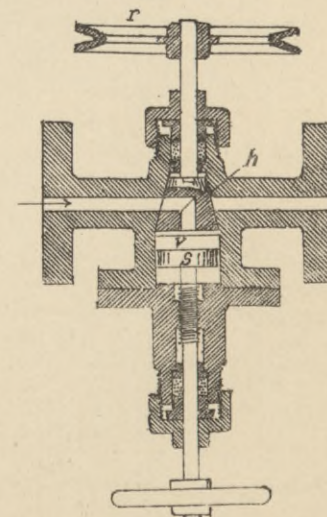
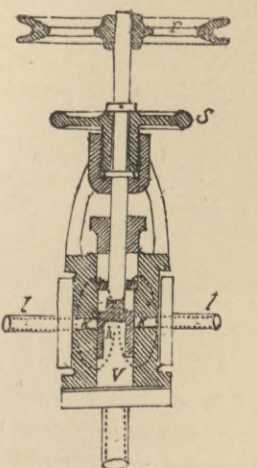
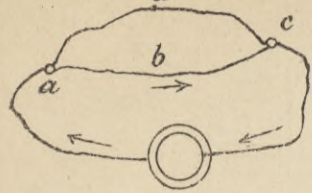


Abb. 444 b.



Stromverzweigung.

Abb. d 460.



Leiter im magnetischen Feld.
Abb. 470.

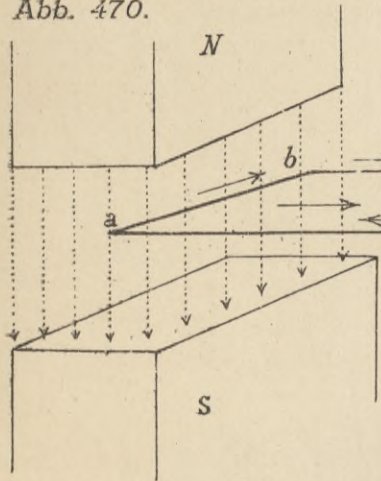
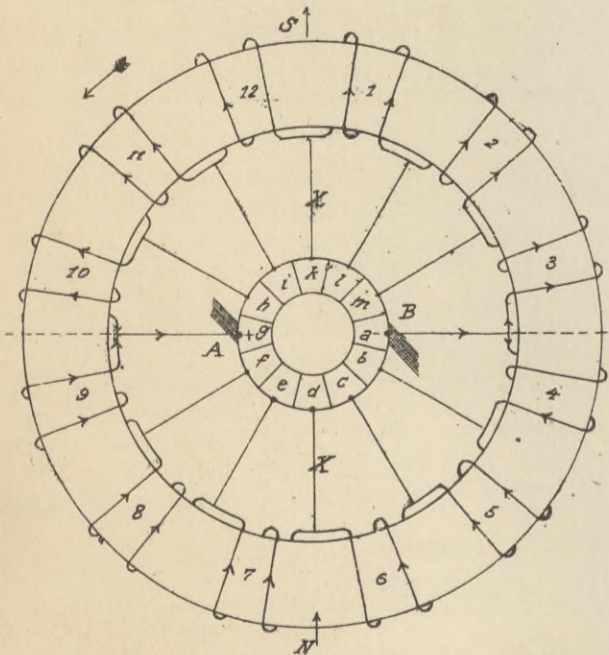


Abb. 479. Zweipoliger Ringanker.



Trommelanker mit Schleifenwicklung (ausgebreitet).
Abb. 483.

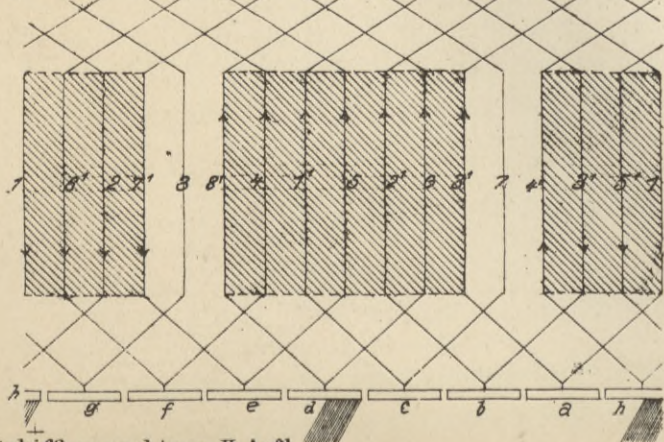


Abb. 461. Parallelschaltung.

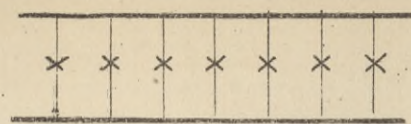
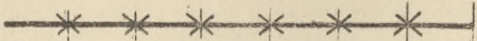


Abb. 462. Hintereinanderschaltung.



Erzeugung von Wechselströmen.

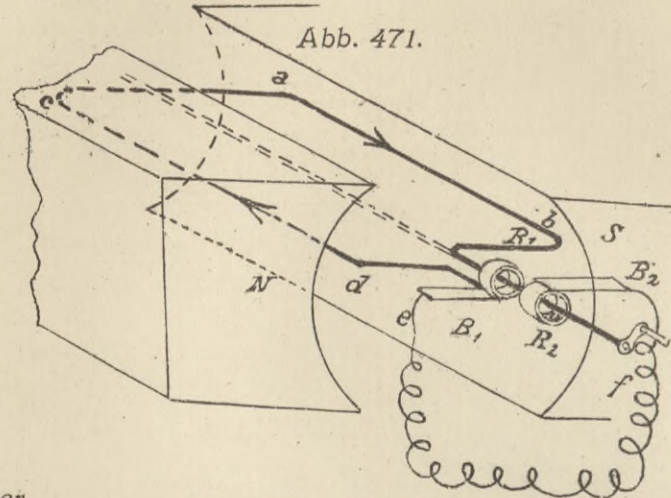


Abb. 480. Vierpoliger Ringanker.

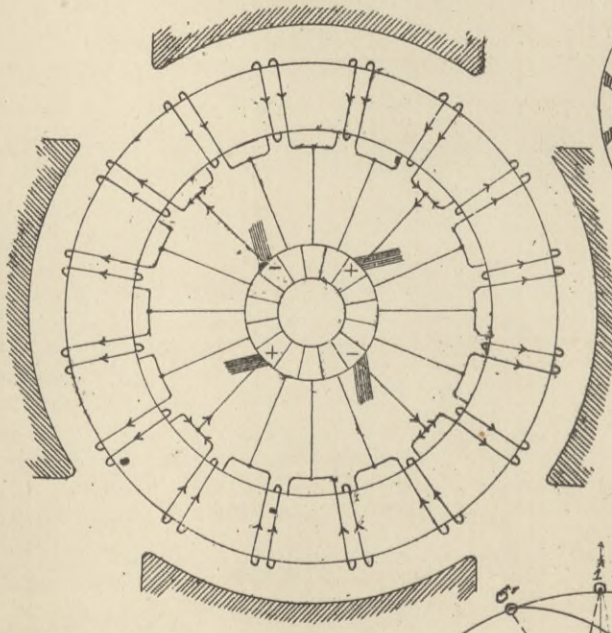


Abb. 482. Trommelanker mit Schleifenwicklung.

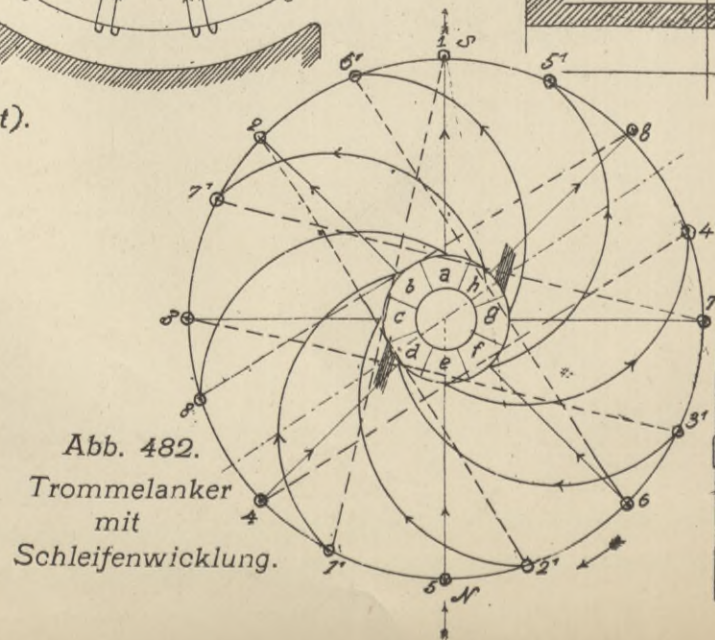


Abb. 463. Verlauf der Kraftlinien.

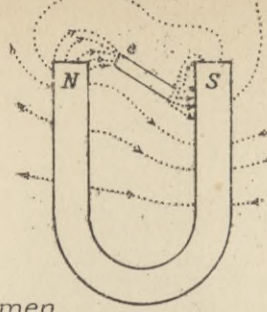
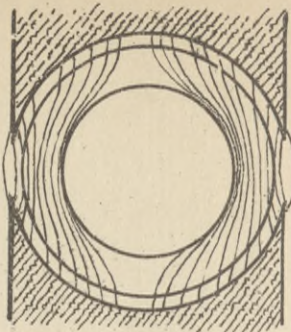


Abb. 464.



Erzeugung von Gleichströmen.
Abb. 472.

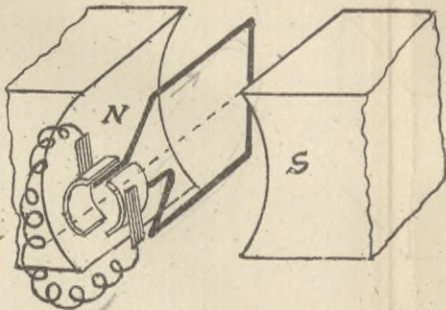


Abb. 481. Wicklung eines Trommelankers.

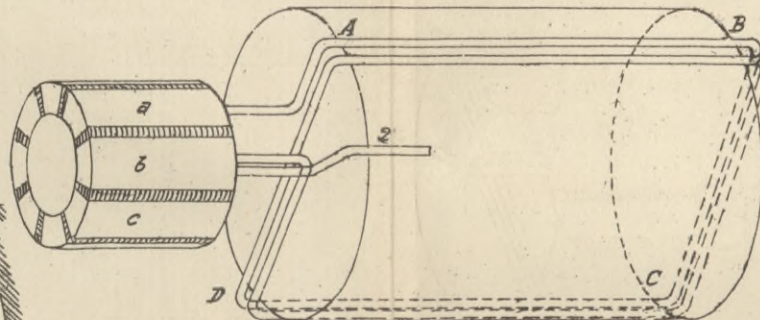


Abb. 475. } Ankerkernkonstruktionen.
Abb. 476. }
Abb. 477. }

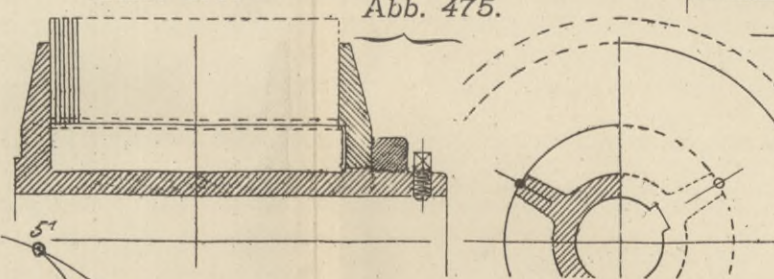


Abb. 476.

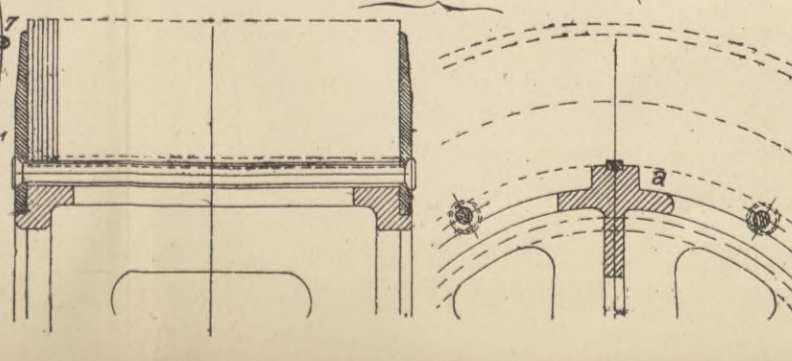


Abb. 465. Anziehung von Kraftlinien.

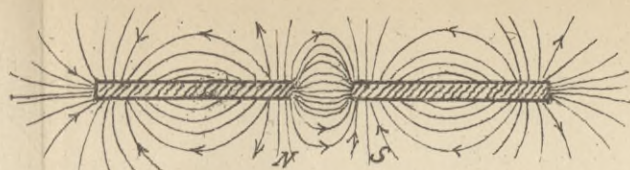
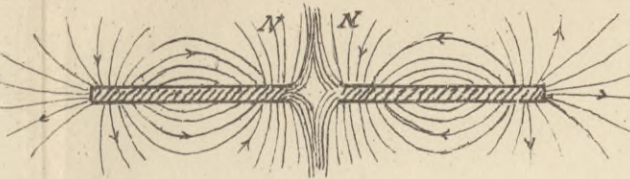
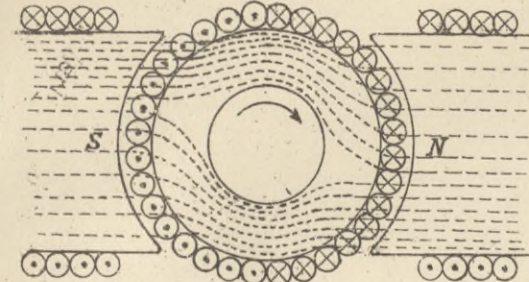


Abb. 466. Abstossung von Kraftlinien.



Stromverlauf im rotierenden Anker.

Abb. 473.



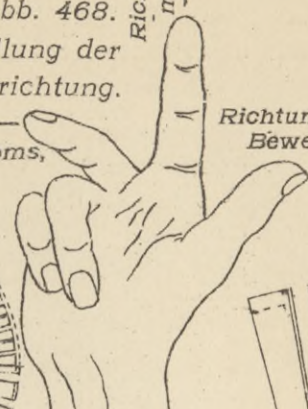
Ablenkung der Magnetnadel durch den elektr. Strom.

Abb. 467.



Abb. 468. Festsstellung der Stromrichtung.

Richtung des induzierten Stroms,



Rechte Hand,

Abb. 474. Trommelanker mit Kollektor.

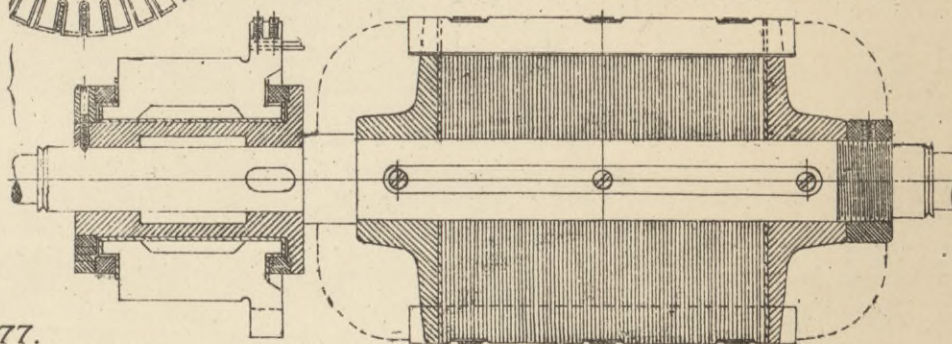
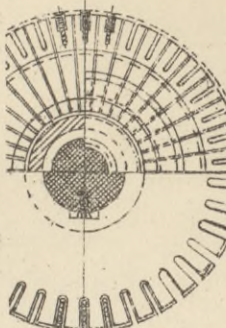
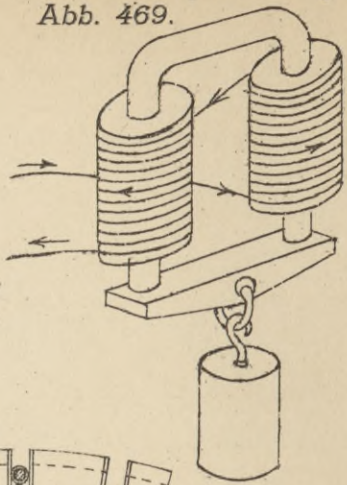


Abb. 477.

Elektromagnet Tafel 51.
Abb. 469.



Formen von Draht- und Stabwicklungen.
Abb. 484 a bis h.

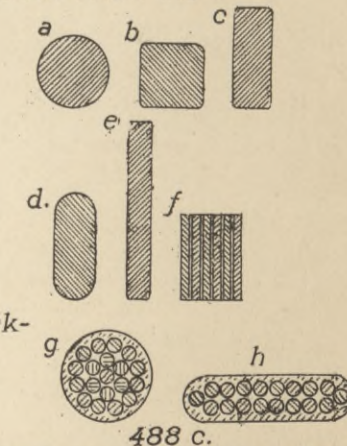


Abb. 485. } Ankerbewicklungen.
Abb. 486. }
Abb. 487. }

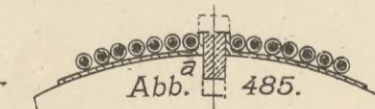


Abb. 488 a. } Ankerbewicklungen.
Abb. 488 b. }
Abb. 488 c. }

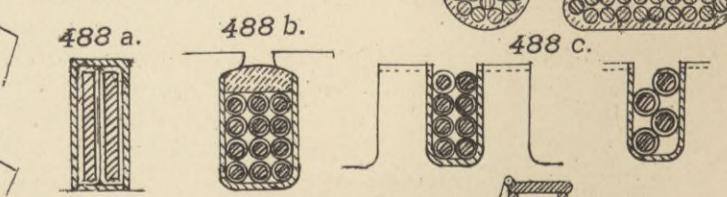


Abb. 478. Lager mit Ringschmierung.

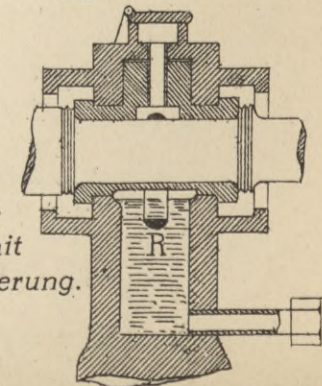


Abb. 489. Kollektor.

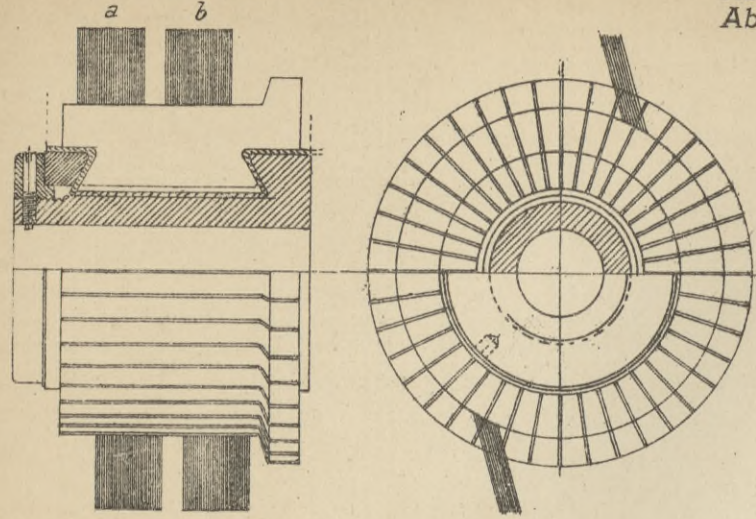


Abb. 490. } Befestigung von Kollektorlamellen.
Abb. 491. }

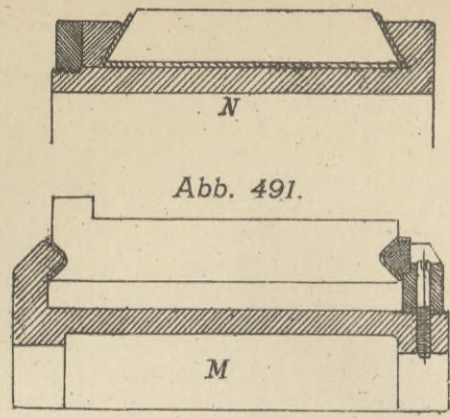


Abb. 491.

Abb. 497. Schaltung einer Nebenschlussmaschine.

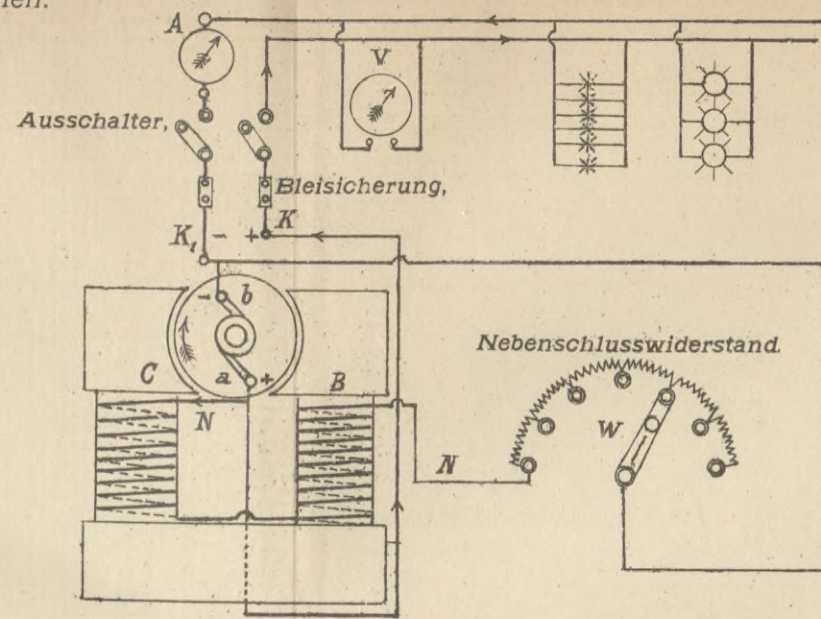


Abb. 492. Trommelanker mit Kollektor.

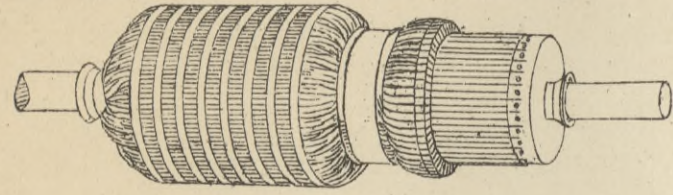


Abb. 494. Zweipolige Feldmagnete.

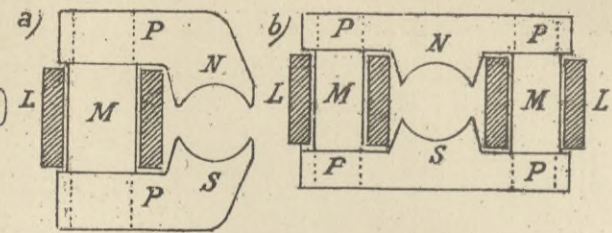


Abb. 493. Bürstenhalter.

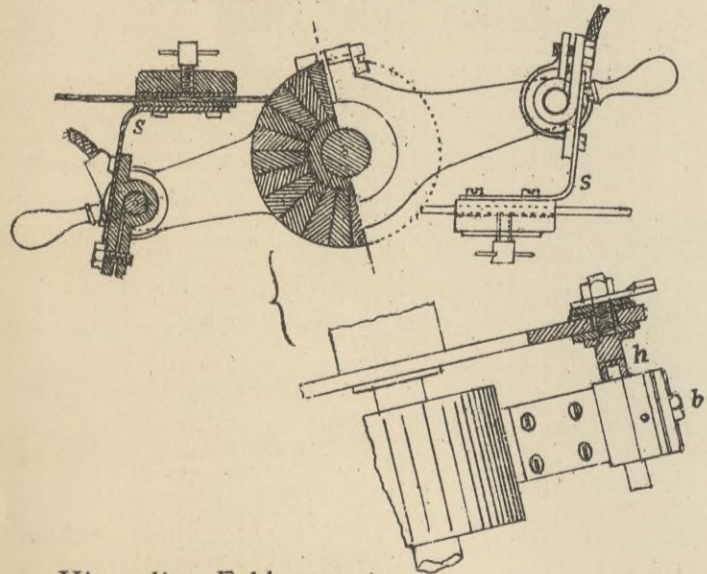
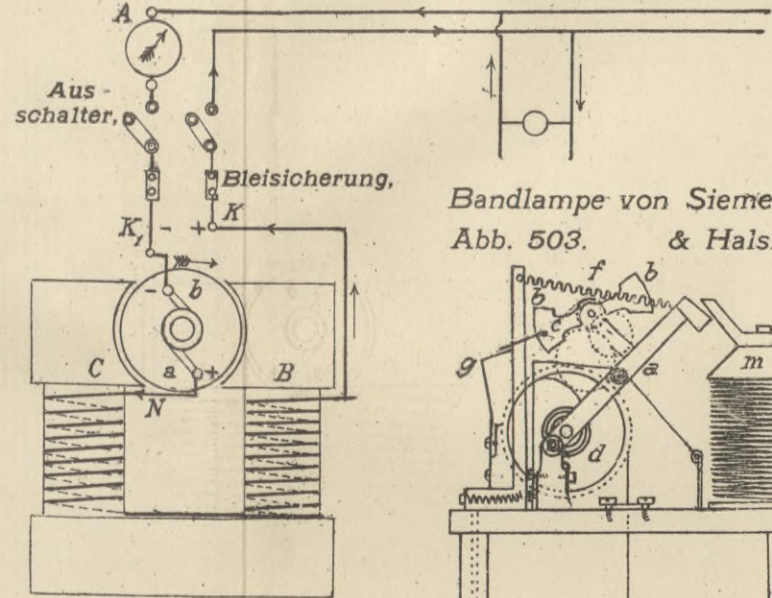
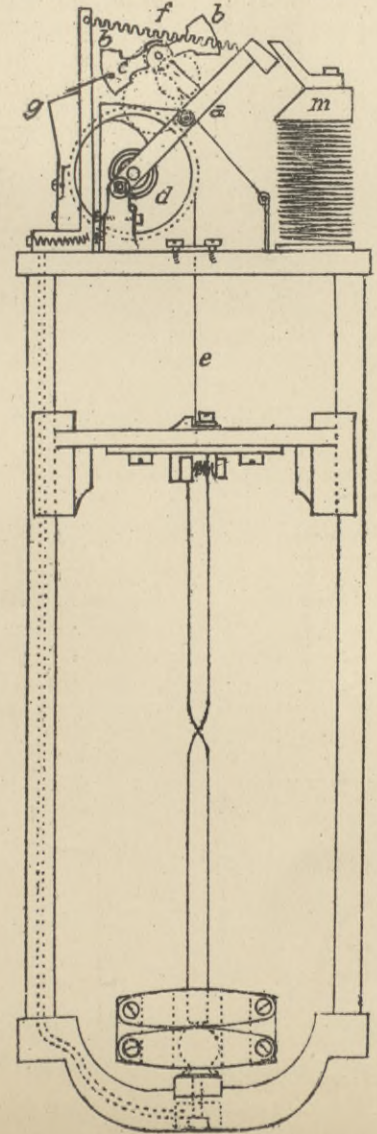


Abb. 496. Hauptstrommaschine.



Bandlampe von Siemens & Halske.
Abb. 503.



Nebenschlusslampe von Körtling & Mathiesen.

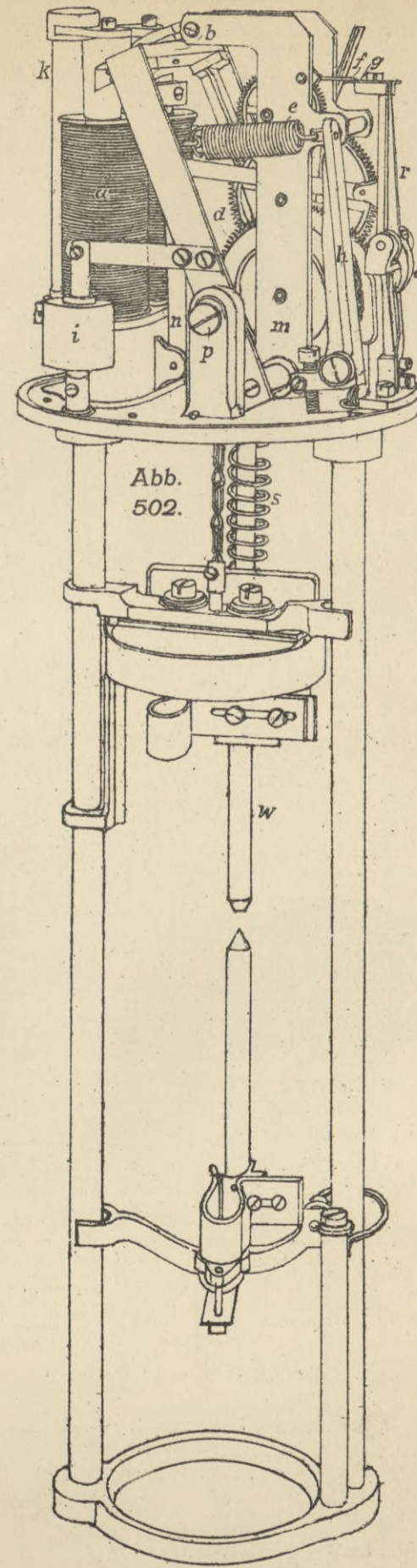
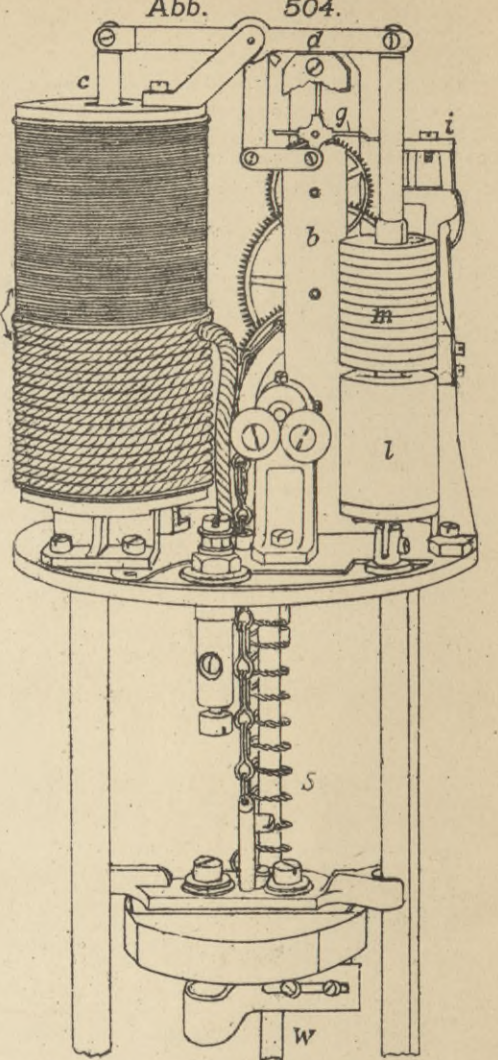
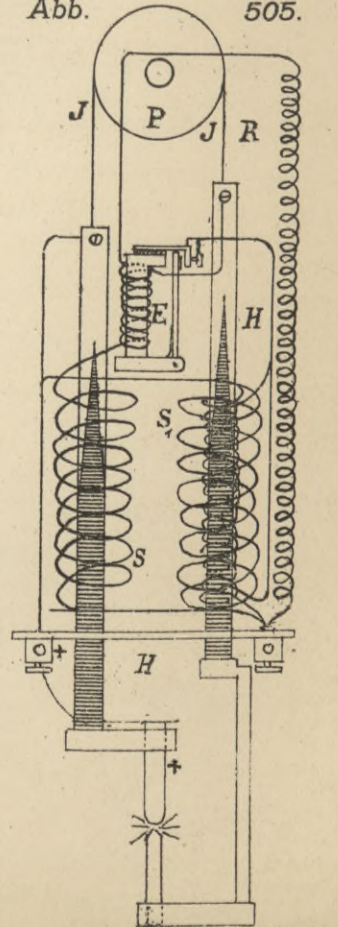


Abb. 502.

Differentiallampe von Körtling & Mathiesen.
Tafel 52
Abb. 504.



Bogenlampe, System Krizik.
Abb. 505.



Vierpolige Feldmagnete.
Abb. 495.

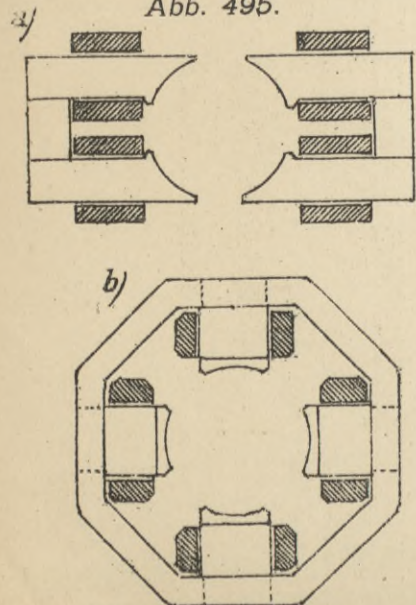
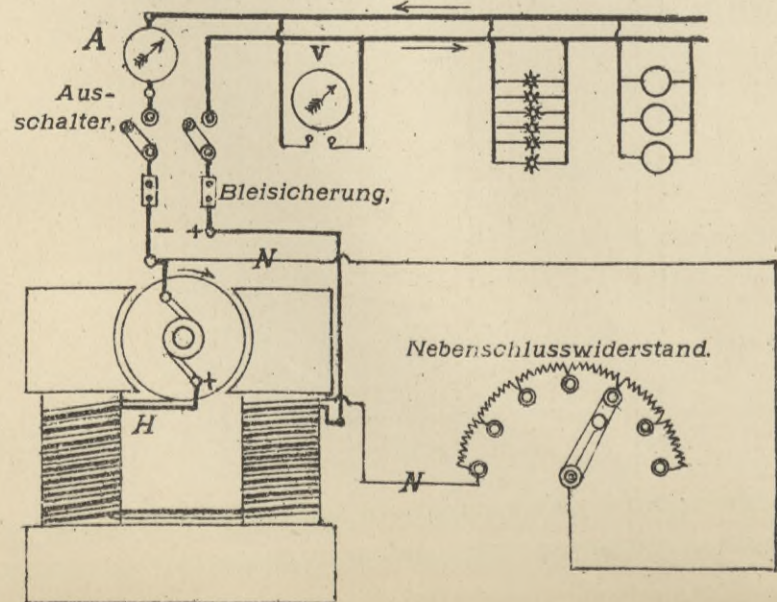


Abb. 498. Gleichspannungsmaschine.



Differentialregulierung nach
Abb. 501. Hofner-Alteneck.

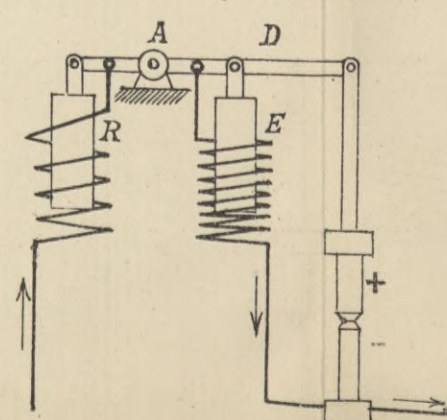
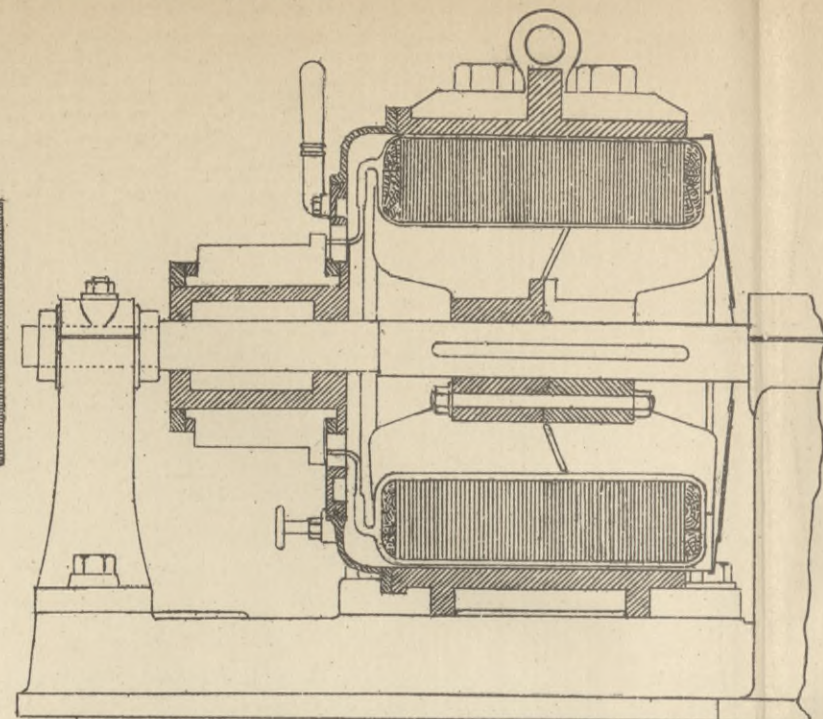
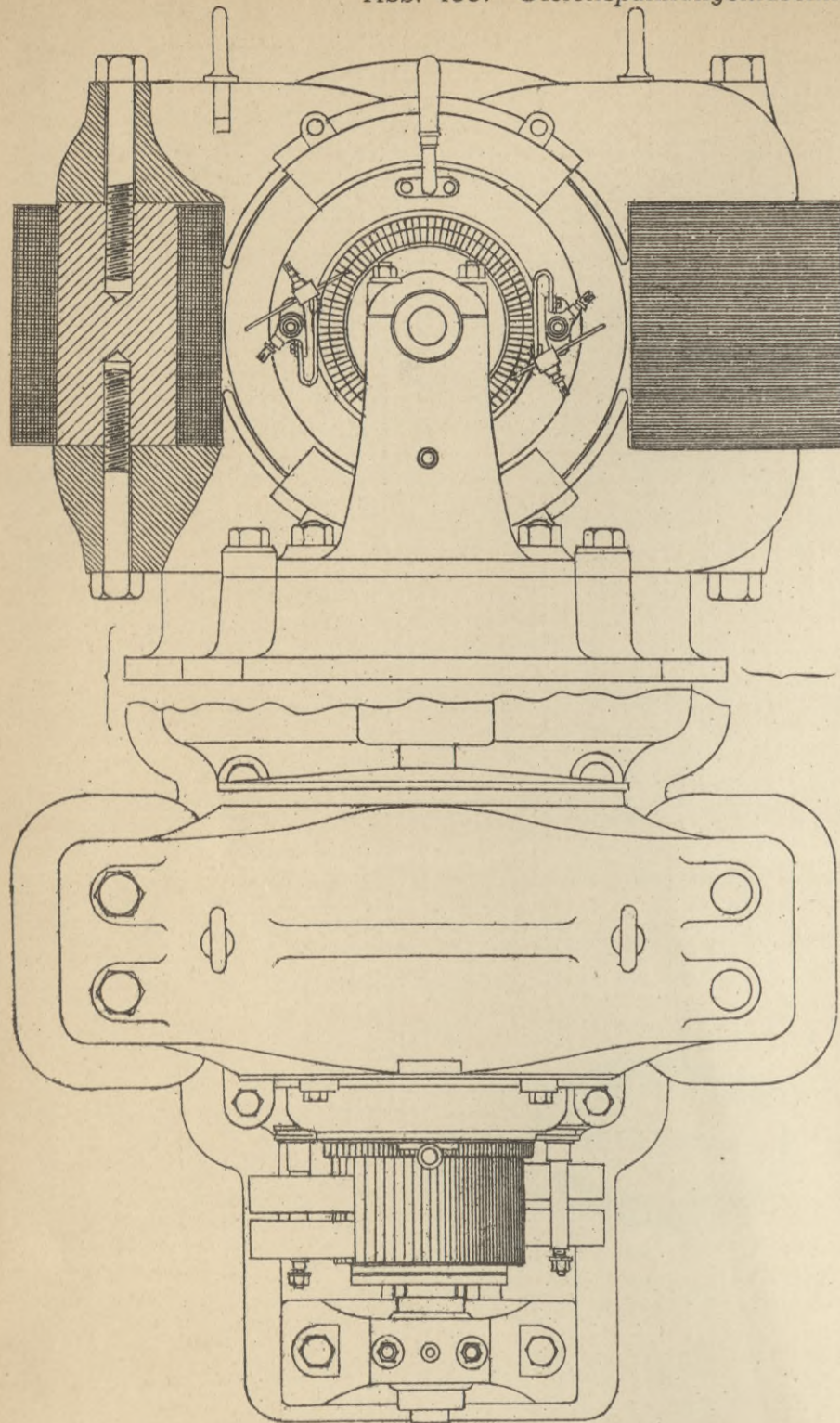


Abb. 499. Gleichspannungsmaschine von Schuckert & Co.



Wicklung der Electromagnete.

Abb. 499a

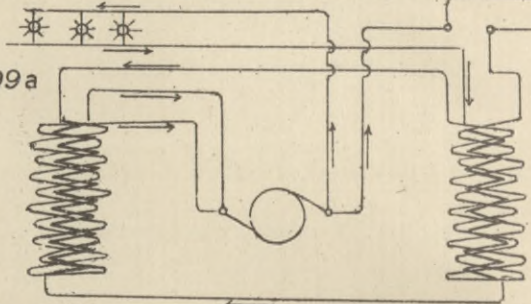


Abb. 499b

Wicklung des Ankers.

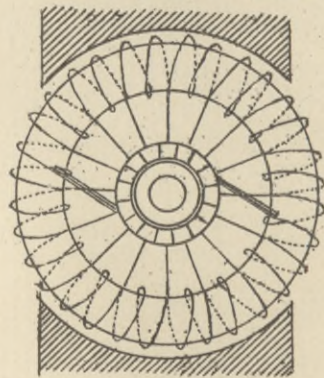


Abb. 511. Hintereinanderschaltung von Lampen.

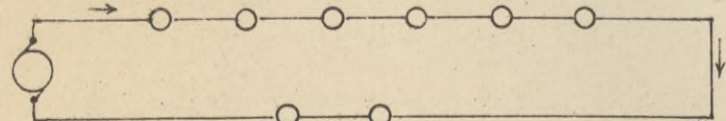
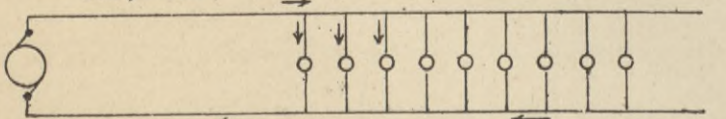


Abb. 512. Nebeneinanderschaltung.



Stromvertheilung nach dem Dreileitersystem.

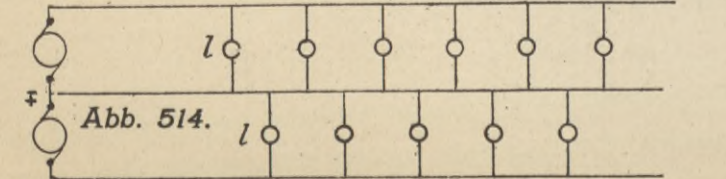


Abb. 514.

Abb. 513. Gegenschaltung.

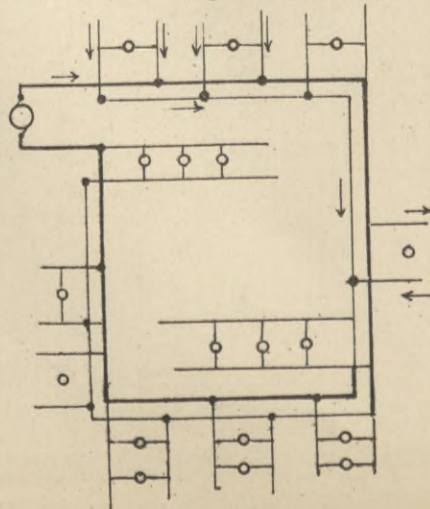


Abb. 507. Handlampe.

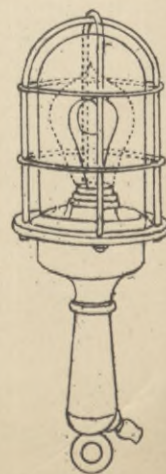
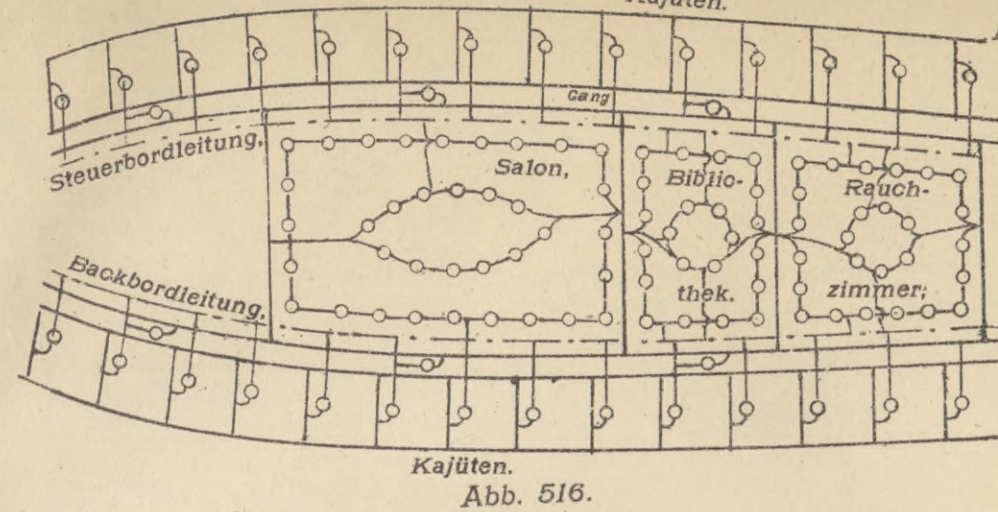


Abb. 515. } Stromvertheilung.
Abb. 516. } Kajüten.



Kajüten.
Abb. 516.

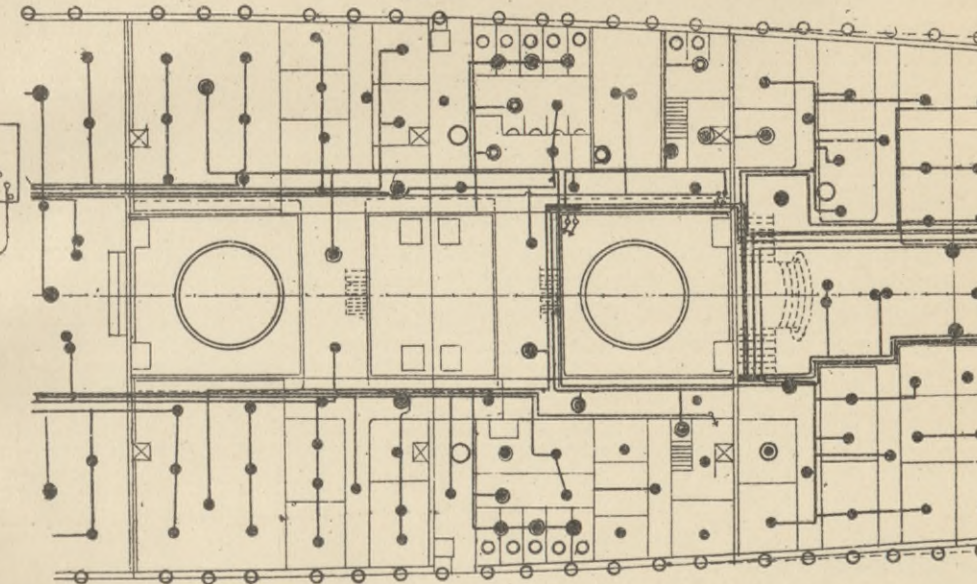


Abb. 509. Laderaumlampe.

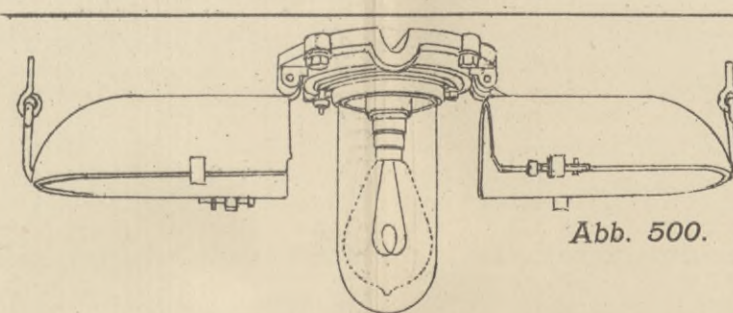


Abb. 510. Anschlussklemme.

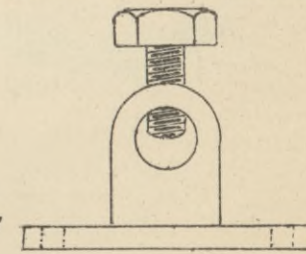
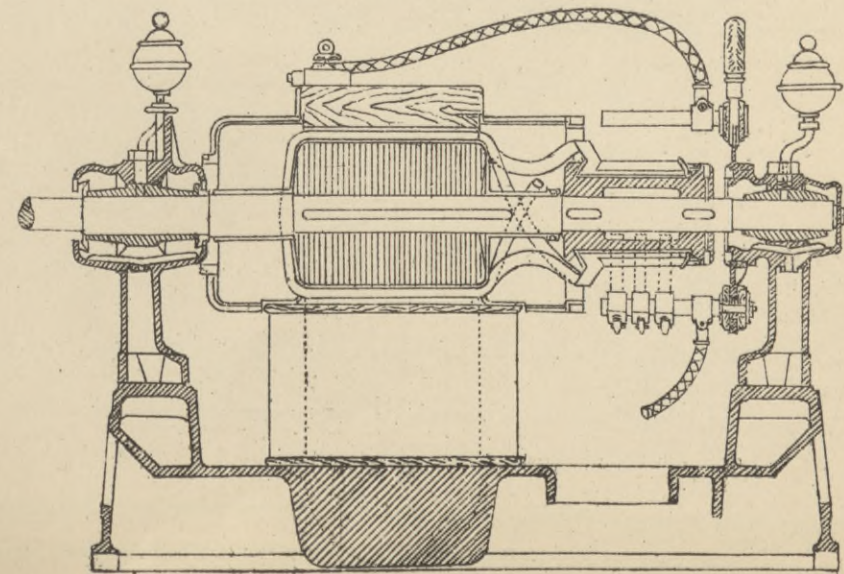


Abb. 500. Dynamomaschine mit Trommelanker von Siemens & Halske.



Tafel 53
Maschinenraum Zwischendecklampe.
Abb. 506. Lampe. Abb. 508.

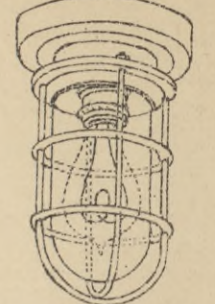
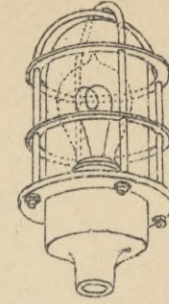


Abb. 520. Führungsstücke
Abb. 521. für Leitungen.
Abb. 522.

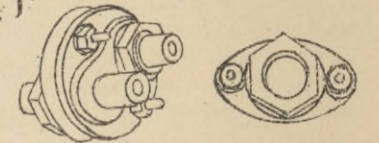


Abb. 521.

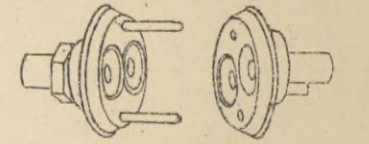
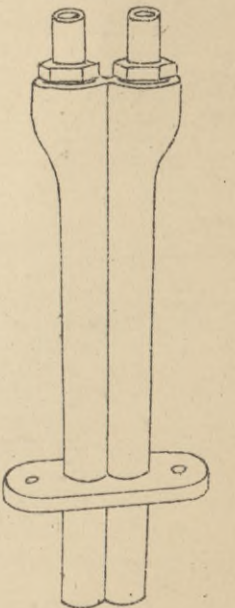
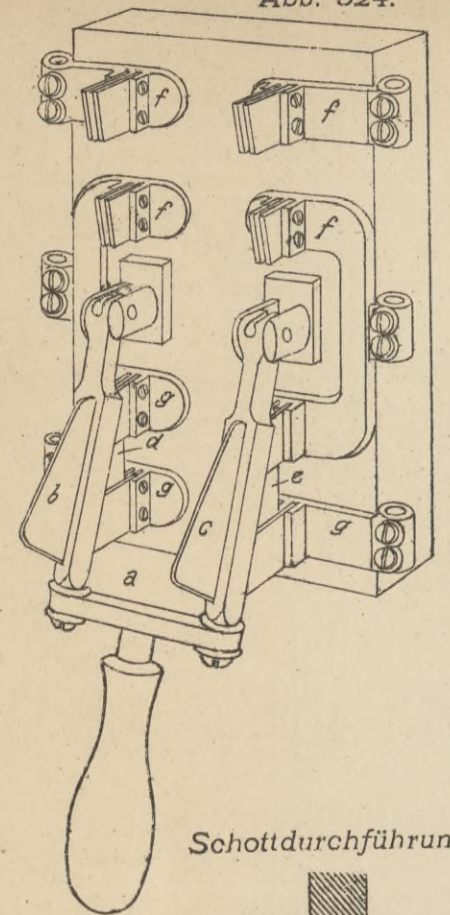


Abb. 522.



Zweipoliger Ausschalter. Abb. 524.



Einpoliger Ausschalter. Abb. 523.

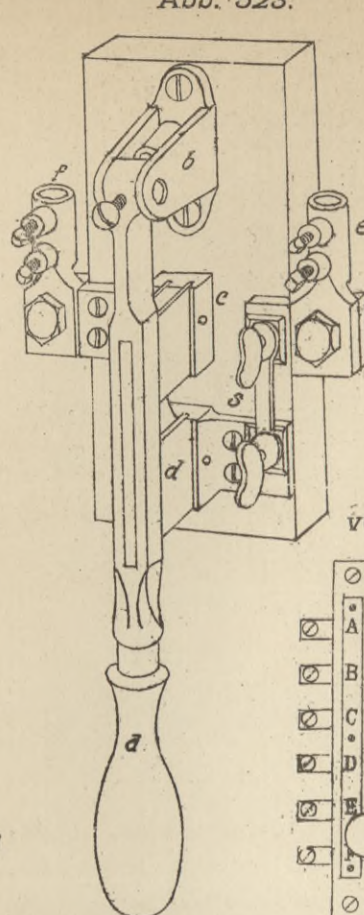


Abb. 518. Bleisicherungen.

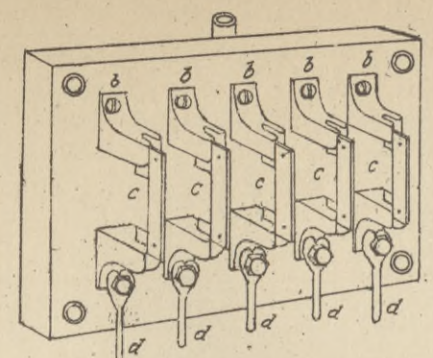
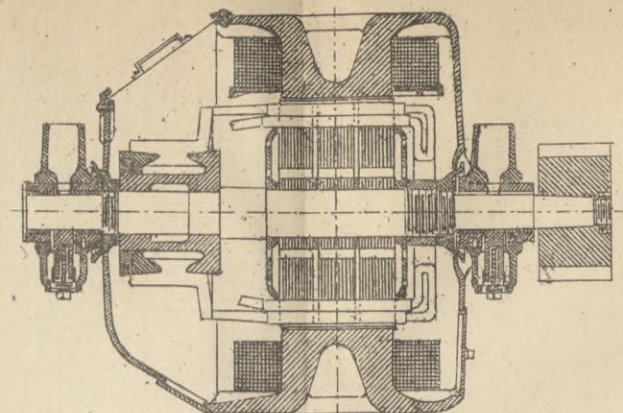


Abb. 531. Elektromotor.



Zweifach-Expansionsmaschine für Dynamoantrieb. Abb. 541.

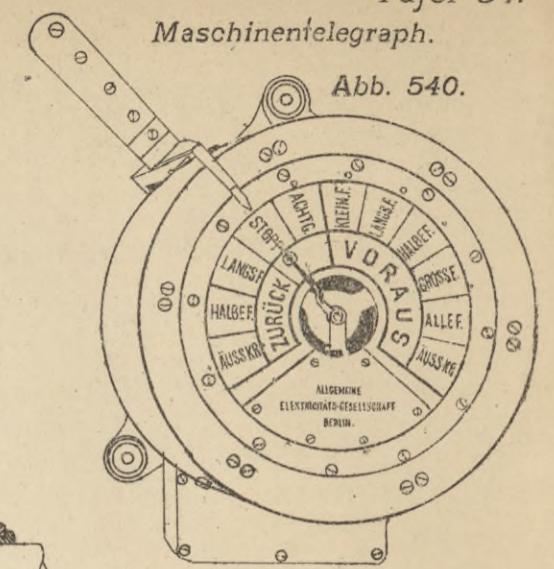
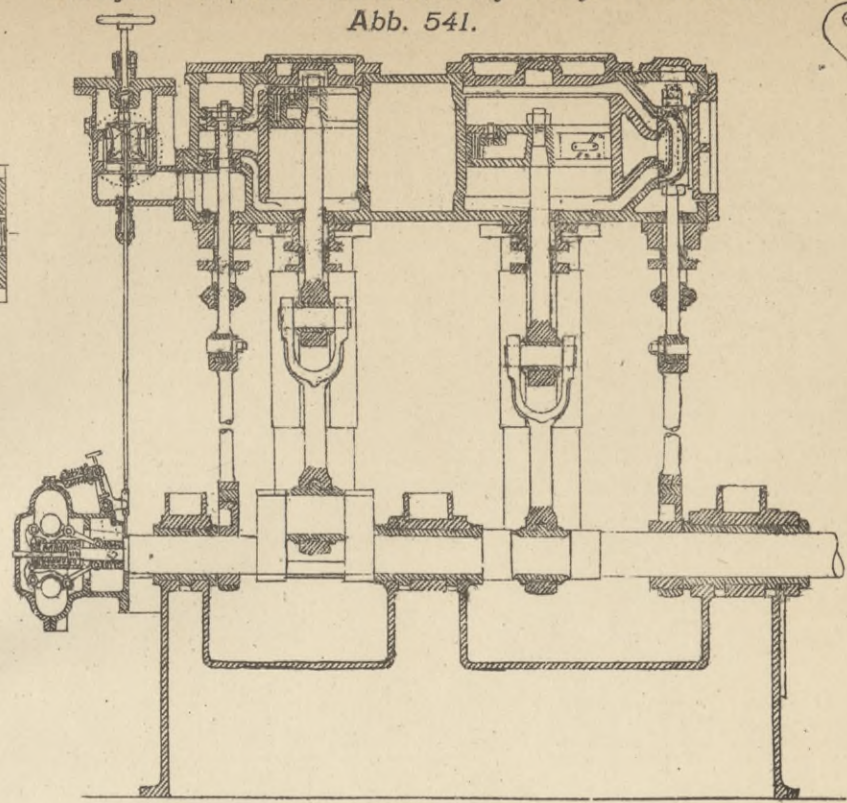
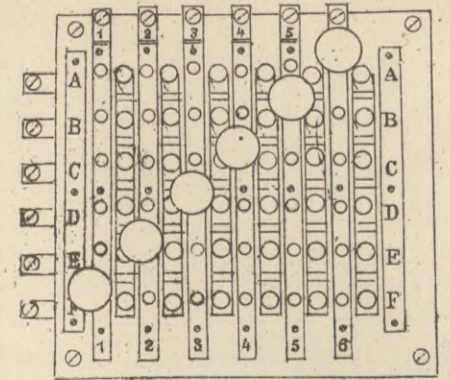
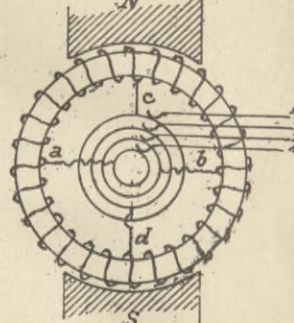


Abb. 540.

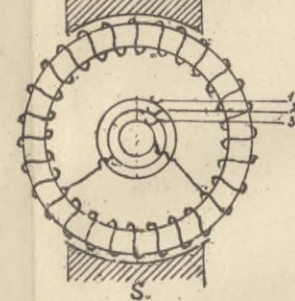
Generalumschalter von Siemens & Halske.



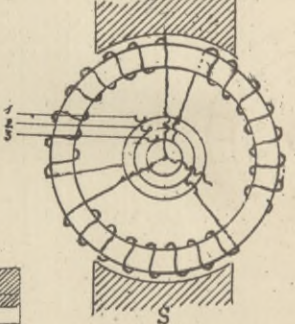
Zweiphasenstrom. Abb. 532.



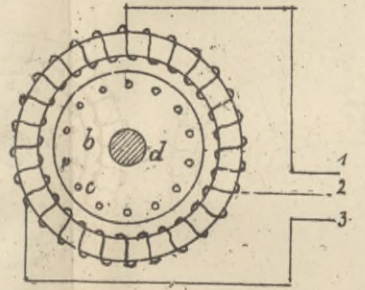
Dreieckschaltung. Abb. 533.



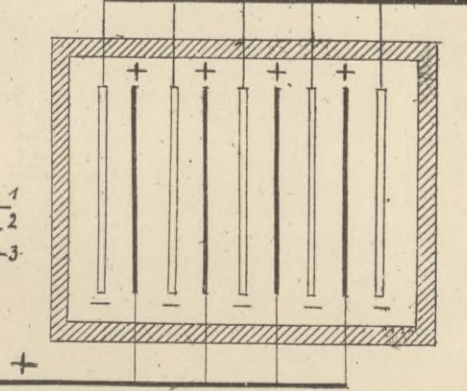
Sternschaltung. Abb. 534.



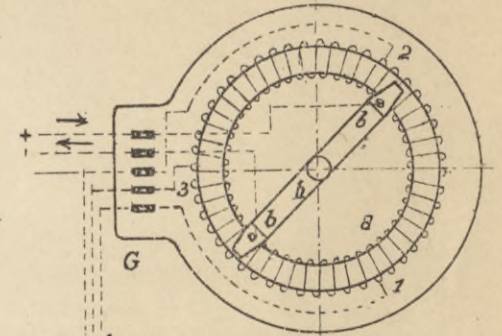
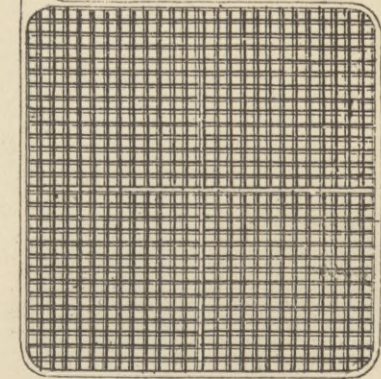
Drehstromelektromotor. Abb. 535.



Akkumulatorschaltung. Abb. 542.



Akkumulatorplatte. Abb. 543.



Drehstromfernzeiger.

Abb. 539.

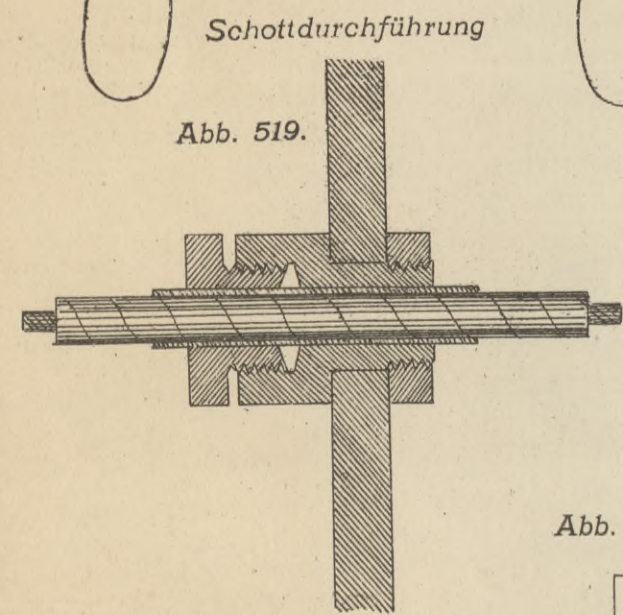
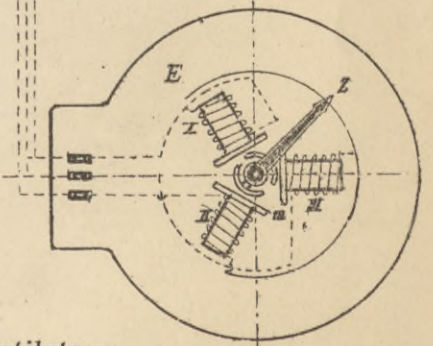


Abb. 519.

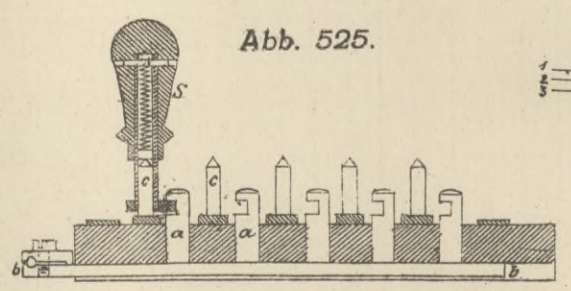
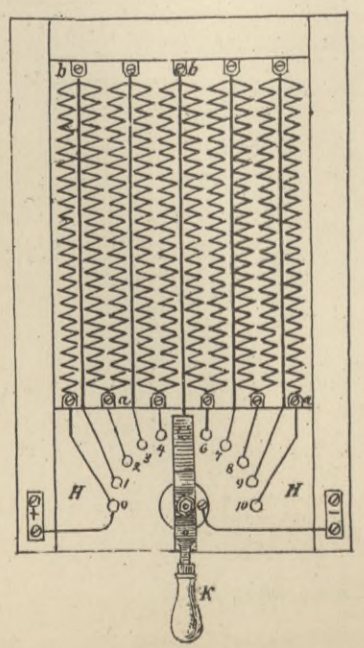


Abb. 525.

Abb. 526. Regulierwiderstand.



Ampèremeter und Voltmeter.

Abb. 527.

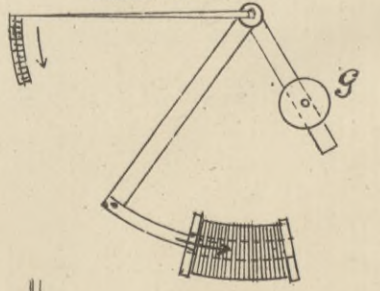
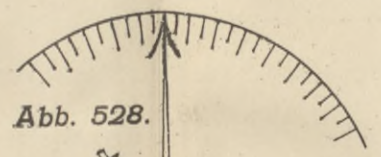
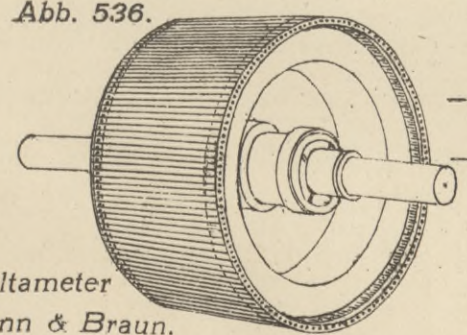


Abb. 528.



Hitzdrahtvoltmeter von Hartmann & Braun.



Anker eines Drehstrommotors. Abb. 536.

Erzeugung eines Drehfeldes.

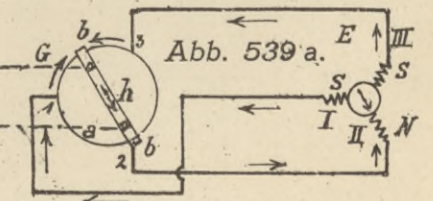


Abb. 538. Elektrischer Ventilator.

Verbindung von Leitungsdrähten. Abb. 517.

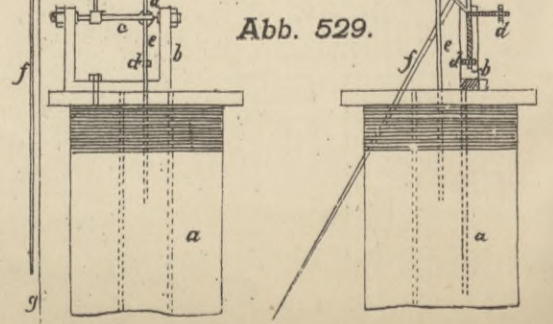
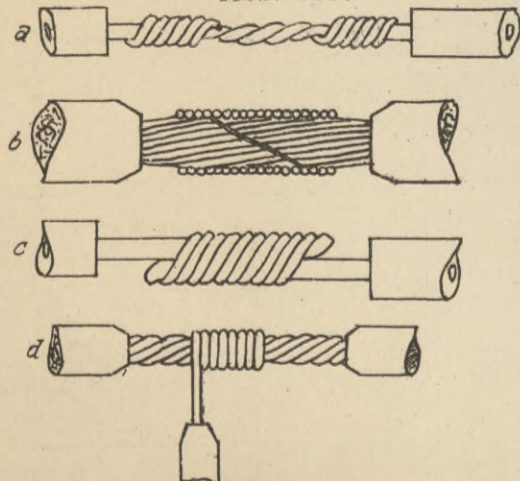


Abb. 529.

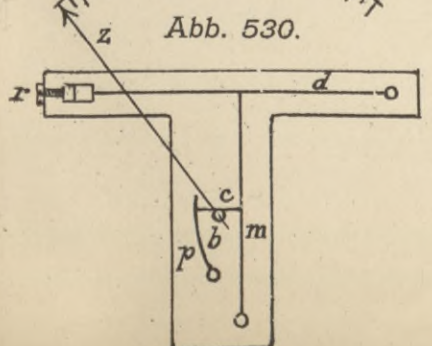
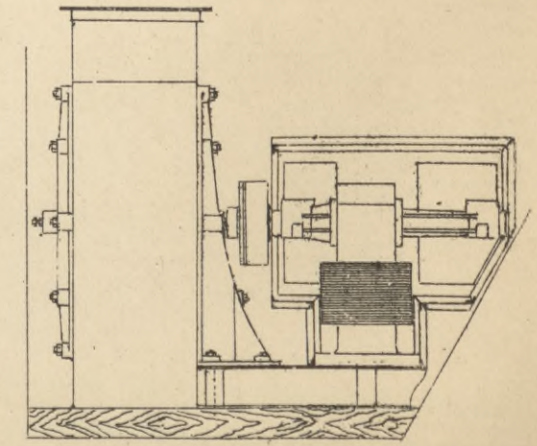
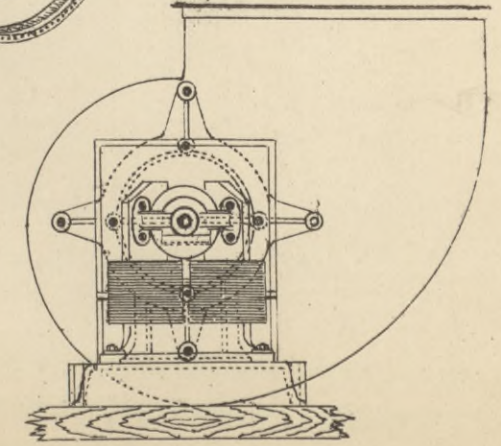
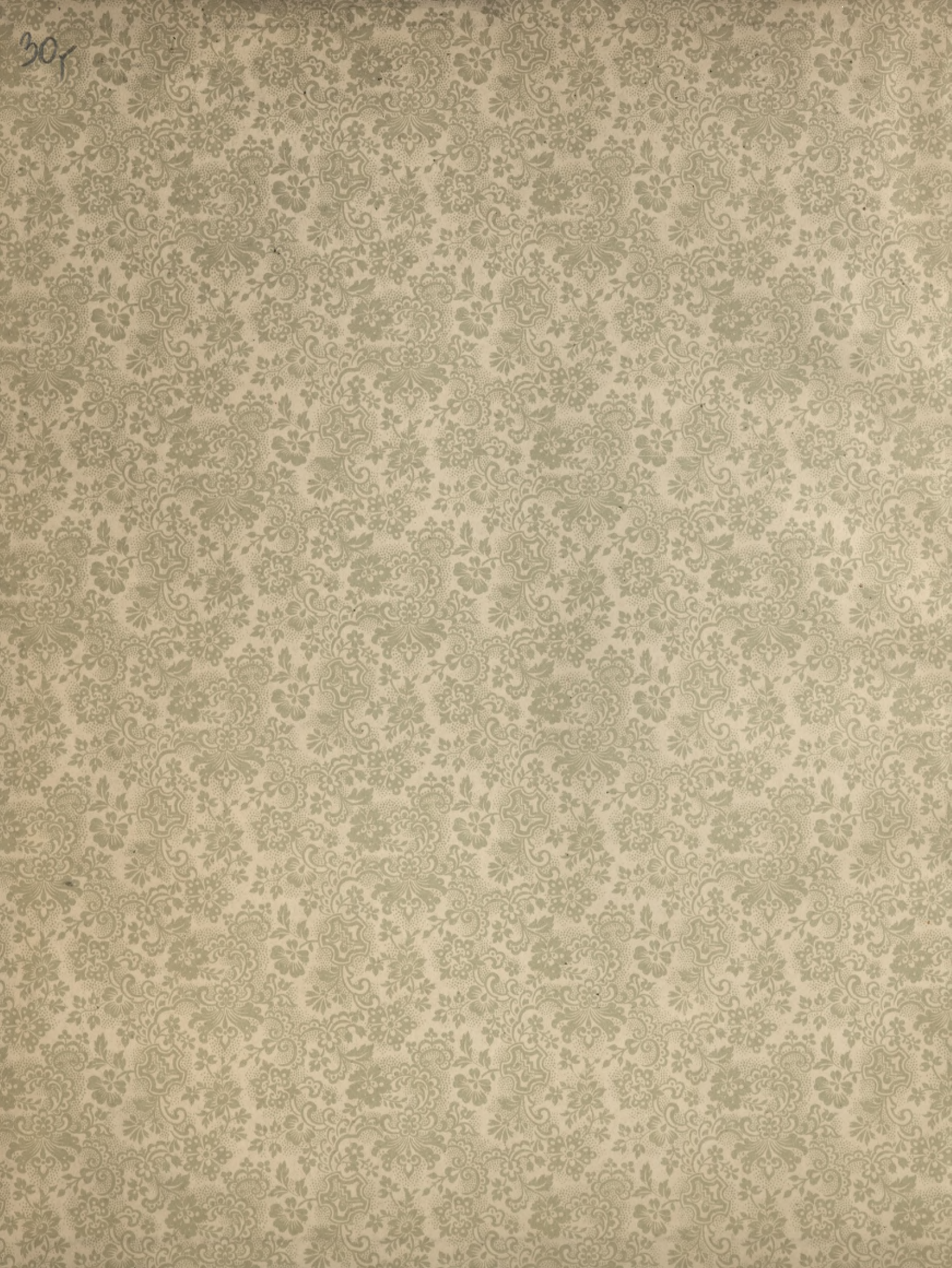


Abb. 530.



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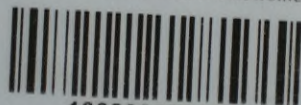


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