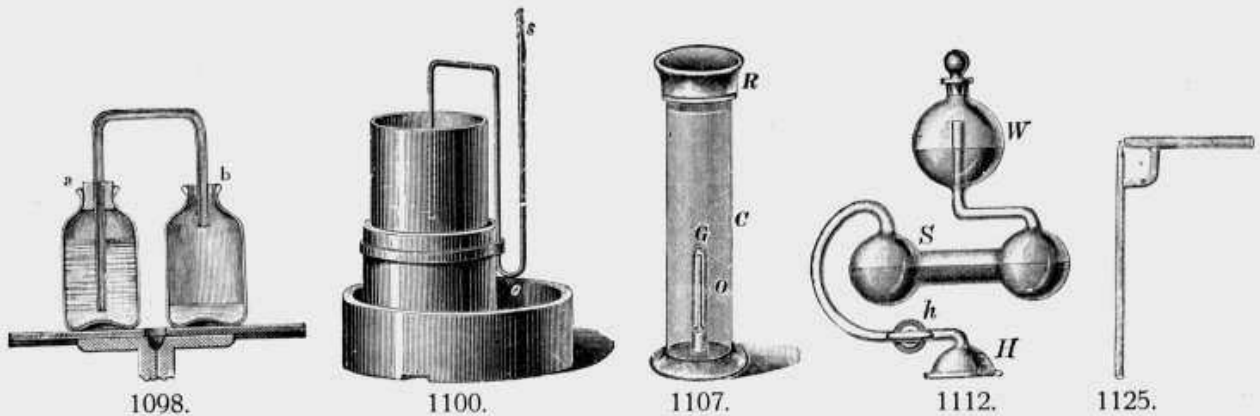


The apparatus is first weighed by suspending it to the arm of the balance; as only differences of weight are dealt with one can dispense with the balance pan on this side. The globe is then evacuated and again weighed. Water is now poured into the funnel and when completely filled the bulb is again weighed; the water used for filling the bulb should previously be well boiled and then cooled. The difference between weighings 1 and 2 gives the weight of the air filling the bulb and the difference between 2 and 3 the weight of an equal volume of water. To find the relative density of any other gas, preferably coal gas, the vessel is exhausted and weighed, and then by fitting a rubber tube over the upper cock, filled with the gas under examination. After detaching the rubber tube the bulb is again weighed. Finally both taps are opened and air sucked through the vessel the latter being again weighed. By dividing the difference between the first and second weighings by the difference between the first and 3rd the density of the gas referred to air is obtained.

- 1078. **Apparatus to show weight of air, also fitted to show non-transmission of sound in a vacuum.** [Fig. 1/8 nat. size, p. 56.] . . . . . \$ 3,25
  
- 1080. — electric bell in large receiver with ground-in stopper. [Fig. 1/7 nat. size.] . . . . . » 3,00
- 1081. **Magdeburg hemispheres, of glass** . . . . . » 1,50
- 1082. — of very strong brass, with tap and handles. 85 mm diam. One handle can be screwed off and the thread fitted to our air pump. After exhaustion the handle is again attached. [Fig. 1/6 nat. size, p. 56.] . . . . . » 4,00
- 1083. — in another highly finished, convenient form, very strong, with side exhaust and tap, 115 mm diam. The side exhaust obviates removal of the handle. [Fig. 1/6 nat. size, p. 56.] . . . . . » 8,00
- 1084. **Baroscope.** [Fig. 1/4 nat. size.] . . . . . » 2,25

This consists of a stand carrying a balance beam on one side of which is supported a closed glass bulb, the other end carrying a small weight which in ordinary air just counterpoises the bulb. As every body which is immersed in a fluid or in atmospheric air is



supported by the latter with a force equal to the weight of the fluid displaced, it follows that when the apparatus is placed beneath the receiver of an air pump and the latter is exhausted the bulb is supported with a smaller force than in ordinary air. On the other hand the change in the supporting force beneath the small counterpoise weight is relatively small. The glass bulb therefore appears to increase in weight and the increase is the greater the greater the exhaustion.

- 1085. **Experiment of the burst bladder** to show pressure of the air. Consists of a glass ring of 10 cm diam. ground at both ends, so that a piece of bladder can be stretched across. The curvature of the bladder downwards can be observed through the glass. § 0,25
- 1086. **Arrangement for cutting an apple by atmospheric pressure.** [Fig. 1/8 nat. size, p. 57.] » 1,75  
 An apple is placed on the upper sharp edge of the metal cap and pressed down so that it is just cut and fits airtight. The receiver is now exhausted and the apple is more and more pressed downwards by the air until ultimately a cylindrical piece is cut through.
- 1087. **Rubber ball** to show expansion of air with decreasing pressure, fitted with glass tap. » 0,50
- 1088. — with brass tap » 0,75
- 1091. **Apparatus to show the resistance of the air.** A heavy weight slides on a prismatic rod and is connected with two rack systems working into two cog wheels fixed on the axes carrying the vanes. On releasing the lever *H* the weight falls and imparts to the two sets of vanes an equal velocity; the vanes may be placed similarly or differently. [Fig. 1/4 nat. size, p. 57.] » 7,50  
**Fall tubes**, see No. 220 a. s. on, p. 9.
- 1096. **Air reaction wheel.** The apparatus is placed under the receiver of an air pump and the latter exhausted. The current of air issuing from the orifices of the two arms sets up a reaction which causes the wheel to revolve. [Fig. 1/5 nat. size, p. 57.] » 0,75
- 1098. **Fountain in vacuo**, flowing under the receiver of an air pump when the latter is exhausted. [Fig. 1/5 nat. size.] » 0,65  
 The vessel *a* is partly filled with water and the apparatus placed under the receiver of the air pump. On exhaustion the elasticity of the air enclosed in *a* drives the water into *b*.
- 1100. **Mercury siphon.** Weinhold's type, ceasing to flow in vacuo (W. D. Fig. 170, p. 211.) [Fig. 1/4 nat. size.] » 1,50  
 The apparatus is placed on the plate of the air pump and the glass filled up to about 1 cm from the brim with mercury. The opening *o* is closed with the finger and suction applied at *s* the finger being then removed from *o*. The apparatus is then covered by the receiver which is subsequently exhausted. The siphon ceases to flow as soon as the pressure of the air no longer exceeds that of the column of mercury in the inner limb of the siphon. Should the siphon continue to flow owing to capillary action it is only necessary to shake the plate of the air pump to break the mercury thread.