

Improvements in apparatus for filling bottles with liquids / [Thomas Roberts].

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Date of Application, 23rd June, 1894

Complete Specification Left, 23rd Mar., 1895—Accepted, 4th May, 1895

PROVISIONAL SPECIFICATION.

Improvements in Apparatus for Filling Bottles with Liquids.

I, THOMAS ROBERTS, of Gibbon Street, Bolton, in the County of Lancaster, Patent Medicine Vendor, do hereby declare the nature of this invention to be as follows :—

This invention is designed to provide a suitable appliance for filling bottles with
 5 liquids such as castor oil, glycerine, medicinal compounds or other liquids which are not bottled under pressure.

I construct the appliance with a stand or framing of suitable size and strength to carry the operative parts. This may be of such a height as to stand upon the floor or may be constructed to be mounted upon a bench or table. To the front of the
 10 stand I connect a flat slide or sliding piece capable of being moved vertically. This sliding piece is movably connected to the stand by means of bolts, grooves, slots or the like, is counterbalanced by a weight and is connected by a rod, link or the like with a pedal or lever for operating it. To it is attached a table or stand upon which the bottles are placed, this table being provided with a drip tray and
 15 waste pipe to collect any of the liquid that may run over or be spilled. On the top of the stand or framing I mount a delivery valve through which the liquid is caused to flow. This valve may be of any suitable form but at present I prefer to construct it with a globular or cylindrical valve chamber with a discharge nozzle in the bottom and a vertically sliding valve the spindle passing up through the top
 20 and being raised by a lever or rod. The actuating lever or rod is connected by a connecting rod with the sliding piece which raises the bottle or direct to the pedal or lever.

The position of the table upon which the bottle is placed is adjustable to serve for bottles of different sizes and the connection between the sliding piece and the
 25 pedal lever may also be movable or adjustable. The valve is connected with the receptacle in which the liquid is contained by means of a pipe or tube provided with a stop cock. This pipe or tube is made with a coil under which a lamp, gas jet or burner is placed to heat heavy oils or liquids in order to facilitate their flow through the valve.

When the apparatus is in use or being operated the bottle is placed upon the
 30 table, the pedal is actuated by the foot raising the sliding piece with the bottle until the nozzle of the delivery valve enters the mouth of the bottle. The upward movement of the slide by reason of the connecting rod attached to it opens the valve and allows the liquid to flow into the bottle, when the bottle is full the pedal is released and the slide and table fall shutting the valve and lowering the bottle
 35 which is then removed and replaced by another.

The connecting rod which connects the valve lever with the slide is preferably so adjusted that the slide has nearly completed its upward movement before the valve is opened to insure the nozzle being in the bottle before the liquid flows and in the
 40 downward movement the valve is first shut so that the bottle may not be removed until the valve is shut.

Dated this 22nd day of June 1894.

WM. P. THOMPSON & Co.,
 6, Bank Street, Manchester, Patent Agents.

COMPLETE SPECIFICATION.

Improvements in Apparatus for Filling Bottles with Liquids.

I, THOMAS ROBERTS, of Gibbon Street, Bolton, in the County of Lancaster, Patent Medicine Vendor, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

This invention is designed to provide a suitable appliance for filling bottles with liquids such as castor oil glycerine medicinal compounds sauce or other liquids which are not bottled under pressure. 5

It will be fully described with reference to the accompanying drawings.

Fig. 1. Front elevation.

Fig. 2. Side elevation. 10

Fig. 3. Sectional elevation.

Fig. 4. Sectional elevation on line $x-x$ Fig. 1.

Fig. 5. Plan.

Figs. 6 to 8. Details of a modified form of the bottle stand.

The apparatus is constructed with a stand or framing A of suitable size and strength to carry the operative parts of the machine. To the front of the stand is connected a flat slide or sliding piece B capable of being moved to and fro vertically. The slide B is movably connected to the stand A by the lugs b passing into the slots or grooves a a plate b^1 being screwed or bolted to the back or it may be held in position by any suitable arrangement of bolts or screws to allow it to slide up and down it is counterbalanced by a weight C at the end of a pivoted lever c and is connected by a rod or link d with the pivoted pedal or lever D by which it is operated or raised when required. 20

A table or stand E is attached to the front of the slide B upon which the bottles are placed and rest whilst being filled, it is secured in position by bolts e passing through slots e^1 in the slide so that it can be adjusted to any desired height to accommodate bottles of different sizes. The bottle table E is provided with a perforated drip tray F to collect any of the liquid which may run over or be spilled and a waste pipe f passing through to the back of the frame A through which any such liquid can flow to a suitable receptacle. 30

The frame A may be constructed of any suitable contour to carry the slide B and may be constructed to stand upon the floor as shown or so as to be mounted on a bench or table if preferred.

At the top of the stand A I mount or fix a delivery or cut off valve through which the liquid to be bottled passes. This valve I prefer to construct with a globular or cylindrical valve chamber G with a discharge nozzle g in the bottom and a vertically sliding valve g^1 the spindle h passing up through the top and being raised by a lever or rod H. This valve may however be of any suitable or convenient form capable of being promptly opened and closed by the movement of the pedal D and slide B. 40

The actuating lever H of the valve is connected to the slide B by a connecting rod or link J or it may be connected direct to the pedal lever D. The nuts j on the rod J serve to adjust or regulate the opening and closing of the valve as may be required and are preferably so arranged that the slide B has nearly completed its upward movement before the valve g^1 is opened to insure the nozzle g being in the bottle before the liquid flows and in the downward movement the valve is first shut by the spring h^1 so that the bottle may not be removed until the valve is shut. 45

The discharge nozzle or nipple g is screwed into or otherwise removably attached to the valve chamber G so that it can be readily changed to a larger or smaller size as may be required for bottling large or small bottles or a thicker or thinner liquid. Several extra nipples g^1 may be provided. 50

Roberts' Improvements in Apparatus for Filling Bottles with Liquids.

A supply pipe or tube K is connected to the delivery or cut off valve G through which the liquid flows from the vessel or receptacle in which it is contained and this pipe is provided with a stop cock L.

Referring to Figs. 6 to 8 a modified form of the bottle stand E is shown which is adapted for filling opaque bottles in which the height of the liquid cannot be observed as it is filled in. The table E¹ is mounted on pivoted levers e¹ which carry at one end weight boxes e¹¹ into which can be placed weights of any desired amount. When the weight on the table exceeds the weight in the boxes e¹¹ the other ends of the levers are depressed the movement of the levers actuating the hammer p of an alarm bell P. The weight in the boxes e¹¹ is adjusted to the weight of liquid required in the bottle and when the bottle is full the table E¹ is depressed thus by ringing the bell P, or otherwise indicating that the bottle is full the operator can then release the pedal and close the valve.

When the apparatus is intended for bottling heavy oils or other liquids which are rendered less dense by heat the supply pipe K is formed with a coil k under which a gas burner M jet or lamp can be placed and covered with an asbestos lined cover N by which the oil or liquids are heated to facilitate their flow through the valve G.

When the apparatus is in use or being operated the bottle is placed upon the table the pedal is actuated by the foot raising the sliding piece with the bottle until the nozzle of the delivery valve enters the mouth of the bottle. The upward movement of the slide by reason of the connecting rod attached to it opens the valve and allows the liquid to flow into the bottle when the bottle is full the pedal is released and the slide and table fall shutting the valve and lowering the bottle which is then removed and replaced by another.

Having now particularly described and ascertained the nature of the said invention and in what manner the same is to be performed I declare that what I claim is:—

1. An apparatus for filling bottles constructed with a vertically moving slide and adjustable table for carrying the bottle operated by a pedal lever and counter-weight a delivery or cut off valve opened and closed by the movement of the slide or pedal a supply pipe with or without a coil and burner for conducting the liquid from the receptacle or vessel which contains it substantially as described.
2. An apparatus for filling bottles with the several parts constructed and arranged in combination substantially as described and shown.

Dated this 8th day of March 1895.

WM. P. THOMPSON & Co.,
Manchester, Liverpool, and London, Patent Agents.



The first part of the report is devoted to a general description of the country, its position, and its resources. It is then divided into several sections, each dealing with a different aspect of the country's development. The first section deals with the general principles of agriculture, and the second with the various branches of agriculture. The third section deals with the various branches of industry, and the fourth with the various branches of commerce. The fifth section deals with the various branches of education, and the sixth with the various branches of public administration. The seventh section deals with the various branches of public health, and the eighth with the various branches of public safety. The ninth section deals with the various branches of public works, and the tenth with the various branches of public finance. The eleventh section deals with the various branches of public law, and the twelfth with the various branches of public order. The thirteenth section deals with the various branches of public morality, and the fourteenth with the various branches of public religion. The fifteenth section deals with the various branches of public science, and the sixteenth with the various branches of public art. The seventeenth section deals with the various branches of public literature, and the eighteenth with the various branches of public music. The nineteenth section deals with the various branches of public drama, and the twentieth with the various branches of public painting. The twenty-first section deals with the various branches of public sculpture, and the twenty-second with the various branches of public architecture. The twenty-third section deals with the various branches of public engineering, and the twenty-fourth with the various branches of public medicine. The twenty-fifth section deals with the various branches of public surgery, and the twenty-sixth with the various branches of public dentistry. The twenty-seventh section deals with the various branches of public pharmacy, and the twenty-eighth with the various branches of public veterinary medicine. The twenty-ninth section deals with the various branches of public agriculture, and the thirtieth with the various branches of public horticulture. The thirty-first section deals with the various branches of public forestry, and the thirty-second with the various branches of public fishing. The thirty-third section deals with the various branches of public hunting, and the thirty-fourth with the various branches of public shooting. The thirty-fifth section deals with the various branches of public sports, and the thirty-sixth with the various branches of public games. The thirty-seventh section deals with the various branches of public recreation, and the thirty-eighth with the various branches of public amusement. The thirty-ninth section deals with the various branches of public entertainment, and the fortieth with the various branches of public education.

1871

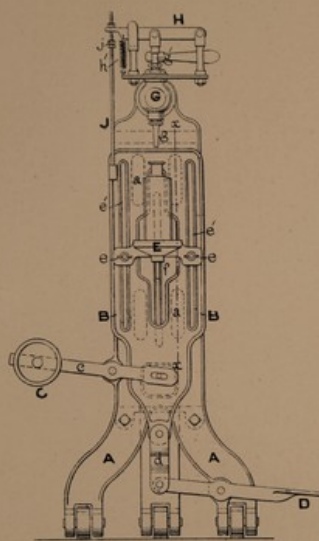


FIG. 1.

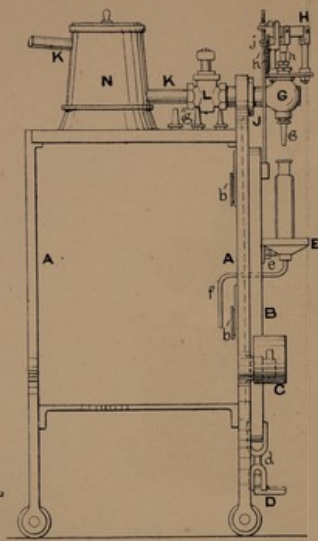


FIG. 2.

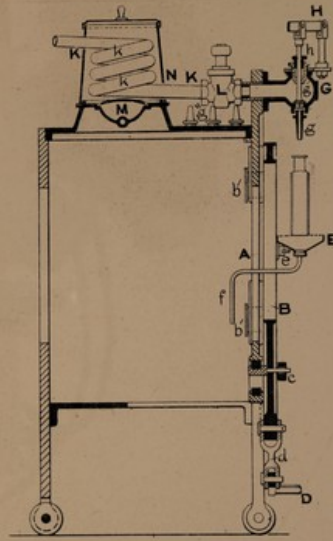


FIG. 3.

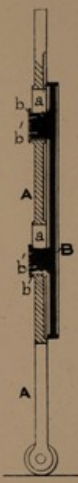


FIG. 4.

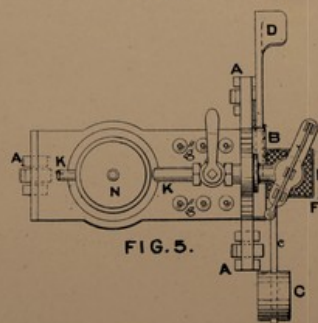
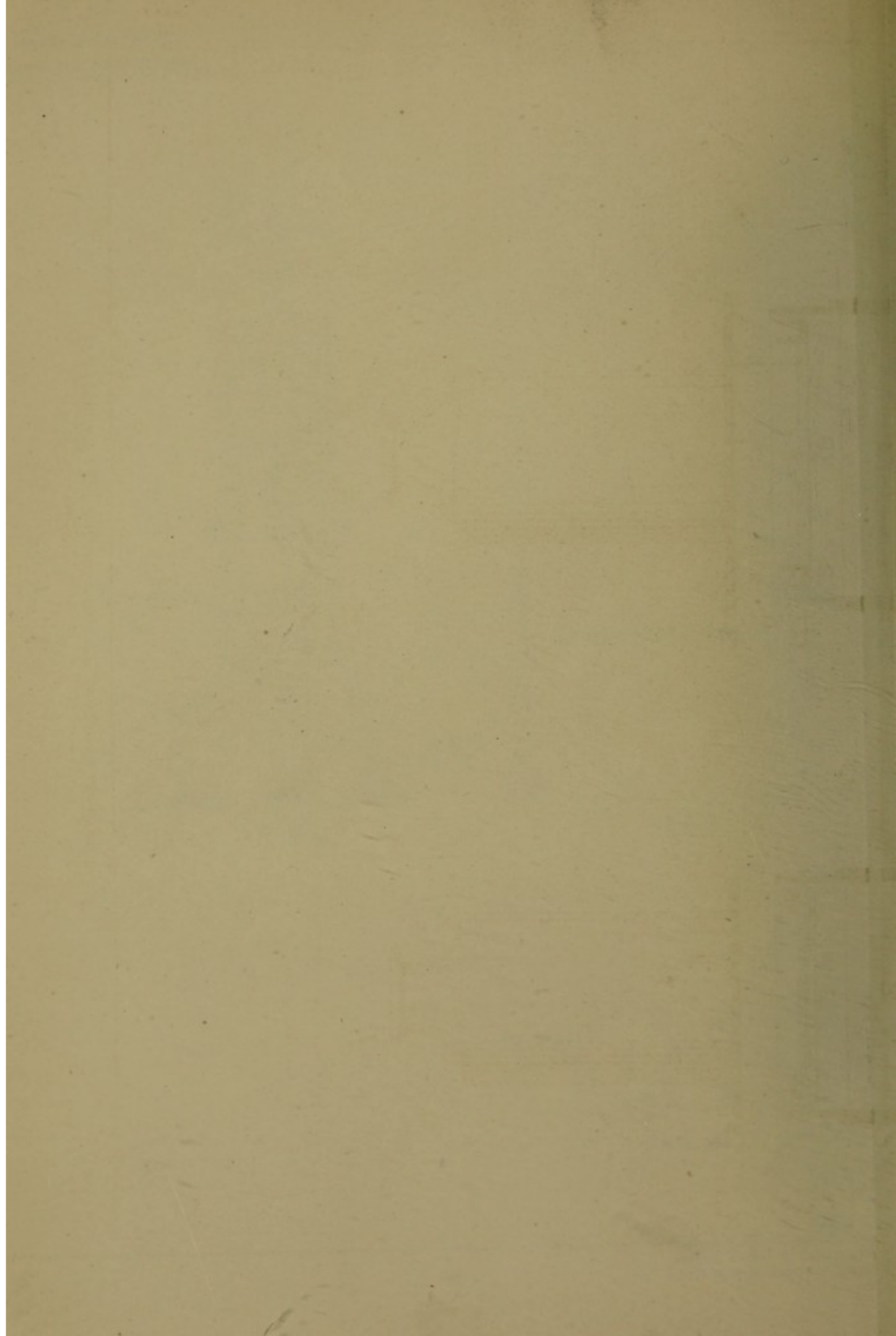


FIG. 5.



[This Drawing is a full-size reproduction of the Original.]

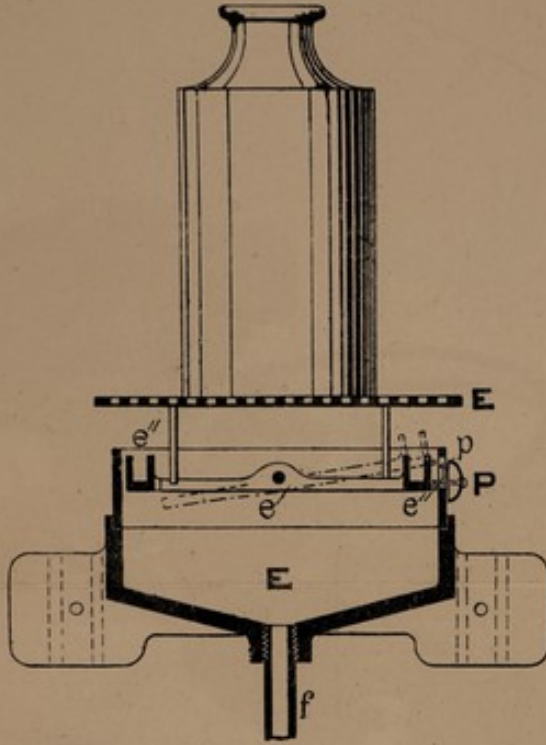


FIG. 6.

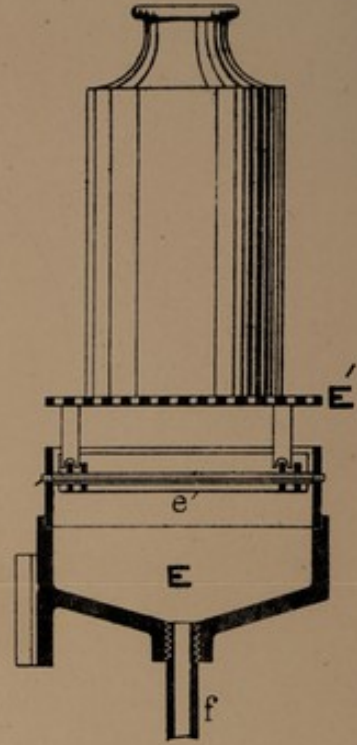


FIG. 7.

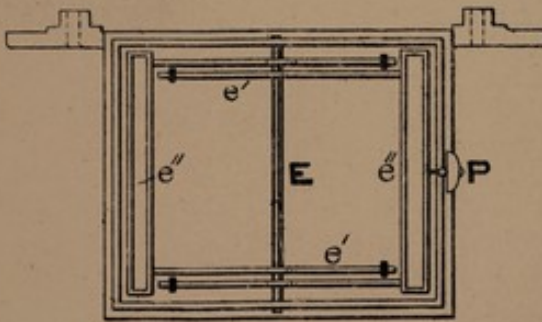


FIG. 8.

