

C. W. V. MESSERSCHMIDT.
 APPARATUS FOR CLOSING BOTTLES.
 APPLICATION FILED MAY 19, 1908.

955,891.

Patented Apr. 26, 1910.

Fig 1

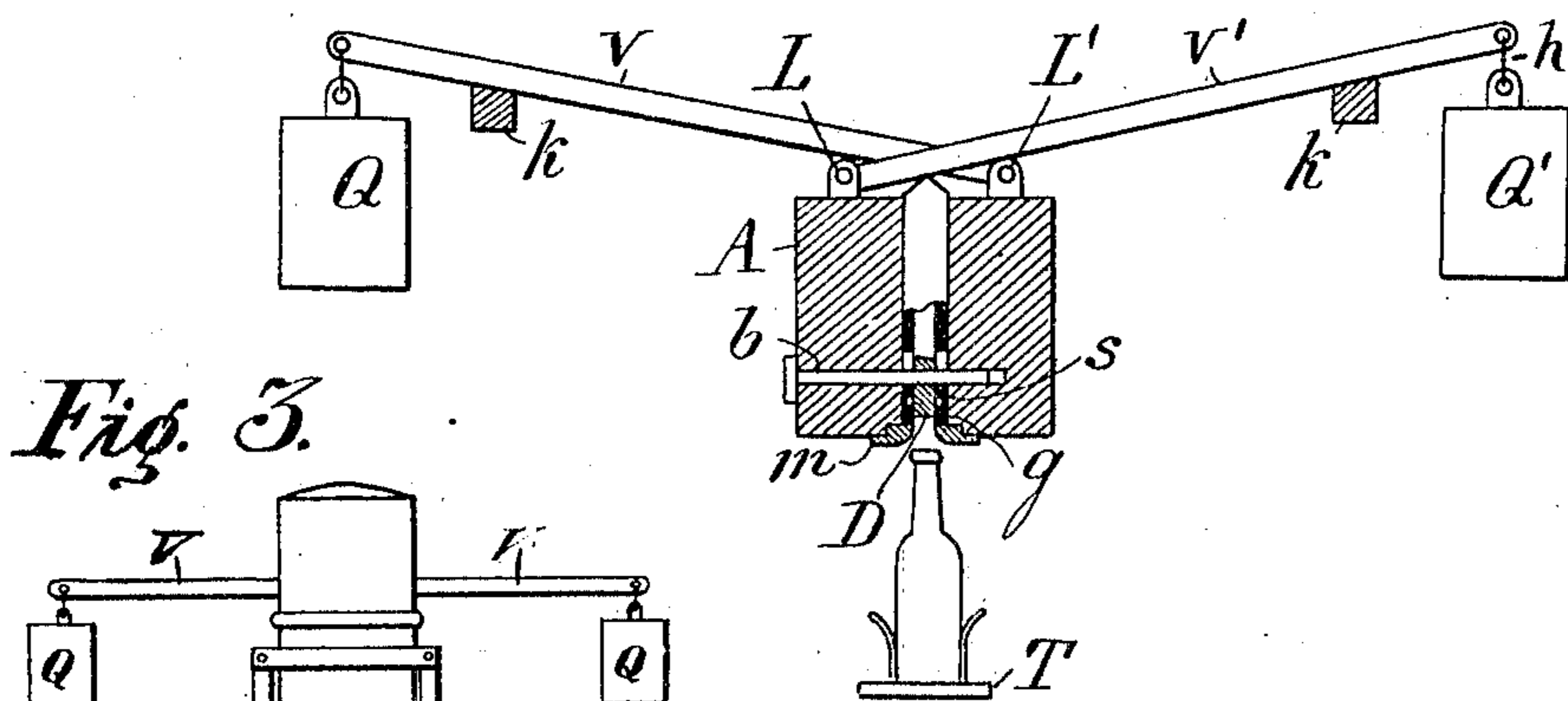


Fig. 3.

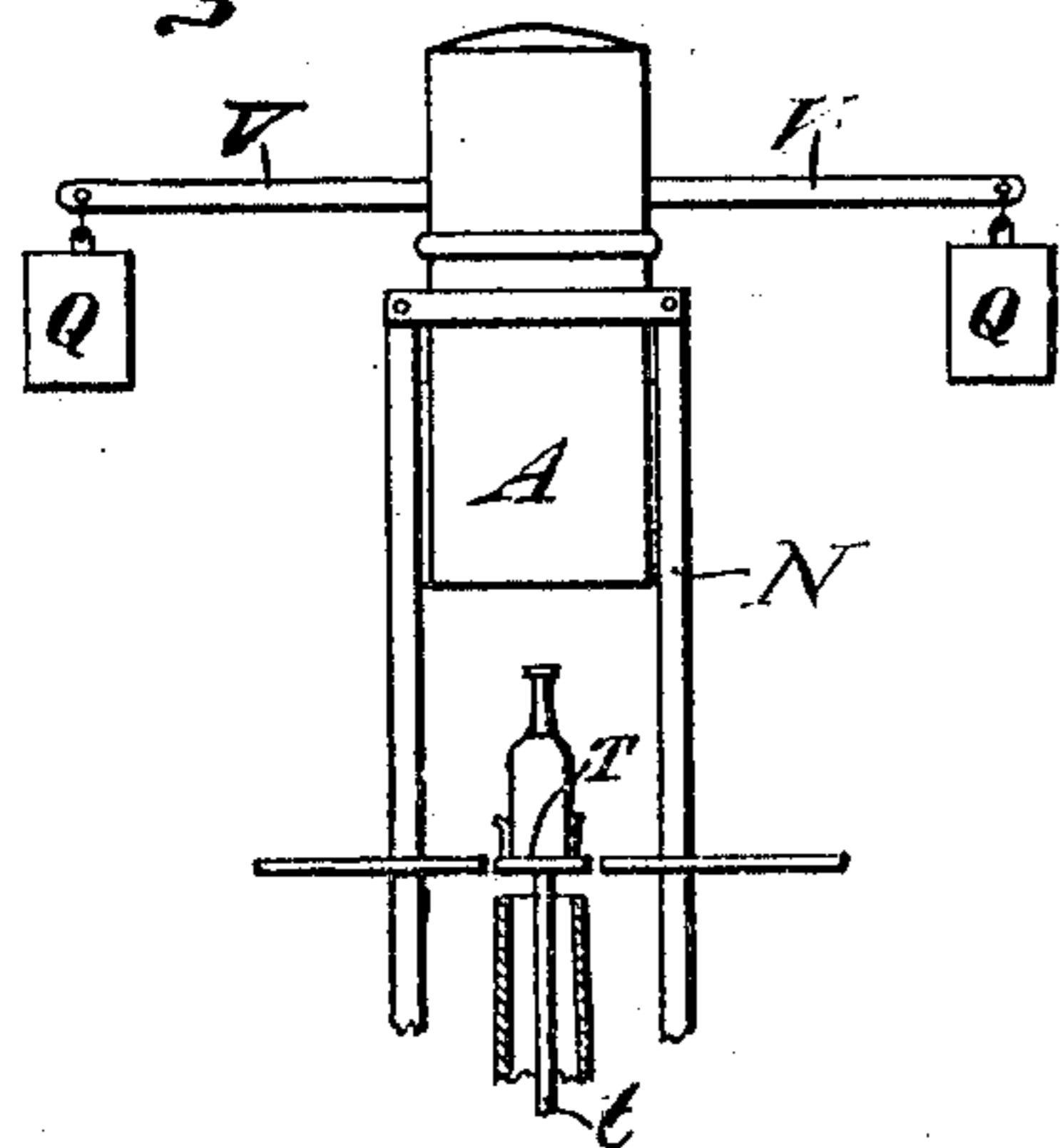
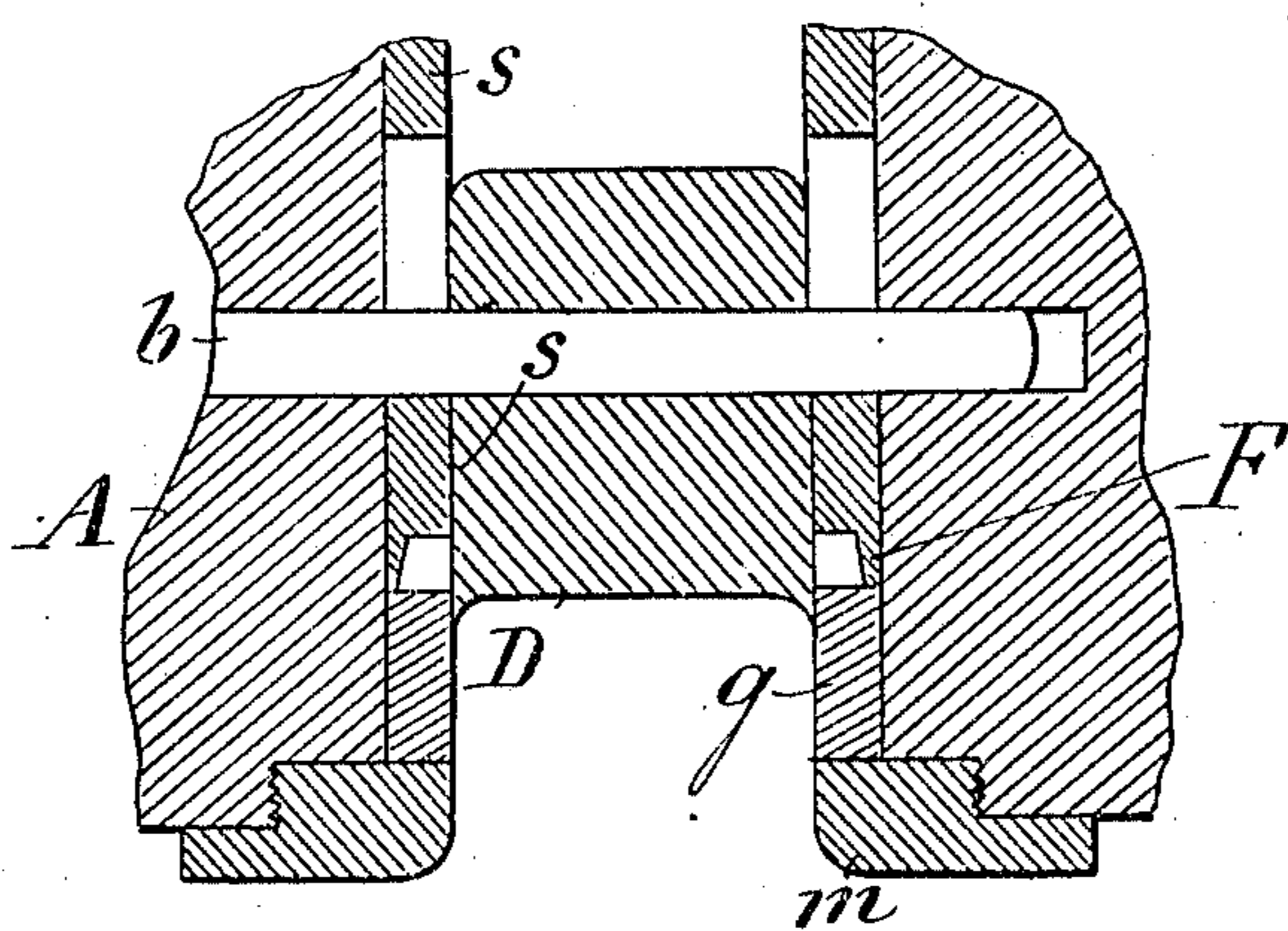


Fig 2



Witnesses

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UNITED STATES PATENT OFFICE.

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APPARATUS FOR CLOSING BOTTLES.

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To all whom it may concern:

Be it known that I, CHRISTIAN WILLIAM VILHELM MESSERSCHMIDT, a subject of the King of Denmark, and residing at Copenhagen, Denmark, have invented a new and useful Apparatus for Closing Bottles by Means of Metal Capsules, of which the following is a specification.

My invention has for its object to provide an apparatus for closing bottles by means of metal capsules, which is simple in construction and very effective in its operation.

According to my present invention, the apparatus proper comprises a heavy block, preferably made of metal and provided with a recess adapted to receive the bottle-neck with the metal capsule placed therein. In the recess is arranged an elastic ring, preferably made of india-rubber, which ring incloses the metal capsule and, upon a pressure being exerted on it (viz. the ring) will press the capsule tightly around the bottle-neck, which latter bears against an abutment in the recess. The pressure on the elastic ring is exerted by means of a hollow piston, resting upon the ring and provided with means, such as an annular projection at its lower end, to uniformly compress the ring on all sides. In order to force the said piston down upon the ring, one or more weighted levers are provided, which are fulcrumed to the metal block and so connected with the upper end of the hollow piston as to move the latter downward upon a rising movement of the metal block, which latter is lifted by the bottle, which is placed on a movable table. The weights at the ends of the lever, or levers, can be easily changed, and the construction is such that a predetermined maximum pressure on the elastic ring cannot be exceeded.

In the accompanying drawing, in which I have illustrated my invention, Figure 1 is a vertical section through the apparatus, showing a bottle placed on the movable table. Fig. 2 is a vertical section, on an enlarged scale, through that portion of my apparatus where the closing of the bottle is effected. Fig. 3 is an elevation of the new apparatus showing the means for guiding the metal block.

The apparatus as shown comprises a metal block A, weighing about 100 kg. and provided with a cylindrical recess adapted to receive the bottle-neck. In said recess is arranged an elastic ring *g*, preferably made of

india rubber and abutting at its lower end against a nut *m*, which forms the lower rim of the recess. The ring *g* is adapted to be acted upon by a hollow piston *s*, resting with its lower end upon said ring. The piston *s*, which projects beyond the top of the metal block A, slidably supports with its upper end two levers *v*, *v'*, fulcrumed to the metal block A at L, L' and extending in opposite directions. Each lever carries by means of a hook *h* at its free end a weight Q and Q' respectively of about 50 kg. The leverage is such that each lever is capable of exerting on the piston *s* a pressure of about 1500 kg. At suitable points, supports *k* are provided to receive part of the weight of the weights Q Q', when they are in their inoperative positions. The piston *s* is provided at its lower end with an annular projection F having a beveled inner face and adapted to be forced between the ring *g* and the inner face of the block A. In the said recess is also arranged an abutment D, which is held in place by a bolt *b* and is provided at its bottom with a rounded cavity, shaped to receive the neck of a bottle.

To support the bottle a table T is provided, adapted to be moved upwardly by means of a stem *t*, so that a bottle placed on the table will be pressed with its neck into the cavity provided in the abutment D. By moving the table T in an upward direction, the pressure exerted on the abutment D by the bottle on the table will cause the metal block A to be raised. The means for raising the table T are not shown in the drawing, it being understood, however, that the table T will be raised each time only a sufficient amount to cause the weights Q Q' at the end of the levers *v*, *v'* to act upon the piston *s* and thereby upon the elastic ring *g*.

The apparatus operates as follows:—After a bottle has been placed on the table T, as shown in Figs. 1 and 3, the latter is given an upward movement. The bottle-neck, which previous to placing the bottle on the table, has been provided with a capsule, will bear against the abutment D and upon further upward movement of the table T, the metal block A will be raised by the bottle. During the raising of the metal block the weights Q Q' at the end of the levers *v*, *v'* as these are being lifted from their supports *k* will gradually exert an increasing pressure upon the piston *s* and thereby on the ring *g*. The annular projection F at the lower end

of the piston *s* resting upon said ring *g* is gradually forced between the outer cylindrical surface of the ring *g* and the inner cylindrical surface of the recess in block A; thereby compressing the ring *g* and pressing it against the capsule on the bottle-neck. The farther the annular projection *F* is forced down behind the ring *g*, the greater becomes the pressure exerted by the latter around the capsule, which thereby is tightly secured to the bottle-neck. By changing the weights *Q Q'* on the lever arms *v, v'*, the pressure exerted on the piston *s* and thereby on the ring *g* can be varied in any desired manner. The table carrying the bottle must be raised, of course, sufficiently high to cause the levers *v, v'* to be lifted from their supports *h*. The block A, as seen from Fig. 3, is guided in a frame *N* so as to be held centrally over the bottle to be closed. The supports *h* for the lever arms *v, v'*, from which arms the weights *Q* are suspended insure the block A being held at a proper height.

I claim:

1. In an apparatus for closing bottles by means of metal capsules the combination with a movable table adapted to support the bottle, of a block having a recess adapted to receive the bottle-neck, an elastic ring held in said recess, an abutment in said recess adapted to bear against the metal capsule, a movable piston resting on said elastic ring and provided with means to compress the same, and a weighted lever, fulcrumed to said block and connected with said piston so as to cause it to compress the elastic ring, when the block is raised by the upward movement of the bottle.

2. In an apparatus for closing bottles by means of metal capsules, the combination with a movable table adapted to support the bottle, of a block having a recess to receive the bottle-neck, an elastic ring held in said recess, an abutment in said recess adapted to bear against the metal capsule, a piston resting on said elastic ring and provided at its lower end with an annular beveled projection adapted to compress the said ring, and a weighted lever fulcrumed to said block and connected with said piston so as to cause the same to exert a downward pressure on said ring when the block is raised by the upward movement of the bottle.

3. In an apparatus for closing bottles by means of metal capsules, the combination with a movable table adapted to support

the bottle, of a block having a recess to receive the bottle-neck, an elastic ring held in said recess, an abutment in said recess adapted to bear against the metal capsule, a piston resting on said elastic ring and provided at its lower end with an annular beveled projection adapted to compress the said ring, and a pair of levers fulcrumed to said block and a pivot connecting said levers with said piston, so as to cause said piston to exert a pressure on said ring when the block is raised by the upward movement of the bottle.

4. In an apparatus for closing bottles by means of metal capsules, the combination with a movable table adapted to support the bottle, of a block having a recess to receive the bottle-neck, an elastic ring held in said recess, an abutment in said recess adapted to bear against the metal capsule, a piston resting on said elastic ring and provided at its lower end with an annular beveled projection adapted to compress the said ring, a pair of levers fulcrumed to said block, a pivot connecting said levers with said piston, removable weights arranged at the free ends of said levers and causing the piston to exert a pressure on said ring when the block is raised by the upward movement of the bottle.

5. In an apparatus for closing bottles by means of metal capsules, the combination with a movable table adapted to support the bottle, of a block having a recess to receive the bottle-neck, an elastic ring held in said recess, an abutment in said recess adapted to bear against the metal capsule, a piston resting on said elastic ring and provided at its lower end with an annular beveled projection adapted to compress the said ring, a pair of levers fulcrumed to said block, a pivot connecting said levers with said piston, removable weights arranged at the free ends of said levers and causing the piston to exert a pressure on said ring when the block is raised by the upward movement of the bottle, and stationary supports to receive part of the weight of the weights suspended from the free ends of the said levers.

In witness whereof I have hereunto set my hand in presence of two witnesses.

CHRISTIAN WILLIAM

VILHELM MESSERSCHMIDT.

Witnesses:

VIGGO BLÖM,
J. DRAMINSKY.