

903,322.

W. F. RUWELL.
BOTTLE LABELING MACHINE.
APPLICATION FILED NOV. 19, 1907.

Patented Nov. 10, 1908.
2 SHEETS—SHEET 1.

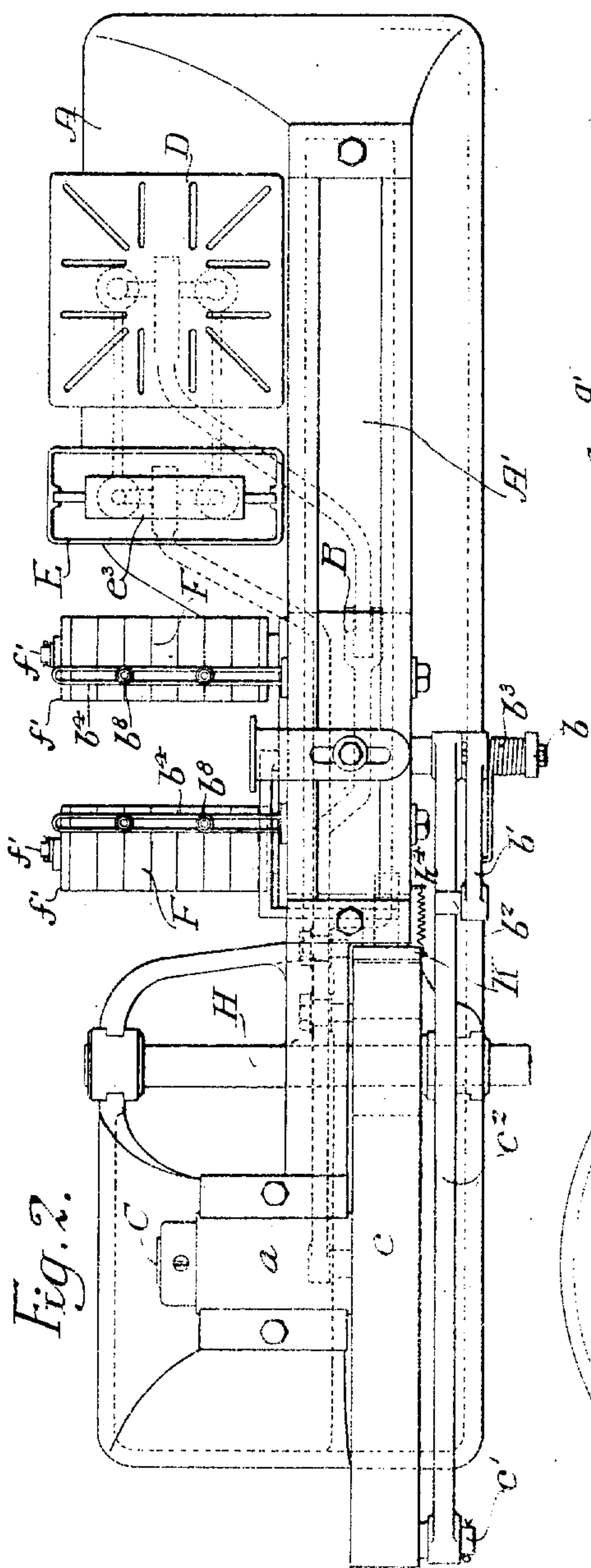


Fig. 2.



Fig. 12.

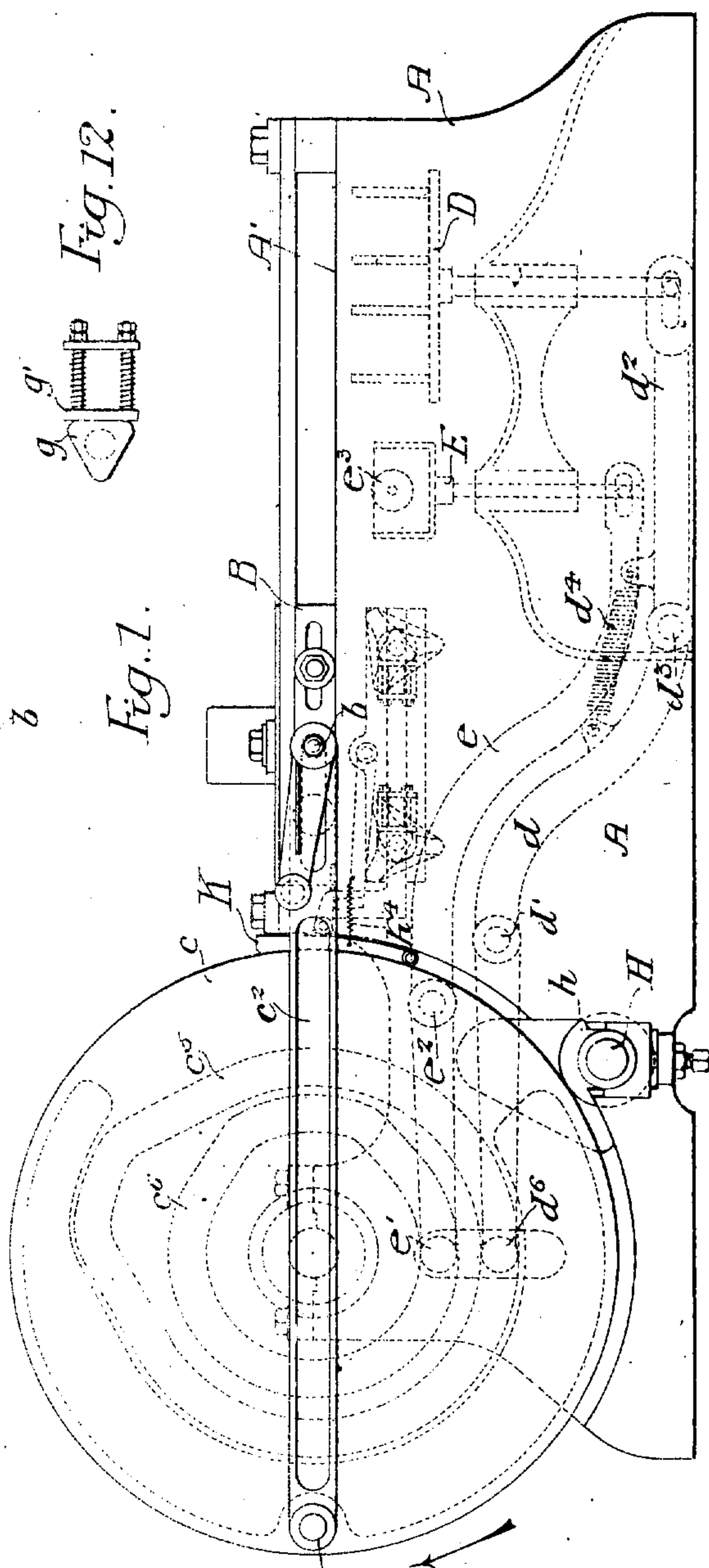


Fig. 1.

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by his Attorneys,
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2 SHEETS—SHEET 2.

Fig. 8.

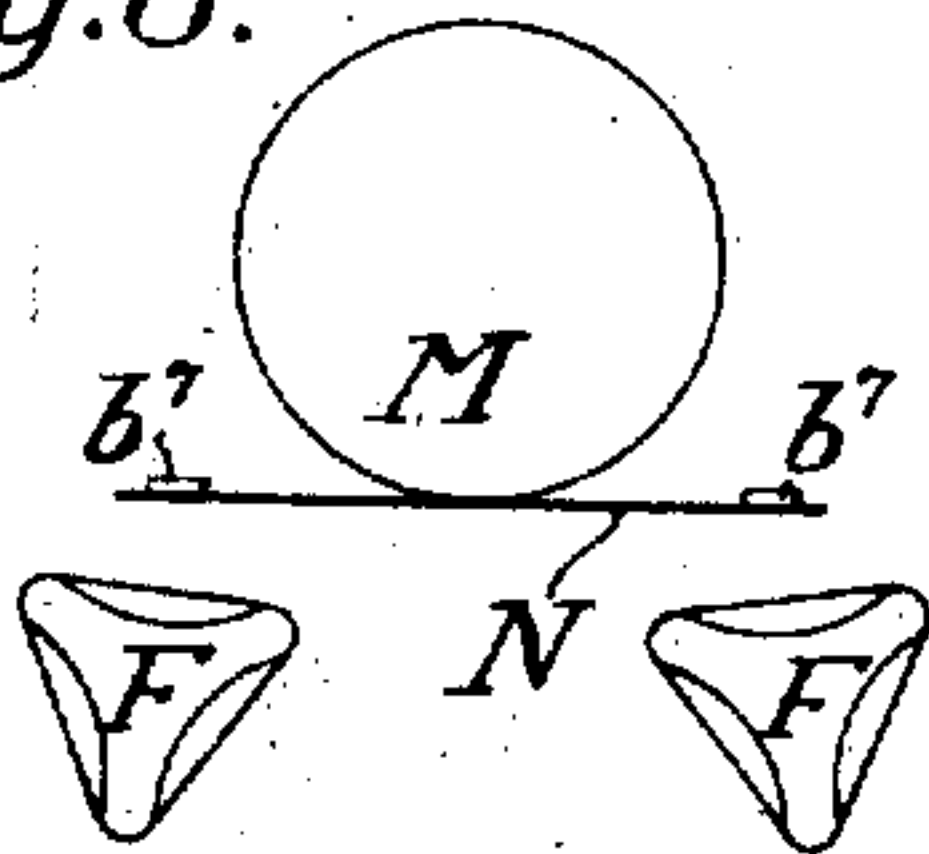


Fig. 9.

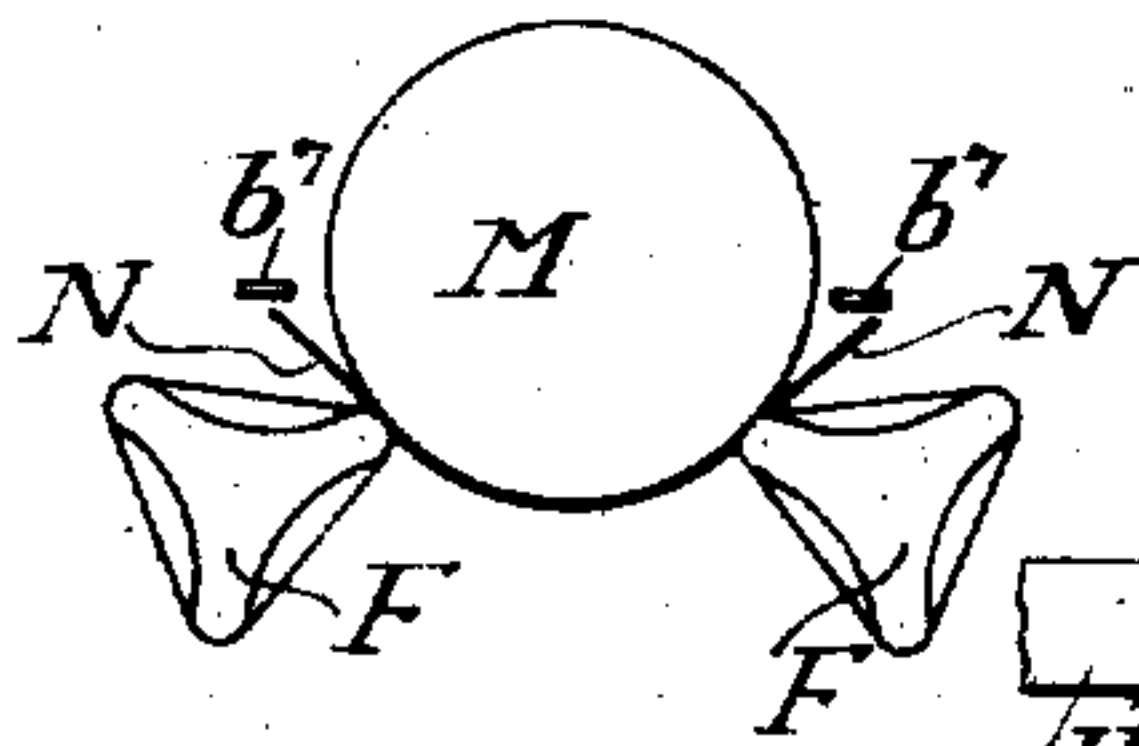


Fig. 3.

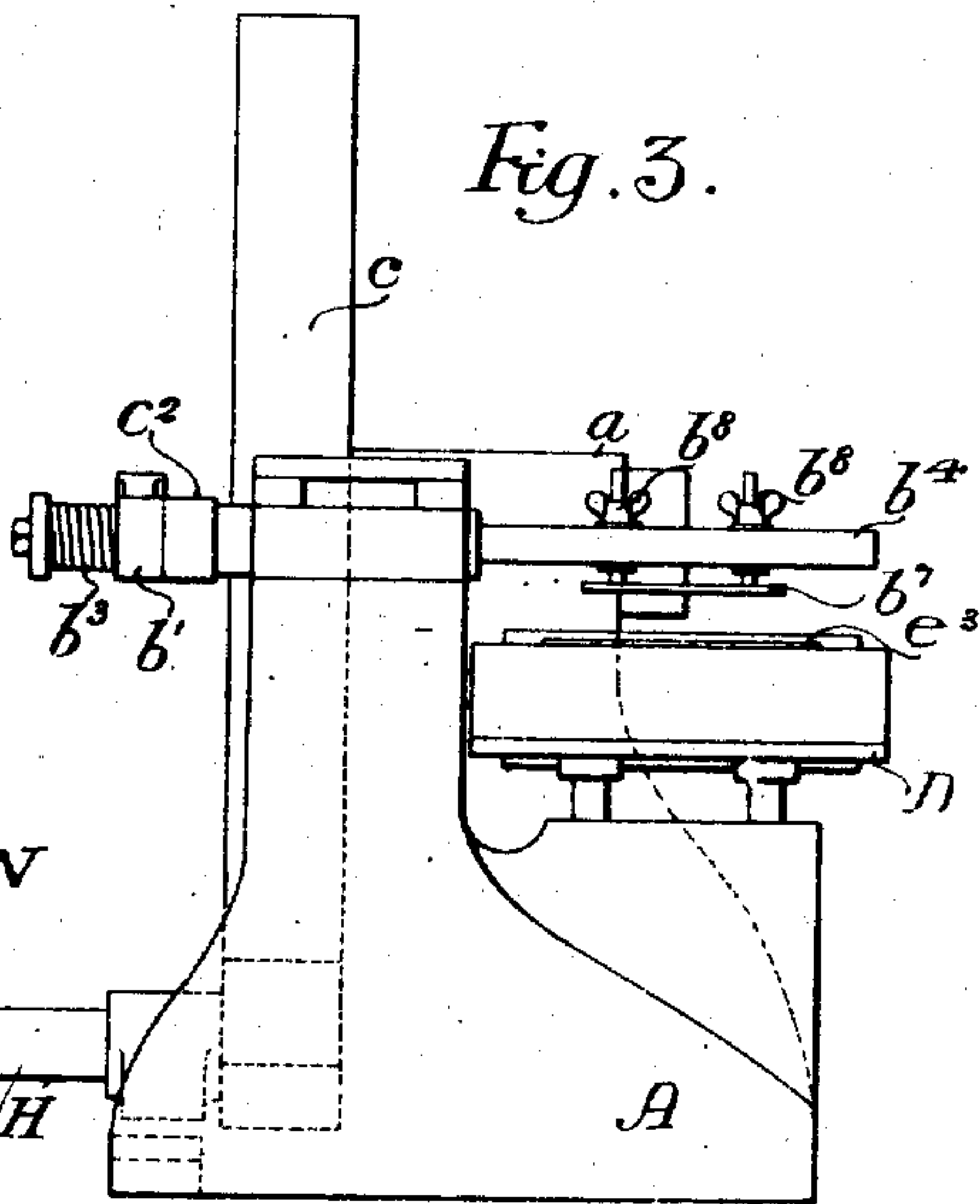


Fig. 10.

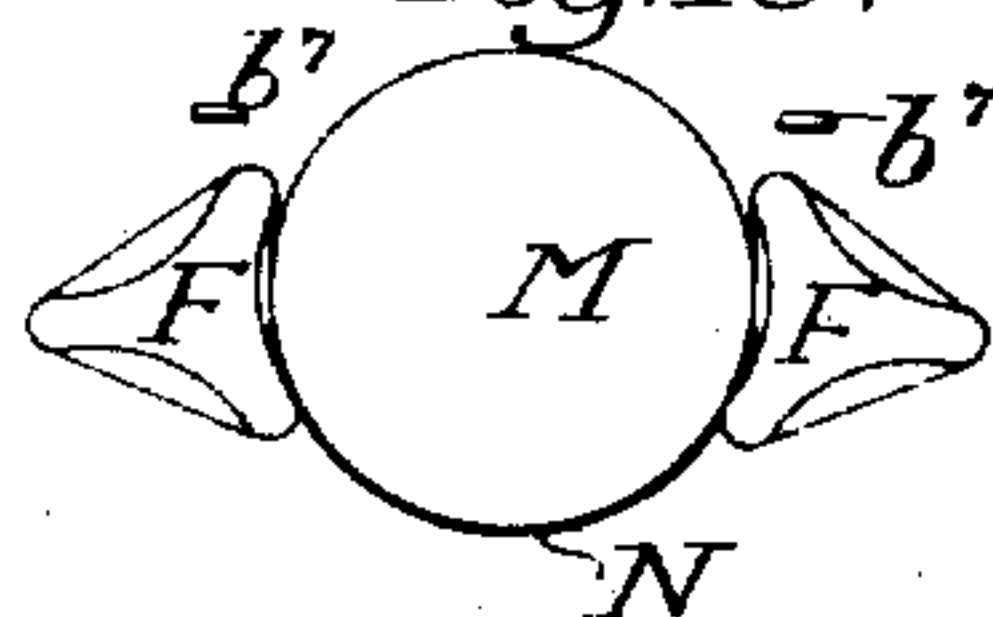


Fig. 11.

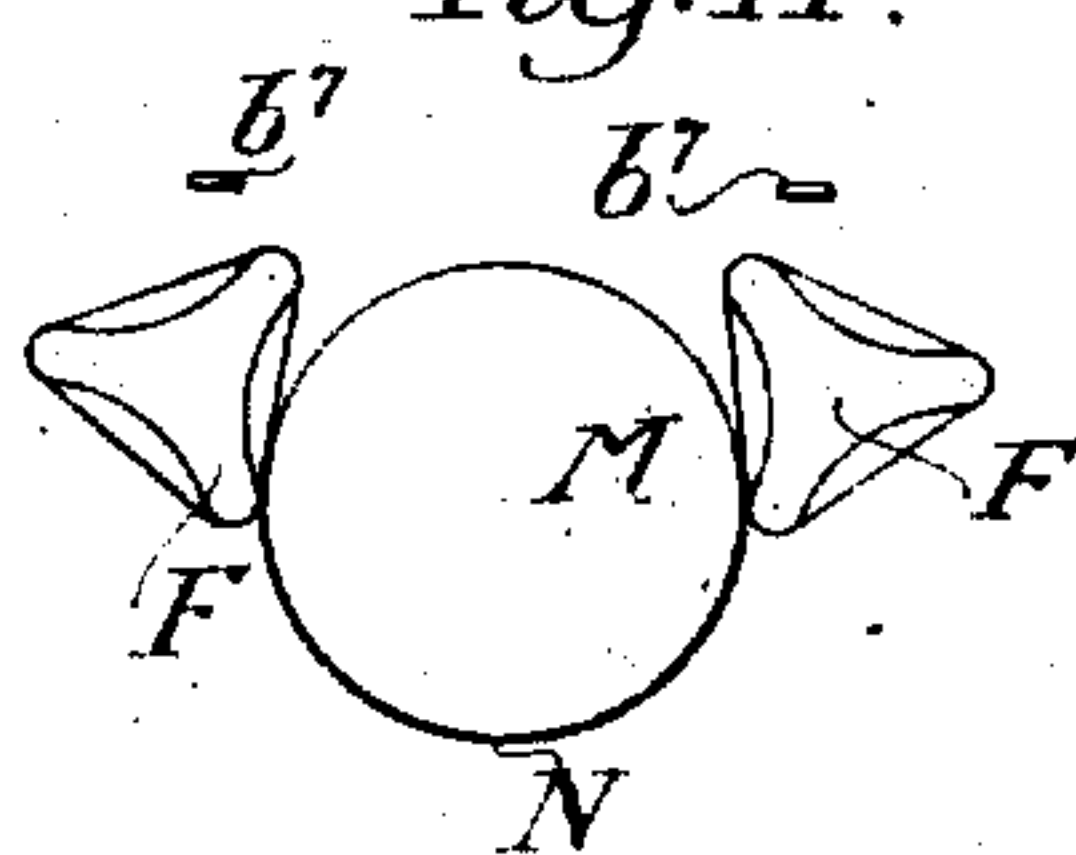


Fig. 4.

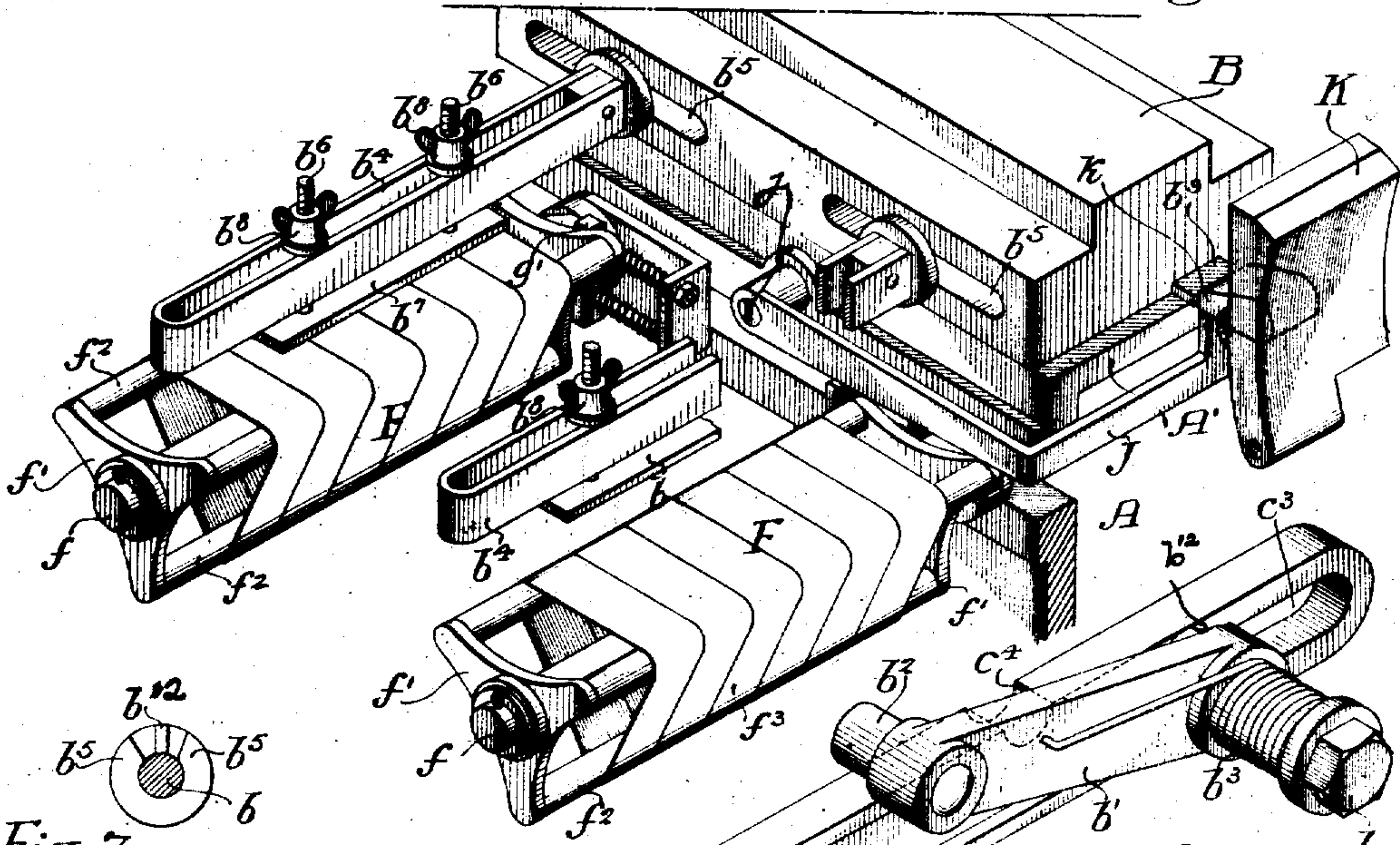


Fig. 7.

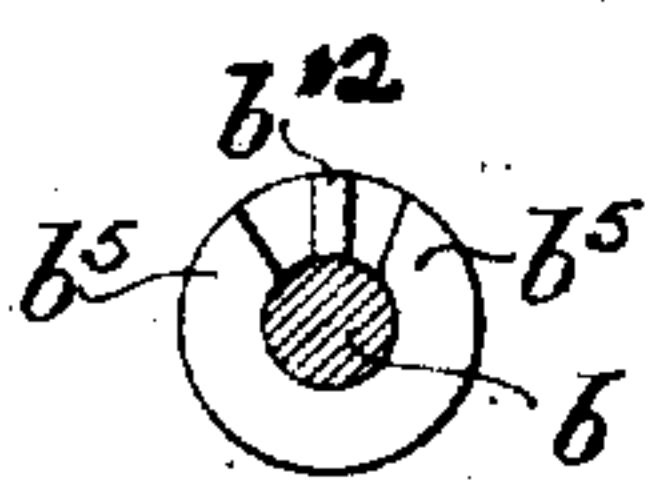


Fig. 6.

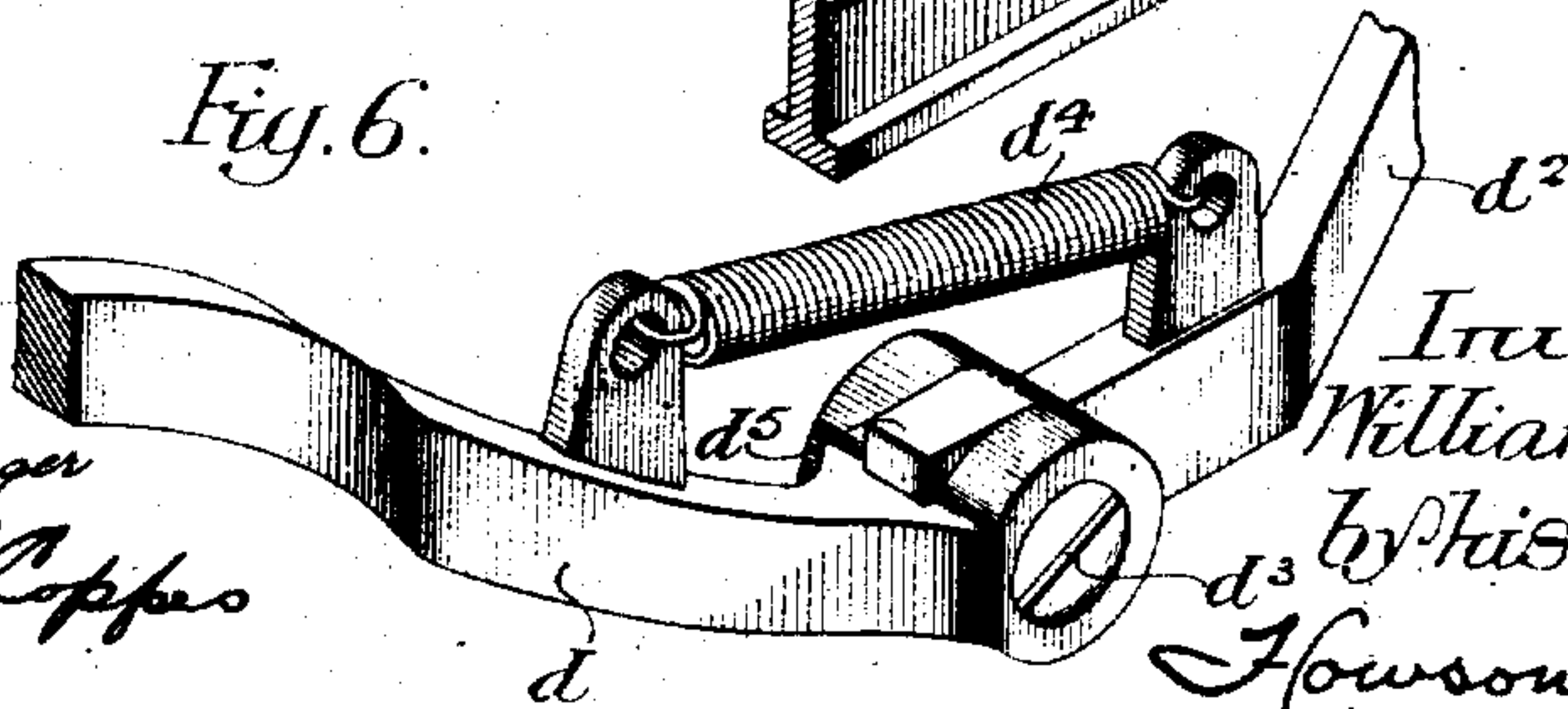
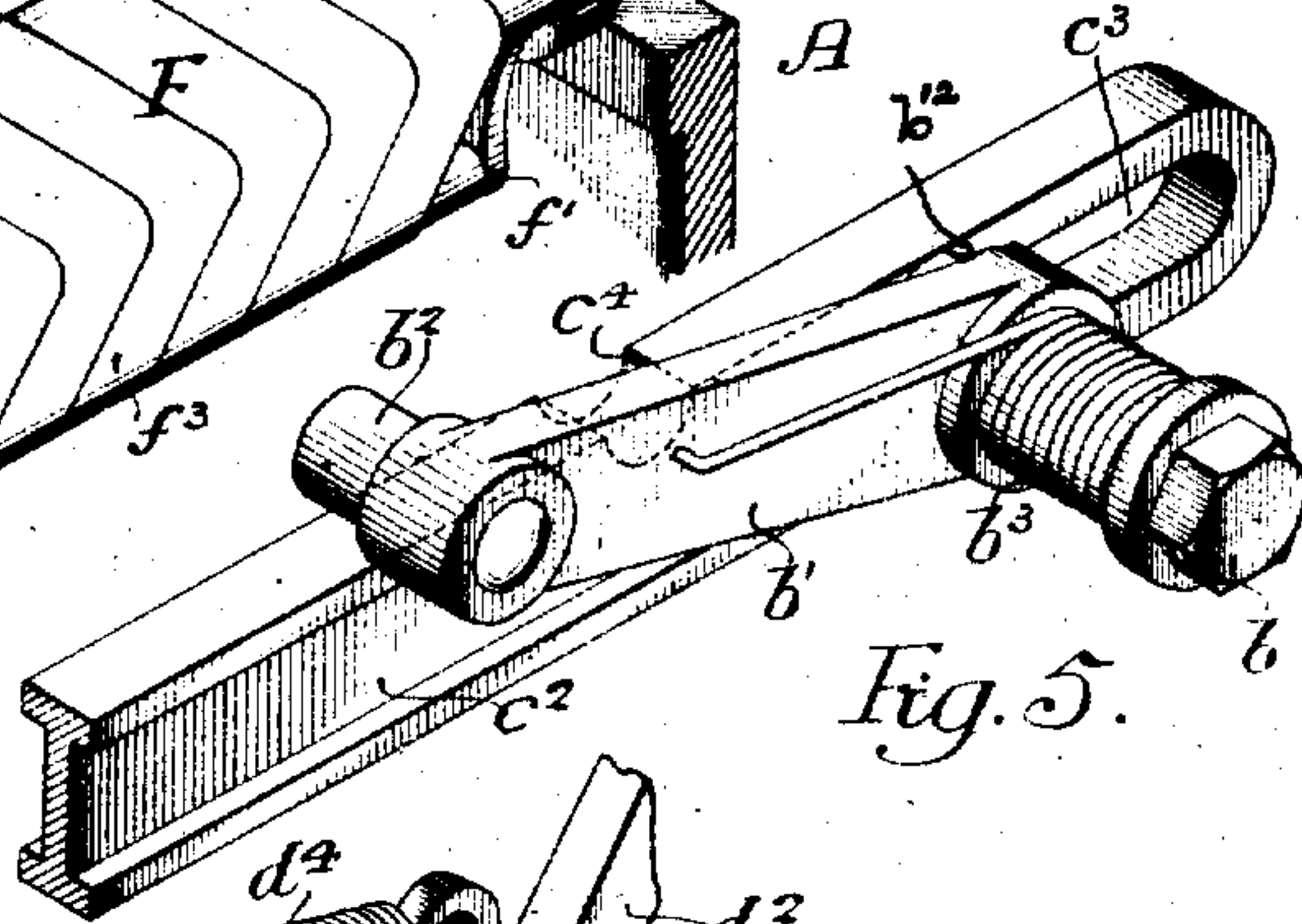


Fig. 5.



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UNITED STATES PATENT OFFICE.

WILLIAM F. RUWELL, OF PHILADELPHIA, PENNSYLVANIA.

BOTTLE-LABELING MACHINE.

No. 903,322.

Specification of Letters Patent.

Patented Nov. 10, 1908.

Application filed November 19, 1907. Serial No. 402,782

To all whom it may concern:

Be it known that I, WILLIAM F. RUWELL, a citizen of the United States, residing in Philadelphia, Pennsylvania, have invented certain Improvements in Bottle-Labeling Machines, of which the following is a specification.

One object of my invention is to provide a machine whereby it shall be possible to mechanically apply a label, upon which paste has previously been placed, to a bottle; it being particularly desired that the machine shall be compact and consist of but relatively few parts.

It is further desired to so construct a labeling machine that it shall satisfactorily perform its functions regardless of whether there are few or many labels in the label container.

Another object of the invention is to provide a machine having the above characteristics with a device of improved construction for insuring that the label is firmly pressed into contact with the bottle as the latter is passed through the machine.

It is further desired to provide automatically acting mechanism particularly applicable to a bottle labeling machine whereby the carrier, which in the present instance is employed to deliver labels from their container to a point over the wipers, shall be automatically stopped or held from moving while the label is being pressed into engagement with the sides of the bottle.

These and other advantageous ends I secure as hereinafter set forth, reference being had to the accompanying drawings, in which:—

Figure 1, is a side elevation of the machine forming my invention; Fig. 2, is a plan of the machine shown in Fig. 1; Fig. 3, is an end elevation; Fig. 4, is a perspective view of the label carrying slide and the label applying device with their associated parts; Fig. 5, is a fragmentary perspective view of one end of the connecting rod; Fig. 6, is a fragmentary perspective view of a portion of the lever for actuating the label container; Fig. 7, is a vertical section of the pin connecting the end of the connecting rod with the carrier; Figs. 8 to 11 inclusive are diagrammatic views illustrating the various steps in the process of applying a label to a bottle, and Fig. 12, is an end elevation of a device for holding the label wipers in definite positions, relative to the movable slide or carrier.

In the above drawings A represents the main casing or supporting frame of the machine, this being somewhat similar to the frame of an ordinary steam engine in that it is provided with a guideway A', a reciprocable slide B and a bearing or journal *a* for the reception of a shaft C. This shaft carries a crank disk *c* connected by a pin *c'* to one end of a rod *c''* whose opposite end is attached to the slide B in such manner as to permit of a certain amount of movement of said end relatively to the slide at one end of its stroke. In the present instance I provide in this end of the connecting rod an elongated slot *c'''* through which passes a bolt *b* screwed or otherwise rigidly fixed to the slide B. This bolt carries loosely upon it an arm *b'* having at its end a projecting pin *b''* capable of entering a semi-cylindrical recess *c''''* formed in the upper edge of the connecting rod *c''*. Upon the pin or bolt *b* I place a helical spring *b'''* connecting one of its ends to said bolt and the other to the arm *b'* in such manner that the pin *b''* of said arm is always pressed toward the upper edge of the roll with which it engages. The movement of the arm *b'* under the action of this spring is limited by means of a pin *b''''* projecting from the bolt *b* in such manner as to engage a suitably formed shoulder or equivalent projection *b'''''* on the hub part of said arm. The recess *c''''* is so placed in the connecting rod that it can be entered by the pin *b''* only when the bolt *b* is in the extreme outer end of the slot *c'''* and the shoulder *b'''''* is so designed that it will cause said pin to be disengaged or removed from said recess when the crank *c* has been so turned as to incline the connecting rod at a predetermined angle to the arm *b'*.

A holder for labels is illustrated at D and this is so guided on the frame A as to be vertically movable under the action of a lever *d* pivoted to said frame at *d'*. This lever is connected to the label holder through an end section *d''* which is in turn pivoted to the main section at *d'''*, as illustrated in Fig. 6. A spring *d''''* connected to the two parts of this lever tends to draw upwardly the end section *d''* by turning it upon its pivot *d''''*. Such upward movement is limited by means of a projecting lug *d'''''* on said end section though it is possible for said section to be turned downwardly against the action of the spring for a purpose hereinafter noted. The

opposite end of the lever is provided with a pin or roller d^6 engaging a cam groove formed in the crank c as illustrated at c^5 in Fig. 1. A second cam groove c^6 is also formed in the crank disk and in it operates a pin or roller e' carried by one end of a lever e pivoted to the frame at e^2 . The opposite end of the lever is connected to a paste reservoir E guided in the frame A so as to be vertically movable and provided with a paste applying roller e^3 .

The slide B has projecting from its side opposite that having the pin b a pair of slotted arms b^4 whose ends extend transversely through said slide as shown in Fig. 4, there being slots b^5 for their reception which permit of their being adjusted toward and from each other and in which said arms are maintained in any adjusted position by means of nuts as indicated in Fig. 2. Extending in the slot of each of these arms are two bolts b^6 carrying at their lower ends a flat plate or bar b^7 and having two wing nuts b^8 screwed upon their upper ends whereby it is possible to vary their vertical height relatively to the surface of the paste roller e^3 or to adjust their positions toward or from the slide B .

A pair of projecting spindles f are carried by the frame in such position as to be respectively under the two arms b^4 when the slide is at one end of its stroke and are mounted at a distance apart depending upon the diameter of the bottles to be labeled. On each of these spindles is revolubly mounted an elongated frame F formed of two substantially triangular end pieces f' connected by parallel rods f^2 so as to form the outline of a triangular prism. Upon each of the frames so formed I place a yielding cover preferably of fabric consisting in the present instance of a number of bands f^3 . At one end of each of the frames above referred to I mount a triangular plate g serving as a ratchet, while on the main frame A of the machine adjacent thereto I place a spring actuated bar g' in such manner as to cause it to engage and press against any one of the three sides of said plate, so as to insure that the covered frames which serve in effect as wipers, as hereafter described, are maintained in any one of three positions; the triangular pieces g being so mounted as to normally maintain said wipers in the relative positions shown in Fig. 1.

The crank disk c is driven by a friction wheel h mounted upon a shaft H actuated from any suitable source of power and mounted on the frame A so as to permit said friction wheel being adjusted towards or from the periphery of said crank disk. For the purpose of preventing revolution of said disk at certain times, I pivot a shoe K to the frame A in such manner that it may be pressed into engagement with the periphery of the disk, and attach to the rear face of this shoe

a latch k . The slide B has at its forward end a small projection b^9 forming an abutment capable of engaging said latch k and when said slide is at the forward end of its stroke it is capable of pressing the shoe into such close engagement with the crank as to hold it from turning.

An arm J pivoted to the main frame at j is bent around from the side of the machine to a point immediately under the latch k and is so formed as to be capable of forcing this upward from in front of the projection or abutment b^9 of the slide b . This arm is so mounted that it is turned on its pivot and its end raised by one of the end members f' of one of the wiper frames when this latter is turned on its supporting spindle.

Under operating conditions the crank disk is driven in the direction of the arrow, Fig. 1, from the main shaft H through the friction wheel h . If it be assumed that the various parts are in the positions shown in Fig. 1, the upward movement of the crank end of the connecting rod will cause the slide B to be moved in its guide toward the rear of the machine by reason of the fact that the pin b^2 of the arm b' is in the recess c^4 of said connecting rod. Before the slide reaches the end of this stroke and just when it is over the paste reservoir E this latter is raised by reason of the fact that the cam groove c^6 so acts upon its lever e as to move it upwardly. The paste roll e^3 of said lever is then brought into engagement with the plates b^7 which are carried by the arms b^4 so that their under faces are coated with paste. Just at the end of the rearward stroke of the connecting rod the label holder D is raised by the action of the cam groove c^5 upon the lever d and in case there should be a large number of labels in the holder, the end section d^3 is free to turn on its pivot d^3 against the action of the spring d^4 to avoid straining of any of the parts of the machine when the topmost label is pressed against the plates b^7 .

It is obvious that the slide B remains stationary during the application of a label to its plates b^7 , since the slide B reaches the extreme end of its stroke considerably before a similar condition is reached by the connecting rod. As a consequence, the rearward push of the crank upon the connecting rod causes the pin b^2 to move out of the recess c^4 , so that the end of the rod is left free to continue its rearward movement; the pin b sliding in the slot c^3 . It is not until the connecting rod has moved through a certain distance on its return stroke that the pin b is again engaged by the extreme rear end of the slot c^3 and when this has finally occurred, the slide, with a label held to the under side of the plates b^7 is moved forward to the position illustrated in Fig. 1. Hitherto the brake shoe K has been maintained out of engagement with the periphery of the crank

disk by means of a spring k^4 , but when the slide B reaches the forward end of its stroke, its projection b^9 engages the latch k on the shoe and presses the latter toward the crank disk so as to prevent further revolution thereof. As a consequence, further operation of the machine is stopped; there being, however, a label held between the two plates b^7 immediately over the space between the two wipers F.

If, now, a bottle, indicated at M be moved down upon the label N, with the various parts in the positions illustrated in Fig. 8, it will carry said label away from the plates b^7 into engagement with the projecting edges of the two wiper frames or with the covering fabric that is thereon. Since the distance between the two wipers is less than the diameter of the bottle, the continued downward movement of the latter causes a partial revolution of the wiper frames upon their spindles f so that they turn from the positions shown in Fig. 9, to those shown in Fig. 10, and later to the positions indicated in Fig. 11. In so doing, however, the portions of the label which had previously been in engagement with the paste-covered surface of the plates b^7 are firmly pressed against the sides of the bottle by the yielding fabric or other cover of the wipers so that when the bottle is finally removed from the machine the label has been smoothly and tightly pressed upon its surface to which it is held by the paste transferred to it from the plates b^7 .

From Fig. 4, it will be noted that the revolution of one of the wiper frames turns the arm J upon its pivot j and thereby raises the latch k out of engagement with the projection b^9 of the slide. The brake shoe is then moved away from the periphery of the crank disk c which is at once set in motion by the friction wheel h ; it being noted from Fig. 1 that such starting is facilitated by making said disk heavier on that portion most distant from the crank pin so that it tends of itself to turn as soon as the brake is released.

The spring pressed bar g' insures that the two wipers F are returned to the positions indicated in Fig. 8 after a label has been applied to a bottle, said bars acting upon the ratchet for this purpose, after which the parts of the machine are ready to again pass through the cycle of operations above described; it being noted that the pin b^2 of the arm b' enters the recess c^4 as the connecting rod is completing the end of its forward stroke.

I claim:

1. The combination in a bottle labeling machine of a frame, a guide way on the frame, a slide movable on said guide way having means for carrying a label, a container for labels, a crank, a connecting rod extending between the crank and the slide,

a cam on the crank, means for operatively connecting the label container and the cam, means for driving the crank, and mechanism for periodically and automatically stopping movement of said crank.

2. The combination in a bottle labeling machine of a frame having a guide way, a slide movable thereon and provided with a label carrying device, a paste container, a label holder, a shaft mounted on the frame, a crank on the shaft, a rod connecting the crank and the slide, two cams on the crank, a member placed to be actuated by one cam and operative to move the paste container, with a second member placed to be actuated by the second cam so as to independently move the label holder.

3. The combination in a bottle labeling machine of a frame, label carrying means, a label holder movable toward and from said carrying means, and means for periodically actuating said label holder, the same including a cam, and a lever made in two parts connecting said cam with the label holder.

4. The combination in a bottle labeling machine of a frame, a label carrying device, a label holder movable toward and from said device, a lever operatively attached to said label holder, said lever being provided with an end section pivotally connected to its main portion, a spring tending to turn said section on its pivot, a stop for maintaining said end section in a predetermined position relatively to the main part of the lever, with means for actuating said lever.

5. The combination in a bottle labeling machine of a frame having a guide way, a label carrying slide, means for reciprocating said slide on the guide way, a device movable toward and from the guide way for holding a number of labels, a lever pivoted to the frame and provided with an end section connecting the label holder with its main portion, a spring tending to turn said end section on its pivot relatively to the body portion of the lever, means for limiting the movement of said end section on its pivot, and means for actuating the lever to move the label holder toward and from the label carrier.

6. The combination in a labeling machine of a frame having a substantially horizontal guide way, a label carrying slide thereon, means for reciprocating said slide on the guide way, a label holder vertically guided on the frame, a lever pivoted to the frame having a relatively movable end section connecting it to the label holder, with means for normally maintaining said end section in a definite position relatively to the body of the lever while permitting it to yield when the label holder is prevented from moving to its full extent.

7. The combination in a labeling machine of a frame having a guide way, a slide thereon, a crank provided with two cam grooves,

- a shaft carrying said crank, a connecting rod between the crank and the slide, a label holder guided on the frame so as to be free to move toward and from the slide, a container for adhesive material also guided on the frame, so as to be movable toward and from the slide, and two levers pivoted to the frame, one having a portion operative in one of the cam grooves and connected to the adhesive container, and the other being made in two yieldingly connected parts of which one is placed to be operative in the second of the cam grooves and the other is connected to the label container.
8. The combination in a labeling machine of a frame, a guide way thereon, a label carrier movable on the guide way and provided with a pin, a crank, a connecting rod having one end attached to said crank and the other provided with a slot for the reception of the pin on the slide, with a member for detachably connecting the slide and the connecting rod so as to temporarily prevent movement of the pin in the slot.
9. The combination in a labeling machine of a frame, a guide way thereon, a label carrier movable on the guide way and provided with a pin, a crank, a connecting rod having one end attached to said crank and the other provided with a slot for the reception of the pin on the slide, with an arm loosely mounted on the pin and having a portion removably engaging a recess in the connecting rod.
10. The combination in a labeling machine of a frame, a guideway thereon, a label carrier movable on the guide way, and provided with a pin, a crank, a connecting rod having one end attached to said crank and the other provided with a slot for the reception of the pin on the slide, an arm loosely mounted on the pin having a portion removably engaging a recess in the connecting rod, a spring tending to retain said portion of the arm in said recess, and a stop for limiting the movement of said arm.
11. The combination in a labeling machine of a frame having a guide way, a label-carrying slide on said guide way, a crank, a rod joining the crank and the slide and having a slotted connection with said slide, with means for operatively disconnecting said rod from the slide at a predetermined portion of the stroke thereof.
12. The combination in a labeling machine of a frame, a frictionally driven crank mounted thereon, a slide operatively connected to said crank, and a brake shoe operative on the crank for preventing revolution thereof, said brake shoe being placed to be actuated by the slide.
13. The combination in a labeling machine of a frame, a slide movable thereon, a frictionally driven crank for reciprocating said slide, a brake shoe mounted on the frame and placed to be operative upon the crank to prevent revolution thereof, a latch actuated by the slide for applying the brake shoe to the crank, and means for tripping said latch.
14. The combination in a labeling machine of a slide having a label carrier, means for driving said slide including a frictionally actuated member, a brake shoe placed to prevent operation of said member, a wiper for pressing a label against a bottle, a latch actuated by the slide for applying the brake shoe, and means actuated by said wiper for tripping said latch.
15. A labeling machine consisting of a frame, a slide reciprocable thereon and provided with means for holding a label, with a wiper or wipers for pressing such label against the sides of the bottle, said wiper or wipers each consisting of a revoluble frame having a covering and capable of yielding to permit of the passage of a bottle.
16. A labeling machine consisting of a frame, a slide reciprocable thereon and provided with means for holding a label, with two wipers for pressing such label against the sides of the bottle, said wipers consisting of revoluble frames having yielding coverings, with means tending to hold said frames in definite positions relatively to the label carrying means.
17. The combination in a labeling machine of a frame, a label carrying device, wipers for pressing a label against the sides of a bottle, each of said wipers consisting of a spindle, a frame consisting of a plurality of parallel members, and a yielding covering of sheet material extending around said frame.
18. The combination in a labeling machine of a frame, a label carrying device, wipers for pressing a label against the sides of a bottle, each of said wipers consisting of a spindle, a frame having a plurality of parallel members, and a covering of sheet material extending around said frame, said wipers being mounted so that the distance between them is less than the diameter of the bottle to which a label is to be applied.
19. The combination in a labeling machine of a frame, a guide way thereon, a slide on the guide way having projecting arms, label carrying plates mounted on said arms, a label holder, an adhesive container, means for moving said holder and said container into a position to apply adhesive and a label to said plates, means for reciprocating the slide, and two wipers for pressing a label into engagement with the sides of the bottle, said wipers each consisting of a frame having a covering of sheet material capable of conforming to the shape of the bottle.
20. The combination in a labeling machine of a frame, a crank revolubly mounted thereon, a brake shoe operative on the crank, a latch for actuating said brake shoe to prevent revolution of the crank, a guide way on the frame, a slide on said guideway capable of

causing the latch to apply the brake shoe, label carrying means attached to the slide, means for applying a label to said carrying means, a pair of wipers for pressing such label 5 into engagement with the sides of the bottle, and an arm placed to be actuated by the movement of the wipers for tripping the brake applying latch.

21. The combination in a labeling machine 10 of a frame, a crank mounted thereon, a slide having label carrying means and operatively connected to the crank, means for driving the crank, and means for temporarily pre-

venting revolution of the crank, said crank being weighted at a point opposite the point 15 at which it is connected to the slide so as to be capable of automatically starting after the revolution-preventing means has been released.

In testimony whereof, I have signed my 20 name to this specification, in the presence of two subscribing witnesses.

WILLIAM F. RUWELL.

Witnesses:

W. C. HARDY,
A. W. RUWELL.