E. J. GODMAN.

BOTTLE SEALING MACHINE.

APPLICATION FILED APR. 29, 1907.

920,048.

Patented Apr. 27, 1909.

2 SHEETS—SHEET 1.

Fig. 2.

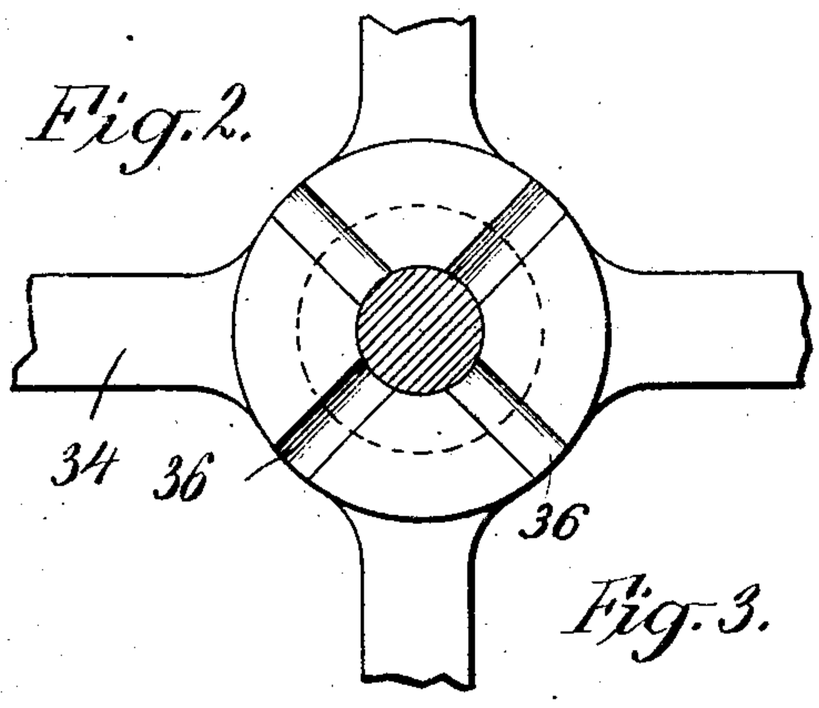


Fig. 3.

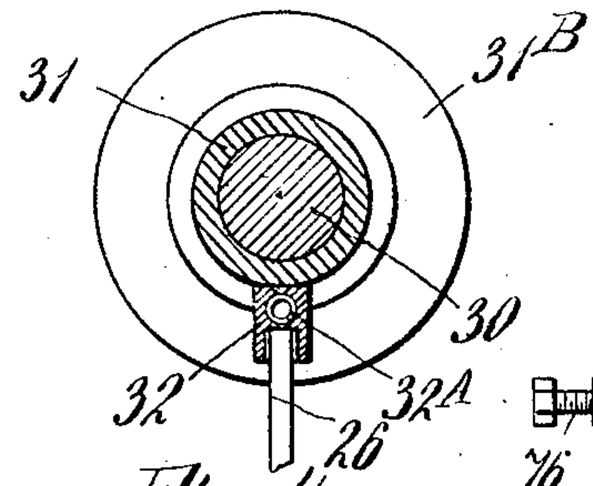


Fig. 5.

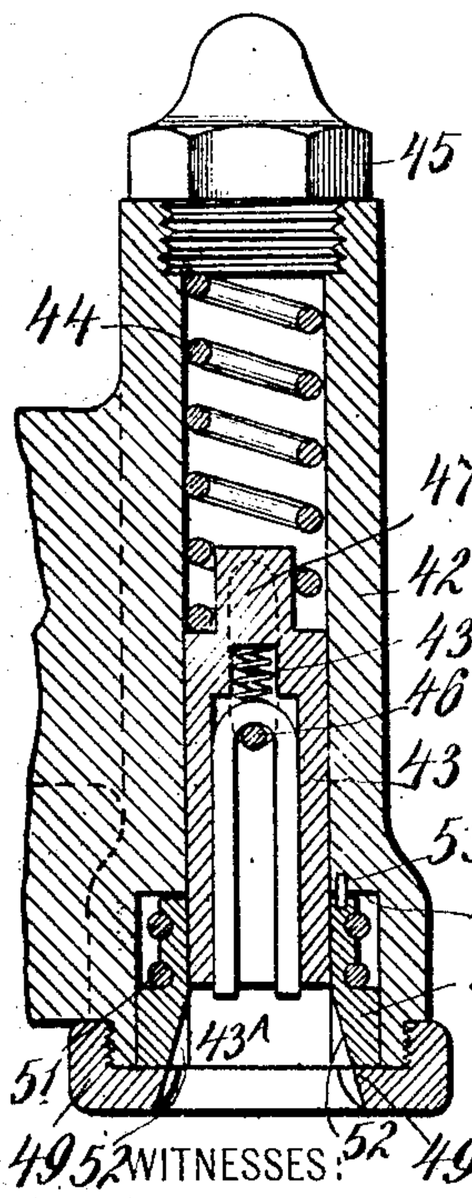
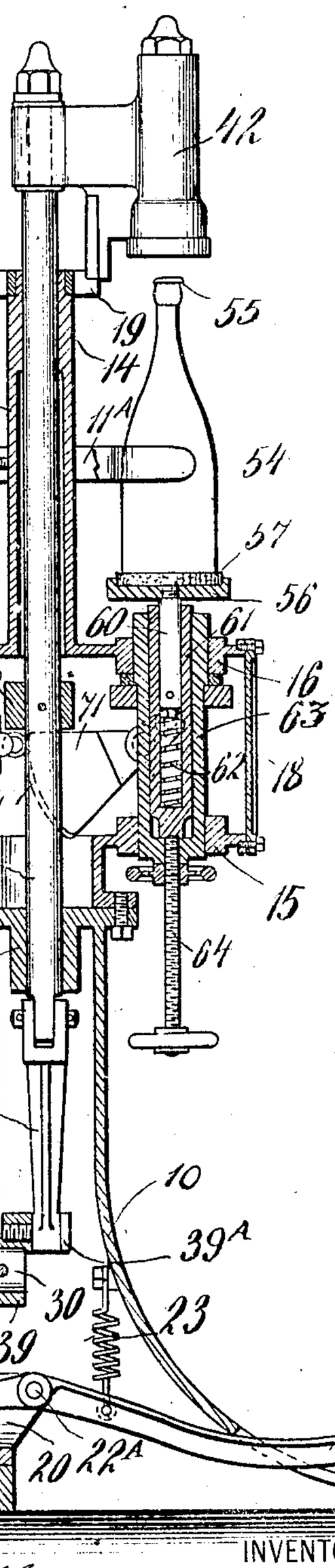


Fig. 4.

Fig. 1.



WITNESSES:

Edward A. Smith

INVENTOR

Emory J. Godman

BY

E. W. Marshall

ATTORNEY

E. J. GODMAN.

BOTTLE SEALING MACHINE.

APPLICATION FILED APR. 29, 1907.

920,048.

Patented Apr. 27, 1909.

2 SHEETS—SHEET 2.

Fig. 6.

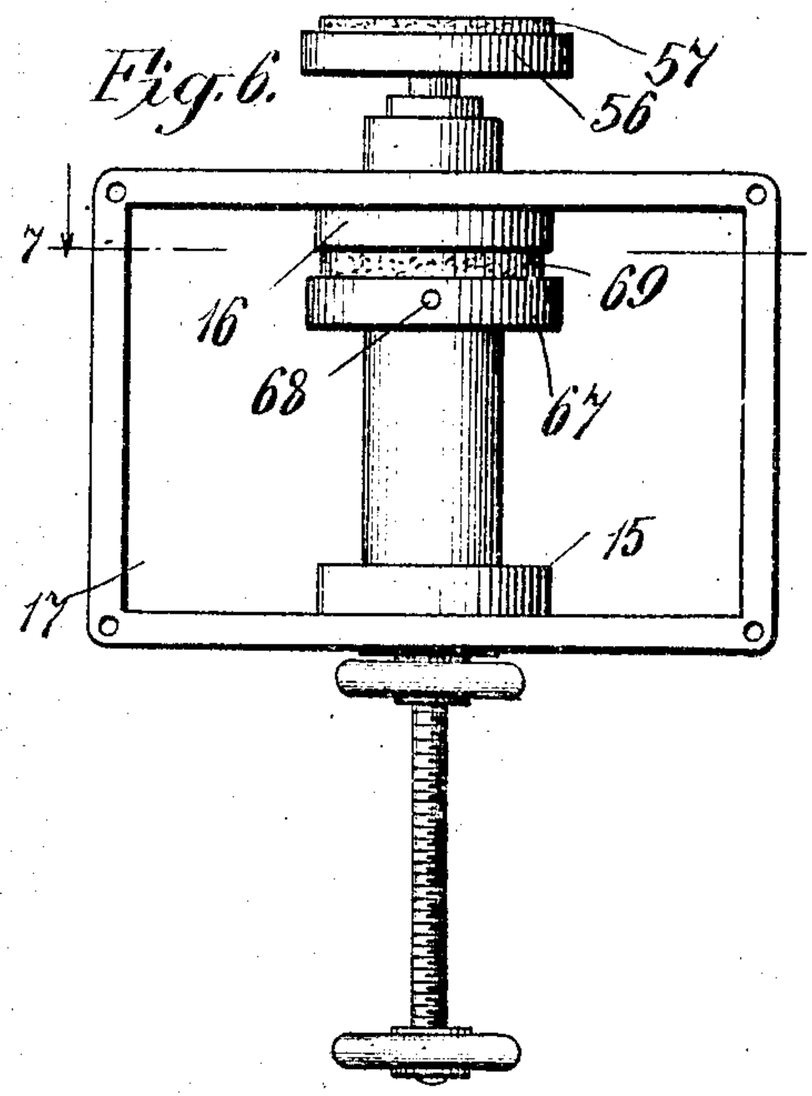


Fig. 8.

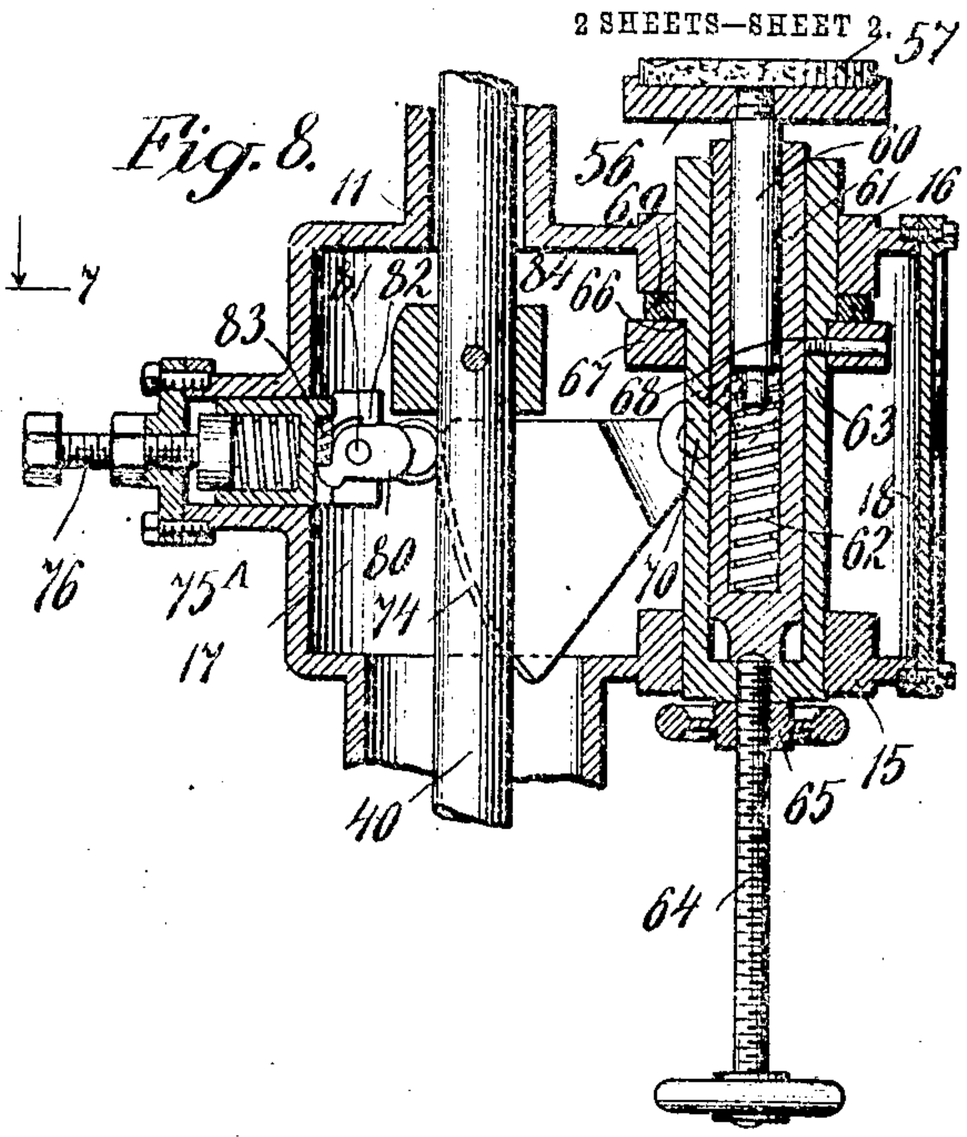


Fig. 7.

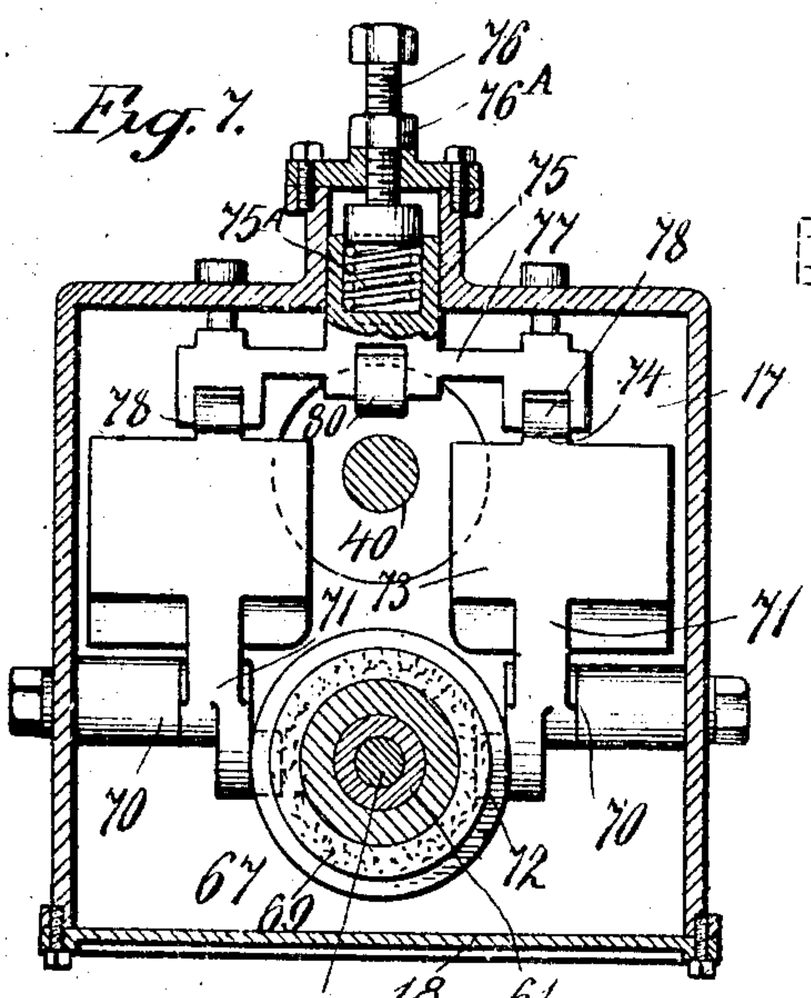


Fig. 9.

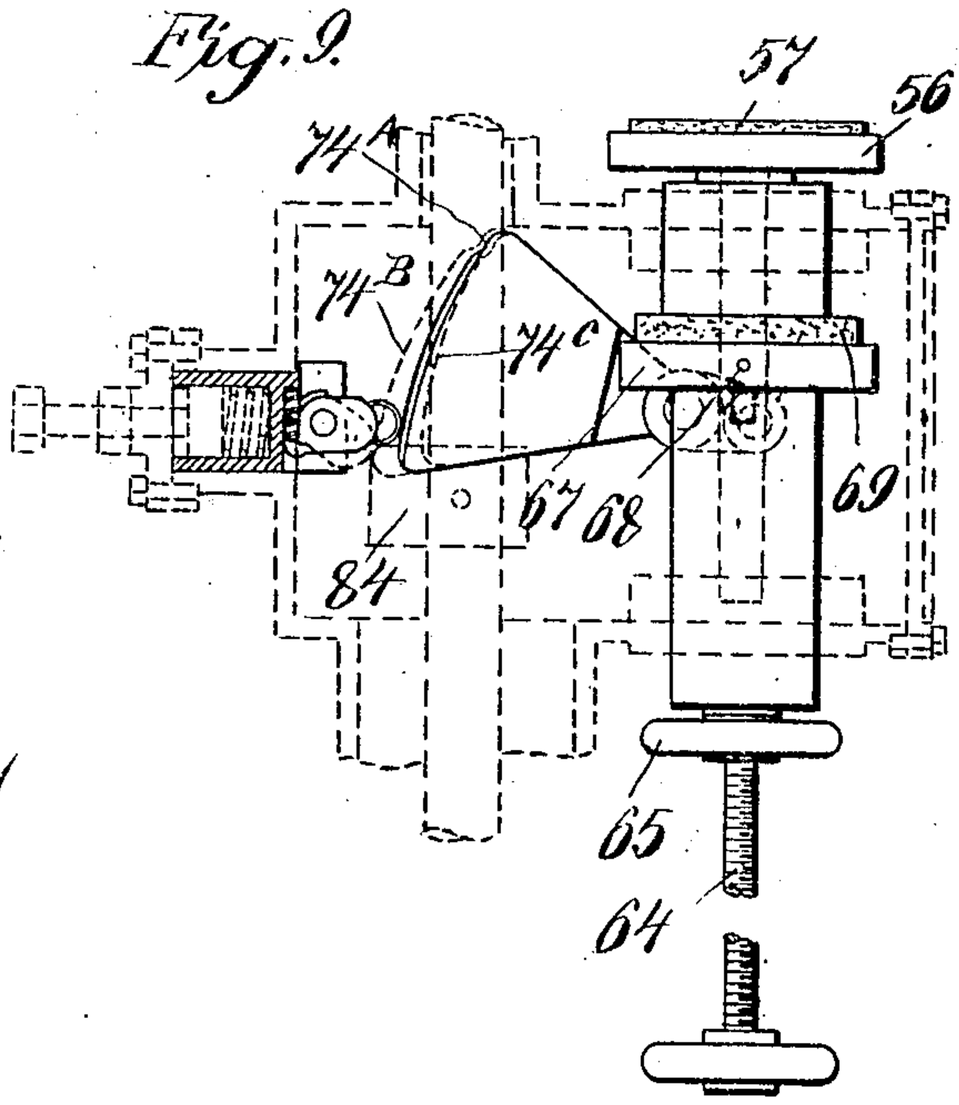
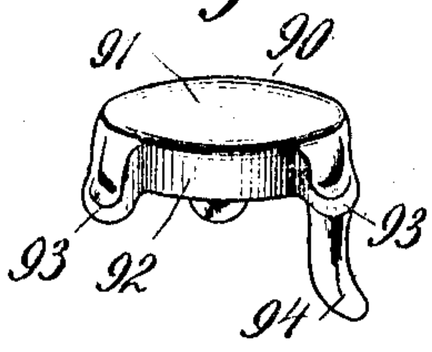


Fig. 10.



WITNESSES:

Edw. Lucas

Edward A. Smith

INVENTOR

Emory J. Godman

BY

E. W. Marshall

ATTORNEY

UNITED STATES PATENT OFFICE.

EMORY J. GODMAN, OF JERSEY CITY, NEW JERSEY, ASSIGNOR TO STERLING SEAL COMPANY, A CORPORATION OF MAINE.

BOTTLE-SEALING MACHINE.

No. 920,048. Specification of Letters Patent. Patented April 27, 1909.

Application filed April 29, 1907. Serial No. 370,819.

To all whom it may concern:

Be it known that I, EMORY J. GODMAN, a citizen of the United States, and a resident of Jersey City, in the county of Hudson and State of New Jersey, United States of America, have invented certain new and useful Improvements in Bottle-Sealing Machines, of which the following is a specification.

My invention relates to a bottle sealing machine and its object is to provide a simple and efficient apparatus for applying caps to bottles.

It consists in the novel construction and arrangements of parts which I will describe in the following specification and the novel features of which I will set forth in claims.

Referring to the drawings Figure 1 is a side elevation, partly in section, of my improved apparatus. Fig. 2 is an enlarged sectional view showing a portion of a driving pulley, the section being taken through the line 2—2 of Fig. 1. Fig. 3 is a similar sectional view of a portion of a locking device, the section being taken through the line 3—3 of Fig. 1. Fig. 4 is a top plan view of a trip collar which I use in carrying out my invention. Fig. 5 is a sectional side elevation of the sealing or capping head of this machine. Fig. 6 is a front elevation on an enlarged scale of a portion of the apparatus illustrated in Fig. 1 with the front plate removed, this view showing an improved compensating mechanism which I have invented. Fig. 7 is a sectional plan view of the compensating mechanism, the section being taken through the line 7—7 of Fig. 6. Fig. 8 is a sectional side elevation of the compensating mechanism. Fig. 9 is a diagrammatic representation of the compensator showing its parts in different operative positions. In Fig. 10 I have shown in perspective one form of bottle caps or stoppers which may be used in conjunction with my improved bottle sealing machine.

Like characters of reference designate corresponding parts in all of the figures.

10 designates a standard or base upon which the various parts of my machine are mounted.

11 is a standard rigidly bolted to the base 10 at 12 so that it forms the upper portion of the supporting frame.

20 designates a pedestal which is attached to the base 10 and arranged to form bearings 21, 21 for the power shaft 30. This pedestal pivotally supports a treadle 22 at 22^A. A tension spring 23 between the base and the treadle serves to normally maintain the latter in its raised position in which it is shown in Fig. 1. The inner portion 24 of the treadle coacts with a latch lever 25 which is pivoted at 25^A to the pedestal 20. One end of this latch lever is provided with an upwardly projecting portion 26, the inner end of which is preferably tapered as shown at 26^A. A spring 27 may be provided to pull this projecting portion 26 upward. In the other end of the latch lever 25 a sliding catch 28 is placed, and a spring 28^A is provided to press this catch outward. A pin 29 passing through a slot in the upper side of the latch lever and attached to the sliding catch 28 limits the outward movement of the catch and performs a further function which I will point out later.

A grooved collar 31 is made fast to the shaft 30 by means of a key 31^A. 31^B designates the groove in the collar 31. In a recess in this collar a sliding key 32 is placed with a compression spring 32^A behind it to press it outward. A slot 33 is cut out in the under side of this sliding key, and into this slot the projecting portion 26 of the latch lever 25 is adapted to fit. A brake-shoe 31^C constantly pressed against the grooved collar 31 by a compression spring 31^D is sometimes provided.

A pulley 34, driven from any suitable source of power supply, is loosely mounted upon the shaft 30 between the fixed grooved collar 31 and another collar 35 which is fastened to the end of the shaft. Into the inner hub of this power pulley rectangular grooves 36, 36 are cut at right angles to each other so that they form recesses equally spaced about the hub. These recesses are of a width approximately equal to that of the sliding key 32.

Between the two bearings 21, 21 a trip collar 37 is fastened to the shaft 30. This trip collar is provided with a projecting cam portion 38 which is clearly shown in Fig. 4. At the forward end of the shaft 30 a crank collar 39 is fixed to which is attached a crank pin 39^A.

40 designates a vertically reciprocating rod. The upper portion 13 of the base 10 and the upper part 14 of the standard 11

are bored out to form bearings for this rod to slidably support it. The lower end of rod 40 is connected with the crank pin 39A by a pitman 41. To the upper end of this reciprocating rod 40 a sealing head 42 is attached. This sealing head is hollow and within it a compression shaft 43 is placed. A compression spring 44 between the upper end of the compression shaft and a nut 45 which is screwed into the top of the head 42 tends to press the compression shaft downward. A pin 46 through the compression shaft extends through slots 47 in the walls of the head and limits the downward movement of the compression shaft. The inner diameter of the lower end of the head is somewhat larger than the compression shaft and forms a shoulder 48 with the portion which supports the compression shaft. The collar 49 which is provided with an inwardly projecting rim 49A is screwed onto the lower end of the sealing head. 43A designates a permanent magnet which is placed loosely within the hollow portion of the compression shaft 43 and is supported upon the pin 46. A light spring 43B may be placed above this magnet to insure its being pressed outward from the compression shaft 43.

Between the shoulder 48 and the projecting rim 49A a forming ring 50, is placed. This is preferably built up of a plurality of sectors held together and in horizontal alinement with each other by means of springs 51, placed in grooves in the outer surfaces of the sectors. The inner surfaces of the sectors are provided with cam grooves 52 which are adapted to engage with and act upon portions of bottle caps in a manner which I will point out later. The vertical height of the forming ring is somewhat less than the distance between the shoulder 48 and the projecting rim 49A so that the forming ring is held loosely between these parts of the sealing head. To prevent its rotation within the sealing head a pin 53 may be provided in one of its sectors.

The bottle to be sealed is designated by 54 and it is provided, as shown, with a rim or bead 55 about the upper end of its neck. The bottle is held by a bottle supporting plate 56, upon which may be placed a pad 57 of resilient material. A guide bracket 11A is supported upon the standard 11 and arranged to hold the bottle in alinement with the sealing head. The manner in which this bottle supporting plate is supported upon and connected with the other parts of the apparatus is an important feature of my invention and one which I will now particularly point out.

A spindle 60 is attached to the plate 56 and extends downward into the inside of an inner sleeve 61 and is resiliently supported therein by means of a compression spring 62. This inner sleeve is supported in an outer sleeve 63 which outer sleeve is slidably supported at 15 and 16 by supporting bearings projecting from standard 11 and preferably integral therewith. The inner sleeve is arranged to move positively with the outer sleeve but the relative positions of the two sleeves may be adjusted by means of an adjusting screw 64 which passes through the lower portion of the outer sleeve 63 through a threaded hole and bears upon the bottom portion of the inner sleeve 61.

65 is a lock-nut for holding the adjusting screw 64 in a desired position.

The outside of the outer sleeve 63 is somewhat smaller in diameter at that part of its length which passes through the bearing 15 than it is at the part which passes through the bearing 16. A shoulder is formed at 66 where the portions of different diameters meet.

67 is a collar which is arranged to fit over the lower portion of the outer sleeve and to abut against the shoulder 66. A pin 68 may be provided to hold this collar onto the outer sleeve 63.

69 is a buffer cushion of soft rubber or similar material.

The portion of standard 11 which is situated near the parts just described is enlarged to form a chamber 17 within which the various parts of my improved compensating mechanism are situated. 18 designates a removable cover for the chamber 17.

At 70, 70 are pivoted two weighted levers 71, 71, the forward ends of which are provided with antifriction rollers 72 which bear upon the under surface of collar 67 and the rear ends of which are enlarged as shown at 73 to form weights of considerable size. The rear surfaces 74 of these pivoted weighted levers are constructed to form cam surfaces which are preferably finished.

75 designates a plunger which is supported in the rear portion of the part of standard 11 which forms the chamber 17 and which is arranged to slide horizontally therein. A compression spring 75A is arranged to push this plunger forward under a pressure which may be regulated by means of an adjusting screw 76 which may be set at the proper position and held in place by means of a lock-nut 76A. The outer portion of this plunger 75 is constructed to form a yoke 77 which holds a pair of antifriction rollers 78, 78 which are in the path of movement of the cam surfaces 74 and which are pushed outward against these cam surfaces 74 under a desired amount of pressure by means of the compression spring 75A.

80 designates a trip lever which is pivoted at 81 to the yoke 77 at a point in line with the axis of the plunger 75. This trip lever 80 is held from upward movement by abutting against a shoulder 82 formed in yoke 77, but it may be moved downward against

the action of a small spring 83. 84 designates a cam collar which is attached to the reciprocating rod 40 directly above the trip lever 80.

19 is a guiding collar attached to the upper end of standard 11 and arranged to guide the movements of the sealing head 42 and to prevent any lateral or horizontal movement thereof.

90 designates one form of bottle cap which may be used to advantage in conjunction with the apparatus which I have invented. This cap comprises a flat disk 91 which is provided with a depending flange 92, below which fingers or holding lugs 93 depend. One of these depending fingers or lugs may be provided with an extended tail-piece 94 if desired. A packing of cork or other resilient material may be placed within this cap.

I have described the various parts of my apparatus and I will now proceed to point out their operation.

The pulley 34 is arranged to be driven from a suitable source of power so that it is constantly revolving during the operation of this apparatus. It is loosely mounted upon the shaft 30 so that it has no effect upon the latter until it is connected therewith by the operator. This may be done by depressing the treadle 22 which will raise the forward end of latch lever 25 and withdraw its projecting portion 26 from the grooved collar 31. This will leave the sliding key 32 free to be pushed outward from the grooved collar 31 under the action of its spring 32^A. As soon as one of the rectangular grooves 36 in the hub of the power pulley comes opposite this sliding key the latter will move into the groove and thereby lock the power pulley 34 and the grooved collar 31 together. The grooved collar is attached to the shaft 30 so that the shaft will now move in unison with the power pulley 34. This will in turn cause the crank collar to be rotated and the reciprocating rod 40 will be actuated thereby through its connection with the crank collar. The sealing head 42 will thereby be actuated to perform its functions which I will describe later.

The trip collar 37 is connected to move with the shaft 30 and it is so arranged that when the shaft has been rotated a predetermined amount the cam surface 38 of the trip collar will strike upon an antifriction roller 29^A upon the pin 29 and thereby push the sliding catch 28 inward. The sliding catch 28 will thereby be removed from engagement with the inner end 24 of the treadle 22 and the projecting portion 26 of the latch lever 25 will then be forced into the slot in collar 31 by means of the spring 27. The tapered end 26^A of the projecting portion 26 will then engage with the sliding key 32 and cause the latter to be withdrawn from its engagement with the power pulley 34. The movement of the shaft 30 will thereupon discontinue.

It is desirable for the rapid operation of this machine that the shaft 30 and its connected parts should come to rest quickly upon the disconnection of the grooved collar 31 from the power pulley and for this purpose I sometimes provide the brake-shoe 31^C which is pressed upon the outer surface of the grooved collar and which assists in arresting the movement of the shaft 30.

It may be seen that whenever the treadle 22 is depressed the crank collar 39 will be carried through only one revolution so that the sealing head will be depressed and raised again but once. It is necessary for the repetition of this operation that an operator allow the treadle to be raised again until its rear end 24 is caught under the sliding catch 28, after which the sealing head may again be depressed and raised in the manner previously described.

In order to seal a bottle by this apparatus the bottle is placed upon the bottle supporting plate 56 as is shown in Fig. 1 and a cap 90 is placed within the bottle sealing head 42. The cap will be supported therein by the magnet 43^A. When the sealing head 42 is depressed as before described the cap 90 will descend with the head until it comes in contact with the top of the bottle 54. The first effect of this will be to cause the magnet 43^A to be pressed upward into the compression shaft 43. A further movement will cause the compression shaft to press the cap firmly down upon the bottle when its movement within the sealing head is arrested but a further movement of the head will cause the forming ring 50, through its cam surfaces 52 acting upon the depending fingers 93 of the cap, to push the depending fingers inward until they are brought into locking engagement with the rim or bead 55 at the top of the bottle. In performing this operation it is necessary to have a considerable pressure exercised between the sealing head 42 and the bottle supporting plate 56, and as the upward movement of the compression shaft 43 within the sealing head 42 is limited by the pin 46 and the slots 47, this pressure will be taken up by the bottle. It is also desirable that this pressure be uniform for variable sizes of bottles so that bottles which are under height will receive the maximum amount of pressure necessary for perfect sealing, and bottles which exceed the normal height will not be subjected to undue pressure. For this purpose I have invented the compensating mechanism, the parts of which I have already described and the operation of which I will now point out.

The first effect of the sealing head 42 upon the bottle will be to push the latter downward. The first shock of this downward

movement of the bottle will be taken up by the compression springs 44 and 62 until the bottle supporting plate 56 comes in contact with the upper end of the inner sleeve 61, after which the bottle and the inner and outer sleeves will move downward together. The downward movement of these parts is resisted by the weighted levers 73 and also by the action of the spring 75A upon the cam surfaces 74 on the cam levers. The upper portion of the cam surfaces 74 may be formed with a slight indentation 74A to make necessary a given amount of pressure for moving the weighted levers 71. The amount of downward pressure upon the bottle necessary to cause the movement of the weighted levers 71 may be nicely adjusted to a predetermined amount. This resisting effect will continue during the downward movement of the sealing head. The continued downward movement of the bottle will cause the cam surfaces 74 to be raised and to thereby press the plunger 75 inward at a rate sufficient to resist the downward movement of the bottle at a practically constant pressure. The various parts above mentioned move together in substantially the same relative positions, and the pressure upon the cap is maintained during the whole operation within the limits of the sealing pressure without putting undue crushing pressure upon the bottle. The cam may, if desired, be constructed as designated in Fig. 9, by dotted lines, at 74B to produce an increasing pressure during the downward movement of the bottle, or it may be constructed as designated by dotted lines at 74C to maintain a constantly diminishing pressure during the downward movement of the bottle. The various parts may be adjusted by means of the adjusting screws 64 and 76 to obtain upon the bottle the amount of pressure necessary for perfect sealing, and this pressure may be maintained without being exceeded throughout the entire operation of sealing. The arrangement for adjusting the position of the inner sleeve 61 within the outer sleeve 63 is provided for the purpose of adjusting the bottle supporting plate for greater variations in height than the compensating device is constructed to take care of.

It may be seen that the cam collar 84 upon the reciprocating rod 40 has been moved downward into the position indicated in Fig. 9 by the downward movement of the rod 40. In doing this it has passed the trip lever 80 which is first swung about its pivot into the position designated by dotted lines in Fig. 9 to allow the cam collar to pass. Then upon the upward movement of the reciprocating rod 40 and the cam collar 84 the trip lever 80 will be pressed backward and will thereby cause the yoke 77 to be moved back against the action of spring 75A a sufficient amount to entirely remove the antifriction rollers 78 from their contact with the cam surfaces 74. This will allow the weighted levers 71 to return freely to their original position as soon as the pressure is relieved from the top of the bottle. The antifriction rollers 72 which are attached to the forward ends of these weighted levers, acting upon the under surface of collar 67, will promptly return the inner and outer sleeves and the bottle supporting plate to their original positions under the action of gravity. The buffer cushion 69 is provided to prevent undue jarring of the parts in returning to their original positions.

The cycle of operations above described will occur once for every time the treadle 22 is depressed, and it may be seen that the operation may be repeated indefinitely as often as required. The compensating mechanism therefore maintains upon a bottle during the downward stroke of the sealing head a desired amount of pressure, but the device by means of which this pressure is obtained is automatically thrown out of operation upon the upward stroke of the sealing head so that the compensating mechanism operates only at the part of the operation of sealing the bottle at which it is useful in performing its functions.

I have illustrated one form of carrying my invention into effect but the invention may be worked out in many other ways.

The compensating mechanism which I have invented is simple and effective and a great improvement over others known in the art, inasmuch as the required sealing pressure in this case is maintained throughout the entire sealing operation.

What I claim is:—

1. In a bottle sealing machine, a sealing head, a bottle support, means for moving one of said parts relative to the other to obtain sealing pressure, and for further moving both of said parts in the same direction and in substantially the same relative positions a spring arranged to produce an opposing force to said further movement, a lever associated with the bottle support and a cam actuated by said lever, said cam being arranged to compress the spring at a predetermined rate in relation to the movement of the bottle support.

2. In a bottle sealing machine, a sealing head, a bottle support, means for moving one of said parts relative to the other to obtain sealing pressure, a spring arranged to produce an opposing force to said further movement, a pivoted weighted cam lever associated with the bottle support, said cam lever being arranged to compress the spring at a predetermined rate in relation to the movement of the bottle support in the down-

ward direction, said weighted cam lever being arranged to move the bottle support in the upward direction.

3. In a bottle sealing machine, a sealing head, a bottle support, means for moving one of said parts relative to the other to obtain sealing pressure, a spring arranged to produce an opposing force to said further movement, a pivoted weighted lever associated with the bottle support, a cam actuated by said lever, said cam being arranged to compress the spring at a predetermined rate in relation to the movement of the bottle support in the downward direction, said weighted lever being arranged to move the bottle support in the upward direction, and means for removing said spring from operative position during the upward movement of the bottle support.

4. In a bottle sealing machine, a sealing head, a bottle support, means for moving one of said parts relative to the other to obtain sealing pressure upon a bottle when said parts are a distance apart corresponding to the length of the bottle, and for further moving said parts in the same direction and in substantially the same relative positions, a pivoted cam member connected with one of said parts, and a spring-pressed opposing member in contact with the pivoted cam member, said cam member and opposing member being arranged to produce the required sealing pressure upon the bottle and to maintain said pressure within the sealing limits.

5. In a bottle sealing machine, a sealing head, a bottle support, means for moving one of said parts relative to the other to obtain sealing pressure upon a bottle when the parts are a distance apart corresponding to the length of the bottle, and for further moving said parts in the same direction and in substantially the same relative positions, a pivoted cam member connected with one of said parts, a slidable opposing member, a spring pressing said opposing member into contact with the pivoted cam member and arranged to produce a regulable amount of sealing pressure upon the bottle and to maintain said pressure within the sealing limits, and means for adjusting said pressure.

6. In a bottle sealing machine, a sealing head, a bottle support, means for moving the sealing head downward toward said support until it reaches a distance from the support corresponding to the height of a bottle upon the support, and for further moving the sealing head and the support in the same direction and in substantially the same relative positions, a pivoted cam member connected with the bottle support, a slidable opposing member, a spring pressing said opposing member against said cam member and arranged to produce a regulable amount of pressure upon the bottle and to maintain said pressure within the sealing limits throughout said further movement.

7. In a bottle sealing machine, a sealing head, a bottle support, a pivoted cam lever associated with said support, a slidable opposing member, a spring pressing said opposing member into contact with said cam lever, means for moving the sealing head toward the bottle support until the pivoted cam lever and its associated opposing member produce sealing pressure upon a bottle, and for further moving the sealing head and the bottle support in the same direction and in substantially the same relative positions, said cam being arranged to move the opposing member against the action of the spring to produce a predetermined opposing force to said further movement.

8. In a bottle sealing machine, a sealing head, a bottle support, a pivoted lever connected with the support, said lever having a cam surface with a shoulder portion thereon, a slidable opposing member, a spring pressing said opposing member into contact with the shoulder portion of same cam surface, means for moving the sealing head toward the bottle support until the cam and its associated opposing member produce sealing pressure upon a bottle, and for further moving the sealing head and the bottle support in the same direction and in substantially the same relative positions, said cam being arranged to move the opposing member and compress the spring at a predetermined rate to produce a desired opposing force to said further movement.

9. In a bottle sealing machine, a sealing head, a power device arranged to reciprocate the sealing head through a fixed distance of travel, a bottle support arranged to hold a bottle in the path of travel of the sealing head and to move down and up with the sealing head a distance corresponding to the length of the bottle, a compensating device arranged to automatically oppose the downward movement of the bottle, said compensating device comprising a spring arranged to produce an opposing force to said further movement, a lever associated with the bottle support and a cam actuated by said lever, said cam being arranged to compress the spring at a predetermined rate in relation to the movement of the bottle support.

10. In a bottle sealing machine, a sealing head, a power device arranged to reciprocate the sealing head through a fixed distance of travel, a bottle support arranged to hold a bottle in the path of travel of the sealing head and to move down and up with the sealing head a distance corresponding to

the length of the bottle, a compensating device arranged to automatically oppose said downward movement of the bottle support, said compensating device comprising a spring arranged to produce an opposing force to said further movement, a pivoted weighted lever associated with the bottle support, a cam actuated by said lever, said cam being arranged to compress the spring at a predetermined rate in relation to the downward movement of the bottle support, said weighted lever being arranged to move the bottle support upward, and means for positively removing said spring from operative position during the upward movement of the bottle support.

11. In a bottle sealing machine, a frame, a power device, a reciprocating rod having a fixed distance of travel, a sealing head connected therewith, a bottle support upon the frame, said bottle support being arranged to hold the bottle in the path of travel of the sealing head and to move with the sealing head during a portion of its travel, a spring arranged to produce an opposing force to said further movement, a lever associated with the bottle support, and a cam actuated by said lever, said cam being arranged to compress the spring at a predetermined rate in relation to the movement of the bottle support.

12. In a bottle sealing machine, a frame, a power device, a reciprocating rod having a fixed distance of travel, a sealing head connected therewith, mechanism for connecting the power device with the reciprocating rod, a depressible treadle for controlling said connecting mechanism, said connecting mechanism being arranged to cause the reciprocating rod and the sealing head to be reciprocated but once for each depression of the treadle, a bottle support upon the frame, said bottle support being arranged to hold a bottle in the path of travel of the sealing head and to move with the sealing head during a portion of its travel corresponding to the length of the bottle, a spring arranged to produce an opposing force to the downward movement of the bottle support, a lever connected with the bottle support, and a cam actuated by said lever, said cam being arranged to compress the spring at a predetermined rate in relation to the movement of the bottle support.

13. In a bottle sealing machine, a sealing head, a bottle support, a power device arranged to reciprocate the sealing head through a fixed distance of travel to obtain sealing pressure, intermediate mechanism for connecting the power device with the sealing head, a depressible treadle for controlling said connection, said intermediate mechanism being arranged to cause the sealing head to be reciprocated but once for each depression of the treadle, a bottle support arranged to hold a bottle in the path of travel of the sealing head and to move with the sealing head during a portion of its travel, a cam lever associated with the bottle support, said cam lever being arranged to compress the spring at a predetermined rate in relation to the movement of the bottle support.

14. In a bottle sealing machine, a sealing head, a power device arranged to reciprocate the sealing head through a fixed distance of travel, intermediate mechanism for connecting the power device with the sealing head, a depressible treadle for controlling said connection, said intermediate mechanism being arranged to cause the sealing head to be reciprocated but once for each depression of the treadle, a bottle support arranged to hold a bottle in the path of travel of the sealing head, and to move with the sealing head a distance corresponding to the length of the bottle, a pivoted weighted lever associated with the bottle support, said lever being arranged to compress the spring at a predetermined rate in relation to the movement of the sealing head in the downward direction and to thereby oppose said downward movement of the bottle support with a uniform force, and means for removing said spring from operative position during the upward movement of the bottle support, said weighted cam lever being arranged to move the bottle support in the upward direction.

15. In a bottle sealing machine, a sealing head, a power device arranged to reciprocate the sealing head through a fixed distance of travel, intermediate mechanism for connecting the power device with the sealing head, a depressible treadle for controlling said connection, said intermediate mechanism arranged to cause the sealing head to be reciprocated but once for each depression of the treadle, a bottle support arranged to hold a bottle in the path of travel of the sealing head, and to move with the sealing head during a portion of its travel, a compensating device comprising a pivoted weighted cam lever associated with the bottle support, a spring arranged to be compressed by said cam lever, at a predetermined rate in relation to the movement of the bottle support in a downward direction and to thereby oppose the downward movement of the bottle support with a uniform force, and means for positively removing said spring from operative position during the upward movement of the bottle support.

16. In a bottle sealing machine, a frame, a power device, a reciprocating rod having a fixed distance of travel, a sealing head connected therewith, mechanism for connecting the power device with the reciprocating rod, a depressible treadle for con-

trolling said connecting mechanism, said connecting mechanism being arranged to cause the reciprocating rod and the sealing head to be reciprocated but once for each depression of the treadle, a bottle support upon the frame, said bottle support being arranged to hold a bottle in the path of travel of the sealing head, and to move with the sealing head during a portion of its travel corresponding to the length of the bottle, a compensating device comprising a pivoted weighted cam lever associated with the bottle support, a spring arranged to be compressed by said cam lever at a predetermined rate in relation to the movement of the bottle support in a downward direction and to thereby oppose the downward movement of the bottle support with a uniform force, means for positively removing said spring from operative position during the upward movement of the bottle support, and means for adjusting the vertical position of the bottle support.

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

EMORY J. GODMAN.

Witnesses:
EDWARD A. SMITH,
ELLA TUCH.