A. F. ATWOOD.

ATTACHMENT FOR BOTTLING MACHINES.

APPLICATION FILED MAR. 1, 1910.

1,039,630.

Patented Sept. 24, 1912.

3 SHEETS—SHEET 1.

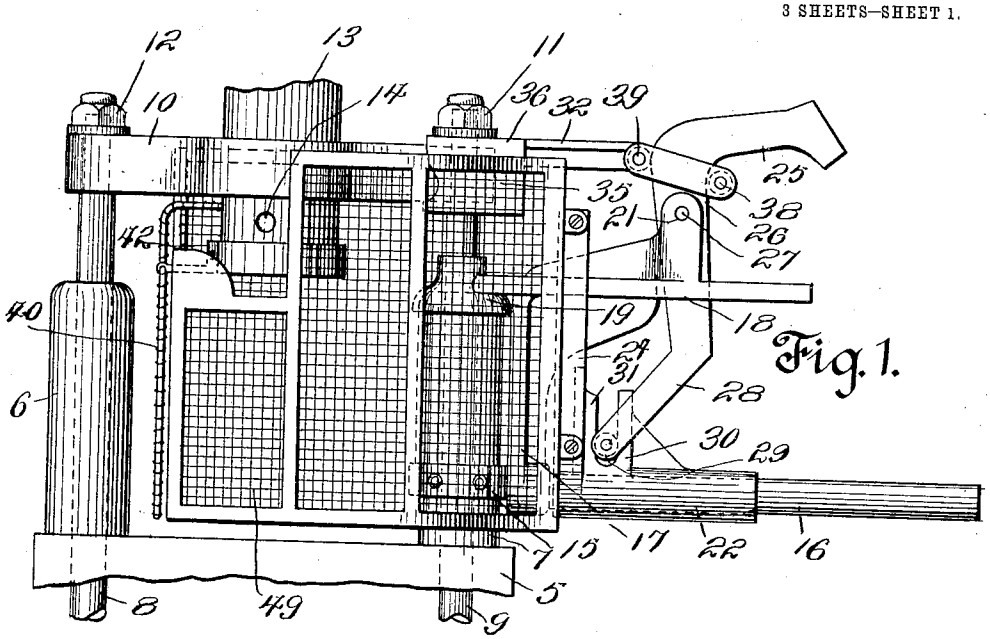

Fig. 1.

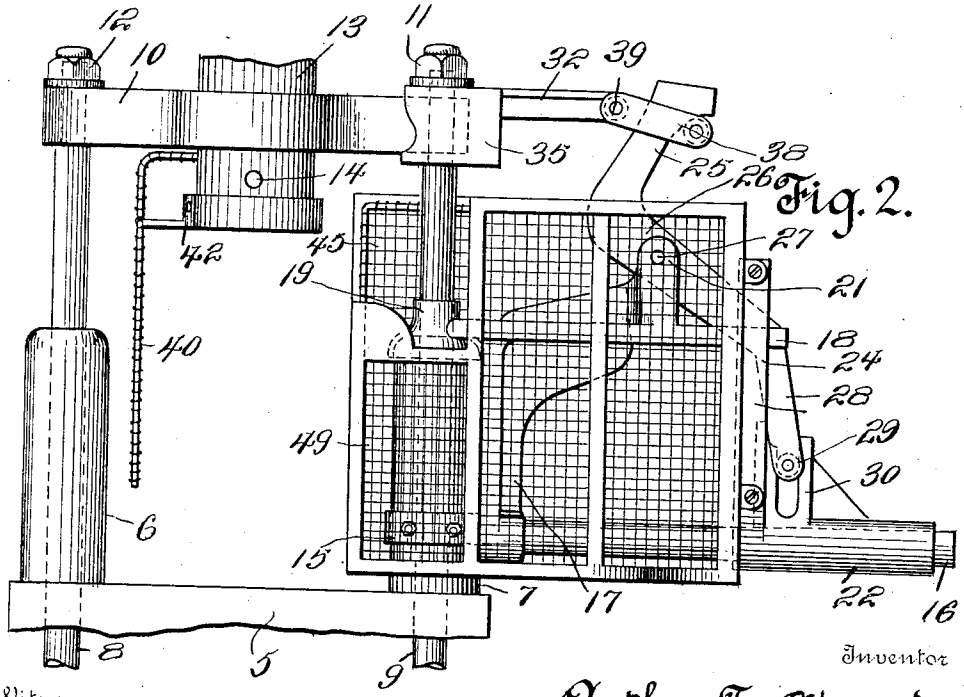

Fig. 2.

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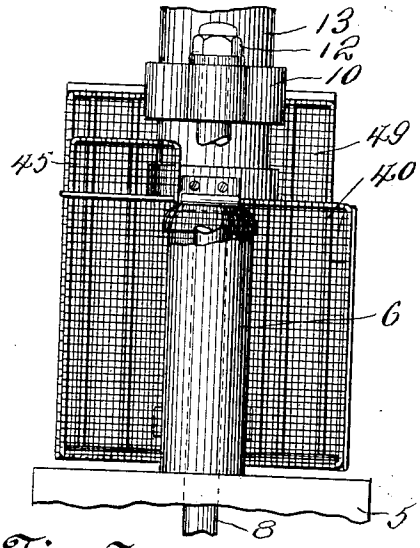

Fig. 3.

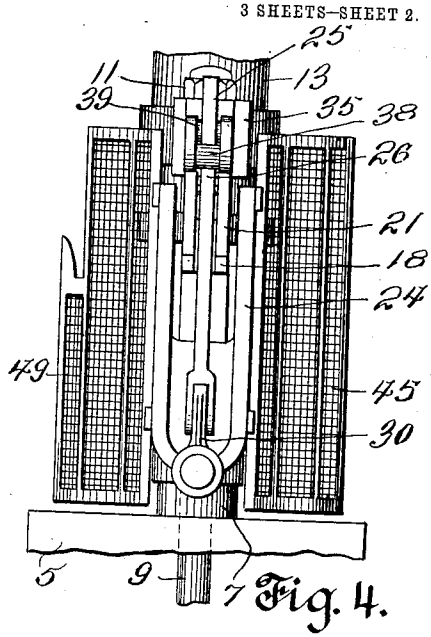

Fig. 4.

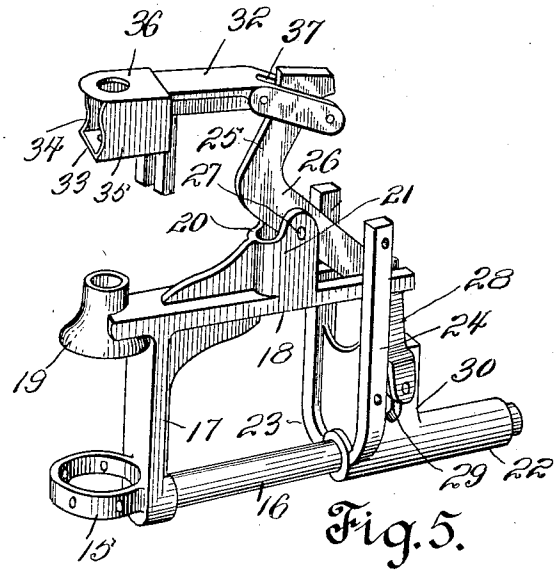

Fig. 5.

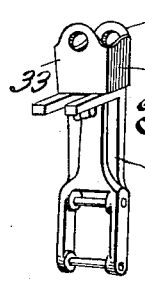

Fig. 6.

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3 SHEETS—SHEET 3.

Fig. 8a.

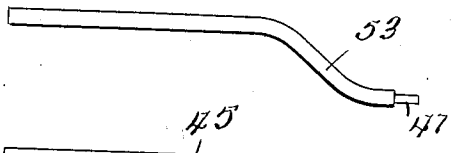

Fig. 7a.

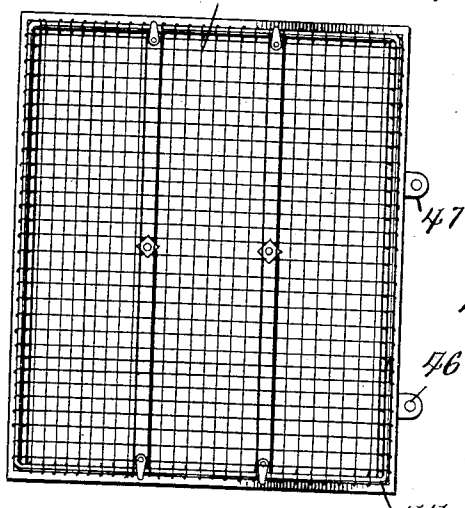

Fig. 8.

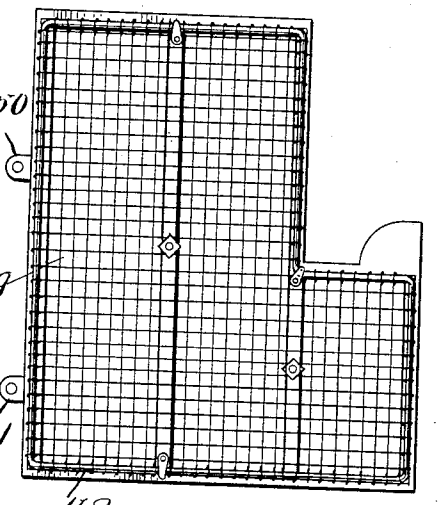

Fig. 7.

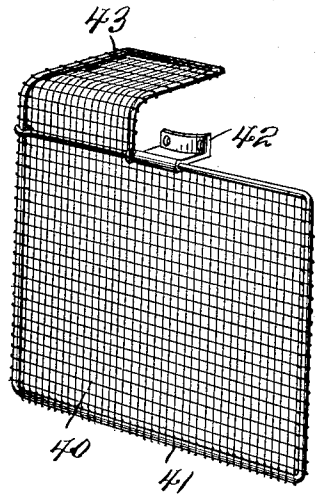

Fig. 9.

Witnesses

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UNITED STATES PATENT OFFICE.

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ATTACHMENT FOR BOTTLING-MACHINES.

1,039,630. Specification of Letters Patent. **Patented Sept. 24, 1912.**

Application filed March 1, 1910. Serial No. 546,674.

To all whom it may concern:

Be it known that I, ARTHUR F. ATWOOD, a citizen of the United States, residing at Attleboro, in the county of Bristol and State of Massachusetts, have invented new and useful Improvements in Attachments for Bottling-Machines, of which the following is a specification.

This invention relates to attachments for capping machines, corking machines, filling machines, or combined filling and stoppering machines, etc.

It is well known, during the operation of filling bottles with machines of this kind and with the contents above stated that bottles having flaws burst from the pressure of the gas with the result that the flying fragments of glass frequently injure the operator.

The present invention, therefore, has for one of its objects the provision of a construction including a plurality of movable screens arranged to flank the bottle receiving space of a bottling machine and seal the said space during the operation of filling a bottle, so that in the event of the bottle bursting the fragments of glass will be prevented by the screens from flying outwardly and into the face of the operator.

Another object is the provision of a construction whereby the screens are automatically operated to unseal the bottle receiving space when the filling head is in raised or inoperative position and automatically seal the said bottle receiving space when the filling head bears on the neck of the bottle, or in other words, is in filling position.

With these and other objects in view, which will more fully hereinafter appear, the present invention consists in certain novel details of construction and arrangement of parts, hereinafter fully described, illustrated in the accompanying drawings and more particularly pointed out in the appended claims, it being understood that various changes in the form, proportion, size and minor details of the device may be made, within the scope of the appended claims, without departing from the spirit or sacrificing any of the advantages of the invention.

In the accompanying drawings, forming a part of the specification:—Figure 1 is a side elevation of the device applied to a well-known form of bottling machine, and showing the parts in closed position. Fig. 2 is a similar view but showing the parts in open position. Fig. 3 is a front elevation of the device with a portion of the front guide of the machine broken away. Fig. 4 is a rear end elevation. Fig. 5 is a detail perspective of the screen operating mechanism. Fig. 6 is a similar view of the member connecting the screen operating mechanism with the filling head. Fig. 7 is a detail side elevation of the screen shown on the right in Fig. 3. Fig. 7^a is a top plan view of the same. Fig. 8 is a side elevation of the gate shown on the left in Fig. 3. Fig. 8^a is a plan view of the same. Fig. 9 is a detail perspective of the front screen.

Similar numerals of reference are employed to designate corresponding parts throughout.

The machine to which my device is applied may be of any well-known construction. For purposes of illustration, however, I have elected to show a machine provided with a reciprocating filling head located at the upper end of a bottle receiving space. Reference to Figs. 1 and 4 inclusive discloses the fact that the bottle holding frame and the head are the only parts of this machine illustrated, it being unnecessary to show the supporting base wherein a treadle, connected with the filling head, is employed to reciprocate the said filling head.

The bottle holding platform or table is designated by the numeral 5. This member is arranged on the upper end of the supporting base (not shown), and adjacent to either end and in alinement with its longitudinal central portion is provided with a pair of vertically extending hollow cylinders 6 and 7. These members rise to any convenient height and receive a pair of guide rods 8 and 9, the lower ends of the latter being connected in any suitable manner to the foot treadle (not shown). The guides 8 and 9 slidingly fit in the cylinders.

The cross bar of the filling head is designated by the numeral 10, and corresponds in length to the length of the table 5 and adjacent to its opposite ends with suitable openings for the reception of the shouldered end portions of the guide rods 8 and 9. The extremities of the guide rods 8 and 9 extend above the upper face of the cross bar 10 and are screw-threaded for the reception of nuts 11 and 12, by means of which the cross bar is secured to the guide rods 8 and 9.

The filling head is designated in general by the numeral 13 and is securely fitted in a central opening formed in the center of the cross bar 10, its lower end portion depending below the lower face of the cross bar and being provided with a lateral opening 14 for the reception of a pipe leading from the source of supply. The device forming a portion of the subject matter of the present invention is connected to the cylinder 7 at the rear end of the table 5 and is further connected with the cross bar 10, in such manner that the cross bar 10 upon being reciprocated in the manner before described, will likewise reciprocate the parts about to be described.

Fixedly secured to the lower end portion of the rear end cylinder 7 is a collar 15 and extending rearwardly from this collar and arranged at right angles to the cylinder 7 and parallel with the longitudinal plane of the table 5 is a cylindrical arm 16. Rising from the inner end portion of the arm 16 is a right angular-shaped bracket the sides of which are designated by the numerals 17 and 18. The vertical arms 17 of this bracket rises to a point in a plane with the upper end of the cylinder 7 while the inner end of the horizontal side 18 is integrally provided with a cap 19 having an opening in axial alinement with the axis of the collar 15 and adapted to bear upon the upper end of the cylinder 7 and receive the rear guide rod 9. The horizontal side 18 extends rearwardly. The rear portion of the horizontal side 18 is provided with an elongated slot extending longitudinally from the rear end of the side, and rising from the inner end portion of said slot and located on the opposite sides of the said slot are cheek plates 20 and 21, the function of which will appear later.

Arranged to slide upon the arm 16 is a sleeve 22. This member is considerably less in length than the length of the arm and rising from its inner end is a yoke, the arms 23 and 24 of which straddle and extend considerably above the horizontal side 18 of the bracket. Fulcrumed between the cheek plates 20 and 21 is a lever. This lever is of peculiar construction having arms 25 and 26 arranged at substantial right angles to each other and unequal in length. The longer arm 26 is arranged between the cheek plates 20 and 21 and is provided at a point adjacent its juncture with the short arm 25, with an opening which receives a pin 27 passing through alining openings in the cheek plates. The longer arm, as shown in figure 2 extends downwardly and rearwardly and adjacent to its lower end is bent downwardly, as shown at 28, the said downwardly bent portion extending to a point adjacent to the sleeve 22 and provided with a recess in which is mounted a bearing roller 29. Rising from the upper side of the sleeve 22 and between the outer end of the latter and the yoke is a vertical guide extension 30. The guide extension 30 is considerably less in height than the yoke and its forward side or that adjacent to the yoke bears on the bearing roller 29. Owing to the disposition of the lever, it is evident when its short arm, which extends substantially vertical, is moved, that the sleeve and yoke will slide on the arm 16, it being understood that when the sleeve moves outwardly the bearing roller 29 will engage with the extension 30 and when moving inwardly, the said bearing roller will engage with a similar guide extension 31 arranged between the arms of the yoke, as clearly shown in Figs. 1 and 2, both arm extensions forming a suitable guide for the bearing roller 29.

In order to reciprocate the sleeve upon the arm 16 simultaneous with the reciprocation of the filling head and cross bar, the following construction is employed:—By reference now to Figs. 1, 2 and 5, it will be seen that connection between the cross bar and short arms 25 of the lever is established by means of a connecting rod designated in general by the numeral 32. This member is provided at one end with a housing including a bottom wall 33, side walls 34 and 35, and a top wall 36. This housing is likewise provided with a rear wall which may be formed integral or otherwise secured to the forward end of the arm 32 as shown in the drawings. With this construction, it will be evident that the front of the housing will be open and by virtue of the distance between the top and bottom and side walls an opening will be presented sufficiently large to receive the rear end of the cross bar 10. The bottom 33 and top 36 are provided with alining openings which aline with the opening in the rear end of the cross bar and receive the upper end portion of the rear guide rod 9. With this construction, it will be evident that the connecting rod is fixedly secured to the cross bar.

It might here be stated when the sleeve 22 is moved inwardly and bears on the lower end of the bracket that the short arm 25 of the lever will extend substantially horizontal and its lower side will be in a horizontal plane, or substantially so with the upper face of the connecting rod 32, as clearly shown in Fig. 1. It will be seen now by reference to Figs. 1 to 3 inclusive that the rear or free end of the connecting rod is provided with a slot 37 extending in the direction of its length, and arranged adjacent to the opposite ends of the slot are bearing rollers 38 and 39. This rear or free end portion of the connecting rod inclines slightly downward and the slot 37 is of sufficient size to receive the lever, so that when the parts are in the positions just stated, the rollers 38 and 39 will bear on the

juncture of the arms 25 and 26. It will be evident now when the cross bar is raised in the manner before described that the connecting rod 32 will likewise ascend and by virtue of the position of the short arm 25 this ascending movement of the connecting rod will rock the lever, whereby the said short arm will be turned to a substantially vertical position and the opposite or longer arm moved outwardly thus moving the sleeve to the outer end of the arm 16.

Having now described the mechanism for operating the screens, a description of the latter and their connection with the operating means will be given:—By reference now to Figs. 1 to 4 inclusive and also 7 to 9 inclusive it will be seen that arranged in front of and on the opposite sides of the filling space are the screens. The front screen is designated in general by the numeral 40 and includes a frame covered with a reticulated body. This frame corresponds in length approximately to the distance between the cross bar and table 5 when the cross bar is in lowered position, and in width to the width of the table, or approximately so. The middle portion of the upper end of the frame is provided with a lateral arm 42 having openings for the reception of screws by means of which it is fixedly secured to the filling head 14. The upward and rearward extension of the screen is designated at 43 and is located to the left of the arm 42 and bears on the side of the filling head. The screen shown to the left in Fig. 3 and also illustrated in detail in Figs. 8 and 8ª comprises a frame 44 over which is stretched a meshed body 45. The length of the frame 44 corresponds approximately to the space between the upper side of the cross bar and table, when the cross bar is in lowered position, as shown in Fig. 1, and in width corresponds to the distance between the yoke and stationary front screen 40. The rear side of the frame 44 is provided with rearwardly extending lugs 46 and 47 which bear on the adjacent side of the yoke and are secured thereto by screws or other suitable fastening means. The screen shown on the right in Fig. 3 and also shown in detail in Figs. 7 and 7ª corresponds in width to the screen just described and includes a frame 48 over which is stretched a meshed body 49. The upper and forward corner of this screen is removed, so that when the filling head is lowered, as shown in Fig. 1, an opening will be presented for the reception of the supply pipe which is tapped into the opening 14, whereby movement of the screen will not be prevented by the supply pipe. The rear side of the screen is provided with lugs 51 and 50 similar to the lugs 46 and 47 which are secured to the adjacent side of the yoke by screws or other suitable fastening means. With this construction, it will be manifest when the filling head is lowered, that the forward sides of the screen will be adjacent to the opposite sides of the stationary screen, so that during the operation of filling a defective bottle, the fragments of glass will be prevented from flying outward when the bottle breaks. As shown in Figs. 7ª and 8ª, the upper and lower ends of the frames are adjacent to their rear ends offset inwardly as shown at 52 and 53, these offsets being sufficient to bring the adjacent ends of the frames into alinement with the outer sides of the arms of the yoke for obvious reasons.

From the foregoing description, taken in connection with the accompanying drawings, it will be evident that I have provided a shield for bottling machines which is automatic in operation and comparatively inexpensive to manufacture and which may be applied to most forms of bottling machines now in use without the necessity of any expensive alterations to the machine.

Having described the invention, I claim:—

1. In combination with a machine provided with a bottle receiving space and a movable element forming the upper wall of said space; of a plurality of guards adapted to form sides and an end wall of said space with the movable element in one position, one of said guards being connected directly to the movable element, and a connection between the other of said guards, and a second movable element adapted for moving the second named guards synchronously with said first-named movable element toward the first-named guard when said first-named movable element is moved in one direction and away from the first-named guard when said first-named movable element is moving to an opposite position.

2. In combination with a machine provided with a filling space and a vertical reciprocating filling head having vertical guide rods connected thereto, a cylinder, an arm projecting from the cylinder, a longitudinally sliding sleeve upon the arm, screens carried by the latter, and mechanism connecting the head with the longitudinally sliding sleeve.

3. In combination with a machine provided with a bottle receiving space and a vertically reciprocating head having vertical guide rods connected thereto, a cylinder loosely mounted upon one of the guide rods, an arm projecting horizontally from the said cylinder, a longitudinally sliding sleeve upon the arm, a plurality of screens carried by the latter, and mechanism connecting the reciprocating head with the sliding sleeve to move the screens to seal and unseal the bottle receiving space upon each reciprocation of the filling head.

4. The combination with a machine pro-

vided with a bottle receiving space and a vertically movable head having vertical guide rods connected thereto, a cylinder loosely mounted upon one of the guide rods, an arm projecting horizontally from said cylinder, a longitudinally sliding sleeve upon the arm, a plurality of screens carried by the latter, a bracket supported by said arm, a lever pivoted in said bracket and connected to the reciprocating head, whereby the screens will be moved to seal and unseal the bottle receiving space upon the reciprocation of the head.

5. The combination with a machine provided with a bottle receiving space and a vertically movable head having vertical guide rods connected thereto, a cylinder loosely mounted upon one of the guide rods, an arm connected to said cylinder and projecting horizontally therefrom, a longitudinally sliding sleeve upon said arm, said sleeve being provided with an upstanding guide, screens carried by said sleeve, a bracket supported by said arm and extending in a plane above the latter, a lever medially pivoted in the bracket, and having one end connected with the guide upon the sliding sleeve, a link connection between the opposite end of the lever and the reciprocating head, whereby the screens will be moved to seal and unseal the bottle receiving space upon each reciprocation of the head.

6. The combination with a machine provided with a bottle receiving space and a vertically movable head having vertical guide rods connected thereto, a cylinder loosely mounted upon one of said guide rods, a bracket secured to said cylinder, a horizontally projecting arm extending outwardly from said bracket, a sleeve slidably mounted upon the arm and provided with a yoke consisting of a pair of upstanding arms, said sleeve being provided in rear of the yoke with a slotted guide, a pair of screens carried by the arms of the yoke, a bracket extending upwardly from the horizontally projecting arm and thence horizontally into a plane above the latter and having its inner end connected to the cylinder upon said guide rod and having its outer end bifurcated and projecting rearwardly between the arms of the yoke, a lever pivoted between its ends to the bracket, one end of which extends through to the bifurcated end of the bracket and is slidably connected with the guide upon the sliding sleeve in rear of the yoke, an arm projecting horizontally from the filling head and in spaced relation to the last mentioned bracket, the outer end of said arm being bifurcated to receive the opposite end of the said lever, rollers mounted in the bifurcated arm, the upper end of the said lever being adapted to work between the rollers, whereby upon each reciprocation of the head the said mechanism will operate to move the screens to seal and unseal the bottle receiving space upon each reciprocation of the head.

7. In a machine provided with a bottle support, a vertically reciprocating head, a pair of bottle guards movable horizontally in parallel vertical planes, means carried by said head to move said guards to form side walls to guard a bottle carried by said support when said head is moved in one direction and out of guarding position when said head is moved in the opposite direction.

8. In a machine provided with a bottle receiving space, slidable guard plates having guiding ends, and mountings for the guiding ends of the plates constructed to coact with the guiding ends to direct the plates in their sliding movements in right lines parallel one with the other into and out of guarding position relative to said bottle receiving space.

In testimony whereof I affix my signature in presence of two witnesses.

ARTHUR F. ATWOOD.

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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."