

L. RÖD & A. F. ATWOOD.
 GUARD ATTACHMENT FOR BOTTLE CAPPING MACHINES.
 APPLICATION FILED MAR. 16, 1909.

963,181.

Patented July 5, 1910.

3 SHEETS—SHEET 1.

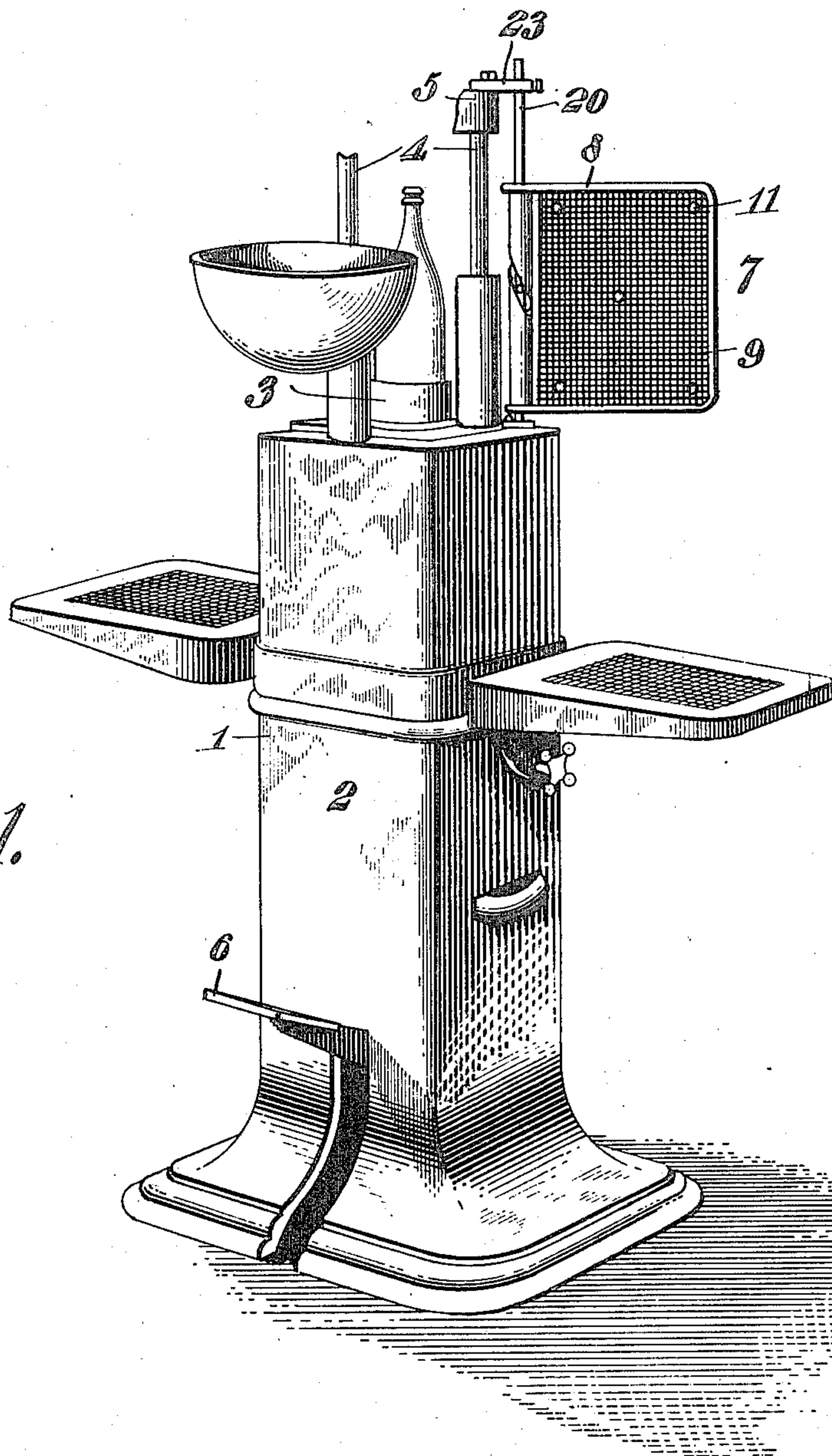


Fig. 1.

Witnesses

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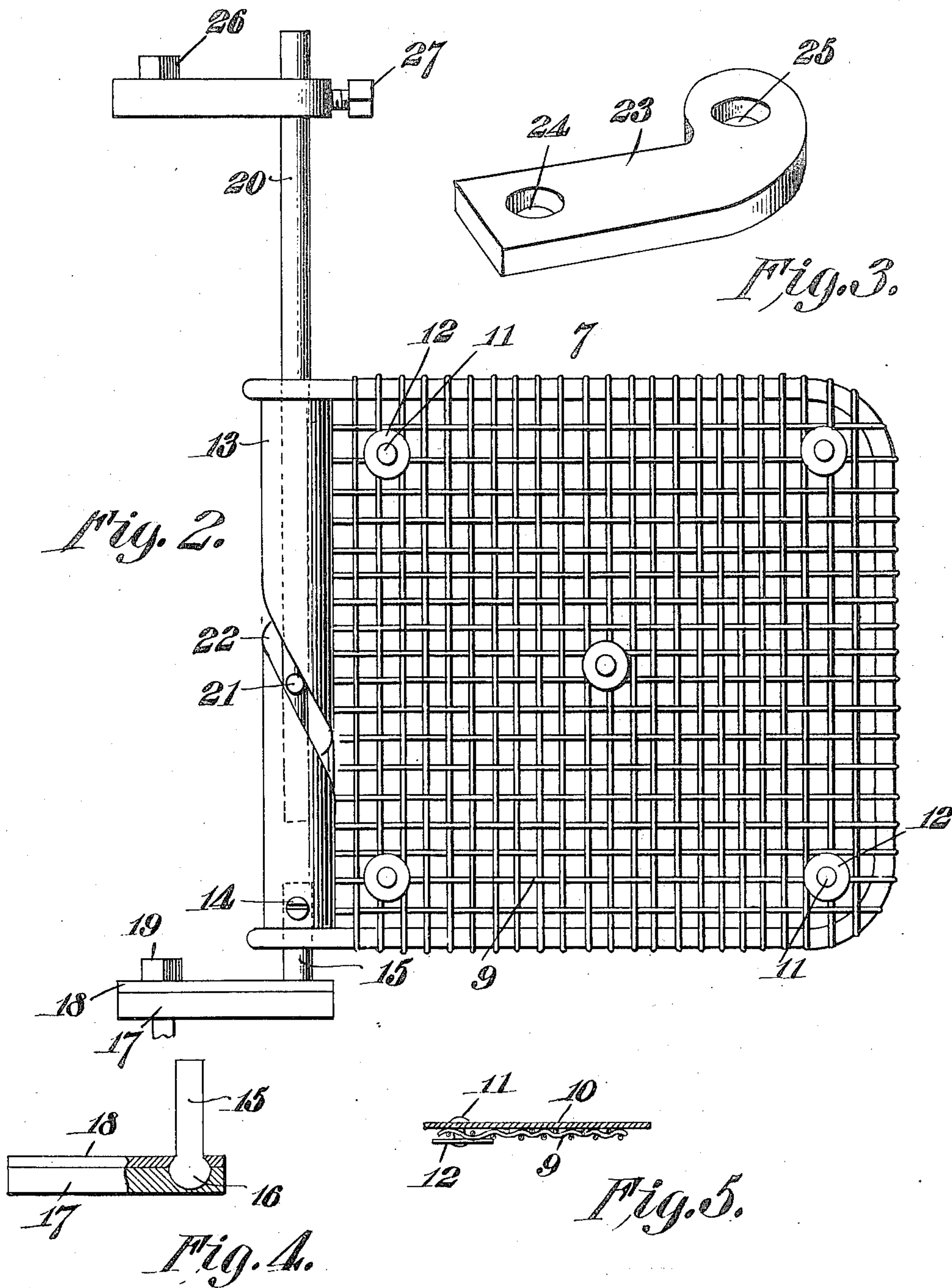
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3 SHEETS—SHEET 2.



Witnesses

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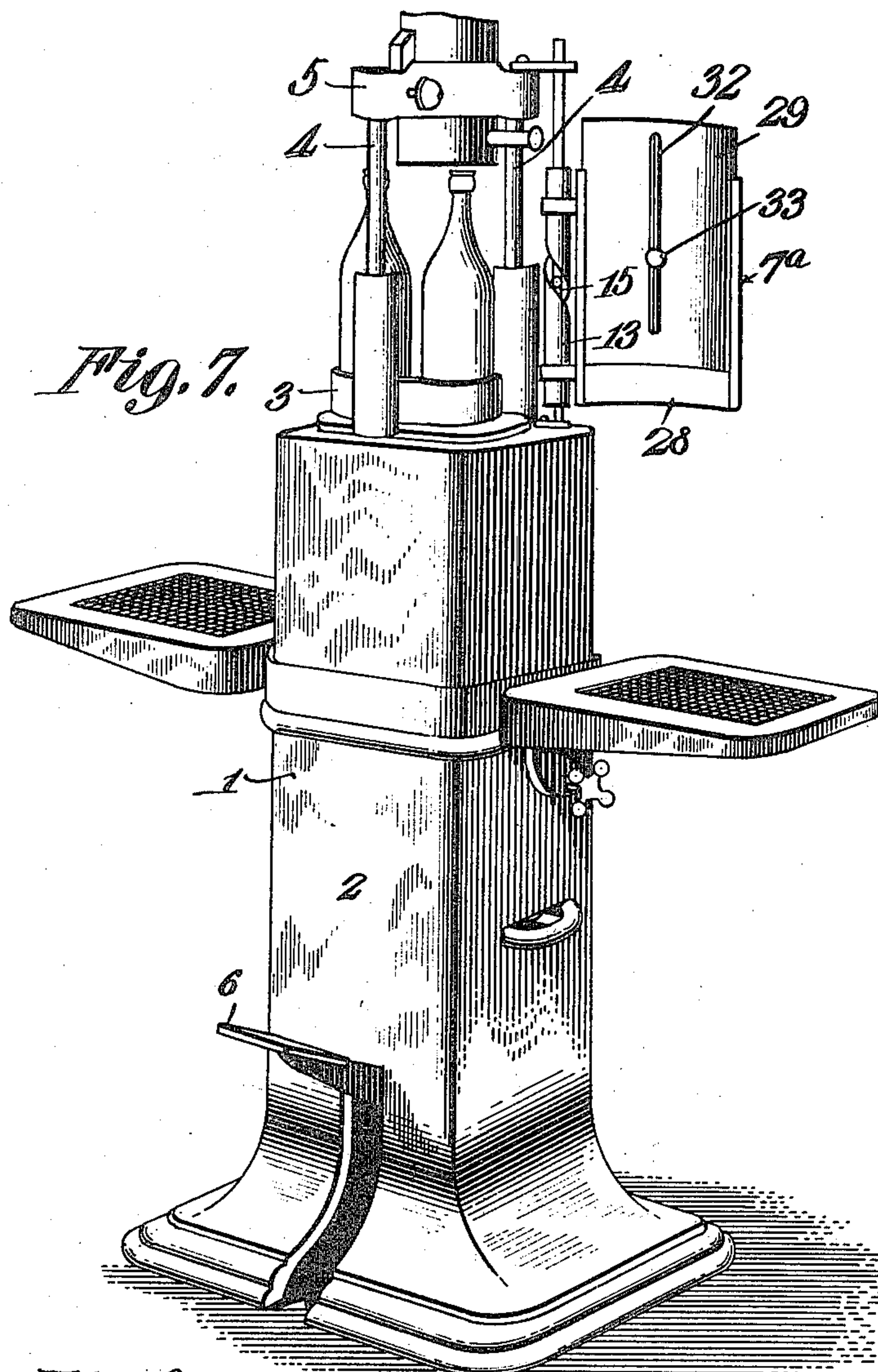


Fig. 8

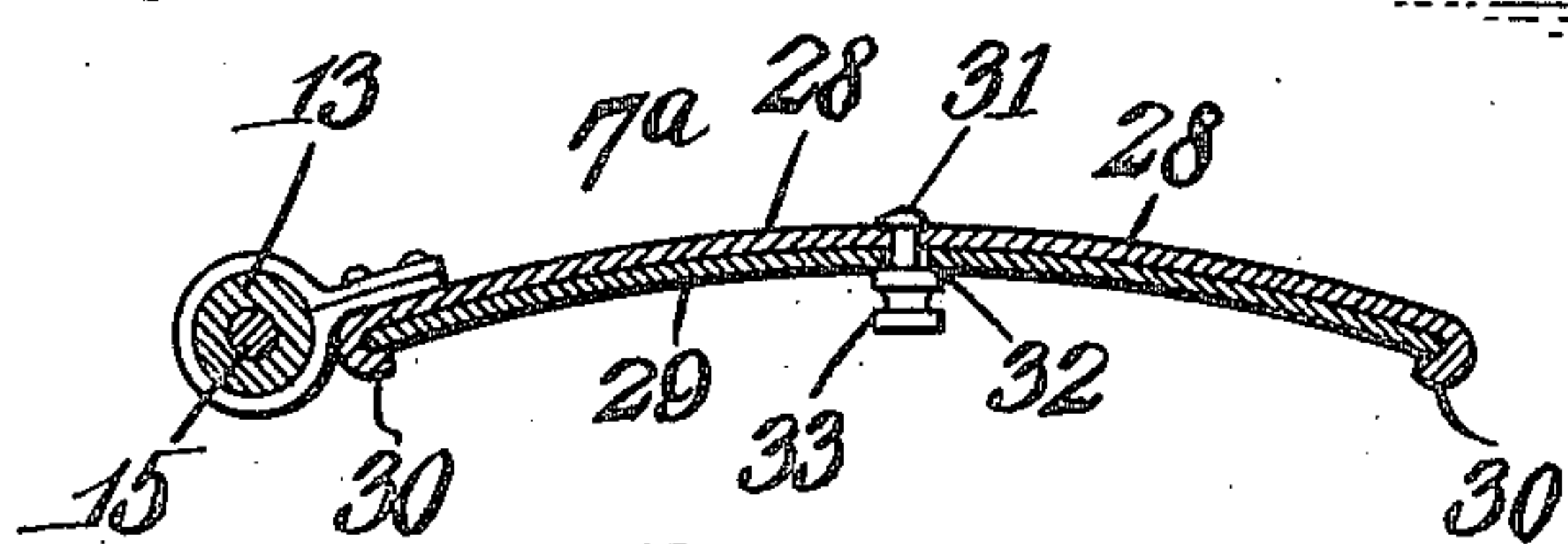
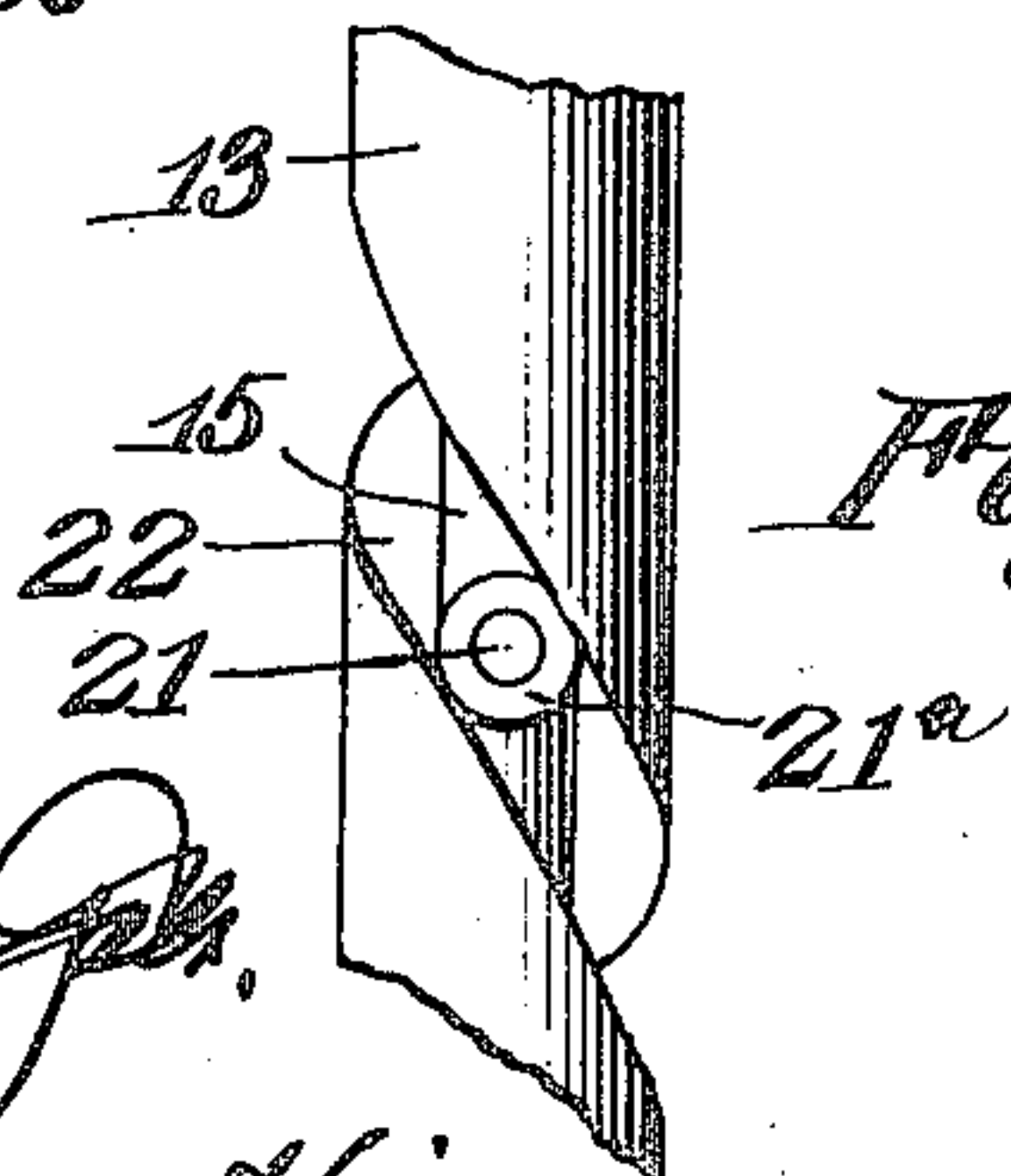


Fig. 6.



Witnesses

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UNITED STATES PATENT OFFICE.

LARS RÓD AND ARTHUR F. ATWOOD, OF ATTLEBORO, MASSACHUSETTS.

GUARD ATTACHMENT FOR BOTTLE-CAPPING MACHINES.

963,181.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that we, LARS RÓD and ARTHUR F. ATWOOD, citizens of the United States, residing at Attleboro, in the county of Bristol and State of Massachusetts, have invented new and useful Improvements in Guard Attachments for Bottle-Capping Machines, of which the following is a specification.

This invention relates to a guard attachment for bottle capping machines of that type employed for applying "crown" and similar closure-caps to bottles containing aerated beverages or other substances, the object of the invention being to provide a guard for protecting the operator from flying particles of glass in the event of the bursting of a bottle during the capping operation, said guard being mounted for automatic operation to move to a position between the bottle and operator when the capping plunger descends and to move outwardly to a retracted position when the plunger is elevated to allow the operator to have free access to the parts for the purpose of setting the bottle to be capped in position and arranging the cap for application thereto.

A further object of the invention is to provide a simple and effective guard of the character described in the form of a horizontally or vertically swinging gate arranged to be automatically projected and retracted by the mechanism which actuates the plunger, which gate may be applied for use at either side of the machine and is properly constructed to effectually serve as a barrier to the passage of both large and small particles of glass.

Still another object of the invention is to provide a guard which is adjustable to regulate its effective height as occasion may require.

With these and other objects in view, the invention consists of the features of construction, combination and arrangement of parts hereinafter fully described and claimed, reference being had to the accompanying drawings, in which:—

Figure 1 is a perspective view of a bottle capping machine embodying our invention, with the guard disposed in retracted position and for use at the right hand side of the machine. Fig. 2 is an elevational view of the guard and its operating mechanism on an enlarged scale. Fig. 3 is a per-

spective view of the connecting arm. Fig. 4 is a detail sectional elevation of the journal bearing for the lower end of the guard. Fig. 5 is a sectional view through a portion of the guard. Fig. 6 is a view showing a slight modification in the gate operating mechanism. Fig. 7 is a view similar to Fig. 1 showing other different forms of guards at opposite sides thereof. Fig. 8 is a horizontal cross section through one of the forms of guards shown in Fig. 7.

Referring to Figs. 1 to 5, inclusive, of the drawings, 1 designates a bottle capping machine of the type described, embodying in its construction a frame or casing 2, a bottle receiving socket or holder 3, a pair of vertically movable rods 4, a capping plunger 5 carried by and movable with the rods, a portion of which plunger only is shown, and a treadle lever 6 forming part of the mechanism for actuating the rods. Machines of this type are generally constructed to allow the operator to work from either side thereof, to apply the bottle within the holder or socket 3, to insert the cap to be applied within the holding portion of the plunger, and to depress the lever 6 to force the plunger down in its applying operation.

In capping bottles containing highly charged aerated beverages, it frequently happens that the bottle bursts under pressure in the capping operation, with attendant liability of injury to the operator from the particles of flying glass.

The particular purpose of our invention is to provide a guard or shield which is automatically thrown into operative position when the plunger is depressed to protect the operator from injury in the event of the bursting of a bottle.

The guard may be arranged for use at either side of the machine and comprises a horizontally swinging gate 7 formed of a substantially U-shaped frame 8 and a body 9 of woven wire stretched across and filling the open portion of the frame and backed by a layer 10 of leather or other suitable imperforate material. The wire screen or body 9 and its flexible imperforate backing 10 are secured at their edges to the upper and lower horizontal arms and outer vertical arm of the frame 8 in any suitable manner and are connected with each other at desired points by rivets 11 passing through the backing and interstices of the screen, washers 12 being applied to the rivets to

bear against the surface of the screen and maintain a firm connection between the parts.

The inner or free ends of the horizontal arms of the frame are suitably connected to the ends of a barrel or sleeve 13, within the lower end of which is fitted and secured by a set screw 14 a stub-shaft or journal-pin 15 provided at its lower end with a rounded bearing member or head 16 fitted to turn within a bearing socket in a bracket plate 17 and a superposed cover or retaining plate 18, which plates are fastened to the top of the frame or casing of the machine by a screw 19. The gate is mounted to swing upon the said pin and bracket plates and upon a vertically reciprocable rod 20, the lower end of which extends into and is adapted to reciprocate in the sleeve 13, said rod serving both as a journal for the upper portion of the gate and an actuating member coöperating with the sleeve to swing the gate. The rod is provided with a lateral pin or projection 21 which extends into a spiral groove 22 formed in the sleeve, the arrangement of the groove being such that upon the downward movement of the rod the sleeve will be partially rotated to swing the gate to an operative position and upon the upward movement of the rod reversely swung and returned to normal position.

By reference to Fig. 1, it will be seen that the gate is arranged adjacent the rear right hand corner portion of the top of the casing 2 and in the rear and at one side of the contiguous portion of the plunger, and normally projects rearwardly at an angle to fully uncover or expose the top of the frame to permit the operator to have free access thereto for the purpose of applying the bottle and cap for the capping operation and the removal of the bottle after such operation. Upon the downward movement of the rod 20, the gate will be swung forwardly and inwardly to lie in a plane parallel with the adjacent side of the machine, thus forming a protecting barrier between the bottle and the operator standing at that side of the machine to arrest all flying particles of glass if the bottle should burst while being capped and prevent such particles from coming in contact with and injuring the person or clothes of the operator. Upon the ascent of the plunger after the capping operation, the gate is automatically swung back to normal position to enable the operator to perform the work previously described. In order to secure the automatic operation of the rod 20 with the plunger, a connecting medium between the two is provided comprising a coupling arm 23 which is longitudinally curved and provided at its opposite ends with openings 24 and 25 for the respective passage of a screw 26 securing the arm to the plunger and the

reception of the upper end of the rod 20 which is secured to the arm by a set screw 27 carried by the latter.

By constructing the gate in the manner described, a strong and durable guard is provided, the screen serving to stop all large particles of glass, while the backing therefor reinforces the same and at the same time prevents any small particles of glass which may pass through the screen from reaching the operator.

From the foregoing description, it will be seen that our invention provides a guard or protector which may be applied to any ordinary type of capping machine, and at either side of such a machine, to protect and prevent injury to the operator if, from any cause, a bottle should burst during the capping operation. While the structures disclosed are preferred, it will, of course, be understood that modifications within the scope of the claims may be made.

Each form of guard obviously possesses specific advantages while being adapted to effectually arrest all particles of glass and prevent injury to the operator.

In Fig. 6 a slight modification in the gate operating mechanism is shown, embodying the use of a roller 21^a upon the pin 21 to engage and travel in contact with the walls of the spiral groove 22 of sleeve 13 to reduce friction.

In Fig. 7 of the drawings two forms of guards or gates differing in construction from each other and from that disclosed in Figs. 1 to 5 inclusive, are illustrated, it being understood that any of the different forms of guards ordinarily disclosed may be employed at either side of the machine or at both sides thereof, and that one of the forms of guards may be employed at one side of the machine, while a different form of guard is employed at the opposite side. It is, of course, preferable to use the same type of guard at each side of the machine, but the invention is not limited in this particular. The guard 7^a at the right hand side of the machine is mounted and operated in the same manner as the guard 7, the supporting and operating parts being designated by similar reference characters, but the body of the guard is modified materially in construction, being composed of relatively fixed and adjustable sections 28 and 29, respectively. The section 28 constitutes a body or backing section, which is provided at its side edges with inturned hook shaped guide flanges 30 in which the side edges of the section 29 are fitted to slide. This mode of mounting the sections adapts them to be adjusted to vary the height of the guard, as occasion may require or the operator desires. For the purpose of securing the adjustable section 29 in adjusted position a screw 31 is mounted on the section 28 and projects through a

longitudinal guide slot 32 in the section 29 and is provided with a clamping nut 33 to bind against the latter. The sections of the guard may be made of sheet metal or other
5 suitable strong and durable material.

Having thus fully described the invention, what is claimed as new, is:—

1. In a guard for bottle capping machines, a reciprocating capping plunger, a rod
10 mounted to reciprocate with the plunger, a guard having a sleeve pivotally mounted on said rod, said guard comprising adjustably connected segmental sections, and a cam connection between the sleeve and rod for
15 reversely swinging the said guard on the reverse reciprocating motions of the rod.

2. In a guard for bottle capping machines, the combination, with the main frame of the machine, the reciprocating capping plunger,
20 and the plunger carrying frame, of a stub shaft upon the main frame, a rod attached to the carrier frame and depending therefrom in line with said stub shaft, a swinging guard having a sleeve journaled upon the
25 shaft and rod, and a spiral driving connection between the rod and sleeve.

3. In a guard for bottle capping machines, in combination, with the main frame of the machine, the reciprocating capping plunger,
30 and the plunger carrying frame, of a stub shaft upon the main frame, a bracket upon the carrier frame, a rod connected with the bracket and depending therefrom in line with the stub shaft, a guard having a sleeve
35 journaled on the stub shaft and rod and provided with a spiral guide, and a projection upon the rod working in said guide.

4. In a guard for bottle capping machines, the combination with the main frame of the
40 machine, the reciprocating plunger, and the plunger carrying frame, of a stub shaft upon the main frame, a bracket upon the carrier frame, a rod attached to the bracket and depending therefrom in line with the shaft,
45 a swinging guard having a sleeve journaled on said rod and shaft, and a cam connection between the rod and sleeve whereby the guard will be swung in reverse directions in the opposite reciprocating motions of the
50 rod.

5. In a guard for bottle capping machines, a reciprocating capping plunger, a rod

mounted to reciprocate with the plunger, a guard having a sleeve pivotally mounted on said rod, and a cam connection between the
55 sleeve and rod for reversely swinging said guard on the reverse reciprocating motions of the rod.

6. In a guard for bottle capping machines, a reciprocating capping plunger, a reciprocating rod movable with the plunger, a
60 guard having a sleeve journaled on said rod, and a spiral drive connection between the rod and sleeve.

7. In a guard for bottle capping machines, a reciprocating capping plunger, a reciprocating rod movable with the plunger, a
65 guard having a sleeve journaled on said rod and provided with a spiral slot, and a pin upon the rod slidably engaging said slot.
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8. In a guard for bottle capping machines, a reciprocating capping plunger, a reciprocating rod movable therewith, a swinging
75 guard having a sleeve journaled on the rod, a spiral guide upon one of the two last-named parts, and a projection upon the other part working in said guide.

9. In a guard for bottle capping machines, the combination with a machine having a reciprocating capping plunger, of a swinging
80 guard mounted on the frame of the machine, a reciprocating operating element movable with the plunger, and a spiral driving connection between said guard and element for
85 reversely swinging the guard on the reverse movements of said element.

10. In a guard for bottle capping machines, the combination with a machine having a reciprocating capping plunger, of a
90 swinging guard mounted upon the frame of the machine, said guard embodying a frame having a sleeve provided with a spiral portion, and a reciprocating rod connected with the plunger and having a portion entering
95 said sleeve and provided with a pin engaging said spiral portion.

In testimony whereof we affix our signatures in presence of two witnesses.

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ARTHUR F. ATWOOD.

Witnesses:

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