

No. 721,803.

PATENTED MAR. 3, 1903.

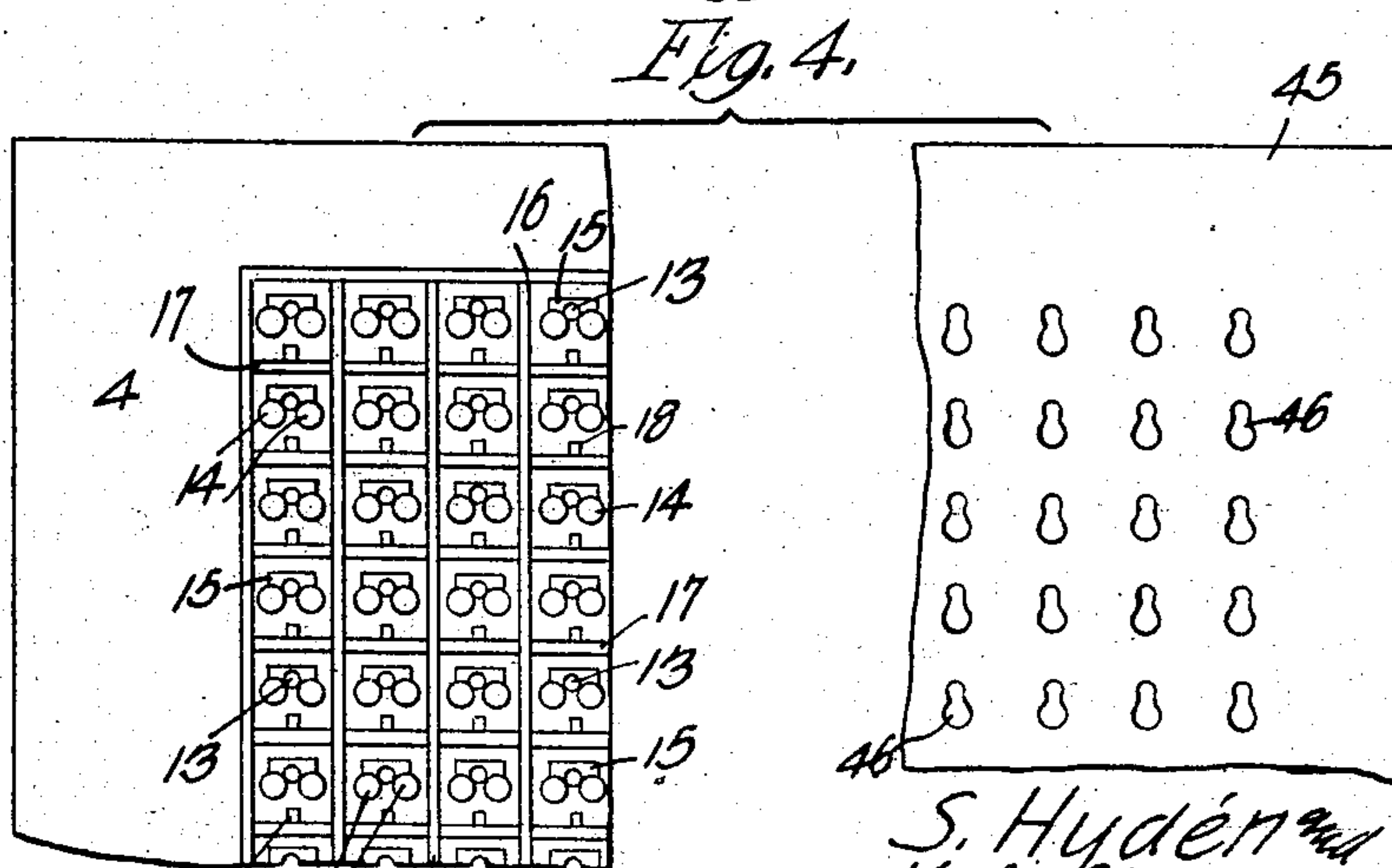
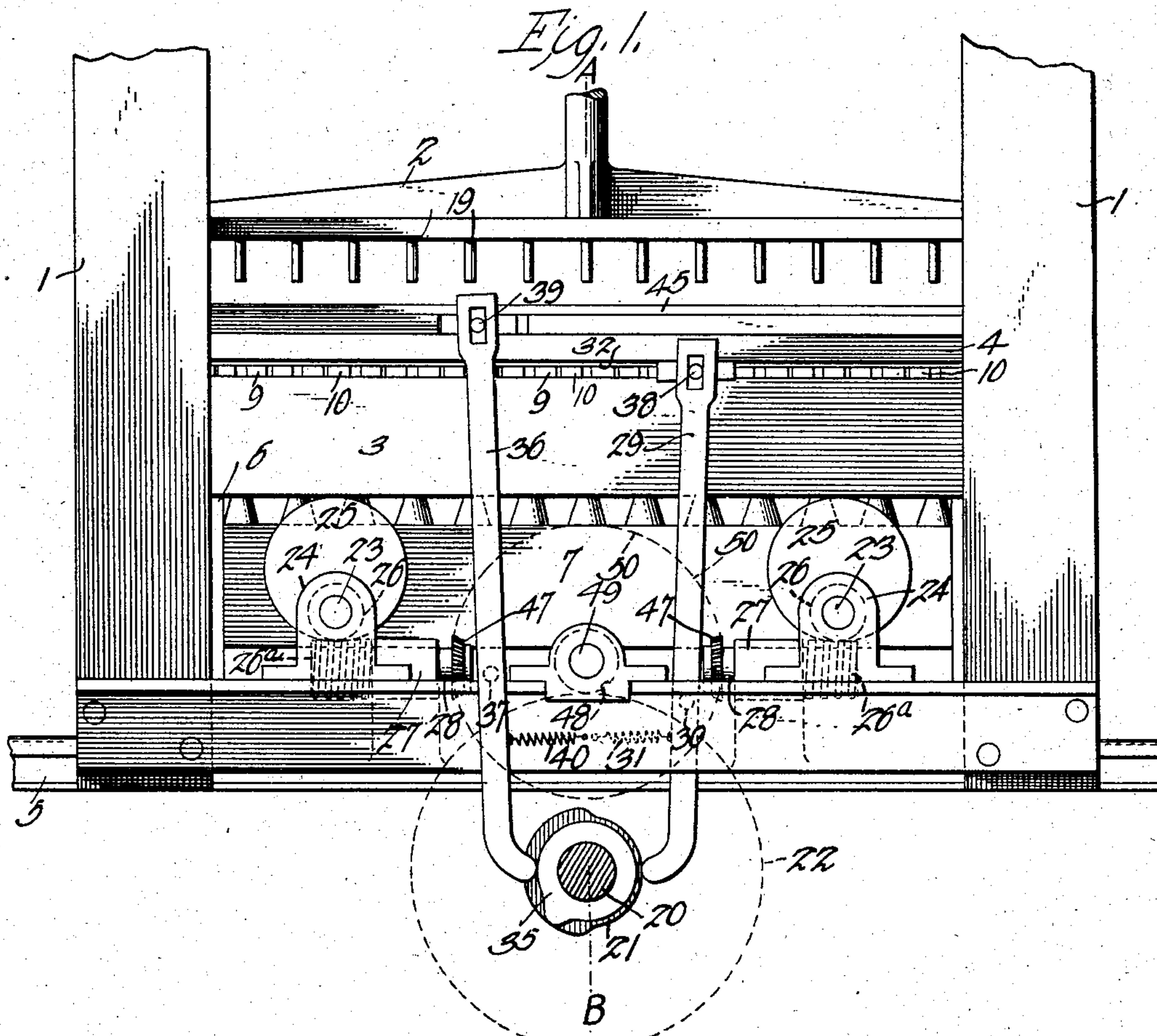
S. HYDÉN & K. A. SIMONSSON.

# APPARATUS FOR SIMULTANEOUSLY CORKING A NUMBER OF BOTTLES.

APPLICATION FILED AUG. 16, 1901.

NO MODEL.

3 SHEETS—SHEET 1.



Witnesses

E. F. Newell 18 14  
B. Johnson

by

S. Hydén  
K. A. SIMONSSON, Inventors:  
C. A. Snow & Co  
Attorneys

No. 721,803.

PATENTED MAR. 3, 1903.

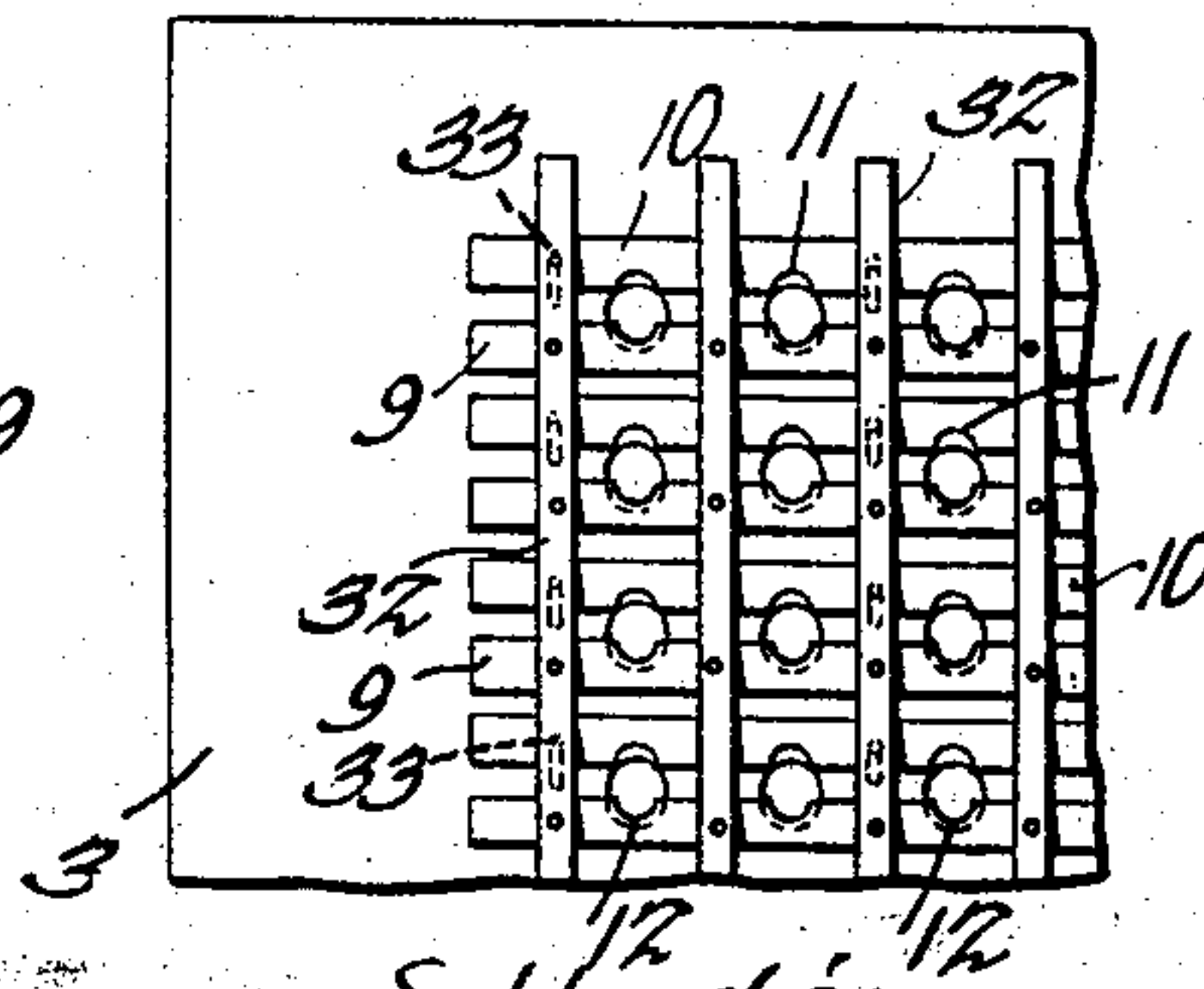
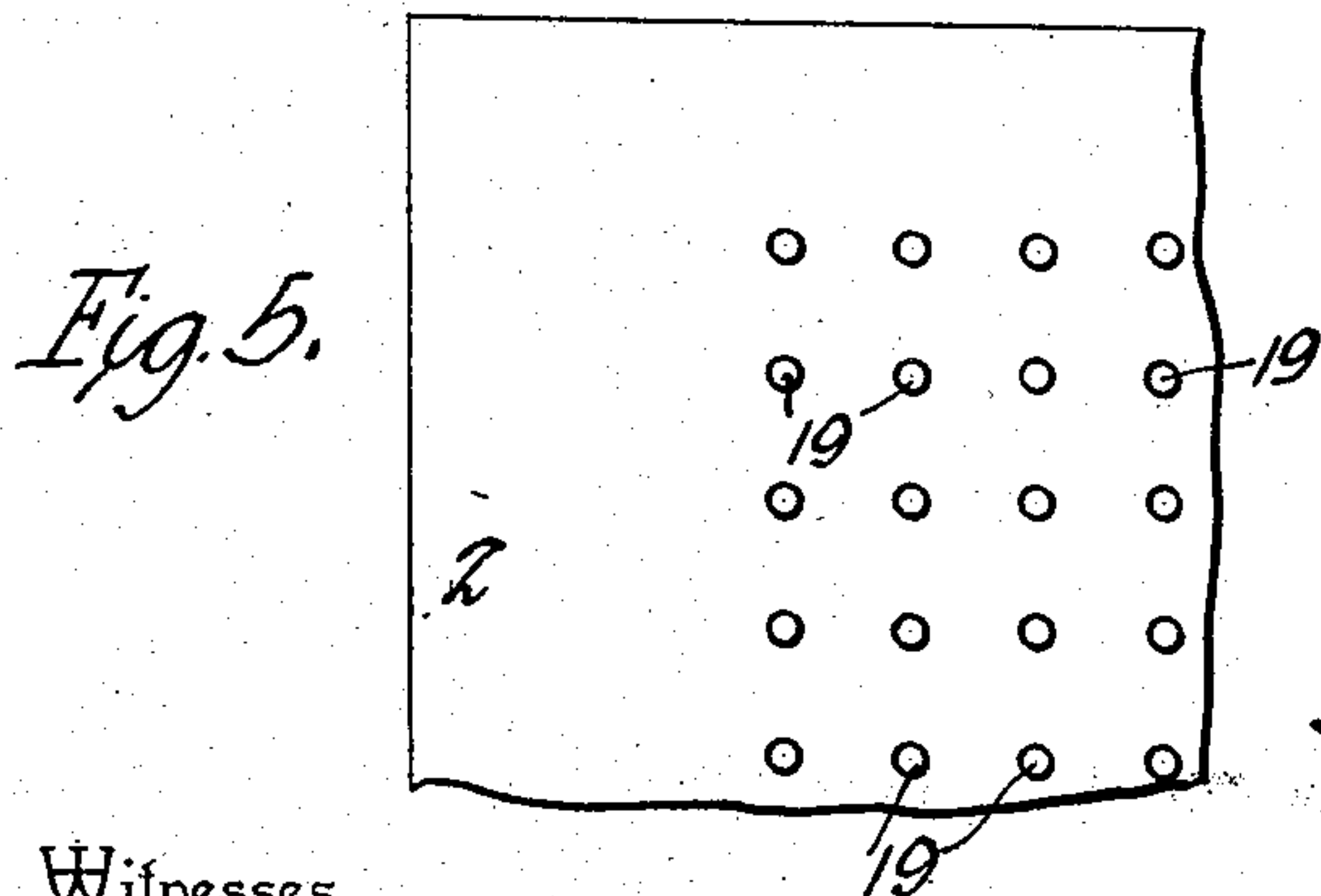
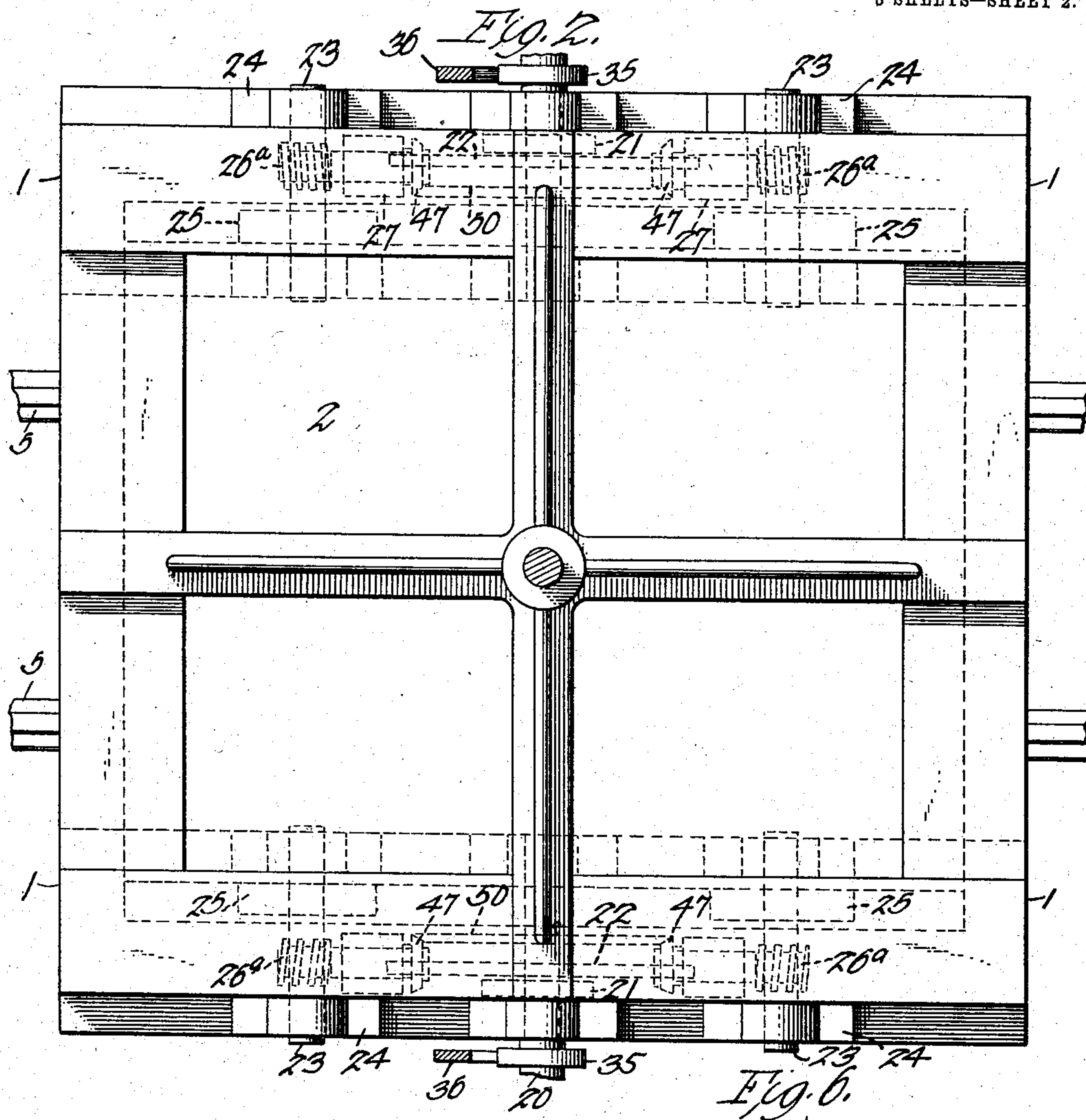
S. HYDÉN & K. A. SIMONSSON.

APPARATUS FOR SIMULTANEOUSLY CORKING A NUMBER OF BOTTLES.

APPLICATION FILED AUG. 16, 1901.

NO MODEL.

3 SHEETS—SHEET 2.



Witnesses  
E. H. Stewart  
B. Johnson

S. Hydén  
K. A. Simonsson, Inventors  
by C. A. Snow & Co.  
Attorneys



No. 721,803.

PATENTED MAR. 3, 1903.

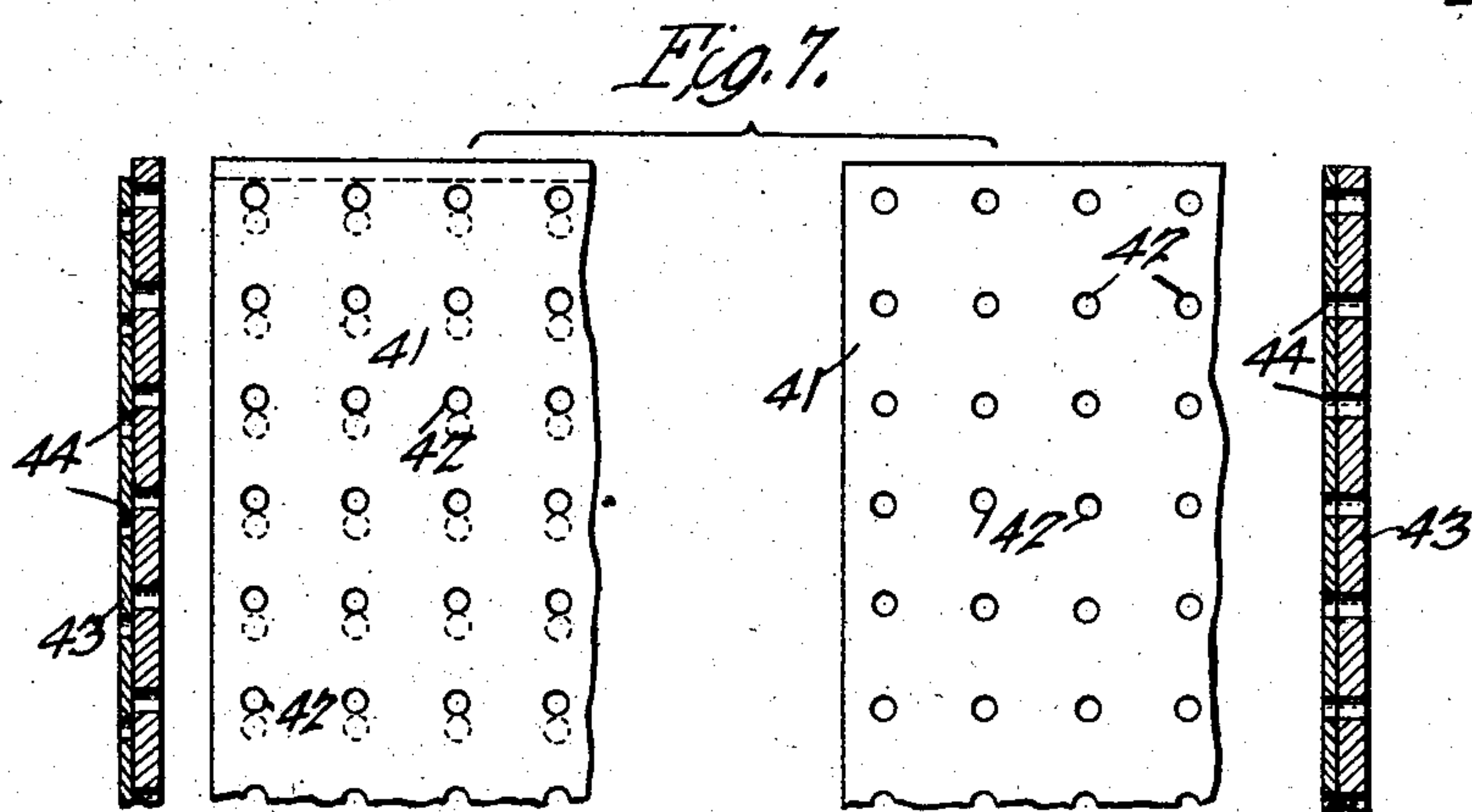
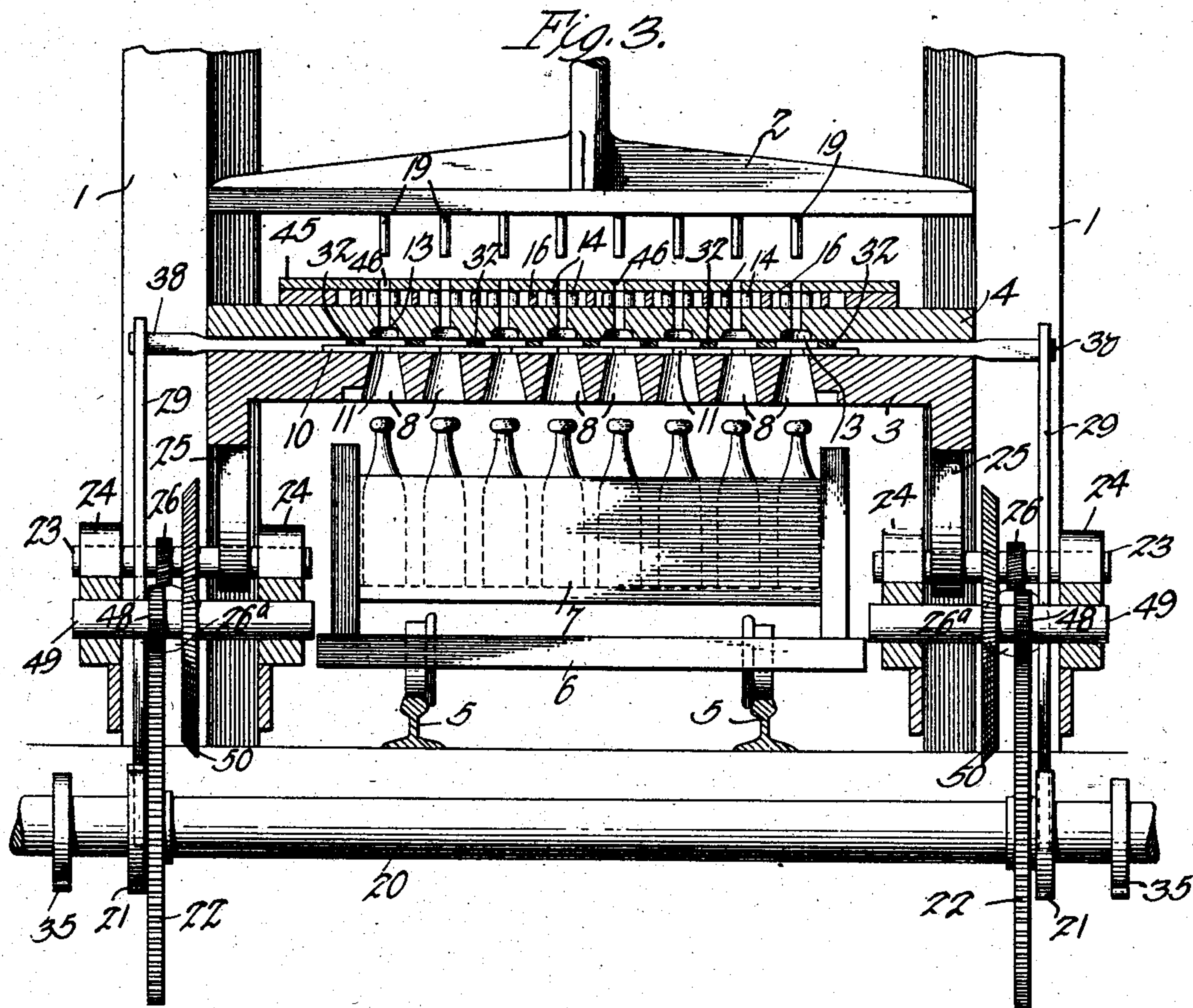
S. HYDÉN & K. A. SIMONSSON.

APPARATUS FOR SIMULTANEOUSLY CORKING A NUMBER OF BOTTLES.

APPLICATION FILED AUG. 16, 1901.

NO MODEL.

3 SHEETS—SHEET 3.



Witnesses  
*E. J. Stewart*  
*B. Johnson*

*S. Hydén* and  
*K. A. Simonsson*, Inventors  
by *Chas. H. Snow*  
Attorneys



# UNITED STATES PATENT OFFICE.

SVEN HYDÉN AND KNUT ALFRED SIMONSSON, OF STOCKHOLM, SWEDEN.

APPARATUS FOR SIMULTANEOUSLY CORKING A NUMBER OF BOTTLES.

SPECIFICATION forming part of Letters Patent No. 721,803, dated March 3, 1903.

Application filed August 16, 1901. Serial No. 72,288. (No model.)

*To all whom it may concern:*

Be it known that we, SVEN HYDÉN and KNUT ALFRED SIMONSSON, brewers, subjects of the King of Sweden and Norway, and residents of Münchens bryggeri, Stockholm, in the Kingdom of Sweden, have invented certain new and useful Improvements in Apparatus for Simultaneously Corking a Number of Bottles, of which the following is a specification.

The invention relates to improvements in bottle-corking machines.

The object of the present invention is to improve the construction of bottle-corking machines and to provide a simple and comparatively inexpensive one adapted to be easily operated and capable of enabling a large number of bottles to be simultaneously corked.

A further object of the invention is to provide a machine of this character which will enable the operation of corking bottles to be performed by fewer workmen, with greater ease and in much less space, and with greater speed than has heretofore been possible.

The invention consists in the construction and novel combination and arrangement of parts hereinafter fully described, illustrated in the accompanying drawings, and pointed out in the claims hereto appended.

In the drawings, Figure 1 is a side elevation of a bottle-corking machine constructed in accordance with this invention. Fig. 2 is a plan view, partly in section. Fig. 3 is a vertical sectional view on the line A B of Fig. 1. Fig. 4 is a detail view of the fixed plate. Fig. 5 is a detail view of the upper vertically-movable plate which carries the plungers for forcing the corks or stoppers into the bottles. Fig. 6 is a detail view of a portion of the lower movable plate. Fig. 7 is a detail view of the cork-holder for filling the machine.

Like numerals of reference designate corresponding parts in all the figures of the drawings.

The frame of the machine is provided with four pillars or posts 1, connected at their upper ends by suitable beams and forming guides for upper and lower vertically-movable plates 2 and 3, which are located above and below an intermediate stationary plate 4, which is secured to the guides. The bottles to be corked are run into the machine on

trucks by means of a track consisting of a pair of rails 5, arranged at the foundation or base of the frame. At each corking operation a truck 6, with a bottle-stand 7, containing uncorked bottles, is placed into the machine and remains stationary during the said operation.

The lower vertically-movable plate 3 is provided with a number of holes 8, adapted, when the plate 3 moves downward, as hereinafter explained, during the corking operation, to receive the necks of the bottles. The lower plate 3 is arranged in an elevated position above the bottles and the stand at the beginning of the corking operation and the necks of the bottles extend a short distance above the stand, so that when the plate 3 descends they will project into the holes 8 and extend through the plate 3. The bottle-stands generally used by brewers contain one hundred bottles, and the plate 3 will be provided with the same number of holes, and it is also provided on its upper face with stationary and movable clamping-bars, one set being fixed to the plate 3 and the other set being connected by cross-bars and adapted to move in unison. The stationary bars 9 are arranged at one side of each row of holes 8 and the movable bars 10 are located at the opposite sides of the holes, their movement being limited by pins 33, mounted on the connecting-bars 32. The clamping-bars are provided at their inner edges with semicircular recesses 11 and 12, arranged to receive the necks of the bottles and forming openings for the reception of the same. These openings, which are located above the holes 8 of the lower plate 3, fit exactly the neck of the bottle below the enlargement or mouth-ring thereof, and the holes 8 are slightly larger than the necks of the bottles to permit a limited amount of play and to avoid contact between the plate 3 and the bottles should there be any variation in the same. The holes 8, which taper upwardly, as clearly shown in Fig. 3, are oval or elliptical in plan view, the major axis being in the direction of the movement of the clamping-bars 10, as the bars 9 are stationary, and the bottles are moved slightly when the plate is lowered to cause the mouth-rings to project above it.

The stationary plate 4 is provided with



openings 13, registering with the holes 8 of the lower plate and having lower portions molded to fit the exterior configuration of the mouths of the bottles and provided with upper portions of the same diameter as the bore or opening of the neck at the point where the cork is received. At the upper side of the plate 4 are mounted rollers 14, arranged in pairs at one side of each opening 13, and at the opposite side of each opening 13 is secured a fixed block 15, having a semicircular recess. The rollers 14 are arranged adjacent to the block or piece 15, and the space between such parts is adapted to receive a cork. The diameter of the recess is slightly less than the diameter of the interior of the neck of the bottle, and the cork is slightly compressed by means of a series of cross-bars 16, arranged between the rows of rollers and connected by bars 17. The bars 16 extend between the sets or pairs of rollers, and the connecting-pieces, which are secured to the bars 16, are provided with projections 18, having end recesses, forming curved cork-engaging faces to engage the corks, as hereinafter explained. The bars 16 and 17, which form a reciprocating frame, move in unison in the direction of the bars 16, and the corks, which are placed opposite the projections 18, are compressed against the blocks or pieces 15, the projections 18 extending between the members of each pair of rollers, which are spaced apart for this purpose. The horizontally-reciprocating cork-compressing frame is arranged beneath a plate or board 45, provided with openings 46 and suitably secured to the stationary plate 4. The openings 46 communicate with the spaces between the blocks 15 and the rollers 14 and with the openings 13 and are adapted to receive the corks which are placed in the machine, as hereinafter explained. The upper vertically-movable plate 2 is provided at its under side with a series of depending pins or plungers 19 of the same diameter as the upper portions of the openings 13, and the said plate 2 is adapted to be forced downward by hydraulic pressure or other suitable means for driving the corks into the necks of the bottles.

Mounted beneath the rail 5 is a transverse shaft 20, journaled in suitable bearings and provided at each end with cam-wheels 21 and 35 and having a cog-wheel 22 keyed or otherwise fixed to it. The cog-wheel 22 meshes with a pinion 48 of a short shaft 49, located at each side of the machine. A set of these gear-wheels is arranged at each side of the frame, and the machine is also provided at each side with a pair of short shafts 23, journaled in suitable bearings 24 and having cam-wheels 25 keyed or otherwise secured to them. These short shafts 23 are also provided with worm-wheels 26, which mesh with worms 26<sup>a</sup> of shafts 28, journaled in suitable bearings 27 and extending longitudinally of the machine at opposite sides thereof and having gear-wheels 47, which mesh with gear-wheels

50 of the said shafts 49. The diameters of the gear-wheels are such that the shafts 23 make two revolutions while the shaft 20 makes one revolution. The lower vertically-movable plate 3 is supported upon the cam-wheels 25 of the short transverse shafts 23 and is raised and lowered by the rotation of such shafts. On each side of the machine are arranged levers 29 and 36, fulcrumed between their ends on suitable pins 30 and 37 and having their lower ends arranged in contact with the cam-wheels 21 and 35, and the said levers are provided at their upper ends with slots receiving projections or lugs 38 and 39 of the bars 10 and 16. The lower ends of the levers 29 and 36 are held in contact with the cam-wheels by springs 31 and 40, and when the shaft 20 rotates the said levers are oscillated by the cams and the springs.

The machine is preferably supplied with corks or stoppers by means of a board 41, provided with holes 42, forming cork-receptacles, and mounted upon the lower portion of the board 41 is a thin plate 43 of sheet-iron or other suitable material. This plate 43, which is provided with holes 44, is adapted to be reciprocated to cover and uncover the bottoms of the openings 42. In practice a quantity of corks is dumped upon the board 41 and the corks are swept into the holes 42, and after the latter are filled the superfluous corks are removed from the board or holder. The cork-holder is then placed upon the plate or board 45, and the bottom plate 43 is reciprocated to uncouple the bottoms of the openings 42 to permit the latter to communicate with the spaces between the rollers and the fixed blocks. The corks are then dropped into the machine.

In operation a truck having a bottle-stand is placed beneath the plate 3, and as soon as the corks have been placed in the spaces between the blocks and the pairs of rollers the horizontally-reciprocating cork-compressing frame is actuated by the levers 36 and the corks are compressed or squeezed between the blocks 15 and the projections 18. In the meantime the cork-holder has been removed from the apparatus, and the plate 3, which before the operation is commenced was in an elevated position with the clamping-bars 9 and 10 separated, has been moved downward, and the necks of the bottles have been clamped between the bars 9 and 10 by means of the levers 29. After the bottles have been engaged by the clamping devices of the lower vertically-movable plate, the latter is again lifted and is pressed against the under side of the stationary plate 4, the mouth-rings of the necks entering the lower portions of the holes 13. The stationary plate supports the necks of the bottles in a fixed position and effectually prevents them from moving laterally. The upper vertically-movable plate is then lowered and the corks are pushed into the bottles by the pins or plungers 19, after which the plate 2 is raised and the plate 3



lowered until the bottles are returned to their places on the stand. The clamping-bars 9 and 10 are then separated and the plate 3 is raised to its initial position, leaving the 5 corked bottles on the stand. The operation is then repeated. Instead of employing the mechanism herein shown and described for raising and lowering the upper and lower plates and for reciprocating the cork-com- 10 pressing frame and the clamping-bars various other means may be used, and, if desired, the stand may be lifted simultaneously with the plate 3 in order to form a better guide and support for the bottles. Also instead of low- 15 ering the plate 3 to the bottles the truck and the stand may be moved vertically, and, if desired, both sets of clamping-bars may be movable. The cork-holder instead of being removable may be permanently mounted on 20 the machine and arranged to prevent the pins or plungers of the upper movable plate to pass through it. A movable bottom plate for closing the bottoms of the cork-receptacles will then be unnecessary. The upper 25 and lower movable plates can be operated from a single source of power, and it may be of advantage in connection with the fixed clamping-bars 9 to arrange the guides to give the lower plate 3 a transverse movement in 30 order to enable the mouth-rings of the bottles to pass freely through the said plate.

What we claim is—

1. In a machine of the class described, the combination of a frame, an intermediate plate 35 or support provided with openings and having cork-compressing devices, a vertically-movable bottle-engaging plate provided with a series of openings to receive the necks of the bottles and having means for engaging 40 the said necks, and a vertically-movable plate or plunger located above the intermediate supports and provided with means for engaging the corks, substantially as described.
2. In a machine of the class described, the 45 combination of a frame, a vertically-movable lower plate provided with a series of openings to receive the necks of bottles and having means for engaging the said necks and adapted to raise and lower the bottles, an in- 50 termediate plate or support provided with openings adapted to receive corks, and an upper plate capable of vertical movement and provided with cork-engaging plungers adapted to extend through the openings of 55 the intermediate plate, substantially as described.
3. In a machine of the class described, the combination of a frame, a vertically-movable 60 lower plate having a series of openings adapted to receive the necks of bottles, said plate being also provided with means for engaging the bottles and adapted to carry the same upward, an intermediate plate provided with openings to receive the bottles and hav- 65 ing cork-compressing devices, and an upper vertically-movable plate provided with a series of cork-engaging pins or plungers

adapted to extend through the intermediate plate, whereby the corks are forced into the bottles while compressed, substantially as 70 described.

4. In a machine of the class described, the combination of a plate provided with open- ings and capable of upward and downward movement, and clamping devices composed 75 of bars arranged at opposite sides of the openings, one bar being capable of movement with relation to the other and both bars being provided with approximately semicircular re- 80 cesses, whereby the said bars are adapted to grip the necks of bottles and other receptacles to enable the same to be lifted bodily by the said plate, substantially as described.

5. In a machine of the class described, the combination of a support having openings, 85 rollers or wheels arranged in pairs and located at the said openings and adapted to compress corks passing between them, means for forcing corks between the wheels or roll- 90 ers and means for holding the corks after the same have been compressed by the said wheels or rollers, substantially as described.

6. In a machine of the class described, the combination of a support provided with a 95 series of cork-receiving notches, rollers arranged in pairs and disposed opposite the notches and adapted to compress corks pass- ing between them, a series of projections ar- 100 ranged to extend between the rollers, and means for reciprocating the projections to force corks between the rollers and to hold 105 the same in the notches after the said corks have been compressed, substantially as de- scribed.

7. In a machine of the class described, the 105 combination of a frame, an intermediate stationary support provided with a reciprocating cork-engaging frame, the lower vertically- 110 movable plate provided with clamping devices for engaging the necks of bottles, levers connected with the cork-engaging frame and with the clamping devices, and means for oscillating the levers, substantially as de- 115 scribed.

8. In a machine of the class described, the 115 combination of a main frame, an intermediate stationary support provided with cork-compressing devices, the lower vertically- 120 movable plate provided with clamping devices for engaging the necks of bottles, an upper vertically-movable plate provided with pins or plungers arranged to extend through the intermediate support to force the corks 125 into the bottles, oscillating levers connected with the cork-compressing devices and with the said clamping devices and adapted to ac- tuate the same, and cams for operating the levers, substantially as described.

9. In a machine of the class described, the combination of a main frame, a vertically- 130 movable lower plate provided with openings and having clamping devices for engaging the necks of bottles, cam-wheels supporting the lower plate, a lever connected with the clamp-



ing devices, gearing for rotating the cam-wheels and for oscillating the lever to raise and lower the lower plate and to operate the clamping devices, and means for forcing corks  
5 into the necks of the bottles, substantially as described.

10 10. In a machine of the class described, the combination of a main frame, a lower vertically-movable plate provided with clamping  
15 devices for engaging the necks of bottles, cam-wheels supporting the lower plate, a stationary plate or support located above the lower plate and provided with cork-compressing devices, levers connected with the cork-  
20 compressing devices and with the clamping devices, a shaft having cams arranged to engage the levers, and means for forcing the corks into the bottles, substantially as described.

20 11. In a machine of the class described, the combination of a main frame, a vertically-movable lower plate having clamping devices,

a stationary plate having cork-compressing devices, the short shafts 23 located at opposite sides of the main frame and having worm- 25 wheels, the shafts 28 having worms meshing with the worm-wheels, the shaft 20 extending across the frame and provided at opposite sides with cams, gearing connecting the shaft 20 with the shafts 28, cam-wheels mounted on 30 the shafts 23 and supporting the lower vertically-movable plate, levers connected with the clamping and cork-compressing devices and arranged to be engaged by the cams of the shaft 20, and means for forcing the corks into 35 the bottles, substantially as described.

In witness whereof we have hereunto set our hands in the presence of two witnesses.

SVEN HYDÉN.

KNUT ALFRED SIMONSSON.

Witnesses:

HAGELIN,

A. RUTBACKY.