S. L. GOLDMAN.

BOTTLE RACK.

APPLICATION FILED JAN. 5, 1910.

966,008.

Patented Aug. 2, 1910.

3 SHEETS—SHEET 1.

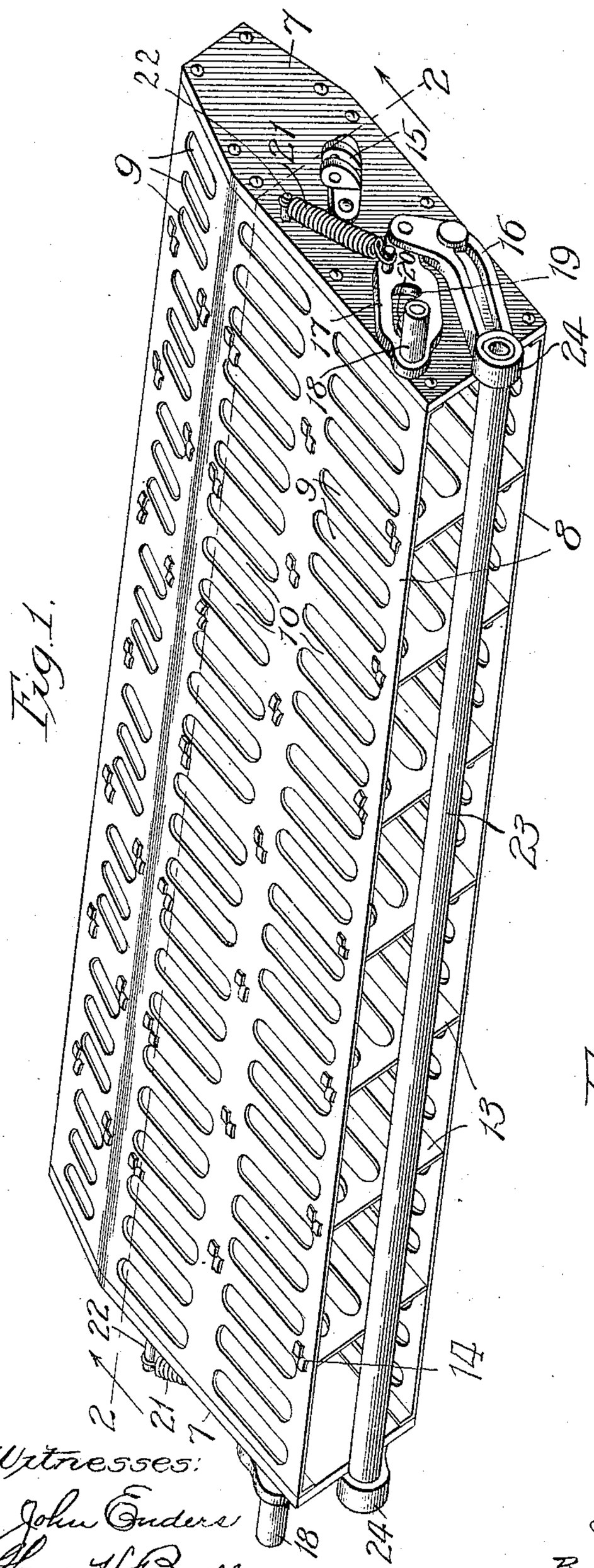

Fig. 1.

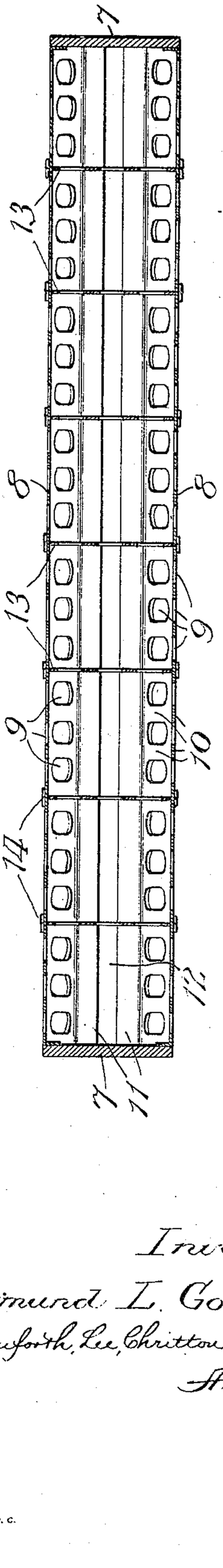

Fig. 2.

Witnesses:

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3 SHEETS—SHEET 2.

Fig. 3.

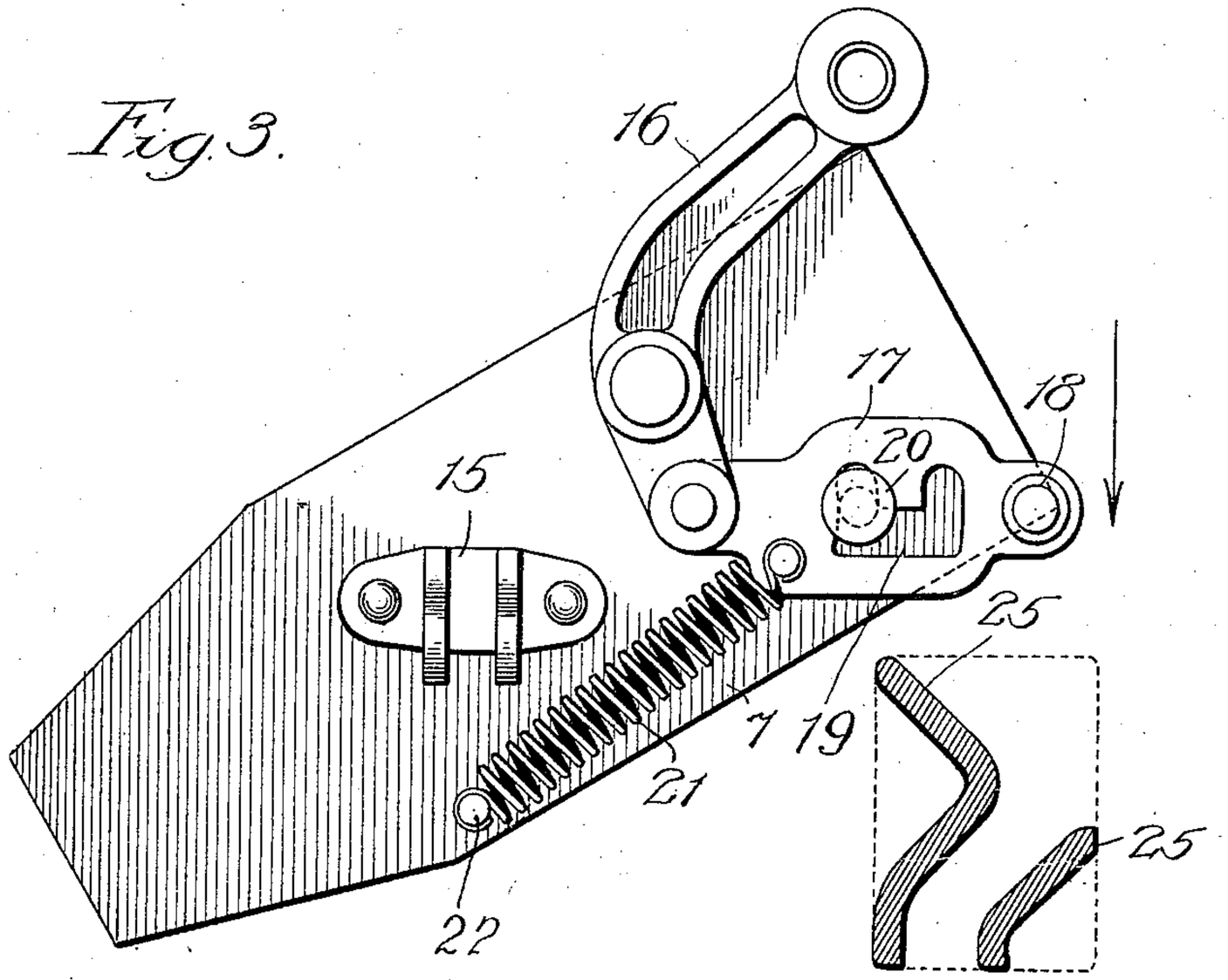
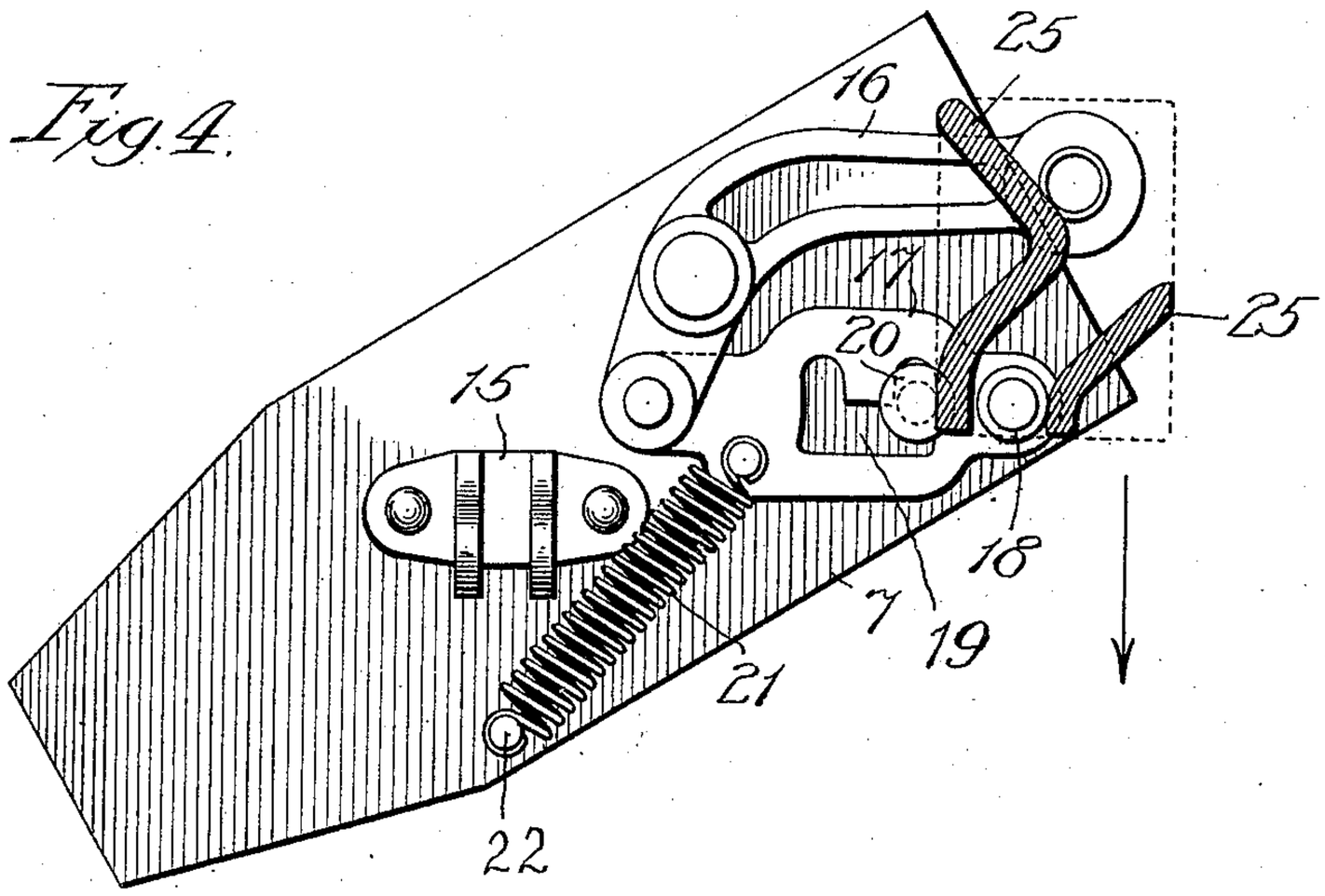


Fig. 4.



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3 SHEETS—SHEET 3.

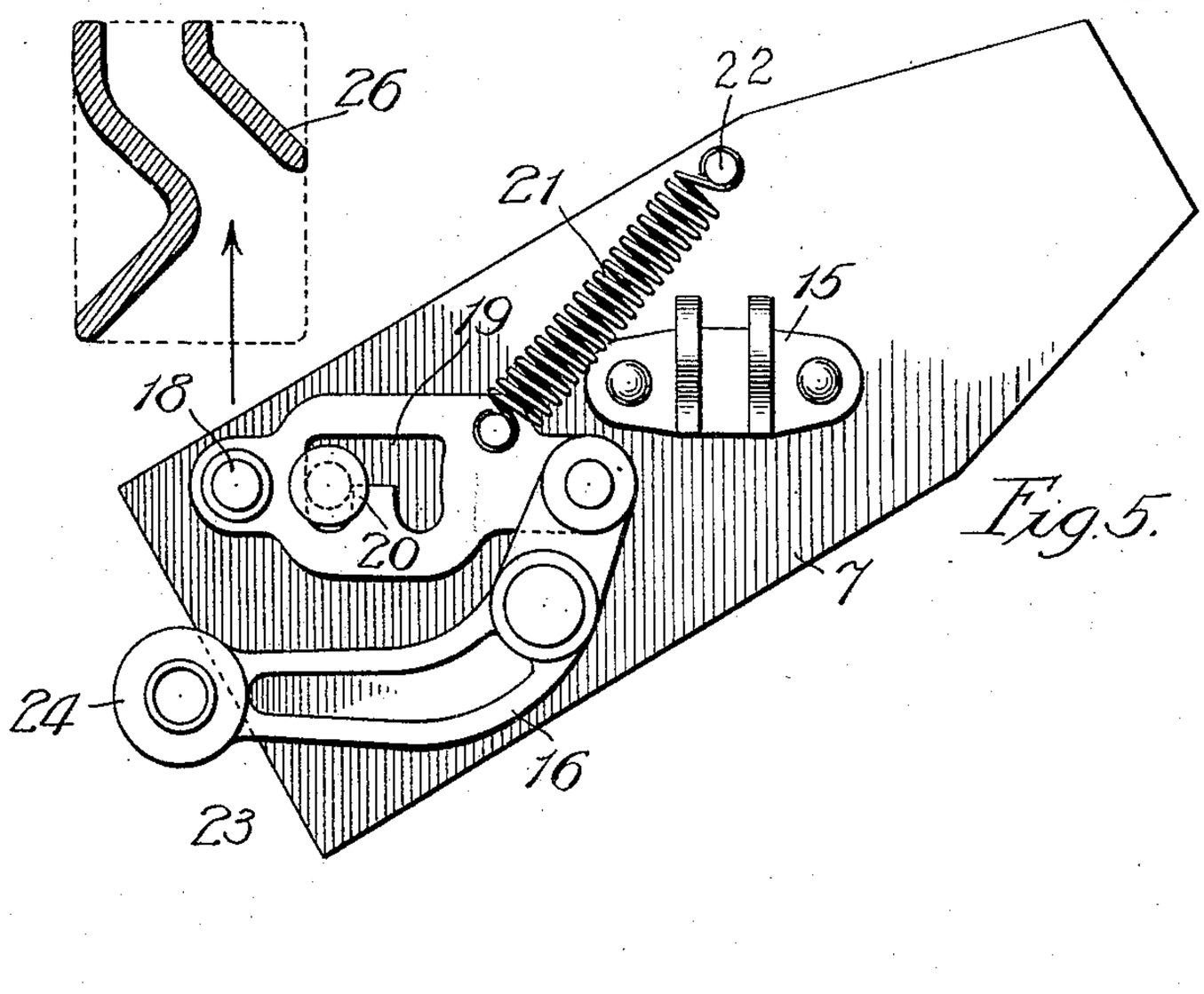

Fig. 5.

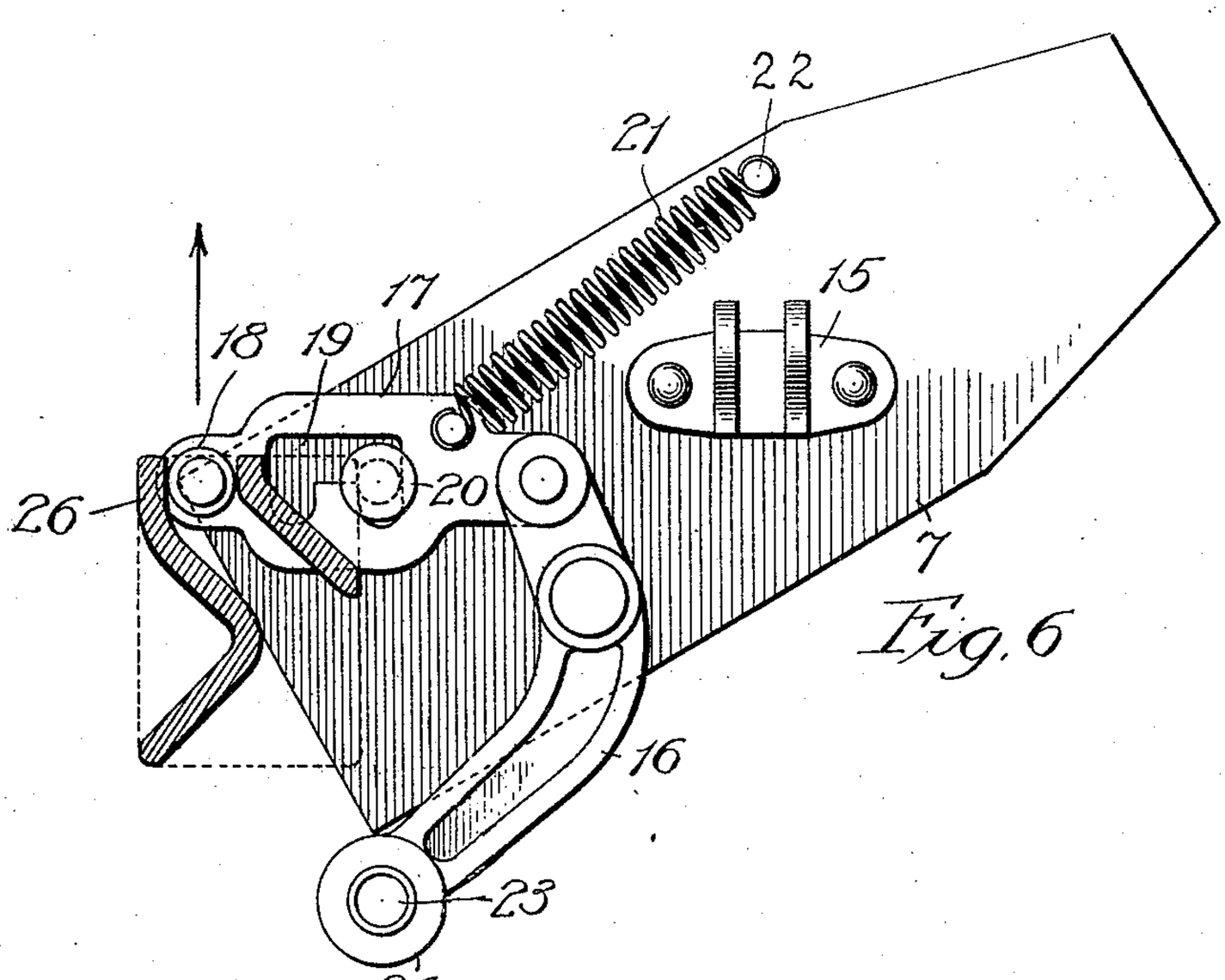

Fig. 6

Witnesses:

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UNITED STATES PATENT OFFICE.

SIGMUND L. GOLDMAN, OF CHICAGO, ILLINOIS.

BOTTLE-RACK.

966,008. Specification of Letters Patent. Patented Aug. 2, 1910.

Application filed January 5, 1910. Serial No. 536,557.

To all whom it may concern:

Be it known that I, SIGMUND L. GOLDMAN, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Bottle-Racks, of which the following is a specification.

My invention relates to an improvement in racks or carriers for bottles as a means for holding them, especially while in transit through washing, rinsing and pasteurizing apparatus, and the like; and I have devised it more particularly as an improvement upon the construction of rack shown and described in Letters Patent of the United States No. 920,564, granted to me May 4, 1909, for a bottle-soaking machine, with a view to rendering the structure lighter in weight, stronger and more compact, as also materially simplifying it, and, as a still more important improvement, providing, for automatically locking the bottles in the rack, novel and effective means reliably operative with facility to automatically unlock the bottle-retaining element or gate under cam-action upon said means at the points of charging the rack with bottles and discharging the bottles therefrom in their course through the apparatus.

In the accompanying drawings, Figure 1 is a perspective view of my improved rack; Fig. 2 is a section on line 2, Fig. 1; Figs. 3 and 4 are similar end views of the rack shown, by way of diagram, in relation to operating cams in their path, and respectively representing the rack in its open condition, for loading it, and in the closed condition to which it is reduced after loading it, and Figs. 5 and 6 are views like those presented in the two preceding figures, but respectively showing the rack in the position, relative to the cam, wherein it is about to be opened for the discharge of bottles and that wherein it has been opened to permit such discharge.

The preferred construction of the body of the rack, in matters of detail, is that clearly shown in Fig. 1. The two similar ends or heads 7 are plates, each tapered toward one end along opposite edges. Between the heads and securely fastened through their turned ends thereto are the similar sides 8 formed of sheet-metal and each provided throughout its length with a plurality of rows of elongated transverse openings or perforations 9, whereby the rows are separated by narrow imperforate sections 10, thus to render the structure as open as possible, through its sides to the circulation through it of water. At the bases of the sides they are bent toward each other, as shown at 11 in Fig. 2, but without meeting at their opposing edges, thus to form the longitudinal space or opening 12 between them for rendering the base of the rack open to water-circulation. When the heads are tapered, as shown, the sides conform to them, as represented, thereby affording an advantage hereinafter explained. At intervals between the sides 8 are provided partitions 13, perforate like the sides to enhance the water-circulation through the rack; and the partitions, which form bottle-holding pockets, are securely fastened to the sides by tongues 14 projecting from the edges of the partitions to extend through holes provided in the solid sections of the sides, the projecting ends of these tongues being turned against the surfaces of the sides to clench them. The sides and partitions thus mutually reinforce each other and impart great rigidity and strength to the open and comparatively light structure. A bifurcated bearing 15 projects from each head 7 near its center.

To one side of the longitudinal center of the outer face of each head, between the transverse center thereof and the mouth of the rack, is fulcrumed a bent lever 16, or bell-crank having its inner end, or shorter arm, pivotally connected with the adjacent end of a shifting link 17, which carries on its free-end portion a projection in the preferred form shown of an anti-friction roller 18. This link contains a longitudinal slot 19 of general B-shape, through which projects from the face of the head a headed stud 20 to confine the link shiftably in place. A spiral spring 21 connects the link from near its pivotal end with a pin 22 on the outer face of the head. As will be understood, a similar equipment of lever 16 and link 17 is provided on each head 7. A gate 23, shown in the form of a cylindrical rod, which is preferably tubular, connects the free ends of the two levers 16, at heads 24 thereon, to extend normally lengthwise and centrally of the mouth of the rack to confine bottles therein; though the gate may involve any other suitable form, such as that shown and described in my aforesaid patent.

To use my improved rack it may be applied and operated in a bottle-washing machine as shown and described in my said patent. The rack forms one of an endless series of racks extending between vertically traveling endless chains, being fastened thereto at the bearings 15. In the path of each roller 18 at the rear or filling side of the machine is provided a cam 25, and in the path thereof at the front or discharging side of the machine is provided a similar cam 26, but inverted relative to the cams 25. When, in the travel of a rack loaded with bottles, as hereinafter described, it reaches the position represented in Fig. 5, which is near the point of discharging, (the travel being in the direction indicated by the arrows,) the gate 23 is in its normal position of confining the bottles in the rack-pockets. In that condition of the parts the studs 20 are in those offset sections of the slots which lock the gate in the described position. In the further travel of the rack, when the rollers 18 encounter the cams 26, their engagement therewith first turns the links 17 to withdraw those offset portions from the studs and aline with the latter the straight slot-sections, whereupon, by the further action upon the links of the cams the latter draw the rollers lengthwise through the straight slot-sections thereby turning the levers 16 on their fulcrums to withdraw the gate-bar 23 from its rack-closing position to that represented in Fig. 6; and when the rollers, in the continued travel of the rack, register with the other offset sections of the link-slots 19, the recoil of the springs 21, which were tensioned by the movements of the links, snaps the links to enter the studs 20 into said other slot-sections, wherein they lock the links to retain the gate in its open position. With the gate thus opened the rack occupies the position of inclination represented in Fig. 6, permitting the bottles to discharge from it by gravity.

In the open condition of the rack it is adapted to be loaded with bottles (not shown), which, in the form of the rack illustrated, should be introduced neck-foremost into the rack-pockets; and the taper of the walls of the rack tends to guide and cushion the bottle-necks in their becoming seated in the pockets. The loading is done at the gate-opening side of the machine, opposite the discharge side thereof, or that at which the cams 25 are provided in the path of the rollers 18. The emptied rack continues its travel, with the gate locked in open condition, until the rollers 18 encounter the cams 25, which position it is represented in Fig. 3 to be approaching; and the filling with bottles takes place there. When the rollers 18 encounter the cams 25, and in passing them, the latter trip the rollers out of the recess-sections of the links in which they were confined in the open condition of the gate, thereby turning the links and tensioning the springs, the recoil of which shifts the links longitudinally, sliding the straight sections of the slots along the studs 20 until the latter register with the other recessed sections of the slots. These movements of the links turn the levers 16 on their fulcrums to restore the gate-bar to its bottle-confining position, having attained which the further recoil of the springs turns the links to engage the other recess-sections of their slots with the studs 20, as shown in Fig. 4, thereby locking the gate.

The gate operating mechanism on the rack, as will be seen, is very simple in construction, quite positive in its action, and perfectly reliable in performing its gate-adjusting and locking functions under the action of the control of the actuating cams; and it is durable and without tendency to get out of order.

What I claim as new and desire to secure by Letters Patent is:—

1. An open-work bottle-rack body comprising sheet-metal sides having tongue-receiving holes and inturned ends, pocket-forming partitions extending between the sides with tongues on their edges projecting through said holes and clenched against the outer surface of said sides, and end-heads secured to the inturned ends of the sides.

2. In combination with a bottle-rack body, a gate for the mouth of said body, and cam-operative means for opening and closing the gate, comprising levers fulcrumed on the rack-heads and connected by the gate, and spring-pressed longitudinally-shiftable links on the heads pivotally connected with the levers and provided with cam-engaging projections.

3. In combination with a bottle-rack body, a gate for the mouth of said body, and cam-operative means for opening and closing the gate, comprising levers fulcrumed on the rack-heads and connected by the gate, studs on the rack-heads, and spring-pressed slotted links engaged by the studs and pivotally connected with the levers, with cam-engaging projections on the links.

4. In combination with a bottle-rack body, a gate-forming bar for the mouth of said body, and cam-operative means for opening and closing the gate, comprising bell-crank levers fulcrumed on the rack-heads and connected at their longer arms by said bar, studs on the rack-heads, and spring-pressed slotted links engaged by the studs and pivotally connected with the shorter lever-arms, with cam-engaging projections on the links.

5. In combination with a bottle-rack body, a gate for the mouth of said body, and cam-operative means for opening and closing the gate, comprising bell-crank

levers fulcrumed on the rack-heads and connected at their longer arms by the gate, studs on the rack-heads, and spring-pressed links pivotally connected with the shorter lever-arms and containing longitudinal slots provided with recesses at their opposite ends, and through which said studs extend, with anti-friction rollers projecting from the links.

6. In combination, a bottle-rack body comprising end-heads with sides connecting them, gate-operating means on the heads, and a gate-forming rod connecting said operating means on the opposite heads and normally extending lengthwise along the mouth of said body and upon which the bottoms of the bottles seat for releasably confining bottles in the rack.

7. In combination, a bottle-rack body comprising end-heads with sides connecting them, gate-operating lever-mechanism on the heads, and a gate-forming rod joining corresponding ends of the levers of said mechanism and normally extending lengthwise and centrally along the mouth of said body and upon which the bottoms of the bottles seat to releasably confine bottles in the rack.

SIGMUND L. GOLDMAN.

In presence of—
JOHN WILSON,
RALPH A. SCHAEFER.