

F. N. YOUNG.
BOTTLE WASHING MACHINE.
APPLICATION FILED MAR. 11, 1904.

4 SHEETS—SHEET 1.

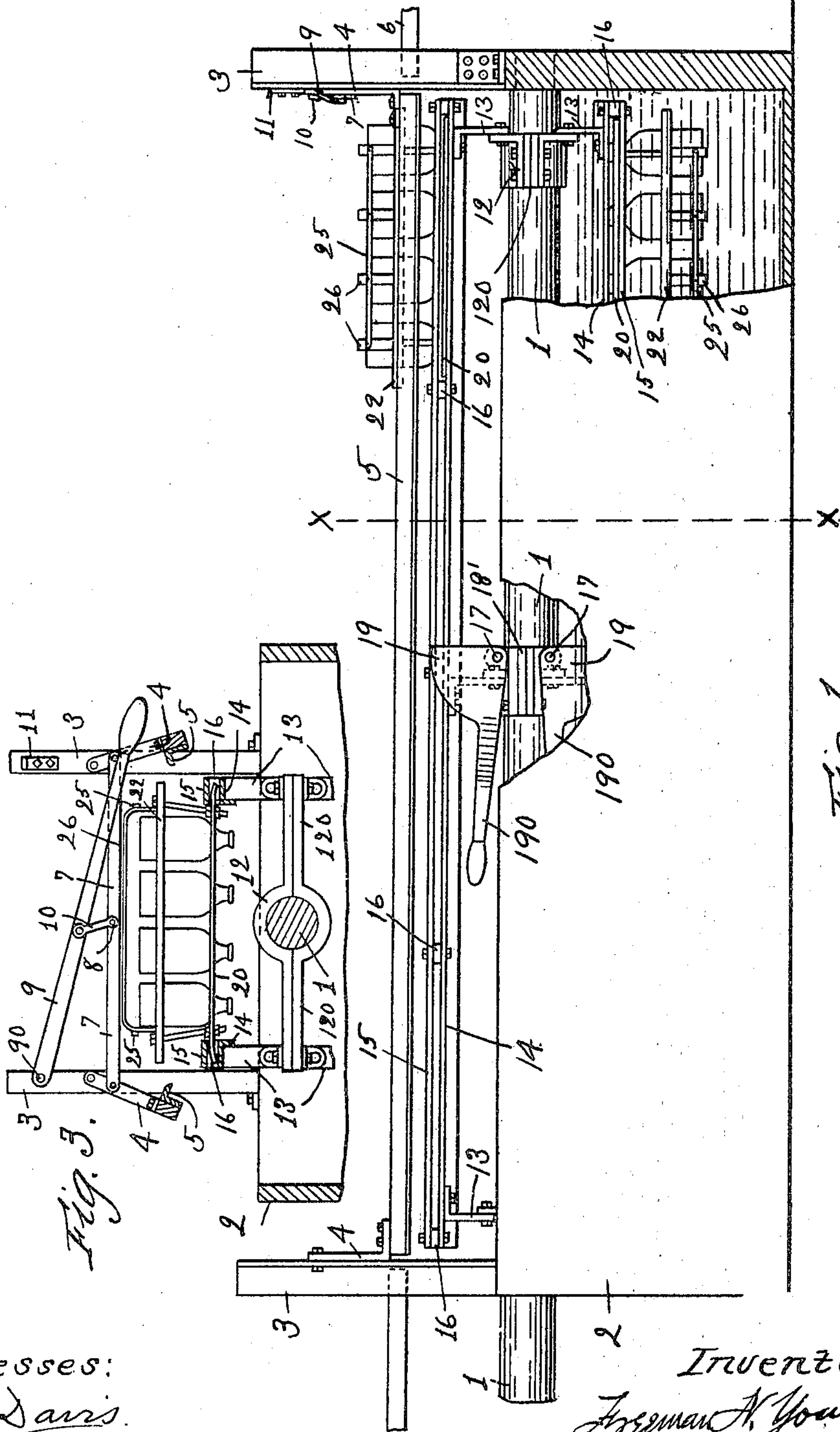


Fig. 1.

Witnesses:

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4 SHEETS—SHEET 2.

Fig. 2.

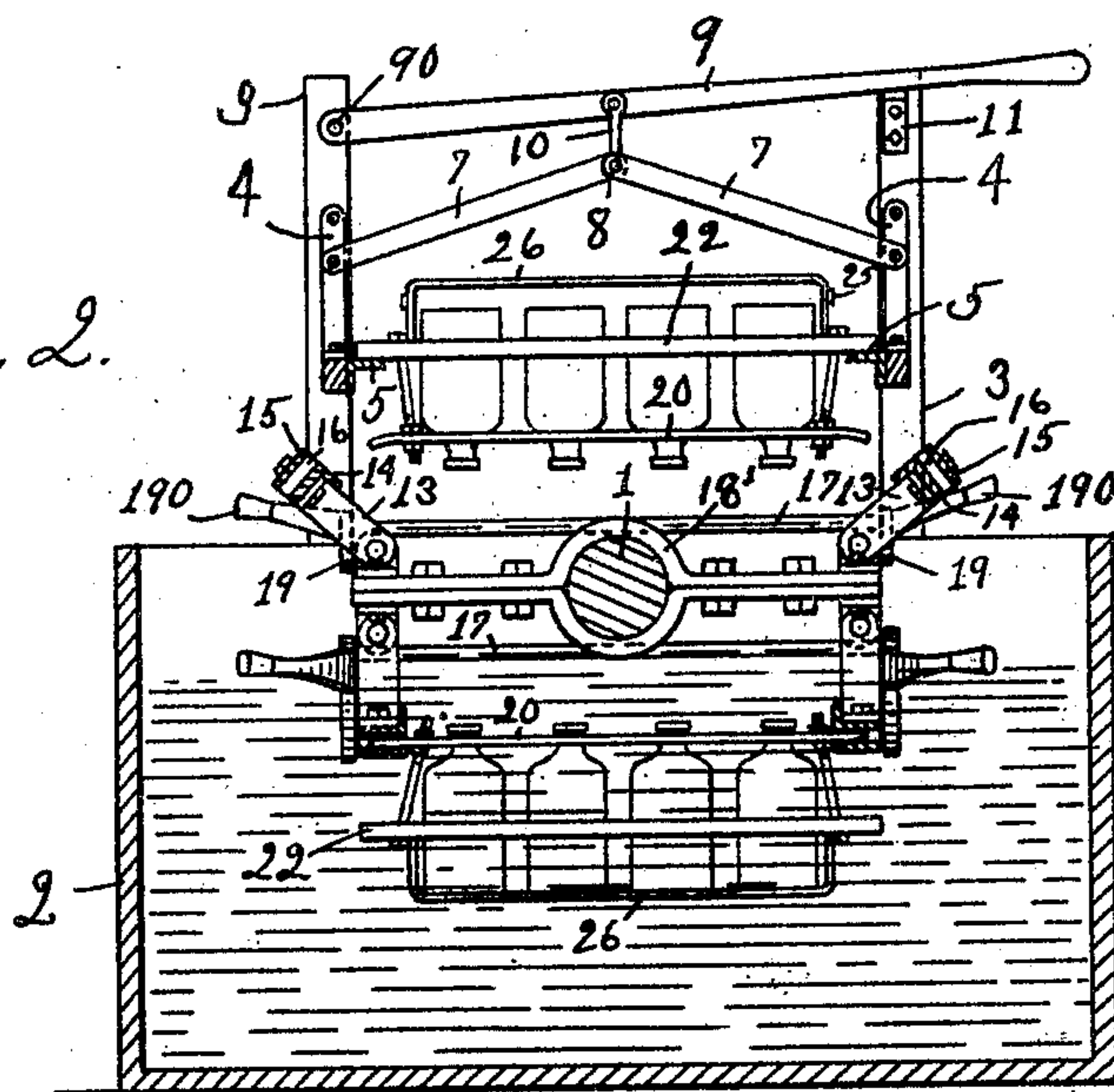


Fig. 4.

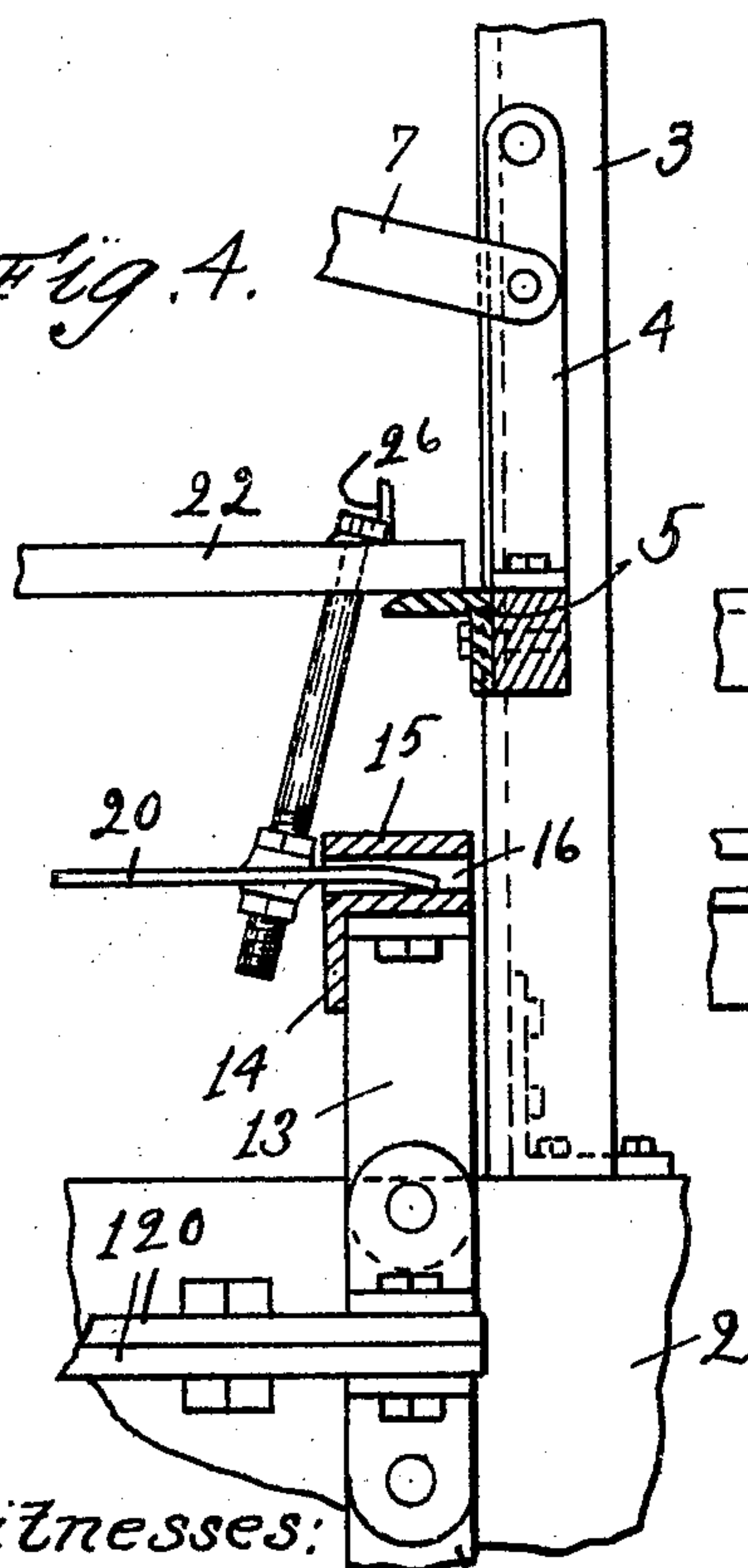
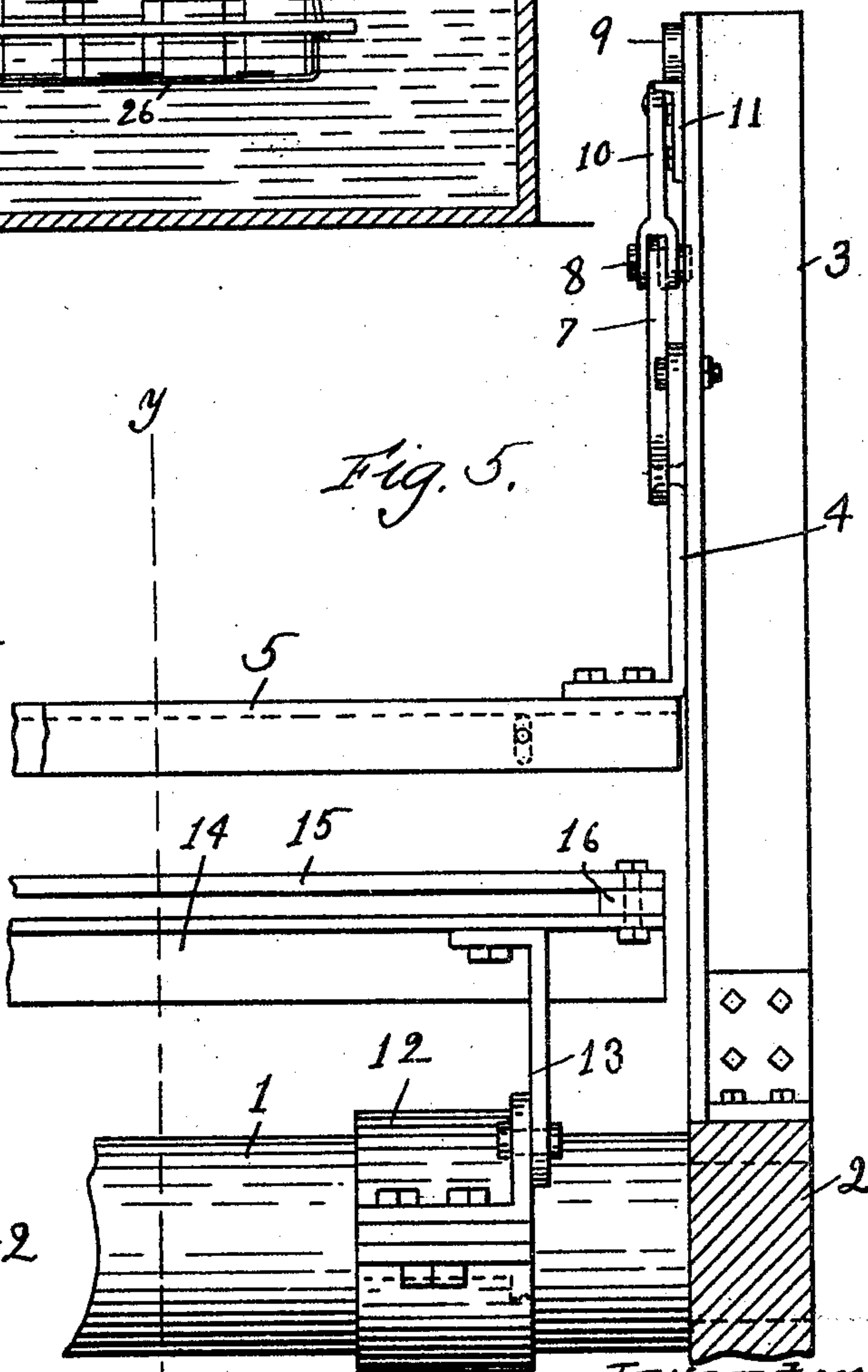


Fig. 5.



Witnesses:

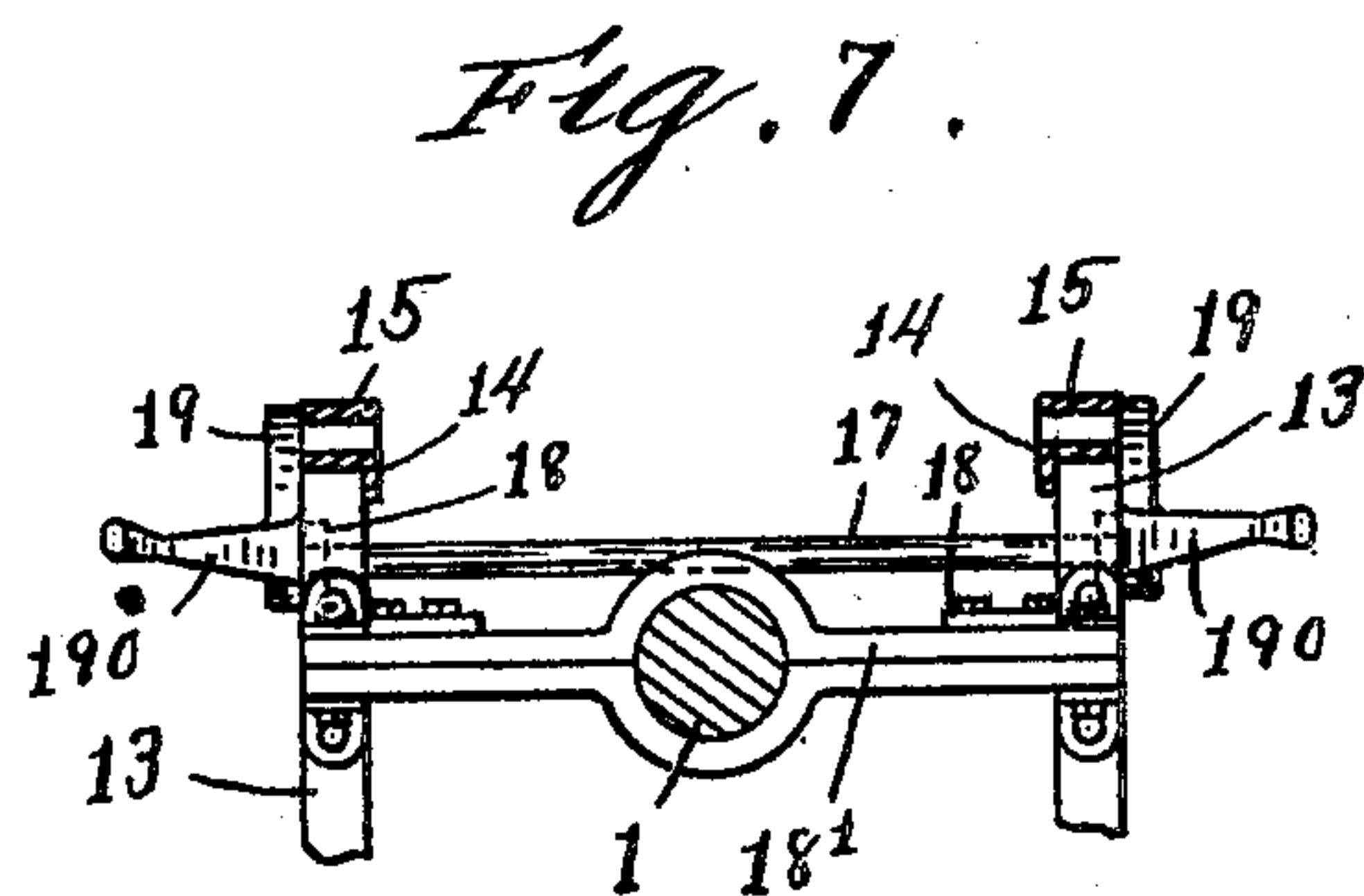
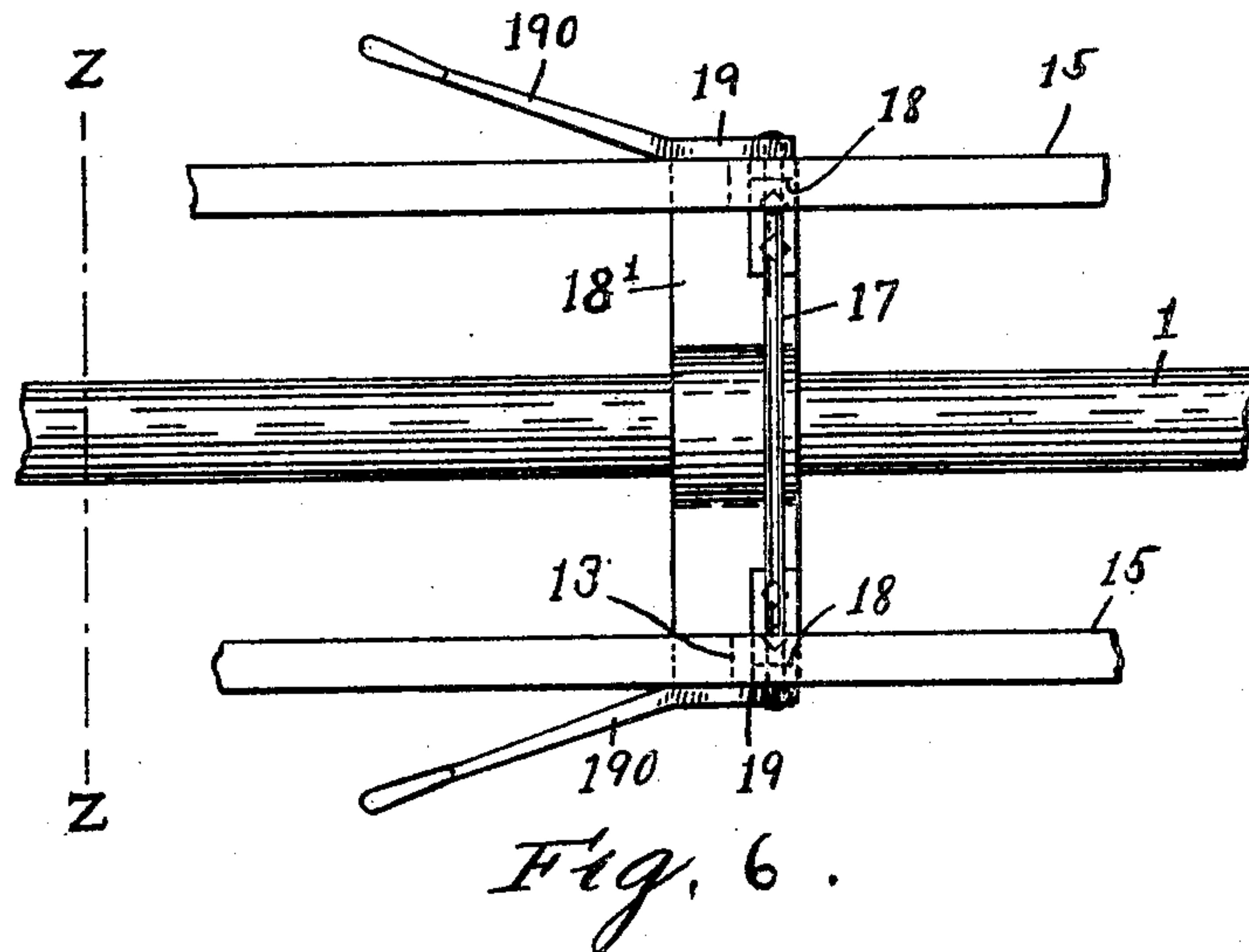
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4 SHEETS—SHEET 3.



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No. 803,043.

PATENTED OCT. 31, 1905.

F. N. YOUNG.
BOTTLE WASHING MACHINE.
APPLICATION FILED MAR. 11, 1904.

4 SHEETS—SHEET 4.

Fig. 8.

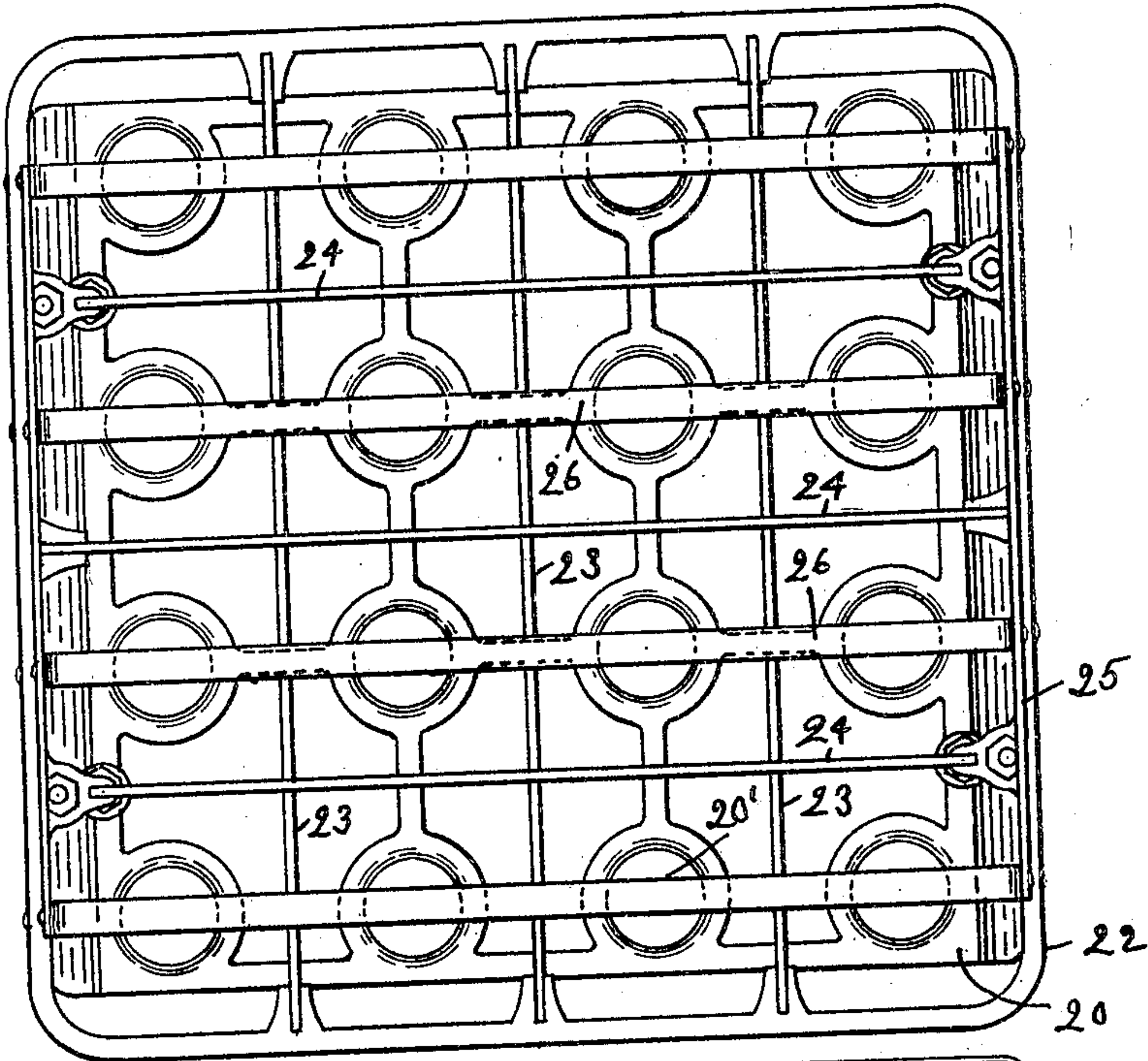
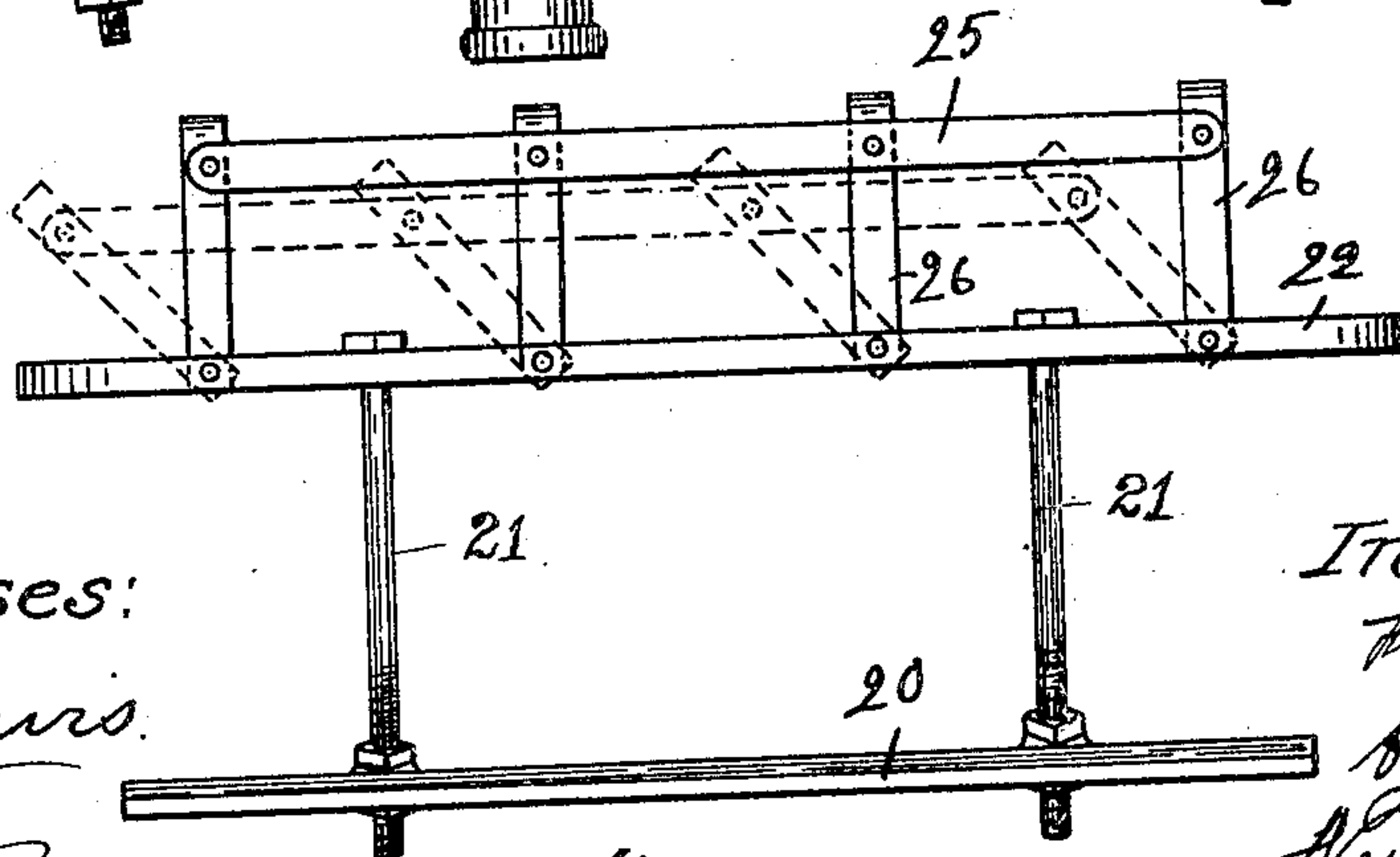
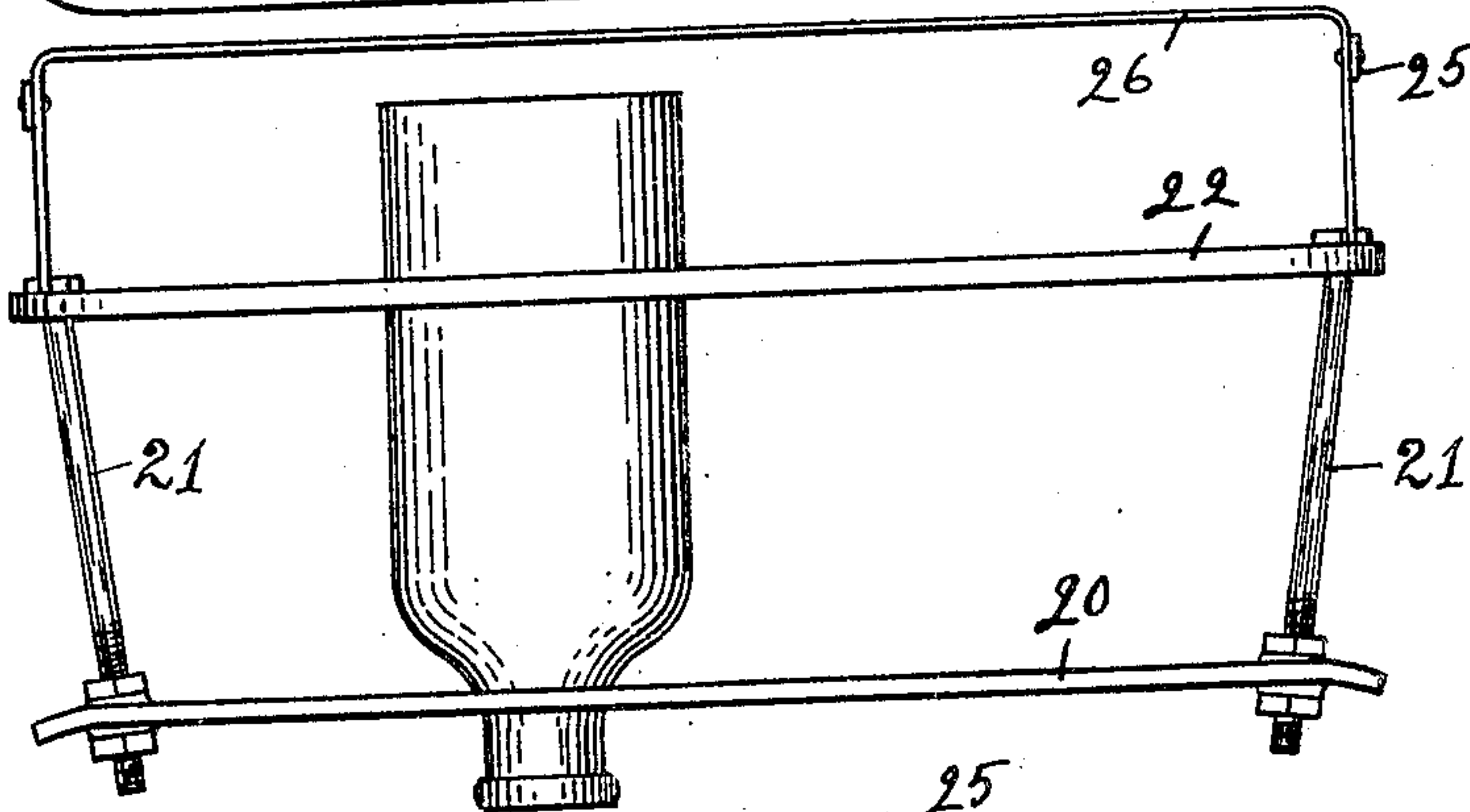


Fig. 9.



Witnesses:

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Fig. 10.

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UNITED STATES PATENT OFFICE.

FREEMAN N. YOUNG, OF ARLINGTON, MASSACHUSETTS.

BOTTLE-WASHING MACHINE.

No. 803,043.

Specification of Letters Patent.

Patented Oct. 31, 1905.

Application filed March 11, 1904. Serial No. 197,714.

To all whom it may concern:

Be it known that I, FREEMAN N. YOUNG, of Arlington, county of Middlesex, State of Massachusetts, have invented an Improvement in Bottle-Washing Machines, of which the following description, in connection with the accompanying drawings, is a specification, like characters on the drawings representing like parts.

10 This invention relates to certain improvements in bottle-washing machines, and particularly to that class of bottle-washing machines in which one or more bottle-racks are connected to a horizontal rotating shaft in such
15 position that as the shaft is rotated the bottles will be carried into the water of the washing-tank and will be alternately filled and emptied.

20 The object of my invention is to provide a means for securely and readily attaching the bottle-racks to the shaft, so that they cannot move with relation thereto while it is being rotated, and to provide means whereby the racks may be readily moved to a position in
25 which they may be conveniently secured to the shaft and then may be conducted from the tank after they have been washed.

30 A further object of my invention is to provide a form of bottle-rack which may be readily filled with bottles and which is provided with means for holding the bottles therein in all positions thereof.

35 For an understanding of the means whereby I am enabled to carry out the above-described objects, reference is made to the drawings, in which—

40 Figure 1 is a side elevation of my machine, portions of the sides of the tank being broken away. Fig. 2 is a transverse section thereof on the line $x x$ of Fig. 1. Fig. 3 is a similar view showing the parts in a different position. Fig. 4 is an enlarged detail view of the rack-holding mechanism, the same being a cross-section on the line $y y$ of Fig. 5. Fig. 5 is a
45 side elevation of the parts shown in Fig. 4. Fig. 6 is a detail plan view of the locking mechanism for the rack-engaging devices. Fig. 7 is a sectional view on the line $z z$ of Fig. 6. Figs. 8, 9, and 10 are respectively
50 plan, side, and end views of a particular form of bottle-rack which I employ in this connection.

55 As illustrated in the drawings, the horizontal shaft 1 is rotatably mounted in the ends of a rectangular-shaped elongated tank 2, said tank being partially filled with water, so that

the surface thereof is a short distance below the shaft 1. A pair of standards 3 are rigidly mounted upon each end of the tank, and an arm 4 is pivotally connected to the inner side
60 of each standard at its upper end. A pair of tracks 5, which may be in the form of an ordinary strip of angle-iron, are rigidly connected at their ends to the lower ends of corresponding arms 4 of each pair, so that said
65 tracks will always be parallel. Stationary tracks 6 6' are mounted at each end of the tank in such a position that they will be in alinement with the tracks 5 5 when the arms 4 are suspended in a vertical position, as shown
70 in Fig. 2. The arms 4 4 at one end of the machine are connected by a pair of links 7, said links being pivotally connected at one end to said arms and connected together by a pivot 8 at their opposite ends. A lever 9 is pivoted
75 at 90 to one of the standards 3, and a link 10 is pivotally connected to said lever and to the links 7 by their connecting-pivot 8. A lug 11 is secured to one of the standards 3 in such a position that said lever 9 may be lifted and
80 supported thereon, as illustrated in Fig. 2. A collar 12 is clamped on shaft 1 adjacent each end of the tank, said collars each being provided with arms 120, which extend radially therefrom at diametrically opposite points.
85 A pair of arms 13 are pivotally connected to the outer end of each arm 120 and at opposite sides thereof. The opposite or unpivoted ends of each corresponding pair of arms 13 are rigidly connected to a bar 14, each bar
90 extending nearly the entire length of said tank. A bar 15 is secured to each bar 14, and is separated therefrom so as to provide slots of suitable width therebetween by a series of
95 blocks 16, one of said blocks being arranged at each end of said bars and others being arranged at suitable intermediate points. A pair of rods 17 are journaled in brackets 18, secured to the outer ends of radially-extending arms 18', which, as shown in Fig. 7, are
100 secured to the shaft 1 in a manner similar to that in which the arms 120 are secured, said rods 17 being parallel and extending transversely of the shaft 1 at opposite sides thereof approximately midway of the tank. A
105 locking-plate 19 is secured to each end of each shaft 17, and each plate is provided with an obliquely-extending arm 190, having a handle at its extreme end. The particular form of bottle-rack which I employ in this connection is best shown in Figs. 8, 9, and 10 and
110 comprises a neck-holding plate 20, having a

series of neck-apertures 20' therethrough arranged at suitable regular intervals, and a frame 22, which is provided with two parallel series of cross-bars 23 and 24, extending at right angles to each other. Said frame 22 and plate 20 are adjustably connected by rods 21, so that the apertures 20' of the plate will be opposite the middle of the corresponding apertures formed by the cross-bars 23 24 in the frame. A series of bottle receiving and holding pockets are thus provided in the rack, each of which is open at one end to permit the bottles to be placed therein and sufficiently closed at the other end to prevent their escape, said pockets being arranged in regular rows, as illustrated. A series of bails 26 are pivoted to the frame 22, each bail being pivoted at the ends of one of said rows of pockets adjacent the medial line thereof, so that when said bails are swung to a position in which they are in a plane perpendicular to said frame they will close the open ends of the pockets, so that the bottles which are placed therein, with their necks passing through said apertures 20', can only move to a limited extent in either direction. A bar 25 is pivotally connected to the sides of each of said bails, so that when one of said bails is swung on its pivot the other bails will be likewise moved. When said bails are swung to the oblique position, (illustrated in dotted lines in Fig. 10,) the bottles may be readily inserted in the pockets of the rack, as illustrated in Fig. 9. The bails may then be swung back to an upright position, so that if the rack is inverted the bottles will be supported thereon. Opposite edges of the plate 20 and frame 22 of the rack extend beyond the rods 21 to a sufficient extent to provide two pairs of lateral projections, one pair being above the other.

The manner of using my device is as follows: A number of filled racks are supported on tracks 6, the laterally-projecting edges of the frames 22 thereof resting thereon, so that the bottles will be held neck down in the racks. The tracks 5 will be swung into the position shown in Fig. 2, so that they will be in alignment with the tracks 6, and the racks will be slid along from tracks 6 onto and along the tracks 5 until as many racks as possible are supported on the latter. The machine illustrated is adapted to hold eight bottle-racks at one time, so that the maximum number of racks which may be supported on tracks 5 at one time is four. The shaft will be held stationary with the arms 120 horizontal, and then the arms 190 will be thrown upwardly, so that their inner sides will engage the outer sides of the bars 14 15, causing the latter to be swung upwardly. The racks which are then supported by the tracks 5 will be in such a position that the corresponding rack-engaging bars 14 15 will respectively pass below and above the projecting edges of the neck-plate 20 of each rack at each side thereof, so that

said edges will be located therebetween, as shown in Figs. 3 and 4. As soon as the bars are moved into this position the plates 19 will be swung up against the outer edges thereof, locking them in place, so that the racks will then be firmly locked on the shaft. The lever 9 is then lowered, causing the tracks 5 to be swung transversely out of engagement with the frame 23, so that the racks will then be supported solely by the holding-bars 14 15. The shaft 1 is then rotated one-half a revolution, and then the tracks 5 are again moved in line with the tracks 6, and four more bottle-racks are slid in onto the tracks 5 and connected to the opposite pair of rack-engaging bars 14 15 in the manner before described. The tracks 5 are swung apart, and the shaft is then rotated slowly a suitable length of time, and the bottles are thus thoroughly rinsed. The machine is then stopped and held with the arms 120 in a horizontal position. The tracks 5 are thrown down beneath the projecting edges of the frame 22 of the racks. The bars 14 15 are then unlocked and thrown outwardly to the position shown in Fig. 2, and the racks are slid along on the rails 5 onto the tracks 6' at the opposite end of the tank. Another set of racks are then slid in onto tracks 5 from the tracks 6, and then these racks are secured to the shaft, as before described. The racks at the opposite side of the shaft are likewise discharged and replaced by other racks, as will be obvious.

With the above-described means I am enabled to handle and wash the bottles with the same facility as with the machine described in my pending application, Serial No. 146,830, and I am also enabled to simplify the apparatus and to provide means for locking the crates onto the frame, so that they cannot move longitudinally of the shaft during the washing operation.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a bottle-washing machine, the combination of a tank, a horizontal, rotatable shaft, bottle-rack-supporting means independent of the shaft, and rack-holding devices borne by said shaft and movable into engagement with the racks held by said supporting means, substantially as described.

2. In a bottle-washing machine, the combination of a tank, a horizontal, rotatable shaft, bottle-rack-supporting means independent of the shaft, and rack-holding devices borne by said shaft and movable into engagement with the racks held by said supporting means, said supporting means being movable into and out of engagement with the racks, substantially as described.

3. In a bottle-washing machine, the combination of a tank, a horizontal, rotatable shaft, bottle-rack-holding means borne by said shaft, a pair of tracks extending longitudinally of

said shaft, and supported independently thereof, said tracks being movable into and out of engagement with the bottle-racks while the latter are held by said rack-holding means, substantially as described.

4. In a bottle-washing machine, the combination of a tank, a horizontal, rotatable shaft, bottle-rack-holding means borne by said shaft, a pair of tracks extending longitudinally of said shaft, and supported independently thereof, and means for moving said tracks from each other into and out of engagement with said bottle-racks while the latter are held by said rack-holding means, and for maintaining said tracks in parallelism during such movement, substantially as described.

5. In a bottle-washing machine, the combination of a tank, a horizontal, rotatable shaft, bottle-rack-holding means borne by said shaft, a pair of tracks extending longitudinally of said shaft, stationary supports to which said tracks are pivotally connected, disposed to permit said tracks to be swung into and out of engagement with the racks while held by said rack-holding means, substantially as described.

6. In a bottle-washing machine, the combination of a tank, a horizontal, rotatable shaft, bottle-rack-holding means borne by said shaft, a pair of tracks extending longitudinally of said shaft, and supported independently thereof, and means for moving said tracks simultaneously toward and away from each other to cause them to be engaged with and be disengaged from said bottle-racks while the latter are held by said rack-holding means, substantially as described.

7. In a bottle-washing machine, the combination of a tank, a horizontal, rotatable shaft, bottle-rack-holding means borne by said shaft, a pair of tracks extending longitudinally of said shaft, and supported independently thereof, said tracks being movable toward and away from each other to be engaged with and be disengaged from said bottle-racks while the latter are held by said rack-holding means and stationary tracks at one end of said tank with which said movable tracks are in alignment when in engagement with said racks, substantially as described.

8. In a bottle-washing machine, the combination of a tank, a horizontal, rotatable shaft, bottle-rack-supporting means independent of the shaft, rack-holding devices on said shaft for receiving the racks from said supporting means, locking devices for securing the racks to said holding devices and means for operating said locking devices simultaneously, substantially as described.

9. In a bottle-washing machine, the combination of a tank, a horizontal, rotatable shaft,

a bottle-rack having two lateral projections at each side thereof, a pair of tracks supported above said shaft on which one pair of opposite projections of said rack are adapted to rest, longitudinally-slotted rack-holding devices borne by said shaft and adapted to receive the other pair of said projections within its slots, and means for moving said tracks out of engagement with said projections, substantially as described.

10. In a bottle-washing machine, the combination of a tank, a horizontal, rotatable shaft, a bottle-rack having two lateral projections at each side thereof, a pair of tracks supported above said shaft on which one pair of opposite projections of said rack are adapted to rest, longitudinally-slotted rack-holding devices borne by said shaft and adapted to receive the other pair of said projections within its slots, said engaging devices being movable into and out of engagement with said last-named projections, and said tracks being movable into and out of engagement with the other projections of the rack, substantially as described.

11. In a bottle-washing machine, the combination of a tank, a horizontal, rotatable shaft, a bottle-rack having two pairs of oppositely-arranged lateral projections at different elevations, means for engaging the uppermost pair of projections to support said rack above the shaft, and means for engaging the lowermost pair of projections to hold the rack on the shaft, substantially as described.

12. In combination with a bottle-washing machine, a rack having a series of bottle-holding pockets arranged in rows, and open at one end to permit the bottles to be placed therein, a series of bails, one pivoted to the rack at the ends of each row and adjacent the middle thereof, said bails being adapted to be swung into positions to open and close the open ends of said pockets, substantially as described.

13. In combination with a bottle-washing machine, a rack having a series of bottle-holding pockets arranged in rows, and open at one end to permit the bottles to be placed therein, a series of bails, one pivoted to the rack at the ends of each row and adjacent the middle thereof, said bails being adapted to be swung into positions to open and close the open ends of said pockets, and connections between said bails whereby they may be swung simultaneously, substantially as described.

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

FREEMAN N. YOUNG.

Witnesses:

L. H. HARRIMAN,
H. B. DAVIS.