

R. BRIGGS.
 APPARATUS FOR FILLING BOTTLES.
 APPLICATION FILED JULY 28, 1909.

983,974.

Patented Feb. 14, 1911.

3 SHEETS—SHEET 1.

Fig 1

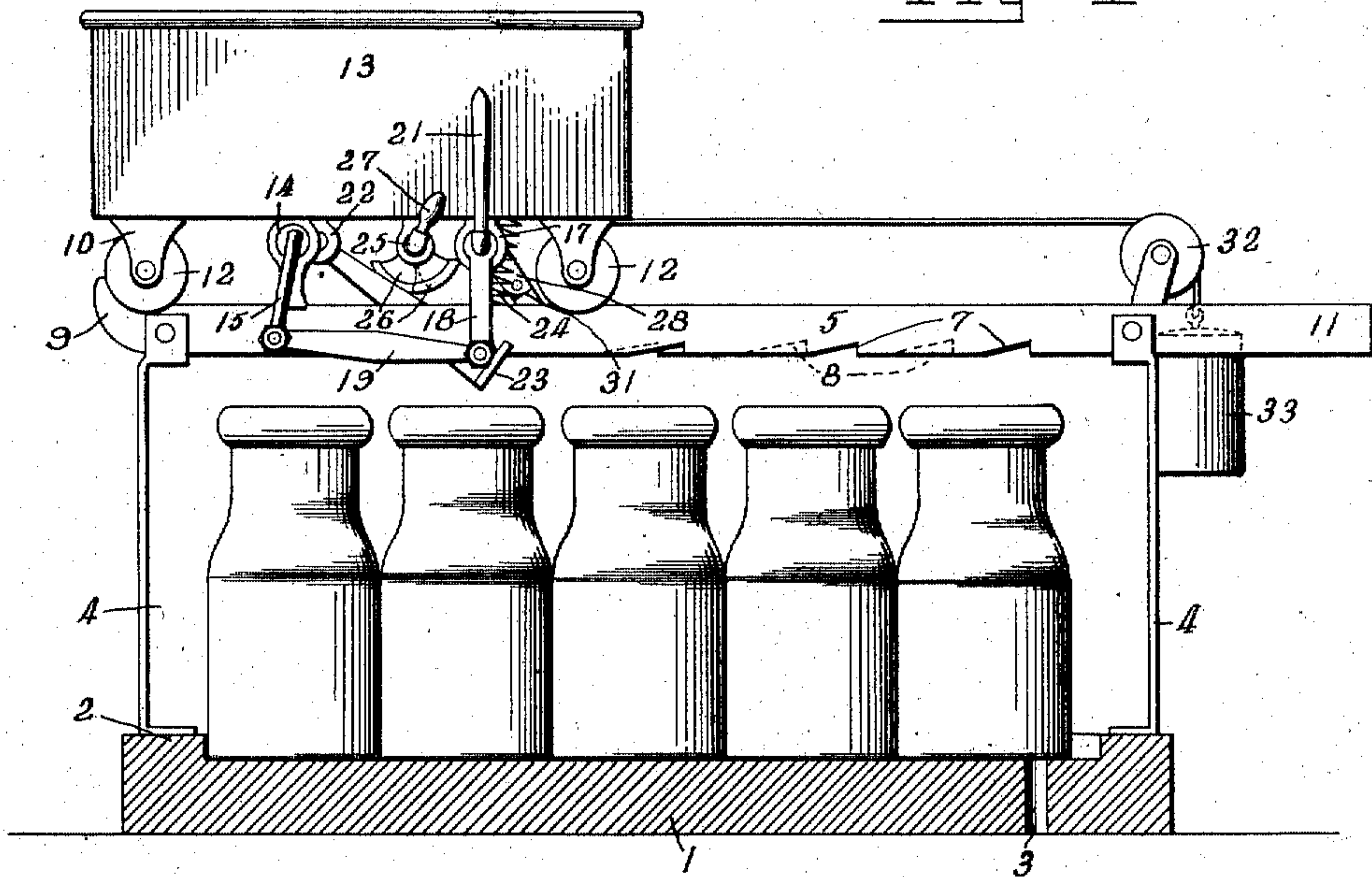
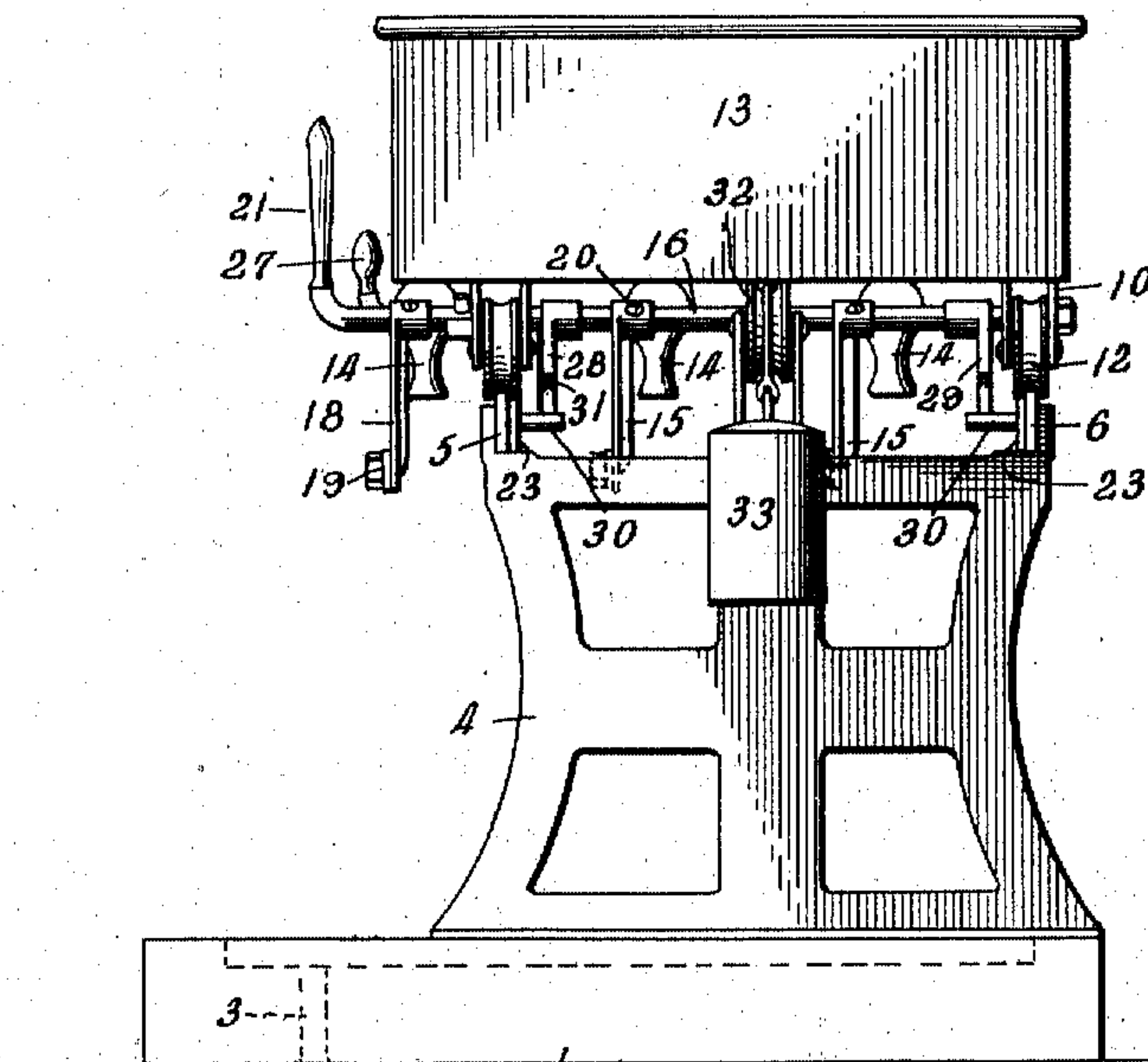


Fig 2



Inventor
 Richard Briggs

Witnesses
 H. C. Polinette
 A. H. Bickerton

By *Supers. Cushman & Co.*
 Attorney

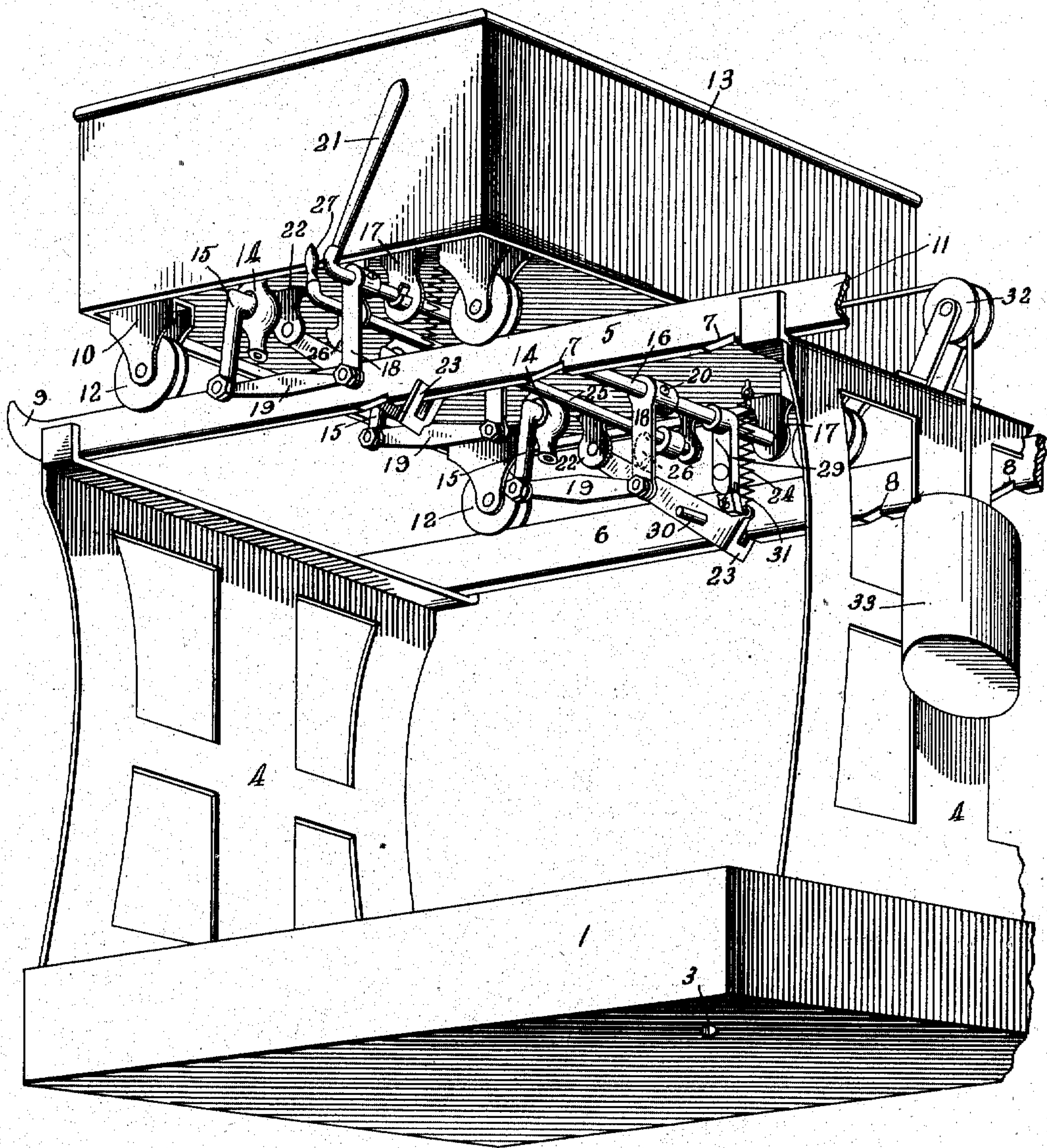
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Fig 3



Inventor
 Richard Briggs

Witnesses
 H. L. Rohette
 E. H. Rickertow

By *Supers, Ludman & Pea*
 Attorney

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3 SHEETS—SHEET 3.

Fig 4

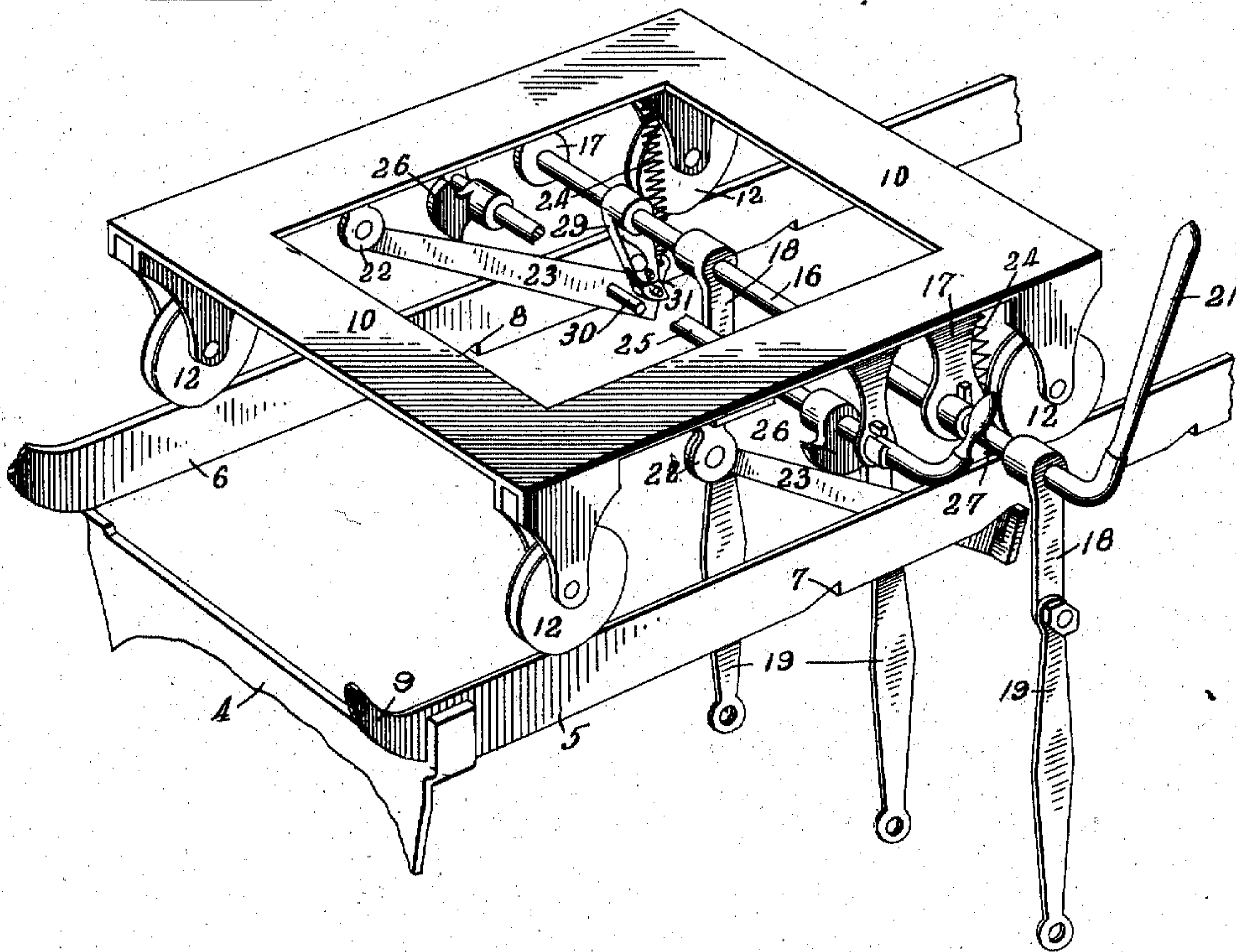
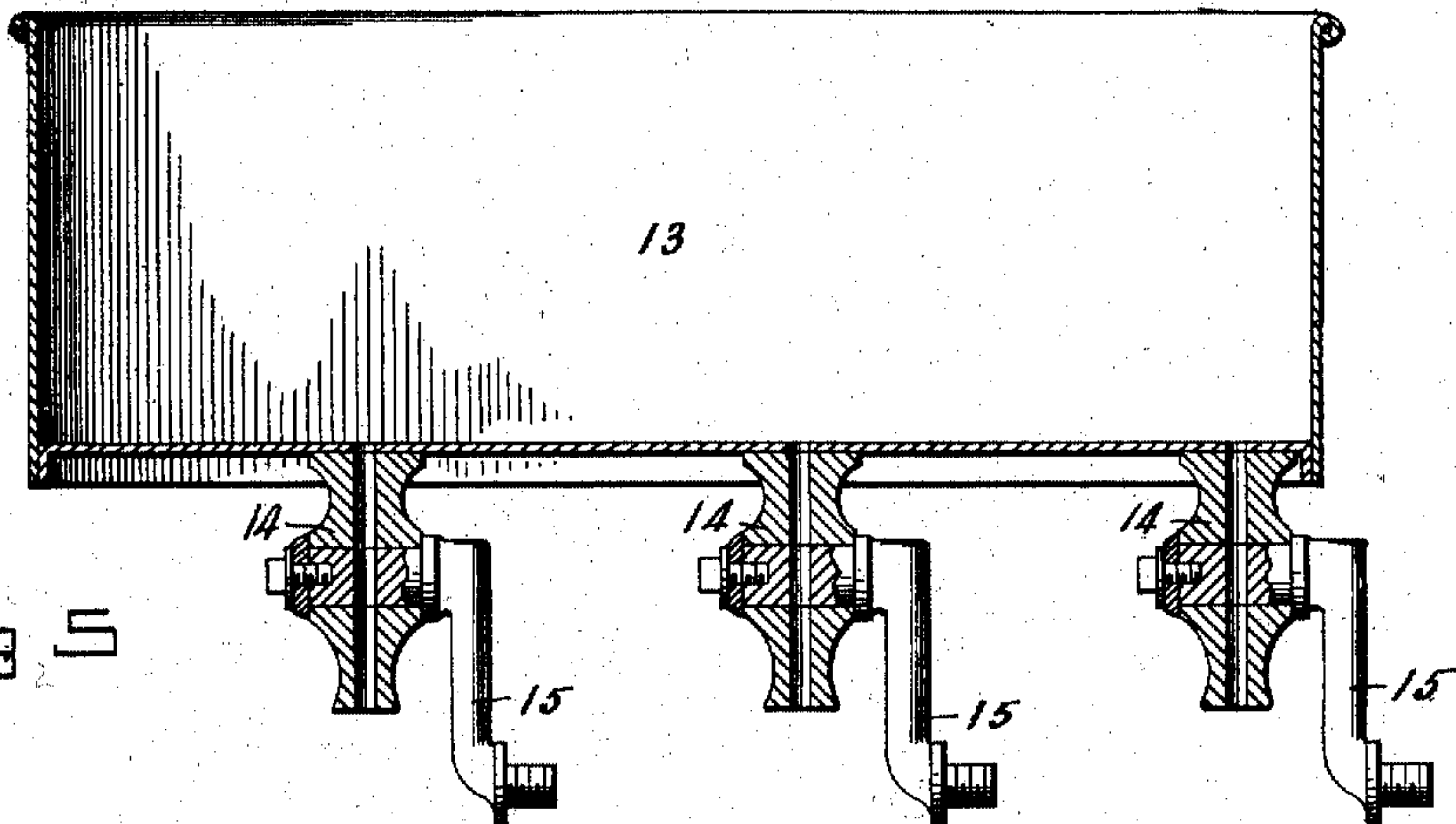


Fig 5



Inventor
 Richard Briggs

Witnesses
 H. G. Robinson
 E. H. Bickerton

By *J. C. Culman & Co.*
 Attorney

UNITED STATES PATENT OFFICE.

RICHARD BRIGGS, OF NORTH ADAMS, MASSACHUSETTS.

APPARATUS FOR FILLING BOTTLES.

983,974.

Specification of Letters Patent.

Patented Feb. 14, 1911.

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To all whom it may concern:

Be it known that I, RICHARD BRIGGS, a citizen of the United States, residing at North Adams, in the county of Berkshire and State of Massachusetts, have invented new and useful Improvements in Apparatus for Filling Bottles, of which the following is a specification.

My invention relates to an apparatus for filling bottles, and particularly to apparatus for filling milk bottles, though of course it will be readily seen that the apparatus may be used for filling bottles of a variety of shapes and forms and for filling them with liquids other than milk, or with some material other than a liquid.

My apparatus is designed especially to secure the following results. First, to enable a number of bottles to be successively filled in groups from a tank above them. Second, to fill bottles of various sizes. Third, to fill these bottles at the same rate so that each bottle of a group will be quite full and will not be short or excess measure. Fourth, to make the apparatus as nearly automatic in its operation as possible. Fifth, to make it as durable, efficient and at the same time as sanitary as possible.

To these ends, my apparatus consists of a tank supported on a carriage adapted to travel over a track above the bottles. The tank is provided with a row or rows of valves operated by suitable mechanism carried by the carriage. Means are provided on the carriage for engaging the rails at certain positions of the carriage to accurately stop and position the carriage just over a group of bottles. The means for operating the valves has an interconnection with the means for stopping the carriage such that the entire carriage and tank is bodily moved by a suitable weight attached to the carriage and passing over a suitable pulley whenever the valve operating mechanism is operated to close the valves. In other words, my apparatus comprises a table for supporting the bottles in groups, a track above that table supporting the carriage carrying the tank of liquid, valves on the tank operated by mechanism carried by the carriage, means carried by the carriage and cooperating with the tank to stop the carriage over each particular group of bottles, means interconnecting the means for stopping the carriage and the valve operating mechanism adapted to release the carriage

for movement to the next group of bottles at the closing of the valves upon the filling of a group of bottles, and means whereby the carriage is held stationary in its new position when the valves are again opened to fill the group of bottles corresponding to that position.

My invention possesses numerous detail advantages which will appear in the detail description which follows.

Of the drawings accompanying this description Figure 1 is a side elevation of my apparatus. Fig. 2 is an end elevation of the same. Fig. 3 is a perspective view looking at the underneath side of the carriage and showing the connections of the valve operating mechanism. Fig. 4 is a perspective view with the tank removed from the carriage, and Fig. 5 is a view of the tank as removed.

Referring to these drawings, 1 is a table which may be of wood covered with metal, or of slate. This table is provided with a rim 2 adapted to prevent liquid spilling from the table, and a drainage duct 3 is provided at one end to properly take care of liquid which may be spilled upon the table. The rim 2 in addition to the function just mentioned also serves the additional purpose for positioning the bottles with respect to the filling devices, as will more clearly appear hereafter.

Mounted at each end of the table 1 is a standard 4, and extending between these standards are two track rails 5 and 6. One of these track rails 5 is provided with notches 7, a certain distance apart, while the other of these track rails 6 is provided with notches 8 at a less distance apart. The ends 9 of each rail are upturned to form a stop for the carriage 10 mounted thereon, while the ends 11 are extended a certain distance beyond the table.

The carriage 10 comprises a body portion provided with four wheels 12, two on each side. A tank 13 provided with a row of valves 14 is supported on the carriage. It will be noted that the bottom of the tank fits over the carriage body, the side and end walls of the tank depending around the sides of the carriage body and acting to hold the tank in position upon the carriage. Each valve 14 of the tank is provided with an operating lever 15, and this operating lever is connected to the operating mechanism on the carriage. This operating mech-

anism comprises a transverse shaft 16 mounted in journals 17 on the carriage, and provided with a series of adjustable arms 18 connected by links 19, one with each valve 5 operating lever 15. The links jointed to the operating levers of the valves and to the adjacent arms constitute an extensible connection. The tank may thus be moved a limited distance with respect to the carrier without breaking the connections. A set screw 20 passing through the arms 18 and bearing on the shaft 16 is a means for adjusting the arms about the shaft. The valves 14 may in this manner be adjusted so that they will 15 each feed to the bottles beneath the carriage the same amount of liquid in a given time irrespective of the slight variations in the openings of the valves and of the variation in depth of the liquid in the tank due to 20 irregularities in the tank or to the tilting of the tank in one direction or the other. A suitable handle or operating lever 21 serves to turn the shaft 16 to operate the valves.

Depending from the body of the carriage 25 are lugs 22 to which are pivoted the detents 23 adapted to engage the notches on the rails 5 and 6. These detents are held against the rail and in the notches by springs 24 drawing them upward toward the body of 30 the carriage. A transverse shaft 25 is located adjacent the detents 23 and provided with cams 26 having a definite angular relation with respect to each other and bearing upon the detents 23. A handle 27 is provided on the end of the shaft 24 whereby 35 the shaft may be turned, the cams acting to cause the detents 23 to engage the rails one at one time and one at another time.

An interconnection is provided between 40 the valve operating mechanism and the stops or detents 23. This consists of two fingers 28 and 29 engaging pins 30 on the detents 23. These fingers 29 are provided with knuckle joints 31, the ends of the fingers being 45 spring pressed in such a manner that when the shaft 16 is oscillated by the handle 21 in a direction to close the valves, that is, to the right as shown, the fingers operate to remove the detents from the notches in 50 the rails, and when operated in the reverse direction to open the valves, the end of the finger moves about its pivot at the knuckle joint 31 and does not move the detents.

Mounted on the standard 4 at one end of 55 the track is a pulley 32 over which runs a cord connected to the carriage at one end, and at its other end to a weight 33 of such a size as will act to draw the carriage with the full tank along the track at a moderate 60 rate.

In using my apparatus, the operation is as follows: The tank being full of milk the bottles to be filled are placed on the table and pushed up into contact with the rim 65 surrounding the table into groups as shown,

the position of the rim on the table determining the position of the bottles with respect to the track carried by the standards 4. The carriage is then moved by hand to the position shown in Fig. 1 where the carriage rests against the stops at the ends 70 of the rails, and in this position the carriage is held by detent 23 engaging one of the notches 7 in rail 5. The lever 16 is then turned to the left to open the valves. The 75 bottles in the first row are thus filled, and when they are full the lever 23 is turned to the right to close the valves. In turning to the right just as the valves are closed, the fingers 28 strike the pins 30 on the detents 80 23 and remove the detent from the notch 7 in the rail 5. Immediately the weight 33 pulls the carriage forward, it is to be noted that the finger 28 moves beyond the pin 30 in the full closed position of the valve, and 85 the detent 23 therefore comes into play to stop the carriage when it has moved through the distance between two adjacent notches. The carriage is thus stopped over the next row of bottles. The valves 14 may then be 90 opened thus filling that row of bottles. In the opening operation of the valves, the fingers 28 are ratcheted past the pins 30 without moving them, and the ends of the fingers are moved by the spring at the knuckle joint 95 into position to again release the detent upon the next closing operation of the valves. In this manner the entire number of bottles on the table may be filled.

The extensions of the rails 5 and 6 may be 100 used to run the carriage out so that the valves 14 from the tank may be positioned over the last row of bottles on the table. If the track were not extended it would in some cases be impossible to fill a row of bot- 105 tles placed at the extreme end of the table, and thus this valuable space might be lost.

It may be that it is desired to fill a number of bottles of a size different from the size first filled. In that case the shaft 24 is 110 turned by lever 27 until one of the cams 26 operates to move the detent 23 coöperating with rail 5 away from the rail and to allow detent 23 coöperating with rail 6 to be moved into contact with rail 6. The opera- 115 tion of filling these bottles of different size may thereafter be gone through with in a manner entirely similar to the operation of filling the bottles first filled, the finger 29 on the side next rail 6 coming into play to 120 release the detent 23 on that side and cause the forward movement of the carriage as in the first instance.

In order to facilitate the cleaning of the tank, I have made the same removable, as 125 can readily be seen from the drawings, the links 19 being disconnectible from the levers 15 operating the valves 14. This is clearly shown in Figs. 4 and 5. From Fig. 5 it will be seen that the valves do not protrude 130

inside the tank but communicate with the tank at the very bottom, the bottom being entirely smooth so that sharp corners and inturned edges are avoided and the tank
 5 may be most readily cleaned. The removal of the tank is a most important feature, as it admits taking the tank off and properly scalding it or otherwise sterilizing and cleaning it at certain periods. It is also
 10 to be observed that I have made all parts adjustable so that the operation of the apparatus may be made as smooth and as well timed as possible. Not only are the arms 19 on the shaft 16 made adjustable, but the
 15 fingers 28 and 29 carried by that shaft are made adjustable about the shaft, as are also the cams 26 carried by the shaft 24.

It will thus be seen that I have produced an apparatus which is simple in operation,
 20 cheap to manufacture, and at the same time is most adaptable to the service it is required to perform, and is most durable and efficient.

While I have described in this application
 25 for Letters Patent the best form of my invention now known to me, it is of course apparent that many changes may be made in the details without departing from the generic spirit of the invention. I desire to
 30 cover all such modifications in the claims annexed hereto.

What I claim is:

1. In an apparatus for filling bottles, in combination, a table for supporting the bottles to be filled, means on said table adapted to position the bottles in the proper places to be filled, a track, a carriage adapted to run over said track, a tank supported by said carriage above the mouths of the bottles to be filled, means bearing a definite relation to the positioning means for the bottles on the track for stopping the carriage in a position for the bottles to be filled from said tank, a valve for controlling the flow
 45 of fluid from the tank, and means associated with said valve and cooperating with the positioning means on the track for stopping the carriage.

2. In an apparatus for filling bottles, in combination, a table for supporting the bottles to be filled, means on said table adapted to position the bottles in the proper places to be filled, a track, a carriage adapted to run over said track, a tank supported by
 55 said carriage above the mouths of the bottles to be filled, and means on said track cooperating with means on said carriage and bearing a definite relation to the positioning means for the bottles for stopping the carriage in the proper position for the bottles to be filled from said tank.

3. In an apparatus for filling bottles, in combination, a two-rail track, a carriage adapted to run over said track, a tank supported by said carriage above the mouths of

the bottles to be filled, notches formed in both rails of said track, detents on said carriage cooperating with the notches on the rails to stop the carriage in the proper positions for the bottles to be filled from said
 70 tank, a valve for controlling the flow of fluid from the tank, means for operating the valve which also operates said detents.

4. In an apparatus for filling bottles, in combination, a track, a carriage adapted to run over said track, a tank supported by said carriage above the mouths of the bottles to be filled, one of the rails of said track having notches a certain distance apart, the other of the rails of said track having
 80 notches a certain other distance apart, and detents on said carriage adapted to engage with the notches of each rail to stop the carriage in proper positions to allow the bottles to be filled from said tank.

5. In apparatus for filling bottles, in combination, a track formed of a plurality of parallel rails, a carriage adapted to run over certain of the rails of said track, a tank supported by said carriage above the
 90 mouths of the bottles to be filled, notches in certain of the rails of said track, the notches in each rail being spaced apart a different distance from the notches in each other rail, means carried by the carriage for engaging
 95 said notches to stop the carriage in positions for the bottles to be filled, and means also carried by the carriage for determining the positions where the carriage shall be stopped.

6. In an apparatus for filling bottles, in combination, a track, a carriage adapted to run over said track, a tank supported by said carriage above the mouths of the bottles to be filled, means for positioning the bottles beneath the tank, means for positioning the tank over the bottles to fill groups of bottles of one size, and means for positioning the tank over the bottles for filling bottles of another size.

7. In apparatus for filling bottles, a track, a carriage adapted to run over said track, a tank, valves on said tank, operating mechanism for the valves on said carriage, and extensible connections between said mechanism and said valves whereby the tank can
 115 be moved a limited distance with respect to said car without breaking said connections.

8. In an apparatus for filling bottles, in combination, a track, a carriage adapted to run over said track, a tank supported by said carriage above the mouths of the bottles to be filled, a valve on the tank, operating mechanism for the valve carried by the carriage, means for positioning the carriage with respect to the rails carried by the carriage, and means operated by the valve operating mechanism for operating the positioning means for the carriage.

9. In an apparatus for filling bottles, in combination, a track, a carriage adapted to

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run over said track, a tank supported by said carriage above the mouths of the bottles to be filled, a valve on said tank, operating mechanism for the valve carried by the carriage, means associated with the track for holding the carriage in certain positions with respect to said track for the filling of the bottles, and means for releasing said holding means upon the closing operation of the valve operating mechanism.

10. In an apparatus for filling bottles, in combination, a track, a carriage adapted to run over said track, a tank supported by said carriage above the mouths of the bottles to be filled, a valve in said tank, operating mechanism for the valve carried by the carriage, means comprising abutments and cooperating engaging members on the carriage for holding the carriage in certain positions with respect to said track for the filling of the bottles, means for releasing said holding means upon the closing operation of the valve operating mechanism, and means whereby the said holding means is not affected upon the opening operation of the valve operating mechanism.

11. In an apparatus for filling bottles, a track, a carriage adapted to run over said track, a tank supported by said carriage in a position above the mouths of the bottles to be filled, a row of valves on said tank, operating mechanism for the valves carried by the carriage, means on the carriage for stopping it to position the valves above the bottles to be filled comprising a detent cooperating with the track rails, a projecting pin carried by said detent, and a finger provided with a knuckle joint carried by the valve operating mechanism for cooperating with said pin to release the carriage for forward movement to the next row of bottles upon the closing of the valves at the filling of a row of bottles.

12. In an apparatus for filling bottles, a table for supporting the bottles to be filled, a track supported by said table, a tank adapted to be run over said track above the mouths of the bottles to be filled, valves on the tank, valve operating mechanism secured to the tank, means associated with the track for stopping the tank in position above each row of bottles to be filled, and means connected with said valve operating mechanism for releasing the tank for movement from one row of bottles to the next upon the closing of the valve by the valve operating mechanism.

13. In an apparatus for filling bottles, a table for supporting the bottles to be filled in rows, a track supported by said table, a tank adapted to be run over said track, a

row of valves on said tank, valve operating mechanism secured to said tank, and means for automatically stopping the tank above each row of bottles to be filled.

14. In a bottling machine, a means for supporting bottles to be filled in rows, a tank supported above the mouths of bottles to be filled, valves on the tank for filling the bottles, means for operating the valves and means for moving said tank from one row of bottles to another automatically when the valves are operated.

15. In a bottling machine, a means for supporting bottles to be filled in rows, a tank supported above the mouths of bottles to be filled, valves associated with said tank for filling said bottles, means for operating the valves and means for automatically moving said tank from one row of bottles to another upon operation of said valve.

16. In a bottling machine, a means for supporting bottles to be filled in rows, a tank supported above the mouths of bottles to be filled, valves on the tank for filling the bottles, means for operating the valves and means for automatically moving said tank from one row of bottles to another upon the operation of the valves, said means comprising a weight attached to said tank, and means for controlling the action of said weight.

17. In a bottling machine, a means for supporting bottles to be filled in rows, a tank supported above the mouths of bottles to be filled, valves associated with said tank for filling the bottles, and means for automatically moving said tank from one row of bottles to another, upon operation of said valve, said means comprising a motor the operation of which is controlled by operation of said valve.

18. In a bottling machine, a means for supporting bottles to be filled in rows, a tank supported above the mouths of bottles to be filled, valves associated with said tank for filling the bottles, and means for automatically moving said tank from one row of bottles to another comprising means tending to move said tank in a certain direction over said rows of bottles, and a detent associated with said tank and controlled by the operation of said valve for stopping the motion of said tank.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

RICHARD BRIGGS.

Witnesses:

JOSEPH H. LA BRIE,
CLARENCE W. GALLUP.