

W. R. MITTENDORF.
DISPENSING APPARATUS.
APPLICATION FILED MAY 4, 1906.

899,124.

Patented Sept. 22, 1908.

4 SHEETS-SHEET 1.

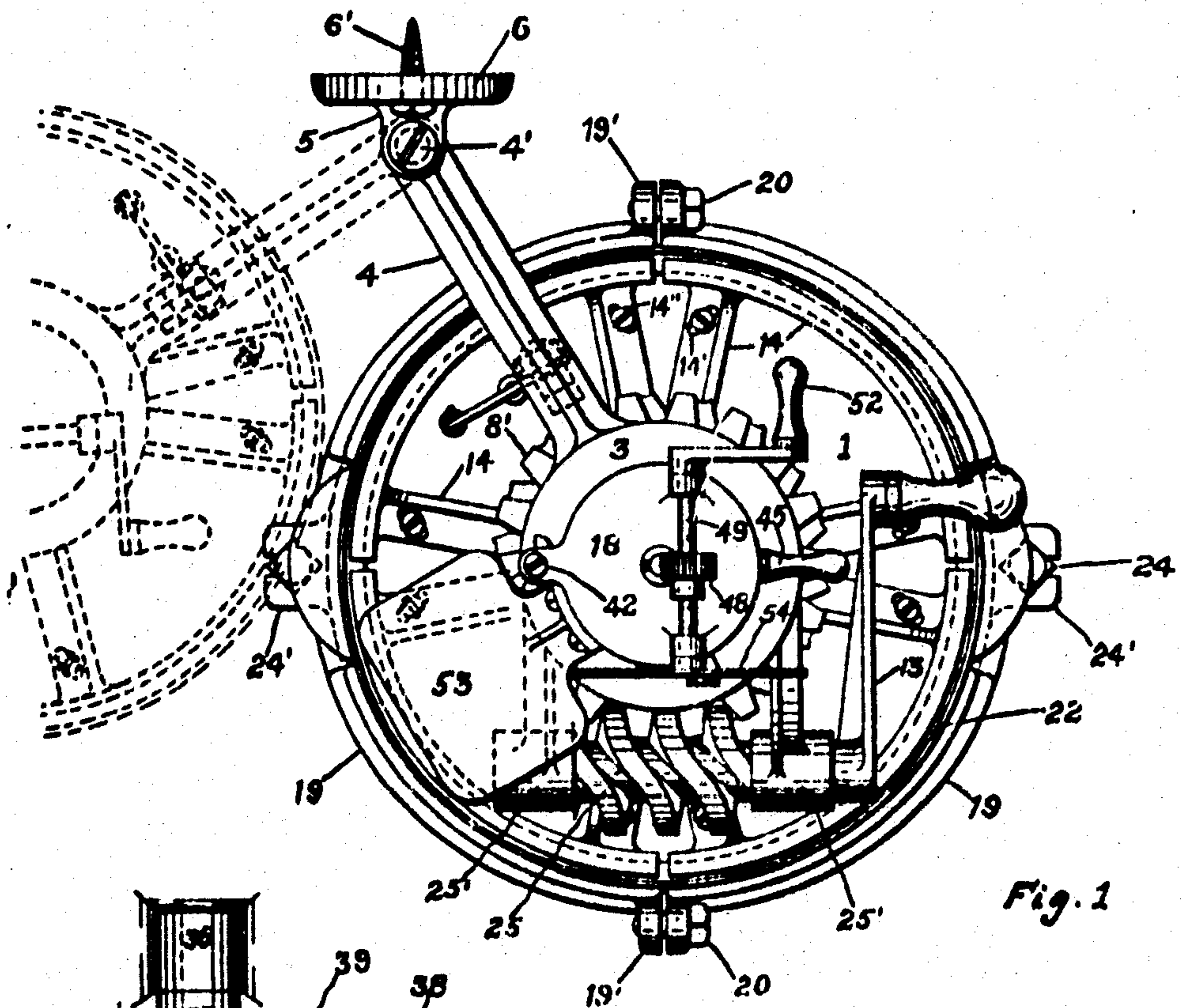


Fig. 1

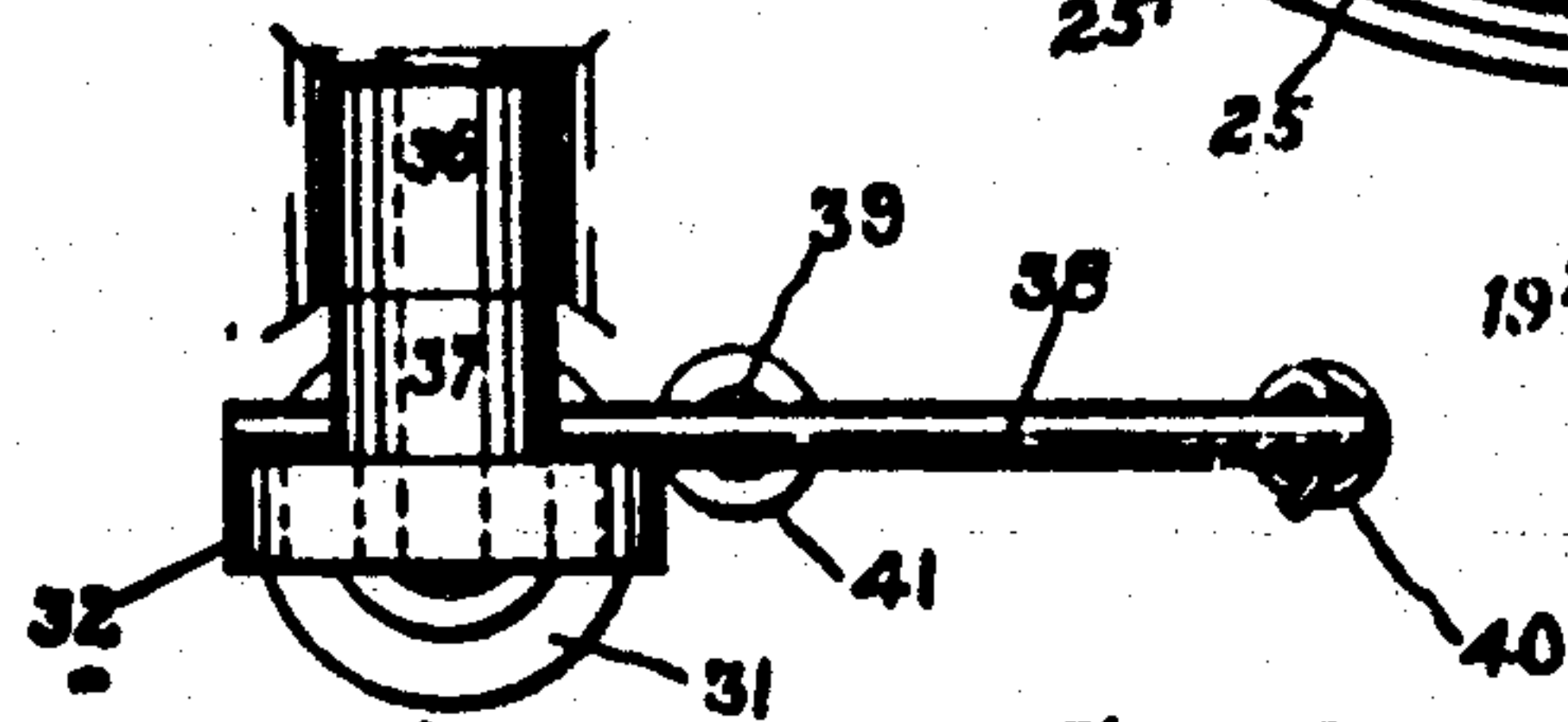


Fig. 4.

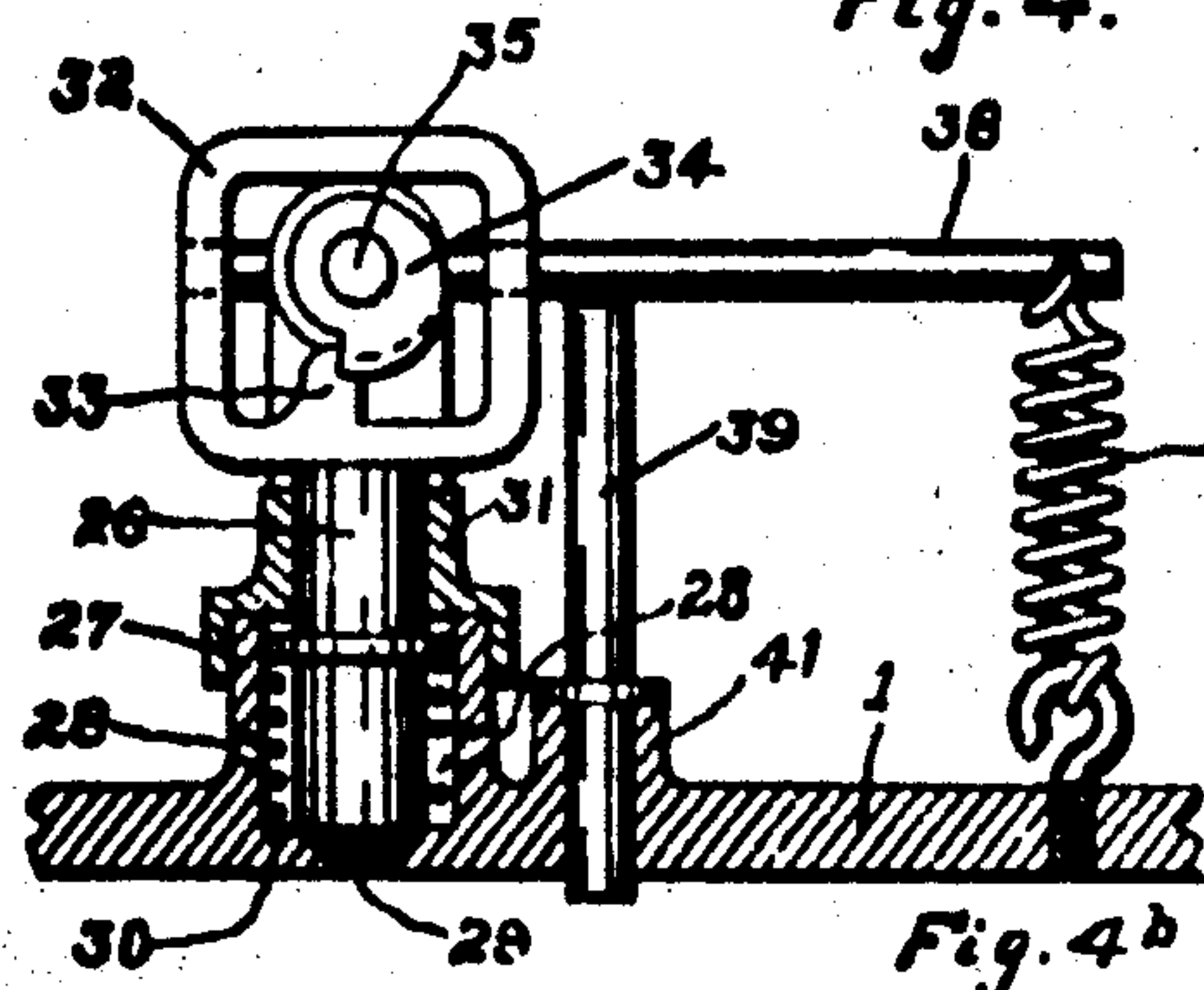


Fig. 4b

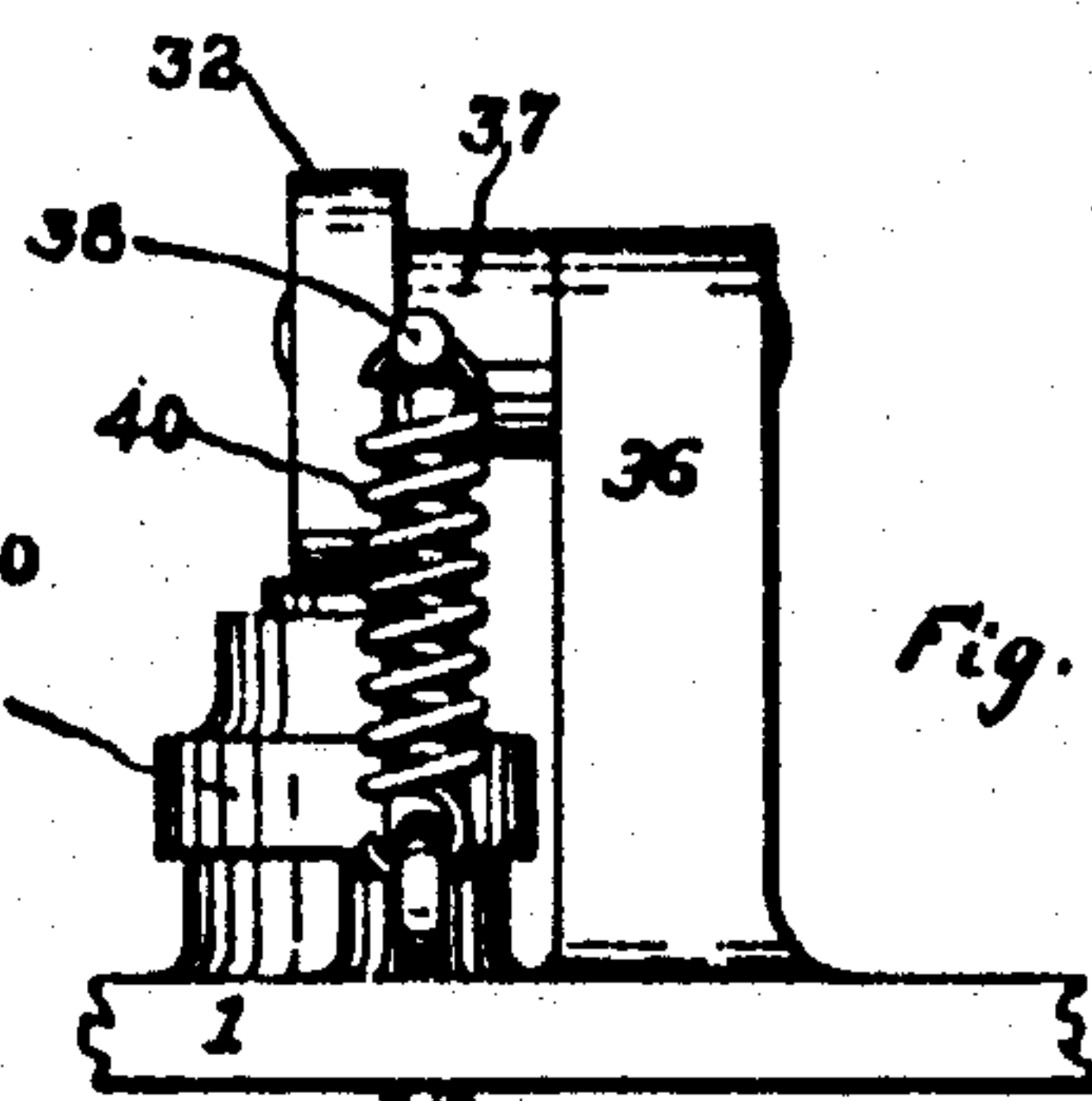


Fig. 4a

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4 SHEETS—SHEET 2.

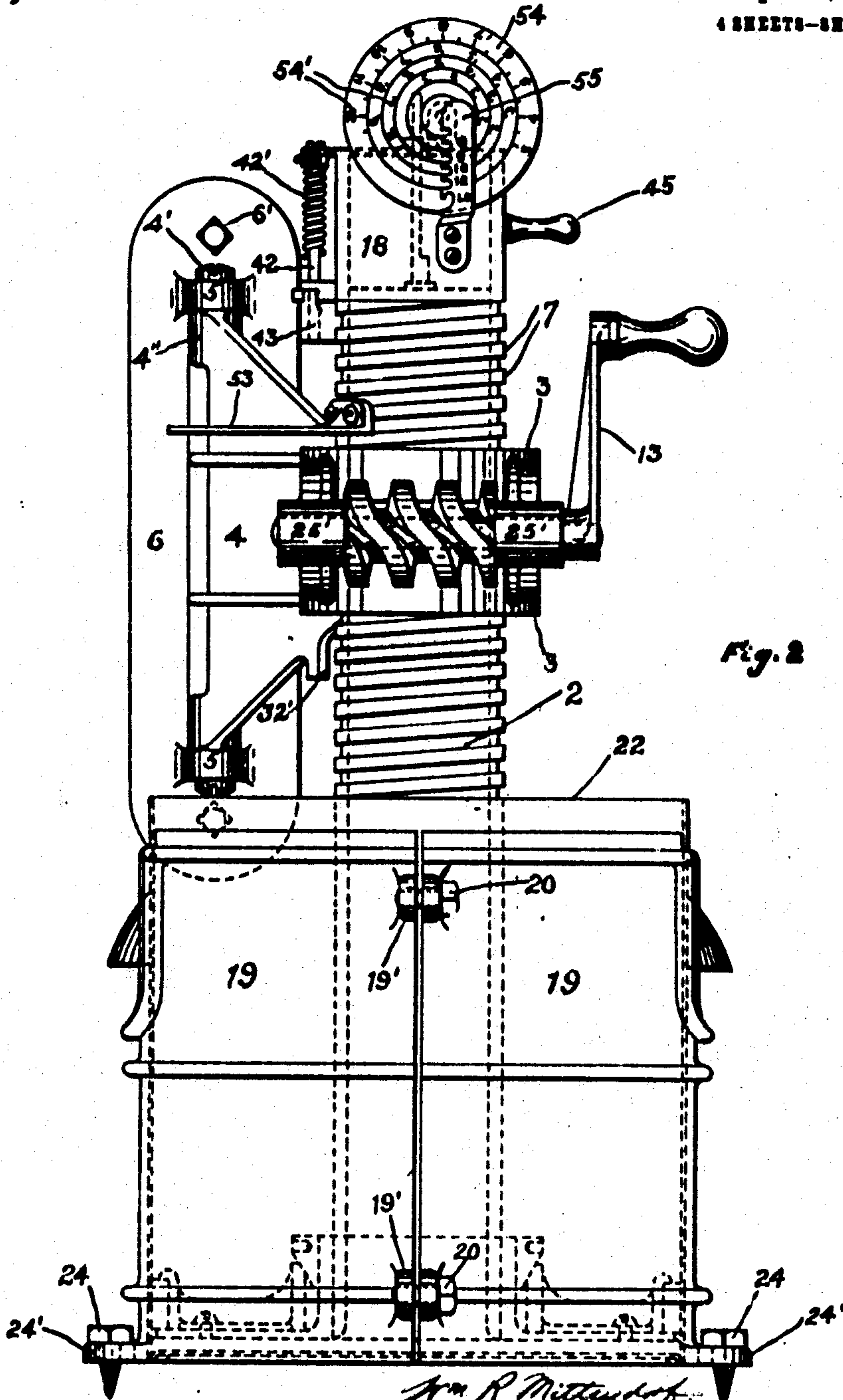


Fig. 2

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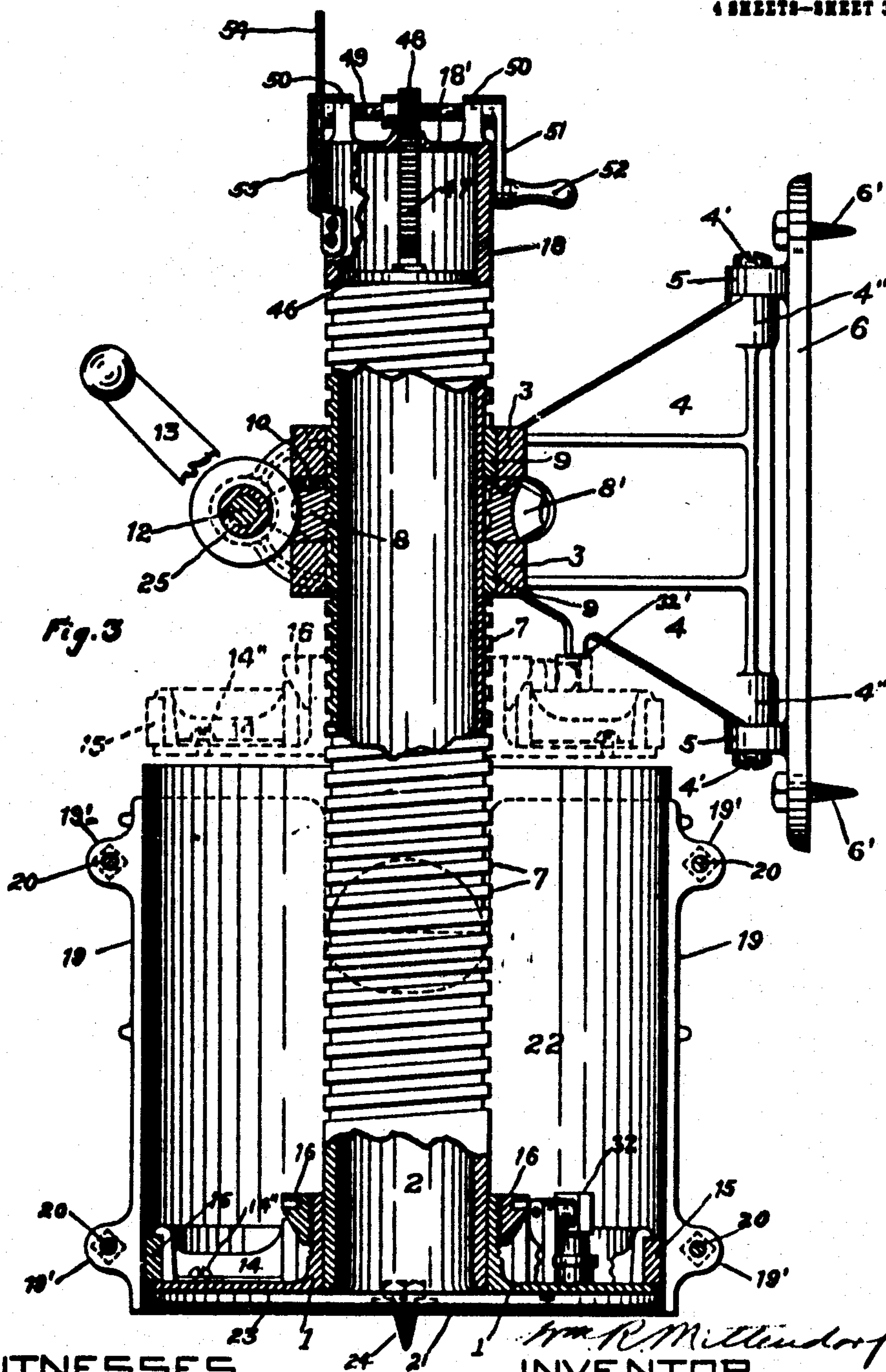
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4 SHEETS—SHEET 3.



WITNESSES

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4 SHEETS—SHEET 4.

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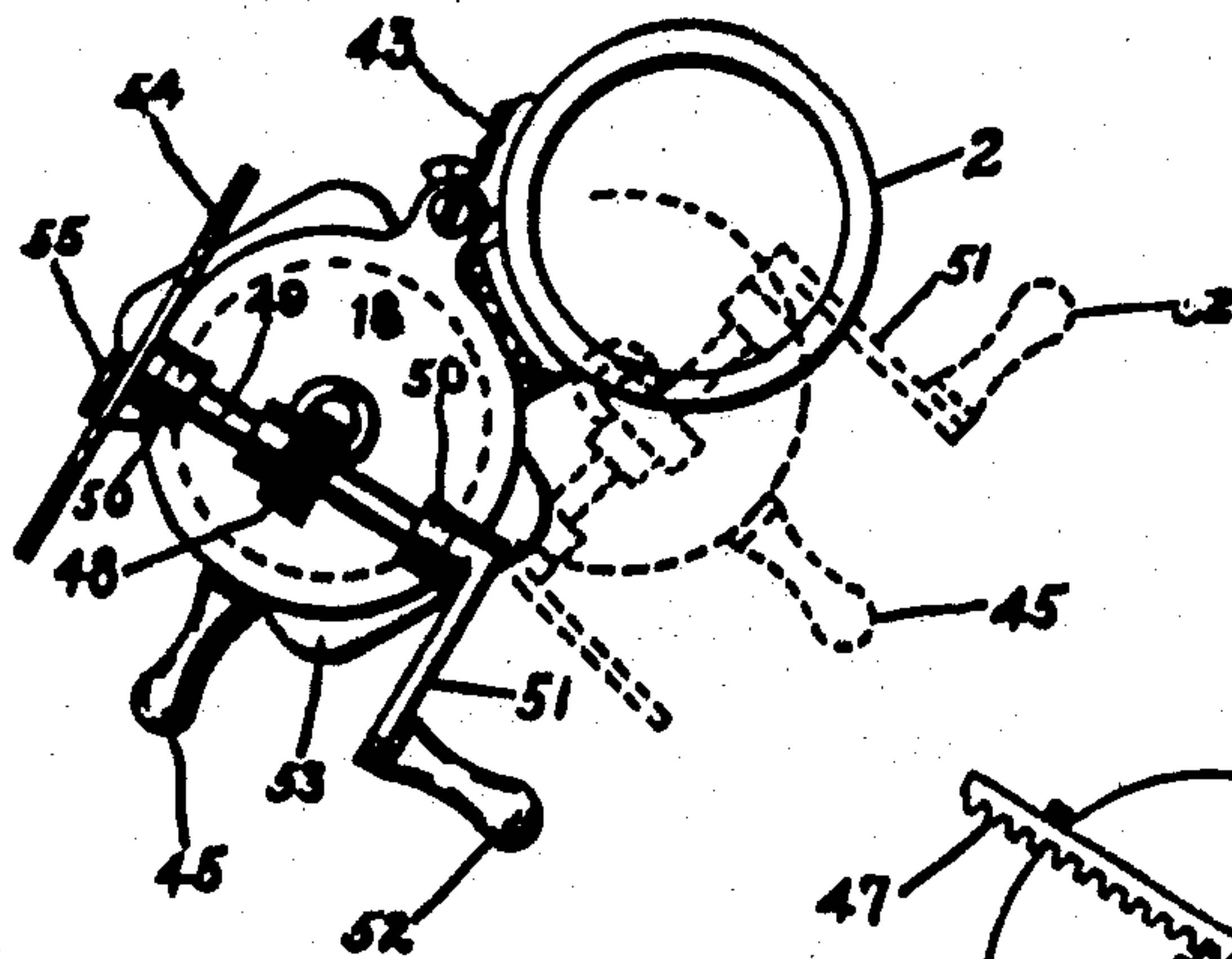


Fig. 5.

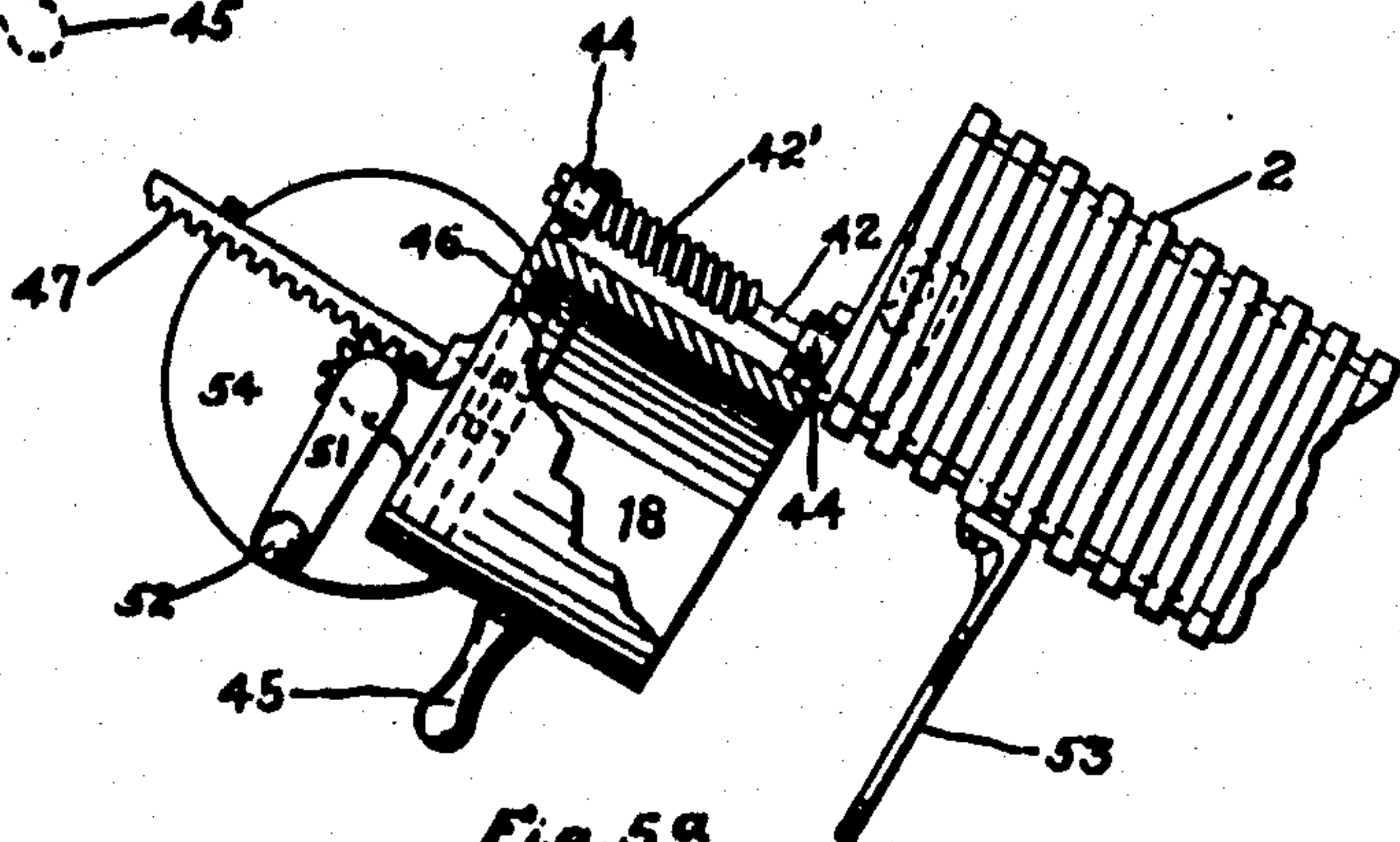


Fig. 5a

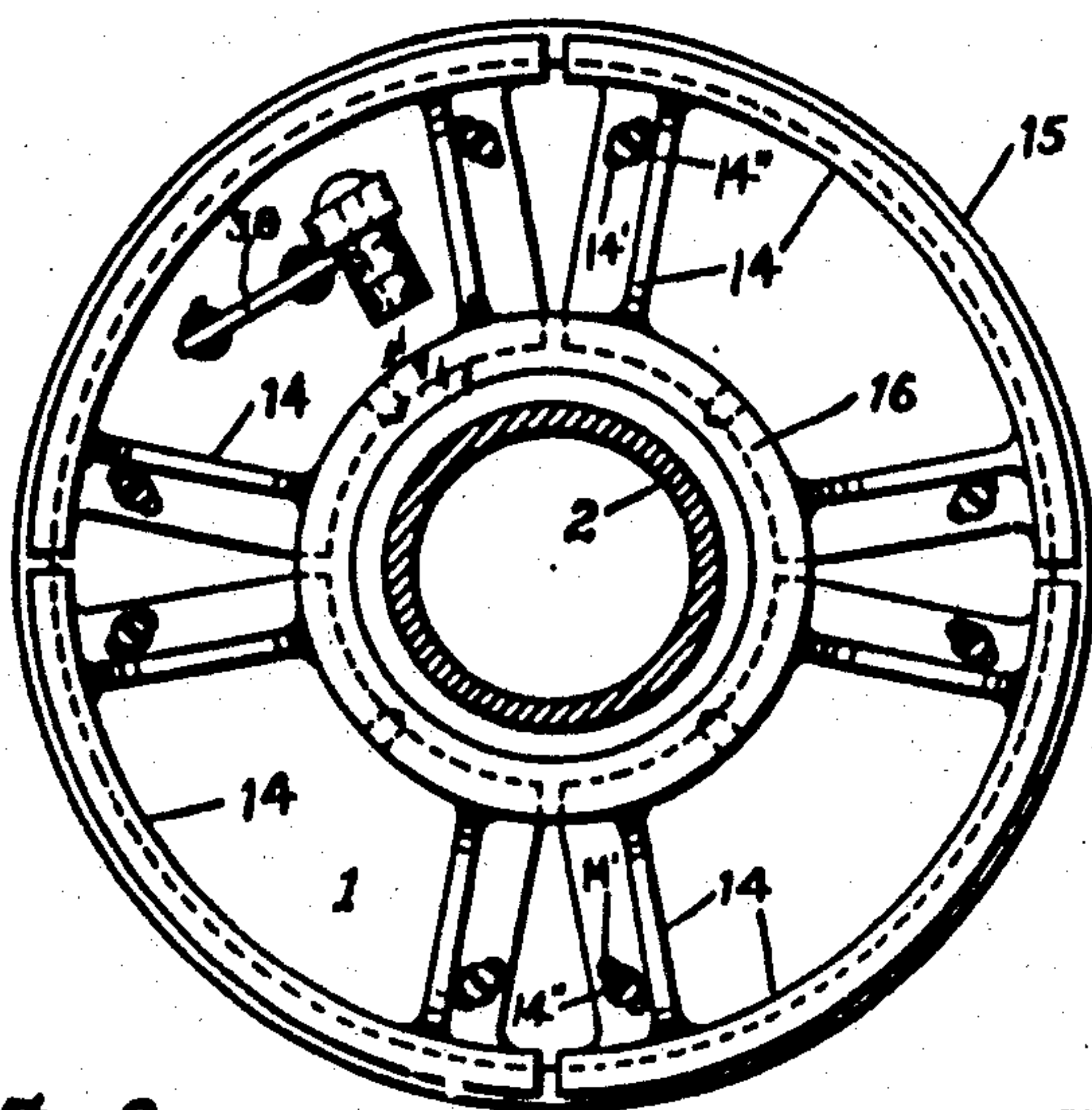


Fig. 6

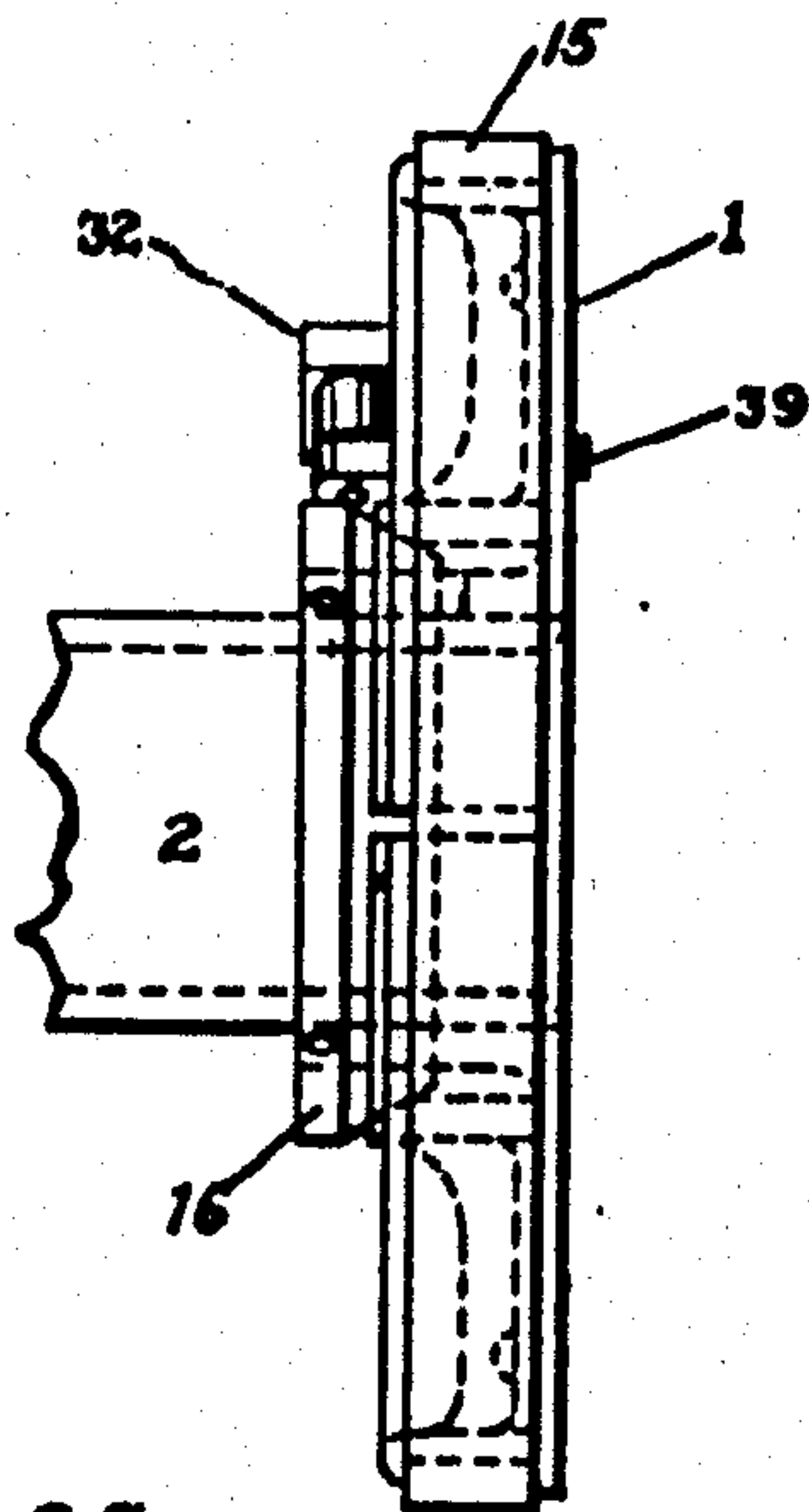


Fig. 6a

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UNITED STATES PATENT OFFICE.

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DISPENSING APPARATUS.

No. 899,124.

Specification of Letters Patent.

Patented Sept. 22, 1908.

Application filed May 4, 1906. Serial No. 315,199.

To all whom it may concern:

Be it known that I, WILLIAM R. MITTENDORF, a citizen of the United States, residing at Dayton, in the county of Montgomery and State of Ohio, have invented certain new and useful Improvements in Dispensing Apparatus; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

This invention comprises an apparatus for dispensing in retail quantities, lard or any other article having the same characteristics or nature.

The object of the invention is to provide an apparatus for the above purpose and by means of which lard or other articles of a like character may be dispensed by retail dealers, in an accurate, economical, and expeditious manner, thereby eliminating all of the disadvantages of the present method of dispensing such articles.

Referring to the drawings—Figure 1, is a plan view of my improved dispensing apparatus. Fig. 2, is a front elevation of the same. Fig. 3, is a side elevation of the same and partly in section. Fig. 4, is an enlarged detail top plan view of the automatic vacuum release. Fig. 4^a, is an enlarged detail elevation of a portion of the piston with the automatic vacuum release. Fig. 4^b, is an enlarged detail sectional view of a portion of the piston with the automatic vacuum release. Fig. 5, is a detail top view of the cut-off-measuring and delivery cap which measures and delivers the quantity sold. Fig. 5^a, is an elevation of the same, the cap being shown partly in section. Figs. 6 and 6^a are detail views of the expansion piston.

In a detail description of the invention, similar referenced characters indicate corresponding parts.

The invention briefly stated comprises—First: A housing to receive and protect the can or other receptacle containing the article to be dispensed. Second: A piston adapted to enter the receptacle, and a tubular piston rod forming a delivery port through which the contents of the can is discharged above the piston when pressure is applied to force said piston against the surface of said contents. Third: A cut-off, measuring and de-

livery cap mounted at the top of the tubular piston rod and into which the contents or materials are fed through the delivery port in said piston rod. Fourth: A delivery piston and piston rod within said cap by means of which the contents of the cap are discharged after the value and weight thereof have been ascertained upon a computing device which is operated to indicate said value and weight when the piston within said cap is elevated by the lard or other material entering said cap.

While using the term "lard" in connection with my improved dispensing apparatus, I do not wish to convey the impression that this is the only material that may be successfully handled therein. There are many other substances that partake more or less of the nature of lard that may be handled with equal facility. The can or receptacle 22 containing the lard or other material to be dispensed, is supported within a suitable housing or jacket 19 to protect said can and to preserve and render the same serviceable after the contents have been removed therefrom. This housing or jacket in the present instance consists of two semi-circular parts 19 which are provided with matching apertured ears 19' which are brought together when said parts are assembled around the body of the can and are clamped rigidly together by means of cap screws 20. The housing is thus made to snugly inclose the sides of the can and to reinforce said can against the outward pressure exerted upon the lard or material therein. The housing is made secure at its base by means of a suitable number of screws 24 which penetrate apertured ears 24' projecting from the base thereof, and thus said housing may be attached to any convenient support. Within said housing immediately below the bottom of the can or receptacle 22, there is placed a metal disk or false bottom 23 which reinforces the bottom 21 of the can 22 and maintains the same against the down pressure exerted upon the lard or other contents. Movable within the receptacle or can and against the upper surface of the lard or other contents, is a piston 1 which is rigidly united to a hollow piston rod 2 which communicates with the lard or other contents of the can below the piston and forms a delivery port therefor. This hollow piston rod forms a "delivery port" through which the lard or other contents is discharged from below the

piston when pressure is exerted against the piston to force it against the surface of the lard. This pressure is exerted upon the piston through the hollow piston rod in a manner presently described, but it will be understood that a variety of means may be employed for forcing said piston against the surface of the lard. Owing to the variation in the diameters in the standard sizes of lard cans, it is necessary to provide a piston with means for occupying or covering the entire area of the contents within the can. In other words, there must of necessity be a snug fit between the periphery of the piston and the inner circumference of the can, in order that when pressure is applied to the piston, the contents of the can will have but one avenue of escape and that is through the delivery port 2 in the piston rod.

In order to provide a piston of the above type, a series of shoes 14 are mounted upon the upper side of the piston, each of said shoes forming a segment of a circle which, when placed in position complete a circle above the piston and increases or decreases the effective diameter of the piston. These shoes are adjustable in and out by means of slots 14' therein through which broad-headed screws 14'' enter and serve as retainers and guides for the movement of the shoes. Mounted within and overhanging the peripheries of the shoes 14 is an endless rubber ring or gasket 15 which rests upon the piston on the outside of the shoes and is inclosed at its upper side by a flange or over-projecting portions of the shoes. This rubber ring or gasket 15 engages the inner surface of the can or receptacle 22, and such engagement is effected by uniformly moving the shoes outwardly from the axis of the piston. This is accomplished by means of a tapered nut 16 which screws onto the hub of the piston and the tapered surface of which engages the inner tapered sides of the shoes and moves them outwardly to properly effect an engagement with the interior of the can. The nut 16 is operated to effect this result by means of a spanner or other suitable wrench. The exterior surface of the hollow piston rod 2 is provided with threads 7 which extend practically the length of said piston rod and are engaged at a suitable point by a nut 8 which has upon its outer surface worm teeth 8', which teeth mesh with a worm 25 on shaft 12 which is turned from a crank and handle 13. The worm nut 8 is inclosed between two boxes 3--3 which are supported on bracket 4 mounted to swing upon a plate 6; the latter plate is securable to any suitable part—a wall or other place by means of screws 6'. The connection of the bracket arm 4 with the plate 6 is by means of apertured ears 5 projecting from said plate, and screws 4' which enter bosses 4'' on the bracket arm. The hollow piston rod has a key-way extending through-

out its length in which keys 9--9 engage, said keys extending from the interior of the bearings or boxes 3--3 and thus said piston rod is permitted to have the necessary longitudinal reciprocating movement and is prevented thereby from receiving any rotary movement from its driving worm nut 8. The shaft of the worm 25 is provided with bearings 25' which extend from the boxes 3--3. Placed between the adjacent surfaces of the worm nut 8 and the upper box 3 are a suitable number of anti-friction bearings 10 which reduce to a minimum the friction between these parts.

In order that the apparatus may be effective in its operation, it is essential that the vacuum formed below the piston when the can or receptacle is emptied, should be relieved at the proper time in order to enable a removal of the piston and leave the can in the housing; I therefore, provide the vacuum release device shown in Figs. 4--4* and 4b. This device is carried upon the piston 1 and consists of an air plunger 26 movable within a housing 27 projected from the upper side of the piston; this housing communicates below the piston and has a suitable number of air ports 28 communicating therewith above said piston. The lower end of the plunger 26 is provided with a conical-shaped rubber tip or valve-head 29 which seats against a concave opening in the piston, which forms a communication below the piston when the plunger is removed from its seat. Surrounding the body of the plunger 26 is a compression-spring 30 which is effective in unseating the plunger at stated times presently to appear. The middle portion of the plunger 26 is inclosed by a cap 31 that engages the housing 27 and said plunger is thus maintained in operative relation with the piston. 32 designates a yoke or open frame which is a part of the plunger 26, and from a portion thereof projects a stop 33 designed to engage a cam 34 which locks the plunger in a position to maintain the valve tip 29 upon its seat in the piston. Cam 34 is fixed to a shaft 35 and lies within the yoke 32 in a position to engage and disengage the stop or projection 33 on the plunger-yoke. The cam shaft 35 is loosely mounted in a standard 36 which rises from the piston 1. The rocking movement of the shaft 35 sufficient to impart to the cam 34 the desired movement to engage or disengage the projection 33, is obtained by the following device: Secured to the cam shaft 35 is a collar 37 through which passes at right angles the lever 38; the lever 38 is engaged by a plunger rod 39 at a suitable point and said lever and plunger are maintained in proper contact by means of a contractile spring 40, one end of which is fastened to the lever 38 and the other end is suitably fastened to the piston 1. The plunger rod 39 projects through an apertured boss 41 on the top side

of the piston 1, and extends a suitable distance below the under-side of said piston. When the piston descends to the bottom of the can by the removal of the lard or other contents, the end of the plunger rod 20 below said piston is first engaged by the bottom 21 of the can and is elevated thereby to cause in turn, the shaft 35 and therewith the cam 34 to rock to an extent to remove said cam from engagement with the projection 33 in the air plunger yoke 32. As soon as this disengagement between the cam 34 and the projection 33 takes place, the expansion spring 30 which incloses the lower portion of the air plunger 26 exerts itself upon the plunger and elevates the same a sufficient extent to remove the conical-shaped valve 29 from its seat in the piston; air is then permitted to enter below the piston through the ports 28 and the piston may be withdrawn from the emptied can. When the piston 1 is withdrawn from the can 22 to remove the can, the open frame or yoke 32 of the vacuum release device comes in contact with the projection 32' on the bracket 4 thereby compressing the spring 30 within the housing 27 and enabling the spring 40 to cause the cam 34 to reengage the projection 33 on yoke 32 by means of lever 38.

Mounted upon the top of the hollow piston rod 2, is a cut-off, measuring and delivery cap 18. The connection between this cap and the upper end of said piston rod is in the nature of a hinge consisting of a rod 42 which is journaled in a suitable bracket 43 secured to the upper end of the piston rod 2, and said rod enters apertured bosses 44 projecting from the cap 18, so that the said cap 18 acts as a cut-off in being swung to one side of the piston rod by means of a handle 45 which projects from one side of the cap—see Figs. 5 and 5'. The interior diameter of the cap coincides with the interior diameter of the piston rod 2, and practically forms a continuation of said piston rod. Within the cap 18 there is a delivery piston 46 having a toothed piston rod 47 comprising a rack which has a bearing in and extends through the inclosed top 18' of said cap. Engaging said rack 47 above the cap is a pinion 48 fixed to a shaft 49 journaled in apertured bosses 50 which project from the top of the cap. Secured to this shaft 49 is a crank 51 lying on one side of the cap and operated by a handle 52. By turning this crank the piston 46 is driven down from the upper interior of the cap 18 to which position it is moved by the lard entering said cap under the pressure exerted upon the body of the lard in the can or receptacle 22. It will be understood that the delivery piston 46 in the cap is only moved to its extreme upper position when said cap is filled from the piston rod 2, but in dispensing quantities of lard less than the amount necessary to fill said cap, the piston

46 would be moved to less than the full depth of the cap.

It will be understood that the piston 46 is lowered from whatever position it may be moved to by the lard entering the cap from the piston rod 2; such lowering of said piston being accomplished through the crank 51 and the pinion 48. This lowering of said piston discharges the contents of the cap 18 into any receptacle placed upon a shelf 53 made fast to the side of the piston rod 2. The cap 18 is swung around upon its hinge 42 to bring it over the shelf 53, and after the contents of the cap are removed by the lowering of the piston 46, the said cap is released, and is returned to its position above the delivery port in the piston rod 2 under the tension of a torsional spring 42' one end of which is attached to the rod or hinge 42, and the other end of which is attached to the upper apertured boss 44 which projects from the cap 18. The values and weights of the quantities of lard dispensed through the cap 18 are ascertained, automatically, while the commodity is being delivered to said cap from the piston 2 by the following means: One end of the pinion shaft 49 has fixed to it a dial 54 which rotates with the shaft 49 and has a series of concentric columns of numerals 54' on its front face said concentric columns of numerals indicating the various quantities of the lard or other commodity dispensed in fractional parts of pounds, except the outer concentric column, the numerals in which indicate the weight only. Directly in the front of the dial 54 and secured in an upright position to the side of the cap 18, is a stationary indicator 55 bearing numerals which indicate the prices per pound. Each of the concentric columns of figures on the dial 54 is readable in connection with a given figure per pound on the price per pound indicator 55, and thereby is ascertained the value of any given quantity of the commodity which is sold at a given price per pound. The dial is rotated to thus visually compute the values concurrently with the upward movement of the piston 46 within the cap 18, and the dial is stopped simultaneously with the stoppage of the upward movement of said piston, so that it may be understood that the exact value of any quantity of lard delivered to the cap up to the full capacity of said cap, may be ascertained from the computing dial 54. It will be readily understood that the measuring capacity of the cap 18 may be increased by means of caps of various sizes, and in such case the computing capacity of the dial 54 would be likewise increased; these are matters that do not involve any material change in the essential features of the apparatus.

It may be further stated that various other modifications might be made without departing from the underlying principles involved,

which have for their object, an accurate, economical and expeditious means for dispensing lard or other like materials from the can or receptacle 22 in which it is placed by the packer, and in such manner as will preserve the further utility of the can.

A brief description of the operation of my improved dispensing apparatus is as follows: A can of lard of any of the standard sizes is placed within the parts 19 of the housing above the false supporting bottom 23 which occupies a position in the lower end of said housing. The jacket or housing is then tightened by the screws 20. In the meantime, the piston 1 is elevated to the position shown in dotted lines in Fig. 3, and the cover of the can is first removed before the insertion of the can in the jacket. The piston is swung around to the position shown in dotted lines in Fig. 1 to admit of the placing of the can in position, and is then moved back above the can and is lowered therein by pressure applied to the piston rod 2 through the crank 13 and the worm 25. This pressure is continued on the upper surface of the lard or other material until the hollow piston rod 2 is filled to the top; the lard is then ready to be delivered into the cap 18 in quantities to be determined from the reading on the computing dial. When the requisite quantity is fed into the cap 18 as per the indication on said dial, the feeding operation incident to the continued pressure of the piston 1 upon the contents of the can, is stopped, and the cap 18 is swung around upon its hinge and the contents of said cap are delivered therefrom by the downward movement of the piston 46, said piston having been moved upwardly within the cap a distance proportionate with the amount of lard delivered to the cap.

I claim:

1. In an apparatus for dispensing lard and material of a similar nature in retail quantities from the cans or receptacles in which it is packed by the shipper, the combination with a piston having an orifice therein, a pipe projecting from said orifice and providing a delivery port through which the contents of the receptacle below the piston is discharged, a measuring cap pivoted at the discharge end of said pipe and adapted to receive the contents from said pipe in specific quantities, said measuring cap being movable to one side of the pipe to deliver the contents thereof, and means for holding the receptacle from which the material is delivered to said pipe and for sustaining the sides of said receptacle against the pressure exerted thereon by the descending piston.

2. In a dispensing apparatus, means for holding and protecting the receptacle containing the article to be dispensed, a piston forcing said piston against the surface of the

article within said receptacle and for conducting quantities displaced from the receptacle, and a cap for receiving quantities of the article so discharged through the piston and for delivering the same.

3. In a dispensing apparatus, means for holding and protecting the receptacle containing the article to be dispensed, a piston having a delivery port therein, means for forcing said piston against the surface of the article within said receptacle and for conducting quantities displaced from the receptacle, a cap for receiving and delivering quantities of said article discharged through said port, and means for indicating the values of the quantities of the material received and delivered by said cap.

4. In an apparatus for dispensing lard and material of a similar nature in retail quantities from the cans or receptacles in which it is packed by the shipper, the combination with a piston having an orifice therein, a pipe projecting from said orifice and providing a delivery port through which the contents of the receptacle below the piston is discharged, a measuring cap pivoted at the discharge end of said pipe and adapted to receive the contents from said pipe in specific quantities, said measuring cap being movable to one side of the pipe to deliver the contents thereof, means for relieving the partial vacuum formed within the receptacle below the piston when the contents are removed from the receptacle, and means for holding the receptacle from which the material is delivered to said pipe and for sustaining the sides of said receptacle against the pressure exerted thereon by the descending piston.

5. In a dispensing apparatus, means for holding and protecting the receptacle containing the material to be dispensed, a piston having a delivery port therein, means for forcing said piston against the surface of the article within said receptacle and for conducting quantities displaced from the receptacle, a cap to receive and deliver quantities of the article so discharged, a piston within said cap, and means for computing and indicating by the movement of the piston within said cap the values of the quantities of material introduced into said cap by the movement of the piston within said cap.

6. In a dispensing apparatus, a receptacle containing the material to be dispensed, a piston, a tubular piston rod forming a delivery port, a cut-off, measuring and delivery cap pivoted above said delivery port, a piston within said cap, and a computing dial rotated by said piston.

7. In a dispensing apparatus, means for holding and protecting the receptacle containing the material to be dispensed, a piston, a hollow piston rod extending from said piston and forming a delivery port from below the piston, means cooperating with said

piston rod for forcing the piston against the surface of the article within said receptacle, a cut-off, measuring and delivery cap pivoted to the upper end of the piston rod, a computing dial, and means cooperating with said dial whereby the values and weights of the quantities of material delivered to said cap are ascertained.

8. In a dispensing apparatus, means for holding and protecting the receptacle containing the article to be dispensed, a piston, a hollow piston rod forming a delivery port from below said piston, means cooperating with said piston rod for forcing the piston against the article within the receptacle, a cut-off, measuring and delivery cap hinged to the top of said piston rod and communicating therewith, and means for automatically computing the values and weights of the quantities of material fed to said cap.

9. In a dispensing apparatus, means for holding and protecting the receptacle containing the material to be dispensed, a piston, a hollow piston rod forming a delivery port from below the piston, means cooperating with said piston rod to force the piston against the surface of the material within the receptacle, a cut-off, measuring and delivery cap at the upper end of said hollow piston rod, a piston within said cap, and means for computing and indicating the values of the quantities of the material fed to said cap, said means being operated upon the upward movement of the piston within said cap due to the feed of the material to the cap from the delivery port in said hollow piston rod.

10. In an apparatus for dispensing lard and material of a similar nature in retail quantities from the cans or receptacles in which it is packed by the shipper, the combination with a piston having an orifice therein, a pipe projecting from said orifice and providing a delivery port through which the contents of the receptacle below the piston is discharged, a delivery cap communicating with the discharge end of said pipe and adapted to receive the material therefrom in specific quantities, means for indicating the weight or value of each specific quantity of material delivered by said cap, and means for relieving the partial vacuum below the piston when the receptacle is discharged of its contents.

11. In an apparatus for dispensing lard and material of a similar nature in retail quantities from the cans or receptacles in which it is packed by the shipper, the combination with a piston having an orifice therein, a pipe projecting from said orifice and providing a delivery port through which the contents of the receptacle below the piston is discharged, a delivery cap mounted at the upper end of the discharge pipe and forming a continuation thereof, visual indicators to indicate the weight or money value of each spe-

cific quantity of material delivered to said cap, and means actuated through the pressure of the material entering said cap for imparting movement to the visual indicators.

12. In a dispensing apparatus, means for holding and protecting the receptacle containing the material to be dispensed, a piston engaging the upper surface of the material within said receptacle, a hollow piston rod extending from said piston and forming a delivery port above the piston, a cut-off, measuring and delivery cap above said delivery port, and a device for relieving the vacuum formed below the piston.

13. In a dispensing apparatus, means for holding and protecting the receptacle containing the article to be dispensed, a piston, a hollow piston rod forming a delivery port extending through said piston, means cooperating with said piston rod for forcing the piston against the surface of the material within said receptacle, a cut-off, measuring and delivery cap pivotally mounted adjacent to the upper end of said hollow piston rod, means for computing and indicating the values of the quantities of material fed to said cap, and means for relieving the vacuum formed below the piston.

14. In a dispensing apparatus, a receptacle containing the material to be dispensed, an expansion piston, a hollow piston rod forming a delivery port for the material to be dispensed, means engaging said piston rod to force the piston against the material to be dispensed, a cut-off, measuring and delivery cap communicating with the discharge end of said piston rod, and means for computing and indicating the values of the quantities of the material fed to said cap through said delivery port.

15. In a dispensing apparatus, a receptacle containing the material to be dispensed, an expansion piston, a hollow piston rod forming a delivery port for the material to be dispensed, a cut-off, measuring and delivery cap to receive from said delivery port the material to be dispensed, and devices carried upon the piston to relieve the vacuum formed below the piston.

16. In a dispensing apparatus, means for holding and protecting the receptacle containing the material to be dispensed, a piston and piston rod having a delivery port extending from below the piston, means engaging said piston rod to force the piston against the surface of the material to be dispensed, a cut-off, measuring and delivery cap supported upon said piston rod, value-computing devices mounted upon said cap, and means for varying the effective diameter of the piston.

17. In a dispensing apparatus, means for holding and protecting the receptacle containing the material to be dispensed, a piston having a delivery port, means for forcing said piston against the surface of the mate-

rial to be dispensed and for delivering such material, a cut-off, measuring and delivery cap to receive the material thus delivered, means for varying the effective diameter of the piston, a delivery piston within the cap, and value-computing devices actuated by the upward movement of said delivery piston.

18. In a dispensing apparatus, means for supporting and protecting the receptacle containing the material to be dispensed, a piston having a delivery port, means for imparting reciprocating movement to the piston and for delivering the material entering such port, means for preventing the piston from rotating during the reciprocating movement, and a cut-off, measuring and delivery cap communicating with and receiving the material delivered.

19. In a dispensing apparatus, means for supporting and protecting the receptacle containing the material to be dispensed, a piston having a delivery port, means for forcing said piston against the material to be dispensed and for delivering such material, a cut-off, measuring and delivery cap hinged to

the delivering means, a delivery piston within said cap, a revolving-computing dial geared to said delivery piston, and a stationary price scale mounted adjacent to said dial.

20. In a dispensing apparatus, means for supporting and protecting the receptacle containing the material to be dispensed, a piston having a hollow piston rod forming a delivery port communicating below the piston, means engaging said piston rod to force the piston against the surface of the material to be dispensed, means for swinging the piston to one side of the receptacle containing the material to be dispensed when said piston is elevated from the receptacle, and measuring and computing devices receiving the material from the delivery port, and indicating the quantities received from said delivery port.

In testimony whereof I affix my signature, in presence of two witnesses.

WILLIAM R. MITTENDORF.

Witnesses:

C. M. THEOBALD,
R. J. McCARTY.