

No. 684,275.

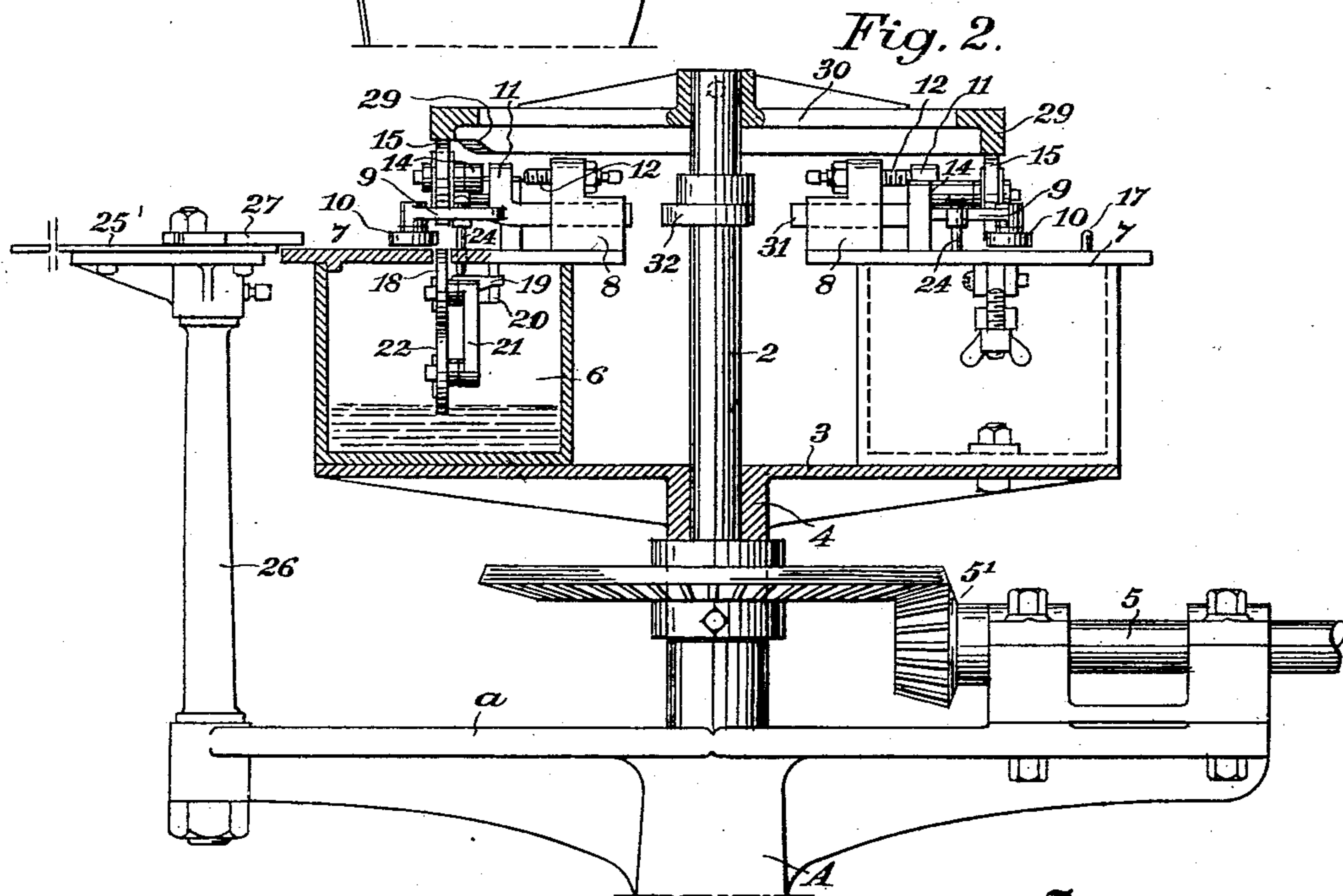
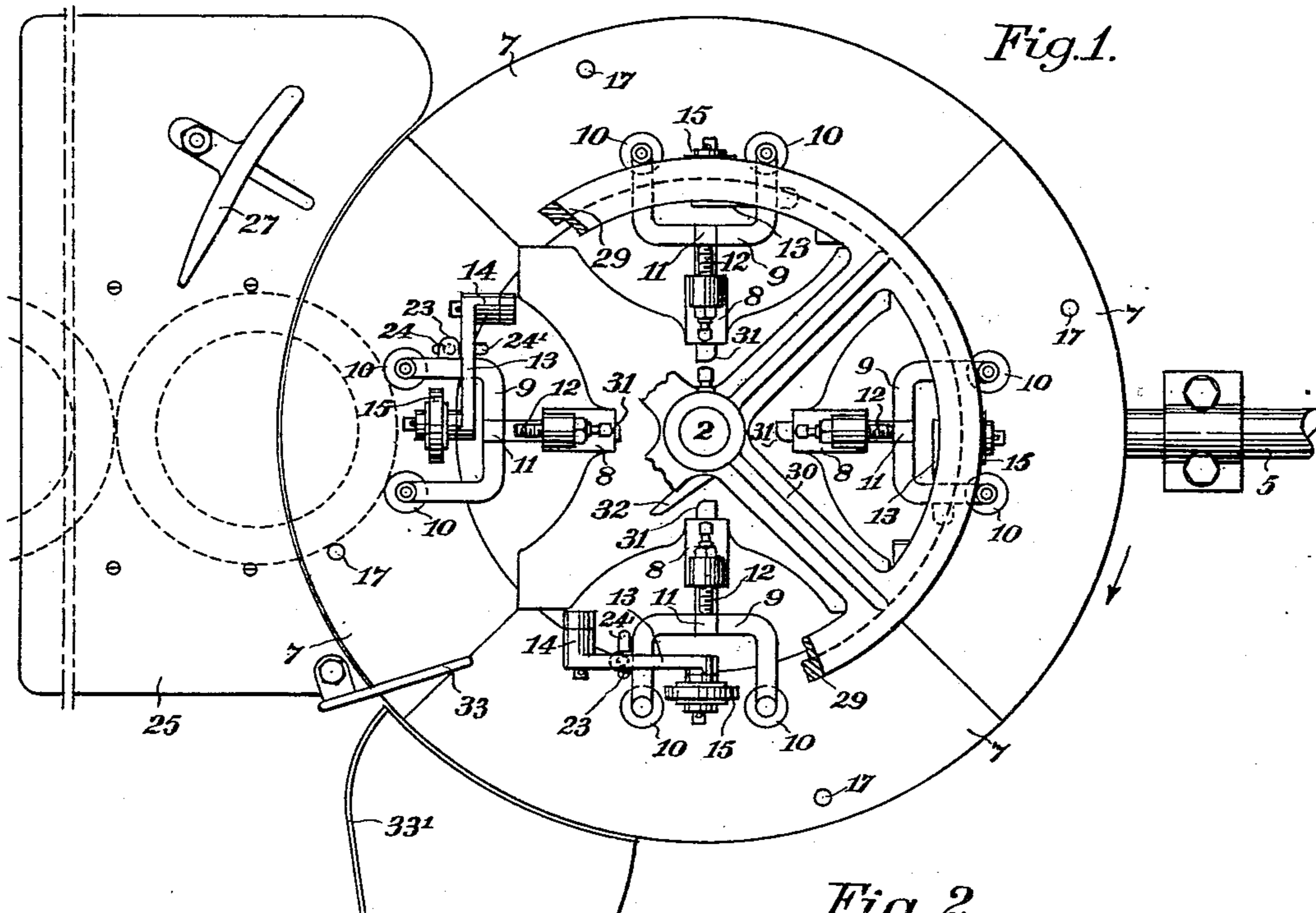
Patented Oct. 8, 1901.

A. W. LIVINGSTON.  
AUTOMATIC CAN HEAD COATING MACHINE.

(Application filed Jan. 11, 1901.)

(No Model.)

3 Sheets—Sheet 1.



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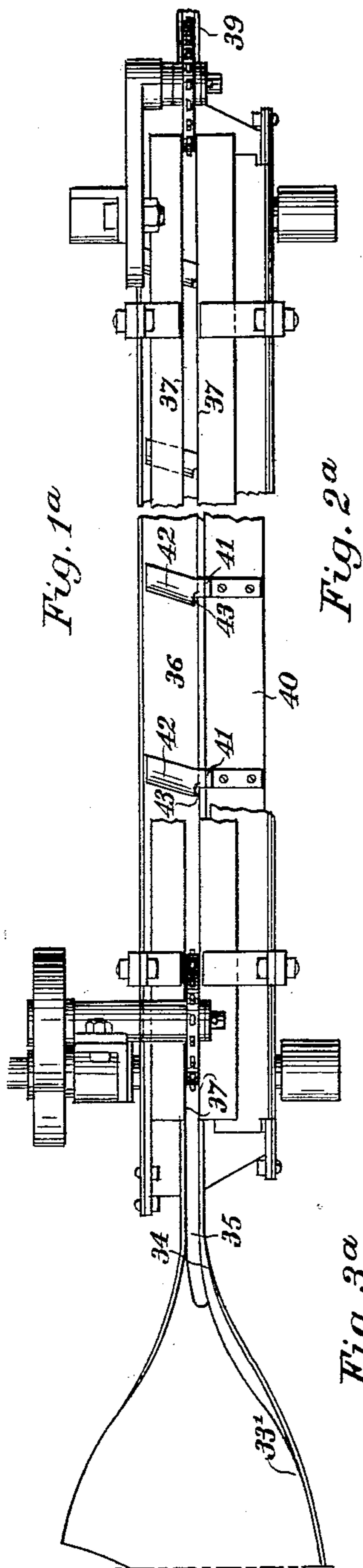


Fig. 1a

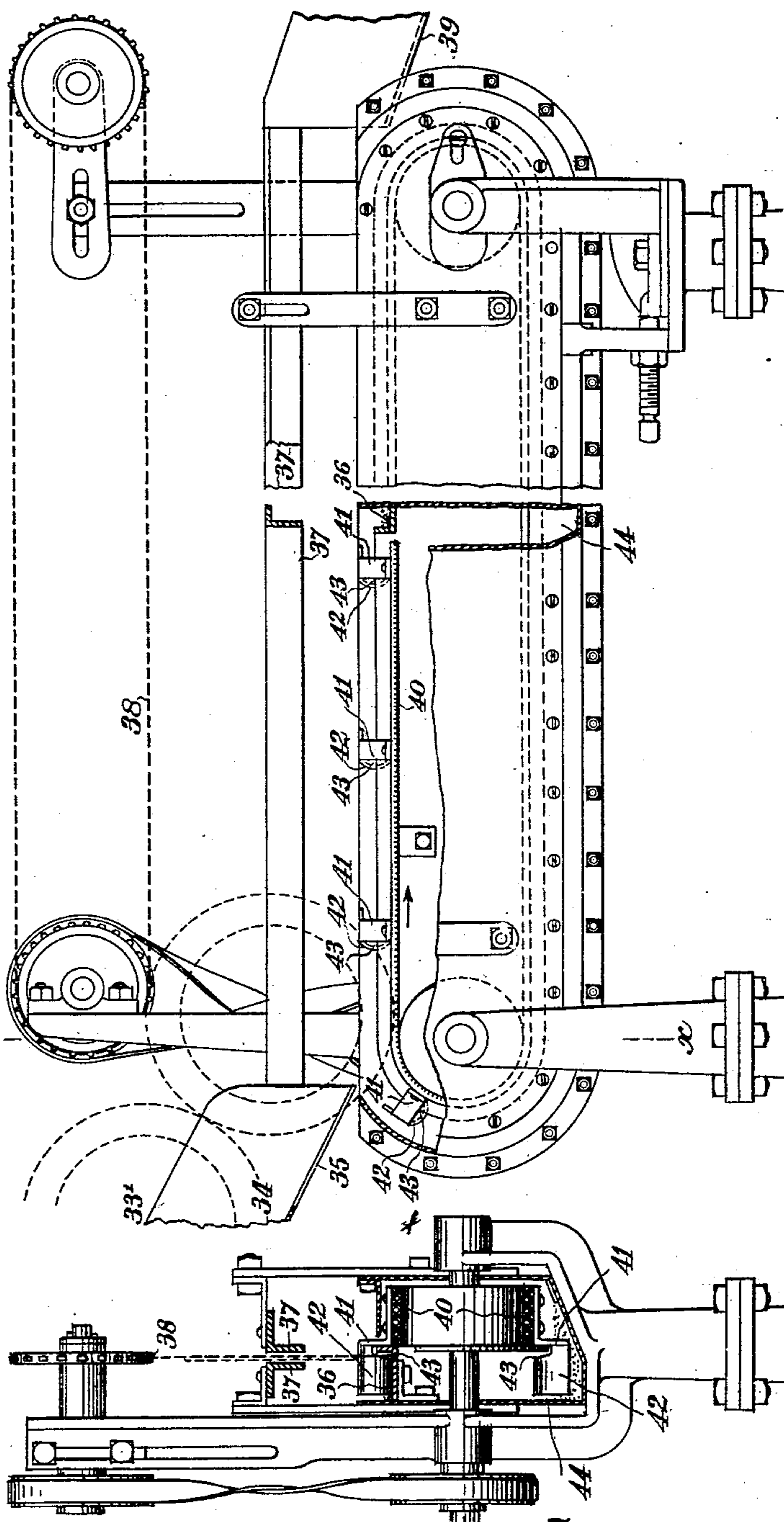


Fig. 2a

Fig. 3a

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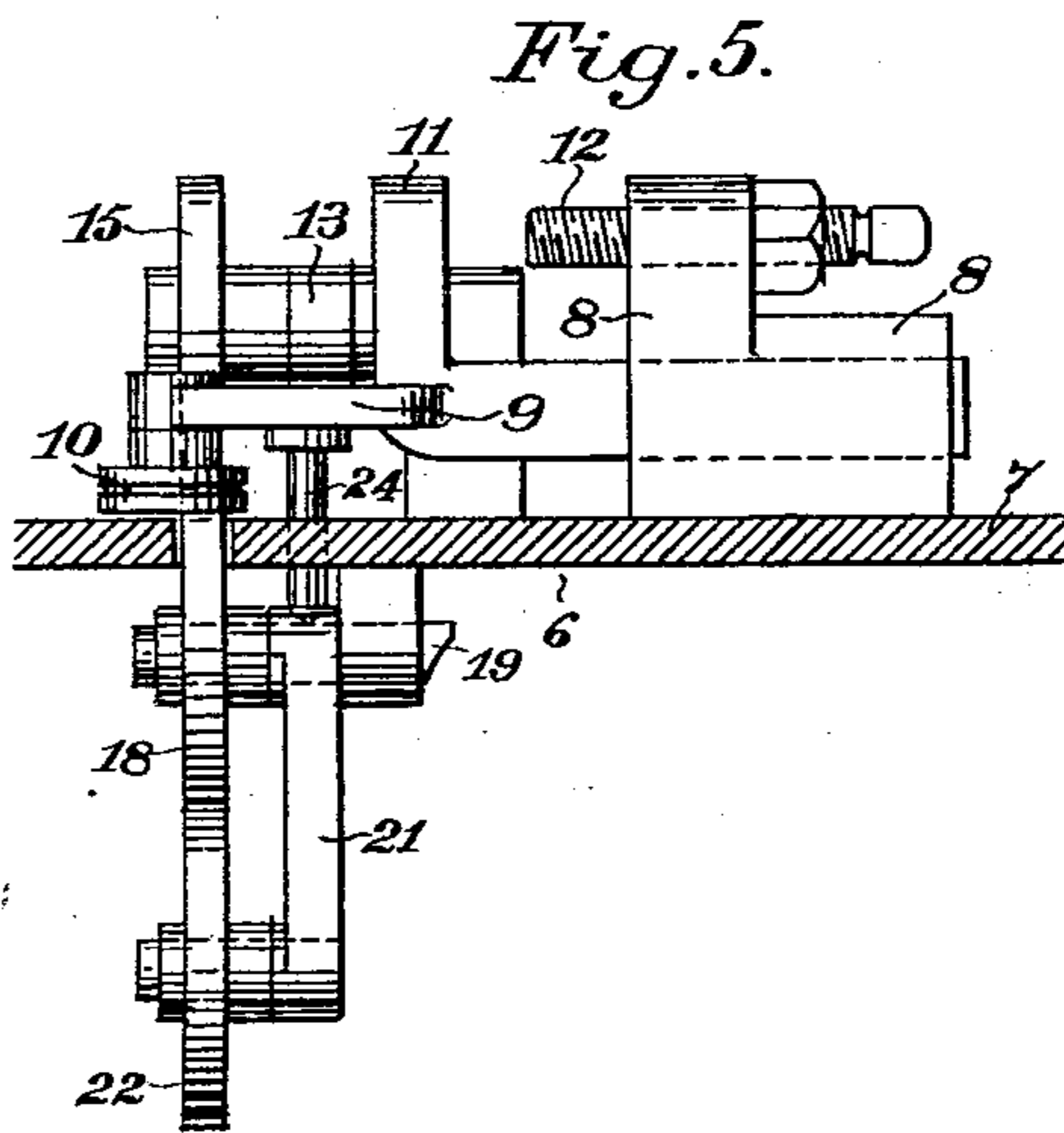
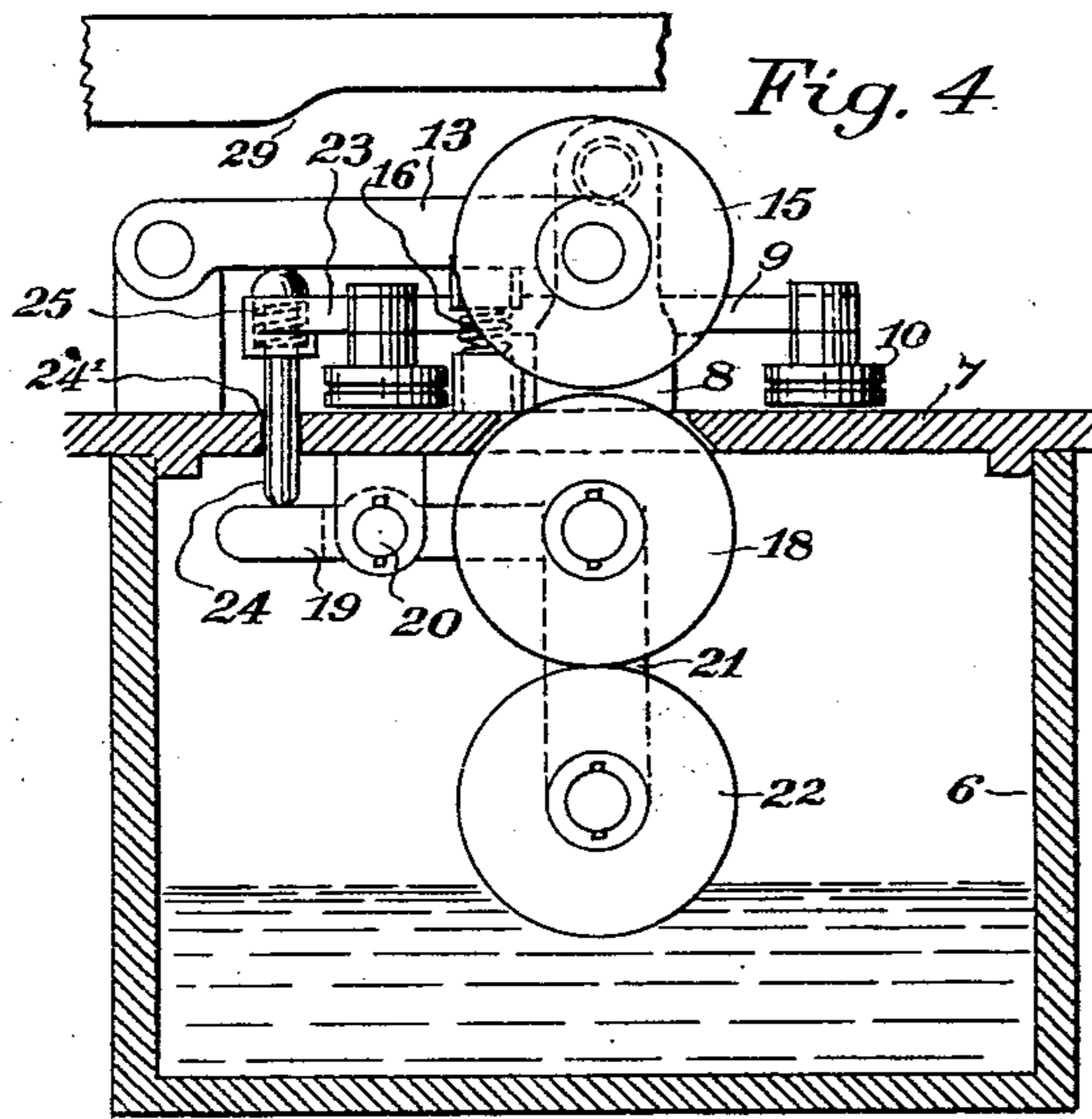
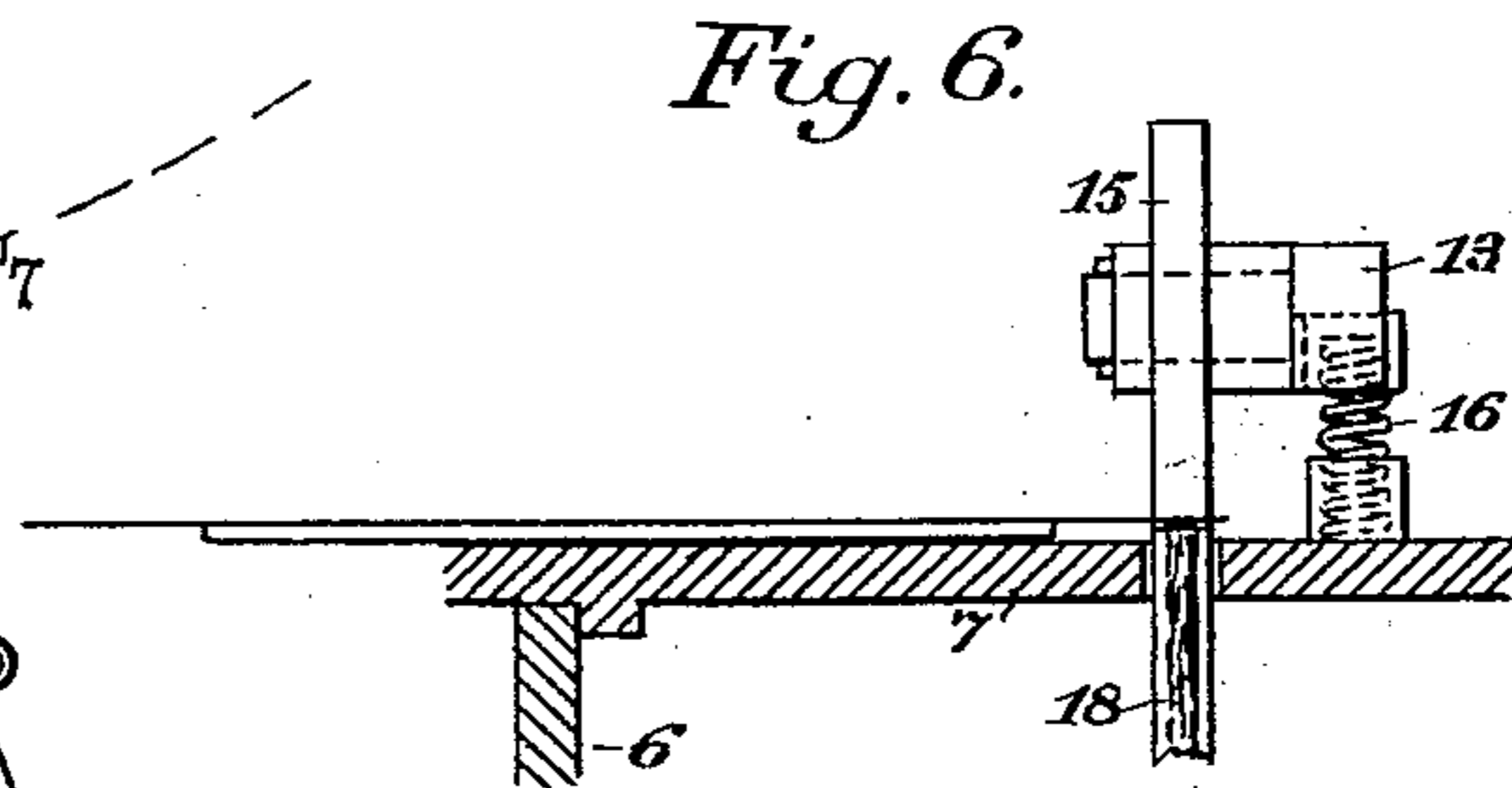
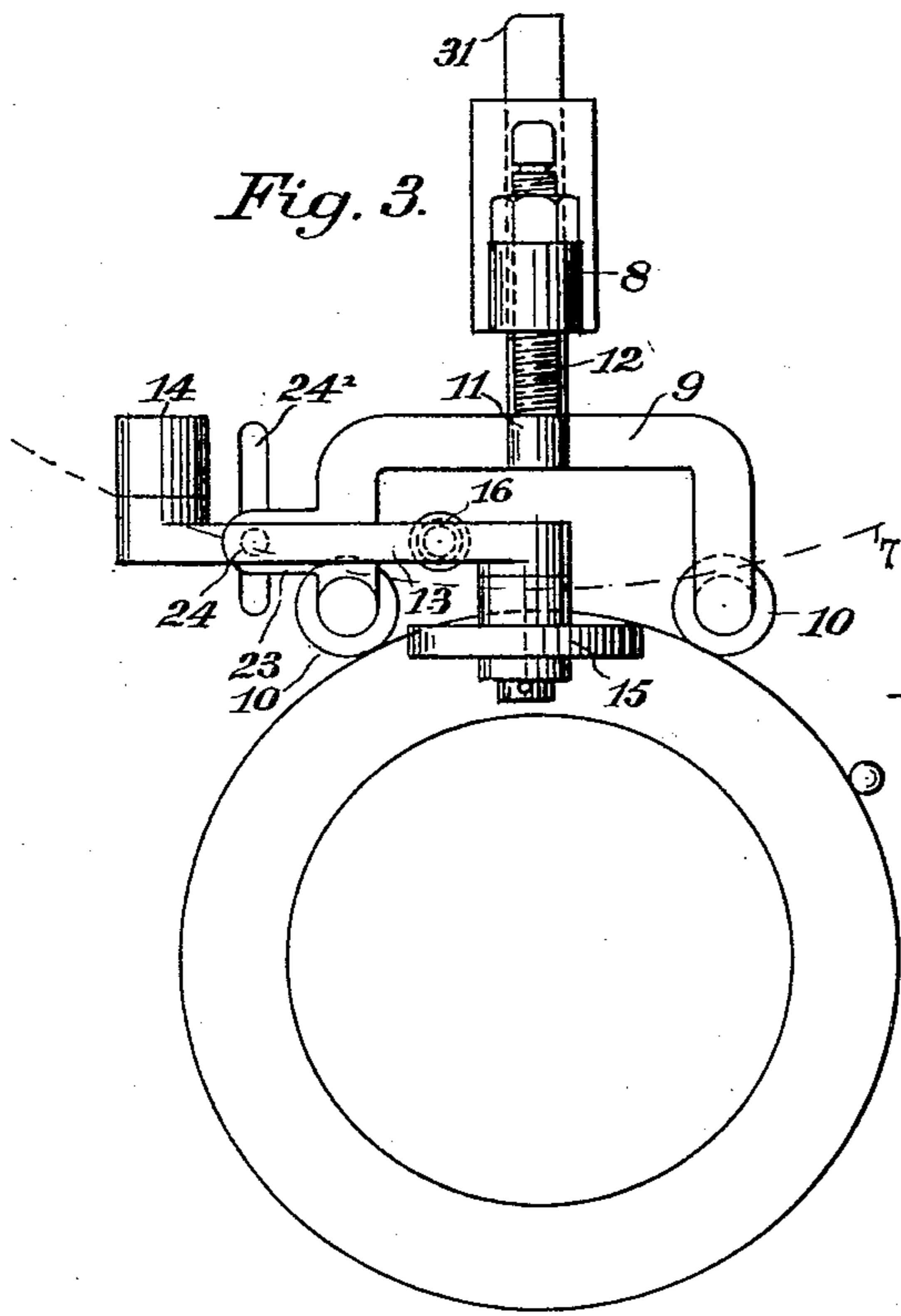
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# UNITED STATES PATENT OFFICE.

ANDREW W. LIVINGSTON, OF SAN FRANCISCO, CALIFORNIA.

## AUTOMATIC CAN-HEAD-COATING MACHINE.

SPECIFICATION forming part of Letters Patent No. 684,275, dated October 8, 1901.

Application filed January 11, 1901. Serial No. 42,889. (No model.)

*To all whom it may concern:*

Be it known that I, ANDREW W. LIVINGSTON, a citizen of the United States, residing in the city and county of San Francisco, State of California, have invented an Improvement in Automatic Can-Head-Coating Machines; and I hereby declare the following to be a full, clear, and exact description of the same.

My invention relates to improvements in machines for coating the flanges of can-heads with a sealing compound preparatory to the subsequent insertion of such heads upon can-bodies.

It consists, essentially, of a reservoir carried upon a revolving support, a feed-roller dipping into the reservoir, a distributing-roller adapted to bear upon the side to be coated of the flange of the head, a roller adapted to bear upon the opposite side of said flange, means by which these rollers and heads are revolved, means by which the head is released therefrom and delivered in a vertical position into a "flouring-trough," an endless belt or chain by which it is made to travel through this trough, and of details more fully to be hereinafter set forth.

Having reference to the drawings, Figure 1 is a plan of the coating-machine. Fig. 2 is a vertical section of the same. Fig. 3 is an enlarged plan of the sliding fork and rollers for holding can-heads in position for coating. Fig. 4 is a front view of the same and a section through the reservoir. Fig. 5 is a side view of the foregoing. Fig. 6 is a portion of a similar view to Fig. 5, showing how a can is held in position for coating. Fig. 1<sup>a</sup> is a plan of the flouring-machine. Fig. 2<sup>a</sup> is part section and part longitudinal elevation of Fig. 1<sup>a</sup>. Fig. 3<sup>a</sup> is a vertical transverse section on the line *xx* of Fig. 2<sup>a</sup>.

My device is intended for the treatment of can-heads such as are crimped and hermetically sealed upon the can-bodies at one operation. Where can-bodies and can-heads are thus put together, the heads are usually provided with an annular flange which fits upon a flange projection on the can-bodies. A deposit of some sealing preparation is placed upon the lower side of the can-head flanges, so that when the head is inserted on the body and the flanges of the two parts properly crimped a hermetic joint is formed.

It is the object of my invention to provide a self-regulating machine by which this sealing preparation may be run upon the flanges and which will do the work with sufficient rapidity and at the same time be absolutely accurate and uniform in its results.

A represents a standard having a cross-head *a*, upon which the coating mechanism is supported. 2 is a fixed vertical shaft secured in this standard, having a disk 3 upon the sleeve 4 revoluble about it. Motion is imparted to this disk from the main drive-shaft 5 by means of suitable gearing 5'. An annular reservoir 6, in which is contained the sealing compound, is carried and secured upon the disk. A cover or lid fits over this reservoir and is preferably made in segments 7, each segment carrying a separate "coating" apparatus. Upon each of the segments 7 is a projection 8, adapted to allow the stem of a fork 9 to be moved radially. The ends of the members of the fork are provided with grooved rollers 10, against which the edge of the can-head is to be pressed. Guide-pins 17 upon the cover aid the rapid placing of a can-head in position against the rollers. A projection 11 is provided upon the fork, and a screw 12 limits the inward radial movement of the fork. A lever 13, fulcrumed at 14 upon the segmental cover, carries at its end a roller 15. A spring 16 serves to keep this lever sufficiently elevated as always to run upon the annular cam-plate 29, fastened upon an overhead support 30, which latter is fixedly secured to the shaft 2. Directly beneath this roller is a slot in the cover, through which a second roller 18 is adapted to be raised whenever the former is depressed. It is between these two rollers that the flange of the can-head is gripped and revolved, and it is this lower roller that deposits the sealing compound upon the flange. The manner in which this is done and the means by which these rollers act simultaneously are as follows: On the under side of the cover is a lever 19, fulcrumed at 20 and carrying at one end the above-mentioned roller 18. A pendant projection 21 carries at its lower end a roller 22, which roller is also tangential with the roller 18. The roller 22, which I will designate as the "feed-roller," is partly immersed in the sealing compound. The roller

18 consequently acts as a "distributing-roller." Upon one of the members of the fork 9 is a projection 23, and a pin 24 is slidable therein. This pin extends through a slot 24' 5 in the cover, and when the fork is moved toward the axle 2 this pin is carried with it and will rest upon the end of the lever 19, and consequently any downward movement then of the pin will cause the rollers 18 and 10 22 to be lifted. This inward movement of the fork is so regulated as to bring the pin directly beneath the lever 13. A spring 25 acts to hold the pin up and out of contact with the lever 19, carrying the distributing-roller, 15 until pressure has been brought to bear upon the pin by means of the lever 13. A fixed feed-table 25' is supported upon a standard 26 upon the cross-head *a* and has a guide-plate 27. As a can-head is placed against 20 the pins 17 and the rollers 10 of the fork the machine in its revolution brings this head against the guide-plate 27, which latter pushes the head and the fork inwardly and brings the pin 24 directly beneath the lever 13 and 25 above the lever 19 and the flange of the head between the two rollers 15 and 18. As the mechanism continues to revolve the roller 15 passes on to the cam portion of the annular plate 29. The pressure exerted by this cam 30 immediately acts upon the impinging roller 15 and the distributing-roller 18 to cause them to press tightly upon the opposite sides of the flange of the can-head and by their revolution to cause the can-head to revolve. The 35 contact of the distributing-roller with the feed-roller 22 likewise causes the latter to turn, and a uniform annular deposit of the liquid or semiliquid sealing compound is made upon the under edge of the flange. The length of 40 the cam portion of the plate 29 is sufficient to insure a proper coating. The moment the impinging roller 15 leaves the end of this cam portion the pressure upon the head is released, the pin 24 is lifted by its spring, 45 and the distributing and feed rollers cease revolving and drop again to their normal position. The coating thus completed, the head is still carried forward as the reservoir continues its revolution. The inner cam end 50 31 of the stem of the fork 9 strikes against a fixed projection 32, causing the fork to move outward to the position it had before the can-head was first inserted. A fixed guide 33 engages the can-head and directs it into a channel 33', wherein the position of the can-head 55 is changed from horizontal to vertical, so that in the second operation of "flouring the flange," as it is called, the can-head will travel on its edge. The can-head as it comes 60 from the coating-table is not in a condition for ready handling, as this sealing compound is usually of some sticky material and should in most cases be further treated before the operation is complete. This treatment may 65 be effected in various ways. I have shown the following means: The runway 33', into which the can-head first drops, narrows to-

ward the throat, so that the can-head is directed into a vertical position. An extension 34 of this runway has a longitudinal slot 35, 70 through which the can-head drops, so that its lower edge rests in the flouring-trough 36 and is supported centrally by the guide-plates 37 upon either side of the slot 35. These plates may be adjusted in relation to each other to 75 allow for can-heads of various sizes and according to varying depths of flanges. The can-heads thus in position are made to travel on edge through the trough, so that all the coated peripheries will be properly floured, 80 by means of an endless chain or belt 38, parallel and in the same plane with the slot and with the inner edge of the stationary trough. Carried thus beneath the chain the heads finally enter a runway 39, whence they are 85 delivered as desired to any suitable form of drier.

In order that a sufficient quantity of flour may always be supplied to the trough and that this flour may be banked against the side 90 of the trough along which the head travels, I provide an endless belt 40 at the side of and parallel with said trough, having projecting arms 41, on which are the scoops 42. These latter dip into the trough and travel at the 95 same rate of speed and in the same direction with the cans. Each scoop has a cut-out portion 43 adjacent to the can-head side of the trough, so that enough of the flour is thrown or banked against that side to submerge the 100 head to the required mark. The scoops pass through the bin 44 on their return movement and replenish the supply of flour in the trough. It is the intention to use any suitable sealing compound for coating these 105 flanges, such as the usual pastes, solder, &c.

The machine is adaptable for can-heads of various shapes and sizes.

Having thus described my invention, what I claim as new, and desire to secure by Letters 110 Patent, is—

1. A device for coating the peripheral edges of can-heads consisting of a reservoir containing the coating material, means for revolving the reservoir about a vertical axis, 115 rollers between which the edges of the can-head are caused to pass, and means for supplying and distributing the coating material upon one of said rollers.

2. A device for coating the peripheral edges 120 of can-heads consisting of rollers between which the edge of the can-head is presented; means by which the can-head is revolved with its edge between said rollers, a reservoir containing a coating material, means for revolving 125 the reservoir, and means for applying said material to one of the rollers.

3. A device for coating the peripheral edges of can-heads consisting of a feed-table, a reservoir contiguous thereto containing the coating material, means for revolving the reservoir, a pair of rollers between which the periphery of the can-head is presented, guides 130 by which the can-head is retained in position

therein while revolving to present its entire periphery, and means whereby the coating material is delivered from the reservoir to one of the rollers.

5 4. A device for coating the peripheral edges of can-heads consisting of an annular reservoir and means for revolving about a vertical axis, a feed-table and guide contiguous to the periphery of said reservoir, one or more pairs  
10 of rollers carried in unison with the reservoir, guides by which the can-heads are presented with their peripheral edges between the rollers, and means for transferring the coating material from the reservoir to one of  
15 the rollers.

5 5. A means for coating the flanges of can-heads comprising a roller upon which the flange of a head is adapted to rest, and by which the coating is applied thereto, a horizontally-revoluble reservoir in which the coating material is contained, a second roller adapted to impinge on the side of the flange opposite to the first roller, and means by which these rollers and the head are revolved.

25 6. A means for coating the flanges of can-heads comprising a horizontally-revoluble reservoir, a roller adapted to dip into the coating material within the reservoir, a distributing-roller therefor, a third roller between  
30 which and the distributing-roller a can-head flange is adapted to be held, and means whereby these rollers and the can-head are made to revolve.

35 7. In a can-head-coating machine, the combination of a reservoir, a lever carrying at one end a roller adapted to dip into the coating material, a second or feed roller revoluble in the plane of the first roller, a third  
40 roller carried at the end of a lever-arm and which is adapted to impinge upon the side of the flange opposite to the second-named roller, connections whereby the two first-mentioned rollers are raised simultaneously with the downward movement of the third roller, and  
45 means by which the rollers and the can-head are revolved.

50 8. In a can-head-coating machine, the combination with a reservoir of a forked guide carrying rollers at the end of its two members and against which the edge of a can-head is to be pressed, oppositely-disposed rollers between which the flange of the can-head is adapted to be held and revolved, and a third or feed roller in a plane and revoluble with  
55 the lowermost of these rollers.

9. In a can-head-coating machine, the combination of a reservoir, a forked guide transversely disposed above this reservoir and having rollers against which the edge of a can-head may be pressed and held in position, an  
60 arm carrying a roller which is adapted to rest upon the upper side of the flange of a can-head, a lever carrying at one end a roller which is adapted to support the opposite side of the flange by which the coating material is applied thereto, connections between said  
65 arm and lever whereby said downward move-

ment of the former as the impinging roller is brought upon the can-head flange, causes the roller upon the lever to be raised and the can-head firmly held between said rollers, and means whereby these rollers and the can-head are revolved.

10. The combination in a can-head-coating machine of a vertical shaft, an annular reservoir revoluble about said shaft, one or more  
75 pairs of rollers carried in unison with the reservoir, guides by which the can-heads are presented with their peripheral edges between the rollers, the lower roller of each of said pairs carried at the end of a lever, and adapted to apply the coating to the can-head, the upper roller of each of said pairs carried upon a pivoted arm, an annular cam upon which these upper rollers are adapted to  
80 travel, and by which these upper rollers are made to impinge upon the edge of the can-head, and means whereby the lower rollers are raised simultaneously and made to bear upon the under side of the heads.

11. In an automatic can-head-coating machine, the combination of an annular reservoir revoluble about a vertical axis, one or more pairs of rollers carried in unison upon the reservoir, a forked guide, in conjunction  
85 with each of said pairs of rollers, by which the peripheral edges of the can-heads are supported between the rollers, means by which these rollers are made to impinge upon opposite sides of the flange of the can-head, and  
90 by which the rollers and the head are revolved, and means whereby the head is released from the rollers.

12. In an automatic can-head-coating machine, the combination with an annular reservoir revoluble about a vertical axis, one or more pairs of rollers carried in unison upon the reservoir, forked guides by which the can-heads are supported with their peripheral edges between the rollers, means for  
105 holding the heads between the rollers and applying the coating to the periphery of the head, said forked guides slidable radially of the reservoir and each having a cam extension adapted to engage a fixed projection in the revolution of the reservoir, causing the fork to move outwardly and carry the head from between the rollers.

13. In a device for coating the peripheral edges of can-heads, an annular reservoir revoluble about a vertical axis, rollers carried thereon between which the edges of the can-heads are presented and revolved, and by which the coating is applied to the heads, guides by which the can-heads are retained  
115 in position between the rollers, said guides movable radially of the reservoir, means by which the pressure of the rollers on the heads is relieved, means by which the radial guides are made to move outwardly, carrying the heads from between the rollers, and a guide whereby the can-heads are delivered into a  
120 flouring-trough.

14. The combination in a device for coat-

ing the peripheral edges of can-heads, of a horizontally-revoluble reservoir adapted to contain the coating material, a revoluble can-head carrier, means for distributing the coating material from the reservoir to the can-heads, and a means for flouring or dusting said coating, said means consisting of a trough into which the can-heads are delivered in a vertical position, and through which the heads are made to travel on edge, and to present their entire periphery to the action of said flouring.

15. The combination in a device for coating the peripheral edges of can-heads, of a horizontally-revoluble reservoir adapted to contain the coating material, a revoluble can-head carrier, means for distributing the coating material from the reservoir to the can-heads, and a trough into which the heads after they have been coated are delivered in a vertical position, guides by which the heads are maintained in such vertical position, and means whereby the heads upon their edges are made to travel through this trough.

16. The combination in a device for coating the peripheral edges of can-heads of a flouring-trough into which the heads are delivered after they have been coated, guides whereby these heads are directed into a vertical position, and maintained in that position, an endless carrier above and parallel with said trough and against which the edges of the heads rest and whereby they are carried through the trough and means whereby the flouring material is delivered into said trough.

17. In a device for coating the peripheries of can-heads, a means for flouring said heads consisting of a trough, containing the flouring material, an endless carrier having scoops projecting into the trough whereby the flouring material is delivered thereto, a second endless carrier parallel with and above said trough whereby the coated can-heads delivered into said trough in a vertical position are made to revolve and travel through said trough.

18. An automatic can-head-coating ma-

chine consisting in the combination of an annular reservoir revoluble about a vertical axis, a segmentally-divided cover for said reservoir, a plurality of pivoted arms carrying impinging rollers, an annular cam upon which these rollers travel, means by which these rollers are held in contact with said cam, a plurality of distributing-rollers, each arranged below and in the same plane with a corresponding impinging roller, said distributing-rollers carried at the end of centrally-fulcrumed levers, a feed-roller tangential with each of said distributing-rollers, and by which the coating material is delivered to these distributing-rollers, means whereby the peripheries of can-heads are presented between the pairs of said impinging and distributing rollers, guides slidable radially of the reservoir by which the heads are retained in position between the rollers, a pin carried by each guide and adapted by a downward movement of an arm carrying an impinging roller to actuate a lever carrying a corresponding distributing-roller whereby the can-head is grasped and revolved between these rollers, means by which this pressure is released, and the radial guides moved outward, a fixed guide whereby the heads are delivered into a runway having a narrowed throat whereby the heads are turned from a horizontal to a vertical position, a trough containing flouring material, scoops adapted to travel through said trough, said scoops having a cut-out portion whereby the flouring material is forced to one side of the trough, and against the peripheries of the can-heads, horizontal guides by which the heads are retained in vertical position in said trough, an endless carrier adapted to rest upon the peripheries of the heads, and whereby said heads are made to travel through the trough, and means by which the heads are delivered from the machine.

In witness whereof I have hereunto set my hand.

ANDREW W. LIVINGSTON.

Witnesses:

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