

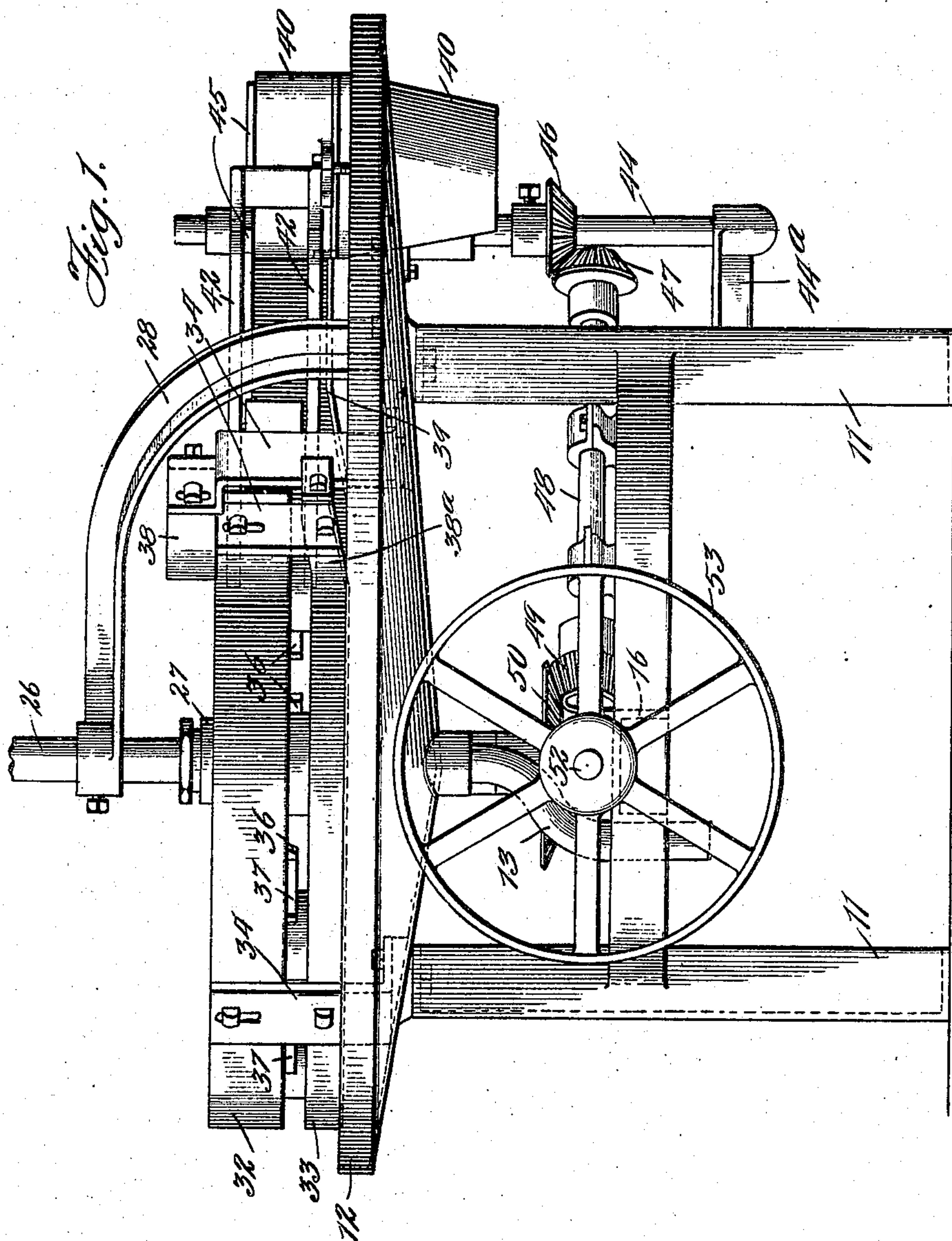
No. 885,849.

PATENTED APR. 28, 1908.

J. M. C. JONES.
MACHINE FOR CLEANING CANS.

APPLICATION FILED NOV. 11, 1907.

6 SHEETS—SHEET 1.



Witnesses:
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 William H. DeBuck

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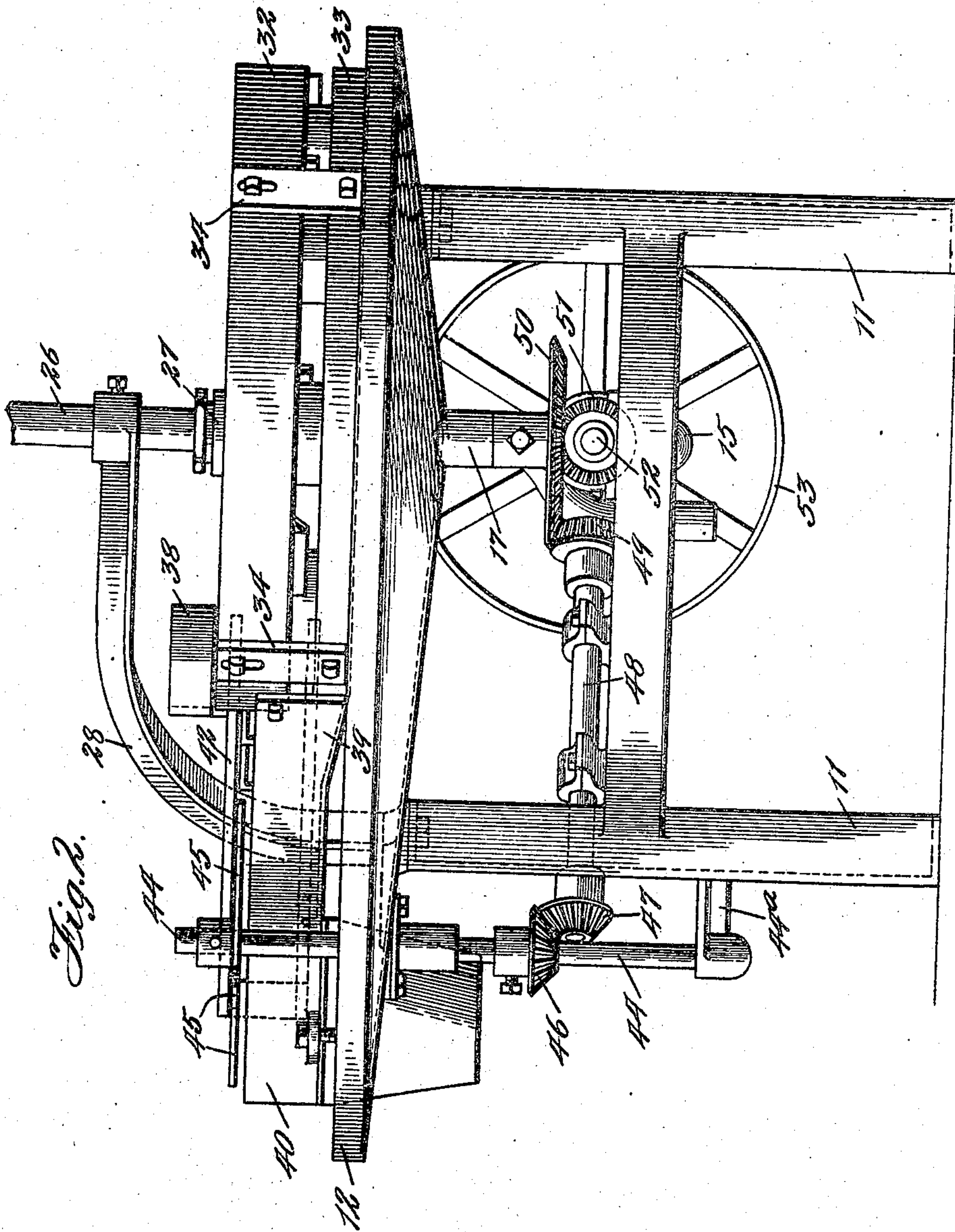
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6 SHEETS—SHEET 2.



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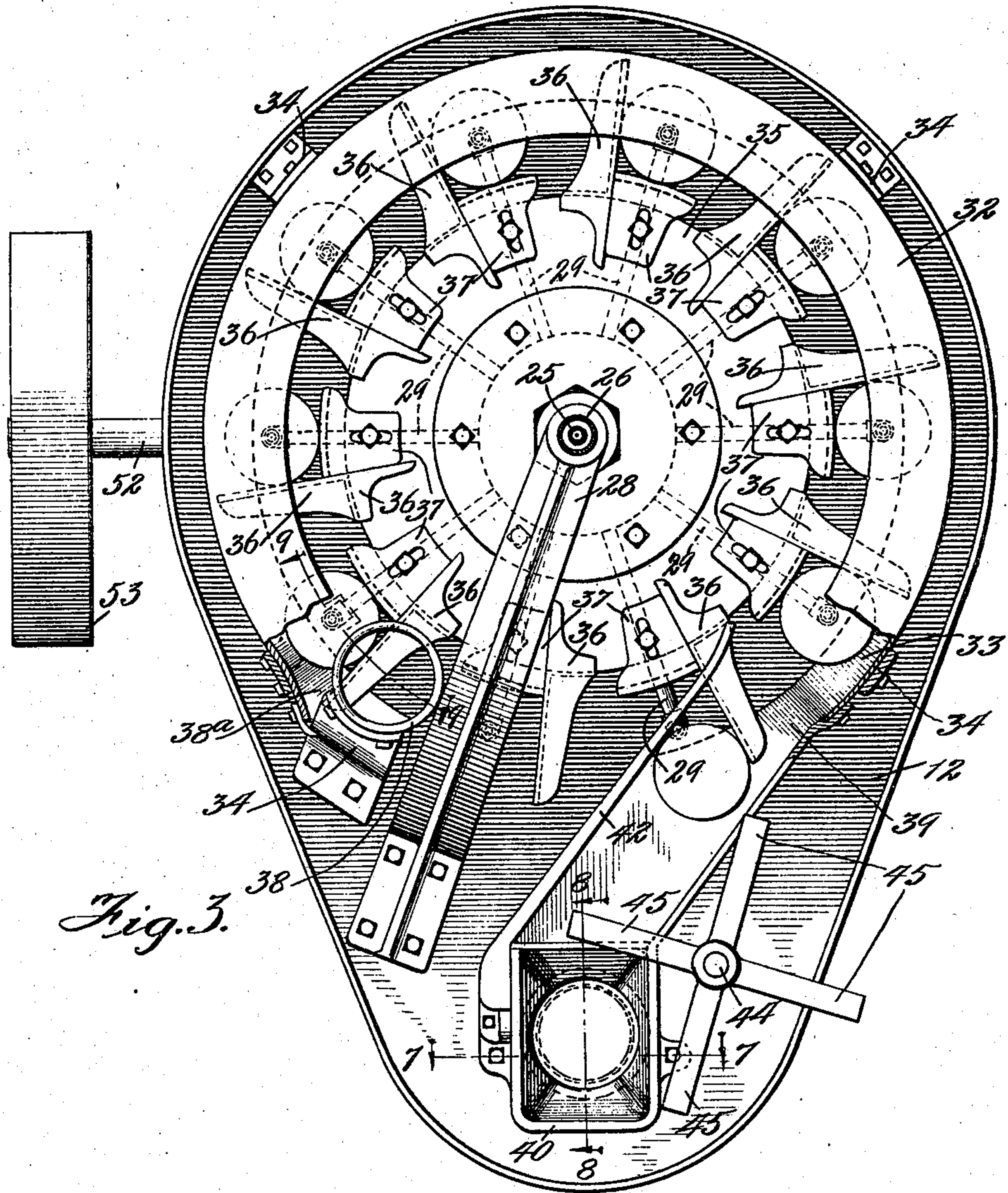
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6 SHEETS—SHEET 3.



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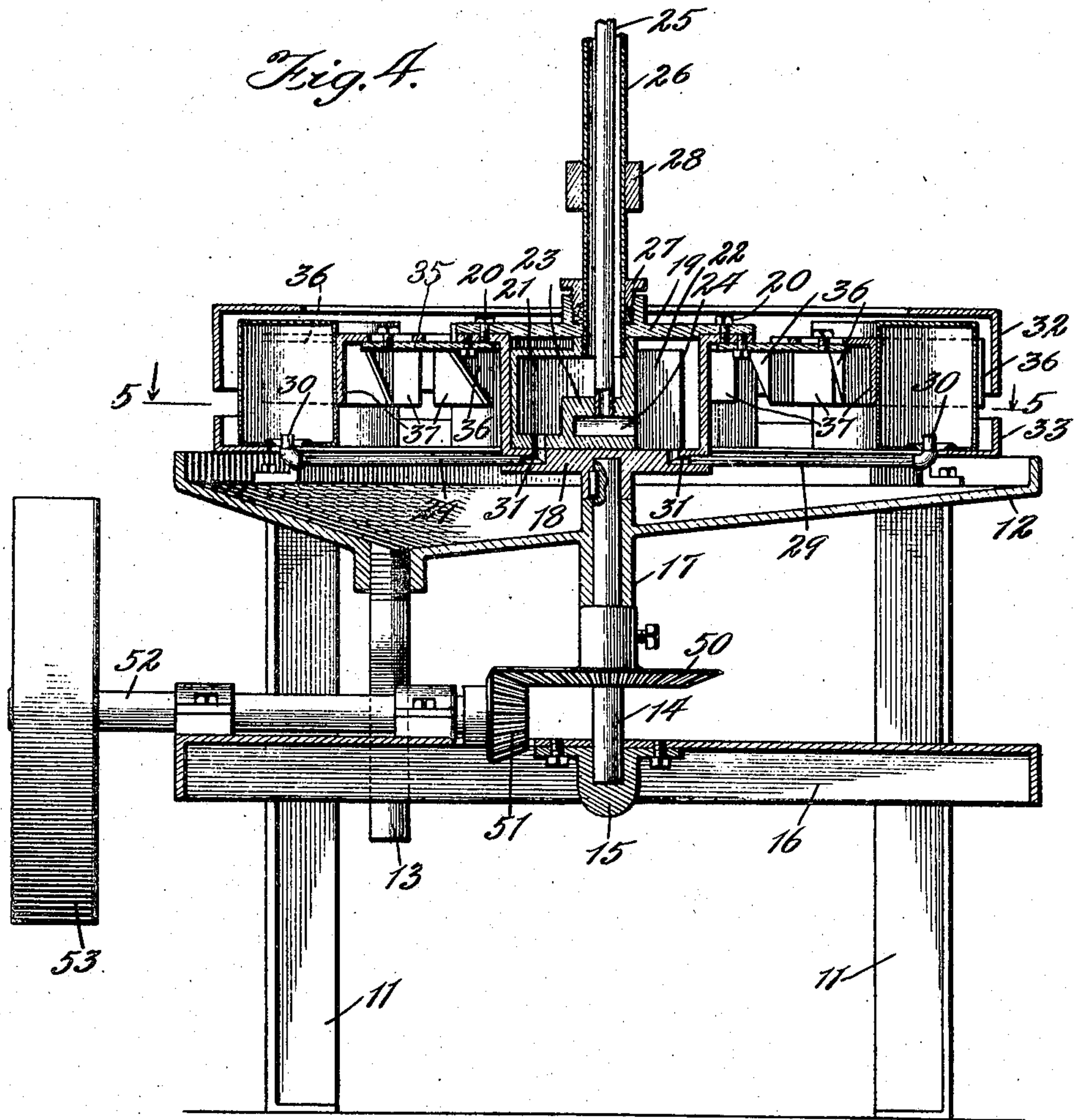
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6 SHEETS—SHEET 5.

Fig. 5.

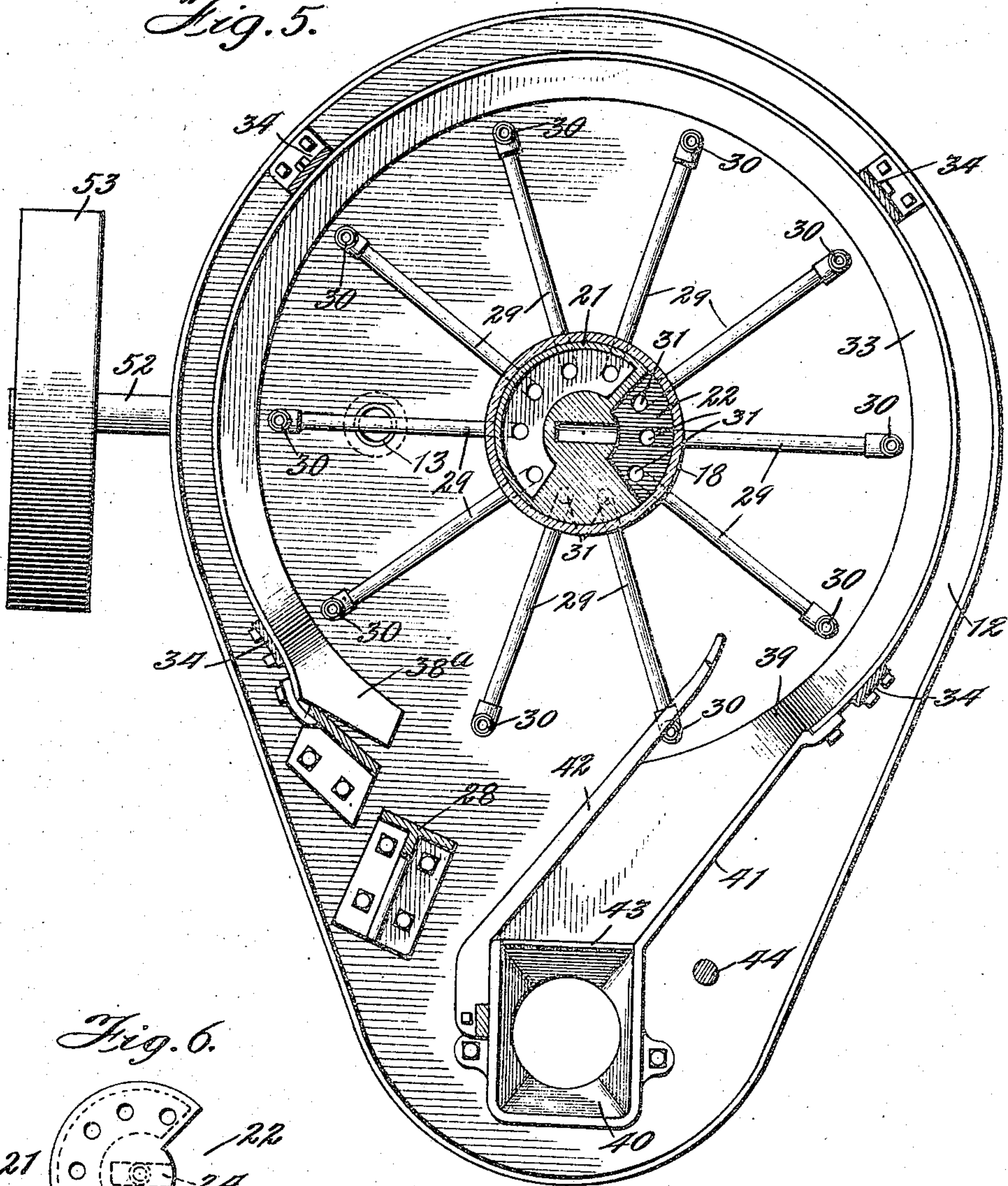
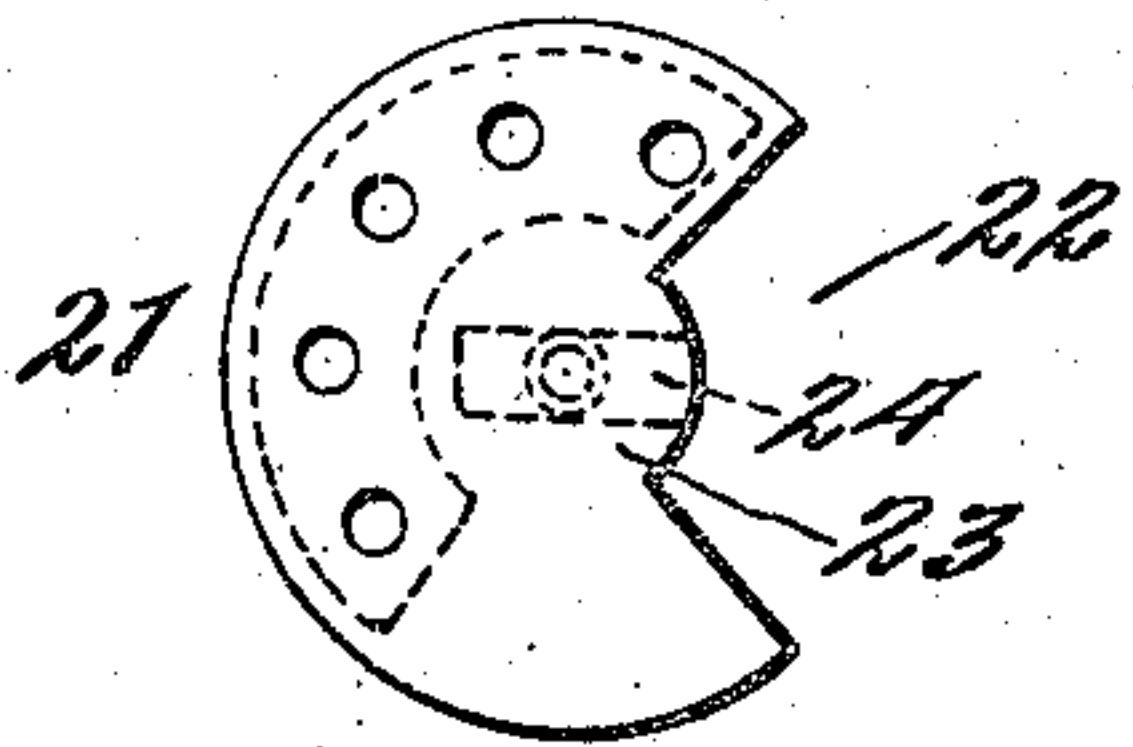


Fig. 6.



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6 SHEETS—SHEET 6.

Fig. 7.

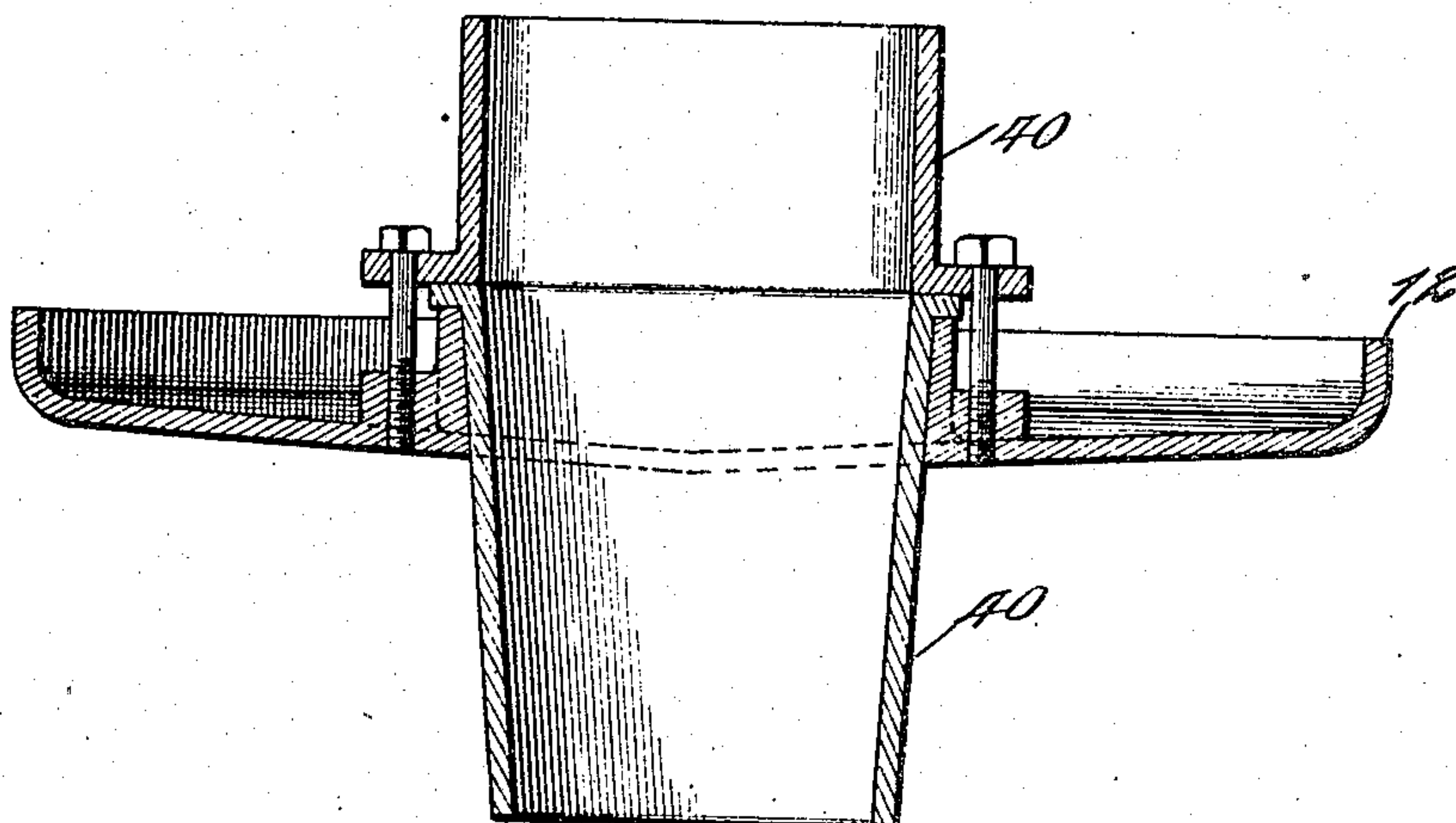


Fig. 8.

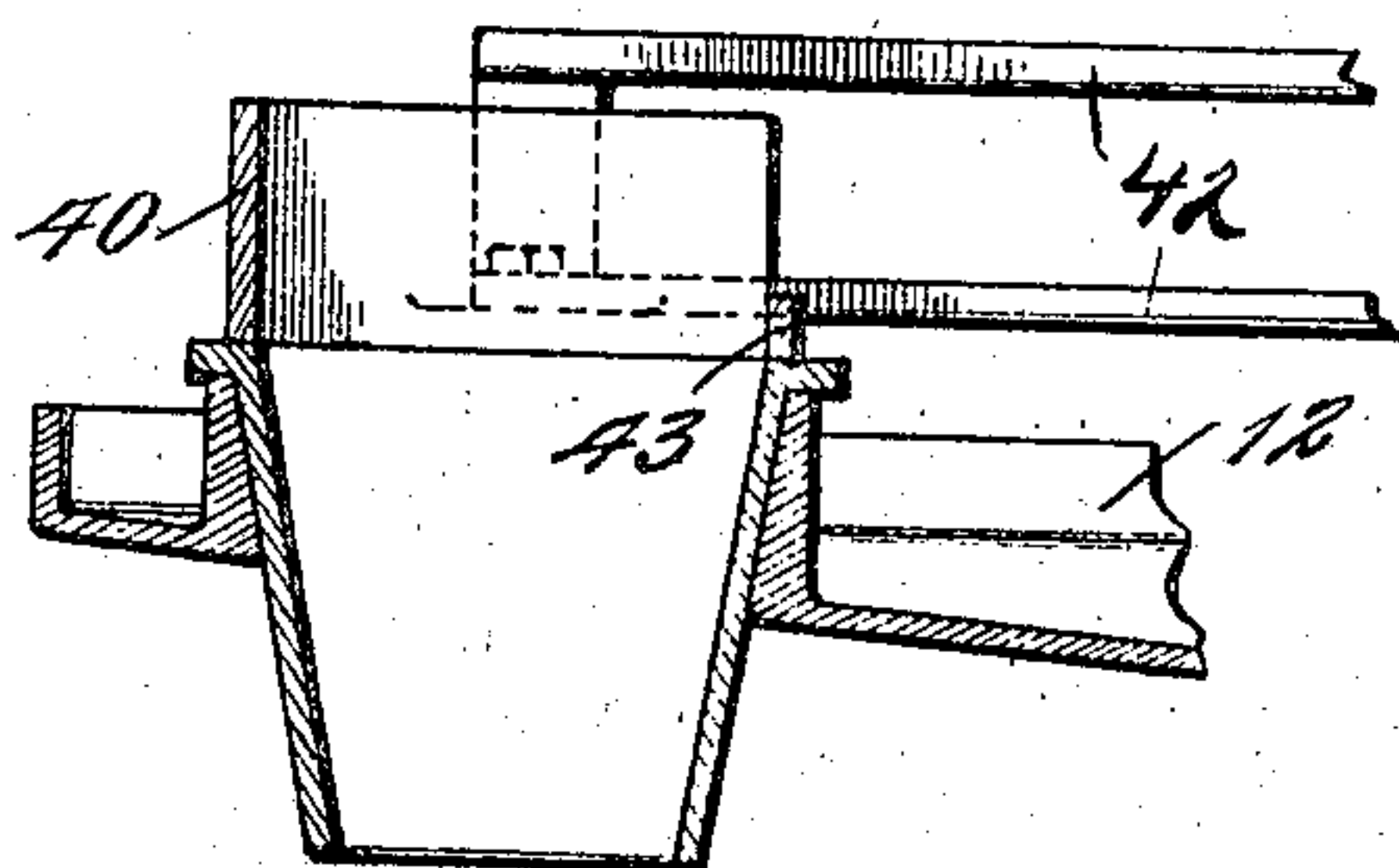


Fig. 10.

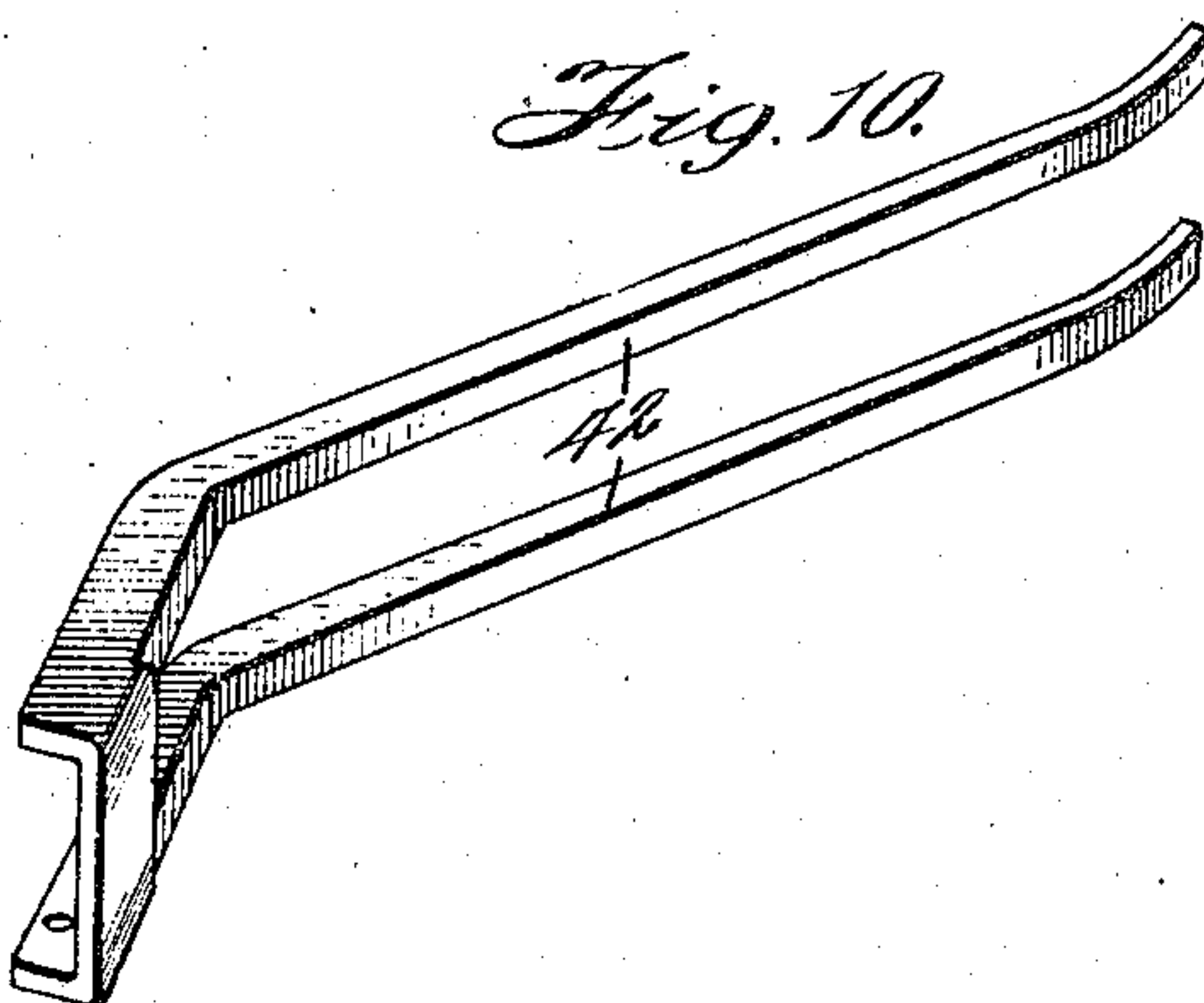
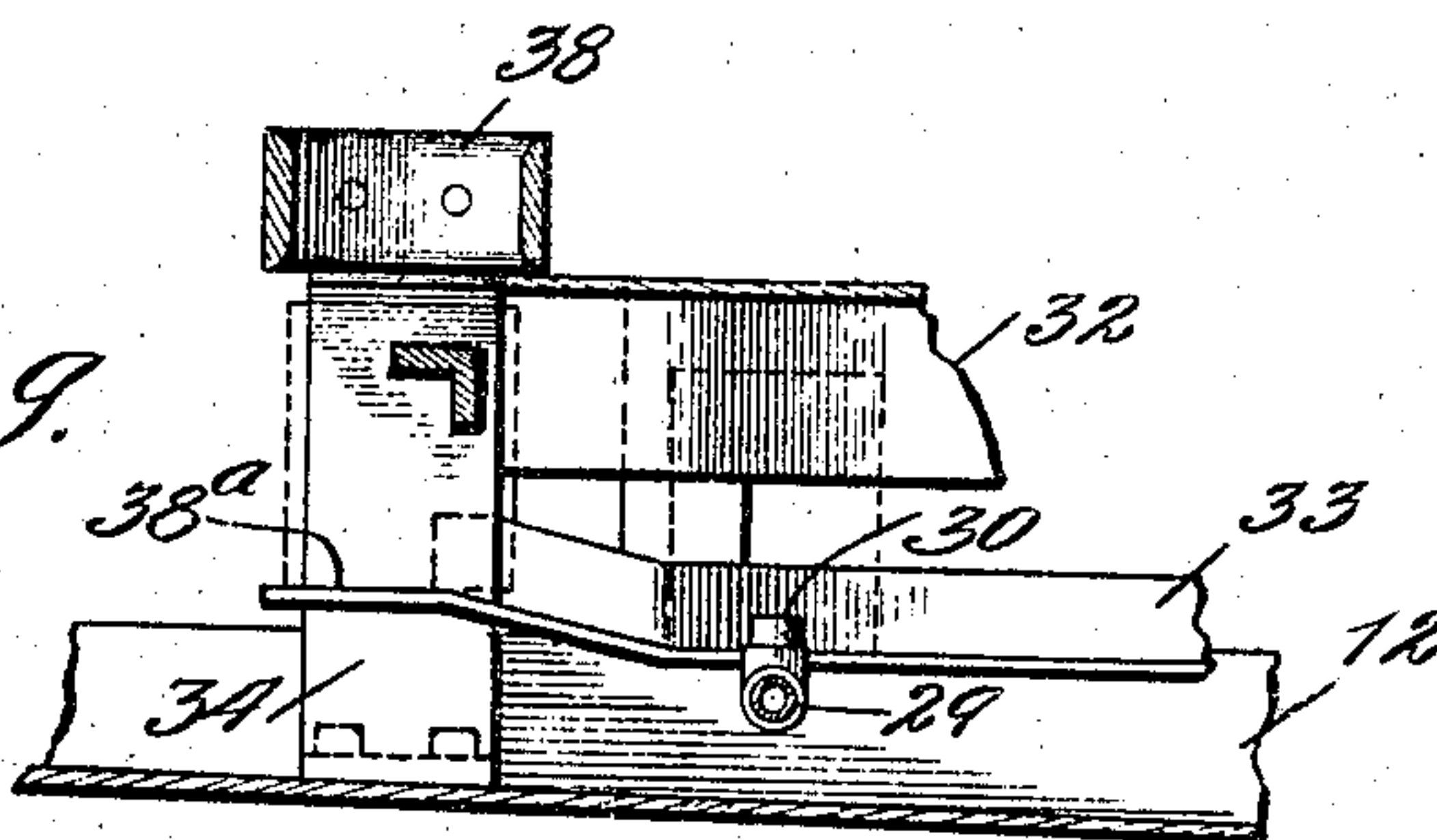


Fig. 9.



Witnesses:

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UNITED STATES PATENT OFFICE.

JOHN M. C. JONES, OF GIBSON CITY, ILLINOIS.

MACHINE FOR CLEANING CANS.

No. 885,849.

Specification of Letters Patent.

Patented April 28, 1908.

Application filed November 11, 1907. Serial No. 401,752.

To all whom it may concern:

Be it known that I, JOHN M. C. JONES, a citizen of the United States, residing at Gibson City, in the county of Ford, State of Illinois, have invented certain new and useful Improvements in Machines for Cleaning Cans, of which the following is a specification, reference being had to the accompanying drawings.

10 This invention relates to improvements in machinery for cleaning the interior of cans preparatory to filling the cans with articles of food or other material, and has for its object to provide means for forcing into the can
15 a stream of water and continuing such stream for a long enough period to insure the removal of practically all foreign matter that may be contained therein, and thereafter subjecting the can to the action of steam for
20 a period long enough to insure the can emerging from the machine thoroughly cleaned and sterilized and ready to receive food material or other articles that must be packed in clean receptacles.

25 It is further an object of my invention to have these operations performed automatically and while the can is moving through the machine, and to so construct the machine that one or more cans will be acted
30 upon by the water while other cans that have passed through the washing process are being subjected to the action of steam.

I accomplish these objects by the devices and combinations of devices illustrated in
35 the drawings and hereinafter specifically described.

That which I believe to be new will be pointed out in the claims.

40 In the drawings:—Figure 1 is a side elevation of my improved machine; Fig. 2 is a similar view taken from the opposite side of the machine; Fig. 3 is a top or plan view, the upper member of the can guide being partly broken away; Fig. 4 is a vertical central section through the machine; Fig. 5 is a horizontal section taken at line 5—5 of Fig. 4;
45 Fig. 6 is a plan view of the valve that regulates the flow of both water and steam to the cans; Fig. 7 is an enlarged detail, being a cross-section taken at line 7—7 of Fig. 3;
50 Fig. 8 is a detail, being a cross-section taken at line 8—8 of Fig. 3; Fig. 9 is a detail, being a cross-section taken at line 9—9 of Fig. 3; and Fig. 10 is a detail, being a perspective

view of the switch that deflects the cleaned
55 cans from the can guide to the discharge chute.

Referring to the several figures of the drawings, in which corresponding parts are indicated by like reference numerals, 11 indicates the supporting legs of the machine,
60 upon which is supported a bed-plate 12, said bed-plate being, as clearly shown in Fig. 4, somewhat inclined in order that the water used in cleaning the cans may readily run off.
65 At the lowest point in the bed-plate, is secured a drain-pipe 13 to carry away the wash-water. The edge of the bed-plate is turned up to form a vertical flange, in the construction shown.
70

14 indicates a vertically-disposed shaft, the lower end of which is stepped in a suitable bearing 15, which is secured to a cross-bar 16 that in turn is secured to the supporting legs 11. This shaft 14 has a bearing in
75 a long sleeve 17 that, in the construction shown, is formed integral with the inclined bed-plate 12.

18 indicates a steam chest, cylindrical in shape, that is keyed or otherwise firmly secured to the upper end of the vertical shaft 14 so as to turn with said shaft.
80

19 indicates a cover fitting over the upper end of the steam chest 18, and, in the construction shown, is secured in place by bolts
85 20 passing through such cover and also through a wide horizontal flange formed at the upper end of said steam chest.

21 indicates a hollow valve fitted within the steam chest 18. This valve, as best
90 shown in Figs. 5 and 6, has its outer wall of a shape to correspond with the shape of the cylindrical steam chest, but is not wholly cylindrical, as there is a segmental-shaped space, indicated by 22, always left in the steam
95 chest that is adapted to contain steam, the chamber in the valve itself being adapted to contain water.

At its central portion,—or, to be more exact, what would be its central portion if the
100 valve were wholly cylindrical,—the valve is provided with a hub portion 23, in which is bored a short passage 24 closed at its inner end and at its outer end communicating with the interior of the steam chest.
105

25 indicates a pipe the lower end of which is secured in the hub portion 23 of the valve so that said pipe communicates with the

cross passage 24, as best shown in Fig. 4. 26 indicates another and larger pipe surrounding the steam-pipe 25, this larger pipe passing down through an opening in the cover 19 of the steam chest and being secured in the upper wall of the steam chest. This pipe 26 also passes through a stuffing box 27 secured on the cover 19. The pipe 26 is adapted to convey water to the interior of the hollow valve 21. It will be understood that the steam pipe 25 and water-pipe 26 will be connected at their outer ends to suitable sources of supply for the steam and water respectively.

28 indicates a curved arm, secured in any suitable manner at its lower end to the bed-plate of the machine and at its upper end acting to suitably support the water-pipe 26.

29 indicates a series of short pipes located at equal distances apart and extending radially from the rotatable steam chest 18, and each provided, on its outer end, with an upturned nipple 30. The inner end of each of these pipes 29 is inserted and securely held in one of a series of openings 31 in the bottom plate of the rotatable steam chest 18, each of these openings 31 communicating, as clearly shown in Fig. 4, with the interior of said steam chest. Through these openings 31, pipes 29, and nipples 30, water and steam are successively forced, as hereinafter explained.

32 and 33 are the upper and lower members, respectively, of a guide for the cans to be operated upon, each guide consisting, in the construction shown, of an angle-iron, and the guide, as a whole, being annular in shape. The two members of the can guide are held in proper relation to each other by strips 34, some of which may, as best shown in Fig. 1, be turned and secured at their outer ends to the bed-plate of the machine. The strips, as shown, are slotted so as to permit the upper member 32 to be moved farther from or nearer to the lower member to accommodate cans of different heights.

35 (see Figs. 3 and 4) is an annular plate bolted or otherwise secured to the wide flange at the upper end of the steam chest 18; which plate has suitably attached to it a series of radially-disposed arms 36 which are disposed equally distant from each other and are for the purpose of advancing the cans through the machine, as hereinafter explained.

37 indicates a series of adjustable blocks secured on and projecting from the annular plate 35, one of such blocks being provided in advance of each arm 36 and located so as to come directly opposite the cans engaged by such arms. These blocks are adjustable by reason of being slotted, as shown clearly in Figs. 3 and 4, through which slots pass bolts to secure them in any desired position. They are made adjustable to accommodate themselves to cans of different diameters.

The object of these blocks is to keep the cans in proper position with respect to the discharge ends of the pipes 29.

38 indicates a ring or collar mounted over the can guide 32—33, and constituting a guiding means through which cans are successively placed by hand into the machine, the upper member 32 of the can guide of course not extending beneath this ring or collar, whereas, as clearly shown in Fig. 5, the lower member 33 does so extend and receives upon it the end of a can inserted through such ring or collar. The ring or collar is supported upon one of the strips 34 before mentioned. As best shown in Fig. 9 (see also Figs. 1 and 3), the lower member 33 of the can guide is raised at that point where it comes beneath the ring or collar 38, this raised portion being indicated by 38^a, it being elevated so that it is slightly higher than the upturned ends of the discharge nipples 30. This is to prevent the side of the can being engaged by such upturned nipples as the pipes 29 rotate with the steam chest 18. Again it will be noted that at the points marked 39 (see Figs. 2 and 5) the can guide member 33 is again raised, and this is for the purpose of raising them out of engagement with the upturned nipples 30 that they have been engaged with while passing through the machine. The raised portion 39 is made in the can guide at a point near the discharge end of the machine.

40 indicates the discharge chute secured to and projecting both above and below the bed-plate of the machine. Formed integral with it, in the construction shown, is a wall 41, the inner end of which is bolted to the upturned flange of the angle iron lower member 33 of the can guide.

42 indicates a switch suitably secured to one of the side walls of the upper portion of the chute 40, said switch consisting, in the construction shown, of two curved fingers (see Fig. 10) which extend inwardly and against which the cleaned cans come as they are raised from the nipples 30 by passing up the inclined portion 39 of the can guide. The switch 42 deflects the moving cans toward the chute 40. It will be noted that the chute 40 has that one of its walls that lies in the path of the cans moving toward it cut away (see Fig. 8) so as to leave but a small ledge 43, against which the cans are moved; and, as the lower ends of the cans strike this ledge, they will be turned end for end, so that when they pass down the chute the open filling ends, which heretofore have been downward, will be uppermost, so that upon emerging from the chute they will be in proper position, without further handling, to be immediately filled.

I have spoken of the cans being moved toward the chute after having been lifted out of contact with the nipples 30, and this mov-

ing of the cans toward the chute is accomplished by a rotating device mounted on the upper end of a shaft 44 which is stepped at its lower end in a suitable bearing in a bracket 44^a. This rotating device, in the construction shown, consists of two cross arms 45 which successively engage the cans and move them forward. The shaft 44, on which these arms 45 are secured, has secured upon it a bevel gear 46 which meshes with another bevel gear 47 fast on the end of a shaft 48, such shaft being driven through the meshing of another bevel gear 49 upon its inner end with a large bevel gear 50 secured upon the vertical shaft 14. The bevel gear 50 meshes with another bevel gear 51 fast on the end of the main drive shaft 52, on which is mounted a driving pulley 53.

In operation, with the parts assembled as shown, the steam chest 18 will be rotated at a constant speed, carrying with it, of course, the radially-disposed pipes 29 and the other parts affixed thereto. The valve in said steam chest, and the steam and water pipes 25 and 26 will remain stationary. While the machine is in motion, the operator will successively drop cans through the ring or collar 38, the upper ends of the cans being fed in downward, and with the usual opening therein left open or uncapped. The can thus fed in will fall upon the raised portion 38^a and will therefore not be liable to have one of the upturned nipples come in contact with it and move it. The can thus dropped will not be moved until one of the arms 36 is brought against it. Such arm 36, coming in contact with it, will move it along so that it will pass down from the raised portion of the lower member 33 of the can guide onto the horizontal portion of such member. As it comes down to such horizontal portion, the upturned nipples 30 of the pipe that is immediately in front of the arm that is engaging the can will enter the opening in the end of the can.

By reference to Figs. 5 and 6, it will be seen that the valve 21 has in its base a series of openings communicating with the interior of the valve and which are adapted to be brought successively into communication with the openings 31 in the base of the steam chest. It will also be noted that there is quite a wide portion of the base of the valve that is blank or unprovided with any openings such as those just referred to. Now at the time that the can is first placed in the machine as described, there will be, in the construction shown, two or possibly three of the pipes 29 that are cut off from communication with the interior of the valve or the interior of the steam chest, such cutting off being by reason of the steam chest rotating so as to bring said blank portion of the valve over the openings 31 in which those particular two or three pipes are secured. Imme-

diately, however, upon a can descending from the raised part 38^a onto the horizontal portion of the guide 33, the pipe 29 whose nipple 30 projects within the can will have been moved past the blank portion of the valve and brought into communication with the interior of the valve. This will be clearly understood by referring to Fig. 5 particularly. As soon as such pipe is so brought into communication with the interior of the valve, water, which is being forced through the pipe 26 into the valve, will pass through such pipe 29 and be discharged with considerable force into the can with which such pipe communicates. This discharge of water into that can will, in the construction shown, be in the form of a series of jets or of brief discharges as the openings in the bottom of the valve are successively passed, and will continue until the steam chest has rotated sufficiently to bring the nipple of that pipe out of communication with the interior of the valve and into communication with the space or chamber 22 in the steam chest. This space or chamber 22 is kept constantly filled with steam that passes down through the pipe 25 and through the lateral passage 20, and the result will be to force through the same pipe 29 a quantity of steam into the can. The flow of steam will continue until that pipe 29 is rotated to bring its particular opening 31 in the base of the steam chest under the blank space in the valve. Immediately upon passing under that blank space, the supply of steam is of course shut off, and this occurs just as the can is about to ascend the inclined or raised portion 39. Instead of the series of openings in the bottom of the valve there may of course be provided a single opening in the form of a long curved slot, and, in such event, instead of a succession of jets or brief discharges of water as in the construction shown, there would be a constant stream discharged through each pipe during the time that the pipe was in communication with such elongated opening. As before stated, the effect of the can passing up this raised or inclined portion 39 is to lift it sufficiently to disengage it entirely from the nipple 30. Upon being so raised and disengaged, the can is pushed forward and comes in contact with the switch 42 against which it is moved by the arm 36 that is immediately in its rear. As such arm passes on out of engagement with the can, the can will be in position to be engaged by the rotating device 45 which will move it forward toward the chute. The can will be stopped at the mouth of the chute by the low ledge 43, but, as the rotating device continues to move, it will cause the can to turn over and pass down the chute with its open end up, as before explained.

It will be understood that the machine is to be kept constantly filled with cans, and

that, while some of the cans are being subjected to the action of streams of water, other cans which have just been so treated will have been moved so as to receive steam from the steam chest. As a result of the cleansing by both water and steam, the cans will emerge from the machine effectually washed, and sterilized, and ready for use.

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

1. In a can cleaning machine, the combination with a stationary can support and means for moving a can thereon, of a pipe adapted to discharge into said can, means for successively forcing different cleaning fluids through said pipe into the can, and means for moving the can away from the pipe near the end of the movement of the can on said support.

2. In a can cleaning machine, the combination with a stationary can support and means for moving a can thereon, of a traveling pipe adapted to discharge into said can, means for successively forcing different cleaning fluids through said pipe into the can, and means for moving the can away from the pipe near the end of the movement of the can on said support.

3. In a can cleaning machine, the combination with a rotating member, and a pipe projecting therefrom and rotating therewith, of a guide upon which a can is adapted to travel, means for moving said can on said guide, and means for successively forcing water and steam through said pipe into said can.

4. In a can-cleaning machine, the combination with a stationary can support and means for moving a can thereon, of a pipe adapted to discharge into said can, and means for successively forcing different cleaning fluids through said pipe into the can while said can is being moved, said can support having a raised portion near one end adapted when the can passes over it to move the can away from said pipe.

5. In a can cleaning machine, the combination with a rotatable chest and means for rotating the same, of a hollow valve in said chest, means for supplying steam and water to said chest and valve respectively, a pipe communicating with and projecting from said chest and adapted upon the rotation of said chest to be successively supplied with water and steam from said valve and chest respectively, an annular guide surrounding said chest and pipe, and means for movably retaining a can on said guide in communication with said pipe so that it will receive the water and steam that successively issue from said pipe.

6. In a can cleaning machine, the combination with a rotatable chest and means for rotating the same, of a hollow valve in said chest, means for supplying steam and

water to said chest and valve respectively, a pipe communicating with and projecting from said chest and adapted upon the rotation of said chest to be successively supplied with water and steam from said valve and chest respectively, an annular guide surrounding said chest and pipe, means for movably retaining a can on said guide in communication with said pipe so that it will receive the water and steam that successively issue from said pipe, and means for moving the can away from said pipe and other means for shutting off the flow of fluid through said pipe.

7. In a can-cleaning machine, the combination with a rotatable chest and means for rotating the same, of a hollow valve in said chest, two pipes arranged one within the other, one of said pipes communicating with the chest and the other with the valve, another pipe communicating with and projecting from said chest and adapted upon the rotation of the chest to be successively supplied with water and steam from said valve and chest, respectively, and means for movably retaining a can in position to receive the water and steam that successively issue from said last-named pipe.

8. In a can-cleaning machine, the combination with a rotatable chest and means for rotating the same, of a hollow valve in said chest, said valve having a passage through it leading into said chest, a pipe extending through the chest and secured to the valve and adapted to deliver a fluid through said passage into the chest, a second pipe communicating with the interior of the valve and adapted to deliver a fluid to the valve only, a third pipe communicating with and projecting from said chest and adapted upon the rotation of the chest to be successively supplied with water and steam from said valve and chest, respectively, and means for movably retaining a can in position to receive the water and steam that successively issue from said third pipe.

9. In a can cleaning machine, the combination with a rotatable chest having openings therethrough, and a valve in said chest adapted to successively cover and uncover said openings during the rotation of the chest, of a series of pipes carried by said chest and communicating therewith through said openings, means for movably supporting a series of cans opposite the outer ends of said pipes and with said ends projecting into said cans, means for supplying a fluid to said chest and to such of the pipes as have their connections with the interior of the chest uncovered by said valve, and means for moving the cans away from the pipes when the pipes are cut off from communication with the interior of the chest by said valve.

10. In a can cleaning machine, the combination with a rotatable chest having open-

ings therethrough, and a valve in said chest adapted to successively cover and uncover said openings during the rotation of the chest, of a series of pipes carried by said chest and communicating therewith through said openings, a curved guide adapted to retain cans thereon in position to be engaged by such of the pipes as are free to receive fluid from said chest, said guide having raised portions to hold the cans that are opposite the other pipes away from such other pipes, means for moving the cans on said guide and means for supplying a fluid to the chest and pipes.

11. In a can cleaning machine, the combination with a rotatable chest, means for supplying a fluid thereto, and a series of pipes communicating with the chest and projecting radially therefrom, of a curved stationary can support adapted to sustain and guide a series of cans opposite said pipes, and arms connected with said chest adapted to abut against the cans and move them on said stationary can support.

12. In a can cleaning machine, the combination with a rotatable chest, means for supplying a fluid thereto, and a series of pipes communicating with the chest and projecting radially therefrom, of a curved stationary can support adapted to sustain and guide a series of cans opposite said

pipes, arms connected with said chest adapted to abut against said cans and move them on said stationary can support, and blocks also connected with said chest and adjustable radially nearer to or farther from said chest.

13. In a can cleaning machine, the combination with a can guide adapted to movably support a series of cans, means for moving said cans along said support, a chute connected with said support, and means for turning the cans end for end as they approach the chute whereby each can will pass through the chute with that end uppermost which had previously rested on the said can support.

14. In a can cleaning machine, the combination with a can guide adapted to movably support a series of cans, means for moving said cans along said support, a chute connected with said support, an obstruction near the edge of the chute adapted to be contacted by the lower portion of each can, and means for turning each can over said obstruction to cause it to pass through the chute with that end uppermost which had previously rested on the said can support.

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Witnesses:

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