

No. 685,000.

Patented Oct. 22, 1901.

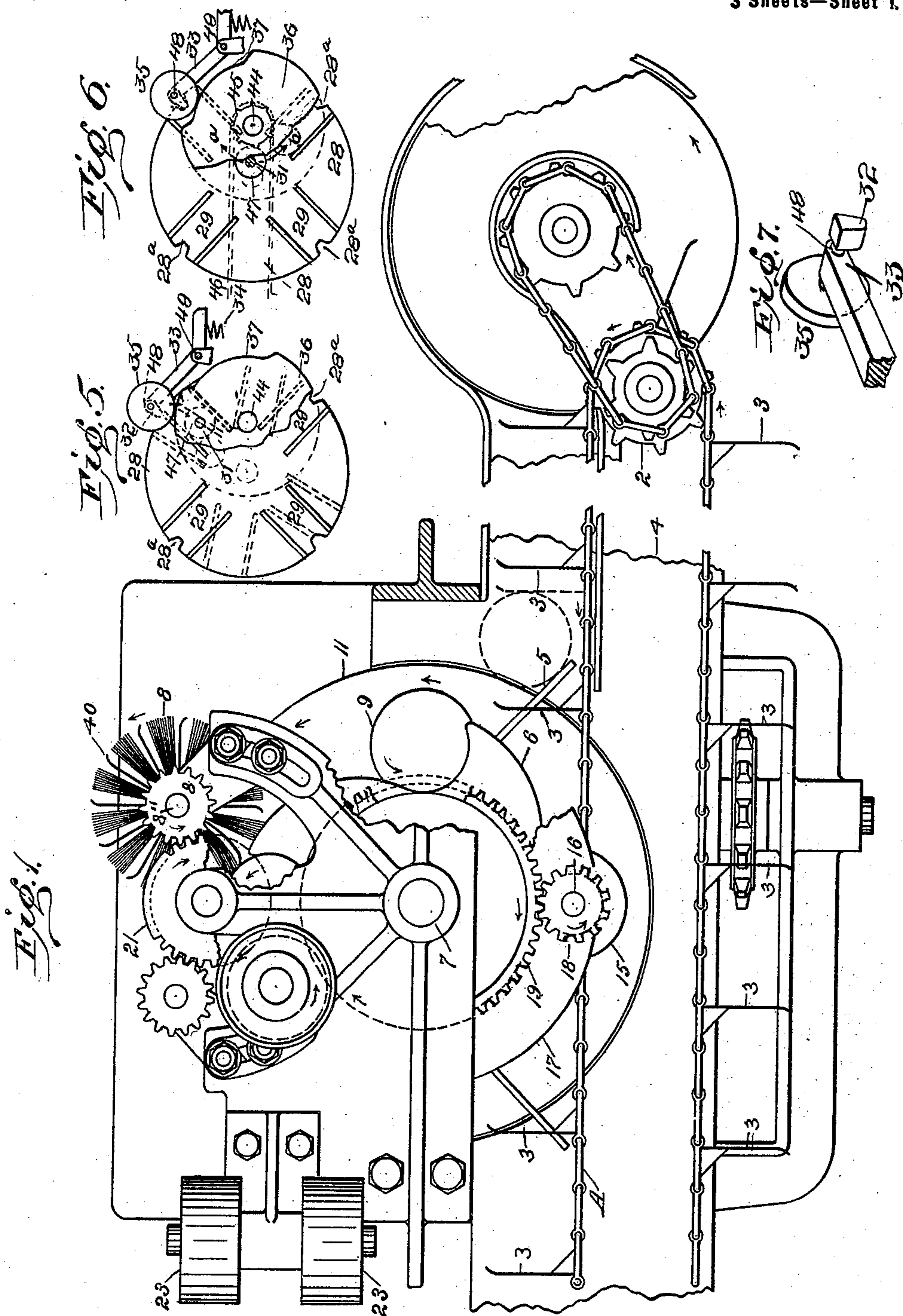
W. MUNN.

CAN CLEANING MACHINE.

(Application filed May 18, 1901.)

(No Model.)

3 Sheets—Sheet 1.



Witnesses,
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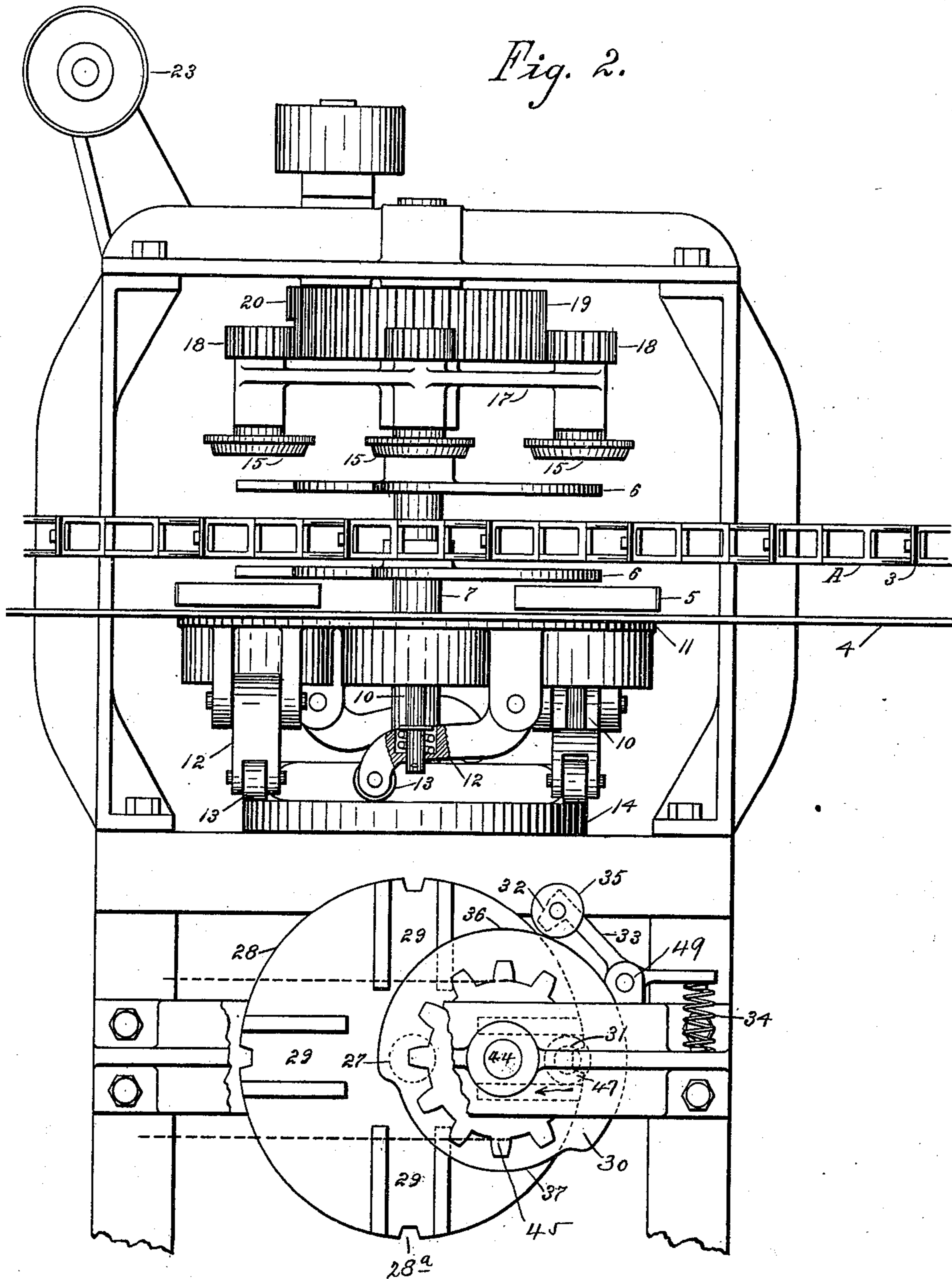
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3 Sheets—Sheet 2.



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Fig. 4.

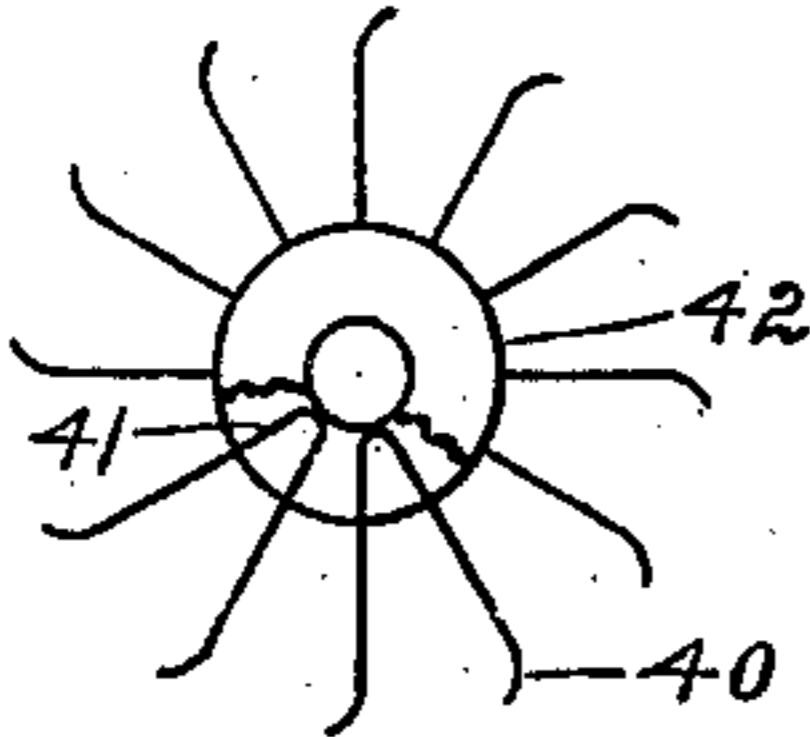
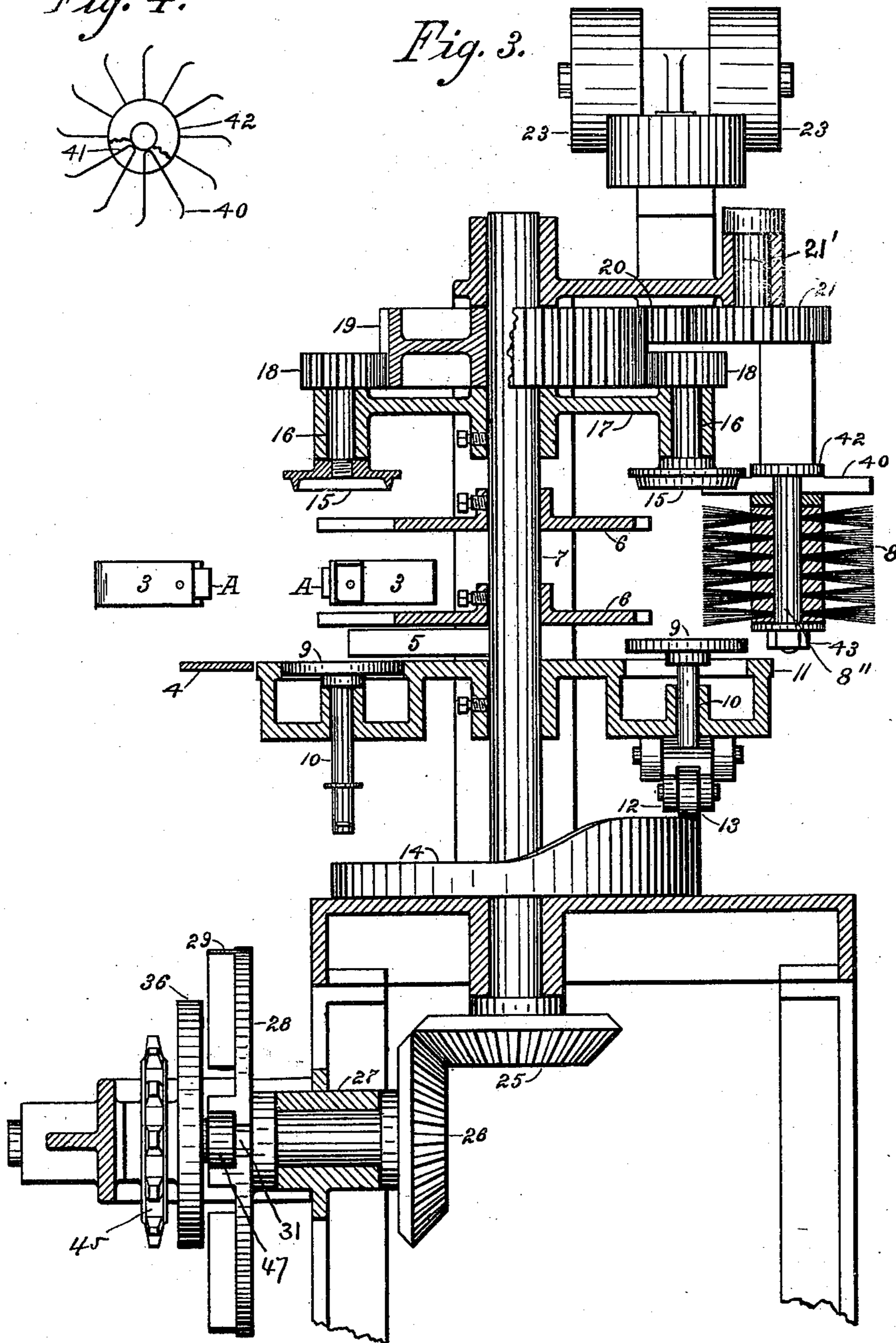


Fig. 3.



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UNITED STATES PATENT OFFICE.

WILLIAM MUNN, OF SAN FRANCISCO, CALIFORNIA, ASSIGNOR TO ALASKA PACKERS ASSOCIATION, OF SAN FRANCISCO, CALIFORNIA, A CORPORATION OF CALIFORNIA.

CAN-CLEANING MACHINE.

SPECIFICATION forming part of Letters Patent No. 685,000, dated October 22, 1901.

Application filed May 13, 1901. Serial No. 60,034. (No model.)

To all whom it may concern:

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

My invention relates to a machine which is designed for cleaning cans after they have been filled.

It consists in the mechanism by which the cans are transmitted to the cleaning apparatus, held momentarily in position while being cleaned, and then transmitted from the apparatus.

It also comprises details of construction which will be more fully explained by reference to the accompanying drawings, in which—

Figure 1 is a plan view of the machine. Fig. 2 is a front elevation of the same. Fig. 3 is a side elevation. Fig. 4 is a top view of one of the brushes. Figs. 5 and 6 are details showing the disk 28 and adjunctive parts and showing two positions of the roller 47. Fig. 7 is a detail of the end of the lever 33 and the roller 35 and pawl 32.

This invention is designed for the purpose of cleaning the outside of metal cans, such as are employed for containing fish or other alimentary substances or any material which it is customary to place in cans, so that the cans will be in condition to receive the heads or caps by which they are afterward closed, and the surfaces will be cleaned of any material which might cling or stick to them or of any oxidation which might interfere with the ready soldering of the caps after they have been placed in position.

I have in the present case illustrated and described my invention as applied to cans which are first filled with fish and afterward capped and soldered or hermetically sealed, and this apparatus is designed to be operated at some point intermediate between the filling and cap machines; but it will be manifest that the device could also be used independently of any other apparatus in cases where it would be desirable to do so.

A is an endless chain passing around sprocket-wheels, one of which is shown at 2, and this chain has projecting from it arms 3. The chain, with its arms, travels above a horizontal table 4, upon which the cans are delivered with the open ends upward, the cans being filled with the fish or other material preparatory to having the caps placed thereon. When the cans reach the point where they are to be delivered to the brushes or cleaners, they strike a directing device 5, which forces them out of the engagement of the arms 3, and they are then taken by the curved spiders 6, which are mounted and revoluble upon a vertically-disposed shaft 7, as plainly shown in Fig. 2. These spiders or carriers are revolved by suitable mechanism, to be hereinafter described, so that as each can arrives at the proper point one of these spiders will take the can and carry it around to the brushes 8. These brushes are mounted upon vertical spindles and are rapidly revolved, and the apparatus carrying the cans is momentarily stopped as each can arrives at the brushes. The cans are held between revoluble heads driven by gears, so that each can is rapidly revolved while passing around the circle and in contact with the brushes, and its outside is thus cleansed and polished. The apparatus is so disposed that after each can has been thus cleansed and polished the cans are carried around the remainder of the circle and discharged into the path of the traveling belt A, herein shown as of the endless-chain character, the arms 3 of which again take possession of the cans and carry them to the apparatus by which the caps are to be placed thereon or to the point of discharge, the cans being thus perfectly cleaned of any adherent substance and polished or brightened. As each can arrives at the directing device 5 it is delivered upon a vertically-moving table 9, having a spindle, as at 10. This table or support 9 fits in a suitable countersunk depression in the main turn-table 11, which carries the cans around to the brushes, and there are as many of these can-supporting tables 9 as there are curved can-receiving recesses in the spiders 6. The spindles 10 are moved vertically by means of fulcrumed levers 12, having

suitable antifriction-rollers 13, which travel upon the surface of a cam 14, this cam being located in a horizontal plane and having the upper edge formed with such a change of level that when the cans have been placed upon the surfaces 9 the higher portion of the cam 14 will arrive beneath the lever 12, which actuates the stem 10 of the table, and the table will thus be lifted. The upper open end of the can is then in line beneath a conically-shaped head 15, carried upon a spindle 16, which spindle is turnable through a turn-table 17, which is axial with the turn-table 11 below and turnable in unison therewith. The form of the cones 15 is such that they fit into the open heads of the cans, and there will be sufficient pressure exerted by the upward movement of the tables 9 to hold them firmly in place, and if any fish or other coherent contents of the can should happen to project over the edges the pressure is sufficient to cut it off. The cones 15 and spindles which carry them are revolved by pinions 18, fixed to the upper ends of the spindles 16, and these pinions engage with a central gear 19, by which they are revolved. The main gear 19 is driven from any suitable source of power. In the present case I have shown the driving-pinion, as at 20, intermeshing with the main gear 19, so as to revolve it, and through this the pinions 18 and the cones 15 are revolved. This pinion also intermeshes with the gear 21, mounted upon a shaft 21' and engaging with pinions 8' on the shafts 8'' of the brushes 8, so that the latter are also revolved in unison with the movements of the cans, and when the cans are brought around to the point where the brushes are located the latter, revolving at high speed, act to completely clean and brighten the surfaces of the cans. The belt passes around direction-pulleys 23 and around a pulley on top of the shaft which carries the pinion 20. This pinion 20 meshes with gear 19 and also with the intermediate gear 21. With the latter the pinions on the stems of the brushes mesh. This gives the brushes a reverse motion from that of the cans, as shown in Fig. 1. The gear 19 is mounted loosely upon shaft 7, and it as well as gear 21 and the brushes are supported from a frame extending over the top of the machine, Figs. 1 and 2. This frame is carried by legs extending up from the main stationary table, which supports the shaft 7, as shown in Fig. 2. The turn-table 17, which carries the heads 15 and pinions 18, is keyed to shaft 7. The turn-tables are carried upon the vertical shaft 7, this shaft having a bevel-pinion 25 fixed to it, and this pinion is driven by a pinion 26, mounted upon a horizontal shaft 27, through which power is derived. Upon the outer end of shaft 27 is a disk 28, having grooves 29 on its face placed at right angles one to the other. These grooves are carried toward the center only a certain distance, as shown in Fig. 2. Supported upon a bracket is a shaft 44, which carries a sprocket-

wheel 45, and an endless chain 46 gives motion to this wheel and its shaft. Mounted upon this shaft is a disk 36, having part of its periphery reduced, as at 37, and to its inner face is attached a pin 31, carrying a friction-roller 47. The latter is to travel in the grooves 29. The periphery of the disk 28 is also provided with notches 28^a, corresponding in number with the grooves. Pivoted to small lugs 49 is a lever 33, one arm of which is influenced by a spring 34, while the other arm carries a roller 35, which travels upon the periphery of disk 36, and upon the other end of the short shaft 48, Fig. 6, is formed a pawl 32 to drop into the notches 28^a.

The operation of this part is as follows: Starting from the position shown in Fig. 6 the roller 47 is traveling in one of the grooves 29 in the direction of the arrow, and is therefore moving the disk 28 along, turning pinions 26 and 25 and with it shaft 7, with all the parts connected with the latter. The roller 35 rests on the full portion of the disk 36, thereby keeping the pawl 32 suspended. Fig. 5 shows the roller 47 still traveling within the grooves until it reaches the position shown in dotted lines in same figure, from which it leaves the groove and travels through the open space the distance *a b* shown in sketch, Fig. 6, at the end of which a new groove has presented itself for the roller to enter and move the disk 28 again. Now as soon as the roller has entered the open space the disk 28 is freed from roller 47 and comes to a standstill. In the meantime the reduced part 37 of disk 36 has reached roller 35 and allows the pawl 32 to drop into the now-presented notch 28^a, thereby locking the disk 28 entirely. The length of this reduced portion is equal to the distance *a b*, Fig. 6, and this represents the time the cans are at a standstill to be cleaned. Shortly before roller 47 enters a groove again the full portion of 36 has lifted the pawl out of engagement to unlock the disk 28 for further advance. These stationary periods are so timed that during each of them a can is being acted upon by the brushes 8, as previously described, and when the traveling roller again engages with one of the channels the cans are advanced. This intermittent action provides a sufficient rate of speed for advancing the cans through the apparatus and at the same time allows each can to remain in contact with the revolving brushes a sufficient length of time to be properly cleaned. In order to insure the cans remaining at this point, the rim of the wheel 28 has notches formed in it at proper intervals, and the pawl 32, carried upon a lever 33, drops into one of these notches at the end of each advance of the wheel 28. This lever 33 is fulcrumed and has a spring 34, acting to press it down, so that when the wheel-rim arrives beneath the pawl the latter will be caused to engage with the notch and stop the wheel 28. In order to operate this properly, I have shown a roller 35, carried upon a shaft or arm in line with the pawl 32, and this

roller travels upon the ring of a cam-disk 36, which is revoluble in unison with the wheel 30, being mounted upon the same shaft. The cut-away or smaller portion 37 of the cam is so located that it arrives beneath the roller 35 just at the instant when the roller carried by the wheel 30 has passed through the channels 29 and has left the wheel 28. At this instant the dropping of the roller 33 upon the lower cut-away portion 37 of the cam allows the pawl 32 to drop into the notch in the rim of the disk 28, and thus stops the latter. This by reason of its connection with the vertical shaft 7 stops the movement of all the can-carrying parts, so as to hold the can in contact with the brushes, as previously described.

The brushes themselves may be made of any suitable or desired form or character. I have here shown wire brushes projecting from the periphery of the cylinder, having perforations to receive the brushes. A very suitable or convenient form is to make the wire brushes of wires bent so that the bights pass through the holes in the cylinder and are suitably clamped at the inner ends in bunches of sufficient size. Such wires may be very conveniently made from hair-pins, such as are ordinarily worn by ladies. In conjunction with these wire brushes are other brushes formed of bent elastic plates 40. These plates may be secured to the cylindrical brush-carrier in any suitable way. As here illustrated, I have shown radial slots or channels 41, made in the upper end of the brush-carrier, these slots being of such depth that the bent elastic plates 40 will slip into them, the bight of the plates lying in the central opening of the cylinder through which the driving-shaft passes. Upon this shaft is fitted a collar 42, which is set down and secured upon the upper end of the cylindrical brush-carrier, and thus holds the plates 40 in place. The brush-carrier is secured by means of a nut 43, screwing upon the lower threaded end of the shaft, and the parts are thus removably clamped together and easily separated for any required repairs. The elastic plates or arms 40 being located above the wire brushes 8 are turnable in a plane coincident with the upper edges of the passing cans, and the arms act as scrapers to clean and polish this portion of the can and to remove rust, which frequently makes its appearance upon these edges and which if not removed prevents perfect closing and sealing and causes leaks.

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

1. An apparatus for cleaning cans including a revolving brush, carriers by means of which the cans are successively presented to the brush and revolved in contact therewith and finally removed therefrom.

2. A can-cleaning apparatus including a revolving brush, intermittently-moving carriers by which the cans are presented to the

brush, and means for revolving the cans in contact with the brush.

3. An apparatus for cleaning cans including a revolving brush, intermittently-moving carriers by which the cans are presented and held in contact with the brush, and revoluble heads between which the can ends are clamped while being acted upon by the brush.

4. An apparatus for cleaning cans, including a vertically-journaled independently-revoluble brush, intermittently-moving carriers by which the cans are presented for the action of the brush, revolving heads having their axes in vertical lines, means for clamping the cans between said heads and presenting them to the action of the brush during their revolution.

5. An apparatus for cleansing cans comprising a horizontal table upon which the cans are delivered, an endless traveling chain movable above the table having projecting arms adapted to engage and advance the cans successively, spiders mounted upon the vertical revoluble shaft adapted to receive the cans and remove them from the chain, means for guiding the cans from the table to the spiders, turn-tables having revoluble heads between which the cans are received and clamped as they arrive at the turn-tables, a revoluble brush at one side of the path of travel of the cans whereby the latter are successively presented to the action of the brush.

6. An apparatus for cleaning cans comprising a revoluble brush, turn-tables carried by a vertical central shaft, having heads adapted to fit the open upper ends of the cans, said heads having shafts journaled in the upper turn-table, pinions fixed upon said shafts, a central gear engaging the pinions, and a mechanism by which it is revoluble whereby the heads are also revolved, vertically-movable tables carried in the lower turn-tables, and in line with the revoluble heads, lever-arms engaging the stems of said tables, and a cam acting upon said levers whereby the tables are raised and the cans clamped between the tables and the revoluble heads at the instant when they are delivered thereto.

7. An apparatus for cleansing cans, comprising a vertically-journaled revoluble brush, spiders, and means whereby they are intermittently moved about a vertical axis, an endless traveling chain and arms carried thereby a horizontal table over which the chain travels and upon which the cans are delivered in a vertical position to be engaged by the projecting arms of the chain, a stationary guide by which the cans are removed from the line of travel of the chain and its arms, turn-tables having an axis common with that of the spiders, the lower turn-table having vertically-movable supports upon which the cans are delivered, and revoluble heads journaled in the upper turn-table in line with the supports of the lower table, and adapted to en-

ter and clamp the upper and open ends of the cans whereby the latter are revolved upon their axes when presented to the cleaning-brush.

- 5 8. An apparatus for cleansing cans, comprising a vertically-journaled revolving brush, corresponding revoluble carriers and heads between which the cans are received, and by which they are presented to the brush, a
10 means for advancing and intermittently stopping the cans in contact with the brush and again advancing them consisting of a disk mounted upon a horizontal shaft, bevel inter-meshing gears carried by said shaft and the
15 vertical can-carrying shaft, channels made in the face of the disk at right angles and opening into each other, a wheel journaled eccentric to the disk and having a pin and anti-friction-roller entering the channels so that
20 the rotation of said wheel advances the disk a partial revolution at each engagement of the roller with the channels, and a spring-pressed pawl adapted to engage notches in the disk and lock it after each advance.
- 25 9. An apparatus for cleansing cans comprising a vertically-journaled revoluble brush, turn-tables carried upon vertical shafts having opposing heads between which the cans are grasped, mechanism by which said heads
30 are revolved while the cans are presented to the brush, mechanism for intermittently advancing the turn-tables and stopping them with each can in contact with the brush, said mechanism consisting of a disk mounted upon
35 a shaft through which power is transmitted to revolve the turn-table, said disk having notches in the periphery and channels or grooves crossing each other at right angles upon the face of the disk, a wheel independ-
40 ently journaled eccentric to the disk having

a pin with a roller projecting therefrom and entering the channels of the disk whereby the revolution of the wheel moves the roller through two of the channels at right angles with each other and advances the disk a quarter-revolution, a spring-pressed pawl adapted to engage one of the notches in the disk at the termination of each advance, a cam revoluble in unison with the wheel, a roller or contact carried by the pawl-arm and beneath
45 which the cam travels whereby the pawl is disengaged to allow the disk to advance after each arrest of its motion.

10. In a cleaning apparatus, turn-tables and can-holding clamps carried thereby, mechanism to revolve the tables and the clamps and cans, a revoluble brush in contact with which the cans are placed during their revolution, and arms or scrapers turnable in unison with the brush in the plane of the upper edges of
55 the cans.

11. The combination with revoluble can-carrying turn-tables and clamps, of elastic arms, a shaft from which they radiate in contact with the can-tops, and mechanism by
65 which they are revoluble.

12. Revoluble tables and independently-revoluble can-holding clamps carried thereby, elastic arms, a shaft from which they radiate, and by which they are revolved in the path
70 of the passing cans, and mechanism by which the tables are intermittently arrested with the cans in contact with the revolving arms.

In witness whereof I have hereunto set my hand.

WILLIAM MUNN.

Witnesses:

S. H. NOURSE,
JESSIE C. BRODIE.