

Feb. 17, 1953

A. F. DARRAH  
MACHINE FOR SCRUBBING INNER SIDE WALL  
AND BOTTOM OF CYLINDRICAL CONTAINERS

2,628,379

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2 SHEETS—SHEET 1

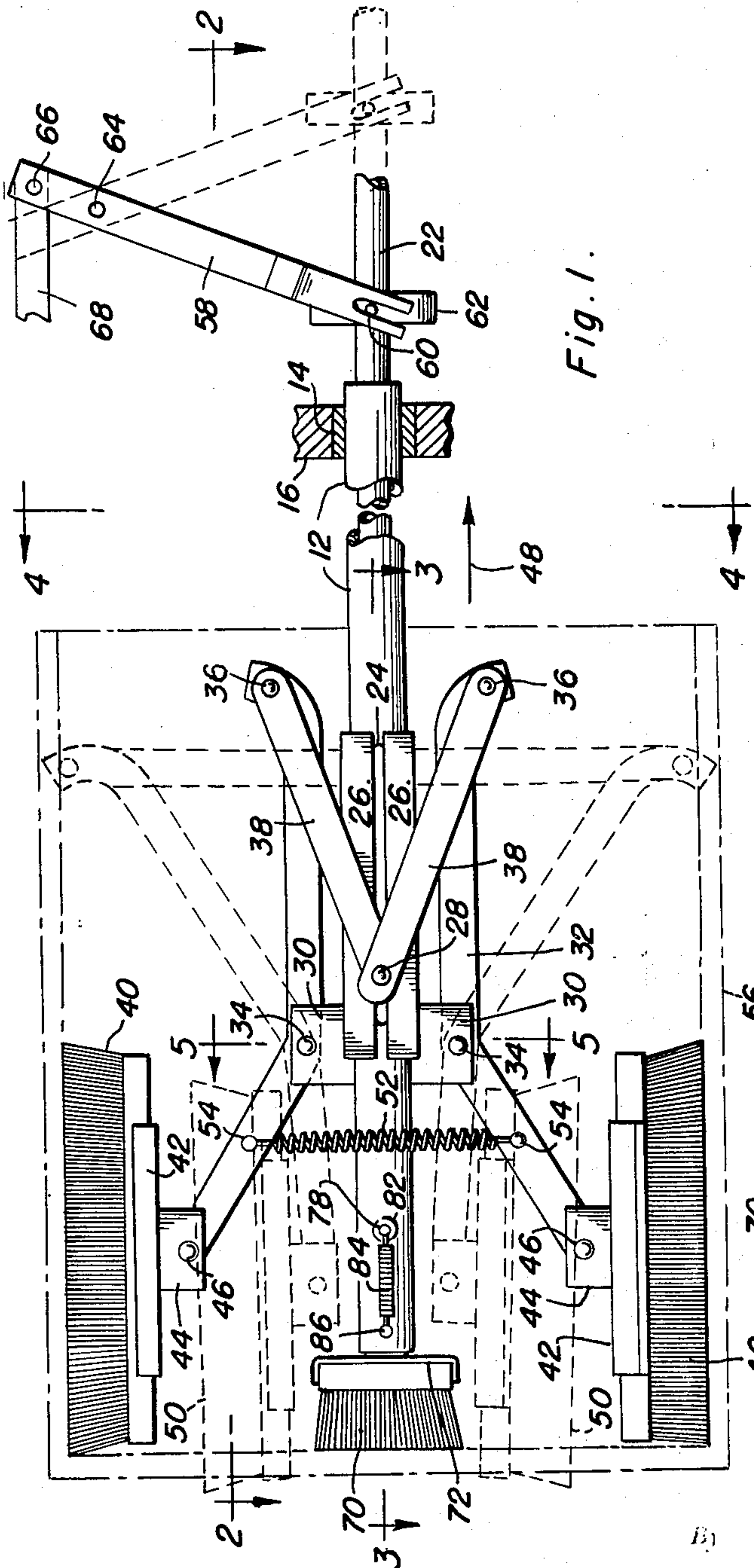


Fig. 1.

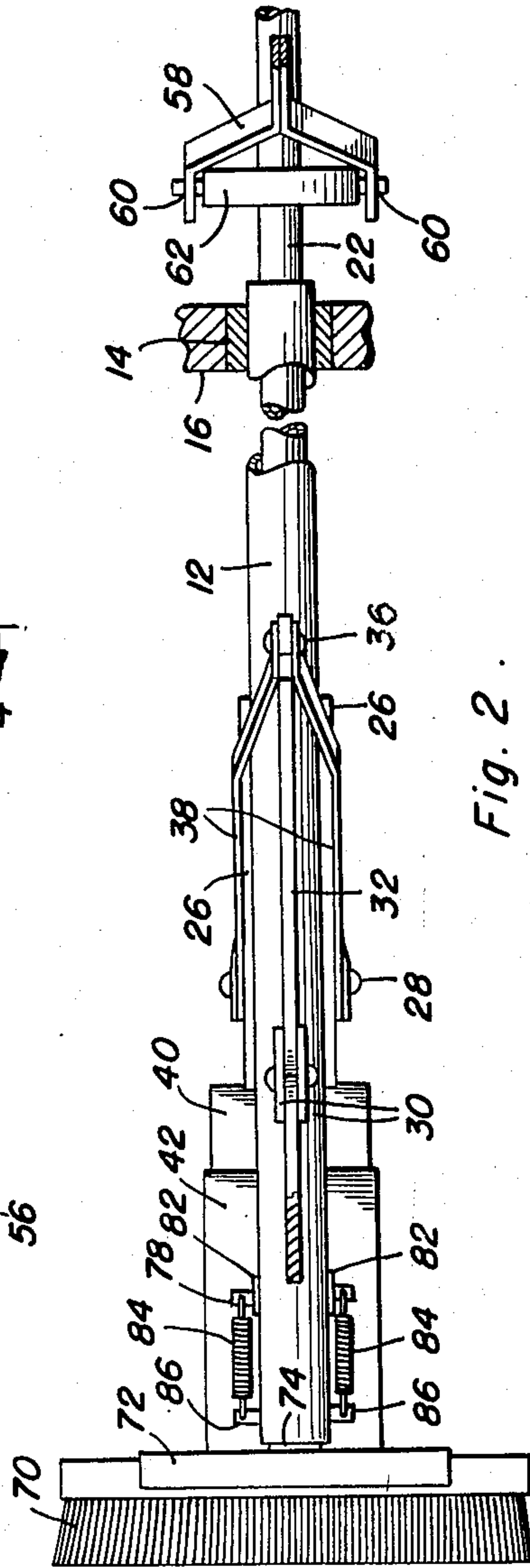


Fig. 2.

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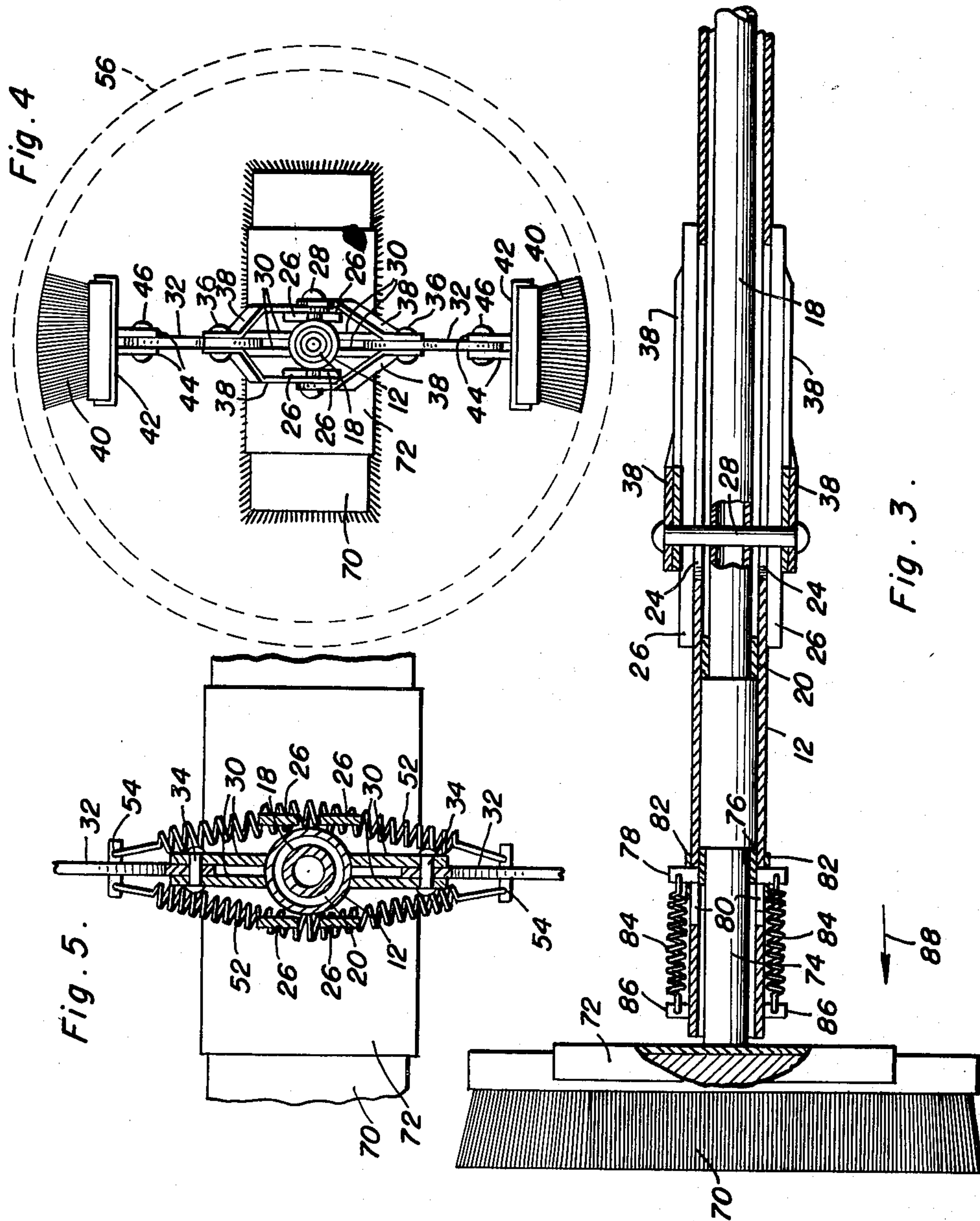
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## UNITED STATES PATENT OFFICE

2,628,379

MACHINE FOR SCRUBBING INNER SIDE  
WALL AND BOTTOM OF CYLINDRICAL  
CONTAINERS

Arthur F. Darrah, Rochester, Vt.

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1 Claim. (Cl. 15—72)

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This invention relates to new and useful improvements and structural refinements in washing machines for containers such as buckets, etc., commonly employed for storage of sap in sugar making, and the like, and the principal object of the invention is to facilitate cleaning of such containers with speed and convenience and with the expenditure of a minimum amount of labor.

This object is achieved by the provision of the washing machine which embodies in its construction what may be called an end brush and a plurality of side brushes which are engageable with the bottom and the side walls respectively of the container which is to be cleaned, the several brushes being mounted upon and driven by a suitable shaft which, in turn, is operatively connected to a convenient source of power, such as an electric motor, an internal combustion engine, and the like.

An important feature of the invention resides in the provision of means for mounting the side brushes in a manner which permits them to be swung inwardly and outwardly and thereby assure their proper contact with the lateral walls of containers of different diameters.

Another feature of the invention resides in the mounting of the end brush in such manner that it is projectable and retractible and is urged by resilient means to its projected position in proper engagement with the bottom of the container to be cleaned.

Some of the advantages of the invention lie in its simplicity of construction, convenience of operation, and in its adaptability to economical manufacture.

With the above more important objects and features in view, and such other objects and features as may become apparent as this specification proceeds, the invention consists essentially of the arrangement and construction of parts as illustrated in the accompanying drawings, in which:

Figure 1 is a top plan view of the invention, the same being illustrated in a container shown by phantom lines;

Figure 2 is a cross sectional view, taken substantially in the plane of the line 2—2 in Figure 1;

Figure 3 is a cross sectional view, taken substantially in the plane of the line 3—3 in Figure 1;

Figure 4 is a cross sectional view, taken substantially in the plane of the line 4—4 in Figure 1, and

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Figure 5 is a cross sectional view, taken substantially in the plane of the line 5—5 in Figure 1.

Like characters of reference are employed to designate like parts in the specification and throughout the several views.

Referring now to the accompanying drawings in detail, the invention consists of a container scrubbing machine embodying in its construction a tube 12 which is rotatably mounted in a suitable bearing 14 provided in the side wall 16 of a washing tank, or the like, suitable means being employed for preventing the tube 12 from shifting axially while rotation thereof is facilitated. A shaft 18 is slidably positioned in the tube 12, this being effected by providing the shaft at one end with a collar 20 which is secured to the shaft and slidably engages the tube 12 as is illustrated in Figure 3. A plurality of the collars 20 may be secured to the shaft 18 for this purpose, that is, for providing guides for the shaft in the tube, and it is to be noted that the shaft 18 projects outwardly from the tube 12, as indicated at 22.

The intermediate portion of the tube 12 is formed with a pair of diametrically opposed, longitudinally extending slots 24 and pairs of guides 26 are welded or otherwise suitably secured to the tube 12 at the longitudinal edges of these slots, these guides coacting with the slots in forming guide means for the end portions of a transverse pin 28 which is secured to the shaft 18 and projects outwardly from the tube, as is best shown in Figure 3.

Pairs of brackets 30 are also welded or otherwise secured to the tube 12, and a pair of levers 32 are pivoted intermediately of their length to the brackets 30 as indicated at 34.

It will be noted that each of the levers 32 is pivoted to a pair of the brackets 30, the two levers being disposed at the diametrically opposite sides of the tube 12, as will be clearly apparent.

Each of the levers 32 is pivoted at one end thereof as at 36 to a pair of links 38 and the two pairs of links are pivotally connected to the projecting end portions of the aforementioned pin 28, substantially as shown.

The remaining ends of the levers 32 carry a pair of what may be referred to as side brushes 40, this being effected by clamping the brushes in U-shaped holders 42 which, in turn, are provided with pairs of spaced brackets 44 so that they may be pivotally attached to the respective levers 32 as indicated at 46.

It will be apparent from the foregoing that when the shaft 18 is slid in the tube 12 in the



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direction of the arrow 48 in Figure 1 the brushes 40, by virtue of the linkage 32, 38 will be retracted or swung inwardly toward the tube 12, as indicated by the phantom line 50. A pair of tension springs 52 are anchored as at 54 to the levers 32 and thereby urge the brushes 40 to the retracted position, as will be clearly understood. However, by sliding the shaft 18 with respect to the tube 12 in a direction opposite to that indicated by the arrow 48, the brushes 40 will be urged into frictional engagement with the circumferential wall of a container or bucket 56 such as may be applied to the machine for purposes of cleaning.

The sliding of the shaft 18 in the tube 12 may be effected in any convenient manner, such as for example by means of a fork 58 operatively connected as at 60 to a collar or bearing 62 secured to the shaft 18, the fork 58 being suitably pivoted as at 64 and being operatively connected as at 66 to a controlling push rod 68 whereby the sliding of the shaft 18 may be effected by an operator of the machine standing adjacent the container 56.

The bottom of the container 56 is engageable for cleaning purposes by a further brush which may be called an end brush 70, this being similar to the side brushes 40 and being clamped in a U-shaped holder 72 which, in turn, is provided with a shank 74. This shank is projectable and retractable in an end portion of the tube 12, to which end it may be provided with a collar 76, similar to the aforementioned collar 20 on the shaft 18. A transverse pin 78 extends through the shank 74 and collar 76 and projects outwardly through further diametrically opposed slots 80 with which the tube 12 is provided, the projecting end portions of this pin carrying a pair of washers 82 and serve as anchor points for a pair of tension springs 84 which are anchored at their remaining ends to a further pair of pins 86 secured to the tube 12. By virtue of this arrangement, the springs 84 will normally draw the pins 78 and the associated shank 74 in the direction of the arrow 88 in Figure 3, whereby the end brush 70 will be urged in contact with the bottom of the container 56.

The invention may be driven by means of a pulley (not shown) secured to either the shaft 18 or the tube 12, and it will be apparent from the foregoing that the brushes 70 and 40 will properly clean and engage the entire container, notwithstanding its diameter or size.

It is believed that the advantages and use of the invention will be clearly understood from the foregoing disclosure and accordingly, further description thereof at this point is deemed unnecessary.

While in the foregoing there has been shown

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and described the preferred embodiment of this invention it is to be understood that minor changes in the details of construction, combination and arrangement of parts may be resorted to without departing from the spirit and scope of the invention as claimed.

Having described the invention, what is claimed as new is:

In a machine for scrubbing inner side wall and bottom of a cylindrical container, the combination of a rotatable tube provided intermediate the ends thereof with a pair of diametrically opposed longitudinally extending slots, a drive shaft slidable in said tube, a transverse pin provided intermediate the ends of said drive shaft and projecting outwardly through said slots, two pairs of spaced brackets secured at diametrically opposite sides to said tube adjacent the slots, a pair of angulated levers each having its intermediate portion pivotally mounted between a pair of said brackets for swinging toward and away from said tube, a pair of side scrubbing brushes pivoted intermediate the ends thereof to the respective levers at one end of the latter, two pairs of links pivoted at one end thereof to the respective levers at the other end of the latter, the links in each pair extending to opposite sides of said tube and being fulcrumed at opposite end portions of said pin, a pair of tension springs disposed at opposite sides of said tube and anchored to said levers at points between said brackets and said side scrubbing brushes whereby to swing the latter inwardly, means for sliding said shaft in said tube for swinging the side scrubbing brushes outwardly against the action of said springs, a shank rotatable with and slidable in one end portion of the tube and projecting outwardly therefrom, a bottom scrubbing brush secured intermediate the ends thereof to the outer end of said shank and disposed perpendicularly to the tube, and resilient means for urging said shank outwardly from said tube.

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