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MACHINE FOR CLEANING GLOVES, &c.
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929,222.

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Fig. 1.

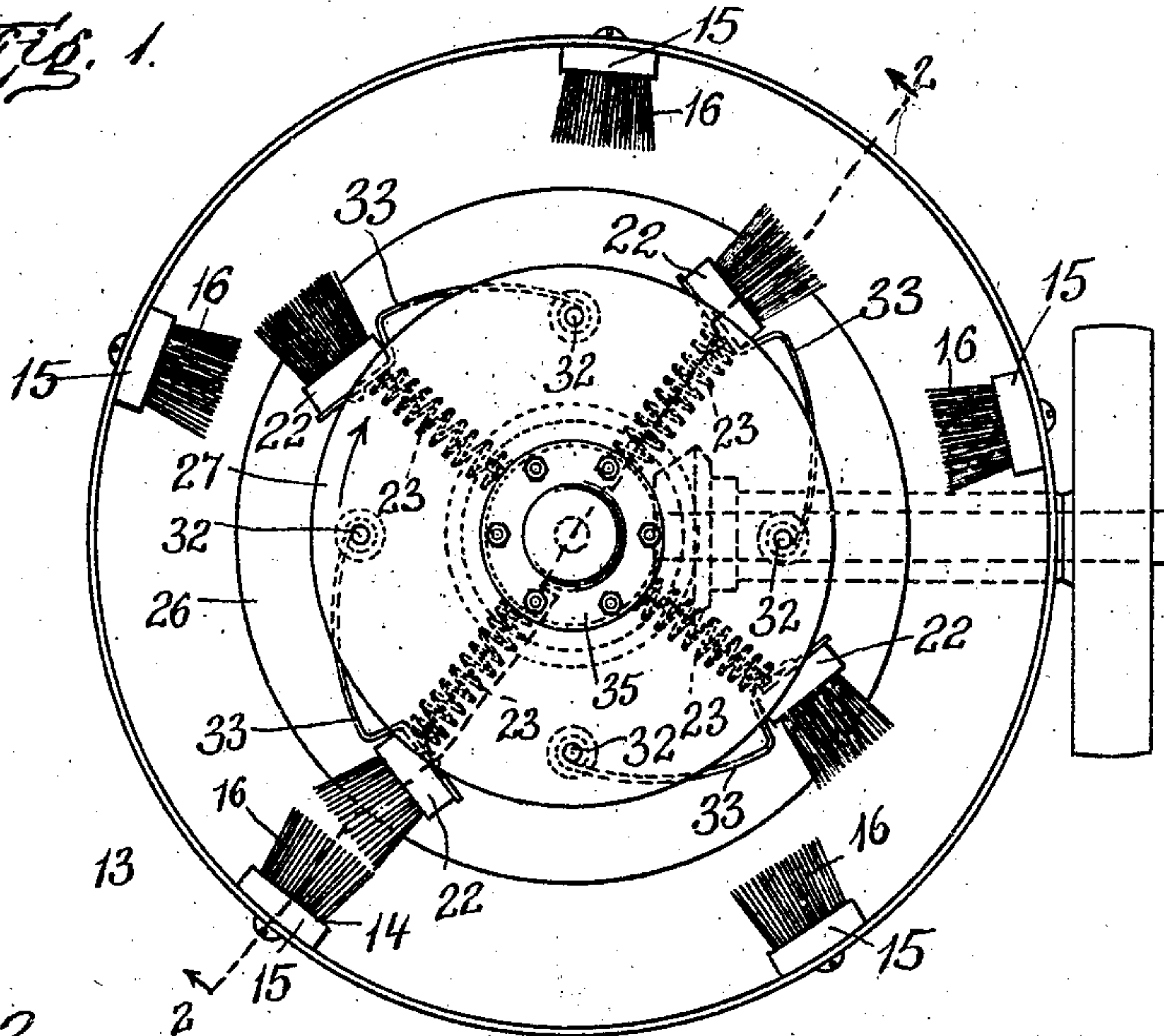


Fig. 2.

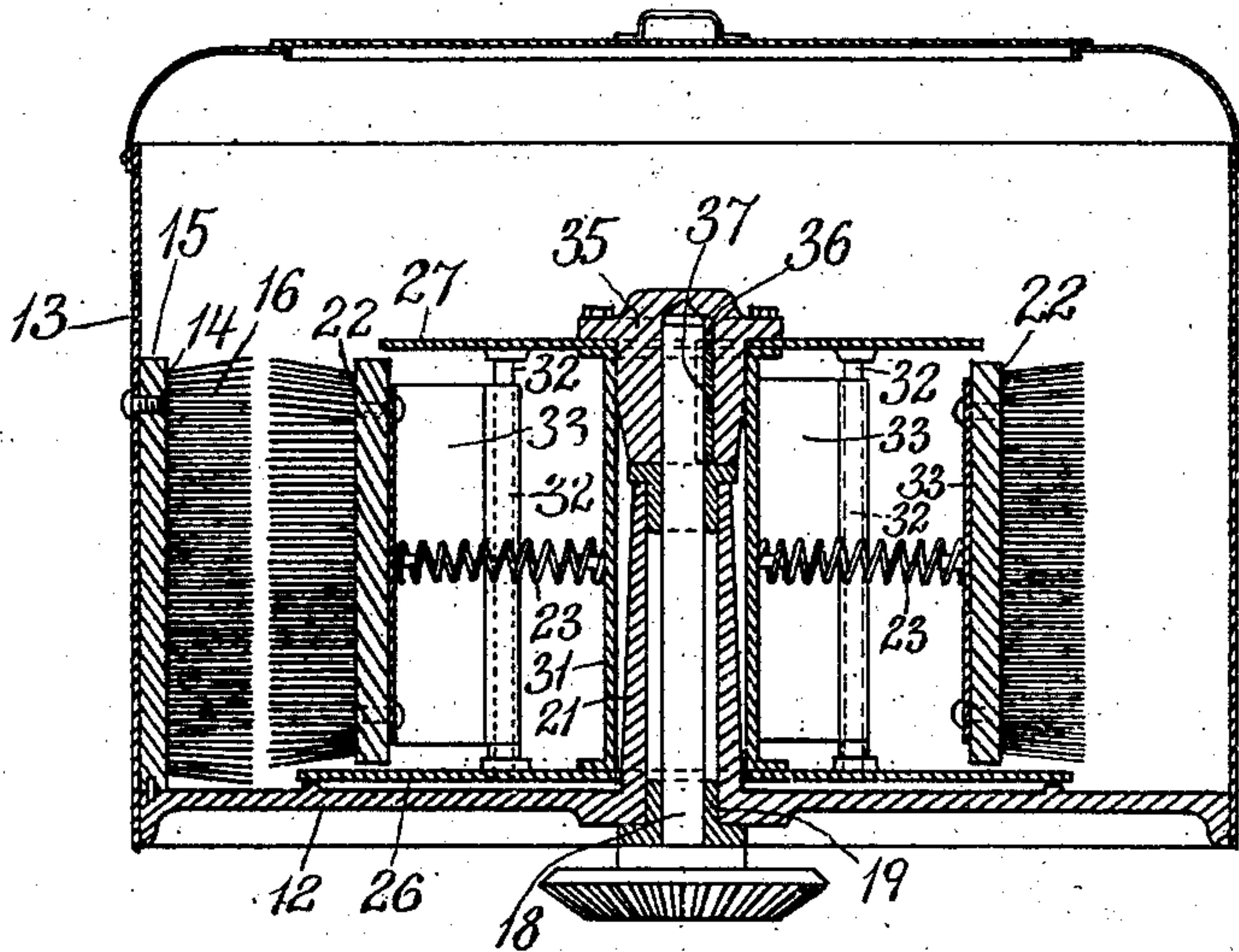
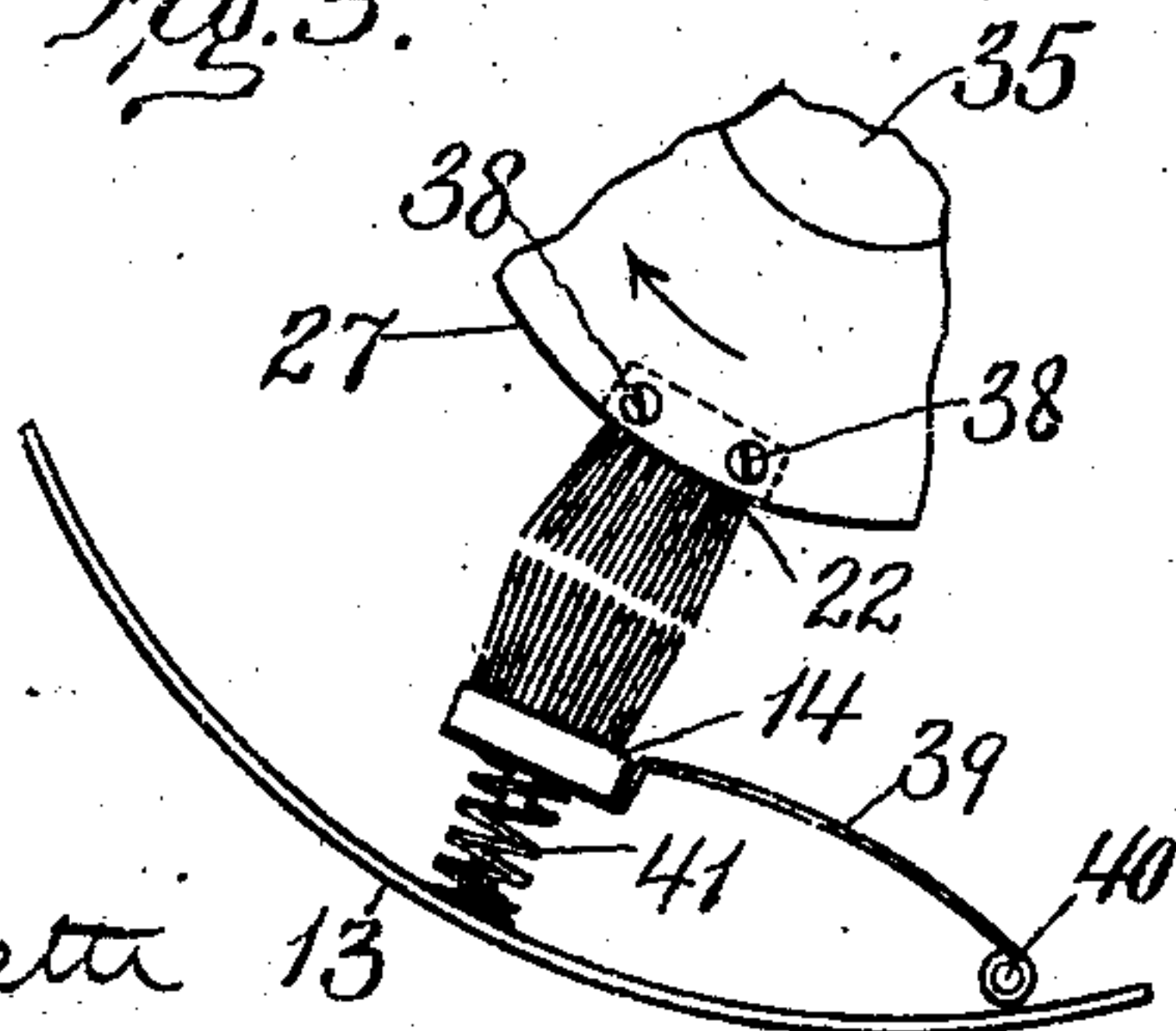


Fig. 3.



Witnesses.

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UNITED STATES PATENT OFFICE.

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MACHINE FOR CLEANING GLOVES, &c.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, ALFRED HOPKINS, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Machines for Cleaning Gloves, &c., of which the following is a specification.

This invention relates to a glove cleaning machine comprising a tank adapted to hold a cleansing liquid, solution or composition, and provided with two series of brushes, the brushes of one series being mounted to revolve, while those of the other series are secured to the tank, the arrangement of the brushes being such that the articles to be cleaned are caused by the motion of the revolving brushes to pass between the brushes of the two series, which exert a frictional cleansing action on the articles.

The invention has for its object to enable the brushes to conform to variations in thickness of the articles passed between the revolving and non-revolving brushes, so that while the brushes are adapted to act on articles of minimum thickness, the articles will not be injured by the pressure due to the interposition of a relatively thick article, or accumulation of parts of an article or articles, such as the fingers of gloves when the same happen to be bunched together while passing between the brushes.

The invention also has for its object to provide an improved construction of the tank whereby leakage of the cleansing liquid around the shaft which carries the revolving brushes, is prevented.

The invention consists in the improvements which I will now proceed to describe and claim.

Of the accompanying drawings, forming a part of this specification,—Figure 1 represents a plan view of a cleaning machine embodying my invention. Fig. 2 represents a section on line 2—2 of Fig. 1. Fig. 3 represents a fragmentary plan view showing a modification.

The same reference characters indicate the same parts in all the figures.

In the drawings,—12 represents the bottom and 13 the wall or margin of a tank which is open at its upper end, the tank being preferably of circular form. To the wall of the tank are secured a series of

brushes 14, each of which, as here shown, is composed of a back 15 and bristles 16 projecting inwardly from the back. The brushes 14 may be rigidly secured to the wall of the tank, or they may be yieldingly connected with said wall by means of suitable springs adapted to normally press the brushes inwardly toward the center of the tank, and permit them to yield outwardly.

18 represents a shaft located at the central portion of the tank, and preferably extending through the bottom of the same, the shaft being here shown as journaled in bearings 19 and 20 inserted in and affixed to a vertical stand-pipe 21 which extends through the bottom of the tank, and has a liquid tight connection therewith, said stand-pipe extending above the normal level of the liquid in the tank, so that the liquid cannot escape between the lower end of the shaft and its lower bearing.

The stand-pipe 21 forms the inner wall of an annular working space adapted to contain a body of liquid and gloves or other articles to be cleaned immersed therein, the brushes 14 and the inner brushes 22 herein-after described being vertically arranged and located in said working space.

The shaft 18 carries a series of inner brushes 22 which may be of the same construction as the brushes 14, the bristles of said brushes 22 projecting outwardly, and the entire series of brushes being adapted to be revolved by the shaft.

In the embodiment of the invention here shown, the inner brushes 22 are movable radially, and are adapted to be forced yieldingly outward by means of springs 23 interposed between the brushes and a shell 31 which is rotatively engaged with the shaft, said shell having flanges 26, 27 carrying rods 32 on which arms 33 attached to the brushes are adapted to swing.

The operation of the machine is as follows:—A suitable quantity of a cleansing liquid or liquid composition, suitable for use in cleaning gloves and other like articles, is placed in the tank with the articles to be cleaned. The rotation of the shaft carries the revolving brushes 22 in a circular path, the revolving brushes 22 coöperating with the outer brushes 14 in rubbing and brushing the articles to be cleaned. In prac-

tice, the brushes of only one series will be yieldingly mounted, so that if the brushes of the inner revolving series are pressed outwardly by springs, the brushes of the outer series will be rigidly secured to the tank, while in case the outer brushes are yieldingly connected with the tank, the inner brushes will be rigidly connected with the shaft. The limit of the yielding projection of either series of brushes toward the other series, is such that when no articles are interposed between the brushes, the outer ends of their bristles will pass by each other without more than a light rubbing contact.

The rotation of the shaft and the series of brushes carried thereby causes the articles in the tank to pass between the brushes, the non-revolving outer brushes tending to arrest the movement imparted to the articles by the revolving brushes, so that each article will be detained in its movement across the outer brushes, and be subjected to the brushing action of the two series of brushes, the articles being moved across the inner ends of the outer brushes at a slower rate than the movement of the outer ends of the inner brushes, so that there is a frictional contact between both the outer and inner brushes, and an article interposed between them.

It will be seen that by yieldingly mounting the brushes of one series, the brushes are adapted to conform to the thickness of the material interposed between them.

The shaft 18 may be rotated by power imparted thereto in any suitable way, such as by a driving shaft 28 having a bevel gear 29 meshing with a bevel gear 30 affixed to the shaft 18. The stand-pipe 21 enables the shaft 18 to be rotated by power applied to it below the tank. I do not limit myself to this arrangement, however, although it is preferable because the upper end of the tank is left wholly unobstructed. The shell 31 is here shown engaged with the shaft by a hub 35 affixed to the upper end of the shell, and having a socket which receives the upper end of the shaft, said socket having a groove 36 which receives a key or feather 37 attached to the shaft. The hub with the shell, its flanges, and the inner brushes, may be lifted from the shaft and removed from the tank.

Each brush-supporting arm 33 is preferably a wide plate of sheet metal which occupies so much of the space between the flanges 26 and 27 as to prevent the articles being cleaned from entering said space, and getting out of the path of the revolving brushes, the arms being preferably curved, as indicated in Fig. 1, in such manner as to guide or deflect the articles lying between them and the wall 13 of the tank toward the meeting surfaces of the inner and outer brushes.

In the modification shown in Fig. 3, the

inner brushes 22 are mounted to revolve without yielding inwardly, they being here shown as secured by screws 38 to the flanges on the shell 31, the outer brushes 14 being attached to arms 39 which are pivoted at 40 to the body of the tank, and are pressed inwardly toward the inner brushes by springs 41. In this modification, the arms 39 are wide like the arms 33, and are formed and arranged to prevent the articles being cleaned from finding their way between the outer brushes and the wall 13 of the tank.

I claim:

1. A machine of the character stated, comprising a tank, a vertical stand-pipe having liquid-tight connection with the bottom of the tank and projecting above the same, said stand-pipe forming the inner wall of an annular working space adapted to contain a body of liquid and articles immersed therein, a rotary shaft extending through said pipe and through the bottom of the tank, a series of vertical inner brushes connected with the shaft and revolved by the rotation thereof, a series of vertical outer brushes connected with the body of the tank, and means below the tank for driving the shaft and the inner brushes, the said inner and outer brushes being located in the said annular working space.

2. A machine of the character stated, comprising a tank, a stand-pipe having liquid tight connection with the bottom of the tank and projecting above the same, a rotary shaft extending through said pipe, a shell surrounding the stand-pipe and having a hub rotatively engaged with the shaft, and top and bottom flanges, a series of inner brushes having a swinging connection with said flanges, springs interposed between the shell and the inner brushes, and adapted to press the latter outwardly, and a series of outer brushes connected with the body of the tank.

3. A machine of the character stated, comprising a tank, a rotatable vertical shaft therein, a series of vertical inner brushes connected with the shaft and revolved by the rotation thereof, and a series of vertical outer brushes connected with the tank, a series of hinged arms supporting the brushes of one series, and springs adapted to press the said arms and the brushes carried thereby toward the brushes of the other series, the said arms being formed to guide the articles to be cleaned toward the meeting portions of the brushes.

4. A machine of the character stated, comprising a tank, a stand-pipe having liquid tight connection with the bottom of the tank and projecting above the same, a rotary shaft extending through said pipe, a shell surrounding the stand-pipe and having a hub rotatively engaged with the shaft, and top and bottom flanges, a series of arms

hinged to said flanges, a series of inner
brushes secured to the swinging ends of
said arms, springs interposed between the
shell and the inner brushes and adapted to
5 press the latter outwardly, and a series of
outer brushes connected with the body of
the tank, the said hinged arms being formed
to guide articles to be cleaned toward the

meeting portions of the outer and inner
brushes.

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

ALFRED HOPKINS.

Witnesses:

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