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H. J. POND

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SCRUBBING MACHINE

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Fig. 2

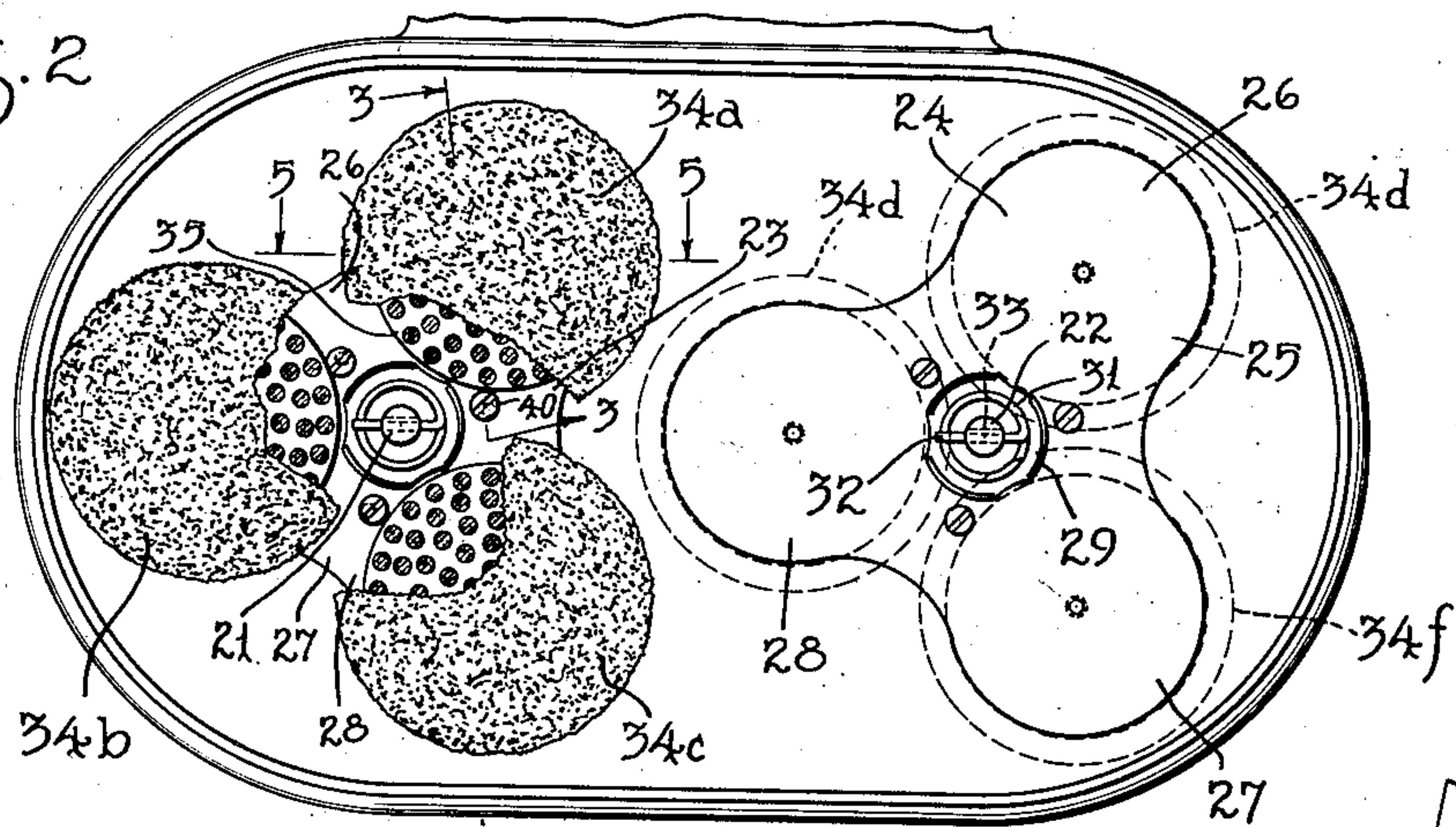
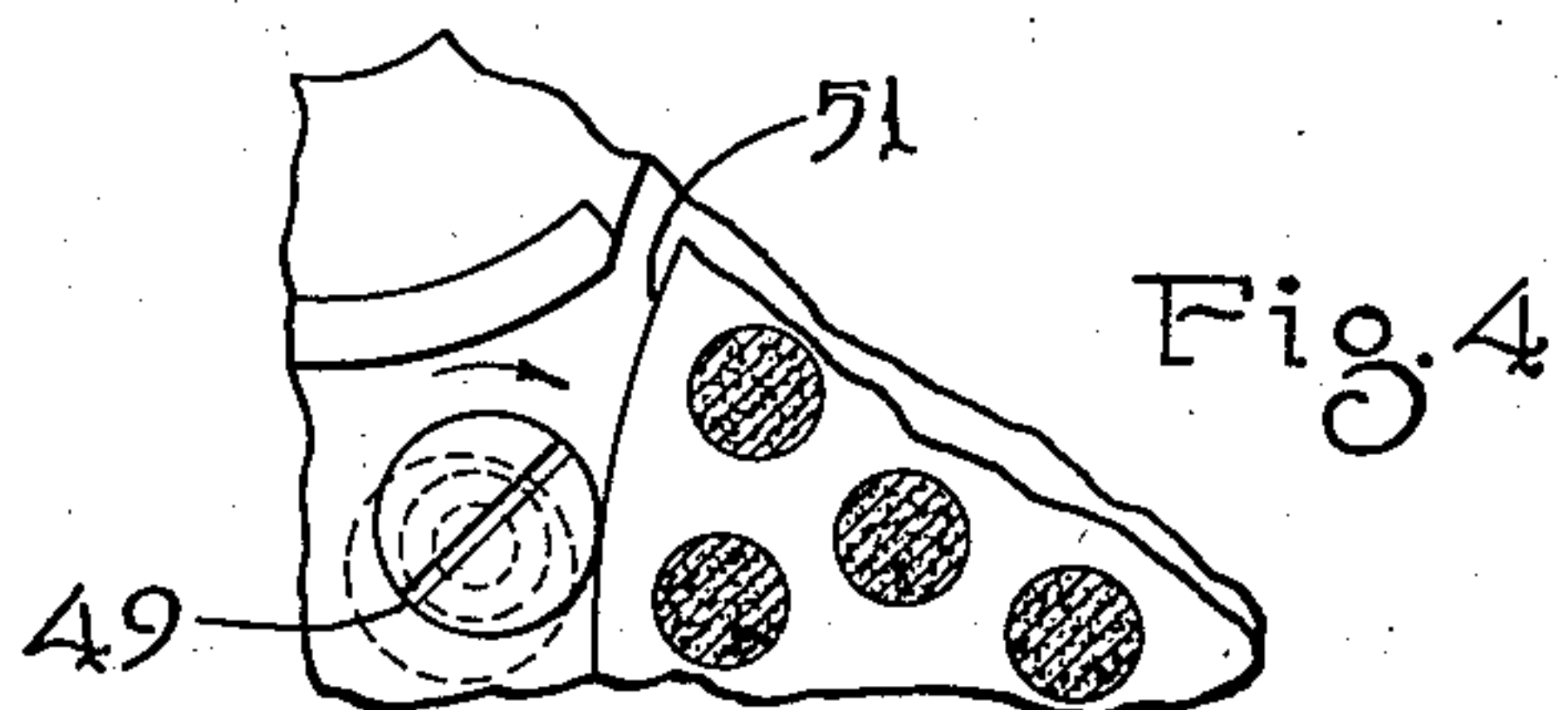
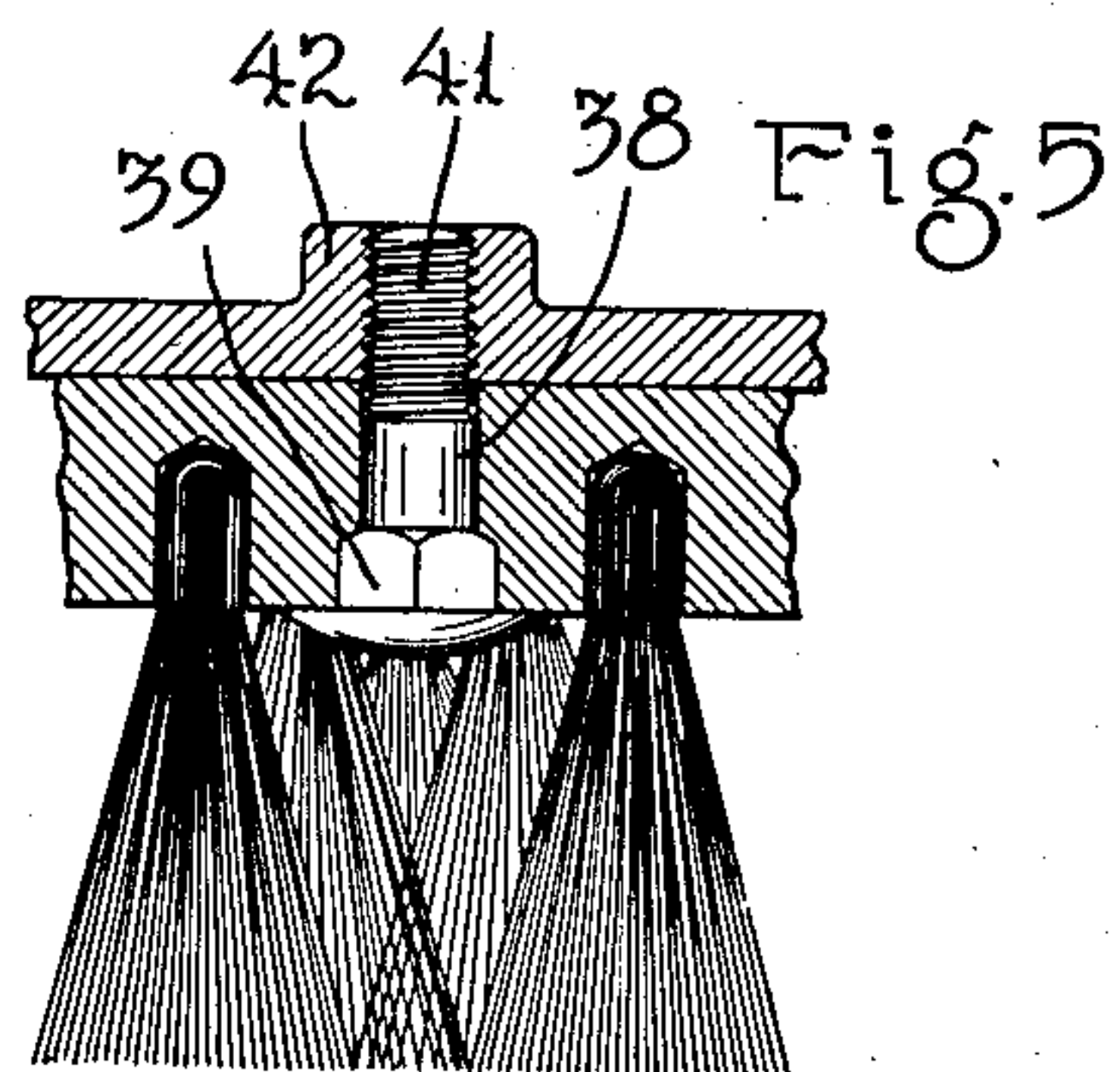
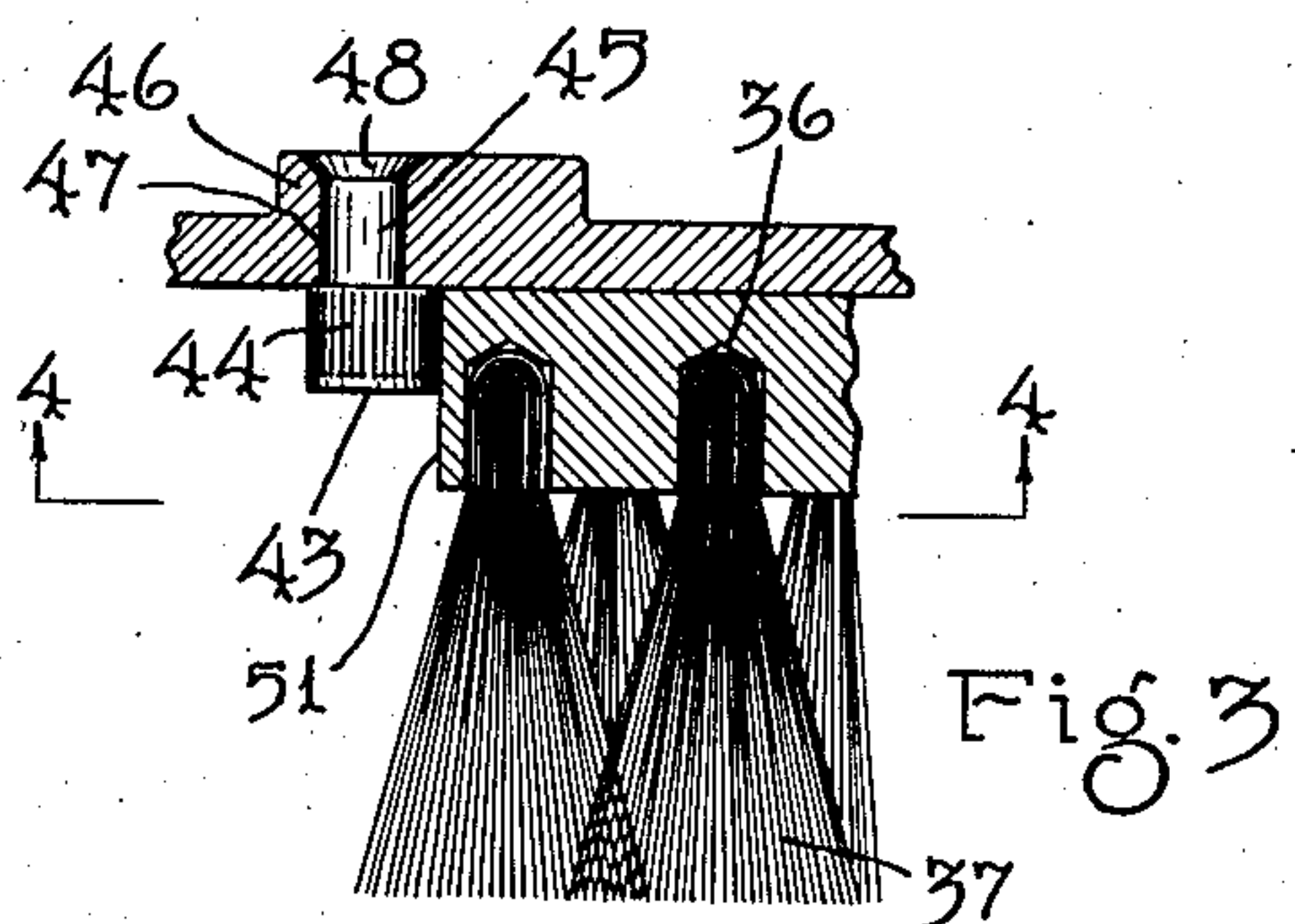
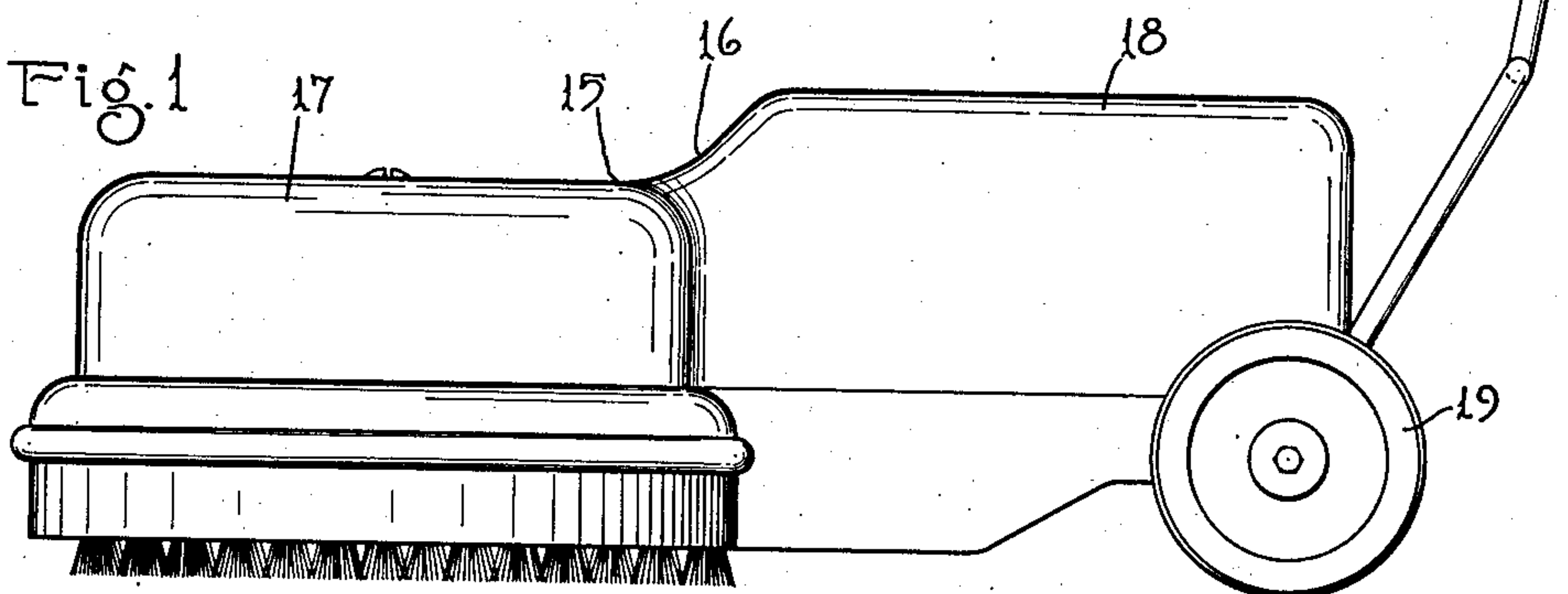


Fig. 1



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SCRUBBING MACHINE

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8 Claims. (Cl. 15—49)

My invention relates to scrubbing machines and has for an object to provide a machine utilizing a number of rotary brushes by means of which a swatch continuous throughout its lateral extent may be procured.

Another object of the invention resides in utilizing two revoluble brush holders and in attaching to said brush holders, circular brushes adapted to intermesh with one another.

An object of the invention resides in providing separate attaching means for each brush whereby the brushes may be independently, easily and quickly attached to or removed from the brush holders.

A still further object of the invention resides in mounting the attaching means on the brushes.

A feature of the invention resides in using a bolt for attaching the brush to the brush holder.

Another object of the invention resides in providing the brush with a body having a circular or cylindrical surface or shoulder concentric with the axis of the bolt or fastening means and in utilizing a cam mounted on said brush holder for engagement with said surface to prevent unscrewing of the bolt and unintentional disengagement of the brush.

A still further object of the invention resides in using as a cam a cylindrical head with an eccentric point.

A feature of the invention resides in constructing the body of the brush of wood and in roughening the surface of the cam to cause the same to dig into the wood and cause a binding between the cam head and brush body.

Other objects of the invention reside in the novel combination and arrangement of parts and in the details of construction hereinafter illustrated and/or described.

In the drawing:

Fig. 1 is a side elevational view of a scrubbing machine illustrating an embodiment of my invention.

Fig. 2 is an inverted plan view of a portion of the structure shown in Fig. 1.

Fig. 3 is a detail sectional view taken on line 3—3 of Fig. 2 and drawn to a larger scale.

Fig. 4 is an inverted plan sectional view taken on line 4—4 of Fig. 3.

Fig. 5 is a sectional detail view taken on line 5—5 of Fig. 2 and drawn to a larger scale.

My invention relates to scrubbing machines of the type in which two revoluble brush holders carrying brushes are arranged to rotate in unison to scrub the surface of a floor on which the brushes rest. The particular mechanism for ro-

tating such brush holders forming no feature of the invention and being well known in the art has not been shown in detail in this application, though it can readily be comprehended that any suitable construction may be utilized for the purpose.

In Fig. 1 I have shown a scrubbing machine which I have indicated in its entirety by the reference numeral 15. This scrubbing machine comprises a housing 16 having a forward portion 17 and a rearward portion 18. The rearward portion 18 houses an electric motor not shown and is supported at the rearward end by means of wheels 19. The portion 17 of the housing houses a transmission mechanism not shown and rotatably supports two shafts 21 and 22 driven from the motor by the transmission. The shafts 21 and 22 carry brush holders 23 and 24 which are detachably secured to said shafts. Inasmuch as both of these brush holders are identical in construction, only the brush holder 24 will be described in detail.

The brush holder 24 consists of a plate 25 which is in the shape of a clover leaf having three blades or arms 26, 27 and 28 connected together and to a hub 29. Shaft 22 extends through the hub 29 and is provided with a shoulder and a key, not shown, whereby the brush holder 24 is driven. A compression spring 31 is seated against the brush holder 24 and has an end 32 disposed in a slot 33. The spring 31 holds the brush holder 24 universally mounted upon the end of the shaft 22.

Attached to the brush holders 23 and 24 are a number of brushes 34a, 34b, 34c, 34d, 34e and 34f which are identical in construction. For this reason the brushes 34d, 34e and 34f have been shown diagrammatically and only the brush 34a will be described in detail. The brush 34a is provided with a cylindrical body 35 formed of ply wood which is drilled as shown in Fig. 3 at 36 to receive the bristles 37 of the brush. The body 35 is cylindrical as shown and is provided at the center of the same with a carriage bolt 38 shown in detail in Fig. 5 and which has a squared head 39 forced into the wood of the body. The bolt 38 is further constructed with threaded ends 41 projecting outwardly beyond the body of the brush from the rearward surface thereof. The threaded end 41 of the bolt 38 is adapted to screw into a threaded boss 42 formed in the center of the blade of the brush holder 23. By merely turning the brush bodily the same may be applied to or removed from the brush holder on which the same is mounted.

To prevent loosening of the brushes the following construction is employed. For each brush a cam 40 is provided consisting of a cylindrical head 43, shown in detail in Figs. 3 and 4, which is knurled or otherwise roughened upon the exterior surface thereof as indicated at 44. This head has a shank or pin 45 turned integral therewith which is eccentrically disposed with reference to the axis of said head. This pin extends through a boss 46 formed on the brush holders 24 and is rotatably mounted in bearings 47 in said boss. The end of the pin 45 is turned over as designated at 48 to prevent removal of said pin 45 from the bearing 47. In the outer face of the head 44 is provided a screw driver slot 49 by means of which the head may be rotated.

The bearings 47 are so situated that the knurled surface of the head 43 may in one position of the head engage the peripheral surface 51 of the body of the brush with which it associates when the head is in one position. Due to the knurling on these heads the heads dig into the surfaces 51 of the brushes and prevent rotation of the brushes in a direction tending to unscrew the bolts 38. The heads 44 when turned in the opposite direction clear the surfaces 51 of the bodies of the brushes and permit removal of or attachment of the brushes from or to the brush holders. Arrangement of the parts when the head is in such position is shown in Fig. 4 in dotted lines.

The method of using the invention is as follows: Without the necessity of removing the brush holders 24 or 23, brushes can be applied to or removed from the holders by merely turning the heads 44 of the various cams 40 to position the cams as shown in Fig. 4 in dotted lines. The brush may then be either attached to or removed from the holder by merely rotating the brush to cause the bolt 38 to screw into or out of the threaded boss 42. When the brush is firmly in position the heads 44 are turned in the direction indicated by the arrow in Fig. 4, through engagement of a screw driver with the slots 49. This causes the surface 44 of the cam 40 to grip into the surface 51 of the brush and to hold the brush from further movement in a direction tending to disengage the brush.

My invention is highly advantageous in that an extremely simple and practical construction is provided by means of which brushes may be attached to a brush holder and readily removed therefrom. The invention is extremely positive and effective and when the cams have been placed in operative position, positively prevent disengagement of the brushes from the brush holder. The cams can be easily and quickly operated so that brushes may be readily interchanged when desired.

Changes in the specific form of my invention, as herein disclosed, may be made within the scope of what is claimed without departing from the spirit of my invention.

Having described my invention, what I claim as new and desire to protect by Letters Patent is:

1. In a scrubbing machine, a revoluble brush holder, a brush including a disc-like body providing a cylindrical shoulder at the peripheral edge thereof, a bolt having its axis at the center of said body and having means securing it to said body with its threaded end projecting therefrom, threads formed in said brush holder for engagement with the threaded end of said bolt, whereby the brush may be attached to the brush holder by rotation of said body, and cam means movably mounted with respect to said brush holder and

adapted to engage said shoulder of the body for holding the brush from rotation relative to said brush holder in a direction tending to unscrew the bolt from said threads.

2. In a scrubbing machine, a revoluble brush holder, a brush including a disc-like body providing a cylindrical shoulder at the peripheral edge thereof, said body and brush holder having juxtaposed parts situated in proximity to the center of said body, a bolt having its axis at the center of said body, said bolt extending through one of said parts and having means for holding it from rotation relative thereto and being adapted to screw into the other part to attach the brush to the brush holder, and cam means movably mounted with respect to said brush holder and adapted to engage said shoulder of the body for holding the brush from rotation relative to said brush holder in a direction tending to disengage the brush from the brush support.

3. In a scrubbing machine, a revoluble brush holder, a brush including a disc-like body providing a cylindrical shoulder at the peripheral edge thereof, and constructed of wood, said body and brush holder having juxtaposed parts situated in proximity to the center of said body, a bolt having its axis at the center of said body, said bolt extending through one of said parts and having means holding it from rotation relative thereto and being adapted to screw into the other part to attach the brush to the brush holder, and a cam mounted on said brush holder for movement with respect thereto and having a roughened surface adapted to engage said shoulder and to dig into the surface thereof for holding the brush from rotation relative to said brush holder in one direction.

4. In a scrubbing machine, a revoluble brush holder, a brush having a body formed with a cylindrical shoulder, means held from rotation relative to said body and disposed at the center of said shoulder for attaching the brush to the holder, said means requiring rotation of the brush to effect detachment, a cylindrical member having a surface adapted to engage said shoulder, said member and brush support having juxtaposed parts, a pin eccentrically situated with reference to the axis of said cylindrical member, said pin being held from rotation relative to one of said parts and being revoluble relative to the other for guiding said member for movement toward said shoulder to restrain rotation of said brush relative to said brush holder.

5. In a scrubbing machine, a revoluble brush holder, a brush having a body formed with a cylindrical shoulder, means held from rotation relative to said body and disposed at the center of said shoulder for attaching the brush to the holder, said means requiring rotation of the brush to effect detachment, and a cam movably mounted with respect to said brush holder and engaging said shoulder for locking the brush from rotation relative to the brush holder.

6. In a scrubbing machine, a revoluble brush holder, a brush having a body formed with a circular shoulder, fastening means held from rotation relative to said body and disposed at the center of said shoulder and about the axis of which the brush may rotate said fastening means including helical engaging members adapted to become disengaged upon rotation of the brush, and an eccentric cam pivoted to said brush holder and adapted to be wedged against said shoulder to restrain rotation of said brush relative to said brush holder.

7. In a scrubbing machine, a revoluble brush holder, a brush having a body formed with a cylindrical shoulder, means held from rotation relative to said body and disposed at the center of said shoulder for attaching the brush to the holder, said means requiring rotation of the brush to effect detachment, and an eccentric cam pivoted to said brush holder and adapted to engage said shoulder for restraining rotation of said brush relative to said brush holder.

relative to said body and disposed at the center of said shoulder for attaching the brush to the holder, said means requiring rotation of the brush to effect detachment, a cylindrical member having a surface adapted to engage said shoulder, a pin integral with said member and eccentrically disposed with reference thereto, and a bearing in said brush holder for said pin, said bearing guiding said member for movement against the shoulder to restrain rotation of said brush relative to said brush holder.

8. In a scrubbing machine, a revoluble brush holder, a brush having a body formed with a cylindrical shoulder, means held from rotation

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