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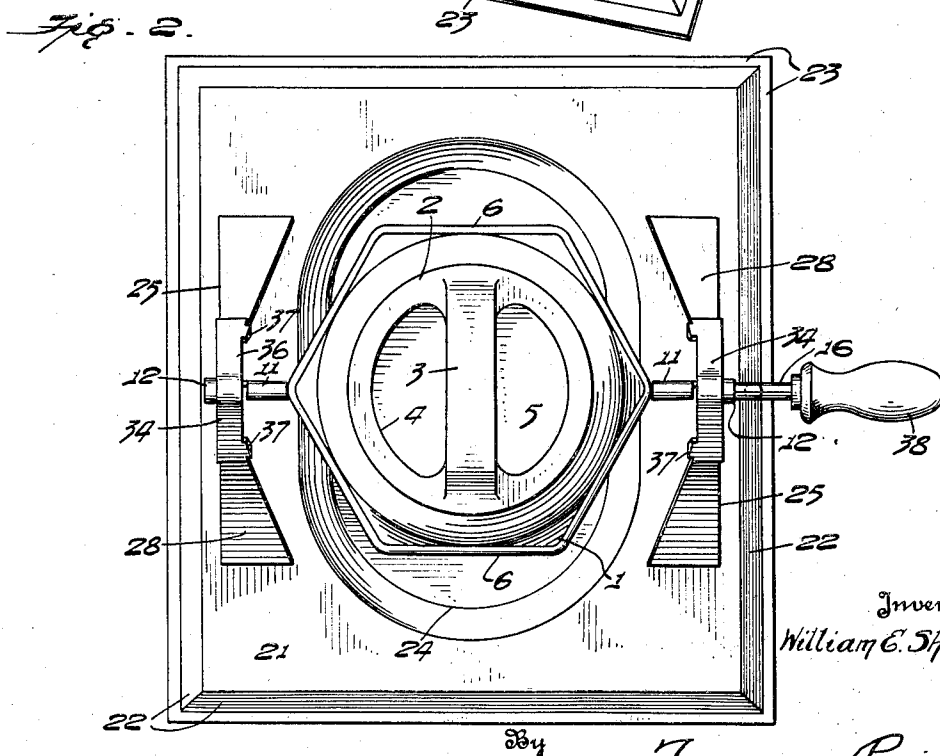
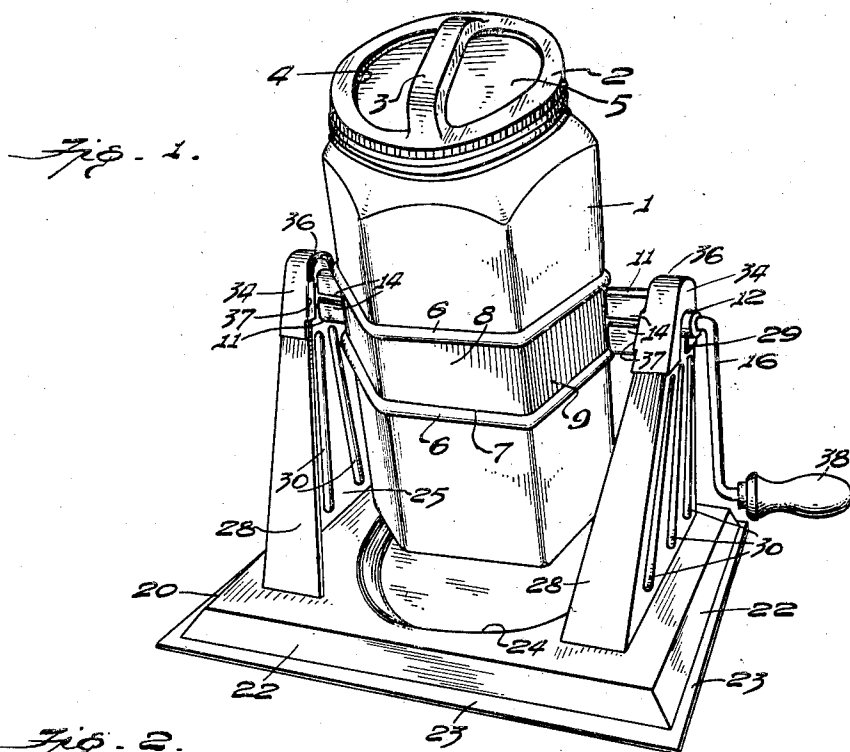
W. E. SHARP

1,977,649

CLEANING MACHINE

Filed July 31, 1930

3 Sheets-Sheet 1



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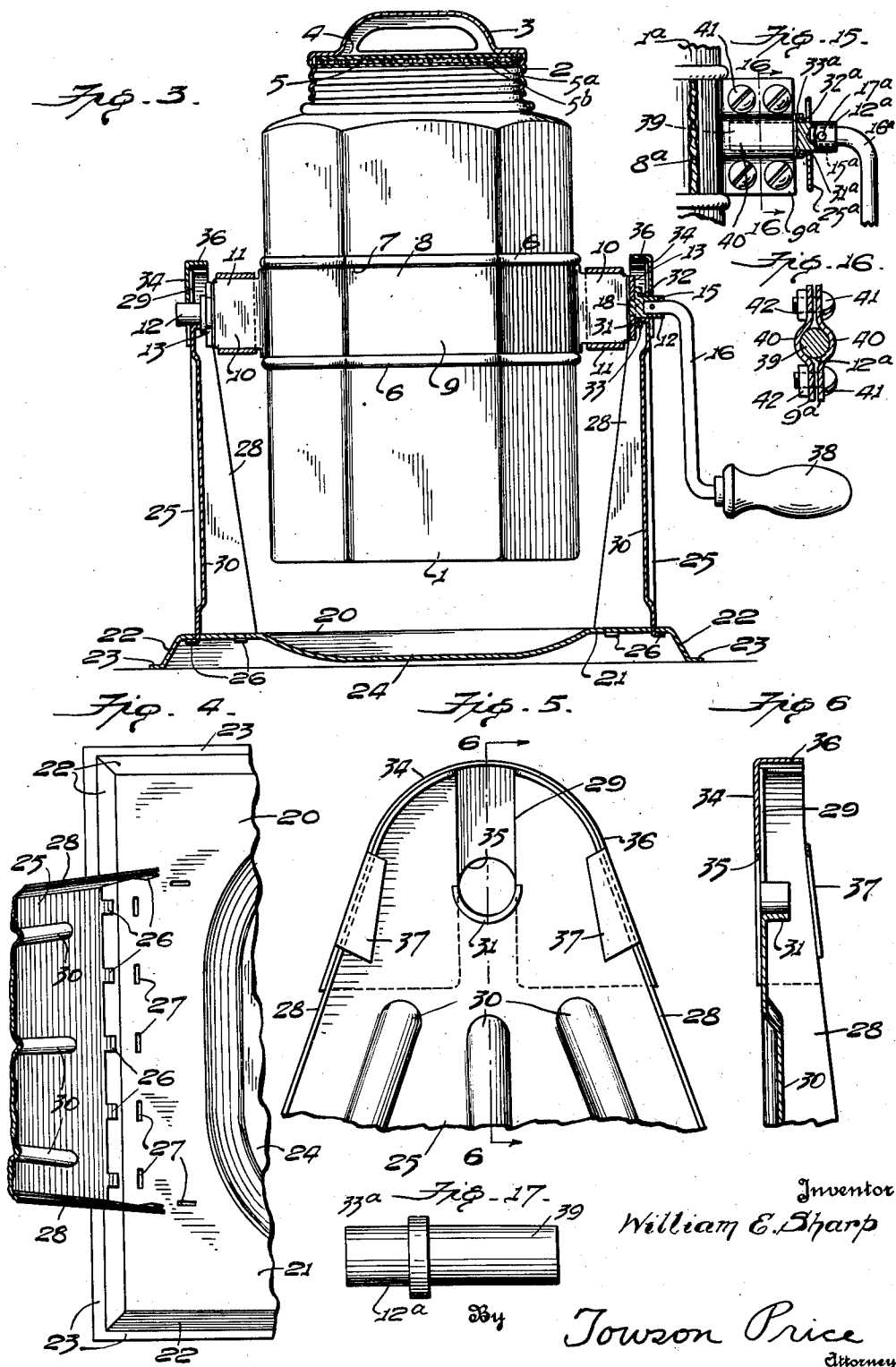
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Fig. 7.

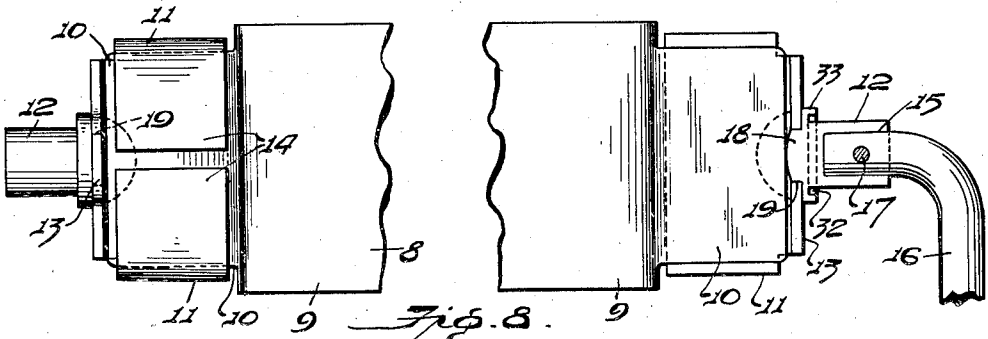


Fig. 8.

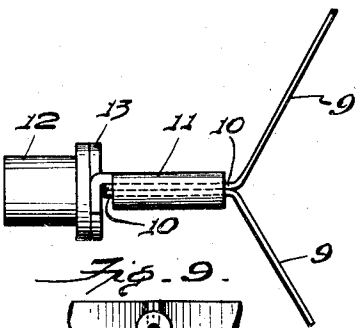


Fig. 9.

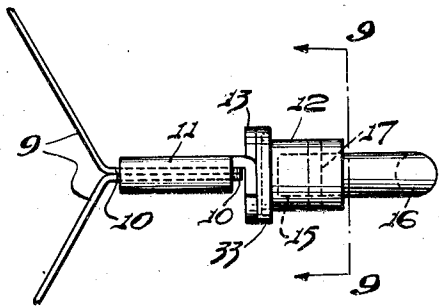


Fig. 10.

Fig. 11.

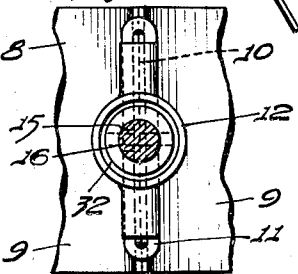


Fig. 12.

Fig. 13.

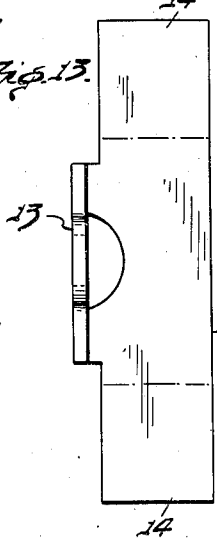
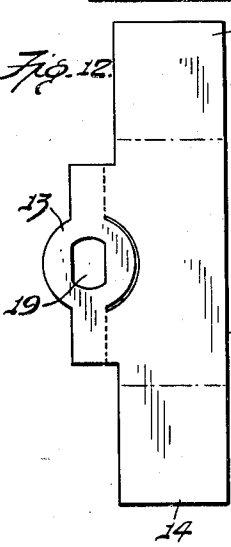
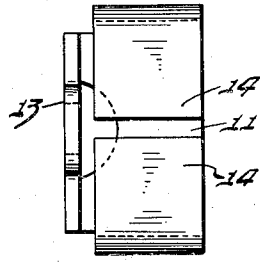


Fig. 14.



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UNITED STATES PATENT OFFICE

1,977,649

CLEANING MACHINE

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15 Claims. (Cl. 259—81)

This invention relates to cleaning machines, and more particularly to a device adapted for cleaning articles of wearing apparel.

The principal object of my invention, generally considered, is to provide a machine involving a transparent rotatable container adapted for holding cleaning fluid and articles to be cleaned, whereby such articles are cleaned upon a mere rotation of the container and the progress of cleaning may be followed without opening the container.

Another object of my invention is to provide a cleaning machine preferably having a pressed metal supporting frame involving bearing brackets, the upper ends of which are slotted, with in-turned flanges at the lower ends of said slots providing bearings, said bearings receiving trunnions on the opposite ends of a band encircling a preferably transparent container for cleaning fluid and articles to be cleaned, one of said trunnions having connected thereto a handle for turning the container and normally interlocked with the bearing flange to prevent undesired upward movement thereof during turning.

A further object of my invention is to provide a cleaning machine involving a pressed metal base downwardly embossed to maintain a low center of gravity and slotted to receive connecting lugs on upstanding bearing brackets, said brackets preferably involving parallel web portions corrugated for stiffness and tapering flanges on the side edges thereof, the upper ends of said brackets terminating in bearing slots normally closed by covers for improving the appearance of the machine and avoiding the undesired entry of anything into the bearing slots.

A still further object of my invention is the provision of a cleaning machine preferably involving a glass jar, hexagonal or non-circular in section, and provided with spaced parallel ribs between which is mounted a band which supports and normally prevents rotation of the jar about its longitudinal axis, opposite ends of said band having connected thereto bearing trunnions for rotatably mounting said jar, so that when articles and cleaning fluid are placed in said jar and rotated, said fluid will be efficiently agitated and caused to flow to all parts of the articles to be cleaned, said glass jar permitting inspection of said articles prior to opening the jar for removal of said articles.

Other objects and advantages of the invention relating to the particular arrangement and construction of the various parts will become apparent as the description proceeds.

Referring to the drawings illustrating my invention, the scope whereof is defined by the appended claims:—

Figure 1 is a perspective view of one embodiment of my cleaning machine.

Fig. 2 is a plan of the machine shown in Fig. 1. Fig. 3 is a partial side elevation and partial vertical section of the machine of Fig. 1.

Fig. 4 is a fragmentary plan of the base of the machine showing how the bearing brackets are connected thereto.

Fig. 5 is a fragmentary detail view of the upper end of one of the bearing brackets showing how the slot cover is applied.

Fig. 6 is a vertical sectional view on the line 6—6 of Fig. 5, looking in the direction of the arrows.

Fig. 7 is a fragmentary view, partly in elevation and partly in section, of the band for supporting the bottle or jar and the associated band clips, trunnions and crank.

Fig. 8 is a fragmentary view corresponding to Fig. 7, but showing the band, clips, trunnions and handle looking in a direction at right angles to the direction of view of Fig. 7.

Fig. 9 is a transverse sectional view on the line 9—9 of Fig. 8, looking in the direction of the arrows.

Fig. 10 is a detail side elevation of the trunnion to which the trunnion crank is connected.

Fig. 11 is an end elevation of the same trunnion.

Fig. 12 is a plan of the blank from which one of the band clips is constructed.

Fig. 13 is a view of the same blank after the trunnion connecting portion has been bent to position at right angles to the band encircling portion thereof.

Fig. 14 is a detail view of the completed band clip separated from its associated trunnion.

Fig. 15 is a fragmentary view corresponding to Fig. 3, but showing another embodiment of my invention.

Fig. 16 is a transverse sectional view on the line 16—16 of Fig. 15, looking in the direction of the arrows.

Fig. 17 is a detail side elevation of a modified form of driven trunnion normally used with the drive trunnion illustrated in Figs. 15 and 16.

Referring to the drawings in detail, like parts being designated by like reference characters, the embodiment of my cleaning machine illustrated in Figures 1 to 14, inclusive, involves a container which is preferably made of glass or

transparent material so that the fluid and materials therein may be inspected without opening. Said container 1 is also desirably non-circular in section, or hexagonal, as illustrated, so that the agitation of the cleaning fluid when the container is rotated about a transverse axis is more effective for cleaning purposes. Said container is desirably closed by a screw cap 2 which preferably has the upper surface thereof pressed outwardly to form a handle 3 angular or channel-shaped in section for stiffness. The formation of the handle from the top of the cap 2, of course, leaves apertures 4 on either side thereof, and said apertures are normally closed by a flat plate of metal or other desired material 5. The bottle or jar 1 is preferably closed by forcing the plate 5, an associated felt pad 5^a, and a tin foil faced pulp board liner 5^b, into tight contact with the edge of the open end thereof by screwing on the cap 2 to the position shown most clearly in Fig. 3. The felt of the pad is to furnish resiliency to compensate for any irregularity in the top of the container 1 and the tin foil faced liner is to resist the action of the cleaning fluid.

In order to properly support the container 1 for rotation about a transverse axis, said container desirably has a pair of spaced parallel ribs 6 encircling the same and disposed on either side of the center of gravity thereof, thereby providing a groove 7 therebetween for receiving a supporting band 8. In the present embodiment, the band 8 comprises a pair of metal plates 9 of such a width that they snugly fit between the ribs 6, said plates being in a preferred form constructed of eighteen gauge steel, being bent to follow the outside contour of the container or bottle 1 and having their ends 10 bent so as to normally lie flat against one another, as shown most clearly in Figure 8.

After the sections of the bottle band 9 have been placed in position around the bottle or container 1 between the ribs 6 thereof, the same are desirably held together by clips 11 carrying trunnions 12. Each clip 11 is desirably formed, as illustrated in Figures 12, 13 and 14, the blank being cut, as illustrated in Figure 12, the trunnion engaging portion 13 being bent at right angles thereto, as illustrated in Figure 13, and the ends 14 of said blank bent over on the intermediate portion to embrace the engaging ends 10 of the bottle band therebetween and hold the parts frictionally in assembled relation, it being understood that said clips are sufficiently resilient to snugly receive the ends of the bottle band and hold them firmly together without the necessity of auxiliary retaining means. The clips 11 may desirably be constructed of twelve gauge steel.

The trunnions 12 are desirably differently formed, as one of said trunnions is provided with a pocket 15 receiving an end of a crank 16 for turning the bottle or container 1. The end of said crank received in the trunnion 12 may be locked in place by means of a rivet or the like 17, as shown most clearly in Figures 7 and 8. Both of the trunnions 12 are desirably provided with non-circular extensions 18 fitting in corresponding apertures 19 in the clips 11 for connecting said trunnions thereto, as by riveting, or other desired means. The trunnion 12 opposite to the crank 16 may be formed solid, as it is not necessary that it be adapted to receive a crank.

For rotatively mounting the container or jar 1, a stand 20 is provided, said stand being desirably

constructed of sheet metal pressed to the desired shape, said metal, in a preferred form, being eighteen gauge steel. The stand 20, in the embodiment illustrated, comprises a base 21 provided with a periphery reinforced by a sloping flange 22, the outer edge of which is flanged horizontally, as indicated at 23, to provide a flat supporting edge. The intermediate portion of the base 21 is desirably downwardly embossed, as indicated at 24, to maintain a low center of gravity and to provide for a bottle or container 1 of maximum size or capacity.

Upstanding from the base 21 is a pair of standards or bearing brackets 25, the lower ends of which desirably rest on the top of the base 21 on either side of the depression or embossment 24, integral lugs 26 being desirably provided on said lower edge and passing through corresponding slots 27 in the base 21, whereupon they are bent over, as shown most clearly in Figure 3, to lock the standards or bearing brackets securely in position on the base. Great rigidity of the construction is secured by having the sides of the brackets 25 provided with flanges 28, tapering from a maximum at the lower ends, which are connected to the base, to the upper ends of the brackets where they are provided by bearing slots 29. The brackets 26, as well as the flanges 28 thereon, taper upwardly, as shown most clearly in Figure 5, and rigidifying ribs 30, preferably diverging downwardly, are desirably provided for giving the necessary stiffness thereto.

In order to obviate scoring of the trunnions 12, which are desirably constructed of hard bronze, the portions of the brackets or standards 25 adjacent the lower ends of the slots 29 are desirably flanged inwardly, as indicated at 31, to provide bearings of relatively large area. In order to prevent undesired upward movement of the trunnion 12 to which the crank 16 is connected, said trunnion is desirably provided with an annular notch 32 in the peripheral flange 33 thereof which abuts the corresponding bottle band clip 11 whereby, when assembled, the free edge of the corresponding bearing flange 31 interlocks in the annular notch 32 of the trunnion 12 to which the crank 16 is connected, the dimensions being such that the bearing brackets 25 may be sprung slightly to permit the trunnions 12 to be placed in the bearing slots 29 with the bearing flange 31 in engagement in the notch 32 of the trunnion 12 carrying the actuating crank 16. After the parts have been assembled, as shown in Figure 3, the slots 29 in the standards or bearing brackets 25 are desirably closed by covers 34 which desirably snugly fit the upper ends of the brackets 25. Said covers are desirably constructed with downwardly opening slots or notches complementary to the slots or notches 29 in the standards 25, each leaving, when nested as shown in Fig. 5, an opening 35 just big enough to receive the corresponding trunnion 12.

The edges of each cover are desirably flanged, as indicated at 36, to correspond with the flanging on the standards or bearing brackets, said flanges 36 at the lower tapering portions thereof carrying intumed flange portions 37 which, when assembled, overlie the correspondingly tapered upper portions of the flanges 28, and are so spaced from the main web of the cover that when each cover is slid to position over the upper end of the corresponding bearing bracket 25, said flange portions 37 will be wedged into gripping contact with the correspondingly tapered flange portions 28 on the bracket 25.

Referring now to the embodiment of my invention illustrated in Figures 15, 16 and 17, there is shown a fragmentary view of a cleaning machine involving a container 1^a which may be identical with the container 1 of the first embodiment, and be encircled by a band 8^a comprising a pair of metal plates 9^a, as in the first embodiment. Instead, however, of having the plates 9^a connected together by means of clips to which trunnions are attached, as in the first embodiment, I provide in the present embodiment trunnions 12^a, the drive trunnion being shown in Figures 15 and 16, and the driven trunnion being shown in detail in Figure 17, its connection with the bottle band being likewise properly represented in Figure 16, both of said trunnions having peripheral flanges 33^a, the drive trunnion only shown in Figure 15 having an annular notch 32^a in said peripheral flange for interlocking with the free edge of the bearing flange 31^a on the corresponding bracket 25^a, as in the previous embodiment.

Instead of being connected to clips which encircle the ends of the bottle band 8^a, the trunnions 12^a are elongated or provided with extensions 39 which are received between correspondingly embossed portions 40 of the ends of the plates 9^a and frictionally held therebetween, as shown most clearly in Figures 15 and 16, in any desired manner, as by means of bolts 41 and associated nuts 42 extending through the ends of the metal plates 9^a on either side of the embossed portions 40, and thereby holding said plates tightly in place about the trunnions 12^a. The drive trunnion 12^a, as in the previous embodiment, is desirably provided with a pocket 15^a receiving an end of a crank 16^a for turning the bottle or container 1^a. The end of said crank in the trunnion 12^a may be locked in place by means of a rivet or the like 17^a.

Although I have only fully illustrated the assembly of the drive trunnion 12^a with a corresponding end of the bottle band 8^a, it will be understood that the driven trunnion 12^a may be connected to the other end of the band 8^a in a similar manner, as also properly represented by Figure 16. Except as specifically described in connection with the present embodiment, the same may correspond with the first embodiment.

From the foregoing description, taken in connection with the accompanying drawings, it will be seen that I have devised a cleaning machine which, although particularly adapted for dry cleaning clothing, is not limited to such use, and which may be readily manufactured, principally of sheet metal parts so constructed as to be readily assembled and taken apart, as desired. As shown, in Figs. 1, 2 and 3, the turning crank may, if desired, have applied to the handle or end thereof, which is normally grasped by the hand in turning, a rotatable hand grip portion 38, although such is not essential.

It will be seen that my cleaning machine involves relatively few and simply constructed parts connected together in convenient ways, such as frictionally or by integral means thereon. Thus, it will be seen that the bearing brackets are connected to the base by integral lugs on said brackets fitting in slots in the base. The slot covers for the brackets are held frictionally in place on account of the wedging action between the tapered flanges 28 on the brackets, and the flange portions 37 on the slot covers. The engagement between the band clips and the band sections is also frictional in one embodiment illustrated, said

clips being bent to the desired shape, as shown most clearly in Figure 14, and forced over the adjacent ends of the band sections. The trunnion carrying the actuating crank is resiliently held in locked position with respect to the bearing flange 31 on the supporting bracket 25, so that when in position, the crank 16 may be freely turned without danger of detaching the trunnion from its associated bearing.

Although preferred embodiments of my invention have been illustrated, it will be understood that modifications may be made without departing from the spirit and scope of the appended claims.

I claim:

1. A cleaning machine comprising a supporting frame, a transparent container open at one end, a pair of band segments in encircling relationship with said container, means locking said segments together in tight engagement with said container and providing trunnions outstanding therefrom, said frame having bearing portions rotatably receiving said trunnions, one of said trunnions and its bearing comprising a curved flange portion on one and an annular groove in the other, said curved flange portion being horizontally received in said annular groove thereby preventing upward dislodgment of said trunnion from said bearing, and fluid-tight means for closing the open end of said container.

2. A cleaning machine comprising a supporting frame, said frame having slotted portions providing bearings, a glass jar provided with outstanding trunnions normally received in said bearings, one of said trunnions and its bearing comprising an annular groove in one and a flange on the other, said flange fitting horizontally in said groove to prevent upward dislodgment of said trunnion while permitting rotative movement thereof, and means for closing said jar.

3. A cleaning machine comprising a base, brackets upstanding therefrom, a glass jar encircled by a removable band comprising a pair of segments embracing trunnions at the ends and means adapted to be progressively tightened for holding adjacent ends and said trunnions together, said trunnions being rotatably mounted on said brackets, and fluid-tight means for closing said jar.

4. In a cleaning machine, a hexagonal container for cleaning fluid and articles to be cleaned, a pair of spaced ribs encircling said container, a supporting band formed in two sections engaging said container between said ribs and holding it against movement about its longitudinal axis, trunnions mounted between the adjacent ends of said sections to permit said container to be rotated about a transverse axis, and means adapted to be progressively tightened for simultaneously clamping the band sections in operative engagement with said container and trunnions.

5. In a cleaning machine, a supporting base, a pair of brackets extending upwardly from said base, the upper ends of said brackets being slotted and provided with intumed flanges at the lower ends of said slots to provide bearings, a container formed with trunnions and supported between said brackets with the trunnions engaging said bearings, one of said trunnions having connected thereto means for rotating the container and having an annular recess normally receiving the bearing flange to prevent undesired upward movement of the trunnion when in use.

6. In a cleaning machine, a container provided with trunnions and adapted to hold clean-

ing fluid and articles to be cleaned, a pressed metal base, and a pair of brackets upstanding from said base, said brackets having upwardly opening slots and inwardly extending flanges adjacent the bottom of said slots providing bearings, said slots permitting application and removal of said container, said trunnions normally engaging the bracket bearings, and means on one of said trunnions for turning said container, said trunnion having an annular groove at its outer end and the adjacent bracket flange being normally received in said groove to prevent undesired upward movement of the container when in use.

7. In a cleaning machine, a base, a pair of pressed metal uprights connected to said base at their lower ends and tapering upwardly to slotted portions, said uprights adjacent the lower ends of said slots being inwardly flanged to provide bearings for a cleaning fluid container, said uprights having a plurality of corrugations diverging downwardly from said slotted ends for increasing the strength thereof.

8. In a cleaning machine, a pressed metal base, a pair of pressed metal bearing brackets upstanding from said base, each bracket comprising a web, increasing in width from top to bottom, and flanges at the sides thereof, and means for connecting said brackets to said base comprising integral lugs extending from the lower edges of both web and flanges of said brackets and received in corresponding slots in the base.

9. In a cleaning machine, a pressed metal base comprising a downwardly flanged periphery and a downwardly embossed body portion for maintaining a low center of gravity, tapered bearing brackets extending upwardly from said base on either side of said embossed portion, a cleaning fluid container rotatably mounted in bearing slots adjacent the top of said brackets, and slot covers, tapered to correspond with said brackets, nesting over the tops of said brackets and closing said slots.

10. In a cleaning machine, a base, a pair of tapered bearing brackets upstanding therefrom and slotted at their upper ends to receive trunnions on a container, in combination with pressed metal correspondingly tapered covers telescoping over the tops of said brackets and closing the slots therein.

11. In a cleaning machine, a container having parallel spaced ribs, means for supporting said container comprising a pair of band segments engaging it between said ribs, means for locking

said segments in place comprising clips holding together adjacent ends thereof for maintaining said band in closely embracing relationship with said container, said clips carrying trunnions outstanding from the outer ends thereof for rotatably mounting said container.

12. In a cleaning machine, a container for cleaning fluid and articles to be cleaned, supporting means for said container comprising an encircling band, trunnions extending outwardly from opposite ends of said band, bearings for said trunnions, one of said trunnions having an outwardly opening pocket, and a turning crank with an end received in said pocket, the trunnion receiving said crank having an annular recess, the inner portion of said bearing fitting in said recess for limiting the trunnion against undesired upward movement.

13. In a cleaning machine, a container having a pair of spaced ribs, means for supporting said container comprising a pair of band segments engaging the container between said ribs, trunnions disposed between said segments at the ends thereof, said segments being outwardly embossed to receive said trunnions, and means for holding said segments together and in embracing relationship with said trunnions and container.

14. In a cleaning machine, a container having spaced parallel ribs, means for supporting said container comprising a pair of band segments engaging it between said ribs, said band segments having outstanding end portions with adjacent faces adapted to lie against each other, said end portions being outwardly embossed to form pockets, trunnions mounted in said pockets between said outwardly embossed portions, and means adapted to be progressively tightened for simultaneously locking said segments in place and holding the trunnions so that they are adapted to serve for rotatably mounting said container.

15. In a cleaning machine, a container having a pair of spaced ribs, means for supporting said container comprising a pair of band segments engaging said container between said ribs, trunnions disposed between said segments at the ends thereof, said segments being outwardly embossed to receive said trunnions and apertured on opposite sides of said embossed portions, and bolts passing through said apertures and associated with nuts adapted to be progressively tightened for holding said segments together and said trunnions in position.

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