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BOWL CLEANER

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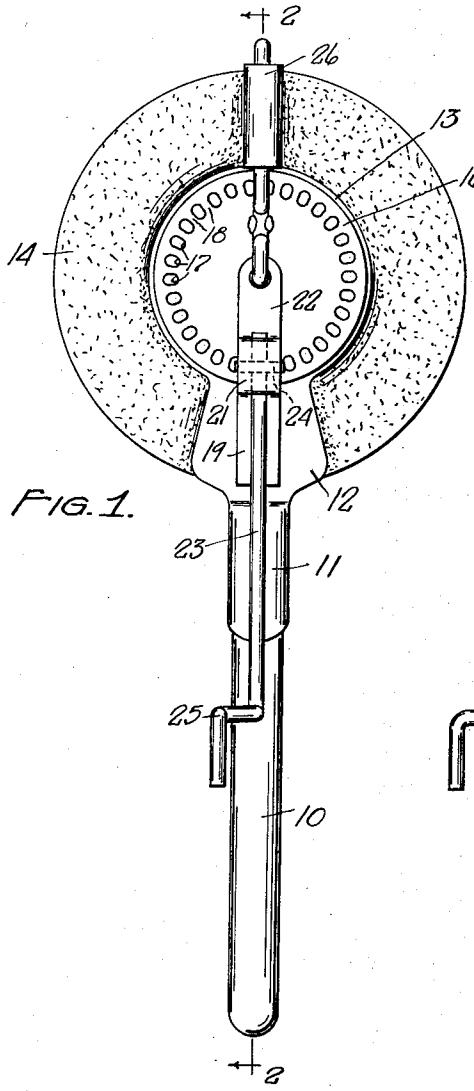


FIG. 1.

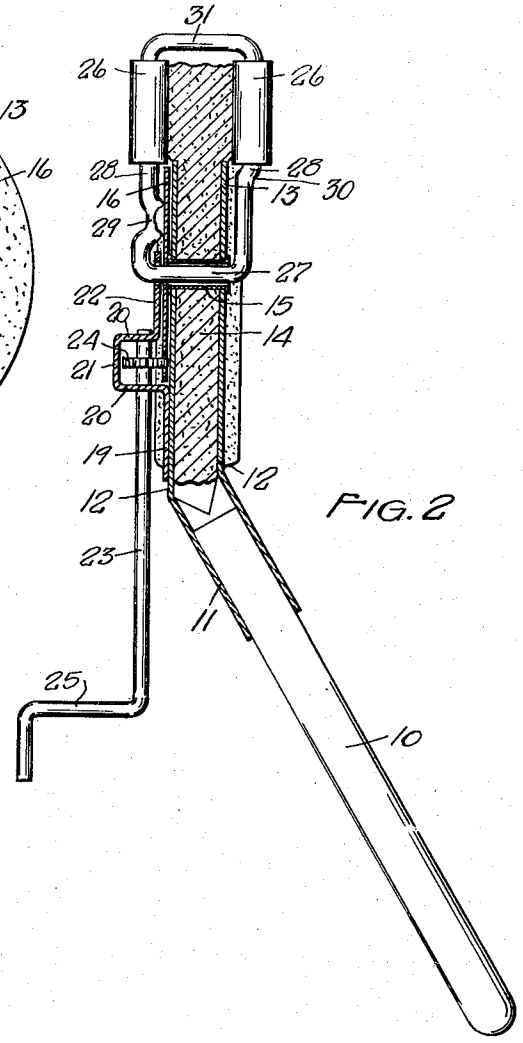


FIG. 2.

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BOWL CLEANER

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9 Claims. (Cl. 15—119)

This invention relates to improvements in bowl cleaners, and particularly to a device for cleaning toilet bowls and the like.

Various cleaners have heretofore been developed for this purpose, but these have generally been of the brush type wherein the bristles are held by a twisted wire which may contact and mar the china ware in use, and which are subject to dripping when wet. Cleaners for other purposes have heretofore been developed which employed sponge cleaning elements and associated wringing elements. However, the limitations of sponges, coupled with the requirement for curved surfaces in a bowl cleaner have heretofore barred use of sponges with wringing elements for use as bowl cleaners, to the best of our knowledge.

It is, therefore, the primary object of this invention to provide a cleaner having a sponge cleaning element with a curved cleaning surface, and a wringing element for the cleaning element.

A further object is to provide a device of this character having a circular cleaning element of sponge character, and rotatable means for wringing said cleaning element.

A further object is to provide a device of this character having a wringing element and novel means for actuating the same.

A further object is to provide a cleaner wherein a sponge disc is solidly clamped in a bracket which mounts means for actuating a pair of wringer elements rotatable concentrically of and bearing against opposite sides of said disc.

Other objects will be apparent from the description and appended claims.

In the drawing:

Fig. 1 is a plan view of the cleaner, viewed in the direction of the arrow A in Fig. 2.

Fig. 2 is a longitudinal cross-sectional view taken on line 2—2 of Fig. 1.

Referring to the drawing, which illustrates the preferred embodiment of the invention, the numeral 10 designates a handle which is preferably quite short as is common in hand tools and appliances. On one end of handle 10 is rigidly mounted a collar 11 which receives the end of said handle. At the outer end of collar 11 is provided a pair of spaced parallel plates 12 which preferably extend at an angle to the axis of collar 11, said plates each terminating in a substantially circular enlarged end portion 13 spaced from collar 11.

A sponge rubber disc 14, of a thickness greater than the spacing of plates 12, is interposed between said plates concentrically with the circular end portions 13 to be clamped thereby. An open ended tube 15 having its ends swaged or expanded outwardly, passes centrally through plate portions 13 and sponge 14 to form a passage therethrough and to hold said plates in clamping relation to said sponge.

A rigid sheet metal disc 16, preferably of a size slightly smaller than plate portion 13 is positioned concentric thereto at one side thereof. Adjacent its outer periphery disc 16 is provided with a concentrically arranged series of radially elongated closely spaced apertures 17 separated by narrow elongated radial webs 18.

An elongated bracket 19 is rigidly secured to one of plates 12 in outwardly spaced relation to the periphery of disc 16, and extends radially of the cleaning element. Intermediate its ends, said bracket 19 is provided with an off-set U-shaped bent portion comprising opposed leg portions 20 substantially parallel to each other and perpendicular to plate 12, and a bridge portion 21 substantially parallel to and spaced from plate 12. The inner end portion 22 of bracket 19 extends past the center of disc 16. The outer leg portion 20 is spaced outwardly from disc 16, and the inner leg portion is spaced inwardly of the concentric series of apertures 17 in disc 16. One end of a shaft 23 is journaled in the two leg portions 20 substantially centrally thereof, and fixedly mounts a gear wheel 24 whose teeth are adapted to enter apertures 17 of the disc. The bridge portion 21 of bracket 19 is positioned to clear gear 24. Shaft 23 is elongated, and a crank portion 25 is formed therein in spaced relation to and opposite handle 10.

A rigid frame element serves to journal a pair of rollers 26 extending radially of cleaning element 14 at opposite sides thereof, said rollers being of a length greater than the radial dimension of the flared peripheral portion of sponge 14 outwardly of plate portions 13. The roller-mounting frame is preferably formed of heavy wire, and is of endless formation. The inner end portion 27 of said frame is journaled in tube 15 and passes through apertures registering with said tube formed in disc 16 and end portion 22 of bracket 19, whereby it holds said bracket against distortion and journals said disc. A pair of substantially parallel radially extending portions 28 extend outwardly from journal portion 27 of the frame. One of the radial frame portions 28 has an inwardly directed off-set portion 29 therein adjacent the inner end of roller 26 journaled thereon, which off-set is rigidly secured to the disc 16 radially thereof, and the other frame portion has an off-set forming a shoulder 30 adjacent the inner end of roller 26 journaled thereon. An outer transverse portion 31 interconnects the ends of frame portions 28 and is spaced outwardly from the periphery of sponge 14.

When the device is being used, the rollers will be positioned closely adjacent bracket 19, thus accommodating use of the outer portion of cleaning element 14 without danger of any metal pro-

jection striking or scratching the china ware or the surface being cleaned. The angular disposition of the sponge with relation to the handle enables the user to reach beneath shoulders, into pockets and grooves, and generally permits a thorough job of cleaning to be done conveniently. The curvature of the peripheral edge of the cleaning element also facilitates access to pockets or recesses. Sponge rubber is commercially available in qualities which insure absence of foreign matter, so that it is a very practical material for use in cleaning china ware, porcelain, etc.

When use of the cleaner is completed, the excess water absorbed by the sponge is readily wrung therefrom by rotating crank 25. The crank rotates shaft 23 and gear 24. The gear teeth engage the webs 18 between apertures 17 of disc 16 to rotate said disc. The disc has a rotating clearance between plate portion 13 and end portion 22 of bracket 19; and is held concentric with the cleaner element 14 by portion 27 of the roller frame. As the disc 16 rotates, it rotates the rigid roller frame therewith by virtue of the fixed connection between these parts at 29. The rollers 26, which are journaled on the rigid roller frame are carried with said rotating frame, and roll over the sides of the flaring marginal portion of the cleaning element 14. The rollers are held in predetermined relation against separation by frame parts 27 and 31 which interconnect the ends of frame parts 28 on which the rollers are journaled. The bracket 19 will limit the extent of rotation of the rollers, but by making plate portions 12 wider than bracket 19, the rollers are permitted to traverse the complete extent of the flared marginal portion of cleaning element 14. Hence the latter may be completely wrung by the rollers to insure against danger of dripping of water from the sponge cleaning element after use of the device is finished. It will also be observed that the fixed parts of the mechanism for operating the wringer rollers are all located adjacent the handle, so that danger of interference therefrom in the normal use of the cleaner, as to scratch or mar the surface being cleaned, may be entirely avoided by exercise of minimum precaution.

We claim:

1. A cleaner comprising a handle, a carrier mounted on one end of said handle and including a pair of plates projecting at an angle to said handle, a circular compressible cleaning element gripped between said plates with its marginal portion flaring therefrom, a rigid endless frame having a portion thereof journaled concentrically of said cleaning element, a pair of rollers journaled on parallel runs of said frame at opposite sides of the flaring margin of said cleaning element for wringing the same, a gear element journaled concentrically of said cleaning element and fixedly connected to said frame, a bracket fixedly connected to said carrier adjacent said gear element, a crank journaled in said bracket, and a second gear carried by said crank and meshing with said first gear.

2. A cleaner comprising a handle, a carrier on one end of said handle and including a pair of plates projecting from said handle at an angle thereto, a circular compressible cleaning element gripped between said plates with its margin flaring therefrom, a rigid endless frame having a portion journaled concentrically of said cleaning element, a pair of rollers journaled on parallel runs of said frame at opposite sides of the flaring margin of said cleaning element, a crank journaled relative to said carrier, a gear on said crank, and means journaled concentrically of said cleaning element and rotatable by said gear, said frame being fixed to said means.

3. A cleaner comprising a handle, a carrier on the end of said handle and including a pair of angularly projecting plates, a disc of compressible material gripped between said plates with its margin flaring therefrom, a rigid frame journaled concentrically of said disc and including a pair of parallel arms extending radially of said disc at opposite sides thereof, a roller journaled on each arm, a member rotatable concentrically of said disc and fixedly secured to said frame, and means carried by said carrier for rotating said member.

4. A cleaner comprising a handle, a carrier on the end of said handle and including a pair of projecting plate portions, a disc of compressible material gripped between said plate portions with its margin flaring therefrom, a rigid frame journaled concentrically of said disc and including a pair of parallel arms extending radially of said disc at opposite sides thereof, a wringer element journaled on each arm and engageable with said flaring disc margin, and means for rotating said frame.

5. A cleaner comprising a handle, a carrier mounted on and projecting from the end of said handle, a disc of compressible material gripped by said carrier with its margin flaring therefrom, a rigid frame journaled concentrically of said disc and including radial arms at opposite sides of said disc, wringer elements journaled on said arms, and means for rotating said frame whereby said wringer elements may wring the flaring margin of said disc.

6. A cleaner comprising a handle, a carrier comprising a collar mounted on said handle and a pair of angularly projecting plates each terminating in a circular end portion, a circular compressible cleaning element of greater thickness than the spacing between said plates and of a diameter greater than the diameter of said circular plate portions, said cleaning element being gripped between said plates concentrically of the circular portions thereof, whereby its margin flares from said plates, a rigid frame journaled concentrically of said disk, and wringer elements journaled on said arms.

7. A cleaner comprising a disc of compressible material, a carrier extending radially of said disc and gripping the same, said disc projecting from said carrier in flared relation, a pair of rollers on opposite sides of said flared disc margin, a rigid mounting for said rollers journaled concentrically of said disc, and means for rotating said frame including a manually operable actuator located adjacent and parallel to said carrier.

8. A cleaner comprising a carrier having a pair of spaced circular plate portions, a compressible disc of greater thickness than said plate portions gripped concentrically therebetween, whereby a flaring margin of said disc projects outwardly from said plate portions, and means journaled concentrically of said disc for wringing said flaring margin, said means including rotatable members at a fixed distance apart pressing against opposite sides of said flaring margin.

9. A cleaner as defined in claim 8, and means located at one side of and parallel to said carrier for rotating said wringing means.

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