March 8, 1927. 1,620,591

N. B. BRALY

SCRUBBER

Filed Feb. 12, 1926 3 Sheets-Sheet 1

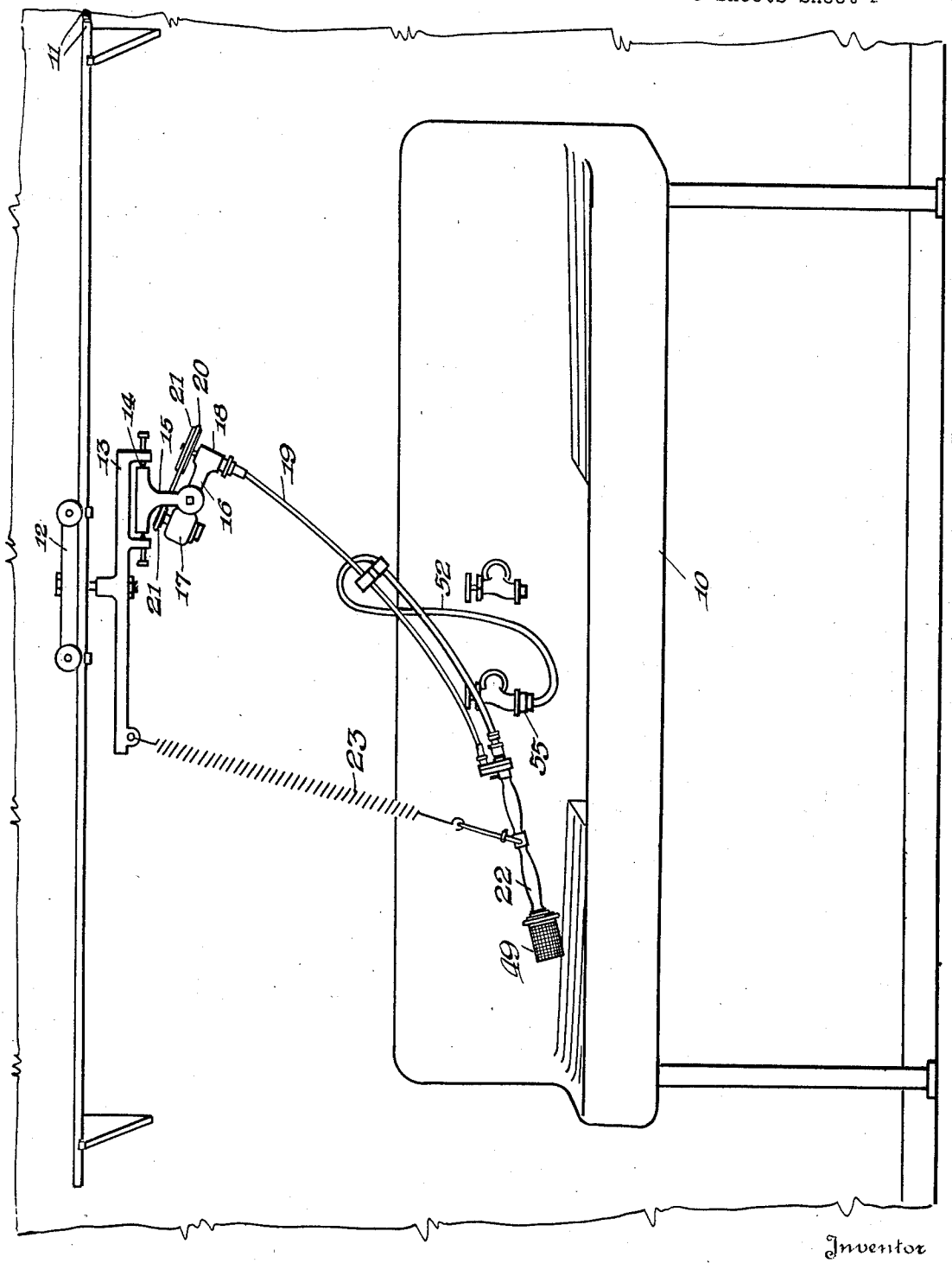


Fig. 1.

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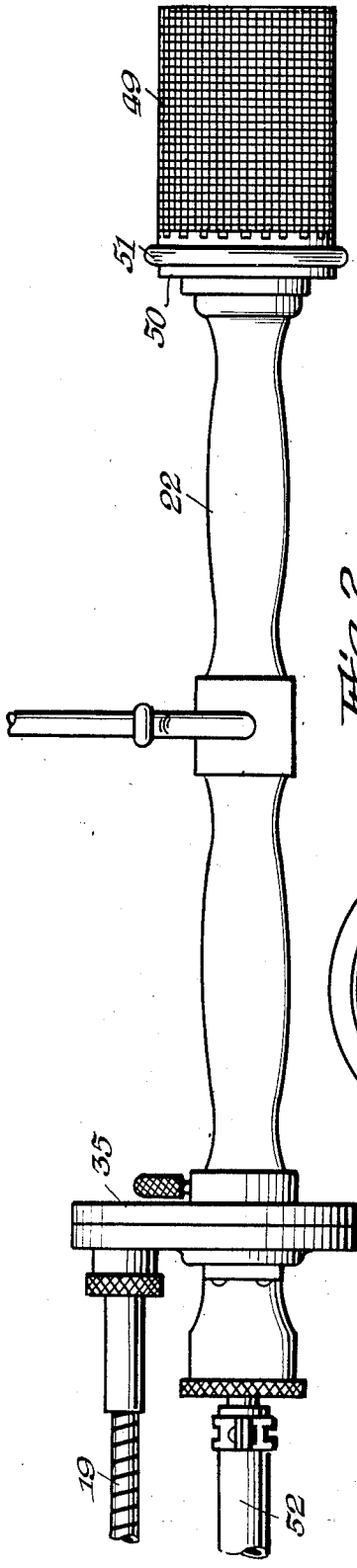


Fig. 2.

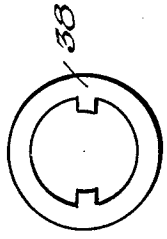


Fig. 7.

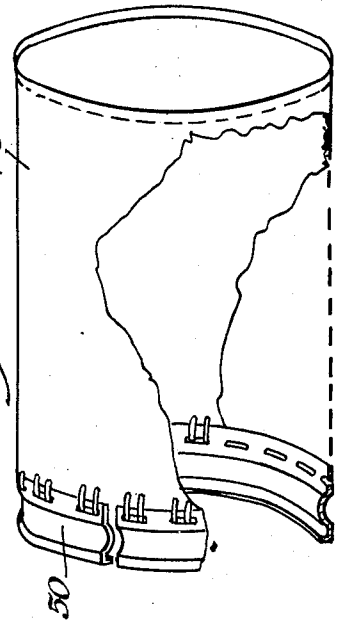


Fig. 8.

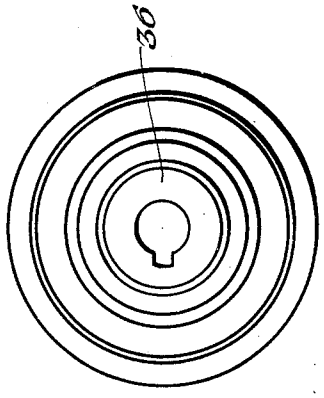


Fig. 5.

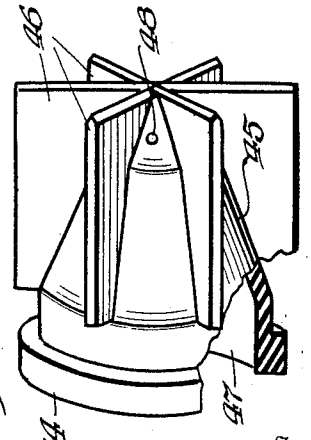


Fig. 6.

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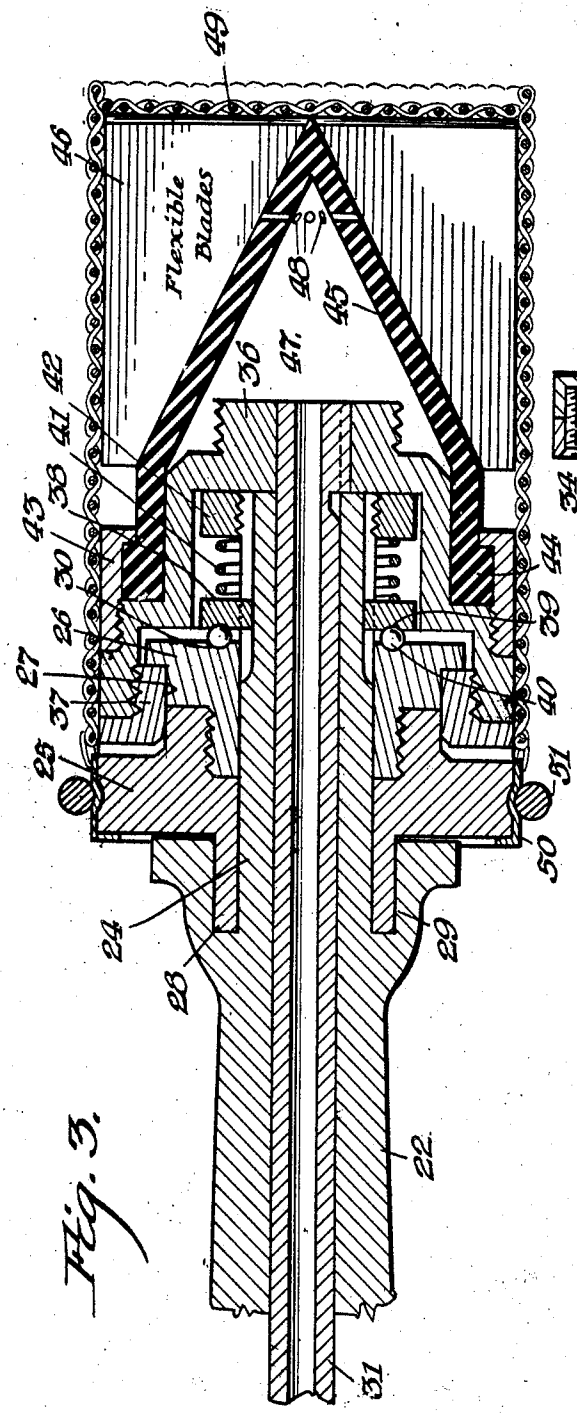


Fig. 3.

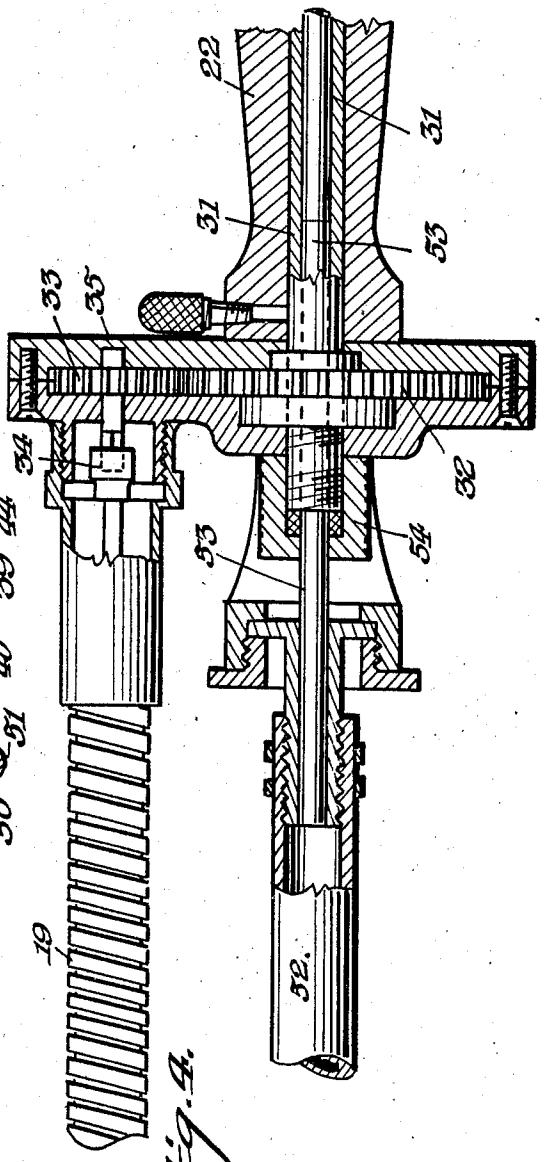


Fig. 4.

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UNITED STATES PATENT OFFICE.

NORMAN B. BRALY, OF PASO ROBLES, CALIFORNIA.

SCRUBBER.

Application filed February 12, 1926. Serial No. 87,929.

The present invention relates to cleaning or scrubbing apparatus, the primary object being to provide practical mechanism that will effectively clean dishes and the like.

A further object is to provide a brush or scrubber that will accommodate itself to the contour of the surface to be cleaned, making it peculiarly effective in corners, grooves, crevices and the like.

In the accompanying drawings:—

Figure 1 is a view in elevation of one embodiment of the invention,

Figure 2 is a view in elevation of the scrubber,

Figure 3 is a longitudinal sectional view on an enlarged scale through the head of the same,

Figure 4 is a similar view through the driving and liquid supply means,

Figure 5 is an end elevation of the nozzle carrier,

Figure 6 is a perspective view of the nozzle,

Figure 7 is a view in elevation of the ball race washer,

Figure 8 is an outline view of the preferred embodiment of the casing.

In Figure 1 there is shown a kitchen sink 10, over which is supported horizontal tracks 11. On these tracks is a carriage or trolley 12, from which is suspended a rotary hanger 13. The hanger 13 has swiveled thereon, as shown at 14, a depending bracket 15, and this bracket carries a vertically swinging frame 16, in which is mounted a suitable electric motor 17. The bracket includes a journal box 18, in which is located a flexible shaft 19. The shaft 19 is driven by the motor through the medium of a belt 20 passing around suitable pulleys 21 on said motor and shaft.

A tubular handle is shown at 22 and may be yieldingly supported, as for example, by a spring 23 connected to said handle and to the hanger 13. This handle, as shown more particularly in Figure 3, has a spindle 24 at one end, and on this spindle is journaled a carrier comprising two elements 25 and 26 threaded together and forming between them an exterior annular groove 27. The element 25 preferably has a sleeve portion 28 fitted into a groove 29 formed in the adjacent end of the handle 22. The other element 26 preferably has on its outer end face a ball groove or race 30.

Journaled in the handle 22 and extending through the spindle 24 is a tubular shaft 31, which shaft has at its rear end a gear 32 in mesh with a gear 33 that has a driving connection 34 with the flexible shaft 19, already described. The gears 32 and 33 are preferably housed in a gear casing 35. Thus the shaft 31 is rotated from the motor 17.

The outer end of the shaft 31 has a carrier member 36 keyed to it, this carrier member being in the form of a hood surrounding the outer free end of the spindle 24, and having threaded into its rear enlarged end a bushing 37 that is engaged in the groove 27 of the carrier member 25—26. Enclosed by the carrier member 36 is a ball race washer 38 slidably keyed to the spindle 24, and having a groove 39 in opposition to the groove 30. In these grooves are balls 40. A coiled spring 41 surrounding the spindle bears against the outer side of the washer 38 and against a holding nut 42 threaded on the spindle. It will thus be evident that the carrier 25—26 is yieldingly forced rearwardly by the spring 41, and the outer flange of the carrier element 26 is thus brought into frictional engagement with the inner end of the bushing 37.

The carrier member 36 has a holding collar 43 threaded thereon, and clamped between said holding collar and the carrier, is the flange 44 of a nozzle or head 45 that extends beyond the carrier 36 and shaft 31 and encloses the open end of the latter. This nozzle or head 45 is preferably of rubber or other flexible material, and is provided with a set of radially disposed flexible blades 46, its internal chamber 47 being in communication with the bore of the shaft 31 and it is provided near its apex with a series of outlet ports 48. Enclosing the head, comprising the nozzle 45 and blades 46, is a flexible casing 49 preferably of woven open mesh fabric, this casing fitting snugly over the head and having at its rear end a split ring 50 that surrounds the carrier element 25 and is held in place by a rubber or other flexible ring 51.

A flexible liquid supply tube 52 is provided with a nipple extension 53 that pro-

jects into the rear end of the tubular shaft 31. A suitable packing gland 54 is provided to prevent leakage. This supply tube 52 may receive liquid from any suitable source. For example, in Figure 1 it is shown as having a coupling 55 connected to one of the faucets of the sink.

In using this device, if the motor is set in operation and liquid is allowed to flow through the tube 52, under normal conditions, it will be evident that the complete scrubber head will be rotated, inasmuch as the nozzle with its flexible blades will be positively driven by the shaft 31 and the frictional engagement of the parts will also cause a corresponding rotation of the casing. At the same time water or other cleansing liquid will flow through the shaft 31 into the chamber 47, and discharging through the ports 48, will find its way out through the casing. The operator, grasping the handle 22, can move the scrubber over the article to be cleaned, the flexible blades and fabric readily conforming to the contour of the surface and the edges and corners moving into the edges and corners of the article being cleaned. When material friction is applied the nozzle and blades continue their rotation but the fabric will rotate at a slower rate of speed or may stop altogether, depending upon the pressure applied. It will be evident that during the forward pressure from the operator, when the scrubber has been forced into corners and the like, the outer casing becomes twisted on the inner nozzle and blades. As the forward pressure is released by the operator, the straightening of the blades on the inner nozzle causes a forward tension on the outer casing, disengaging the flange element 26 from the bushing 37. The flange element is now without driving power and will slow its speed, straightening out the outer casing. The tension in the outer casing being relieved, the members 26 and 37 will again be forced into frictional engagement by the spring 41.

With this construction, a cleaning and scouring can be quickly and completely effected, the device being useful either for domestic purposes or on larger scale operations.

From the foregoing, it is thought that the construction, operation and many advantages of the herein described invention will be apparent to those skilled in the art, without further description, and it will be understood that various changes in the size, shape, proportion and minor details of construction may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention.

What I claim, is:

1. A rotary scrubber comprising a rotatable hollow cleaner casing, and a rotatable scrubber head within the casing that operates against the same, said head and casing being relatively rotatable.

2. A rotary scrubber comprising a rotatable hollow cleaner casing, a rotatable scrubber head within the casing that operates against the same, said head and casing being relatively rotatable, and frictionally engaged elements that will cause the casing and head to rotate together and will permit their relative rotation.

3. A rotary scrubber comprising a rotatable hollow cleaner casing, a rotatable scrubber head within the casing that operates against the same, said head and casing being relatively rotatable, frictionally engaged elements that will cause the casing and head to rotate together, and means that permit said elements to become frictionally disengaged to allow the casing and head to relatively rotate.

4. In a rotary scrubber, the combination with a spindle, of two carrier members rotatable thereabout, a casing mounted on one carrier member, and a scrubber head within the casing that operates against the same, said head being mounted on the other carrier member.

5. In a rotary scrubber, the combination with a spindle, of two carrier members rotatable thereabout, a casing mounted on one carrier member, and a scrubber head within the casing that operates against the same, said head being mounted on the other carrier member, said members having portions in frictional engagement to cause their rotation together and permitting one to rotate with relation to the other when one meets with resistance to its rotation.

6. In a rotary scrubber, the combination with a spindle, of two carrier members rotatable thereabout, a casing mounted on one carrier member, a scrubber head within the casing that operates against the same, said head being mounted on the other carrier member, said members having portions in frictional engagement to cause their rotation together and permitting one to rotate with relation to the other when one meets with resistance to its rotation, and a spring for maintaining such frictional engagement.

7. In a rotary scrubber, the combination with a spindle, of a rotary carrier thereon, a flexible casing mounted on the carrier, and a second carrier journaled on the first carrier and having a flexible scrubber head within the flexible casing that operates on said casing.

8. In a rotary scrubber, the combination with a spindle, of a rotary carrier thereon and having an annular groove, a tubular carrier rotatably mounted on the first carrier and having an inset rib in the groove, a forwardly extending flexible scrubber head

on the second carrier, and a flexible hollow cleaner casing on the first carrier, said casing housing and being engaged by the head.

9. In a rotary scrubber, the combination with a handle having a spindle, of a rotary carrier journaled on the spindle, a second carrier journaled on the first carrier, a flexible scrubber head mounted on one carrier, and a flexible hollow cleaner casing enclosing and engaged by the head and mounted on the other carrier.

10. In a rotary scrubber, the combination with a handle having a spindle, of a rotary carrier journaled on the spindle, a second carrier journaled on the first carrier, a flexible scrubber head mounted on one carrier, a flexible hollow cleaner casing enclosing and engaged by the head and mounted on the other carrier, and a shaft extending through the handle and connected to one of the carriers.

11. In a rotary scrubber, the combination with a flexible casing, of a rotary flexible scrubber head, and means for causing the head to rotate within and with respect to the casing.

12. In a rotary scrubber, the combination with a flexible hollow cleaner casing, of a rotary flexible scrubber head having outstanding flexible blades that operate within and against the casing.

13. In a rotary scrubber, the combination with a flexible cleaner casing, of a rotary flexible scrubber head, comprising a forwardly tapered member, and outstanding flexible blades that operate within and against the casing.

14. In a rotary scrubber, the combination with a flexible cleaner casing, of a rotary flexible scrubber head having outstanding flexible blades that operate within the casing, and means for delivering fluid through the head.

15. In a rotary scrubber, the combination with a flexible cleaner casing, of a rotary flexible scrubber head, comprising a forwardly tapered member, outstanding flexible blades that operate within and against the casing, and means for delivering fluid through the tapered member and around the blades within the casing.

16. In a rotary scrubber, the combination with a handle, having a spindle, of a tubular shaft journaled therein, means for supplying fluid to the shaft, relatively rotatable carriers journaled on the spindle, a fabric cleaner casing mounted on one of the carriers, a forwardly tapered nozzle mounted on the other carrier and receiving fluid from the shaft, flexible scrubber blades carried by the nozzle and operating in the fabric casing, and means for rotating the shaft.

In testimony whereof, I affix my signature.

NORMAN B. BRALY.