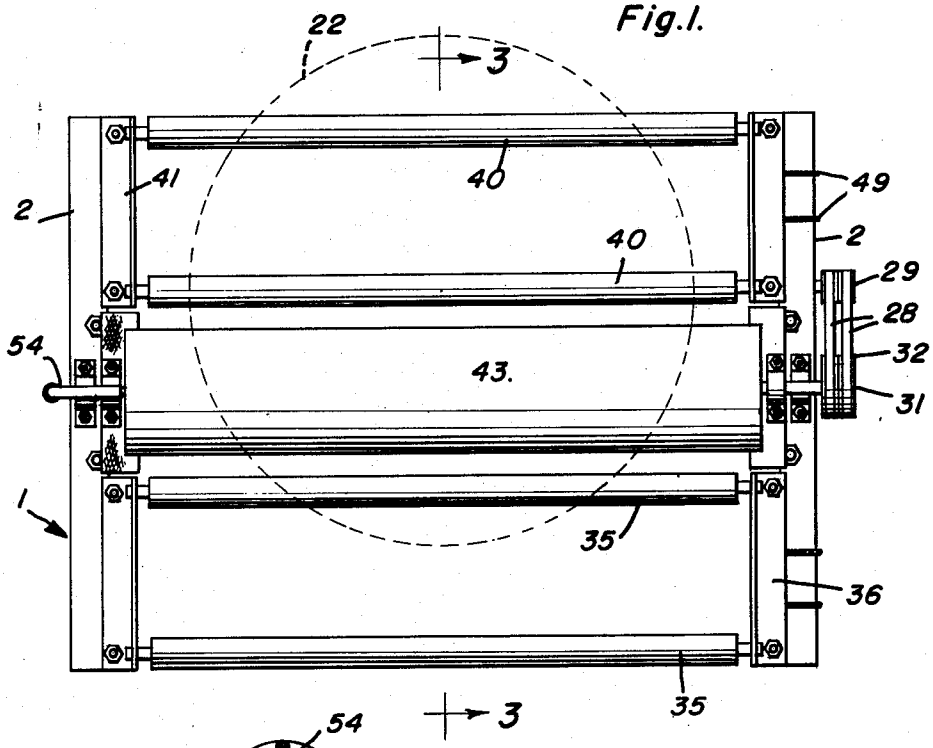
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SCRUBBING AND WASHING MACHINE

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Fig.1.



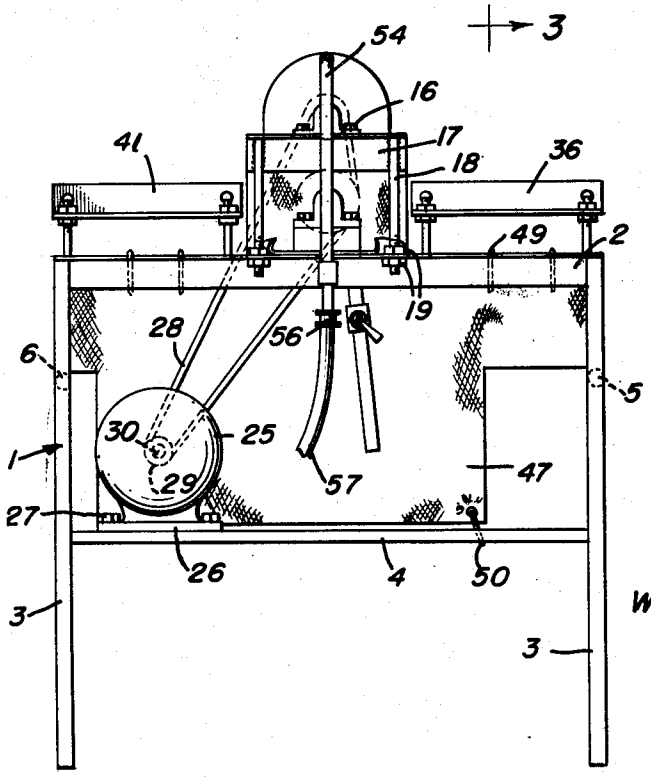


Fig.2.

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Fig. 3.

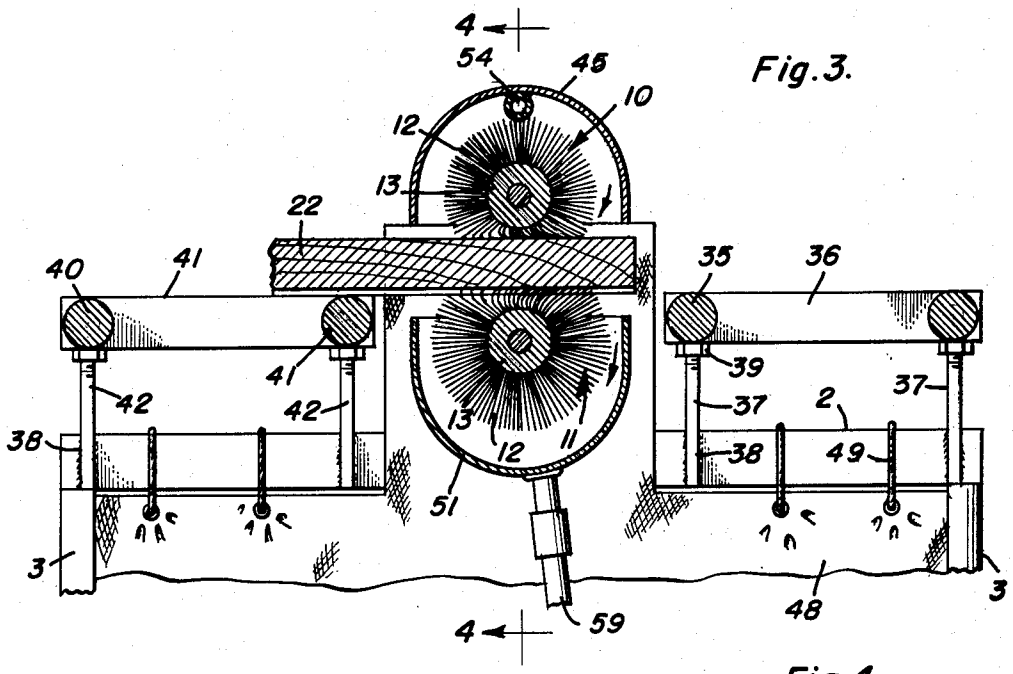
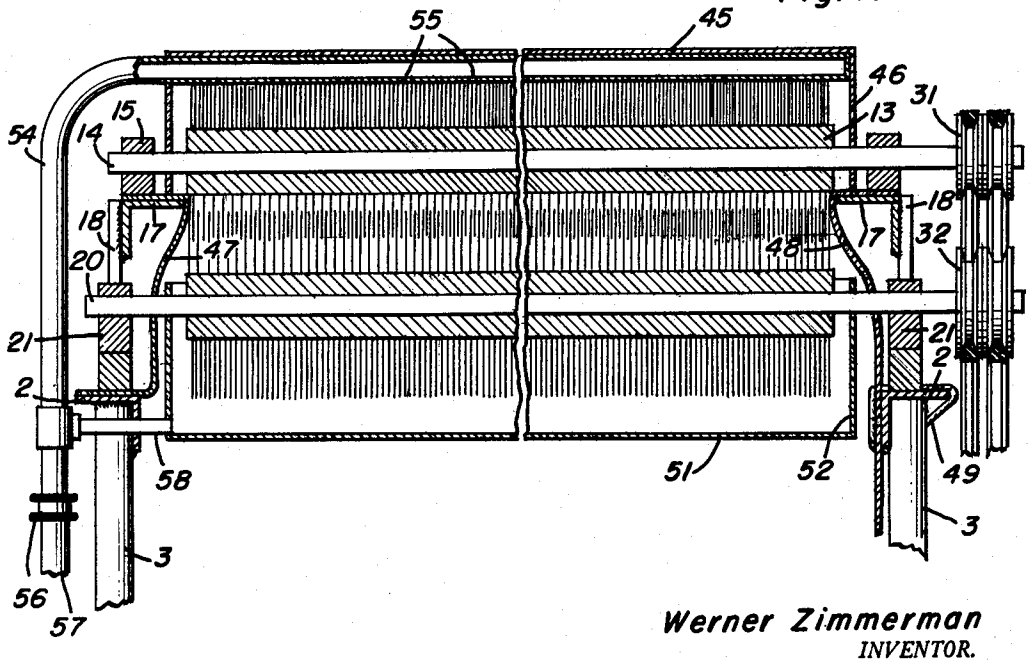


Fig. 4.



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UNITED STATES PATENT OFFICE

2,679,060

SCRUBBING AND WASHING MACHINE

Werner Zimmerman, Lafayette, Wis.

Application August 22, 1951, Serial No. 243,125

1 Claim. (Cl. 15—77)

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My invention relates to improvements in scrubbing and washing machines for the lids of cheese boxes.

By way of premise, the cheese box lids with which my invention is concerned are round, large wooden covers with wooden strips on one side and are hard to handle and scrub clean by hand, as is the common practice.

With the foregoing in mind, it is the primary object of my invention to provide a simply constructed rotary brush, scrubbing and washing machine which will thoroughly clean such lids on both sides quickly and thus save considerable time and labor in rendering the lids sanitary and fit for repeated use.

Another object is to provide a machine for the above purpose which is economical to service, operate and manufacture and not liable to get out of order under prolonged use.

Other and subordinate objects, within the purview of my invention, together with the precise nature of my improvements will be readily understood when the succeeding description and claims are read with reference to the drawings accompanying and forming a part of this specification.

In said drawings:

Figure 1 is a view in plan of my improved machine in the preferred embodiment thereof;

Figure 2 is a view in side elevation of the same;

Figure 3 is a fragmentary view in vertical transverse section taken on the line 3—3 of Figure 1 and drawn to a larger scale;

Figure 4 is a view in transverse section taken on the line 4—4 of Figure 3.

Referring to the drawings by numerals, my improved machine comprises a rectangular, skeleton frame 1 including a pair of upper angle iron side bars 2 supported at the ends thereof by legs 3, of tubular stock pipe, connected in pairs on opposite sides of the frame 1 by longitudinal lower side members 4, also of stock pipe. A cross pipe member 5 connects the legs at opposite sides of the frame 1 at what constitutes the front of the machine, and a similar rear cross pipe 6 connects the legs at opposite sides of the machine at what constitutes the rear of the machine.

A pair of upper and lower cylindrical vertically aligned brushes 10, 11 extend transversely of the frame 1 in the transverse center thereof, the brushes, having flexible bristles 12 extending from a tubular core 13. The brushes 10, 11 are spaced slightly apart, and parallel, with the upper brush 10 slightly smaller in diameter than the lower brush 11 for a purpose presently explained. The brushes 10, 11 are mounted as follows:

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The core 13 of the upper brush 10 is fixed on a shaft 14 having its ends journaled in bearings 15 bolted, as at 16, to short angle bars 17 supported at the ends thereof above the side bars 2 parallel therewith by vertical rods 18 threaded into the side bars 2 with retaining nuts 19 thereon. The lower brush 11 has its core 13 fast on a shaft 20 journaled at its ends in bearings 21 suitably fixed on the side bars 2.

A drive for the brushes 10, 11 rotate the same in the same direction as indicated by the arrows in Figure 3, and the upper smaller brush 10 faster than the larger one 11 to feed a cheese box lid 22 therebetween from the front to the rear of the machine. The brush drive comprises a suitable electric motor 25 supported on a platform 26 suitably bolted, as at 27, on one of the side members 4. Twin belts 28 extend from a twin pulley 29 on the armature shaft 30 of the motor 25 around a twin drive pulley 31 on one end of the shaft 14 of the upper brush 10. One run of the belts 28 drives a twin pulley 32 on one end of the shaft 20 of the lower brush 11. The twin pulley 32 is larger than the twin pulley 31 so that the lower brush 11 is driven slower than the upper brush 10 and the speed of the upper brush 10 is considerably faster than that of the lower brush. As will be clear, the arrangement of the belt drives the brushes 10, 11 in the same direction.

A pair of laterally spaced, parallel lid supporting rollers 35 are supported in a common horizontal plane at what constitutes the front of the machine, in front of the brushes 10, 11 and by a pair of horizontal angle bars 36 at the sides of the machine in which the ends of said rollers 35 are journalled, said bars 36 being supported above the side bars 2 by vertical rods 37 welded, as at 38, to said bars 2 and threaded into the angle bars 36 with retaining nuts 39 thereon.

A pair of lid supporting rollers 40, like the rollers 35 are supported at what constitutes the rear of the machine, in the rear of the brushes 10, 11 by angle bars 41 like the bars 36 supported in the same manner by vertical rods 42. As will be understood, the rollers 35, 40 are disposed in a common horizontal plane to support the lid 22 horizontally and spaced substantially equidistantly between the cores 13 of the brushes 10, 11.

A metal brush guard 45 of inverted trough shape covers the upper brush 10 for confining water fed to the upper brush and by means presently described, and said guard has its ends 46 resting on a pair of canvas splash sheets 47, 48 depending from the bars 17 with upper edges

underlying the bearings 15 and secured to said bars 17 by said bearings, the sheet 47 being similarly secured under one of the bearings 21 with the shaft 20 extended therethrough. The sheet 48 is hung from the side bars 2 by rope loops 49 and is similarly secured to the lower member 4 by loops 50. The sheet 47 on the side of the frame 1 opposite the motor 25 is longer than the sheet 47 to protect the belts 25 in a manner which will presently be clear.

A metal water catch trough 51 underlies the lower brush 11 with the lower portion of said brush 11 running therein and has its ends 52 loosely suspended on the shaft 20 of said lower brush 11.

A water feed pipe 54 is extended through one end of the splash guard 45 to extend longitudinally along and over the top of the upper brush 10 to spray water downwardly into the upper brush 10. Above the upper brush 10 the water pipe 54 has a portion perforated for spraying onto said brush. A coupling 56 on the pipe 54 provides for securing thereto a pipe 57 leading from a suitable source, not shown, of hot water under pressure. A branch pipe 58 extends from the pipe 54 to the lower portion of one end 52 of the catch trough 51 to feed water into said trough. A suitably valved drain pipe 59 depends from the bottom of the catch trough 51 for draining water therefrom.

The operation of the described invention will be readily understood. The lids 22 are pushed over the rollers 35 and in between the brushes 10, 11. As the edge of a lid 22 enters between said brushes 10, 11, the brushes rotating in the direction indicated by the arrows in Figure 3 feeds the lid rearwardly over the rollers 40. The upper brush 10 receives and is saturated with hot water from the pipe 54 and the catch trough 51 is filled to a predetermined depth of hot water to saturate the lower brush 11 running therein. The saturated brushes 10, 11 act against opposite sides of the lid 22 with a scrubbing or scouring and washing action to thoroughly clean the same. Since the upper brush 10 rotates faster than the lower brush 11, it tends to feed the lid 22 relative to the lower brush 11 so that the lid moves ahead relative to the lower brush 11 which rotates oppositely relative to the direction of feed

of the lid 22 whereby to facilitate scrubbing, or scouring action of the lower brush 11 against the bottom side of the lid 22 which is usually coated from exposure to cheese and is difficult to clean. The catch trough 51 catches water drained from the upper brush 10 after the lid 22 has passed said brushes. The valved drain pipe 59 provides for draining the catch trough as the occasion may require. The splash sheets 47, 48 confine the water against escape at the sides of the machine and, as will be clear, the belts 28 being outside the splash sheet 47, said sheet protecting the same against being splashed by water.

The foregoing, will, it is believed, suffice to impart a clear understanding of my invention, without further explanation.

Manifestly, the invention, as described, is susceptible of modification, without departing from the inventive concept, and right is here reserved to such modification as falls within the scope of the appended claim.

Having described my invention, what is claimed as new is:

In a machine for scouring and washing box lids, a frame comprising a pair of side bars having supporting legs, a pair of upper and lower cylindrical brushes, the upper one smaller than the lower one, means rotatably mounting said brushes on said side bars transversely of the frame in parallel relation for receiving a lid between the same, rollers at opposite sides of the pair of brushes for supporting a lid fed between the brushes, a power drive for rotating said brushes in the same direction and the upper one faster than the lower brush to cause the upper brush to feed the lid relative to the lower brush with a scouring action by both brushes against opposite sides of the lid, and means for saturating said brushes with water for washing the lid.

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