June 6, 1939. A. R. HOWLETT 2,161,577

MOP WRINGER

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FIG. 1.

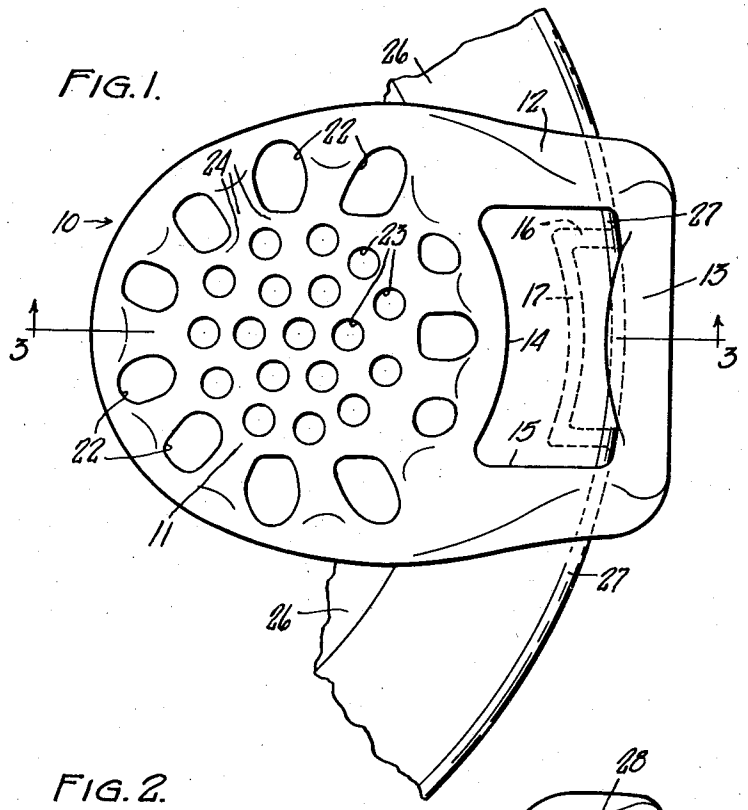
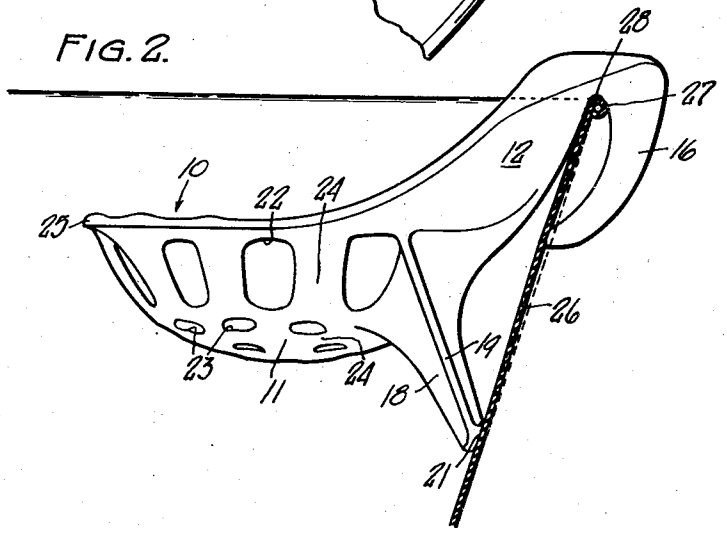


FIG. 2.



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FIG. 3.

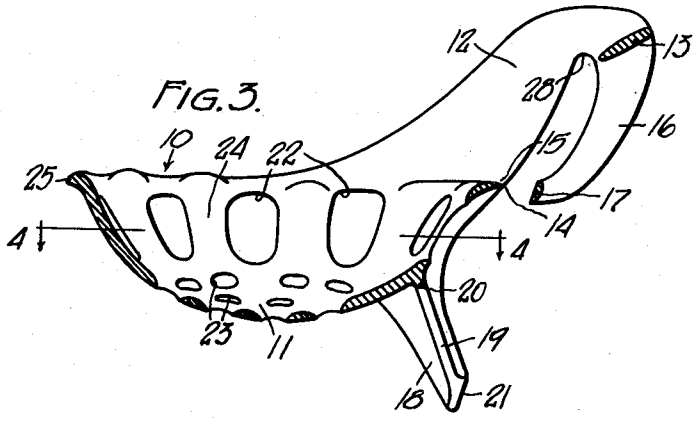
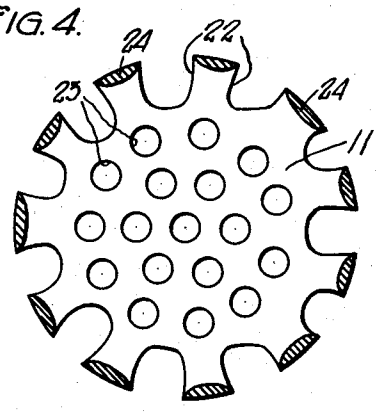


FIG. 4.



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MOP WRINGER

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Application June 29, 1936, Serial No. 87,903

7 Claims. (Cl. 15—260)

This invention relates to improvements in mop wringers, and particularly to a mop wringer in the nature of a drain cup into which the mop cloth of a mop is adapted to be pressed to extract excess water therefrom.

The primary object of the invention is to provide a wringer of this character constructed to effectively wring a mop without damaging the same and having a wringing action which closely simulates the wringing action of a human hand.

A further object of the invention is to provide a device of this character by which the mopping element of a mop may be wrung without interference from the frame or head by which said element is carried.

A further object is to provide a wringer of this character with novel means for securely attaching the same to a pail in effectively supported relation to the pail.

A further object is to provide a wringer of this character with means for attaching the same to a pail, said means being of a character to utilize the spring character of a sheet metal pail for obtaining a spring locked connection with the pail.

A further object is to provide a device of this character which is adapted to distort a metal pail when mounted thereon, and which may at the same time be readily applied to and removed from said pail.

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

In the drawings:

Figure 1 is a top plan view of the mop wringer mounted on a pail.

Figure 2 is a side view of the mop wringer mounted on a pail which is illustrated in vertical section.

Figure 3 is a vertical transverse sectional view of the mop wringer taken on line 3—3 of Fig. 1.

Figure 4 is a horizontal transverse sectional view taken on line 4—4 of Fig. 3.

Referring to the drawings, which illustrate the preferred embodiment of the invention, the numeral 10 designates my mop wringer in general. The wringer is preferably cast, and may be formed of any suitable material, such as aluminum. The wringer comprises an operative wringing portion 11 which is of concavo-convex form, and is shallow and substantially circular in general plan outline. In complementary relation to portion 11, and at substantially 90 degrees from each other, is provided a pair of upwardly tapering portions or extensions 12 which are integrally formed with the portion 11 and extend a substantial distance above the plane of the edge of portion 11 and in upwardly outwardly directed relation thereto. These portions 12 are interconnected adjacent their upper ends by an integral cross piece 13, which, with the inner edges of the extensions 12 and the portion 14 of the upper edge of cup 11 between extensions 12 serves to define an opening 15. Depending from the upper ends of the extensions 12 in inwardly and rearwardly extending relation thereto are downwardly extending arms 16 curved in substantial conformity with the curvature of the extensions 12. Arms 16 are interconnected at their lower ends by a curved cross piece 17 which lies substantially in the plane of the upper edge of and spaced from the cup 11, and which is substantially concentric with said cup.

From the lower convex side of the cup portion 11 project a pair of parallel legs or feet 18 which are cast integrally with said cup portion. These feet 18 project downwardly and rearwardly at an angle to the axis of cup 11 in spaced relation to the periphery thereof and are reinforced by flanges 19 extending longitudinally thereof, one of which forms substantially a continuation of the inner edge of the adjacent extension 12. The cup 11 is reinforced at its convex side by a flange 20 extending between said feet 18. The feet 18 terminate in bevelled end faces 21 which are substantially aligned with the cross piece 17 and the inner side of the upper end of the hook formed by extension 12 and arm 16, as best illustrated in Fig. 2.

The cup portion 11 is preferably provided with a plurality of large apertures 22 arranged about the outer portion of said cup, and with a plurality of small apertures 23 arranged in substantially equispaced relation in the central portion of the cup, as best illustrated in Figs. 1 and 4. The ribs or webs 24 of the cup which are defined by the apertures are cast to taper toward said apertures, whereby the inner as well as the outer faces thereof are convex in transverse section. This construction of the webs 24 results in the provision of a substantially wavy upper peripheral form in the cup 11, which latter is preferably provided with an integral marginal outwardly directed flange or lip 25 into which said webs 24 merge, as shown in Fig. 3.

The wringer is adapted to be mounted on the upper edge of a suitable sheet metal pail 26 having the usual rolled upper edge 27, with the body portion 11 thereof within said pail. Thus by referring to Fig. 2 it will be seen that the upper portion of the pail is passed between the exten-

sions 12 and arms 16 into engagement with the hook 28 formed by the latter wringer portions at the rolled edge 27 thereof. The bevelled edges 21 of the feet 18 bear against the inner face of the pail and the cross piece 17 connecting arms 16 engages the outer face of the pail in intermediate vertically spaced relation to the edge of the pail and to the feet 18. The construction thus provides a support for the wringer on the pail effected by engagement thereof with the pail at three different vertically spaced levels of the pail and of transversely spaced points of contact at the same level to insure lateral stability of the wringer in the pail. In connection with this three-level support, it is to be particularly emphasized that by the substantial alignment of the ends 21 of the feet 18, the cross piece 17 and inner face of the upper end of the hook, the pail wall is sprung at the portion thereof intermediate the edge thereof and the portion engaged by feet 18, as is illustrated by Fig. 2. The amount of this distortion is only approximately equal to the thickness of the sheet metal of the pail, so that application and removal of the wringer to and from the pail is not subject to any great resistance or friction, and so that the pail will not be permanently distorted. This slight springing of the pail is sufficient, however, to insure that the wringer will not move or become displaced when the pail is handled, and in actual practice it has been found sufficient to hold the wringer in place on the pail even when the pail is inverted. It will also be noted that the opening 15, between extensions 12, serves to accommodate application of the wringer to the pail by providing space for manipulation and limiting to a minimum the relative movement of the wringer on the pail after the latter has been distorted. In other words, the opening 15 accommodates free movement of the wringer relative to the pail until the feet and cross piece 17 are both brought into engagement with the pail immediately preceding seating of the pail edge 27 in the wringer hook portion 28.

It will be noted that the arrangement of portions 12 in upwardly extending relation to the body portion 11 so as to position the hook portions 28, formed thereby in conjunction with arms 16, in upwardly spaced relation to the peripheral plane of said cup portion 11, limits the height to which a mop must be raised in the pail to be wrung and insures against splashing of water during the wringing operation, by virtue of the substantially lowered position of cup portion 11 relative to the pail edge.

The wringing operation merely involves placing the mop cloth in cup portion 11 and pressing and turning the mop and the cloth relative to said wringer. In this connection, the shallow form of cup portion 11 and the outward upward curvature of extensions 12 relative to cup portion 11 are provided to insure against rubbing or striking of the wringer by the frame or head of the mop during the wringing operation. The wringing action results from the combined pressing and turning of the mop cloth against the convex inner faces of the ribs 24 between apertures 22 and 23. It will also be noted that the convex inner faces of these ribs 24 prevent tearing of the mop cloth. In fact, the wringing action bears a close similarity to hand wringing with respect to the lack of damage to the cloth. The reinforcements of the construction and the spring locked hooked interengagement of the wringer with the pail enable the wringer to be used without danger of accidental displacement of the wringer, and enable any necessary pressure to be applied while wringing because the same cannot upset the pail.

It will be noted that the hook 28 is formed to provide a gradually reducing dimension of the hook opening at the upper end thereof in which the pail rim fits, so that the wringer may be applied to any sheet metal pail, regardless of the diameter of the rolled rim 27 of the pail. Also, the roll 27 fits firmly in said hook opening, without play, so as to insure the pail tensioning action above described, regardless of slight variations in individual pails.

It will be noted further that the provision of extensions 12 of the shape and form illustrated, in addition to providing lowered positioning of the cup 11 relative to the pail rim, also serves to bunch the mop cloth. This bunching action initiates the wringing of the mop cloth and also improves the wringing action and quickens the same.

Referring to the construction of the ribs 24 formed between cup apertures 22 and 23, the tapered edges of said ribs are preferably slightly rounded, as on a very small radius, so as to insure against tearing of the mop cloth.

I claim:

1. The combination with a sheet metal pail, of a mop wringer comprising an apertured cup portion, a rigid hook portion projecting upwardly therefrom and terminating in an outwardly spaced bearing portion, and rigid feet projecting angularly downwardly from said cup portion, said hook portion engaging the edge of said pail, the end faces of said feet and the faces of said bearing portion and pail engaging hook portion all lying substantially in a common conical surface whereby they slightly distort said pail when mounted thereon to lock said wringer to said pail.

2. The combination with a sheet metal pail, of a mop wringer comprising an apertured cup portion, a hook portion projecting upwardly therefrom hooked on the edge of said pail, and rigid means stationary on said wringer for engaging the inner and outer faces of the pail in spaced relation to slightly distort said pail and effect a spring locked connection therewith.

3. The combination with a sheet metal pail, of a mop wringer comprising an apertured cup, spaced arms projecting upwardly from said cup and return bent in spaced relation to provide hooks engaging the rim and exterior of said pail, and members projecting angularly downwardly from said cup and below and substantially aligned with the hook portions engaging the rim and exterior of said pail, said members engaging the interior of said pail and cooperating with the return bends of said arms which engage the exterior of said pail to distort said pail and effect a spring locked mounting of said wringer on said pail.

4. The combination with a sheet metal pail, of a mop wringer comprising a drain cup, an inverted hook carried by and projecting above said cup and hooked on the rim of said pail, said hook including a return bend portion bearing on the exterior of said pail below its rim, and means on said cup terminating in spaced bearing portions therebelow and below the bearing point of said return bent portion, said bearing portions being substantially aligned with the portion of said hook opposed to said return bend thereof whereby they engage the inner and outer

faces of said pail in spaced relation and slightly distort said pail.

5. A mop wringer adapted for attachment to a sheet metal pail having a beaded edge, comprising an apertured cup, an inverted hook projecting upwardly from said cup and hooked on said edge, said hook including a pail-engaging portion below said edge and spaced laterally from said cup, and a pair of supports extending angularly downwardly from said cup to engage the pail, said supports and pail-engaging portion being substantially aligned with the bend of said hook to distort said pail and thereby spring lock the wringer on the pail, the opposed inner edges of said hook diverging downwardly to automatically compensate for said beaded edge.

6. A mop wringer adapted for attachment to a sheet metal pail, comprising an apertured cup, a pair of spaced upwardly projecting inverted hook portions integral with said cup and interconnected by a transverse arcuate bearing portion at their outer lower ends and opposite the upper end of said cup, and a pair of downwardly and outwardly inclined legs integral with said cup, said bearing portion being so aligned with the bend of said hook and the ends of said feet that said pail is distorted when said hook is applied to the pail wall to form a spring lock for said wringer with said cup positioned below the top of said pail.

7. A mop wringer adapted for attachment to a sheet metal pail having a beaded edge, comprising an apertured cup, a pair of inverted hooks projecting upwardly from said cup and terminating in an integral transverse cross piece for engaging the exterior of said pail in opposed relation to said cup and below said beaded edge, the inner portions of said hooks being outwardly dished, and a pair of supports extending angularly downwardly from said cup to engage the interior of the pail below said cross piece with the ends thereof substantially aligned with said cross piece and the bend of the hook to distort said pail when said hooks fit over said edge, the opposed inner edges of said hooks diverging downwardly whereby said hooks seat firmly on said beaded edge.

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