

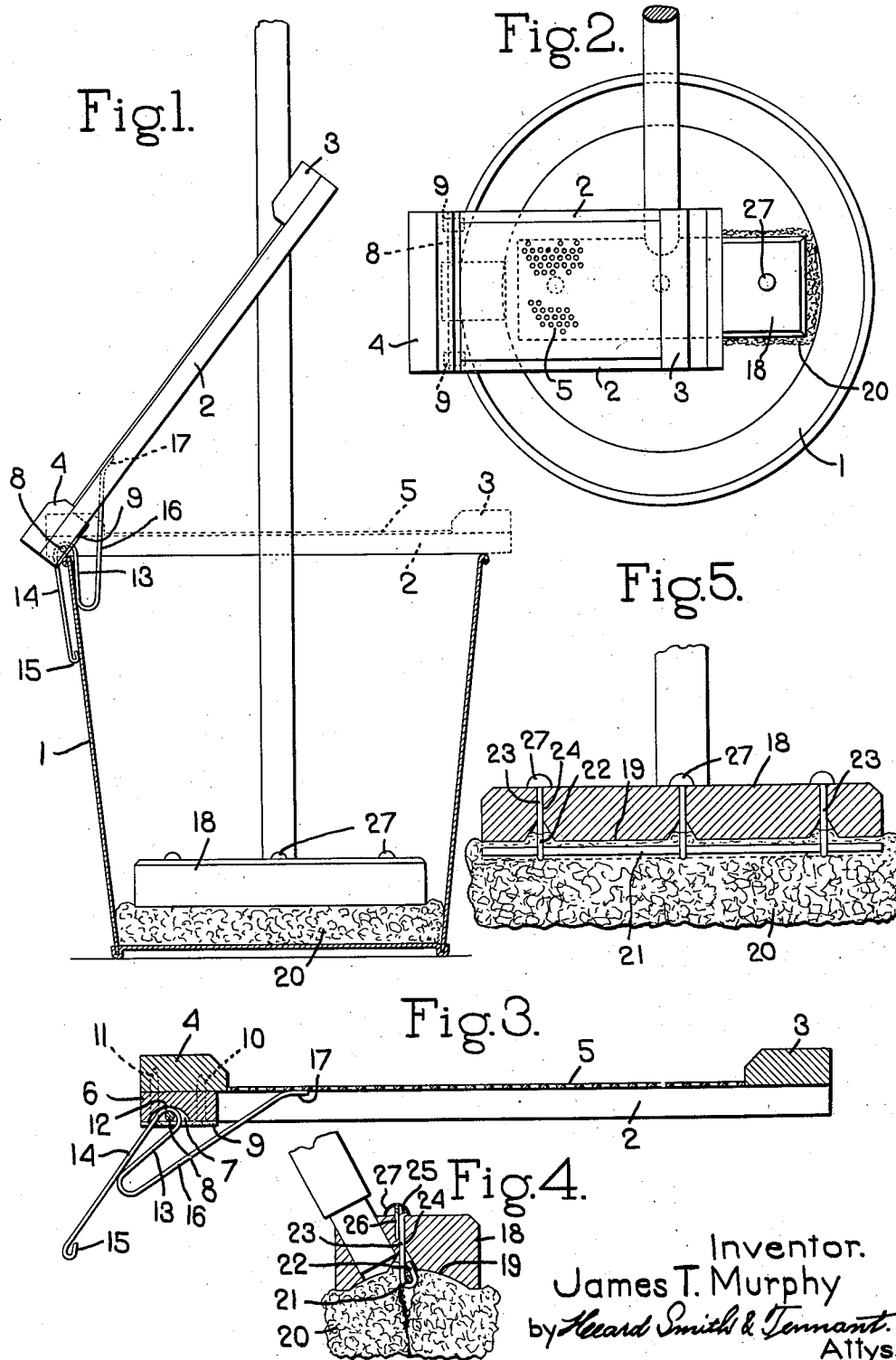
May 13, 1941.

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2,242,140

FLOOR CLEANING APPARATUS

Filed Jan. 16, 1940



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UNITED STATES PATENT OFFICE

2,242,140

FLOOR CLEANING APPARATUS

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Application January 16, 1940, Serial No. 314,114

4 Claims. (Cl. 15—260)

This invention relates to improvements in floor cleaning apparatus and the object thereof is to provide floor cleaning mechanism comprising a mop pail, a mop, and a drainer pivotally secured to the upper end of the pail and normally held in an upwardly tilted position to permit the mop to be freely introduced into and removed from the pail and which will permit the liquid in the mop to be squeezed out upon the drainer without requiring wringing of the mop or manipulating of the drainer by the operator.

The purpose of the invention is broadly to enable an operator to scrub a floor by the use of a suitable hot detergent solution and thereafter to rinse the floor with clean water without requiring the operator to wet his hands or to make any adjustment of the draining means which will require separation of the hands from the handle of the mop.

By reason of the present invention a detergent solution can be employed which is too hot to be wrung out of the mop by the hands of the operator and which will more readily and completely remove grease and dirt from the floor or the floor covering, such as linoleum, than would be possible by a hand-scouring operation and which will permit the floor to be cleaned while the operator is standing in a substantially upright position.

A further object of the invention is to provide draining mechanism for floor cleaning apparatus which can be readily detachably secured to the upper end of the mop pail and which will be held in such upwardly tilted position relatively to the top of the pail as will permit a mop to be readily introduced into and removed from the liquid in the pail.

A further object of the invention is to provide a mop for a floor cleaning apparatus of the character described in which the head of the mop is provided with a resilient floor cleaning liquid-absorbent member and is of such length and width as to permit the mop head to engage the bottom of the pail and by repeated compression of the resilient member upon the bottom of the pail and release of such compression by reciprocation of the mop as to cause the liquid to surge through the absorbent material and to remove the dirt and other debris therefrom so that when the mop is drained in the manner hereinafter described the detergent solution absorbed by the mop, upon withdrawal from the pail, will be relatively free from accumulation of dirt and other undesirable matter.

These and other objects and features of the invention will more fully appear from the follow-

ing description and the accompanying drawing and will be particularly pointed out in the claims.

A preferred embodiment of the invention is illustrated in the accompanying drawing, in which,

Fig. 1 illustrates in section a pail to contain the cleansing liquid and in side elevation a drainer pivotally mounted on the pail showing the same in normal upwardly tilted position and in dotted lines the position in which it is used to drain the mop and also illustrating the mop within the pail;

Fig. 2 is a plan view of the same;

Fig. 3 is a longitudinal sectional view of the drainer and resilient means for supporting the same shown in side elevation;

Fig. 4 is a vertical sectional view centrally through the mop showing the handle in elevation; and,

Fig. 5 is a longitudinal central sectional view of the mop head and a portion of the handle illustrating the manner in which the water-absorbent member of the mop is attached to the head.

The invention broadly defined comprises a floor cleaning apparatus including a pail, hereinafter referred to as a mop pail, adapted to contain a preferably hot detergent solution, a drainer pivotally mounted upon the upper end portion of said pail and normally held in upwardly tilted position to permit the mop to be freely inserted into or removed from the pail without engagement with the drainer, a mop adapted to be inserted into and withdrawn from the pail, and when placed upon the drainer to move it from the tilted position to a horizontal position in which it will rest upon the upper end of the pail so that by pressing the mop upon the drainer a desired amount of the liquid contained in the absorbent material of the mop may be squeezed out of the drainer into the pail, thereby permitting the use of the mop upon the floor with such amount of water as may be desirable to effect the cleaning operation.

The particular embodiment of the invention as illustrated comprises a pail 1, of a usual type, adapted to contain a liquid, upon the upper end portion of which is mounted a drainer with means normally to retain the drainer in upwardly tilted position.

The preferred form of drainer comprises a preferably rectangular frame having parallel side bars 2, preferably of wood, connected at their ends by transverse wooden bars 3 and 4 with a screen 5 which is desirably secured to the upper

edges of the side bars 2 and extending from the cross bar 3 to the cross bar 4.

Any suitable form of strainer may be employed, but preferably the strainer comprises a rigid perforated metal plate. The frame is of sufficient length to extend across the top of the pail upon which it is mounted. The drainer is pivotally and preferably detachably connected adjacent one end to the upper portion of the pail and resilient means are provided for maintaining the drainer in upwardly tilted position. In the preferred construction illustrated herein a supplemental transverse bar 6 is secured to the lower face of the transverse bar 4 and extends from one of the side bars 2 to the other and desirably is provided with a longitudinal recess or groove 7 in which a pivotal rod 8 is mounted. The pivotal rod may be secured in any desired manner, but preferably is fixedly retained therein by flat metal plates 9 which are secured to the frame by screws 10 and 11 located on opposite sides of the rod 8 and which extend through the bar 6 into the cross bar 4. The screws thereby serve to secure the cross bar 6 to the cross bar 4 and also to secure the pivotal rod in place.

Means for detachably securing the drainer to the pail desirably comprises a wide spring of sheet metal which is bent intermediate of its length to form a loop 12 adapted to embrace or partially encircle the rod 8, one of the legs 13 of the loop being adapted to engage the inside of the pail and another leg 14, desirably of considerably greater length than the leg 13, operable in cooperation with the leg 13 to clamp the spring plate firmly upon the side of the upper end of the pail in such manner that the drainer will be positioned substantially diametrically of the pail. The lower end of the leg 14 desirably is provided with an inturned end 15 to engage the wall of the pail as illustrated so that the legs 14 and 13 will be in substantial parallelism when in position to clamp the drainer upon the pail. The reversely curved spring plate provides another resilient leg 16 which extends upwardly from the lower end of the leg 13 and has a convexly curved end portion 17 adapted slidably to engage the lower face of the screen plate 15 or if desired the spring may be of such width as to engage the under edges of the side bars 2.

The section 16 of the spring plate is of such length as normally to hold the drainer tilted upwardly relatively to the top of the pail at such an angle as to permit the mop to be introduced into and removed from the pail without engagement with the drainer.

The mop, which comprises a member of the floor cleaning apparatus, desirably has a wooden head 18, preferably of substantially rectangular form and of a length less than the diameter of the lower end of the pail. The lower face of the wooden mop head 18 preferably is provided with a concaved surface 19 forming a socket or seat to receive an absorbent floor-scrubbing member 20. The floor-scrubbing member may be of any liquid absorbent material, but preferably is a sponge suitably secured to the wooden portion of the mop head. The preferred means for securing the sponge, or other liquid absorbent material, to the mop head comprises a metal bar or rod 21 preferably substantially equal to the length of the wooden portion of the mop head and located substantially centrally between the side edges thereof, having mounted thereon the looped ends 22 of rods or pins 23 so spaced that when inserted through the absorbent material

they may be inserted into and tightly fit vertical bores 24 in the wooden mop head 18. In view of the difficulty encountered in inserting the pins through the sponge in accurate alignment with the vertical bores 24, each of the bores desirably is provided with a conical countersink which will divert the end of the pin into the bore. When the rods or pins are driven into the mop head the upper ends 25 thereof are turned at an angle to the axis of the rod and clinched down upon or into the upper surface of the head. In order to finish the appearance of the mop head and also further to prevent retraction of the pins, nails, such as upholsterer's nails 26, are driven into the mop head in contact with the rod 23, so that the dome-shaped heads 27 of the nails will overlie and conceal the clinched ends 25 of the pins 23.

In the operation of the device the pail is first partially filled to any desired depth with a detergent solution which may be of a temperature approximating boiling point. The mop is inserted into the solution to permit the absorptive material on the mop head to become filled with liquid.

The mop is then withdrawn from the pail and placed upon the upwardly tilted drainer, then pressed downwardly thereby forcing the drainer to the horizontal position illustrated in Fig. 1 and causing the free end thereof to engage the top of the pail. The mop may then be subjected to any desired degree of pressure to squeeze out the liquid until a desired amount remains in the absorptive material. The floor may then be scrubbed with the hot solution to remove the dirt, grease, etc. therefrom. After a desired area has been scrubbed the mop is reinserted in the liquid in the pail and pressed downwardly upon the bottom of the pail, then reciprocated up and down to cause the liquid to surge through the absorbent material and remove from it the majority of dirt and other debris accumulated by the scrubbing operation. The mop may then be withdrawn, drained and again used in the manner above described until the floor is satisfactorily cleaned.

In order to rinse the floor the detergent material is poured out of the pail and the pail filled with clean water and the operation repeated for the purpose of substantially removing any of the detergent which may remain upon the floor after the scrubbing operation.

It will be understood that the embodiment of the invention disclosed herein is of an illustrative character and is not restrictive, and that various changes in form, construction and arrangement of parts may be made within the spirit and scope of the following claims.

Having thus described the invention, what is claimed as new, and desired to be secured by Letters Patent, is:

1. A mop drainer, for use with a mop pail containing a cleaning liquid and a mop having a head of lesser length than the diameter of the bottom of the pail, comprising a narrow rigid screen member of greater length than the diameter of the top of the pail, means for pivotally mounting one end portion of said screen member upon the upper end of the pail to cause the drainer to extend substantially diametrically across the upper end of the pail and be supported thereby when the mop is pressed down upon it to squeeze the cleaning liquid out of the mop and having resilient means operable normally to retain the screen member in such upwardly tilted position over the top of the pail

as will permit the mop to be freely introduced into and removed from the pail and enable the screen member to be depressed by the mop upon the top of the pail while the saturated mop is within an area above the top of the pail.

2. A mop drainer, for use with a mop pail and a mop having a head of lesser length than the diameter of the bottom of the pail, comprising a rigid screen member of greater length than the diameter of the top of the pail, a pivotal rod secured to said screen member adjacent one end thereof, a spring having a loop pivotally mounted on said rod adjacent one end thereof and having means clampingly to engage the top of the pail and a resilient arm slidably engaging the under face of the screen member and of such length as normally to tilt the screen member upwardly to a position which will permit the mop to be freely introduced into and removed from the pail.

3. A mop drainer, for use with a mop pail and a mop having a head of lesser length than the diameter of the bottom of the pail, comprising a rigid screen member of greater length than the diameter of the top of the pail, a pivotal rod secured to said screen member adjacent one end thereof, a wide flat spring member reversely bent intermediate of its ends to provide a loop having cooperating legs adapted to form a clamp detachably to engage the upper end portion of the pail and a yieldable arm extending upwardly and in-

wardly from the inner leg of said loop and having a curved end portion slidably to engage the under face of said screen member and of such length as normally to tilt the screen member upwardly to a position which will permit the mop to be freely introduced into and removed from the pail.

4. A mop drainer, for use with a mop pail and a mop having a head of lesser length than the diameter of the bottom of the pail, comprising a rectangular frame of greater length than the diameter of the top of the pail and of comparatively narrower width, a perforated screen plate fixedly secured to said frame, a pivotal rod secured to the under side of said frame adjacent one end thereof, a flat spring member reversely bent intermediate of its ends to provide a loop pivotally to engage said rod and cooperating sections forming a clamp detachably to engage the upper portion of the pail and a yieldable arm extending upwardly and inwardly from the inner pail-engaging section and having a convexedly curved end slidably engaging the under face of said perforated plate and of such length as normally to hold the drainer in an upwardly tilted position at such angle to the top of the pail as will permit the mop to be freely introduced into and removed from the pail.

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