

June 27, 1939.

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2,164,070

ATTACHMENT FOR WASHING MACHINES

Filed Nov. 3, 1936

FIG.1.

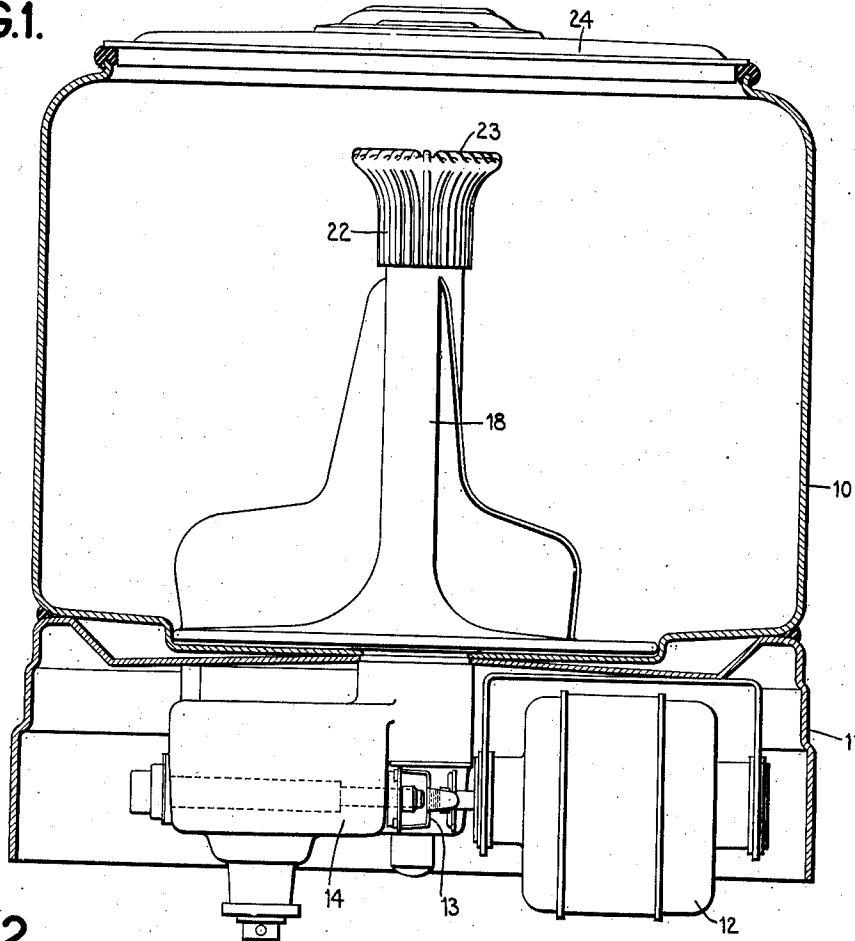


FIG.2.

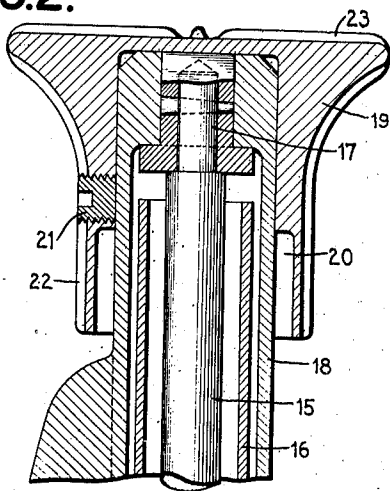
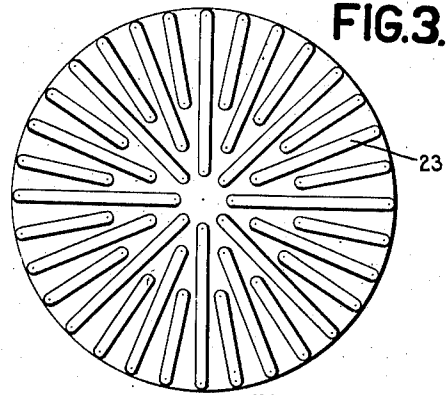


FIG.3.



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2,164,070

ATTACHMENT FOR WASHING MACHINES

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Application November 3, 1936, Serial No. 108,925

4 Claims. (Cl. 68—13)

This invention relates to a scrubbing attachment for domestic washing machines of the electrically driven type. Its purpose is to provide an attachment of this sort which may be used conveniently and with a minimum of effort to scrub particularly soiled portions of a batch of laundry, such as the cuffs of shirts, for example. By the use of such an attachment the time required to complete the washing of a batch of clothes may be considerably reduced since the dirty pieces may be cleansed, with slight extra treatment, about as rapidly as the cleaner pieces.

Washing machines of the home type are ordinarily provided with some driven member within the tub for bringing about a movement of the water and clothes in the tub. This member, which may be designated an agitator, is commonly given an oscillatory or to and fro movement about its axis for this purpose. Other types of motion might, however, be imparted to it. According to the present invention the existing agitator construction and its operating means is utilized to support and operate a moving scrub board surface against which the dirty portions of a batch of clothes may be held. In a preferred form of the invention the scrubbing attachment is in the nature of a special cap provided at the upper end of the agitator or its operating shaft and is arranged to provide a moving scrubbing surface above the normal water level within the tub.

Other features and advantages of the invention will appear from the detailed description of an illustrative form of the same, which will now be given in conjunction with the accompanying drawing, in which:

Fig. 1 is a vertical section through the tub and supporting structure of a washing machine embodying the invention.

Fig. 2 is a vertical section through the upper end of the agitator and the scrubbing attachment thereon, and

Fig. 3 is a plan view of the scrubbing attachment.

Referring now to the drawing, the machine to which the improved scrubbing attachment is applied may comprise a tub 10 mounted upon a supporting structure 11. This supporting structure may be of any suitable form and ordinarily will include a number of legs, not shown, for retaining the tub at a suitable elevation above the floor. A motor 12, suspended in any convenient way from the support 11, is connected through a universal coupling 13 with suitable gearing within a casing 14. The particular na-

ture of this gearing has no bearing upon the present invention and it may, therefore, assume any of a variety of different forms. It is sufficient to say that the gearing includes mechanism for converting the rotary movement of a shaft, driven directly by the motor, to an oscillatory movement of a shaft 15 that extends upwardly through the bottom of the tub to a suitable point within the same. The gearing also preferably includes connections to another shaft for rotating the same, this shaft being associated with either a wringer or a centrifugal dryer, depending upon the nature of the machine as a whole. Devices of this character are well known in the art and therefore need not be disclosed in greater detail here.

Any suitable arrangement may be provided for effecting a seal around the shaft 15 where it enters the tub 10. In the construction illustrated, the shaft for this purpose extends to a point well above the normal water level within the tub and is surrounded by a tube 16, which also extends to a point above the normal water level. The lower end of this tube has a watertight connection, of any suitable character, with the bottom of the tub, in a manner well known in the art. At the upper end of the shaft 15, above the top of the tube 16, there is secured a driving block 17, preferably square in cross-section or otherwise adapted to provide a driving connection with the upper end of an agitator 18. This agitator may be of any of a variety of forms, well known in the art, and preferably includes a central standard surrounding the tube 16 and having a bearing upon the latter at one or more points. It also, preferably, has a horizontally extending bottom disc together with suitable agitating vanes projecting outwardly from the central standard and upwardly from the bottom disc. It will be understood that this is one common form of agitator which may be used. A variety of other types may be substituted.

The upper end of the central standard of the agitator is preferably finished to an appropriate diameter and is adapted to receive a metal scrubbing member 19. This scrubbing member has a central axially extending recess, the lower portion 20 of which is relatively large and unfinished while the upper portion is reduced and finished to provide a close fit over the upper end of the agitator. If desired, the end of the agitator and the upper portion of the recess in the member 19 may be provided with a slightly tapered wall so that the scrubbing member may be forced

downward into a tight-fitting engagement with the agitator. The friction between these elements may then be sufficient to cause the scrubbing member to oscillate with the agitator. Any other convenient means may be employed for connecting the scrubbing member with the agitator for rotational movement in unison. For example, a set screw 21 carried by the member 19 may be turned into engagement with the surface of the agitator standard and if desired a small portion of this surface may be flattened slightly to assist the torque transmitting action of the set screw.

The outer cylindrical face of the member 19 is formed with a series of alternate ridges and depressions 22 of suitable height or depth, say about $\frac{3}{8}$ of an inch, and formed to provide an appropriate scrubbing surface. These ridges and depressions or ribs and grooves may be conveniently extended into the outwardly flaring portions of the head of the member 19. The top of the head may also be provided with a series of radially extending ribs 23 of a suitable height, say $\frac{3}{8}$ of an inch above the main surface of the top. In order to provide an appropriate spacing of the ribs, both near the periphery of the head and near its center, the ribs 23 may be of different radial extents. A number of them may approach within a small distance of the center of the head while others terminate a slightly greater distance from the center and still others terminate an even greater distance from the center. While this constitutes a preferred form and arrangement of the scrubbing projections, it will be understood that these projections may assume a variety of different forms; for example, they may be curved instead of straight and they need not be strictly radial. In fact, any configuration which will provide a satisfactory scrubbing surface may be employed on the top as well as the side wall of the member 19.

While the dimensions of the member 19 may be varied to suit particular requirements, it has been found that in a washing machine of the conventional type, in which the agitator is oscillated at the rate of about sixty complete reciprocations per minute, the top of the scrubbing member may appropriately be about four inches in diameter and may have thirty-two ribs equally spaced about its surface. The overall height of the member may conveniently be slightly more than three inches while the diameter of the lower, cylindrical portion may conveniently be about two and one-half inches. The cylindrical, lower portion of the member preferably merges into the top of the member along a sweeping, curved surface of relatively large radius, say one and one-half inch radius, so that the enlarged head of member 19 is of substantially frusto-conical form.

In the use of the scrubbing attachment, it will be understood that the usual cover 24 for the tub 10 is removed and certain dirty portions of the clothes, such as the cuffs of shirts and the like, are suitably soaped and then held by hand against either the top surface of the member 19 or the side wall of the latter. As the agitator oscillates back and forth, the main body of clothes in the tub is subjected to the usual washing action while the scrubbing projections of the member 19 will be carried back and forth and will very quickly scrub the contacting surfaces of the soiled clothes. As previously stated, the removal of excess dirt in this way during the washing operation of a batch of clothes will considerably reduce the operating time required to thoroughly clean the entire batch.

A preferred, illustrative embodiment of the invention has been described in considerable detail. It will be understood, however, that numerous changes may be made in the construction and arrangement of the scrubbing member without departing from the general principles and scope of the invention. The terms and expressions used herein have been employed as terms of description and not of limitation.

What I claim is:

1. In a washing machine a tub, a shaft extending into said tub through the bottom of same, means beneath the tub for oscillating said shaft, an agitator mounted on said shaft for oscillatory movement therewith, and a cap for said agitator having rigid corrugated scrubbing surfaces on its top and side walls whereby textiles may be scrubbed by manually holding same against said scrubbing surfaces.

2. In a washing machine a tub, a shaft extending into said tub through the bottom of same, means beneath the tub for oscillating said shaft, an agitator mounted on said shaft for oscillatory movement therewith, and a cap for said agitator having a substantially cylindrical side wall with rigid scrubbing corrugations thereon.

3. In a washing machine a tub, a shaft extending into said tub through the bottom of same, means beneath the tub for oscillating said shaft, an agitator mounted on said shaft for oscillatory movement therewith, and a cap for said agitator having a substantially cylindrical side wall and a substantially flat top, said side wall and top being formed with rigid scrubbing corrugations.

4. A scrubbing attachment for domestic washing machines having an agitator comprising a sleeve having a socket to fit over the end of the agitator, an enlarged head of inverted frusto-conical form at the top of said sleeve, and projections formed on the outer surface of said head.

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