Dec. 11, 1928. 1,695,065

S. E. SCHROEDER

WASHING MACHINE

Filed Aug. 21, 1926 2 Sheets-Sheet 1

FIG. 2

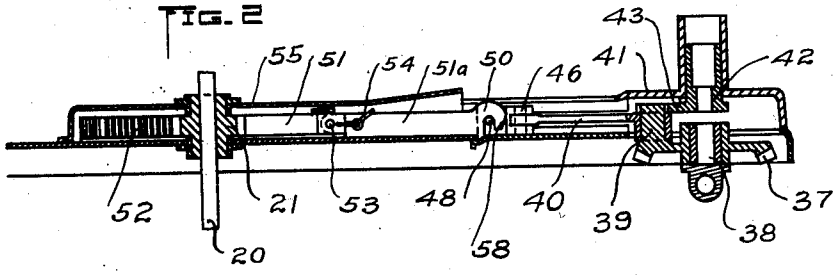
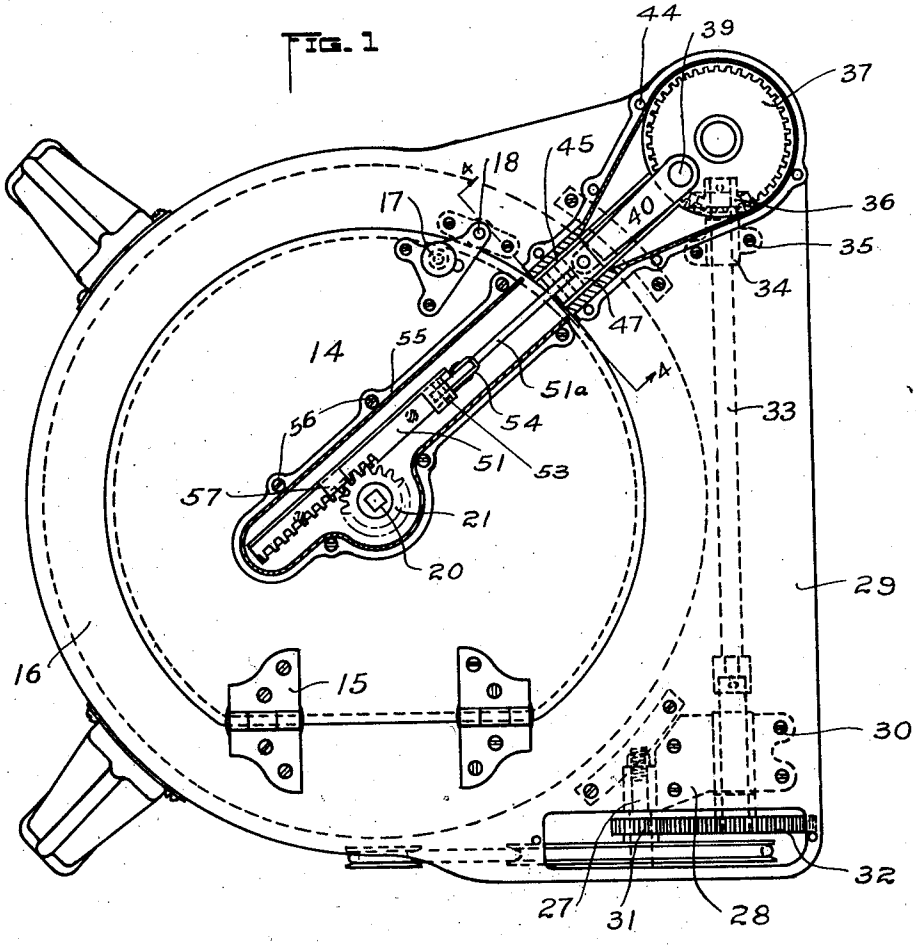


FIG. 1



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FIG. 4

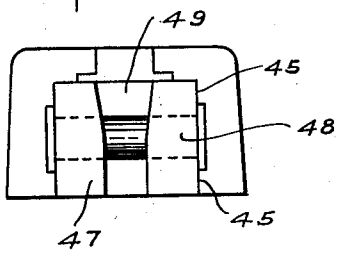
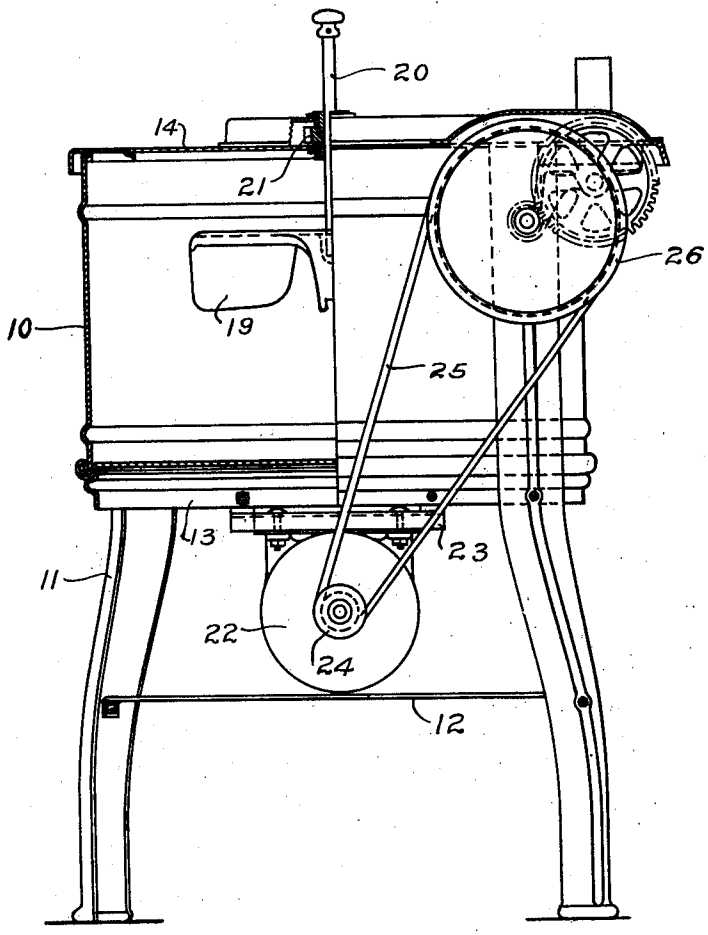


FIG. 3



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UNITED STATES PATENT OFFICE.

SIMON E. SCHROEDER, OF NEWTON, IOWA, ASSIGNOR, BY MESNE ASSIGNMENTS, TO AUTOMATIC WASHER COMPANY, OF NEWTON, IOWA, A CORPORATION OF DELAWARE.

WASHING MACHINE.

Application filed August 21, 1926. Serial No. 130,624.

This invention relates to washing machines, and more particularly to washing machines of the dolly type, the same having an overhead or above-the-cover drive.

One of the objects of the invention is in the provision of a washing machine of the dolly type, the same having a simplified driving means therefor, said driving means including such rack mechanism and means for reciprocating same as obviates the necessity of raising the rack prior to the lifting of the washing machine lid.

Another object is in the provision of driving means for the dolly of a washing machine, said driving means being of such nature as to permit raising of the lid portion without first a manual manipulation of a part of the driving mechanism.

Still another object is in the provision of a dolly type of washing machine, the same having an above-the-lid driving mechanism, said mechanism being so associated with the lid portion and means for reciprocating same, as to permit the manual raising and lowering of the lid portion with a coincident automatic release and engagement of the rack and driving means for reciprocating same.

A further object is in the provision of a special driving mechanism for the dolly of a washing machine, said driving mechanism including a specially formed rack bar disposed on the upper surface of the washing machine lid and mechanism for reciprocating said rack bar disposed adjacent thereto in a manner to automatically release and engage said rack bar upon the manual raising and lowering of the lid portion.

A still further object is in the provision of a special and simple driving means for the dolly of a washing machine, the driving means being disposed upon the upper surface of the lid portion and including a rack bar secured to the lid portion in a manner to prevent disengagement with the gear upon the raising of the lid portion, a pitman for transmitting reciprocatory movement to said rack, and a readily detachable connection between said pitman and rack bar to permit manual raising and lowering of the lid without regard to the particular location or positioning of the rack bar.

Other objects will appear in the following specification, taken in connection with the annexed drawings, in which—

Fig. 1 is a plan view of the washing machine, with portions thereof cut away for a more detailed view of various elements;

Fig. 2 is a side elevation, portions thereof being broken away for a more detailed view of the rack bar and manner of connecting same to the driving means;

Fig. 3 is a side elevation, partially in section, of the washing machine; and

Fig. 4 is a detail view, in end elevation, taken on the line 4—4 of Fig. 1, with the cover portion in the raised position.

Before describing the present washing machine and driving means in detail, it might be stated that this washer was designed with the idea of improving upon the many undesirable features that are at present found in the dolly type of washing machine. Applicant had in mind the idea of simplifying the driving mechanism to a considerable degree, to permit the production of a dolly washer at a very small cost.

Again, with respect to the driving means for the dolly of the washing machine, applicant desires to utilize generally the simple, above-the-cover rack drive for the dolly, but to fashion same and dispose it on the top of the lid of the washer in such manner as to permit a manual raising and lowering of the lid member without manually releasing and engaging the rack bar and the driving means therefor.

The present application is directed more particularly to this improved manner of supporting and connecting the rack bar to the driving means than the other elements which go to make up the complete washer.

It is obvious that in the usual dolly type washing machine utilizing the overhead rack drive, the operator must first either raise the rack bar, or disengage same manually from the driving means before the lid can be lifted to permit the removal or entry of materials to be washed. Applicant desires not only to obviate this undesirable feature of the general type of dolly machines, but to do so in a simple and efficient manner.

To accomplish the above desired result, applicant utilizes the following structure: A washing machine tub is shown at 10, having

the leg portions 11 supported near their lower extremities by the braces 12. A framing support 13 provides the seating means for the tub member, as well as a connecting means between the tub and legs.

The tub has the lid portion 14 hinged in the well known manner, as at 15, thereto, or rather to the top portion 16 thereof, a latch portion 17 being pivoted as at 18 to the top of said tub. It is obvious that by manual movement of said latch to an outer position, the lid portion 14 may be readily raised or lowered, as the case may be, and a consequent movement of the latch in the opposite direction would assure clamping of the lid in its lowered position. A dolly 19 is securely attached to a vertically disposed shaft 20, which is slidably mounted in a support in the cover 14. This shaft 20 projects through and has a slidable connection with the driven gear 21, but has its shape corresponding to the aperture in the said gear 21 in a manner to be moved by said gear.

The above construction with respect to the dolly type of washing machine is well known, and it is apparent that the dolly 19 rides up and down upon the clothes content during its agitation, with a similar raising and lowering of the vertical shaft 20, the same being oscillated by the movement of the driven gear 21, said gear having movement transmitted thereto by the following driving mechanism.

A well known electric motor 22 is securely bolted to a base portion 23 secured to the framing support 13. A pulley 24 upon the projecting shaft of the electric motor carries a belt 25, which encircles a larger pulley 26 secured to a stub shaft 27 supported in a bracket 28, which is fixedly attached to the washer top, or rather an extended apron portion 29 thereof, by means of the plural bolt members 30. The stub shaft 27 has a small gear 31 secured thereto, said gear meshing with a larger gear 32 connected with a horizontally disposed drive shaft 33, the latter having its bearing support at one end in the bracket 28 and at its opposite end in a bracket 34, which is secured by means of the plural bolt members 35 to the washer top, or apron portion 29.

The bevel gear 36, secured to the opposite end of the horizontal drive shaft 33, meshes with an adjacent and larger bevel gear 37, shown in detail in Fig. 2. The bevel gear 37 is rotatable about a pivot 38, fixedly secured in the above mentioned apron or washer top 29. An upwardly projecting lug 39 on the bevel gear 37 has pivoted thereto a pitman 40. A raised portion 41 not only acts as a cover for the gears and pitman, which is constantly moving during motor activity, but also forms a bearing support for a receiving and driving portion 42 for the wringer mechanism, not shown. The connection between the driving member 42 and the bevel gear 37 is provided in a crank formation 43, of the lower end of the member 42, the same being pivoted on the upper end of the lug 39, which is carried by the gear 37.

The cover portion 41, as shown in Fig. 1, is bolted by means of the plural bolt members 44 to the apron 29, and decreases in width as it extends towards the lid portion of the washer. That portion of the cover member 41, which lies adjacent the lid member, is fashioned to receive a guide member 45. This guide member is actually made up of four guide portions, two above and two below, as may be perhaps most clearly seen in Fig. 2, the same extending from a point adjacent the lid portion to a point adjacent the gear 37. It is obvious that if the guide member 45 were solid, movement of the pitman 40, induced by the movement of gear 37, would be prevented, inasmuch as said pitman moves a distance to each side. However, by separating the guide member 45 into upper and lower sections, an opening is left therebetween to permit this side movement of the pitman. The pitman 40 has a pivotal connection, by means of the vertical bolt 46, with a member 47 that conforms to the shape of the plural guide member 45, and is reciprocated therein by means of the pitman. This member 47 is shown perhaps most clearly in Fig. 4, and it is apparent that towards the outer end thereof a bolt 48 is secured horizontally therein to the side portions thereof. Similarly, it is obvious that said member 47 has that portion lying adjacent the lid portion opened as at 49, to receive the hooked end 50 of the rack bar 51 that is supported on the lid 14. The rack bar 51 is actually made up of two parts, the rack bar proper 51, which has its tooth portion 52 meshing with the teeth on the driven gear 21, and also that portion which is designated 51^a that carries the hook member 50, capable of engagement with the horizontal bolt 48, the latter being a part of the member 47, which is reciprocated by the pitman 40. That portion of the rack described as 51^a is pivoted, as at 53, to the rack 51, a spring member 54 being connected to the rack 51 and to the rack portion 51^a in such manner as to tensionally depress that portion 51^a downwardly upon the lid 14 for reasons later to be described.

The rack 51, as well as its adjacent portion 51^a, is supported in a manner to constantly engage the driven gear 21, a cover member 55 surrounding same and secured by means of the plural bolt members 56 to the washing machine lid. It is apparent that the rack bar, which during motor activity is constantly reciprocated, is almost entirely housed, it being noticeable, however, that that portion of the cover 55 lying adjacent the hook portion 50, is slightly raised to permit slight upward movement of the rack portion 51^a against the tension of the spring 54. Plural stop members 57 prevent reciprocation of the

rack bar 51 beyond the normal movement thereof, induced by activity of the pitman 40. These stops also act to prevent manual withdrawal of the rack, as well as to prevent such movement of the rack from its normal position as to prevent the automatic engagement of the hook portion 50 with the horizontal bolt 48 during the manual raising and lowering of the lid portion 14.

Having described the washing machine and driving means therefor in what is thought to be complete detail, the operation of same will now be set forth. It is obvious that activity of the electric motor transmits movement through the various pulleys, gears, etc. to the gear 37, which in turn transmits movement to the pitman 40. The reciprocation of the pitman 40 is transmitted to the rack 51 through the connection of the hook 50 with the bolt 48. It is obvious that reciprocation of the pitman again transmits oscillatory movement to the driven gear 21, which movement is carried directly to the dolly 19, with the result that the agitation of said dolly accomplishes the washing action. Obviously, should there be a direct connection between the pitman 40 and rack bar, it would be impossible for the operator to raise the lid portion when desired, but in the present case, there is an automatically operating connecting means between the pitman and rack bar through the hook 50 and bolt 48, with the result that when the lid 14 is raised, the hook 50 is automatically released from the bolt 48 and automatically re-engages said hook upon the closing of the lid.

It might seem, unless otherwise pointed out, that the rack bar could assume a position that would prevent the re-engagement of the hook 50 with the bolt 48 upon the lowering of the lid. However, it may be seen from Fig. 2 that the covering for the pitman does not extend out to a point to prevent the rack bar, in whatever position it may be, from engaging the bolt 48, even if said rack bar were in its most extended position with respect to the lid.

Again, it might seem that after the lid was raised, the pitman might be moved away from the rack bar, which is entirely possible. However, with the present structure, this would have no effect with respect to the automatic re-engagement, because when the lid was lowered, although the hook would not then immediately engage bolt 48, nevertheless upon re-commencement of reciprocation of pitman 40, the bolt 48 carried by member 47 would ride under the spring tensioned hook 50, due to the beveling of the end portions shown at 58, with the result that the bolt would actually engage the hook rather than the hook engage the bolt.

Also, we find that the fact that this tensional mounting of that part of the rack bar designated 51ª assists in the ready and automatic engagement and release of the hook with the horizontal bolt 48.

What I claim is:

1. In a washing machine having a hinged cover; a rack slidably mounted on said cover, a rotary member arranged to be driven from a source of power, a casing surrounding said rack, a pitman connecting said rack with said rotary member, and a connection between said pitman and said rack permitting disengagement by upward movement of said rack.

2. In a washing machine having an upwardly movable cover, driving mechanism comprising a rack disposed above said cover, a pitman arranged to reciprocate said rack, a downwardly extending hook on said rack having its forward end beveled, a transverse member on said pitman constructed and arranged to engage the beveled end of the hook to raise it, and a spring urging said rack downwardly to cause the hook to engage the transverse member.

In testimony whereof, I have hereunto affixed my signature.

SIMON E. SCHROEDER.