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1,641,344

C. McLEAN

WASHING MACHINE

Filed Feb. 25, 1926

2 Sheets-Sheet 1

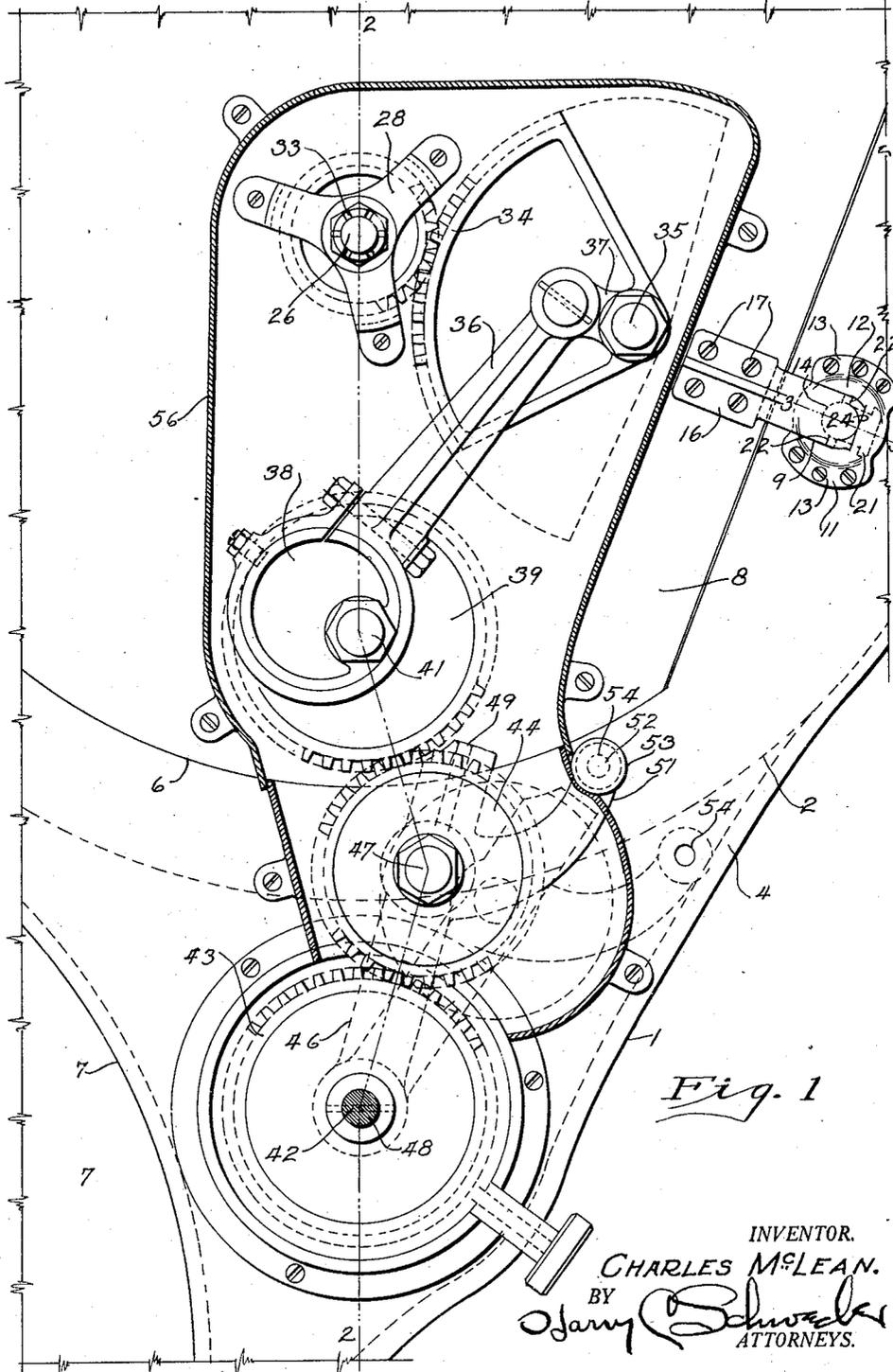


Fig. 1

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2 Sheets-Sheet 2

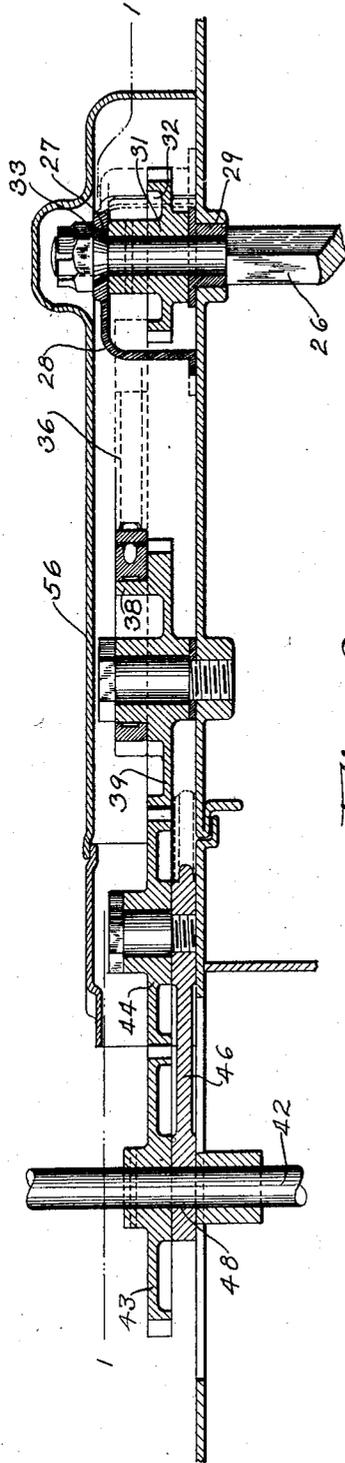


Fig. 2.

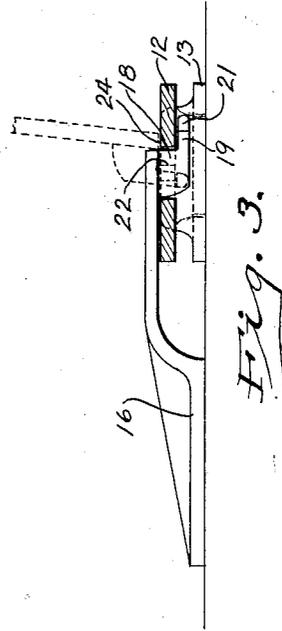


Fig. 3.

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UNITED STATES PATENT OFFICE.

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WASHING MACHINE.

Application filed February 25, 1926. Serial No. 90,516.

The present invention relates to improvements in washing machines and its particular object is to provide an improved driving mechanism for the dolly of the washing machine.

It is further intended to provide certain improvements in the mounting means of the driving mechanism.

It is further intended to provide means whereby oil used for lubricating is prevented from working into the tub of the washing machine.

It is further proposed to provide improved means for hinging the cover carrying the dolly so as to allow the operator to tilt the cover into a vertical position or to swing the same on a substantially vertical axis to the outside of the tub or to remove the cover entirely by a slight tilting motion.

Further objects and advantages of my invention will appear as the specification proceeds.

The preferred form of my invention is illustrated in the accompanying drawings in which

Figure 1 shows a top plan view of the driving mechanism for the dolly of the washing machine, the housing being shown in section.

Figure 2 a vertical section taken along line 2-2 of Figure 1, and

Figure 3 a detail view of the hinge taken along line 3-3 of Figure 1.

While I have shown only the preferred form of the invention I wish to have it understood that various changes or modifications may be made within the scope of the claims attached hereto without departing from the spirit of the invention.

My washing machine 1 comprises the conventional two tubs 2 and 3 indicated in part only in the drawing with a cover 4 arranged on top of the washing machine and formed with openings 6 and 7 giving access to the two tubs. The tub 2 is used for washing the clothes and the tub 3 for rinsing the same, the present invention being concerned with the former tub only.

The opening of the wash tub 2 may be closed by means of a lid 8 which is hinged to the cover of the washing machine as shown at 9. This hinge is constructed to allow the lid to be tilted into a substantially vertical position and to come to rest in such position or to be entirely removed by exercising a slight tilting motion or to be swung

outwardly on a vertical axis. The hinge comprises a fitting 11 including a raised central disk 12 and two flanges 13 adapted to be screwed to the covering and to hold the disk in spaced relation to the latter. The disk is perforated as shown at 14. The second hinge member 16 is a bracket screwed to the lid as shown at 17 and extending over the fitting 11, a downward projection 18 of the bracket extending through the perforation 14 with freedom of revolving and tilting motion while a flange 19 extends into the recess formed between the disk 12 and the top of the covering, the raised disk being sufficiently large to allow the flange 19 to freely revolve in the space between the disk and the washing machine covering. The flange 19 has two pins 21 projecting from the extreme end thereof and the disk is formed with slots 22 that may be made to register with the pins 21 if it is desired to withdraw the bracket 16 from the other hinge member altogether.

It will be seen that this hinge allows the operator to swing the lid outwardly on a substantially vertical axis, in which case the lid clears the entire opening, projects outwardly from the washing machine and is supported by the flange 19 bearing against the underface of the disc 12. The hinge furthermore allows the lid to be swung into a substantially vertical position and in this connection it should be observed that the bracket 16 at its extremity is cut along a straight line as shown at 24 on a slight incline so that the lid comes to rest after going slightly beyond the vertical position, at which time the pins 21 engage with the underface of the disk so that the lid is supported at three points as seen in Figure 3 in the dotted line position. The two pins 21 strike the underface of the disc just ahead of the two slots 22 so that a slight tilting motion of the lid from the dotted line position in Figure 3 causes the pins 21 to register with the slots 22 which allows the pins to be withdrawn through the slots and the lid to be removed altogether.

The lid supports a dolly shaft 26 in the following manner. A conical bearing 27 is supported above the lid by means of a spider 28 and the dolly shaft is formed at its upper end with a conical face fitting the said bearing. The dolly shaft extends through a bushing 29 in the lid and has a gear wheel 31 secured thereto, the said gear wheel being

formed with a hub portion fitting between the bearing 27 and the bushing 29 and the said hub making a tight fit with the dolly-shaft so as to prevent any lubricating oil from passing between the same. The gear wheel is provided with an annular groove 32 on the outside of the bushing so that any oil squeezed into the bearing 27 will pass over the top surface of the hub 31 and run into the groove 32 where it is caught, so that it is not possible for the lubricant to enter the wash tub. A castle nut 33 is screwed on the upper end of the dolly shaft and aids in supporting the latter.

Rotary to and fro motion is imparted to the gear wheel 31 by means of a toothed segment 34 pivoted to the lid as at 35 and actuated by means of a connecting rod 36 engaging an arm 37 extending radially from the pivot. The other end of the connecting rod 36 is pivoted to an eccentric 38 fixed to a gear wheel 39 which latter is pivoted to the lid as shown at 41.

A shaft 42 extends through the covering of the washing machine and may be driven by a suitable motor in any well known manner. This shaft has a gear wheel 43 secured thereto and motion is transmitted from the gear wheel 43 to the gear wheel 39 by means of a pinion 44 pivoted to an arm 46 as shown at 47, the arm being pivoted to the shaft 42 as at 48. The arm may be swung from the active position shown in full lines in Figure 1, in which position the three gears 39, 44 and 43 mesh, to an inactive position, partly indicated in dotted lines, and in the latter position the pinion 44 is out of mesh with the gear wheel 39. It will be noted that, when the pinion 44 is in the active position indicated in Figure 1, the extreme end 49 of the arm 46 extends over the lid 8 and thereby locks the latter against opening. A side arm 51 extends from the main arm 46 and carries a pin 52 with a head 53, the pin being adapted to engage with one of two holes 54 for holding the arm in position.

A suitable housing 56 may be provided to cover the operating mechanism.

The advantages of my machine will be readily understood. Engagement between the two gear wheels 39 and 43 may be readily effected by swinging the arm 46 into the operative position indicated in Figure 1 in which position it may be locked by means of the pin 52. Oscillating motion is transmitted to the dolly by means of the eccentric 38 which is particularly well adapted, due to

its compactness, to render efficient and permanent service.

While the machine is going the lid is locked against opening by the arm 46 extending over the same. After the washing operation is completed the arm 46 is swung aside whereby the gear wheels are disconnected and the lid may now, according to the wishes of the operator be tilted into the vertical position shown in the dotted line of Figure 3 or may be entirely removed by a slight tilting motion or may be swung on a vertical axis so as to project outwardly from the edge of the washing machine.

I claim:

1. In combination, two revolvable gear wheels, a hinged support for one of them allowing the latter to be swung into the plane of the former in spaced relation thereto, a third gear wheel, and pivoted supporting means for the latter allowing the same to be swung into meshing relation with the former two gears and having means associated therewith for locking the hinged support while the gears are in mesh.

2. In combination, two revolvable gear wheels, a hinged support for one of them allowing the latter to be swung into the plane of the former in spaced relation thereto, a third gear wheel, and an arm pivoted coaxially with the first gear wheel supporting the third gear wheel and allowing the latter to be swung into intermeshing relation with the other two gear wheels.

3. A combination as defined in claim 2 in which the arm extends over the hinged support when the gears are in mesh for locking the said support.

4. In a washing machine of the character described, a tub, a cover for the same, a conical bearing supported over the cover, a dolly shaft suspended from the bearing, and an oil catcher on the dolly shaft preventing oil from running down the latter into the tub.

5. In a washing machine of the character described, a tub, a cover for the same, a conical bearing supported over the cover, a dolly shaft suspended from the bearing, and a gear wheel mounted on the shaft between the bearing and the cover, the gear wheel being oil-tight on the shaft, and being formed with an annular groove in the upper face thereof to catch oil oozing through the bearing.

In testimony whereof I affix my signature.

CHARLES McLEAN.