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R. C. OTIS & W. W. GUNDRUM.

OPERATING MECHANISM FOR WASHING MACHINES.

APPLICATION FILED JULY 3, 1907.

Fig. 1.

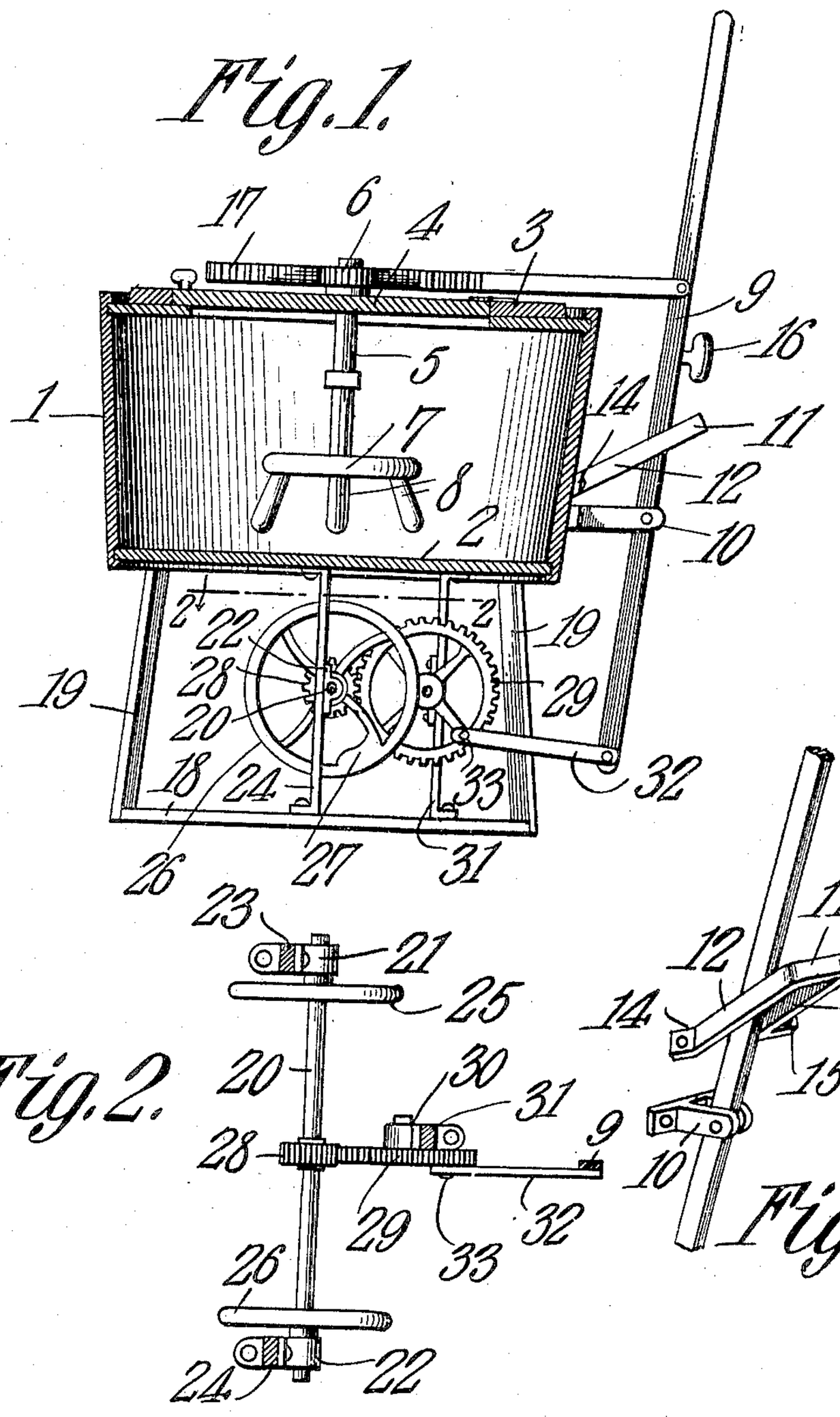


Fig. 2.

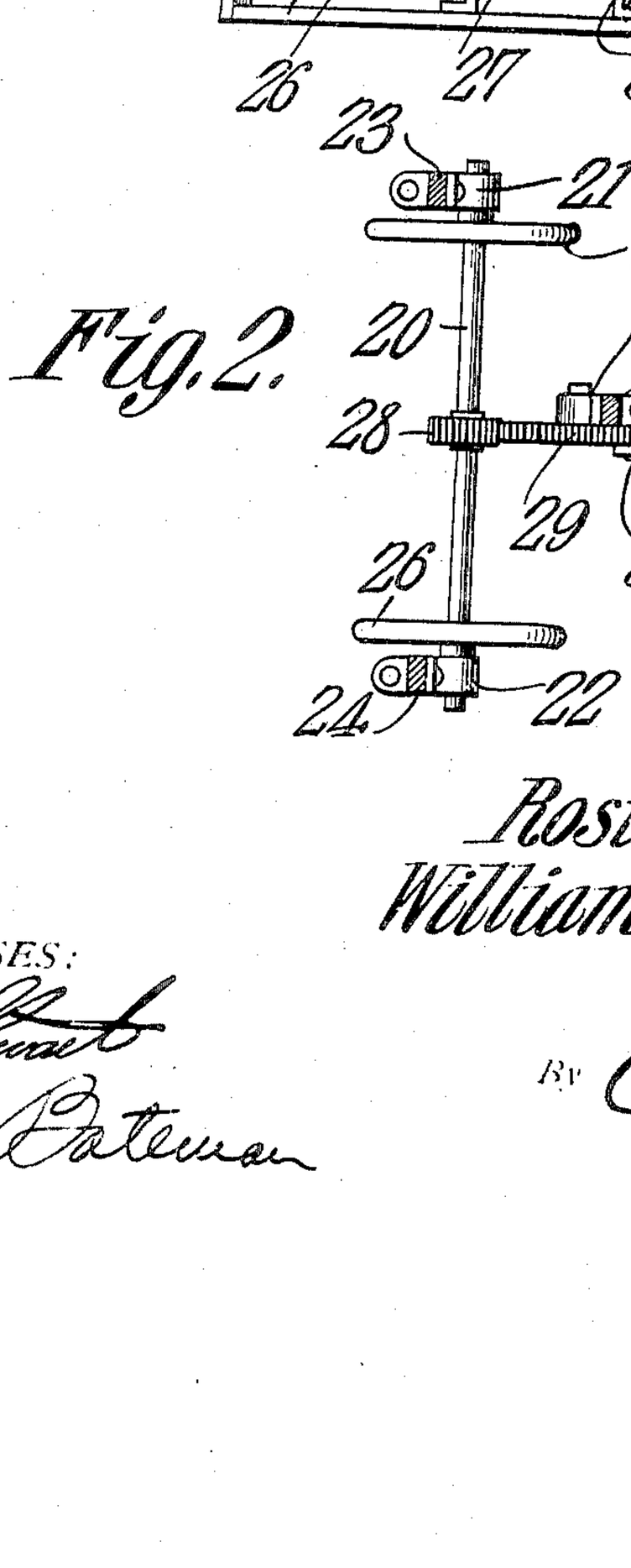
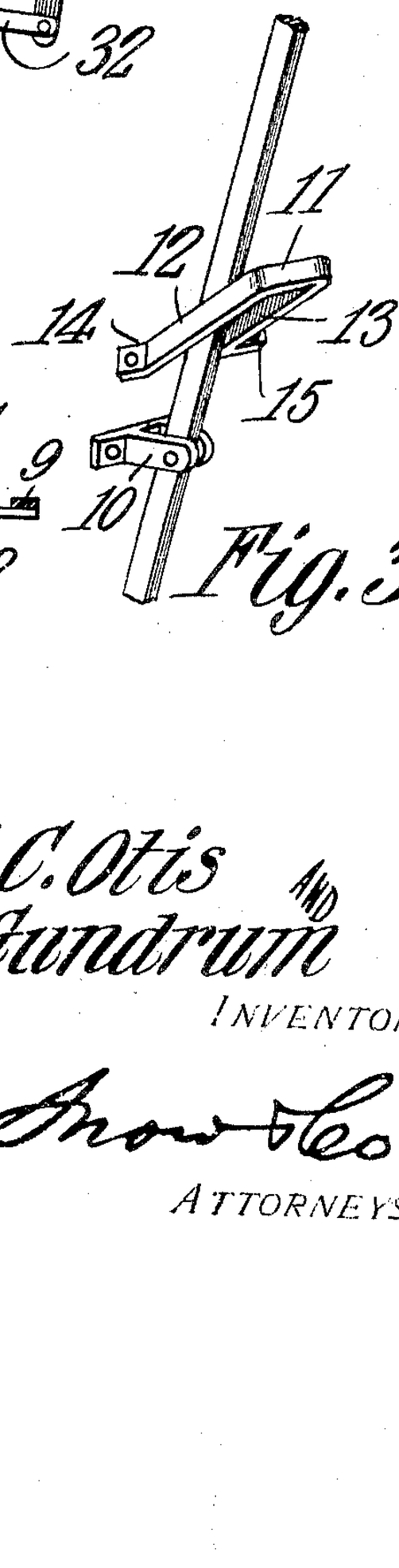


Fig. 3.



Witnesses:

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UNITED STATES PATENT OFFICE.

ROSWELL C. OTIS AND WILLIAM W. GUNDRUM, OF CASEY, IOWA.

OPERATING MECHANISM FOR WASHING-MACHINES.

No. 898,132. Specification of Letters Patent. Patented Sept. 8, 1908.

Application filed July 3, 1907. Serial No. 382,048.

To all whom it may concern:

Be it known that we, ROSWELL C. OTIS and WILLIAM W. GUNDRUM, citizens of the United States, residing at Casey, in the county of Guthrie and State of Iowa, have invented a new and useful Operating Mechanism for Washing-Machines, of which the following is a specification.

Our present invention relates to improvements in washing machines and analogous devices, and it has for its object to provide an improved operating mechanism for machines of this character whereby the washing operation will be facilitated, requiring the expenditure of less power to effect the washing operation, and the driving lever is not liable to center so that the machine may be started instantly by manipulation of the lever.

Another object is to simplify and improve the operating mechanism generally so that the parts run easily and are not liable to become quickly worn, and are so constructed that the mechanism may be manufactured cheaply.

To these and other ends, the invention comprises the various novel features of construction and combination and arrangement of parts, which will be hereinafter more fully described and pointed out particularly in the appended claims.

In the accompanying drawing:—Figure 1 is a side elevation of a washing machine, provided with operating mechanism constructed in accordance with the present invention, the tub being shown in section. Fig. 2 represents a section on the line 2—2 of Fig. 1. Fig. 3 is a detail perspective view of the supporting and guiding devices for the operating lever.

Corresponding parts in the several figures are indicated throughout by similar characters of reference.

Operating mechanism constructed in accordance with the present invention is capable of being applied to washing machines of various types wherein the dasher has either a rotary, rocking, or reciprocatory movement, it being shown, in the present instance, as applied to one of the rotary type and embodying generally a tub or receptacle 1 to receive clothes, having a bottom 2, a top 3 provided with a door or closure 4 by means of which access may be had to the tub, a shaft 5 depending from the top having an operating pinion 6 at its upper end, and a dasher or agitating head 7 suitably mounted on the lower end of the shaft within the tub and provided with one or more arms 8 to engage the clothes.

The washing machine thus described is an illustration or example of one type of machine to which the present invention is applied, it being understood as illustrating one embodiment only of the invention.

The operating mechanism comprises an operating lever 9 pivoted at an intermediate point to a bearing bracket 10 secured to one side of the tub or to any other suitable support, the bearing bracket being so constructed that it will permit a rocking movement of the lever in a plane parallel to a radius of the tub. In order to insure movement of the lever in a single plane only, and to prevent its breaking, it is preferable to provide a guide at one side of the bracket which has a sliding engagement with the lever to prevent relative lateral movement thereof. The guide shown in the present instance comprises a yoke 11 having a pair of parallel arms 12 and 13 arranged to engage at opposite sides of the lever and to form a passage having parallel walls between which the lever operates, the free ends of the arms being provided with laterally turned lugs 14 and 15 to fit the side of the tub and to receive screws or other securing devices whereby the yoke may be secured firmly in position. The arms of the yoke preferably extend in a direction upwardly and outwardly relatively to the tub, so that, when the upper end of the operating lever is tilted farthest from the tub, the guiding arms of the yoke will engage the sides of the lever at points some distance from its pivotal center, so that the yoke is better able to withstand strains tending to deflect the lever laterally of its plane of movement. The upper end of the operating lever is preferably extended above the top of the tub in order that the operator may manipulate the machine while in a standing position, a supplemental handle 16 being provided at a lower level so that the machine may be operated, if so desired, while the operator is in a sitting position. The movements of the operating lever are transmitted to the dasher within the tub by means of a rack 17 which is pivotally attached at one end to the lever and coöperates with the pinion 6, reciprocation of the rack causing the dasher to be rotated alternately in opposite directions.

In order to equalize the resistance to the operation of the dasher by reason of the re-

versals thereof and the retarding effect of the clothes, and thereby insure a smooth operation of the machine with an expenditure of a small amount of power, a balancing mechanism is provided which is located between the bottom 2 of the tub and the false bottom 18, the latter being supported in fixed relation to the tub by means of legs 19. The balancing mechanism, in the present instance, comprises a balance wheel shaft 20, having its opposite ends journaled in bearings 21 and 22 the latter being preferably roller or anti-friction bearings, in order that the shaft may revolve rapidly without undue loss of power, and these bearings are supported on a pair of brackets 23 and 24 which extend between the tub and false bottoms and are bolted or otherwise secured thereto. On the balance wheel shaft are fixed one or more balance wheels, a pair of them, 25 and 26, being employed in the present instance, as it enables the necessary balancing effect to be obtained with wheels of small diameters and the weight is distributed between the two bearings of the shaft, and these balance wheels are provided with counter balances 27 which produce an unbalanced effect so that when the application of power is discontinued, the wheels will always stop with the weighted portions in the lowermost position. The balance wheels are driven by a pinion 28 which coöperates with a driving gear 29, the latter being journaled in a bearing 30 supported in the bracket 31 and is connected to the lower end of the operating lever by means of a pitman 32 which coöperates with a crank pin 33 on the driving gear.

In practice, the rocking movements imparted to the operating lever are not only transmitted to the dasher within the tub, but they also set the balancing mechanism into operation, the balancing mechanism serving, in the present instance, not only to insure a smooth operation of the machine, but it also causes the operating lever to stop each time in such a position that it is capable of restarting the driving gear, that is to say, the crank pin is not liable to rest upon the dead center.

What is claimed is:—

1. In a washing machine, a support, a rotary element, an operating lever pivoted at an intermediate point and operatively connected to said element, a driving gear journaled beneath the machine and having a crank pin, a pitman connecting the latter and the lower end of the lever, a balance wheel shaft also journaled beneath the support, a pair of balance wheels thereon weighted at one side of their axes, a pinion on said shaft coöperating with the driving gear, and the supplemental handle on the operating lever between its pivot and the connection of the lever with the rotary element.

2. In a washing machine, a support, a rotary element, an operating lever pivoted at an intermediate point and operatively connected to said element, a driving gear journaled beneath the support and having a crank pin, a pitman connecting the latter and the lower end of the lever, a balance wheel shaft also journaled beneath the support, a pair of balance wheels thereon weighted at one side of their axes, and a pinion on the said shaft coöperating with the driving gear.

In testimony that we claim the foregoing as our own, we have hereto affixed our signatures in the presence of two witnesses.

ROSWELL C. OTIS.
WILLIAM W. GUNDRUM.

Witnesses:
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