

H. CAMMACK.
GEARING FOR WASHING MACHINES.
APPLICATION FILED NOV. 19, 1906.

1,022,825.

Patented Apr. 9, 1912.

2 SHEETS—SHEET 1.

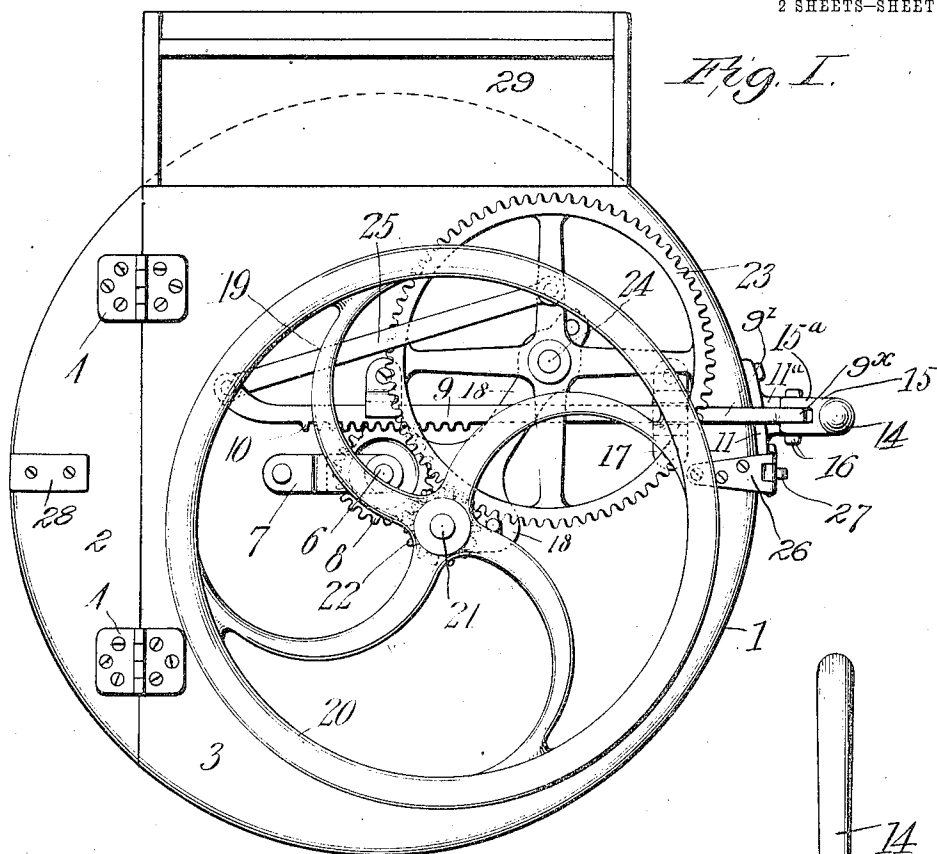


Fig. I.

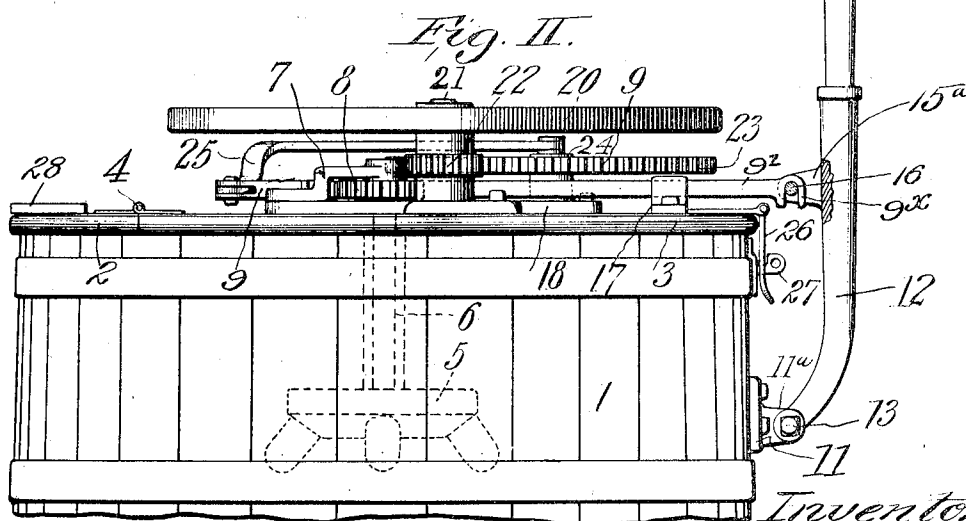


Fig. II.

Attest:
Wm. J. Scott.
Blanche Hogan.

Inventor.
Horace Cammack
by H. M. Knight & Co.

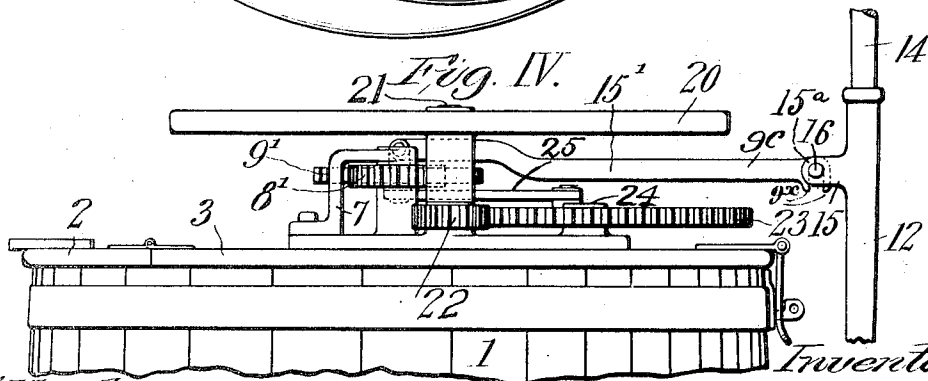
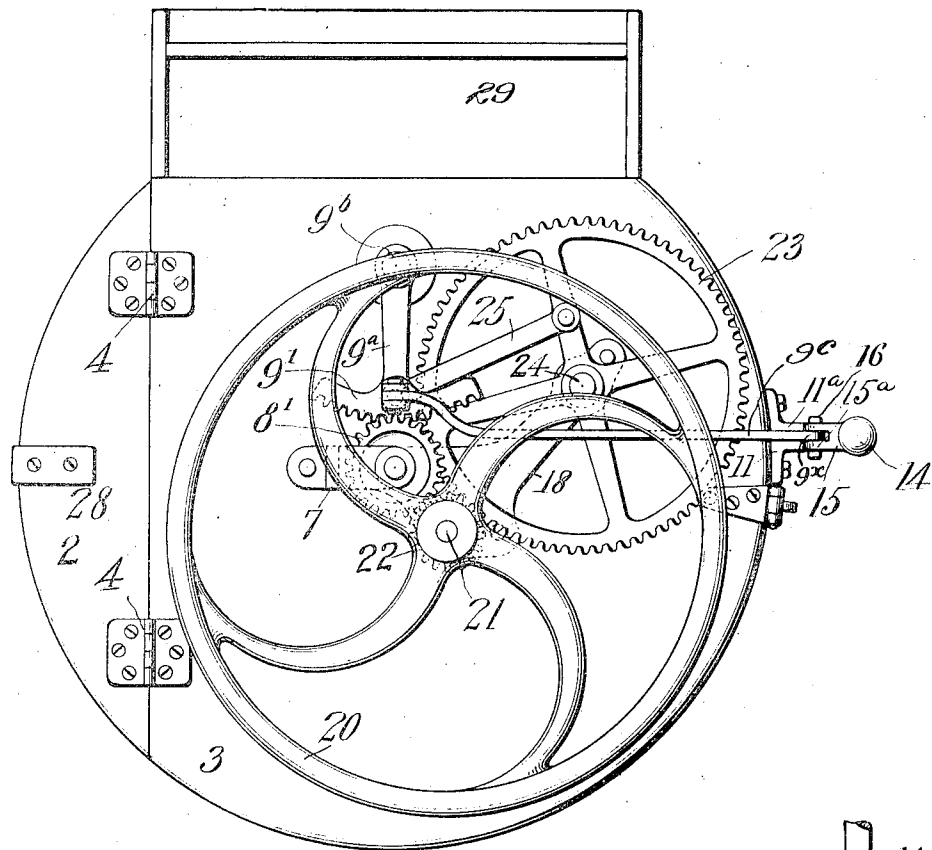
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2 SHEETS—SHEET 2.

Fig. III.



Attest:
Alonzo H. Hogan.

Inventor
Horace Cammack
by J. M. Wright, atty.

UNITED STATES PATENT OFFICE.

HORACE CAMMACK, OF DES MOINES, IOWA.

GEARING FOR WASHING-MACHINES.

1,022,825.

Specification of Letters Patent.

Patented Apr. 9, 1912.

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To all whom it may concern:

Be it known that I, HORACE CAMMACK, a citizen of the United States of America, residing in Des Moines, in the county of Polk and State of Iowa, have invented certain new and useful Improvements in Gearings for Washing-Machines, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

My invention relates to that class of washing machines which include gearings utilized for operating the agitators of the machine, the present invention having for its object to provide a washing machine with a gearing mounted horizontally upon the top thereof, or in other words, upon the cover of the washing machine casing or tub, thereby obviating the necessity of making the washing machine heavier at the side opposite to that at which vertically disposed gearings are commonly mounted and so as to prevent toppling of the machine. The mounting of the gearing in a horizontal position upon the top of the machine also so places it that it does not form an obstruction that is in the way of the operator. The mounting of the gearing in a horizontal position upon the top of the machine also provides for the gearing being applied to the swinging section of the tub cover of the machine in a manner to permit of the gearing being lifted with said hinged section of the cover and the agitator which it serves to operate and also for the support of the gearing and the hinged section of the cover in an elevated position due to the gearing when in such position resting against the stationary section of the tub cover.

Figure I is a top or plan view of my washing machine. Fig. II is an elevation of the machine. Fig. III is a top or plan view of a modification. Fig. IV is an elevation of the modification shown in Fig. III.

1 designates the casing or tub of my washing machine which is provided with a stationary cover section 2 and a hinged cover section 3 that is connected to the stationary cover section 2 by hinges 4.

5 (see dotted lines Fig. II) is an agitator adapted to operate in the tub 1 and which is carried by a spindle 6 that is loosely

mounted in a vertical position in the hinged cover section 3 and in a bracket 7 mounted on said cover section.

8 is a horizontal pinion fixed to said vertical spindle.

9 designates a horizontal rack bar having teeth 10 that mesh with the pinion 8 and from which reciprocatory motion of said rack bar is converted into rotary motion in said pinion to rotate the agitator 5. The rack bar is provided with a connecting bar 9^x provided at its outer end with an inverted U-shaped socket 9^x that receives a part to be hereinafter mentioned.

11 designates a bracket having laterally extending ears 11^a and attached to the wall of the tub 1 and 12 is a hand lever pivoted at 13 to the ears of said bracket and provided with a handle 14.

15 is an arm having ears 15^a and projecting from the hand lever and in the ears of which is mounted a pivot or cross pin 16 that receives the inverted U-shaped socket 9^x of connecting bar 9^x to provide for the reciprocation of said rack bar when the hand lever 12 is moved forwardly and backwardly relative to the tub 1. The socket and pivot or cross pin connection just described permits disconnection of the hand lever from the connecting bar 9^x when it is desired to elevate the hinged cover section 3 of the washing machine to gain access to the interior.

17 is a keeper in which the connecting bar is adapted to slide.

18 designates a flat bearing frame mounted on the hinged cover section. The latter is provided with a horizontal guide 19 that serves to direct the travel of the rack bar 9 so as to hold the teeth of said rack bar in engagement with the agitator operating pinion 8.

20 is a balance wheel that is mounted in a horizontal position on a post 21 projecting upwardly from the bearing frame 18 and provided with a horizontal pinion 22 integral therewith.

23 is a governor gear wheel that is mounted in a horizontal position upon the bearing frame 18 and journaled to a post 24 projecting vertically from said bearing frame. The governor gear wheel is arranged in mesh with the pinion 22 carried by the bal-

ance wheel and said governor gear wheel has eccentrically pivoted to it one end of a connecting link 25, the opposite end of which is pivoted to the curved inner end of the rack bar 9.

When in the practical use of my washing machine the operator actuates the hand lever 12 through the medium of its handle 14 by moving it to and fro, a reciprocatory movement is imparted to the rack bar 9 and said rack bar by meshing with the pinion 8 fixed to the spindle 6 of the agitator 5 operates to impart a rotary motion to said agitator. As the rack bar moves inwardly and outwardly in a horizontal direction it carries therewith the link 25 and said link acts to impart a rotary motion to the governor wheel 23, with the result of causing said governor wheel to in turn operate the balance wheel 20 through the medium of its coöperation with the pinion 22 fixed to said balance wheel. By the coöperation of all of these parts as described a steady and uniform motion is imparted to the agitator of the washing machine and the operation of the parts is readily continued with a minimum expenditure of power.

When the machine is to be put into operation the hinged cover section 3 is placed in the lowered position illustrated in the drawings, and firmly held in a closed position by a catch 26 carried by the hinged cover section and arranged to engage a keeper 27 attached to the tub. When it is desired to open the machine the catch is released and the hinged cover section may be readily elevated due to the inverted U shaped socket 9^a of the connecting bar 9^a becoming detached from the pivoted cross pin 16 carried by the hand lever 12. The hinged cover section is then raised into a vertical position and the balance wheel 20 is brought to rest upon a rest plate 28 that is mounted on the stationary cover section 2. The hinged cover section and the gearing associated therewith will readily remain in the vertical position to which the parts have been moved without means for retaining them in such position, thereby affording ready access to the interior of the tub 1.

29 is a wringer support that is attached to the tub 1 and which remains in a fixed position at all times so that a wringer may be readily applied thereto for use in wringing the clothes that have been washed in the machine after the hinged cover section has been elevated.

In the modification illustrated in Figs. III and IV, I utilize a horizontal segmental rack bar 9' that is arranged in mesh with the agitator operating pinion 8' and is carried by a swinging arm 9^a which is pivotally attached to the hinged cover section of the machine at 9^b. The rack bar in this form of construction operates in an arc of a circle to drive the agitator, as distinguished from the

operation of the rack bar 9 in a straight line and said modified form of rack bar is connected to the hand lever 12 by a connecting bar 9^a. The remaining parts of the gearing in the modification are similar in construction to those previously described and further description of these parts is deemed unnecessary.

I claim:—

1. A gearing for washing machines comprising a support, a vertical shaft mounted in the support, a pinion fixed thereto, a rack in mesh with said pinion, a large gear wheel arranged in a horizontal plane, a balance wheel above the large gear wheel, a pinion connected with the said balance wheel and in mesh with the large gear wheel, a pivoted operating lever operatively connected with said rack, and a pitman connected at one end with said large gear wheel and at the other end with said rack at a point remote from said operating lever, whereby all of the operating devices may be contained under the balance wheel and be protected thereby.

2. The combination of a support, a lever fulcrumed to one side of the support, an arm extended substantially horizontally over the support and having a hook at one end connected with said lever and detachable therefrom by being elevated, a rack connected to the other end of said arm, a vertical shaft extended above the support, a pinion thereon in mesh with the rack, a balance wheel arranged in a horizontal plane above the pinion, a small pinion on the balance wheel, a large pinion arranged in a horizontal plane below the balance wheel, and in mesh with the small pinion on the balance wheel, and a pitman connected to the large pinion and to the said rack.

3. The combination of a support, a hinged member on the support, a lever fulcrumed to the support on the side opposite from the hinges, said lever having a lateral extension and a pin in said lateral extension, a shaft mounted vertically in the hinged portion, a small pinion on the shaft, a rack in mesh with the small pinion, an arm pivoted to the rack and having a hook in one end designed to engage the pin in the lever, and to be detachable from said pin when the hinged portion is raised, a large pinion, means for operatively connecting the large pinion with said rack, a balance wheel on top of the hinged portion, a small pinion connected therewith, the latter being in mesh with said large pinion.

4. An operating device for washing machines, comprising a body, a lever fulcrumed to the body, an upright shaft on top of the body, a pinion thereon, an oscillating rack fulcrumed to the body and in mesh with the pinion, a large pinion in a horizontal plane mounted on the body a balance wheel ar-

ranged in a horizontal plane on the body
above said large pinion, a small pinion con-
nected with the balance wheel and in mesh
with the large pinion, a pitman pivoted to
5 the oscillating rack and detachably connect-
ed with said lever, and a second pitman piv-
oted to the first at one end and pivotally
connected with the large pinion at its other
end.

HORACE CAMMACK.

In presence of—

C. LADYNSKI,

WANDA CAMMACK.