H. O. AND F. L. McDANIEL.

OPERATING MECHANISM FOR WASHING MACHINES.

APPLICATION FILED APR. 4, 1918.

1,323,536.

Patented Dec. 2, 1919.

2 SHEETS—SHEET 1.

Fig. 1.

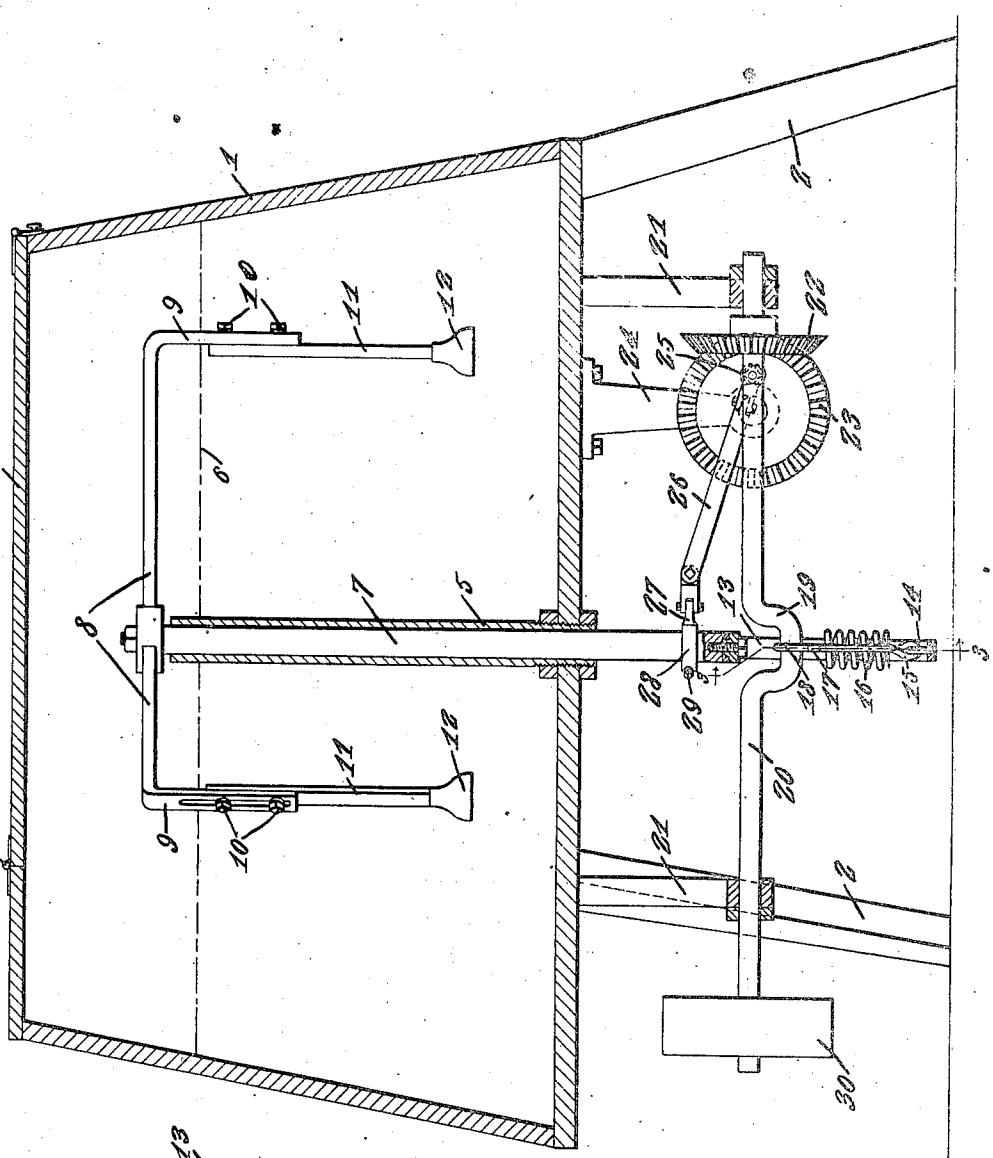
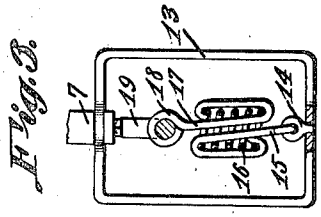


Fig. 3.



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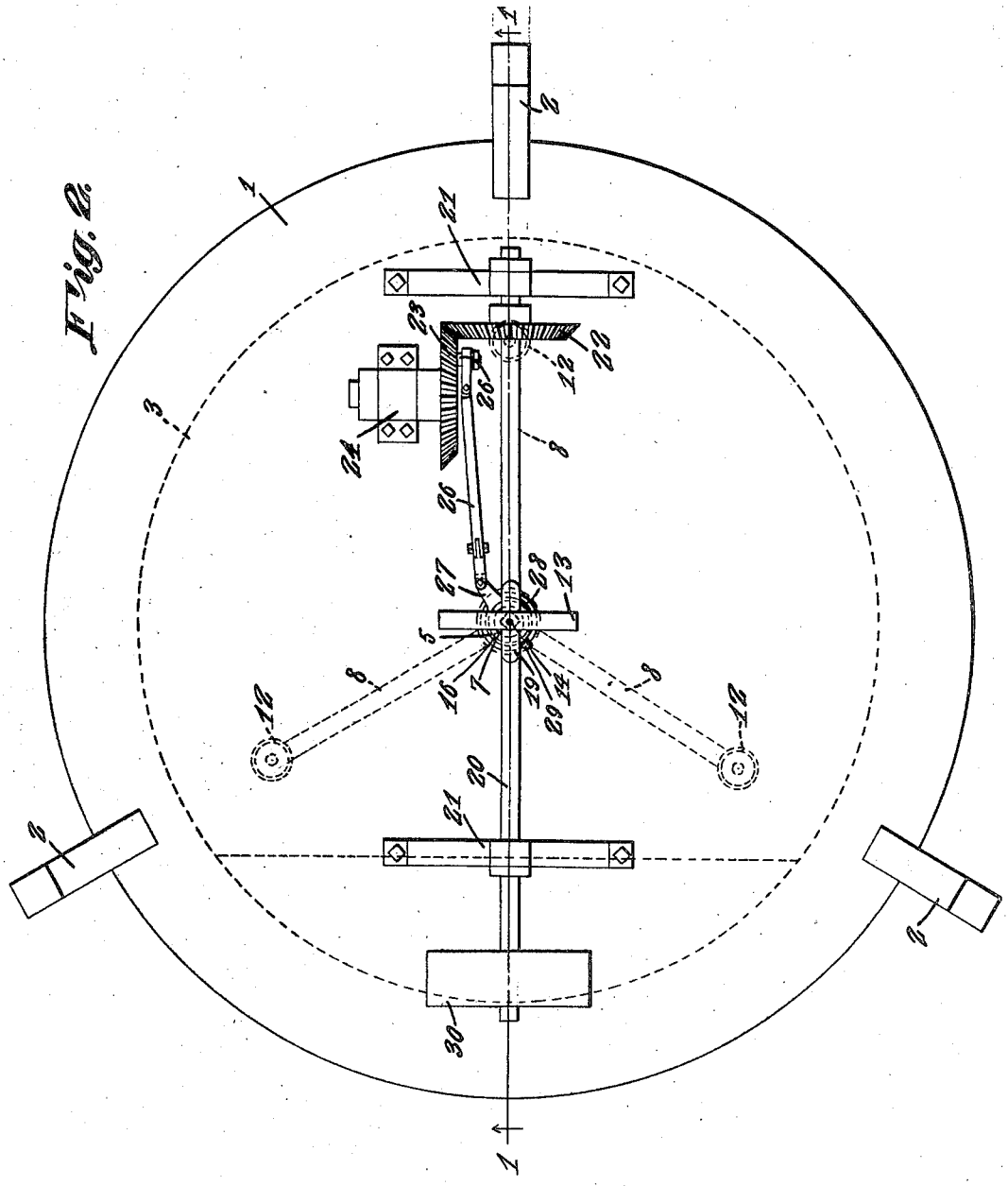
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2 SHEETS—SHEET 2.

Fig. 2.



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UNITED STATES PATENT OFFICE.

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OPERATING MECHANISM FOR WASHING-MACHINES.

1,323,536. Specification of Letters Patent. Patented Dec. 2, 1919.

Application filed April 4, 1918. Serial No. 226,653.

To all whom it may concern:

Be it known that we, HARVEY O. McDANIEL and FRED L. McDANIEL, citizens of the United States, residing at Lynchburg, in the county of Highland, State of Ohio, have invented a new and useful Operating Mechanism for Washing-Machines, of which the following is a specification.

The subject of this invention is a washing machine, and a main object of the invention is the provision of a machine which will wash clothing thoroughly without undue injury thereto.

A further object of the invention is the provision of a clothes washer having vacuum cups for contact with the clothing and means for moving the cups to contact the clothing at different spots.

A still further object within the contemplation of the invention is the provision of means for driving the clothes contacting element.

A still further object of the invention is the provision of a yielding connection in the driving mechanism.

The invention also contemplates the provision of means for rocking and reciprocating the clothes contacting element.

A still further object of the invention is to generally improve the structure and enhance the utility of washing machines.

With the foregoing and other objects in view which will appear as the description proceeds, the invention resides in the combination and arrangement of parts and in the details of construction hereinafter described and claimed, it being understood that changes in the precise embodiment of the invention herein disclosed can be made within the scope of what is claimed without departing from the spirit of the invention.

A practical embodiment of the invention is shown in the accompanying drawings, wherein:—

Figure 1 is a longitudinal section of the clothes washer taken on the line 1—1 of Fig. 2;

Fig. 2 is a bottom plan view of the device;

Fig. 3 is an enlarged detail taken on the line 3—3 of Fig. 1.

Referring to the drawings by numerals of reference:—

In carrying out the invention there is provided a suitable tub or container 1 which is mounted on supports, such as the legs 2. The upper end or top of the container is closed by a cover 3 which is hinged as at 4 to permit access to the container 1. The bottom of the tub or container 1 is centrally apertured to receive the lower end of a tubular housing or casing 5 which is threaded into the bottom or otherwise secured thereto.

The housing 5 rises vertically within the tub 1 and terminates above the water line 6 thereof. A shaft 7 extends through the tubular casing 5, in which it has an easy sliding fit, and this shaft has secured to its projecting upper end the radially extending arms 8 the ends of which are bent to form depending portions 9. The depending portions 9 are slotted longitudinally to receive the set screws 10 which serve to clamp arms 11 in adjusted positions to the portions 9. The arms 11 have secured to their lower ends the vacuum or suction cups 12 which are adapted to contact the clothing for the purpose of washing the same in the usual and well known manner.

A rectangular yoke 13 is swiveled to the lower end of the shaft 7, and an attaching lug or eye 14 is secured to and rises from the lower cross bar of this yoke. A link 15 has pivotal attachment with the lug 14 and the loop of the link confines or encircles the strands of a compression spring 16. Another link, 17, also encircles or confines the strands of the compression spring 16 and this link is formed with an eye 18 which receives, with a loose fit, the crank 19 of a crank shaft 20, which shaft is journaled in hangers 21 secured to and depending from the bottom of the tub 1.

A beveled gear 22 is rigid on the shaft 20 and meshes with a beveled gear 23 which is journaled in a hanger 24 secured to and depending from the bottom of the tub 1. The beveled gear 23 has a wrist pin 25 extending from the face thereof and to this pin is pivotally attached one end of a pitman or connecting rod 26. The other end of the pitman 26 has pivotal connection with a radially extending arm or lug 27 of a collar 28 which collar is adjustable on the shaft 7 and is clamped in adjusted position thereon by means of a set screw 29 or otherwise. This connection serves to rock the shaft 7 and arms 8 so that the cups 12 may be swung to different positions.

While a special form of connection has

been herein shown for pitman 26, it is to be understood that ball and socket joints or other forms of universal joints may be employed in connecting the pitman to the wrist pin and arm or lug 27.

In practice the device operates in the following manner:—

Water is placed in the tub 1 and soap or some washing compound is mixed therewith. The clothing to be washed is also placed in the tub and the washing mechanism operated by belting the pulley 30, which is rigid on the shaft 20, to any suitable source of power.

Rotation of the shaft 20 will, through the crank 19, yoke 13, links 15 and 17, and compression spring 16, reciprocate the shaft 7 and the arms 8 and 11, thereby causing the cups 12 to be brought down upon and raised from the clothing. At the same time the beveled gear 22 will rotate the gear 23 which, through its wrist pin 25 and the pitman 26, will cause the shaft 7 with its arms 8 and 11 to rock back and forth so that the cups 12 will be brought down upon the clothing in different positions.

Having thus described the invention, what is claimed as new and sought by Letters Patent, is:—

In a driving mechanism, the combination with a vertical shaft, of a horizontal crank shaft, said horizontal crank shaft having a crank forming a part thereof, a yoke having its upper extremity connected to the lower end of the vertical shaft, an eye bolt secured to the yoke, a link within the yoke, and connected to the eye bolt, a second link within the yoke and having connection with the crank for imparting reciprocating movement to the vertical shaft, a coil spring connecting the links, a pinion on the crank shaft for imparting rotary motion thereto, a beveled gear meshing with the pinion, and means connecting the vertical shaft and pinion for rocking the vertical shaft.

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

HARVEY O. McDANIEL.
FRED L. McDANIEL.

Witnesses:
A. E. ARCHER,
J. J. FLOR.