W. A. BROWN.

WASHING MACHINE.

APPLICATION FILED FEB. 5, 1920.

1,386,451. **Patented Aug. 2, 1921.**

3 SHEETS—SHEET 1.

Fig. 1

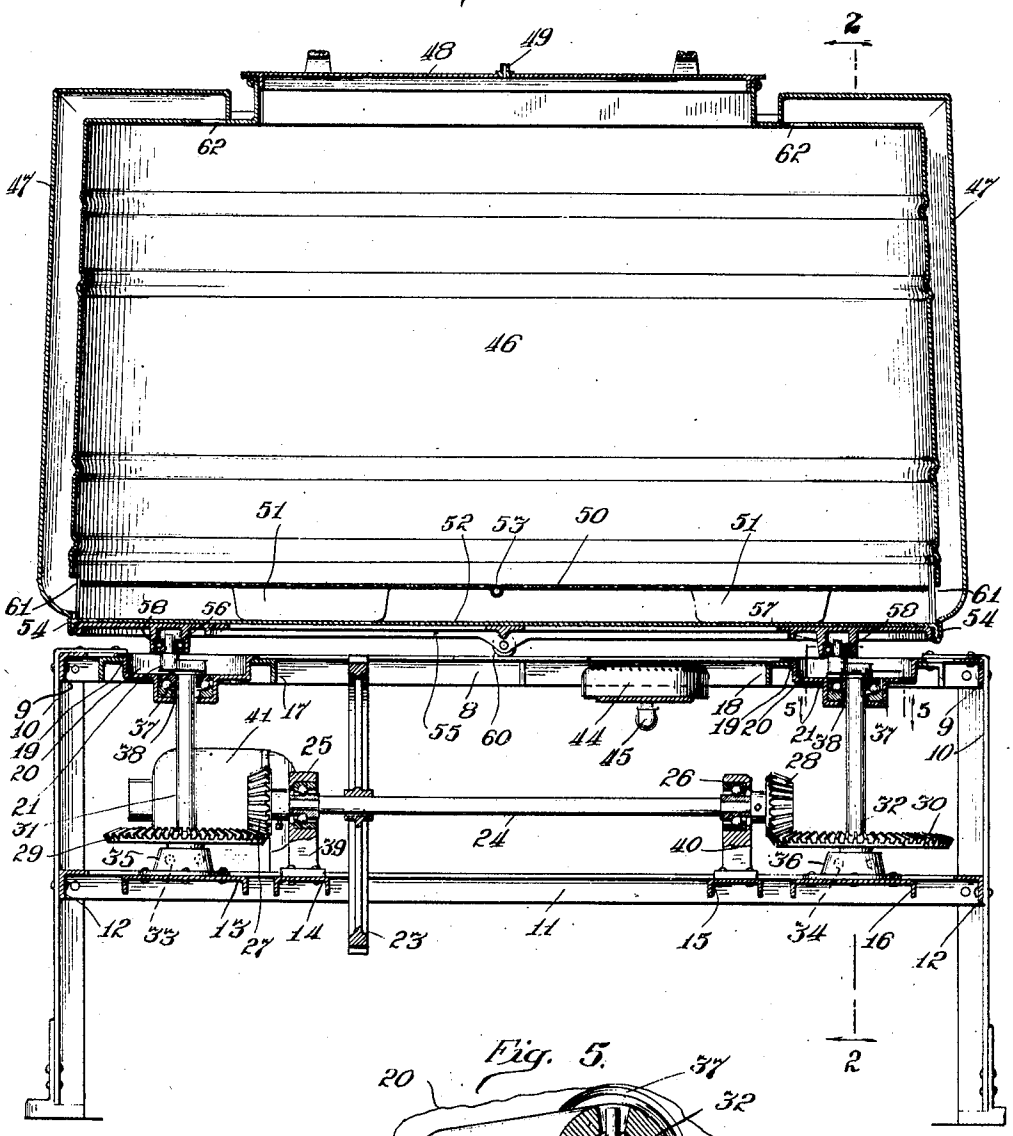
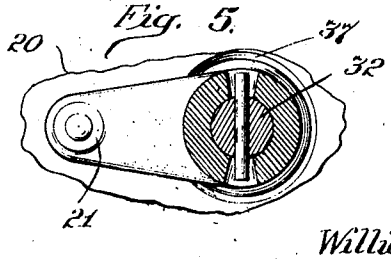


Fig. 5.



Inventor

William A. Brown

By Clarence W. Taylor

Attorney

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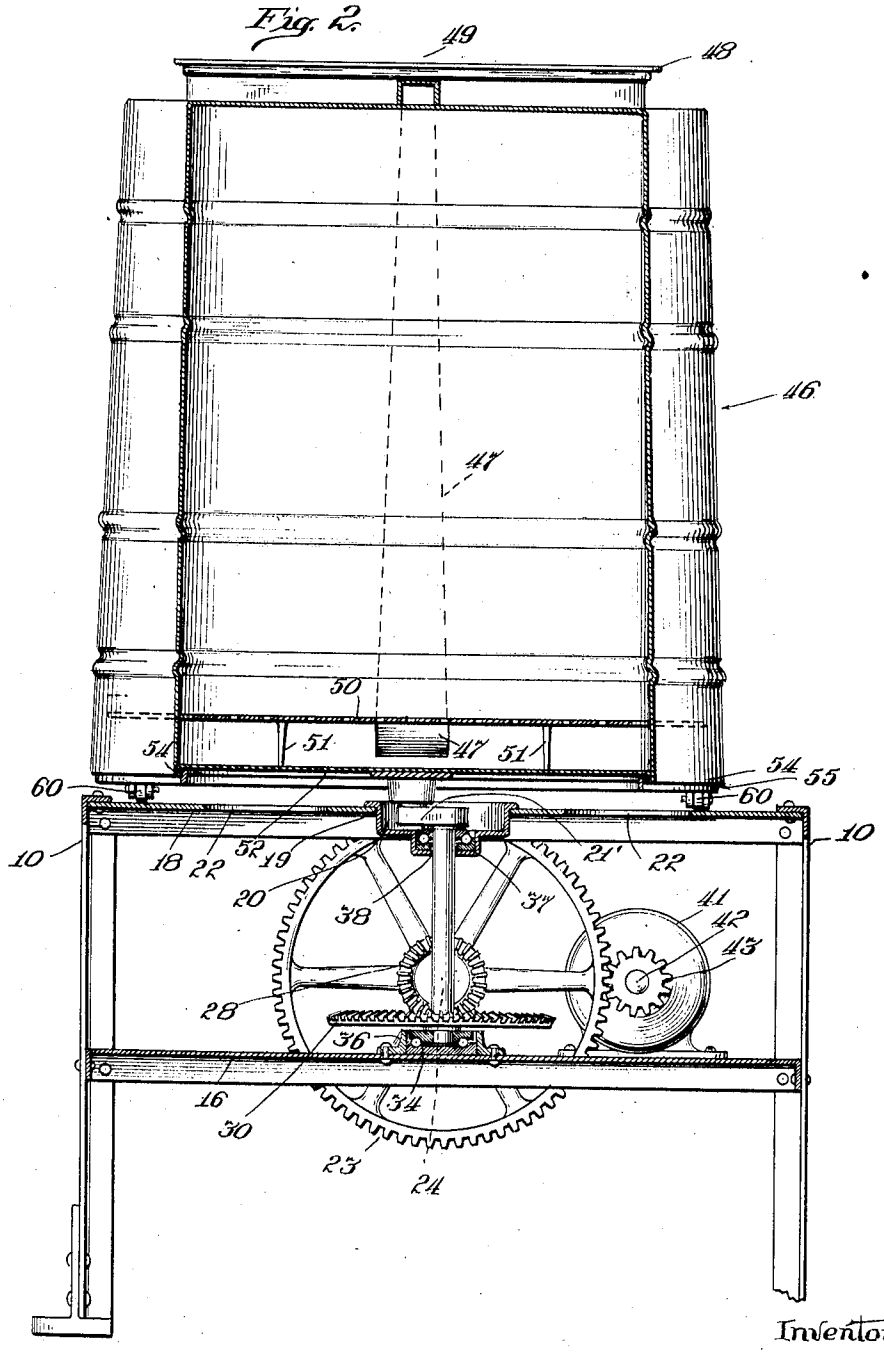
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3 SHEETS—SHEET 2.

Fig. 2.



Inventor

William A. Brown

Clarence W. Taylor

Attorney

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3 SHEETS—SHEET 3.

Fig. 3.

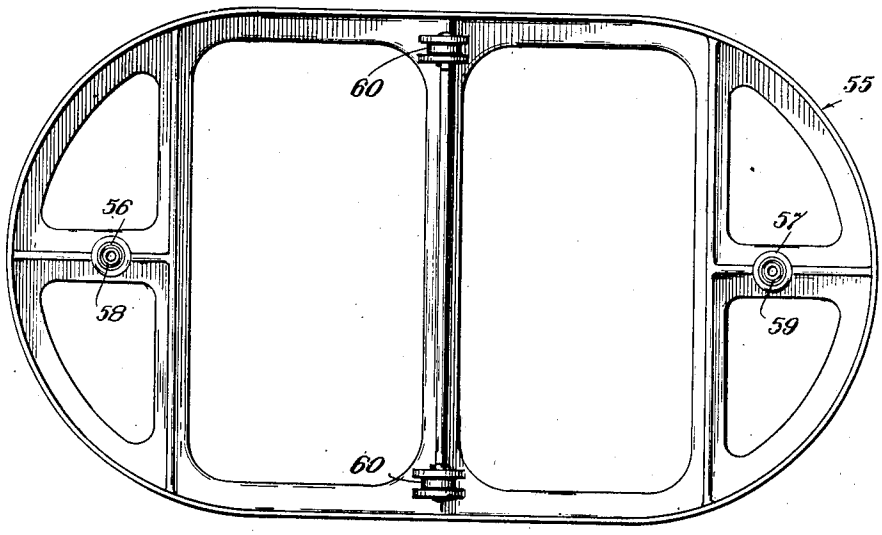
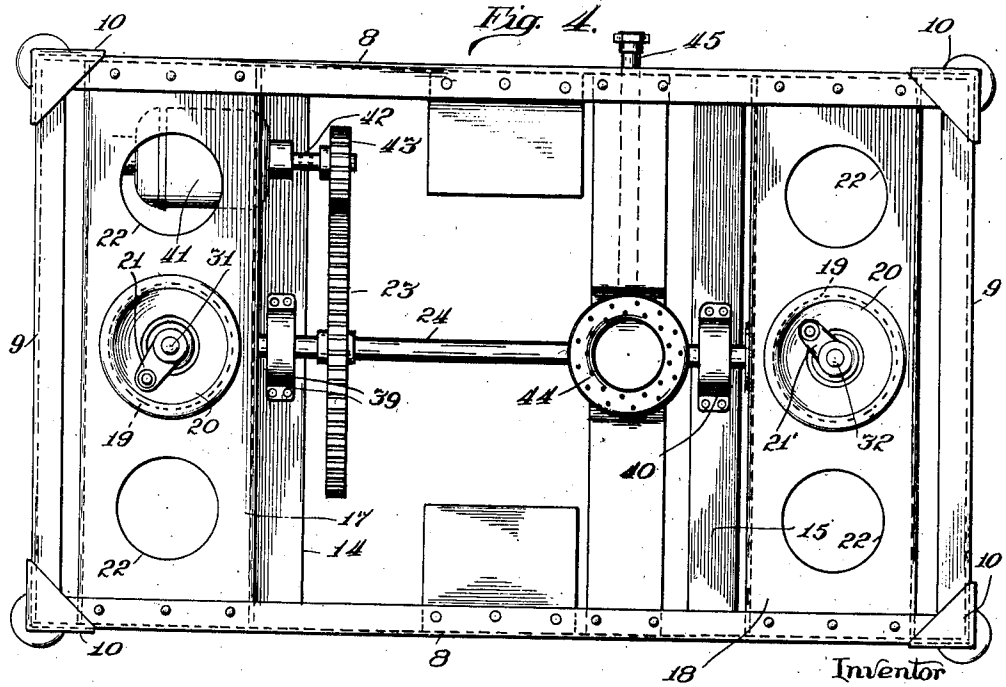


Fig. 4.



Inventor

William A. Brown

By

Attorney.

UNITED STATES PATENT OFFICE.

WILLIAM A. BROWN, OF CHICAGO, ILLINOIS.

WASHING-MACHINE.

1,386,451. Specification of Letters Patent. Patented Aug. 2, 1921.

Application filed February 5, 1920. Serial No. 356,479.

To all whom it may concern:

Be it known that I, WILLIAM A. BROWN, a citizen of the United States of America, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Washing-Machines, of which the following is a specification.

My invention relates to improvements in washing machines; and the objects of my invention are,

First, to provide a construction whereby to obtain improved result in operation;

Second, to afford a structure in devices of the class hereinafter described in which the clothes being washed are caused to move horizontally in opposite directions.

A practical embodiment of the invention is illustrated in the accompanying drawings which are a part and in which similar characters of reference indicate the corresponding parts in all views.

The invention consists in the novel features and parts and in the combination and arrangement of the same, which will be more fully described hereinafter and then pointed out in the claims.

In the drawings,

Figure 1 is a longitudinal section of the boiler, skeleton bottom and supporting base.

Fig. 2 is a cross sectional view on line 2—2 on Fig. 1.

Fig. 3 is an inverted plan on line 3—3 on Fig. 1.

Fig. 4 is a cross section on line 4—4 on Fig. 1.

Fig. 5 is a sectional detail on line 5—5 on Fig. 1.

The embodiment chosen to exemplify my invention comprises a supporting base A preferably formed of parallel lengths of angle iron 8 on the sides and similar lengths 9 for the ends and uprights or standards 10 of similar material in fixed relation at their upper ends with the pieces 8, 9, respectively.

The lower deck or floor comprises side parallel angle irons 11 and end parallel pieces 12 fixed at their ends with upright 10. The cross pieces 13, 14, 15 and 16 are secured at their ends to the parallel side angle irons 11 in any desired manner.

The top of the supporting base A is formed with cross members 17, 18, preferably of sheet metal secured at its ends with the angle irons 8. Intermediate the ends of such members 17, 18, is an opening 19 in which is a pressed metal cup 20 forming a housing for each crank 21 and its path of travel hereinafter more fully described. Openings 22 are cut in the members 17, 18, to the weight of the base A.

Operating mechanism comprises a speed reducing spur gear 23, on shaft 24 which is journaled in bearings 25 and 26 and has fixed to its ends bevel pinions 27, 28, which are constantly in mesh with bevel gears 29, 30, respectively, which are fixed to the shafts 31, 32, that have bearings 33, 34, supported at 35, 36. The portion 37 of the cup 20 is axially apertured at 38 to receive the shafts 31, or 32, and serves to maintain alinement of such shaft. The bearing supports 39 and 40 are suitably fixed to parts of the base A.

The source of power shown herein is an electric motor 41 with its armature shaft 42 having fixed thereto a spur pinion 43 in mesh with spur gear 23.

A source of heat herein is a gas burner 44 with supply pipe 48.

A clothes holder or boiler 46 preferably is formed of sheet copper tin on the inner surface and slightly less in cross section at the top than at the bottom. Tubes 47 at its ends communicates with the interior at the bottom and at the top for passing the hot water through such tubes when sufficient heat is applied whether power is being employed to agitate the content of the boiler or not. The closure 48 is provided with a vent 49 to avoid boiling over in case too much heat and steam should occur.

A foldable and removable bottom 50 has cleats 51 at intervals fastened to the underside thereof and rests on the inner side of the boiler bottom 52. A simple piano wire hinge 53 may be employed to enable sufficient folding to the bottom to receive the same. I prefer to provide an external flange 54 for the bottom of the boiler to insure adherence of the boiler to the operating skeleton bottom 55 which is disposed between said boiler and said supporting base A. The skeleton bottom 53, an inverted view of which is shown in Fig. 3, shows a cast structure having a downward marginal flange 56 outside of which the flange 54 of the boiler is positioned when the washing machine is in operation. The skeleton bottom 55 is formed with external bosses 56, 57 and ball bearing members 58, 59 for operative engagement with the cranks

21, by which reciprocating and oscillating movement is imparted to the boiler in operation. The movement of each end of the boiler when in operation is characterized as a double sight movement, a throw of approximately four inches gives good results and is a very important feature of my invention. On the lower surface of the member 55 there are mounted anti-friction rollers 60.

It will be noted the operating mechanism is designed for simultaneous clockwise and anti-clockwise movement of the respective ends of the boiler.

In operation when power is applied to the shaft 24, the pinions 27, 28, being fixed to opposite ends of the shaft 24, and in mesh with bevel gears 29, 30, will give movements of the opposite ends of the boiler in opposite direction, clock-wise for one side and anti-clockwise for the other end.

It has been demonstrated in practical use to be superior in its efficiency and free from injury to delicate fabrics.

By thus showing and specifically describing one embodiment of my invention I do not intend to restrict the range of equivalents more than made necessary by the prior state of this art.

Having thus fully described my invention what I claim as new and desire to secure by Letters-Patent is:

1. In mechanism of the character described, a pair of relatively oppositely rotatable shafts, an agitating member, a crank carried by each shaft having an operative connection with said agitating member for imparting movement to the latter, and means for rotating said shafts.

2. In mechanism of the character described, a pair of spaced relatively oppositely rotatable shafts, a bodily movable agitating member provided with spaced bearings, a crank rotatable with each shaft, said cranks being connected respectively with said bearings, whereby movement is imparted to the member, and means for rotating said shafts.

In testimony whereof I affix my signature.

WILLIAM A. BROWN.