

April 15, 1924.

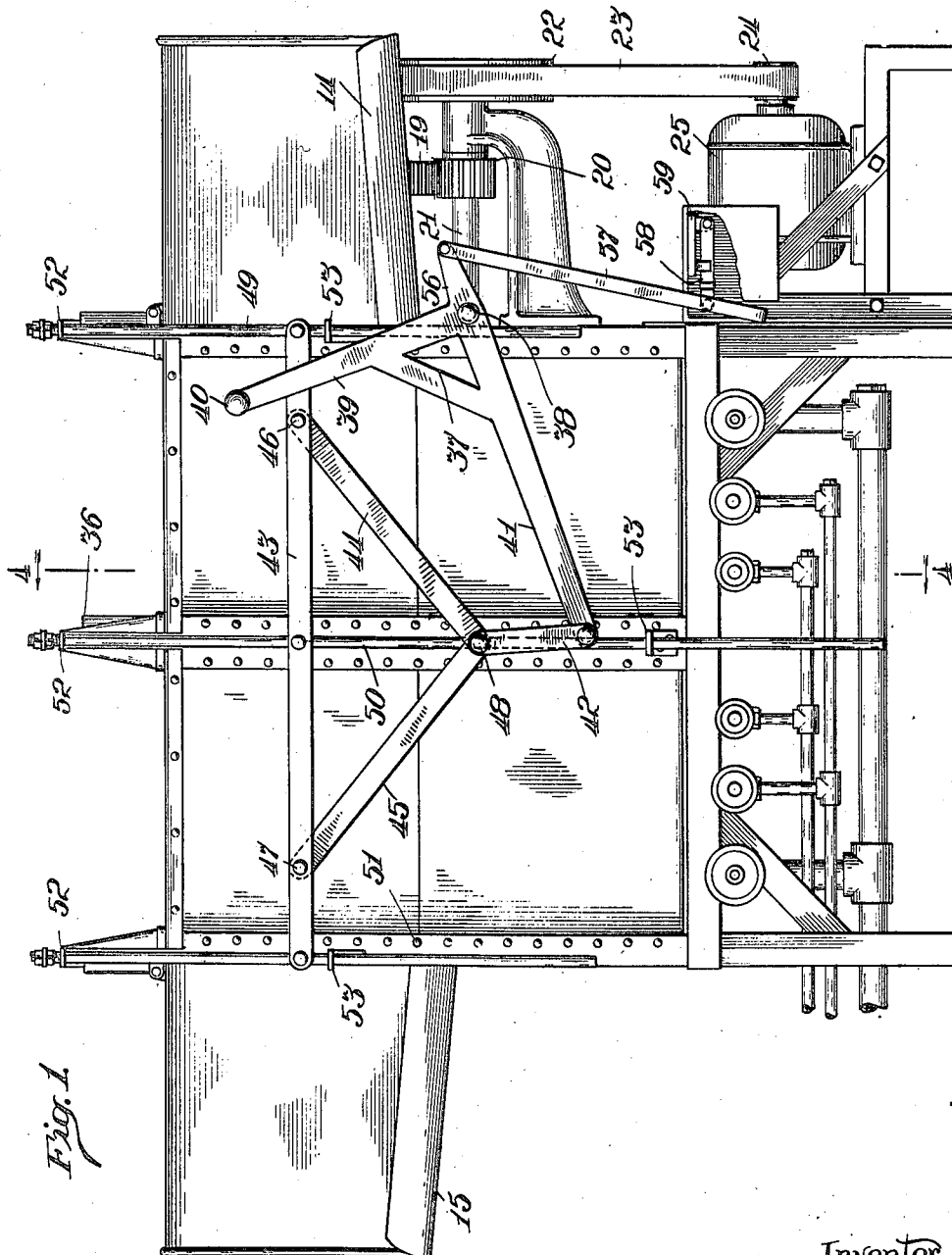
1,490,310

G. S. BLAKESLEE

WASHING MACHINE

Filed Dec. 8, 1917

3 Sheets-Sheet 1



Witness
Milton Lenoir

Inventor
George S. Blakeslee,
Attorney.

April 15, 1924.

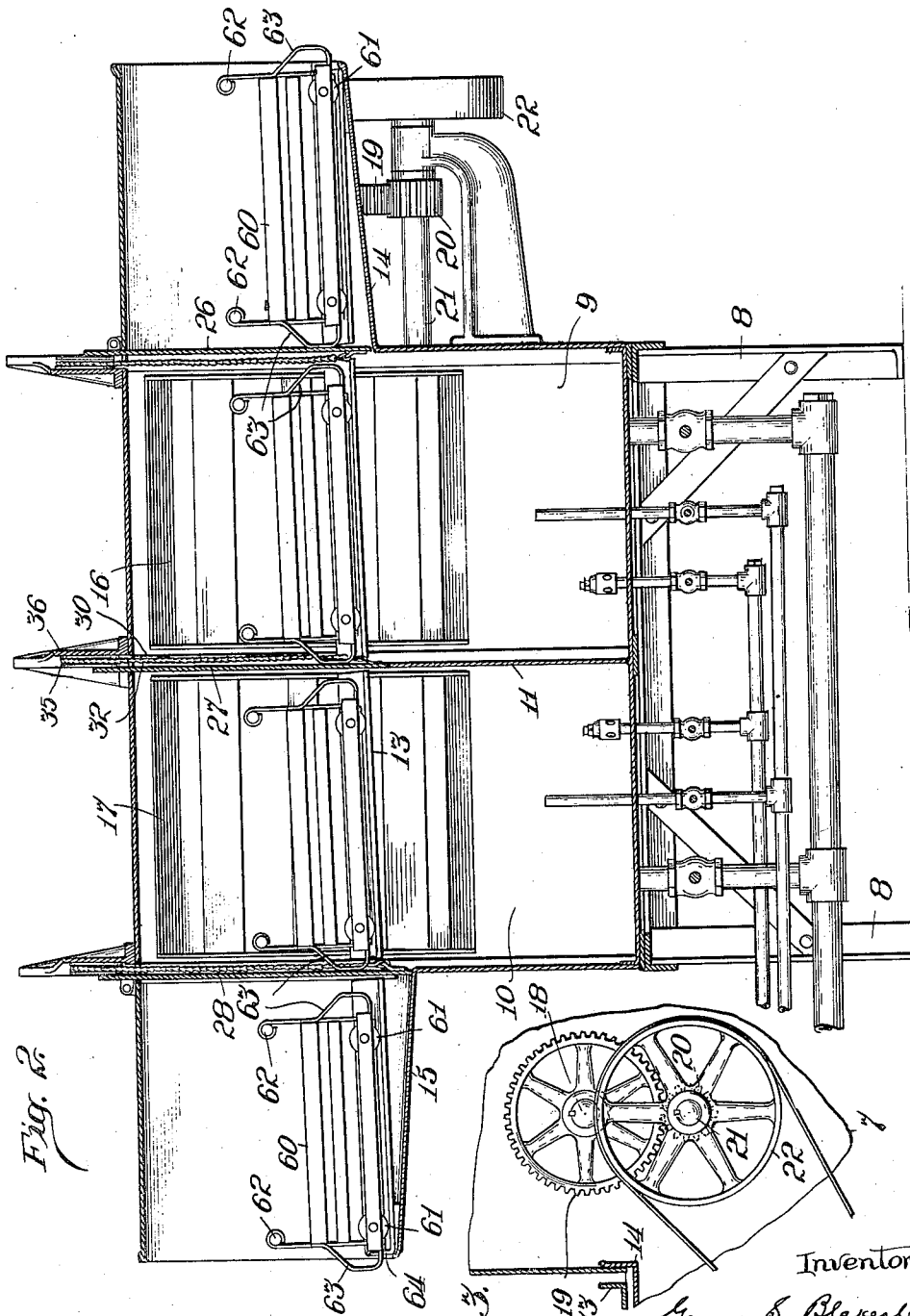
G. S. BLAKESLEE

1,490,310

WASHING MACHINE

Filed Dec. 8, 1917

3 Sheets-Sheet 2



Witness
Milton Denoir

Fig. 3.

Inventor
George S. Blakeslee
Adams & Jackson,
Attorneys.

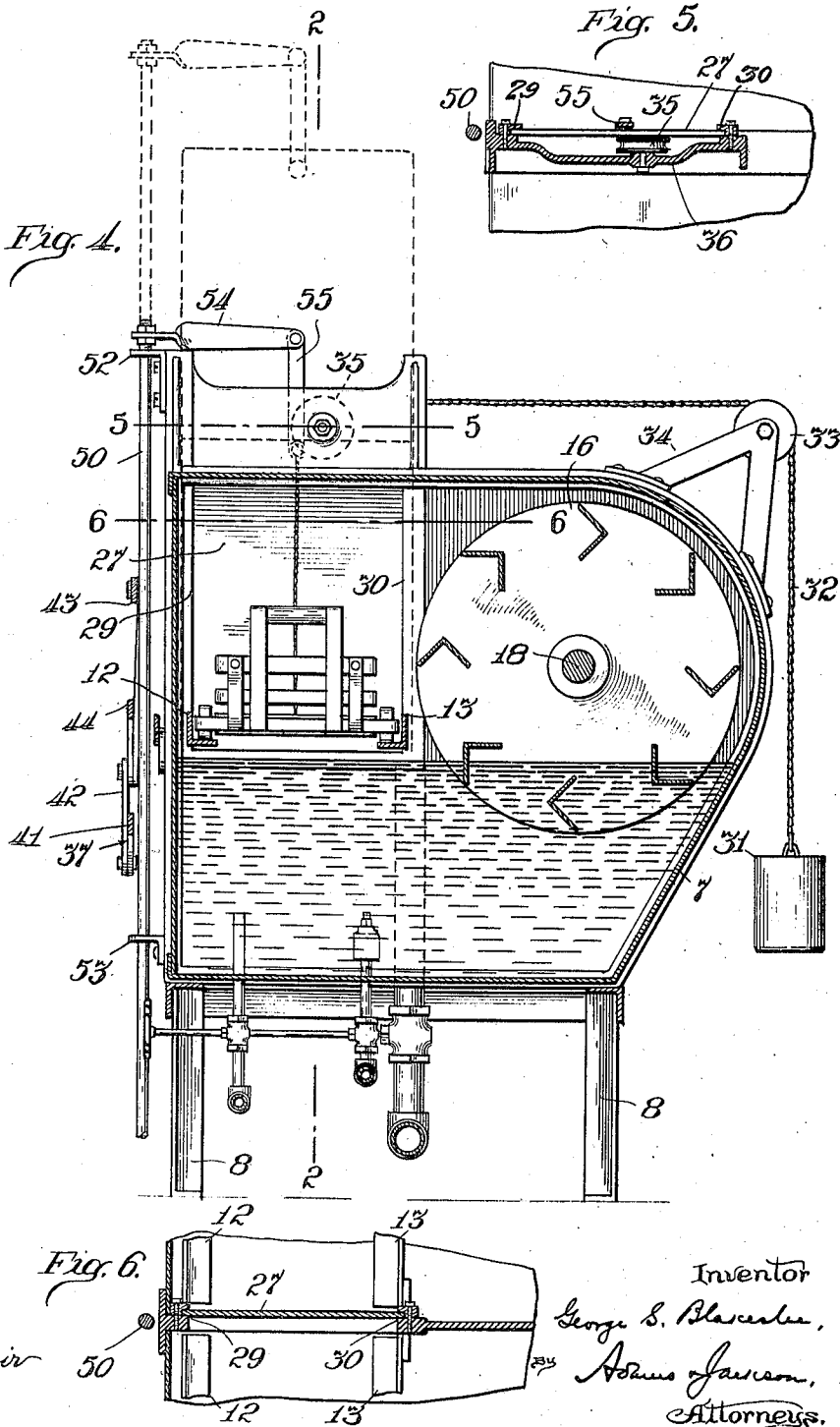
April 15, 1924.

G. S. BLAKESLEE

WASHING MACHINE

Filed Dec. 8, 1917

3 Sheets-Sheet 3



Patented Apr. 15, 1924.

1,490,310

UNITED STATES PATENT OFFICE.

GEORGE S. BLAKESLEE, OF CHICAGO, ILLINOIS.

WASHING MACHINE.

Application filed December 8, 1917. Serial No. 208,284.

To all whom it may concern:

Be it known that I, GEORGE S. BLAKESLEE, a citizen of the United States, and a resident of 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, reference being had to the accompanying drawings.

My invention relates to machines for washing dishes, metal parts, and other articles capable of being handled in baskets or other equivalent receptacles while being washed, and it has to do particularly with washing machines of the general type shown and described in my U. S. Letters Patent No. 1,360,716, dated November 30, 1920, in which the baskets containing the articles to be washed are moved in succession through adjacent washing and rinsing chambers, and while in such chambers are washed by means of water thrown violently against their contents by means of paddle wheels driven from any suitable source of power, such as an electric motor. In the machine shown and described in my said application, the baskets containing the articles to be washed run on inclined tracks which extend through the machine, so that they move by gravity, and they are held in position to be operated upon in the washing and rinsing compartments respectively, by sliding partitions or gates, which serve not only to position the baskets, but also to close the washing and rinsing compartments at their ends so as to confine the washing and rinsing waters to their respective compartments, and prevent splashing of water out of the ends of the machine.

The object of my present invention is to provide certain improvements in the above described type of machine, and particularly with respect to the mechanism for operating the sliding gates or partitions, and to the mechanism for controlling the operation of the paddle wheels by which the water is thrown against the baskets and their contents. I accomplish this object as illustrated in the accompanying drawings, as hereinafter described. What I regard as new is set forth in the claims.

In the accompanying drawings,

Fig. 1 is a side elevation of my improved washing machine;

Fig. 2 is a longitudinal vertical section thereof taken substantially on line 2—2 of Fig. 4;

Fig. 3 is a detail, being a partial end view of the inlet end of the machine showing the connections for driving the paddle wheels;

Fig. 4 is a vertical cross section of the washing machine on line 4—4 of Fig. 1;

Fig. 5 is a partial horizontal section on line 5—5 of Fig. 4, and

Fig. 6 is a partial horizontal section on line 6—6 of Fig. 4.

Referring to the drawings,

7 indicates the shell or case of the machine which is supported on legs or standards 8, and is of suitable shape and dimensions to accommodate and enclose the various parts of the apparatus. Said shell, in the construction shown, contains two compartments or chambers 9—10 which constitute respectively the washing and rinsing compartments, the lower portions of such compartments, which are separated from each other by a vertical partition 11, serving as tanks to contain a supply of washing or rinsing water, as the case may be. 12—13 indicate two parallel tracks, preferably formed of angle iron, which extend through the shell 7 above the level of the water in the washing and rinsing tanks, and serve to support the baskets hereinafter described, as they move through the machine. They also extend out beyond the end walls of the machine over aprons 14—15, which are preferably extensions of such end walls, as shown in Fig. 2. The track which extends over the apron 14 serves to support the baskets in position to enter the washing compartment, and the track which extends over the apron 15 supports the baskets as they come from the rinsing compartment. The tracks 12—13 are not continuous from end to end, but are made in sections separated slightly from one another at the inner and outer ends of the washing and rinsing compartments to permit of the passage between adjoining track sections of the sliding partitions or gates hereinafter described. As shown in Fig. 2, the tracks 12—13 are inclined slightly from the inlet to the outlet end of the machine, so that the baskets are adapted to move by gravity into and through the washing and rinsing compartments.

16—17 indicate paddle wheels which are mounted in the washing and rinsing compartments respectively, preferably at one side of the path of the baskets, as shown in Fig. 4. Said paddle wheels are mounted on a shaft 18 which extends longitudinally of the machine at such a height that the paddle

wheels dip into the water, so that by their rotation they take up water and throw it violently against the contents of the baskets. As shown in Fig. 3, the shaft 18 is driven by means of a gear 19 fixedly mounted upon it, said gear meshing with a pinion 20 mounted on a counter-shaft 21 which also carries a pulley 22. Said pulley is connected by a belt 23 with a pulley 24 driven by an electric motor 25, as shown in Fig. 1.

26 indicates a gate or movable partition which is adapted to close the inlet end of the washing compartment above the level of the water therein. 27 indicates a similar partition which is adapted to separate the upper portions of the washing and rinsing compartments from each other, and 28 indicates a third partition similar to the others, which is adapted to close the outlet end of the rinsing compartment. These three gates are all mounted to slide vertically in suitable guide-ways 29—30, shown in Figs. 5 and 6, and when in operative position their lower margins extend between the adjoining ends of the sections of the tracks 12—13, as shown in Fig. 2. Each of said gates, in the construction shown, is provided with a counterbalancing weight 31 which is connected to it near its lower margin by a chain or other flexible connection 32, which runs over a pulley 33 on a bracket 34, as shown in Fig. 4, and thence extends over a second pulley 35 carried by a vertically-disposed plate 36 which extends across the top of the shell over the path of the baskets. There are three of these plates, as shown in Fig. 2, and they are located adjacent to the planes of movement of the several gates 26, 27 and 28, so that the several chains 32 may extend down in close relation to the gates to the lower portions of which they are respectively attached as shown in Fig. 4. The counterbalance weights are heavy enough to approximately neutralize the weight of the gates so that they may be readily moved up or down in their guide-ways.

37 indicates a lever which, in the construction illustrated, is designed to be actuated by hand, but which may be actuated in any other suitable way, for operating the several gates in unison in the same direction. Said lever, in the construction shown, is of the bell-crank type, and is fulcrumed upon a pivot 38 suitably supported on the shell or case of the machine. One of the principal arms 39 of said lever is provided with a handle 40 for operating it, and the other principal arm 41 of said lever is connected by a link 42 with a triangular frame composed of a horizontal bar 43 and diagonal bars 44—45, said bars being connected together in any suitable way, as by rivets 46—47—48. The horizontal bar 43 is connected to three vertical rods 49—50—51, which are substantially in line with the several sliding gates

and are mounted to slide longitudinally in suitable upper and lower guides 52—53, as shown in Fig. 4. The arrangement is such that by rocking the lever 37 in one direction or the other, the rods 49—50—51 may be moved longitudinally up or down. Each of said rods is provided at its upper end with a horizontal arm 54 which is connected by a link 55 with the upper end of one of the sliding gates or partitions. Consequently, the upward movement of said rods will raise the several gates out of operative position, as shown by dotted lines in Fig. 4, and the downward movement of said rods will restore said gates to operative position, as shown in full lines in said figure and in Fig. 2. The lever 37 also performs the function of starting and stopping the motor 25. For this purpose it is provided with a short arm 56, which carries a link 57 connected to the movable member 58 of a switch 59 which controls the supply of current to the motor. The arrangement is such that when the lever 37 is operated to raise the several gates, the same movement moves the switch member 58 to break the contact at the switch 59 and stop the motor, consequently stopping the paddle wheels. When said lever 38 is moved in the opposite direction to close the several gates, the switch member 58 is moved into position to close the switch 59 and start the paddle wheels. The switch is not closed, however, until the gates are practically in operative position, and likewise the circuit is broken at the switch as soon as the gates begin to rise out of operative position. This automatic control of the operation of the paddle wheels is an important feature of my invention, since it not only prevents the splashing of water from one compartment to another, or out at the ends of the tank, as would be liable to occur if the paddle wheels were allowed to operate while the gates were open, but also increases the efficiency of the machine, since the operator does not need to pay any attention to the motor, as its operation is automatically controlled so that it starts and stops at the proper times to enable the machine to be operated without loss of time, which would be unavoidable if the operator had to separately operate the motor controlling mechanism before he opened the gates or after he had closed them.

60 indicates the baskets in which the articles to be washed are placed. The frame work of such baskets may be of any suitable construction, and they are provided with supporting wheels 61 adapted to run on the tracks 12—13, and with handles 62 at their ends by which they may be lifted and carried. They are also provided at their ends with inclined guides 63 which project outwardly in such manner that the guides of adjacent baskets register and serve to space the baskets apart. The purpose of making

the guides 63 inclined is to permit the gates 26, 27 and 28 to move the baskets apart sufficiently to permit the gates to descend to operative position, and to press back any basket that may have moved slightly beyond its proper position, as illustrated in Fig. 2. A stop 64 is provided at the outlet end of the machine, as shown in Fig. 2, to prevent the basket delivered from the rinsing compartment from running off at the end of the track.

In using my improved machine, a basket containing the articles to be washed is placed on the track over the apron 14 at the inlet end, and the several gates being raised by operating the lever 37, is moved into the washing compartment. The gates are then closed by a reverse operation of said lever. As has been explained, when the lever 37 is operated to raise the gates, it automatically stops the motor 25, and consequently stops the rotation of the paddle wheels, so that there is no throwing of water while the gates are open. As soon, however, as the gates are closed the motor is automatically started, and the paddle wheels immediately begin to rotate, throwing the wash water over and around the basket in the washing compartment and through the articles contained in it. While the first basket is in the washing compartment, another basket may be placed on the track over the inlet apron 14 in readiness to follow the first one into the washing compartment. When the contents of the first basket have been washed sufficiently, the gates are again raised, permitting the first basket to move by gravity down the track to the rinsing compartment, which allows the fresh basket to pass into the washing compartment. The gates are then lowered to operative position, and then serve to hold the baskets in their respective compartments. When the gate 27 between the washing and rinsing compartments descends it engages the inclined guides at the front end of the second basket and moves it slightly back so as to permit the gate to move on down; the gate 28 at the same time acts as a stop to hold the leading basket in place in the rinsing compartment. Another basket having been placed in position over the inlet apron 14, when the gates are again raised the leading basket will pass out over the outlet apron 15, while the other baskets will move respectively into the rinsing and washing compartments. This operation may be continued indefinitely, and as the baskets require no attention other than to be placed in position on the track over the inlet apron 14, and to be removed from over the outlet apron 15, since they move by gravity progressively through the machine, it will be apparent that a large amount of work may be accomplished in a short time, and with the expenditure of very little manual effort. It will be noted

that the operating lever 37 is mounted on the casing at one side thereof so as to swing in a plane parallel with the sides of the machine, and that its fulcrum 38 is adjacent to the inlet end of the machine, while the handle 40 extends up within convenient reach of the operator. By this construction very little room is required for the operation of the lever, and it may be quickly seized and easily operated by the attendant who places the baskets on the receiving apron 14.

While I have described with considerable particularity the embodiment of my invention illustrated in the drawings, I wish it to be understood that my invention is not limited to the specific details of the construction shown and described except in so far as such details of construction are specifically claimed, as my invention includes generically the subject matter of the broader claims.

What I claim as my invention, and desire to secure by Letters Patent, is:—

1. A washing machine comprising a casing adapted to receive articles to be washed and having an opening for the passage of such articles, a gate movable into and out of operative position with respect to said opening, power operated means for directing water against the articles to be washed, and hand operated means for moving said gate into or out of operative position and simultaneously starting or stopping said power operated means.

2. A washing machine comprising a casing adapted to receive articles to be washed and having an opening for the passage of such articles, a gate movable into and out of operative position with respect to said opening, power operated means for directing water against the articles to be washed, a lever, means operated by said lever for moving said gate into or out of operative position and means operated by the actuation of said lever for simultaneously starting or stopping said power operated means.

3. A washing machine comprising a casing adapted to receive articles to be washed and having an opening for the passage of such articles, a gate movable into and out of operative position with respect to said opening, power operated means for directing water against the articles to be washed, a controlling member for said power operated means, and a lever operatively connected with said gate and with said controlling member, whereby by operating said lever said gate may be moved into or out of operative position, and said controlling member may be operated to start or stop said power operated means.

4. A washing machine comprising a casing, means for supporting the articles to be washed in their passage through said casing by gravity, means for throwing

water upon such articles, an operating device, and devices actuated by the operation of said operating device for controlling the passage of the articles through said casing and for controlling the operation of said water throwing means.

5. A washing machine comprising a casing having a plurality of compartments and openings for the passage therethrough of the articles to be washed, an inclined support for the articles to be washed extending through said compartments, gates disposed transversely of said support and movable into and out of operative position with respect to said openings, said gates serving as stops to arrest carriers moving on said support by gravity through said compartments, power operated means for directing water against the articles to be washed, means connecting said gates so that they move in unison, and hand operated means for simultaneously moving said gates into or out of operative position and starting or stopping said power operated means.

6. A washing machine comprising a casing having a compartment, and openings for the passage therethrough of the articles to be washed, gates movable into and out of operative position with respect to said openings, a motor, means operated by said motor for directing water against the articles to be washed, a switch controlling the supply of electric current to said motor, a lever, means operated by said lever for simultaneously moving said gates into or out of operative position and means actuated by said lever for operating said switch.

7. A washing machine comprising a casing adapted to receive articles to be washed and having inlet and outlet openings, an inclined support extending through said casing whereby carriers containing the articles to be washed may move therethrough by gravity, means in said casing for directing water against such articles, transversely-disposed sliding gates movable into and out of operative position with respect to said openings and serving as stops to arrest the progress of the articles to be washed, a swinging lever mounted at one side of said casing and adapted to swing in a plane parallel therewith, and a link operatively connecting said lever with said gates, whereby by operating said lever said gates may be simultaneously moved into or out of operative position.

8. A washing machine comprising a casing having a plurality of compartments, inclined means extending through said compartments adapted to support a carrier containing the articles to be washed, a transverse gate movable into and out of position to separate said compartments and serving as a stop to arrest a carrier moving by gravity through said compartment, a swing-

ing lever mounted upon said casing, and means operatively connecting said lever with said gate, whereby by operating said lever said gate may be moved into or out of operative position.

9. A washing machine comprising a casing, an inclined track for supporting receptacles containing the articles to be washed in their passage through said casing by gravity, means for throwing water upon such articles, a lever, and devices actuated by said lever for controlling the passage of the articles through said casing and also for starting or stopping the operation of said water throwing means.

10. A washing machine comprising a casing, means for supporting the articles to be washed in their passage through said casing, a paddle wheel for throwing water upon said articles, an operating device, means actuated by said operating device for starting and stopping said paddle wheel, and means actuated by the operation of said operating device for arresting the progress of the articles through the casing when said paddle wheel is started.

11. A washing machine comprising a casing, means for supporting therein the articles to be washed and adapted to permit them to move therethrough by gravity, means movable into and out of position to arrest the progress of the articles, means for throwing water upon the articles, an operating device, and devices actuated by said operating device for controlling the operation of said water throwing means and of said arresting means.

12. A washing machine comprising a casing adapted to receive articles to be washed and having inlet and outlet openings, means in said casing for directing water against such articles, transversely-disposed sliding gates movable vertically into and out of operative position with respect to said openings, a lever mounted on said casing, and vertical longitudinally movable rods mounted on said casing and connected with said lever and with said gates, whereby by operating said lever said gates may be simultaneously moved into or out of operative position.

13. A washing machine comprising a casing adapted to receive articles to be washed and having an opening for the passage of such articles, a gate movable into and out of operative position with respect to said opening, power operated means for directing water against the articles to be washed, and means for automatically starting or stopping said power operated means when said gate is moved into or out of operative position.

14. A washing machine comprising a casing having washing and rinsing compartments, means extending through said com-

partments adapted to support receptacles containing the articles to be washed and to permit them to pass through said compartments by gravity, means for arresting such receptacles in said compartments, an operating member for actuating said arresting means to permit the receptacles to advance out of said compartments by gravity, means for throwing water upon the articles to be washed when they are in said compartments, 10 and means controlled by the operation of said actuating member for operating said water throwing means.

GEORGE S. BLAKESLEE.