Sept. 16, 1924. 1,508,638

W. C. AYERS

WASHING MACHINE

Filed Feb. 28, 1923 2 Sheets-Sheet 1

Fig. 1.

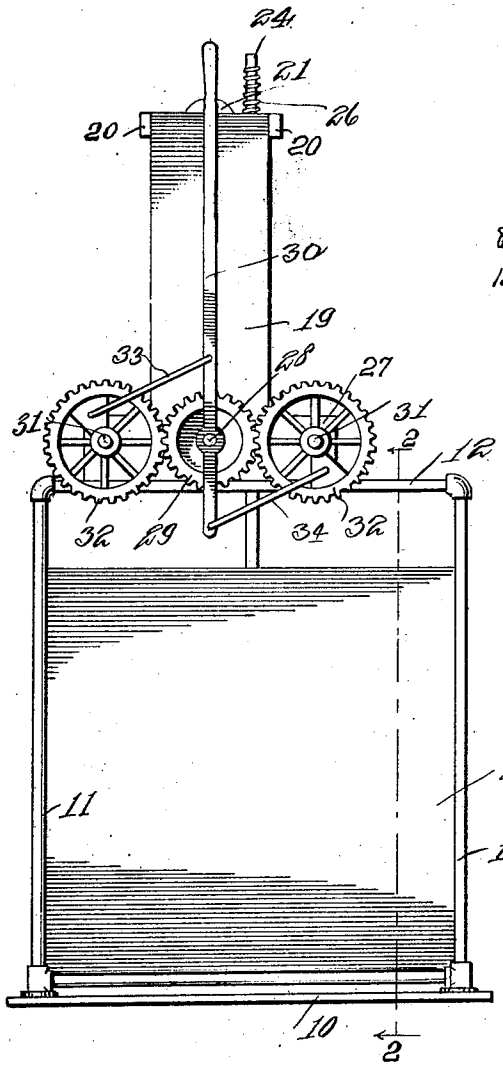


Fig. 4.

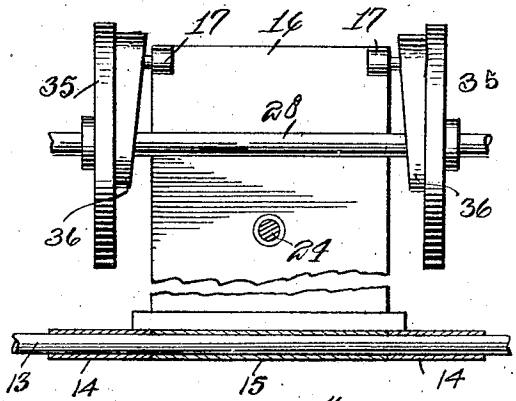
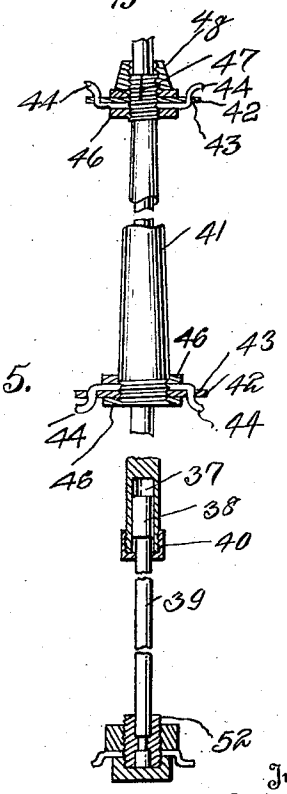


Fig. 5.



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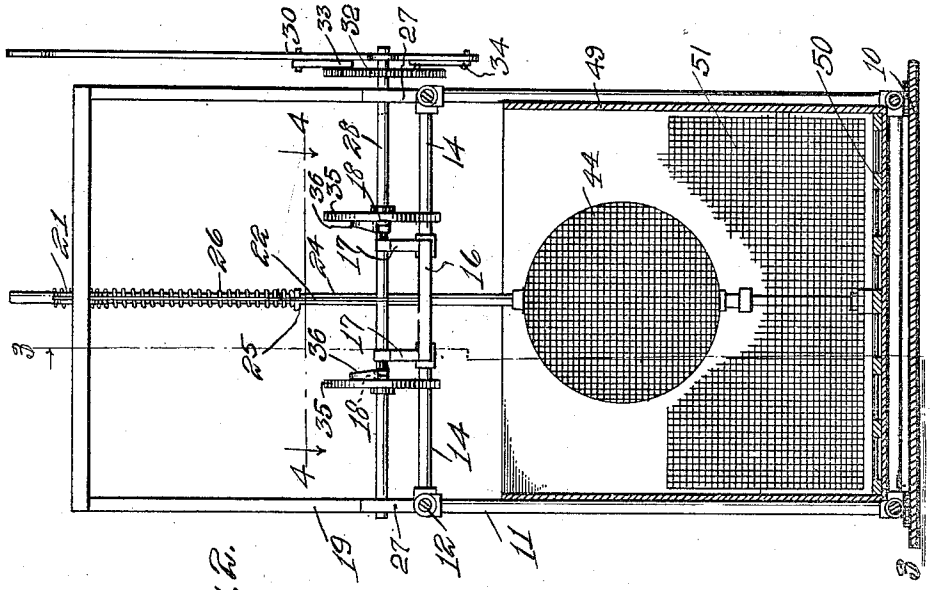


Fig. 2.

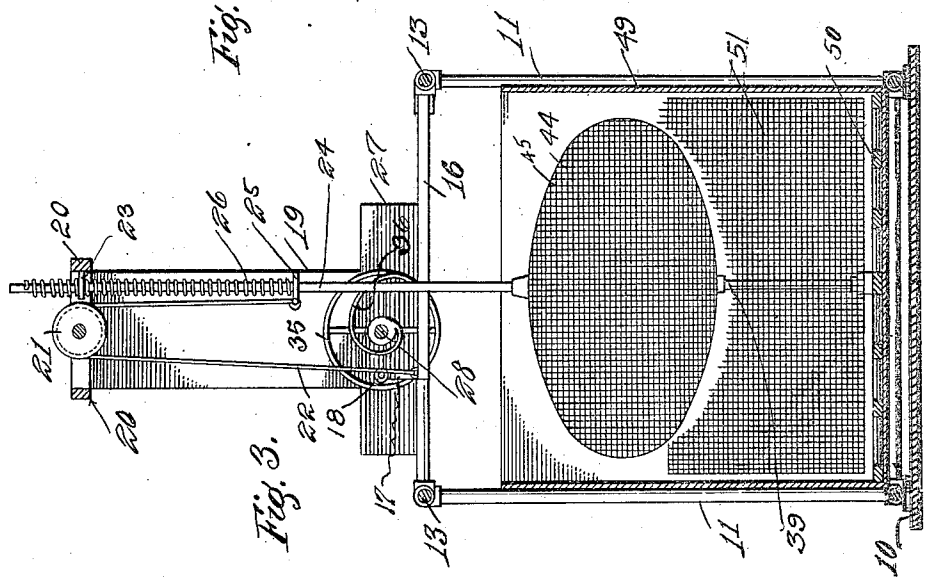


Fig. 3.

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Patented Sept. 16, 1924. 1,508,638

UNITED STATES PATENT OFFICE.

WILLIAM C. AYERS, OF SCOTTSVILLE, KENTUCKY.

WASHING MACHINE.

Application filed February 28, 1923. Serial No. 621,836.

To all whom it may concern:

Be it known that I, WILLIAM C. AYERS, a citizen of the United States, residing at Scottsville, in the county of Allen, State of Kentucky, have invented certain new and useful Improvements in Washing Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to new and useful improvements in washing machines, and particularly to machines for washing clothes.

One object of the invention is to provide a machine of this character which is simple in construction, strong and durable in operation, and which can be manufactured at a comparatively low cost.

Another object resides in a novel form of dasher, and the manner in which the same is longitudinally adjustable on the dasher rod.

Another object is to provide a device of this character wherein the clothes containing basket is operatively connected with the dasher rod for movement at a certain point in the reciprocation thereof, to cause a sharp jerk to the basket to permit the clothes to float on the surface of the water, in the tub.

Other objects and advantages will be apparent from the following description when taken in connection with the accompanying drawings.

In the drawings:

Figure 1 is an elevation of a washing machine made in accordance with the present invention.

Figure 2 is a vertical longitudinal sectional view through the device, on the line 2—2 of Figure 1.

Figure 3 is a vertical sectional view on the line 3—3 of Figure 2, showing the cam operated member and the cams.

Figure 4 is a top plan view of the cam shaft and wheels, showing the plate 16 and shaft 14—15 in section.

Figure 5 is an enlarged longitudinal sectional view of the dasher and basket shafts, showing the connecting means therebetween.

Referring particularly to the accompanying drawing, 10 represents a base on which are erected the four corner posts 11. Extending between the upper ends of the posts 11, and connected therewith to form a rectangular frame, are the beams 12 and the metal bars 13, the beams 12 being disposed on opposite sides of the frame, while the bars are disposed on the other opposite sides. Engaged on one of the bars 13 are the three sections 14 and 15, of a hollow shaft, and secured to the intermediate section 15 is a horizontal transversely extending plate 16 Mounted on the outer end of this plate 16, and extending vertically therefrom, are the brackets 17 which support the transversely extending longitudinally aligned rollers 18, to which more particular reference will be made later herein. Erected on the beams 12 is a vertical frame 19, and disposed transversely of the upper end thereof is a pair of parallel bars 20, which rotatably support therebetween the grooved wheel 21. Over this wheel is engaged the cable 22. Also mounted on the upper end of the frame 19 is a guide 23 through which is slidably disposed the dasher rod 24. Adjustably secured on the rod 24 is a clamp 25, and encircling the rod, between the clamp and the guide, is a coil spring 26, which normally urges the rod downwardly. Connected to this clamp 25 is one end of the cable 22, before-mentioned, while the other end of the cable is secured to the free end of the pivoted plate 16, between the brackets of the rollers 18.

On the center of each of the beams 12 is secured a bearing block 27, and extending transversely of the frame is a shaft 28, the end portions of which are rotatably supported in said bearings. On one end of the shaft 28 is fixed a gear 29, and on the shaft, outwardly of the said gear, is loosely mounted a vertically extending lever 30, the outer end of which is adapted to be grasped by the operator and rocked back and forth on the shaft. Supported on the block 27, adjacent the gear 29, and at the ends of said blocks, are the stub shafts 31, each of which carries a gear wheel 32, of slightly larger diameter than the gear 29, and both of which mesh with the gear 29. The portion of the lever 30, above the shaft 28 is connected with the one gear 32 by means of the link 33, while the other portion of the lever, below the shaft, is connected with the other gear 32 by the link 34. Thus, as the lever is rocked back and forth on the shaft 28, the gears 32 will be rotated to drive the gear 29, and thus rotate the shaft 28. On the shaft 28, adjacent each of the rollers 18 is a comparatively large wheel 35, and formed on

the side face of each of the wheels 35 is a spiral flange 36 the peripheral face of which is arranged to engage with a roller 18, so that as the wheels turn with the shaft 28, the plate 16 will be depressed, and the spring 26 placed under tension by the upward movement of the dasher rod, through the action of the cable. As the thicker portion of each cam flange 36 comes around, the spring 26 will be permitted to expand and push the dasher rod downwardly, and at the same time exert a lifting force to raise the plate 16 into position to be again engaged by the cams.

The lower end of the dasher rod is formed with a longitudinal cavity 37, and disposed for slidable movement in the cavity is the elongated head 38 of the rod 39. A cap 40 is screwed onto the lower end of the dasher rod, to prevent the said head 38 from being withdrawn from said cavity, as the rod 24 moves upwardly. Disposed on the dasher rod 24 is a sleeve 41, the opposite ends of which are externally threaded as shown. Disposed on each of the threaded ends of the sleeve 41 is a washer plate 42 having openings adjacent its periphery, as shown at 43, and through each of these openings is the end of a wire 44, cross wires 45 being secured to the wires 44, so that an approximately spherical wire mesh cage is produced, with the sleeve 41 and the dasher rod 24 extending through the center thereof. Clamping nuts 46 are screwed onto the ends of the sleeve, above and below the washer plates to clamp the same in position on the sleeve, and to clamp the ends of the wires. The upper threaded end of the sleeve 41 is longitudinally split, as shown at 47, and a tapered nut engaged thereon, as shown at 48, for the purpose of binding the said end of the sleeve against the dasher rod, and thereby holding the dasher in different adjusted positions along the rod 24, in accordance with the amount of clothes within the tub, shown at 49.

The tub 49 is disposed on the base 10, within the enclosure of the corner posts 11, and in the bottom of the tub are disposed the wooden rings 50 secured in proper concentric relation.

Within the tub is disposed a wire basket 51, within which are placed the clothes to be washed, and secured in the center of the bottom of the basket is an upwardly extending hollow stem 52, within which is secured the lower end of the before-mentioned rod 39.

From the foregoing it will be seen that when the lever is rocked back and forth on the shaft 28, the gears 32 will be rotated, through the medium of the links 33 and 34, said gears communicating rotary motion to the shaft 28, by means of the gear 29. As the shaft 28 is rotated the wheels 35 will also be rotated moving their cams 36 against the rollers 18, with the result that the free end of the plate 16 will be depressed to exert a downward pull on the attached end of the cable 22. This pull on the cable lifts the dasher rod 24, compressing the spring 26, and moves the dasher upwardly from the clothes within the basket 51. When the dasher has almost completed its upward stroke, the cap 40 engages with the head 38 and lifts the basket, bodily, from the bottom of the tub, this movement being accomplished by a short, sharp jerk. As the cams of the wheels 35 release the rollers 18, the spring 26 will expand, driving the dasher downwardly onto the top of the clothes within the basket, it being understood that the basket moves downwardly a short distance, with the rod 24, before the dasher presses on the clothes. This permits the clothes to rise toward the surface of the water, and thereby allow the water to pass through the clothes. As the dasher presses on the clothes the water will rise up through them, bringing the dirt from the clothes.

What is claimed is:

1. A washing machine including a reciprocable dasher, means for reciprocating the dasher, a clothes containing basket, and connections between the basket and the dasher whereby during the final portion of the upstroke of the dasher the basket will be violently moved upwardly.

2. A washing machine including a reciprocable dasher, means for reciprocating the dasher, a clothes containing basket, and a rod connected with the basket and loosely engaged with the dasher whereby the basket will be given a violent upward jerk during the final portion of one end of the stroke thereof.

3. A washing machine including a reciprocable dasher including a rod having a cavity in one end, a clothes containing basket, a rod extending upwardly from the center of the basket and connected thereto, a head on the second mentioned rod slidably disposed in the cavity of the first rod, a head retaining means on the said cavity end, and means for reciprocating the first rod.

4. A washing machine including a reciprocable dasher including a rod having a cavity in its lower end, a clothes containing receptacle, a vertical rod fixed in the basket and having a head slidable in the cavity of the first rod, means for reciprocating said first rod and retaining means on the first rod for engagement by the second rod whereby during the completion of the upstroke of the dasher the retaining means will engage said head and produce an upward jerk on the receptacle.

5. A washing machine including a frame, a reciprocable dasher rod mounted in the

frame, resilient means normally expanded to urge the dasher rod in one direction, a depressible element, a flexible element connected with the dasher rod and the depressible element for holding the latter in elevated position, a rotatable cam operatively engaged with the depressible element for depressing the same to exert a pull on the flexible element and raise the dasher rod against the action of the resilient means, and means for operating the cam.

6. A washing machine including a frame, a reciprocable dasher rod mounted in the frame, resilient means normally expanded for urging the dasher rod in one direction, a depressible element, a flexible element connected with the dasher rod and the depressible element, a rotatable cam intermittently engageable with the depressible element, for depressing the same and exerting a pull on the flexible element to lift the dasher rod and compress the resilient means, and means for rotating the cam.

7. A washing machine including a frame, a reciprocable dasher rod mounted in the frame, resilient means for normally urging the dasher rod in one direction, a shaft adjacent the rod, a depressible plate, a cable connected with the depressible plate and the dasher rod, a cam on the shaft operatively engaged with the depressible plate, a gear on the shaft, driving gears mounted adjacent the shaft and meshing with the shaft gear, a rock lever on the shaft movable independently of the shaft, and links between the lever and the driving gears.

8. A washing machine including a dasher rod, a sleeve mounted on the rod and having its ends externally threaded, one of the said ends being longitudinally split, a washer on each end of the sleeve, a wire frame supported on the washers, and a clamping nut engaged on the split end of the sleeve for binding the sleeve on the rod to maintain the sleeve against movement on the rod.

9. A washing machine including a clothes containing basket having reticulated walls and bottom, a vertical hollow stem mounted in the bottom of the basket, a vertical rod secured within the hollow stem, a dasher rod slidably connected with the vertical rod, and means for reciprocating said dasher rod.

In testimony whereof, I affix my signature in the presence of two witnesses.

WILLIAM C. AYERS.

Witnesses:
J. W. SATTERFIELD,
ROSIE JOHNSON.