

(No Model.)

2 Sheets—Sheet 2.

H. G. BELCHER.
WASHING MACHINE.

No. 569,740.

Patented Oct. 20, 1896.

Fig. 2.

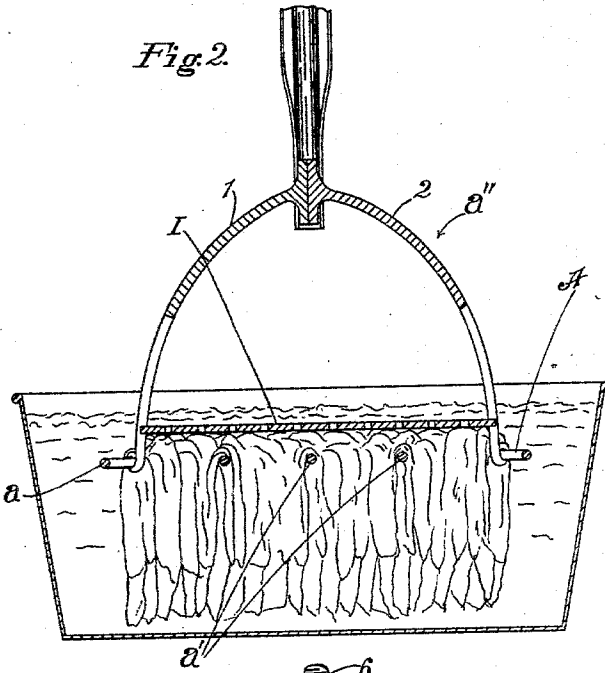


Fig. 3.

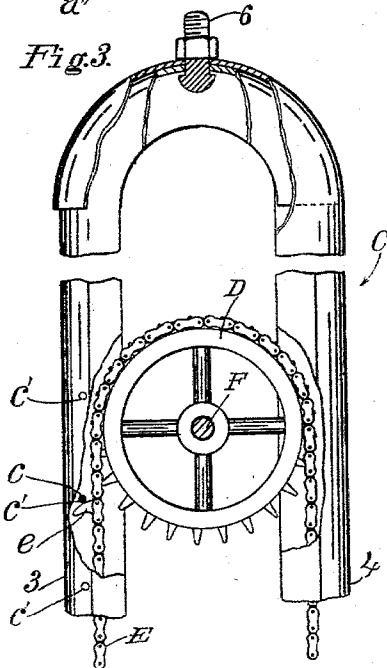


Fig. 4.

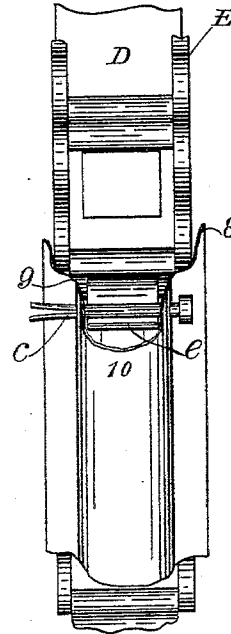


Fig. 5.

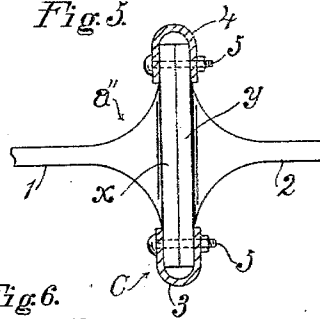
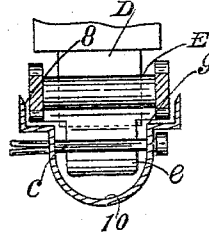


Fig. 6.



Witnesses

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UNITED STATES PATENT OFFICE.

HENRY GEORGE BELCHER, OF LOS ANGELES, CALIFORNIA.

WASHING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 569,740, dated October 20, 1896.

Application filed October 2, 1895. Serial No. 564,466. (No model.)

To all whom it may concern:

Be it known that I, HENRY GEORGE BELCHER, a citizen of the United States, residing at Los Angeles, in the county of Los Angeles and State of California, have invented a new and useful Washing-Machine, of which the following is a specification.

The object of my invention is to provide a washing-machine which will loosen the dirt from soiled clothing with as little injury as possible to such clothing.

My invention is adapted for both family and laundry use, but in the accompanying drawings I have shown it applied for family use, and it will readily be understood without illustration that a number of clothes-carrying frames may be arranged to be driven by a single shaft, thus supplying a plant for a large laundry.

My invention will enable clothing to be cleaned at a laundry by mechanical means with great economy and without the necessity of using strong chemicals, and also without any danger of destroying the clothes by severe contact or rubbing of machinery.

The accompanying drawings illustrate my invention.

Figure 1 is a fragmental perspective view illustrating my invention as applied for household use. The frame-operating support is broken above the sprocket-wheel to contract the view. Fig. 2 is a fragmental vertical mid-section of the tub or water vessel and the clothes-carrying frame. Fig. 3 is a fragmental view showing the upper part of the vertical support for the clothes-holding frame, the upper sprocket-wheel, and a portion of the chain. The support is broken to contract the view. Fig. 4 is a fragmental detail showing in elevation a portion of the side member 3 and the lifting spur and catch. Fig. 5 is a fragmental sectional plan. 55, Fig. 1, show the line of section. Fig. 6 is a cross-sectional detail of one of the members of the frame-support. Fragments of the wheel and chain are also shown.

My invention comprises a washing-machine provided with a vertically-reciprocating clothes-carrying frame A, arranged to reciprocate vertically in a water-holding vessel B. It also comprises other features, which I will now fully set forth.

The clothes-carrying frame A, as shown, is composed of a ring *a* and cross-bars *a'*, fastened to the ring *a*.

a'' indicates a bail fastened to the ring and extending upward and over thereabove.

C indicates a vertical support fastened to the frame through the medium of the bail and extending vertically therefrom and affording means for vertically reciprocating the frame.

D and D' indicate two sprocket-wheels arranged in a vertical plane above the frame.

E indicates a sprocket-chain trained around the sprocket-wheels and provided with a lifting-spur *e*. The vertical support C is provided with a lifting-catch *c*, arranged in the path of the spur *e*, so that when the sprocket-wheel is rotated to drive the sprocket-chain the spur *e* will engage the catch *c* on the upstroke and will lift the catch and the vertical support, and thus carry the clothes-carrying frame upward until the spur has passed inward over the upper sprocket-wheel D, and thus releases the catch or pin *c*, thereby to allow the support and the frame it carries to fall.

The bail is preferably made of two sections 1 and 2, provided at their upper ends with cross-bars *x y*, which fit together. The vertical clothes-carrying-frame support is preferably formed of two side members 3 and 4, made of channel-iron or other suitable metal and arranged to chamber the sprocket-chain and the rims of the sprocket-wheels. These members are arranged to clasp the opposite ends of the cross-heads *x y* of the bail and are bolted thereto by bolts 5. The upper ends of the members 3 4 are curved and fitted together and are fastened by suitable means, such as bolt 6. The upper sprocket-wheel D is mounted upon a shaft F.

The crank G, sprocket-wheels G' and G'', and the sprocket-chain G''' indicate suitable means for rotating the shaft F and its sprocket-wheel D in one direction, and H indicates a ratchet arranged to prevent the rotation of the shaft F in the opposite direction.

I indicates a cover provided with holes and arranged to insert above the clothes beneath the bail. This cover may be formed of slats (not shown) or it may be formed of a single piece, as shown in the drawings.

In practical operation the clothes to be

washed will be adjusted, as shown in Fig. 2, by being hung over the various members of the frame with the middle portion of any garment resting over the ring or one of the bars and the ends allowed to droop down. This is of special advantage in the case of shirts and other clothing, the ends of which, such as cuffs or wristbands of the shirt-sleeves and the collar of the shirt, are more subject to being soiled than the middle portion of the clothes. When thus disposed, the soiled portions of the garment will be acted upon with greater force than the middle portions, which rest upon the members of the frame. Before placing the clothes upon the frame the crank G is turned to raise the frame to an elevated position, so as to allow the clothes to be placed thereon without difficulty. When the clothes to be washed at one operation have all been placed upon the frame, the cover I is placed upon the clothes underneath the bail to intercept the water which will dash up when the frame and clothes fall during the operation of the machine. Water is then poured into the vessel B and the machine is ready for operation. The clothes may be properly soaped before or after being placed on the frame, or the soap or other cleansing material may be placed in the water.

To operate the machine, the crank G is turned, thus rotating the shaft F and sprocket-wheel D, which drives the sprocket-chain E and carries the spur *e* upward against the catch *c*, thus raising the support C and the frame A and the clothes thereon. When the spur *e* leaves the catch at the upper part of its movement, the frame and clothes drop into the water and the clothing is struck and cleansed in the water, and then the spur again engages the catch and the operation is repeated. The machine will be geared so as to reciprocate the frame with a desired speed. This operation does not wear or tear the clothes, but forces the water through the clothes and bends and strikes the fabrics thereof in such a way as to loosen and release the dirt and allow the clothes to become cleaned. When the operation has been sufficiently performed to release the dirt from the main part of the clothing, the clothes may be removed and the dirt remaining in the most soiled portions can be readily removed by a little extra rubbing by hand. Then, if desired to use the machine for rinsing the clothes, the clothes may be placed upon the frame again and after the vessel has been supplied with clean water the operation just described may be repeated until the clothing is completely cleaned.

The catch *c* is vertically adjustable, so that when the frame is loaded with a large quantity of clothes the catch can be placed lower than when but few clothes are on the frame. This is necessary in order to allow the lifting-spur to carry the frame up the full length of stroke. The catch shown is a cotter-pin, and holes *c'* are provided in the front member 3 of the support, so that the pin can be adjusted

to the proper height. To determine the point at which the pin *C'* is to be placed, the operator allows the frame to fall and rest on the clothes which are under it. Then he places the pin in such one of the holes *c'* as will bring it into place to be caught by the lifting-spur as soon as such spur begins to travel upward.

The walls of the channels 8 of the support members 3 and 4 are beveled on the inside, so that the same will not catch upon the chain or sprocket-wheel, and the channels in the support members are provided with offsets or shoulders 9 against which the chain on the wheels will engage, thus to prevent the support from swinging out of line. The points of the spurs are beveled at the sides, as shown in Fig. 6, so that the spurs will enter the channel 10 without difficulty.

The ratchet II is useful to hold the frame elevated at any desired height for placing or adjusting the clothes thereon.

J indicates tension devices for keeping the sprocket-chain taut.

Now, having described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A washing-machine provided with a vertically-reciprocating clothes-carrying frame arranged to reciprocate in a water-holding vessel and also provided with an endless chain having means arranged to intermittently lift the frame when the chain is driven, and means for driving the chain, substantially as and for the purpose set forth.

2. In a washing-machine, the combination set forth of a vessel for holding water; the clothes-carrying frame arranged to reciprocate vertically in such vessel; the vertical support fastened to such frame and extending thereabove and provided with a lifting-catch; the sprocket-wheels arranged above the frame; the sprocket-chain provided with a spur arranged to engage the lifting-catch upon the vertical support; and means for operating the sprocket-wheels.

3. In a washing-machine, the combination of the sprocket-wheels arranged in a vertical plane; a sprocket-chain trained around the sprocket-wheels and provided with the lifting-spur; the clothes-carrying frame arranged beneath the sprocket-wheels; the vertical support composed of two channel-irons fastened together at their upper ends and fastened to the clothes-carrying frame at their lower ends and arranged upon opposite sides of the sprocket-wheels to chamber the rims thereof and the sprocket-chain, and provided with a lifting-catch arranged in the path of the lifting-spur; and means for operating the sprocket-wheels.

Executed at Los Angeles this 10th day of September, 1895.

HENRY GEORGE BELCHER.

Witnesses:

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ALFRED I. TOWNSEND.