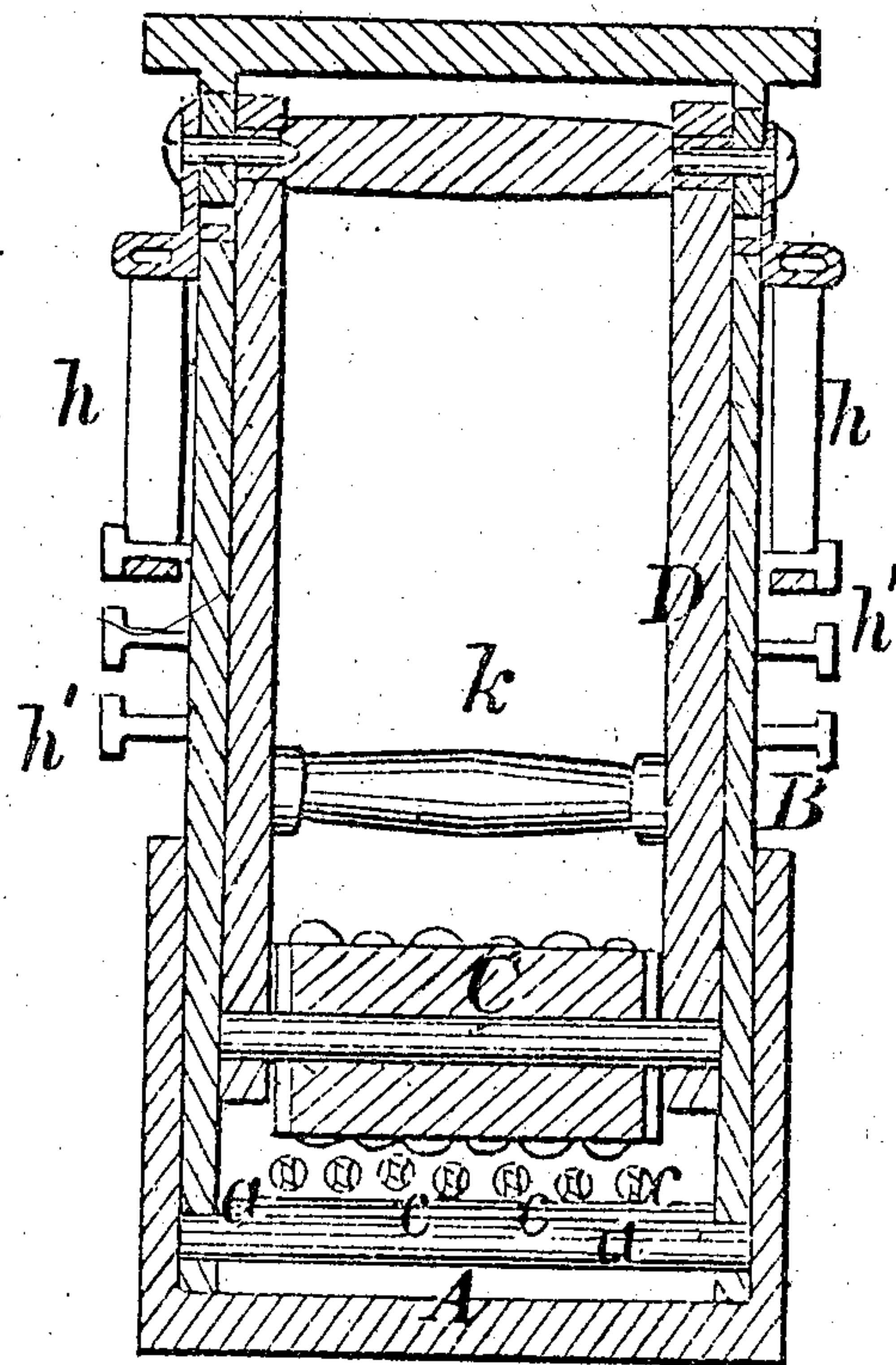


No. 43,899.

J. CRAM.  
WASHING MACHINE.

PATENTED AUG. 23, 1864.



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# UNITED STATES PATENT OFFICE.

JOHN CRAM, OF BOSTON, MASSACHUSETTS.

## IMPROVED WASHING-MACHINE.

Specification forming part of Letters Patent No. 43,899, dated August 23, 1864.

*To all whom it may concern:*

Be it known that I, JOHN CRAM, of Boston, in the county of Suffolk and State of Massachusetts, have invented an Improved Washing-Machine; and I do hereby declare the same to be fully described in the following specification and represented in the accompanying drawings, of which—

Figure 1 is a top view, Fig. 2 a longitudinal section, and Fig. 3 a transverse section, of it.

The nature of my invention consists in the combination of a vibratory or reciprocating roller with a series of flexile or elastic bands arranged below it, and in a trough or tub, and in other respects substantially as hereinafter described; also, in the arrangement of the knobs of such roller in one or more helices, when such roller is combined with elastic or flexile bands, and both are arranged in a tub, substantially as hereinafter explained; also, in the elastic or flexile bands, arranged as described, as made square or several-sided in section and twisted, or as having helical grooves, when such bands are combined with a roller and used in manner and for the purpose as hereinafter set forth; also, in the combination of looped springs, or their equivalents, with the vibratory roller and its frame and the series of elastic or flexile bands, arranged together as specified; also, in the combination of a grating or series of parallel bars, or the equivalent thereof, with the elastic bands and the roller, arranged in manner and so as to operate together as specified; also, in the series of flexile bands arranged together and in a frame and for use in a tub for the purpose and in manner as set forth.

In the drawings, A denotes a tub or vessel of an oblong shape, and has within it a gal-lows-frame, B. In the lower part of this frame B there is a curved grating or series of parallel bars, *a a a*, which are disposed at or about at equal distances asunder. Immediately over these bars, and at right angles to them, there is arranged a series of flexile or elastic bands, *c c c*, which are disposed parallel to each other, and side by side, or close together, and are fastened at their ends to and between cross-bars, *d d d d*, arranged in the frame B, in manner as shown in Fig. 2. Each of the bands may be a strip of "vulcanized" india-rubber, square or several-sided,

in transverse section, and twisted so as to have helical grooves around it; or, instead of so making the elastic band, it may be composed of a piece of rope, and may be made of leather or rawhide or other suitable sufficiently elastic material, but I prefer for such band the india-rubber vulcanized. Over the series of elastic or flexile bands arranged on the frame, I dispose a rubber or roller, C, whose external curved surface may be either plan or fluted, or, as I prefer, it may have extending from it a series of knobs or projections, *d' d' d'*, arranged in a helical path about the roller. This roller C, I arrange within a pendulous or vibrating frame, D, placed within the frame B, in manner as shown in the drawings, and provided with journals *c c* to enter sliding boxes *f f*, arranged within two posts or uprights, *g, g*, of the frame B. A looped spring, *h*, of india-rubber, is suspended from each of the boxes *f f*, and is hitched on one of a series of pins, *h' h' h'*, projecting from the next adjacent upright *g*, and arranged thereon as represented in the drawings. Each of the boxes *f f* is placed within a rectangular space, *i*, made in the upright and having a perpendicular length greater than that of the box, the same being to enable the box to be moved either upward or downward.

A handle, *k*, extends across the pendulous frame D. By manual force applied to such handle *k* the frame D and its roller may be moved back and forth over the series of elastic bands, and with them be used for the purpose of washing clothes when interposed between the bands and the roller.

By having the curved surface of the roller studded with knobs arranged helically thereon a lateral rubbing movement of the roller and the flexile bands highly favorable to cleansing the clothes will be caused to take place during the vibratory movement of the roller over the elastic bands.

The flexile or elastic bands used with the roller, or its equivalent, constitute an improved washing-instrument, which will not only operate with excellent effect in cleansing clothes when they are saturated with water or a saponaceous solution, but will not tear or injure them as will a fluted wash-board made entirely of wood.

The looped springs serve to keep the roller in close contact with the clothes when on the



bands, and while the roller may be in the act of being moved over and on such clothes. Furthermore, the flexile bands accommodate themselves to the varying thickness of the mass of clothes, and will be more or less supported on the grating *a a a* when pressed down too much, the said grating serving to prevent the flexile bands from being overstrained so as to be injured, or have their elasticity more or less impaired.

What I claim as of my invention in the above-described washing-machine is as follows, viz:

1. The combination of a vibrating or reciprocating-roller, C, or its equivalent, with a series of flexile or elastic bands, *c c c*, arranged below it and for use in a tub, substantially in manner and for the purpose described.

2. The elastic or flexile bands *c c* as made square or several-sided in transverse section

and twisted, or as having helical grooves, when such bands are combined with a roller and for use in manner and for the purpose as hereinbefore explained.

3. The combination of the looped springs *h h* with the vibratory roller C and its frame and the series of flexile or elastic bands *c c c*, arranged together as specified.

4. The combination of the grating or series of parallel bars *a a a* with the elastic bands *c c c* and the roller C, arranged in manner and so as to operate together as specified.

The series of flexile or elastic bands arranged together and in a frame, B, and for use in a tub, in manner and for the purpose as specified.

JOHN CRAM.

Witnesses:

R. H. EDDY,

F. P. HALE, Jr.