N. A. Rhoads,

Wringer,

No. 34,646. Patented Mar. 11, 1862.

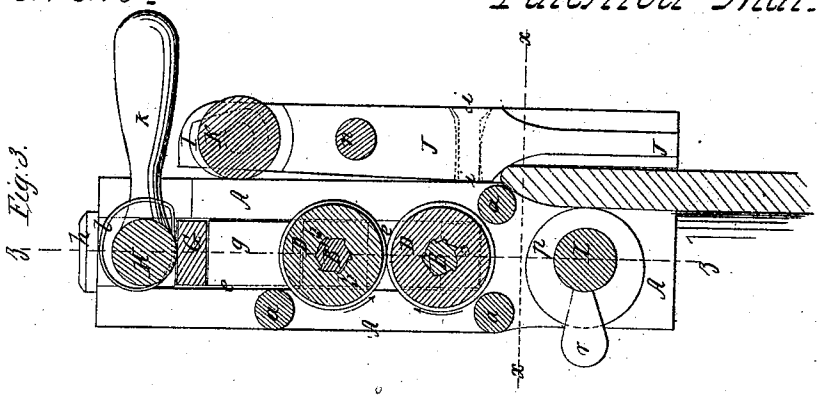

Fig. 3.

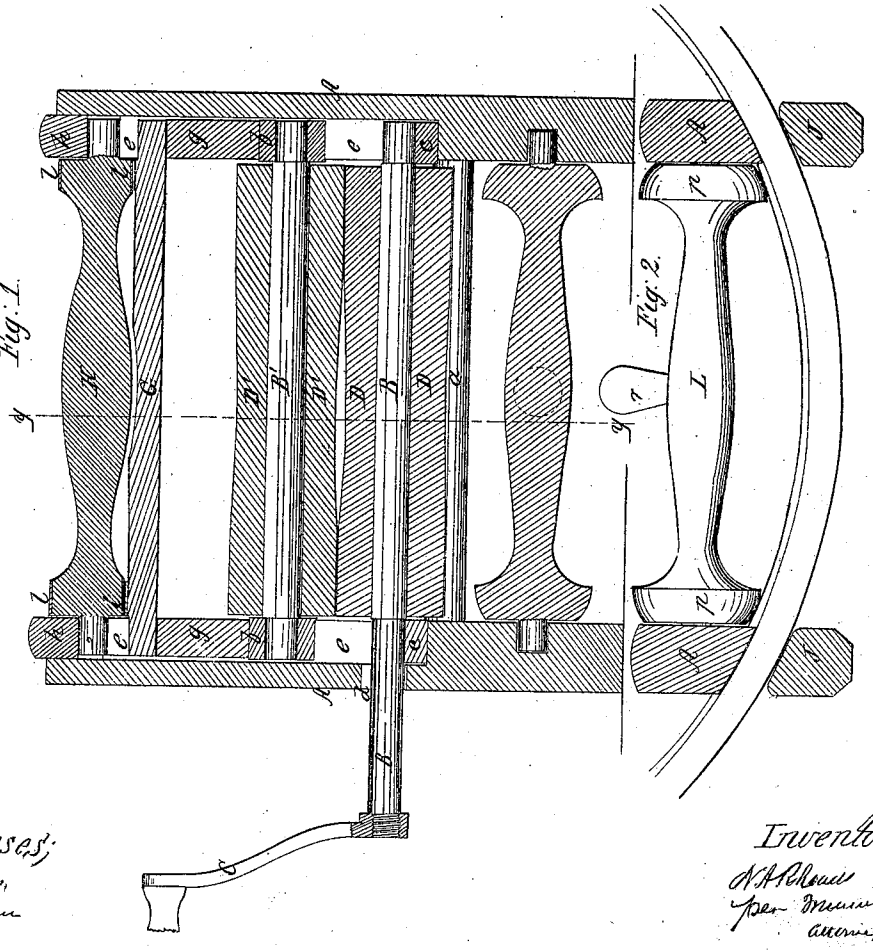

Fig. 1.

Fig. 2.

Witnesses;
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UNITED STATES PATENT OFFICE.

N. A. RHOADS, OF WATERBURY, VERMONT.

IMPROVED CLOTHES-WRINGER.

Specification forming part of Letters Patent No. **34,646**, dated March 11, 1862.

To all whom it may concern:

Be it known that I, N. A. RHOADS, of Waterbury, in the county of Washington and State of Vermont, have invented certain new and useful Improvements in Clothes-Wringers; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a longitudinal section through the machine, taken in the vertical plane indicated by the red line *z z* in Fig. 3. Fig. 2 is a horizontal section through Fig. 3, as indicated by the red line *x x* thereon. Fig. 3 is a transverse section through Fig. 1, taken in the vertical plane indicated by red line *y y* thereon.

Similar letters of reference indicate corresponding parts in the three figures.

My invention relates to certain novel improvements in that class of clothes-wringers which are made very portable and clamped to the tub or box in which the clothes are washed and in which the articles are wrung by passing them between two rollers having india-rubber surfaces and subjecting them at the same time to the requisite degree of pressure to squeeze out the water.

To enable those skilled in the art to make and use my invention, I will proceed to describe its construction and operation.

A A represent two uprights, which are braced together by transverse rods *a a a*, so as to form a strong quadrangular frame for containing and supporting the wringing and clamping apparatuses.

B B′ are two iron shafts, which have their bearings in journal-boxes *b b c c*. One end of shaft B passes through a vertical slot *d*, made through one of the uprights and receives on its end a hand-crank C, by means of which this shaft B is turned in operating the machine. The journal-boxes *b b c c* are let into vertical grooves *e e*, in which grooves these boxes are allowed to have a free vertical play, so that the shaft B′, while preserving its parallelism with shaft B, may at the same time be moved farther from this shaft as occasion requires. The shaft B is made with grooves, ribs, serrations, or longitudinal projections of any suitable description on its surface, and on this surface a rubber roller D is formed in the usual manner of putting rubber rollers on shafts. The india-rubber being put on such a shaft, it will be readily seen that all liability of this rubber working loose on the shaft is effectually prevented. A rubber roller D′ surrounds the upper shaft B′, which may be of the same or of a greater diameter than the lower roller D, and this latter roller D′ may be put on a shaft constructed, as described, for the lower roller; but as this upper roller D′ is less liable to become loose on its shaft than the roller D the shaft B′ may have a smooth surface. The proper construction of these two india-rubber rollers is important, and it is desired to so construct them that the articles which are passed between them should be squeezed uniformly, whether there be a greater or less bulk in the middle than at the ends of these rollers. For this purpose the surfaces of the two rubber rollers D and D′ taper from their ends to their middle, so that they are smaller in diameter in the middle than at their ends, as shown in Figs. 1 and 3 of the drawings. The peripheries of these two rollers D D′ will thus touch each other at and near their ends; but a space will be left between the two rollers D D′ at and near the middle thereof, through which the greatest bulk of articles will pass as they are submitted to the action of the rollers. The ends of the upper roller D′ rest on the ends of the lower roller, and the upper roller, with its shaft B′, is rotated in its bearings by the rolling friction of the lower roller.

India-rubber springs *g g* are placed on the boxes *b b* in grooves *e e*, and on these blocks of rubber *g g* the ends of a transverse bar G rest. Above this transverse bar G a shaft H is arranged, having its upward bearings against the stationary blocks *h h*. This shaft H is furnished with a lever or handle *k*, and on each end of the shaft is a cam-shaped enlargement *l*, as shown in Figs. 1 and 3 of the drawings. Cams *l l* are faced with metal, and the ends of the bar G are also faced with metal, as represented in Fig. 1. These cams *l l* are used to increase or to diminish the pressure on the articles passed between the rollers D D′, and also to allow large or small articles to be passed between these rollers D D′, and to give the required pressure to either. The required pressure on the articles is obtained almost instantly by raising or depress-

ing the handle *k*, which operation rocks the cam-shaft H and brings the cams *l l* in the desired position, and while the articles are passing between the rollers D D′ the pressure can be regulated as the articles increase or diminish in bulk.

It will be understood that the cams *l l* do not lift the upper roller D. This roller is raised by the articles passed between the rollers when the cams *l l* are in such a position as will allow the journal-boxes *b b* to rise.

An important advantage results from the employment and particular arrangement of the bar G, with reference to the springs *g g*, the cams *l l*, and the shaft H, and lever or handle *k*, as the said bar by such not only becomes useful as a stop for the handle and as a bearing for the cams, but it serves to so connect the two springs as to prevent either from crippling or bending laterally, as well as being thrown out of place under the upward pressure of the roller-journal under it. Besides, it enables the journals of the shaft to be arranged directly over the springs, respectively, and to have the cams placed next to and between such journals.

On one side of the roller-carrying frame A A, and pivoted at *i i* to the uprights of said frame, is a clamping-frame J, consisting of two parallel clamping-bars, a transverse bar *n*, and a rocking cam-shaft K. This frame is pivoted to frame A A by adjusting-screws at *i i*, which pass through tapering holes through the parallel bars of frame J and allow these bars to rock longitudinally, and the clamping of the machine to a tub, barrel, or box is effected by means of the shaft K, carrying cams I I on its ends, which will force the upper ends of frame J outward and the lower ends inward. This cam-shaft alone will answer for clamping the machine to tubs, &c., of any ordinary size; but in tubs where the staves are unusually thick the screws at *i i* may be set farther out, thus increasing the distance between the lower ends of the uprights A A and those of the frame J. The lower edges of the clamping ends of the frames A and J are beveled, as represented in Fig. 2 of the drawings, to accommodate them to the curvature of the tub.

L is a transverse rock-shaft carrying on its ends two beveled cams or eccentrics *p p* and having its bearings in the lower ends of uprights A A. This shaft is rocked by a handle *r*, and it may be used either in conjunction with the cam-shaft H for clamping the machine to the tub, or it may be used independently of this cam-shaft and with the frame J, secured rigidly to the frame A A. The eccentrics *p p* are forced hard against the outside of the tub when the forked ends of the machine are placed astride of the edge of the tub, and the machine is thus rigidly clamped to the tub.

In using the above-described machine the screws at *i i* are adjusted until the edge of the tub will pass between the lower ends of uprights A A and those of frame J, as represented in Figs. 2 and 3 of the drawings. The cam-shaft K is then turned, and the cams I I act against the uprights A A and force the lower ends of frame J hard against the outside of the tub and clamp the machine to the tub rigidly. The rollers D D′ now project over the inside of the tub, so that water which is wrung from the articles passed between these rollers will run back into the tub. The wet articles are now taken up one at a time, if they be large, and passed between the rollers D D′, these rollers being turned in the direction indicated by the arrows in Fig. 3. As the articles are passed one at a time between the rollers the pressure on the upper roller D′ is regulated according to the varying bulk of the articles by working the cams *l l* on shaft H. During the operation of wringing the operator has one hand on crank *k* and the other on handle C of the cam-shaft B, and while he turns the rollers D D′ with one hand he can regulate the pressure with the other.

It will be seen that during the operation of the rubber rollers D D′ upon the articles passed between them there will be a pressure upon every part of the article between the rollers in consequence of the peculiar shape given to them, while with cylindrical or straight rubber rollers the articles will be acted upon only where their greatest bulk occurs—viz., in the middle of the rollers—and the ends of such rollers have very little, if any, squeezing effect. Therefore the rollers made so as to taper toward the middle of their length are considered as a great improvement upon the cylindrical rubber rollers which have hitherto been used.

I would further observe that the shaft L and its eccentrics *p p*, when combined and arranged with the frame A and the jaw-frame J and its cammed shaft K, co-operate with the said frame J and its clamping devices in more effectually fastening the wringing-machine to a tub, for when the frame J is forced against the tub only the lower arms of such frame will be moved in contact with the tub; but by means of the cams *p p* the upper parts and the whole lower surface of the jaws of the frame J may be brought up to bear firmly against the tub, the cams *p p* acting against the inner surface of the tub.

I do not claim an elastic roller made with a cylindrical surface and arranged on two cones applied to a shaft and in such manner that their lesser bases may be next to each other, the elastic covering of them being thicker in the middle than at either of its ends; but

I claim—

1. As an improvement in a clothes-wringing machine provided with elastic rollers, the construction of either or both of such rollers, or, in other words, the arrangement of their operating-surfaces so that they may be at a greater distance asunder at their middles than at their ends, the whole being substantially

in manner and for the purpose as herein described.

2. The arrangement and combination of the connection and bearing-bar G with the rubber springs *g g*, the shaft H, and its cams *l l*, the whole being applied to the frame A and its rollers D D′, as described.

3. The application of each of the bars J J with the frame A by means of an adjustable fulcrum-screw *i*, whereby the distances of the bar J and the bearing-head of the screw from the frame A may be increased or diminished as circumstances may require.

4. The arrangement of the shaft L and its cams P P with reference to the rollers D D′, the frame A, and the two bars J J or their equivalents affixed to the said frame.

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Witnesses:
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