ROBERT E. FERGUSON.

Improvement in Clothes Wringers.

No. 124,942. Patented March 26, 1872.

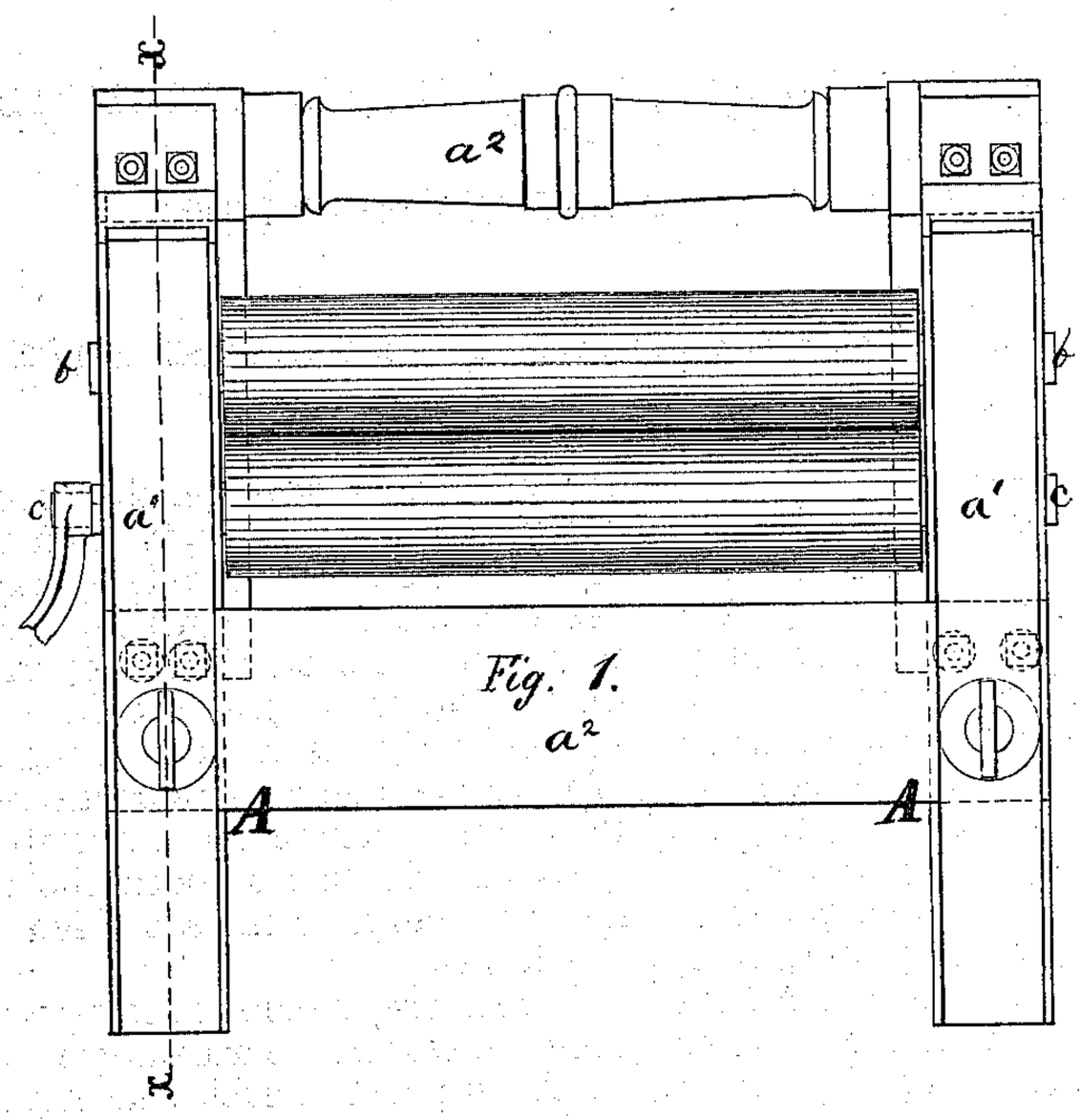


Fig. 1.

Fig. 2.

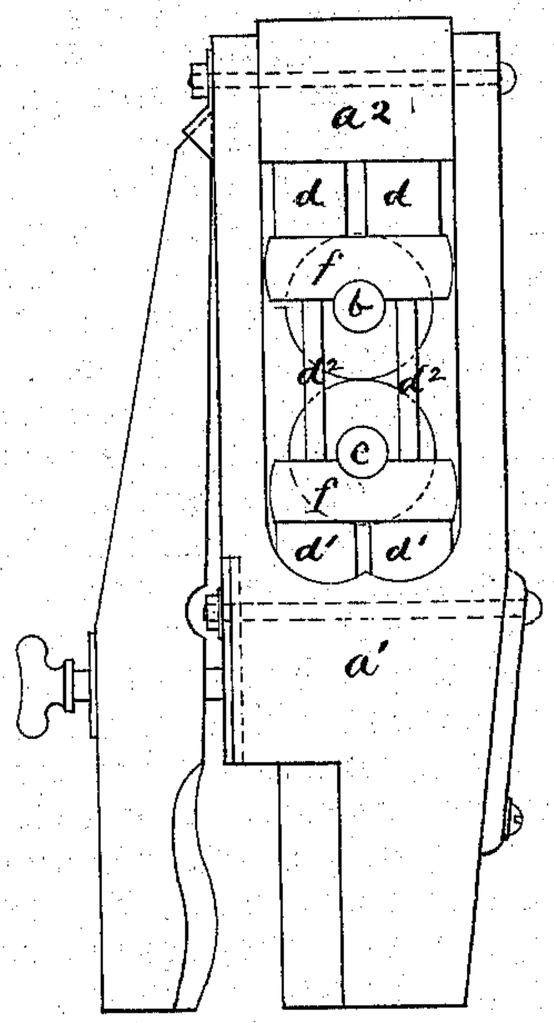
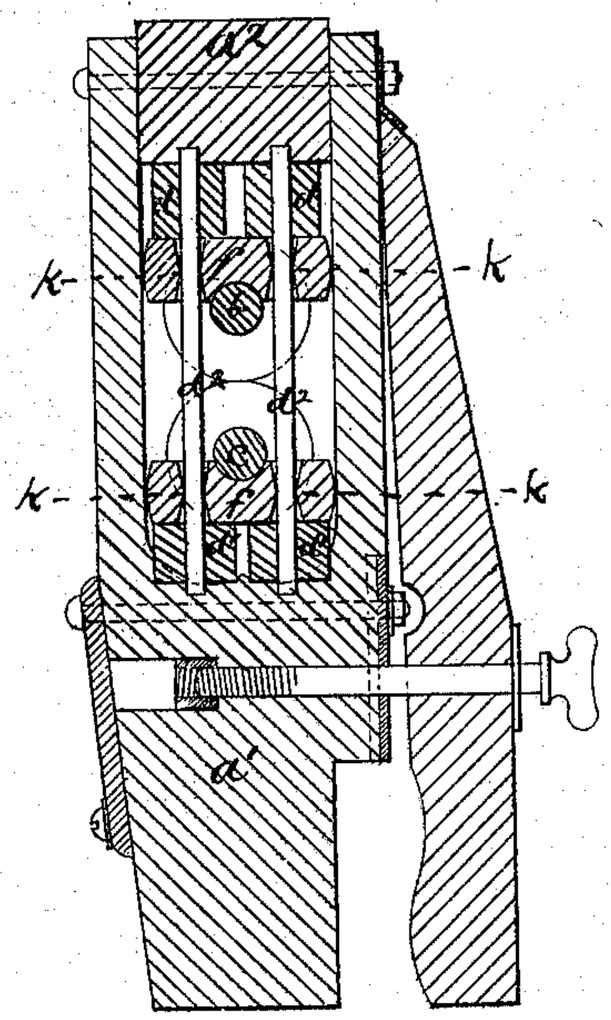


Fig. 3.



WITNESSES.

Edw^d Dyson

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124,942

UNITED STATES PATENT OFFICE.

ROBERT E. FERGUSON, OF CHICAGO, ILLINOIS.

IMPROVEMENT IN CLOTHES-WRINGERS.

Specification forming part of Letters Patent No. 124,942, dated March 26, 1872.

SPECIFICATION.

I, ROBERT E. FERGUSON, of Chicago, Illinois, have invented a new and useful Improvement in Clothes-Wringers, of which the following, taken in connection with the accompanying drawing, is a specification:

My improvement consists in a peculiar arrangement of yielding self-adjusting bearings for the shafts of both rollers, so that the use of cog-wheels or belts and pulleys for the purpose of imparting motion from one roller to the other is rendered unnecessary, and, also, so that the necessary pressing of the rollers together is accomplished without excessive or injurious compression of the springs by which it is effected.

The drawing representing my invention is as follows, viz.:

Figure I, a side view; Fig. II, an end view; Fig. III, a transverse section through line *x x* on Fig. I.

A is the frame, composed of the side pieces a^1 a^1, connected by cross-pieces a^2 a^2, and in general resembling wringer-frames as ordinarily constructed. The upright or side pieces a^1 a^1 are, however, enlarged so as to allow of a slot being made in them wide enough to admit of the introduction, side by side, of the hollow cylindrical rubber springs *d d* and d^1 d^1, which are held in proper position by the parallel rods d^2 d^2 on either side of the wringer-shafts *b* and *c*. (See Figs. II and III.) The springs *d d* and d^1 d^1 bear respectively upon the frame above and below the wringer-shafts, and deliver their thrust against the half-boxes or journals *f f*. The boxes *f f* are slightly rounded at the ends, and are provided with holes, through which the parallel rods d^2 d^2 pass. These holes are reamed out each way from the center, as shown on the drawing at *k k k k*, Fig. III. The object of rounding the ends of the boxes and of reaming the holes in them, as described, is to provide for the necessary rocking of the boxes to enable the journals to accommodate themselves exactly to different inclinations of the wringer-shafts, and to insure that, whatever position the rollers may assume relatively to each other, they will always rest evenly in their bearings. The crank by which the wringer is operated is attached to the shaft of the lower roller *c;* and I intend to make the springs which hold the lower boxes up stronger than those which pass the upper boxes down, in order to compensate for the weight of the rollers, crank, &c., which rests upon the lower springs, and also because, in turning the crank, the operator naturally exerts the most pressure in a downward direction. My design is to so regulate the force of the upper and lower springs, relatively, that the rollers, when forced apart, will move equally by the yielding of both the upper and the lower bearings to the same degree in opposite directions.

Heretofore, in constructing wringers, it has been the practice to use only one rubber spring for the support of each bearing, and, as a general thing, only one of the pair of rolls has yielding bearings, so that only two springs are used. To obtain the necessary pressure of the rolls together, or, in other words, to hold the roller having yielding or spring bearings against the roller having fixed bearings with the required force, these two springs are unavoidably subjected to a degree of compression which impairs their durability and usefulness. When it is attempted to pass a thick fabric through the machine the rolls are forced apart, and the springs, already compressed to a high degree, are still more compressed until they cannot yield further, and the rotation of the rolls is arrested. To meet this constantly-occurring difficulty various modes of adjustment have been devised to enable the operator to relieve the springs so as to permit the rolls to separate far enough to allow thick fabrics to pass between them; but the frequent subjection of the springs to this extreme compression tends to set them and render them ineffective for lighter pressure. Moreover, when the springs are already strongly compressed, the force of the pressure which they exert increases too rapidly as the rollers separate.

The novelty and the advantage of my invention, in this particular, is that it provides the necessary force by securing the co-operation of a number of springs under moderate compression, the sum of the forces they severally exert being equal to the force exerted by half the same number of springs under twice as much compression. I thus avoid injuring the springs by extreme compression and preserve their sensitiveness. My multiplication of springs has an important relation to the action of my

rocking or self-adjusting boxes. As my springs are only slightly compressed, they yield more readily, and allow the boxes to more easily accommodate themselves to any change in the position of the shaft.

Ordinarily only one of the rollers, usually the upper, has yielding bearings; hence, if garments of irregular thickness are drawn through the rolls, or if a thick fabric is drawn through near one end of the rolls, the upper roller is thrown considerably out of line and revolves with increased friction. On this account various modes of gearing have been devised for the purpose of imparting positive motion to the upper roller, which will continue to act, even although the upper roller be separated from or thrown out of line with the lower roller. These contrivances necessarily increase the complication of the machine, and generally have proved objectionable from their liability to get out of order and to rapidly wear out.

In my invention the rollers, when wedged apart, recede equally from their normal positions, and, if wedged apart at one end, occupy less distorted positions than the positions assumed under similar circumstances by the upper roller when it alone has yielding bearings. The upper roller, for example, rises only half as far, owing to the yielding of the lower roller to a corresponding extent, and the deflection of either shaft from its normal horizontal position is so slight that the journals readily accommodate themselves to the changed position of the shaft, and there is, therefore, no material increase in the friction of the rollers in their bearings.

Each of my rollers has four independent points of support, from which it receives an elastic pressure in the direction of the other roller. My guide-rods d^2 are stepped at either end in the frame, and accomplish several purposes, to wit: They hold the rubber springs in position, and act as vertical guides for the movable boxes; and also present bearing-points to meet the side thrust of the boxes when the wringer is in operation. Without the guide-rods the side thrust of the boxes would be met only by the frame, and the friction caused by the bearing of the end of the box on the frame would prevent that end from sliding up or down easily, and the box, being free at the opposite end, would tip in consequence.

By my invention I secure the easy and uniform movement of the boxes as the rolls separate, and thus insure the exact accommodation of the journals to the shaft, and avoid increasing the friction of the shafts in their bearings when the rollers are forced out of line.

I claim as my own invention—

1. The combination of the frame, the guide-rods d^2, the springs d d^1, and the rocking boxes f with the wringer-rolls.

2. The combination, with each other, of the four rocking or self-adjusting boxes by means of the springs, respectively interposed between each box and the frame.

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Witnesses:
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F. M. QUIMBY.