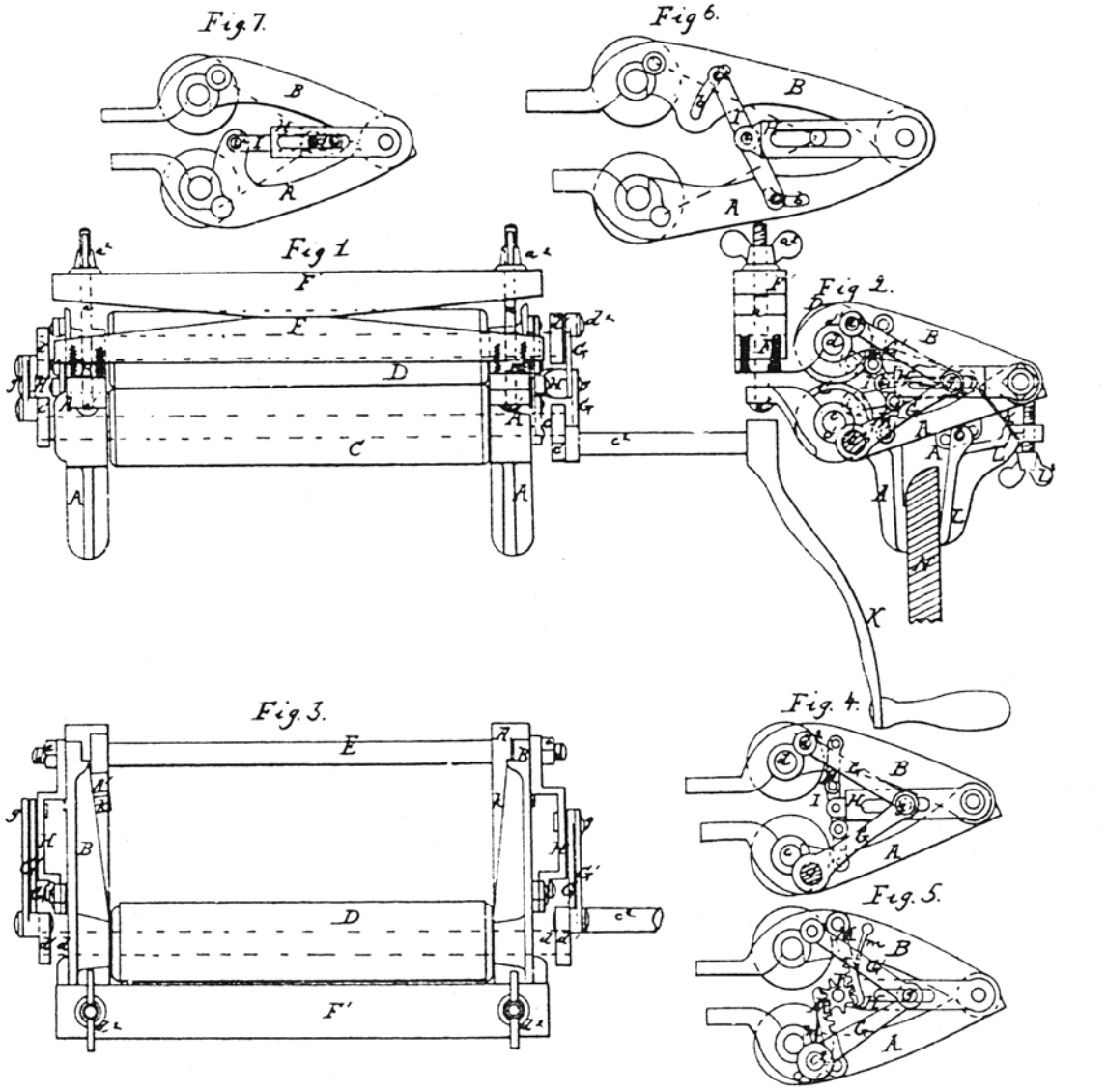
D. Lyman,

Clothes Wringer,

No. 63,273, Patented Mar. 26, 1867.



Witnesses.
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DAVID LYMAN, OF MIDDLEFIELD, CONNECTICUT.

Letters Patent No. 63,273, *dated March* 26, 1867.

IMPROVED CLOTHES WRINGER.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, DAVID LYMAN, of Middlefield, in the town of Middletown, in the county of Middlesex, and State of Connecticut, have invented certain new and useful improvements applicable to Clothes Wringers, the following being a full and complete description thereof, reference being had to the accompanying drawings, which form a part of this specification, in which—

Figure 1 is a side elevation of a wringer containing my invention.

Figure 2 is an end elevation of the same, showing a section through the pin c^2 with the winch removed.

Figure 3 is a plan view of the same.

Figure 4 represents the cranks and connecting-rods and guide therefor, showing the device for keeping the guide properly located, with the jaws A B distended.

Figures 5, 6, and 7 represent other forms of the device for keeping the guide properly located.

Similar letters of reference indicate like parts in all the figures.

My invention relates to clothes-wringing machines in which the two rollers are forced to turn together by means of cranks and connecting-rods attached to a slide at each end of the machine; but portions of the invention may be applied with advantage to other purposes.

To enable others skilled in the art to make and use my invention, I will proceed to describe it by the aid of the drawings, and the letters of reference marked thereon.

A is the lower, and B is an upper jaw or arm, and the two together form one end of the frame to my wringer. A′ and B′ are similar jaws, and form the opposite end of the frame. As the jaws A′ B′ and their connections are similar to the jaws A B and their connections, a description of one end will describe the other end also, and I shall usually refer to the jaws A B, but in so doing mean also to refer to the jaws A′ B′ at the same time. E is a rod of iron, and forms one side of the frame. Each end of this rod is shouldered or made smaller, and the small part at one end passes through correspondingly-sized holes in the jaws A B, and forms the centre upon which they hinge. The other end passes in a similar manner through the jaws A′ B′. The other side of the frame is formed by the section F of the wooden springs F F′, the ends of which are screwed to the jaws B and B′. A* is a projection formed on the lower side of the jaw A, and extends downwards therefrom, as shown. L L′ is a bell-crank lever hinged to the jaw A by the removable pin *l* passing through it and also through the projection A** on the jaw. L^3 is a thumb-screw in the end of the arm L′, and screws against the under surface of the jaw A. By turning this screw in one direction the arm L is caused to approach the fixed arm or projection A* and gripe the side of the tub N between them and hold the frame firmly thereon. By turning the thumb-screw in the opposite direction the lever releases the tub. The projection A** is furnished with several holes for the pin *l* to pass through, by selecting which the arm L of the lever L L′ may be made to fit snugly to the various thickness of different tubs. The rubber clip *k*, passing around the jaw A and arm L′, serves to release the lever from the tub so soon as the thumb-screw is slackened, and keeps the end of the screw bearing steadily against the jaw when not in use, thereby avoiding the rattling about of the lever and insuring that it shall always be open to the full extent allowed by the position of the screw L^3. C is the lower roll upon the shaft *c*, and D is the upper roll upon the shaft *d*. The shaft *c* is furnished with cranks, c^1, on each end, and turns in nicely fitted bearings formed in the upper surface of the jaw A. The shaft *d* is also furnished with cranks, d^1, of corresponding length, upon each end, and turns in nicely fitted bearings in the lower surface of the jaw B. G G′ are two connecting-rods attached by one of their ends to the respective cranks c^1 d^1 by the pins c^2 d^2, and connecting together at the opposite end and to the slide *g*, as shown. H is a guide for the slide *g*. It has a hole in one end which fits over the end of the rod E, and is secured thereto by the nut *e* on the end of the rod. This nut is screwed up sufficiently to keep the parts A B H snugly together, but yet allows them to turn freely on their common centre. To the opposite end of the guide H a link, I, is attached by the pin *i* through its centre, upon which it swivels. The respective ends of this link I are connected, one to the jaw A and the other to the jaw B, by the two links M, which are of sufficient length to allow the rolls to be forced apart to the extent of about half an inch, to which distance the links limit their separation. This position of the parts is shown in fig. 4. The links M being of equal length, hold the centre of the swivel link I, and consequently the end of the guide in the centre between them. As the jaws A B approach each other the links M, acting upon the opposite ends of the swivel link I, cause it to turn upon the pin *i*, and forces the guide H to keep itself centrally located between them; and as the jaws are again forced apart the links, in the act of extending themselves, turn back the swivel link, so that whatever position the jaws A B assume, the guide H must be centrally located thereto. In a slot formed longitudinally in the guide H the slide *g* is mounted, so that it is free to slide in a direct line from the centre of the jaws A B in the direction of the centre between the rolls C D, back and forth to a sufficient distance, but is held rigidly in all other directions. To the crank-pin c^2 the winch K is attached, and as it is turned it turns the crank c^1 and shaft *c* in the same direction.

In operating the machine, with the cranks c^1 d^1 standing as represented in fig. 2, motion being given to carry the crank c^1 towards the left or away from the rod E, the pin c^2 acting through the connecting-rod G and slide g, will carry forward the rod G′ and connecting-crank d^1 at the same speed, forcing the two rolls to turn together until they reach a nearly horizontal position, at which time the cranks and connecting-rods at the opposite ends of the shafts c d are in position to act with the same direct action as the first position spoken of, the cranks on the opposite ends of the shafts being set at right angles, or nearly so, one with the other, so that the cranks at one end are in direct action while those at the other end are passing their dead-points. Thus a continuous rotary motion is transmitted from one shaft to the other as surely as if they were geared together, and at the same time they are allowed to be pressed together or to separate as far as desired, and the one shaft will turn the other with the same perfection in either position. The hinging of the guide H and the arrangement of the links thereto are very important, as without them the motion of the two rolls would not be transmitted from one to the other perfectly, both when compressed together and when extended. If the guide H be fixed to either jaw in the proper position for the rolls when compressed together, it will be found that as they diverge the arrangement becomes imperfect, for the reason that it requires more motion of the connecting-rod for one roll than for the other in order to make them both turn, and that while the angle of the guide remains the same for that jaw, its relative position with the other jaw has changed, consequently changing the position of the dead-points of the cranks on the shaft carried in that jaw, and tending to cause the two rolls to move with varying velocities during different portions of their revolutions. The hinging of the guide and arrangement of the links thereto prevents this, and insures that, as the rolls diverge from or approach towards each other, the guide will change its position, the same relative to each roll, so that although the position of the dead-points of the cranks change with the diverging or approaching of the rolls, yet, as they both change the same, the motion of both remains perfect. The springs F F′ bear together at their centres, and the ends of the lower spring F are secured to the jaws B B′, and cause it to serve as a part of the framing of the machine, as before indicated. Bolts, a, pass up through holes in the jaws A B, and also through the ends of both springs F F′. These bolts have heads, a^1, at their lower ends, as represented, and are of square section for a little distance therefrom. The heads a^1 prevent their being drawn through the jaw A, and the square portion of the bolts passing through correspondingly-shaped holes therein, prevent their turning. The other ends of these bolts a are formed into screws and carry the thumb-nuts a^2. By screwing down the nuts a^2 the springs F F′ are compressed upon the upper jaw B, while the head a^1 of the bolt a draws up the jaw A, thereby pressing the rollers C D together through the action of the springs F F′, so that by setting down or releasing the thumb-nuts any required pressure may be obtained.

The springs F F′ may be made of wood or metal, or partly of wood and partly of metal; the part F may be rigid, and a rubber or spiral spring may be inserted beneath the thumb-nuts, or the rigid part may have a metal or wood spring attached thereto in the same manner as the part F; or, if desired, the several sections of the springs F F′ may be duplicated in wood or metal; or both F F′ may be omitted, and a rubber or other spring may be used at each end, and the bearings of the shafts and the rod E depended upon to hold the jaws of the frame in position, but I prefer the form and material shown.

Fig. 5 shows another form of the device for keeping the guide H properly located. In this form a toothed wheel is used in place of the link I, while the links M are made in the form of racks, and gear into opposite sides of the wheel, as shown. The racks are kept in position against the wheel by springs, m; or guides may be placed on each side of the wheel and secured to the part H, to keep the racks in contact with the wheel, if preferred.

Another form for the device is shown in fig. 6. In this form the links M are dispensed with, and the swivel link I has pins, i^2, at each end. These pins fit snugly into slots, b, formed in each of the jaws A B, and are secured therein by nuts or other convenient means upon their ends, to retain and brace the link in contact with the jaws. The pins i^2 are free to slide longitudinally in the slots b, and by forming these slots curving to a sufficient extent, the guide H is maintained in its true position relative to the jaws, whatever position the jaws may assume.

Another form, shown in fig. 7, is to form the slots in the two jaws A and B radial therewith, and in line one with the other, or nearly so, which may be done by extending upward the lower jaw in the proper position, and also extending downward the upper jaw, and forming the link I with the arm longest which is furthest from the centre of the jaws. This form is not mathematically perfect in its operation, but is nearly enough so for practical use. Other forms will suggest themselves to any good mechanic whereby the guide H will maintain a central position relative to the shafts, but enough are shown to illustrate the invention.

Having now fully described my invention, what I claim as new therein, and desire to secure by Letters Patent, is as follows:

1. I claim, in combination with the shafts c d, cranks c^1 d^1 and connecting-rods G G′, a swivelling guide, H, operated so as to retain the central position during the greater or less divergence of the shafts, substantially as and for the purpose herein set forth.

2. I claim, in a clothes wringer having diverging jaws, a spring operating on both pairs of jaws and acting as both spring and brace therefor, substantially as herein set forth.

3. I claim, in a clothes-wringing machine, substantially as herein described, the griping arm L and spring k, operating substantially as herein set forth.

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Witnesses:

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