

S. A. BAILEY.
Clothes-Wringer.

No. 221,271.

Patented Nov. 4, 1879.

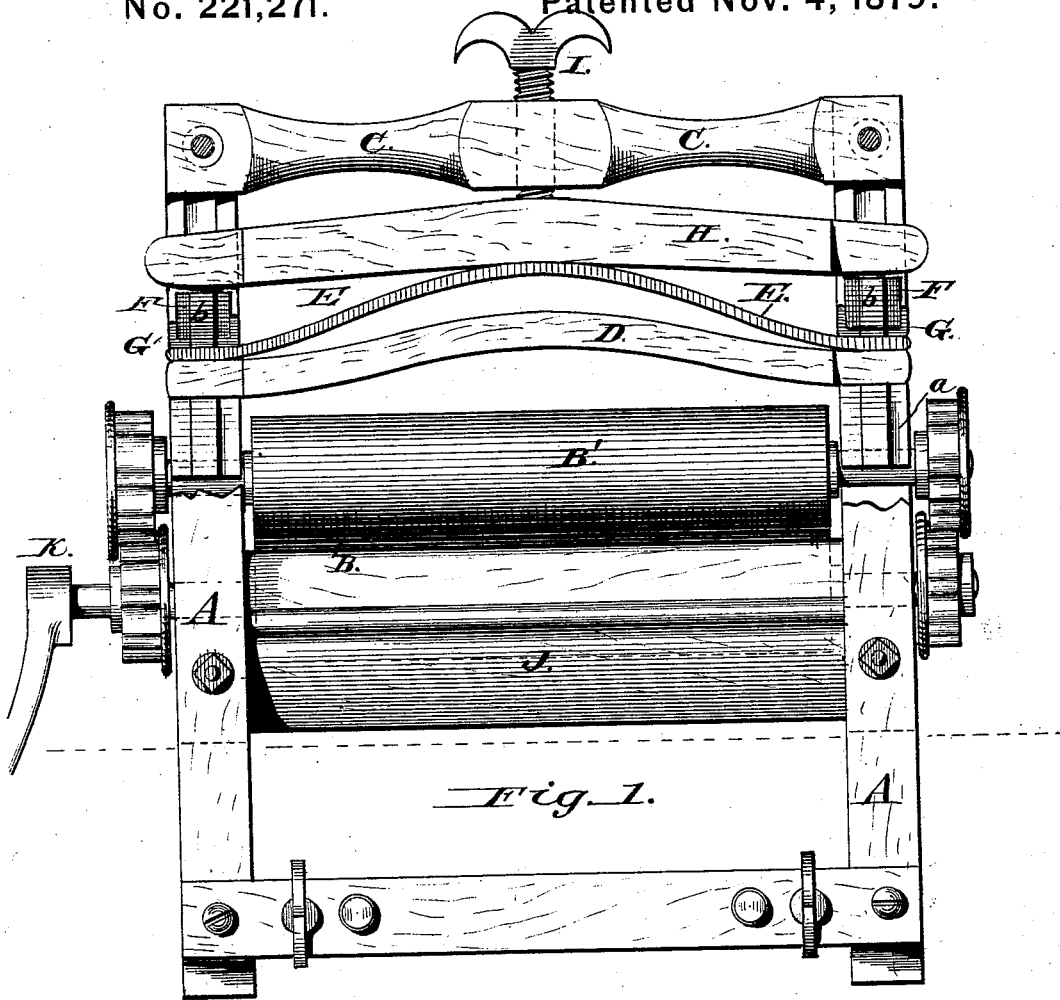


Fig. 2.

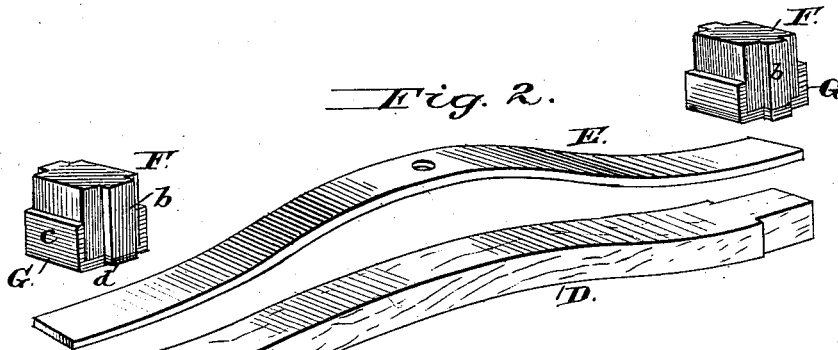
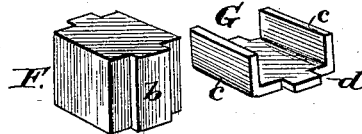


Fig. 3.



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UNITED STATES PATENT OFFICE.

SELDEN A. BAILEY, OF WOONSOCKET, RHODE ISLAND.

IMPROVEMENT IN CLOTHES-WRINGERS.

Specification forming part of Letters Patent No. **221,271**, dated November 4, 1879; application filed April 24, 1879.

To all whom it may concern:

Be it known that I, SELDEN A. BAILEY, of Woonsocket, Providence Plantations, and State of Rhode Island, 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 of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

This invention relates to the springs for adjusting the pressure to the rolls of clothes-wringers; its object being to furnish a spring combining a high degree of elasticity with cumulative strength, as hereinafter set forth.

A steel half-elliptic or bow spring has been found preferable for wringers, on account of its high elasticity, combined with the fact that it equalizes the pressure at both ends of the rolls; but when articles which form thick slivers of material requiring great pressure to express the water are passed through the wringer, such springs frequently become overstrained, and either set or break.

In order to prevent the accident just mentioned, stops have been used in connection with the class of springs spoken of, whereby, when the spring reached its tested limit of expansion, the stops would come into play and prevent all further expansion thereof.

The objections to the construction last mentioned are, that when the spring is checked by the stops, all further separation of the rolls ceases, and consequently great strain may be brought upon them to their material injury; and that the use of the stops practically limits the capacity of the machine within the capacity for expansion of the steel bow-spring.

This invention consists in the combination, substantially as hereinafter described and claimed, of the highly-elastic steel bow-spring with auxiliary or re-enforcing rubber springs, and with additional re-enforcing less elastic or wooden bow-spring, producing in a wringer a compound cumulative spring of great elasticity, strength, and cumulative power, which spring thus possesses a wide range of capacity, alike for thin and thick slivers of mate-

rial, and avoids the annoyance to the operator of having frequently to operate the adjusting-screw, inasmuch as it automatically adjusts itself to the varying thicknesses of the different articles being wrung.

In the accompanying drawings, Figure 1 is a rear elevation of a clothes-wringer embodying this improved cumulative spring. Fig. 2 is a perspective view of parts of said spring and the cross-bar. Fig. 3 is a perspective view of one of the rubber springs and its metallic holder.

Similar letters refer to corresponding parts.

A in the drawings represents the upright standards supporting the rollers, and connected at the top by the cross-bar C.

B B' are the elastic squeezing-rollers, made of or covered with vulcanized rubber or other elastic substance or compound impervious to water. The lower roller, B, rotates in fixed bearings in the standards. The upper roller, B', is adjustable, having its bearings in movable boxes *a a*, which are placed in slots in the standards, and slide vertically therein by means of projections and grooves in the usual manner.

Immediately above the upper roller, having its ends resting on the boxes *a a*, is a wooden cross-piece, D, the ends of which are reduced in width to project into the slots of the standards, forming shoulders, which serve to keep the bar in place.

Immediately above said bar D is the steel half-elliptic or bow spring E, the ends of which are within the slots of the standards, and rest upon the ends of said cross-bar. This spring bows up in the center, and is there attached to a stiff wooden bow-spring, H, above.

Between the ends, respectively, of the steel spring E and the stiff wooden spring H is placed, within the slots of the standards, a set of india-rubber springs, F, each consisting of a solid block of vulcanized soft rubber. These springs are provided with ribs *b*, which fit into the grooves in the standards and serve to retain the springs in place. Metallic holders G are provided, in which these springs rest. These holders consist of a flat plate having upright flanges, *c*, on two sides, which flanges are flush with the sides of the standards when the holders are in position. These flanges

serve to hold the rubber springs and to limit the action of the steel spring underneath. These holders are provided with lugs *d*, which also enter the grooves of the standards. By the use of these holders the rubber is kept out of contact with the metallic spring and prevented from adhering thereto; moreover, the ends of the spring *E*, as the same contracts and expands, are allowed to slide more freely than would be the case were the rubber directly in contact with the spring.

The spring *H* receives the pressure of the set-screw *I*, which passes through the center of the cross-bar, *C*, and has a screw-thread which takes in a corresponding screw-thread in a metallic ferrule set within said cross-bar. This set-screw *I* is used when required to regulate the pressure upon the rolls.

J is the board for conducting back to the tub the water expressed. *K* is the crank for operating the machine.

As respects the parts thus described, composing this compound spring, the steel bow-spring may be said to be of maximum elasticity and minimum strength, the rubber springs of medium elasticity and medium strength, and the upper supplementary bow-spring of minimum elasticity and maximum strength.

The operation of this compound cumulative spring is as follows: When small or delicate articles are passed between the rolls the steel bow-spring only is acted upon, and it contains sufficient strength to induce the pressure requisite to express the water from such articles. When larger articles which present a sliver of medium thickness are wrung the steel spring will give sufficiently to admit such articles between the rolls, and as the upper roller yields the auxiliary rubber springs are brought into use, and lend sufficient stiffness or strength to secure the requisite pressure. When articles which form a very thick sliver are presented to the rolls the steel and rubber springs are sufficiently elastic to allow the rolls to separate widely to admit such articles, and the great strength and stiffness requisite to effect the proper compression are secured by the aid of the upper supplementary bow-spring.

In the operation of this compound spring, the center of the lower steel bow-spring being connected to or resting against the center of the upper supplementary bow-spring, the pressure is divided or apportioned between the several parts of the compound spring in such a

way that while the parts act in conjunction they yet act to a certain extent independently of each other. A portion of the pressure passes direct from the lower steel bow-spring to the adjusting screw or bar without passing through the intermediate rubber springs, and another and separate portion passes through the intermediate springs and through the upper supplementary bow-spring without action upon the steel spring. The weaker parts are thus relieved from heavy pressure and great durability of the parts secured.

It often happens that a single article forms a sliver greatly varying in thickness as it is passed through the wringer, in which case the compound spring will graduate itself to the varying thicknesses, as above described.

Thus, by this combination of great elasticity and cumulative strength, the wringer may be used with equal efficiency for a great variety of articles, composing an ordinary "wash," without the necessity of frequently adjusting the set-screw. Moreover, the compound spring thus constructed is very durable and cheap.

What is claimed as the invention is—

1. The combination, with the elastic squeezing-rollers, impervious to water, of a highly-elastic steel bow-spring, a supplementary stiff bow-spring, and intermediate re-enforcing rubber springs, arranged in slots in the standards, between the ends of the said steel and supplementary bow-springs, the said steel and supplementary bow-springs being connected or in contact at the center, substantially as described.

2. The combination, with the elastic squeezing-rollers, impervious to water, of a highly-elastic steel bow-spring, a supplementary stiff bow-spring, intermediate re-enforcing rubber springs, arranged in slots in the standards between the ends of the said steel and supplementary bow-springs, and a metallic holder, consisting of a plate having upright flanges on opposite sides for receiving and retaining in place the rubber springs, said holder being provided with lugs adapted to slide in grooves in the standards, substantially as described.

In testimony that I claim the foregoing as my own I affix my signature in presence of two witnesses.

S. A. BAILEY.

Witnesses:

FRANCELLO G. JILLSON,
MAGGIE T. COWEN.