

No. 623,285.

Patented Apr. 18, 1899.

J. MARSHALL.
HAT SIZING ROLLER.

(Application filed Jan. 30, 1899.)

(No Model.)

2 Sheets—Sheet 1.

Fig. 1.

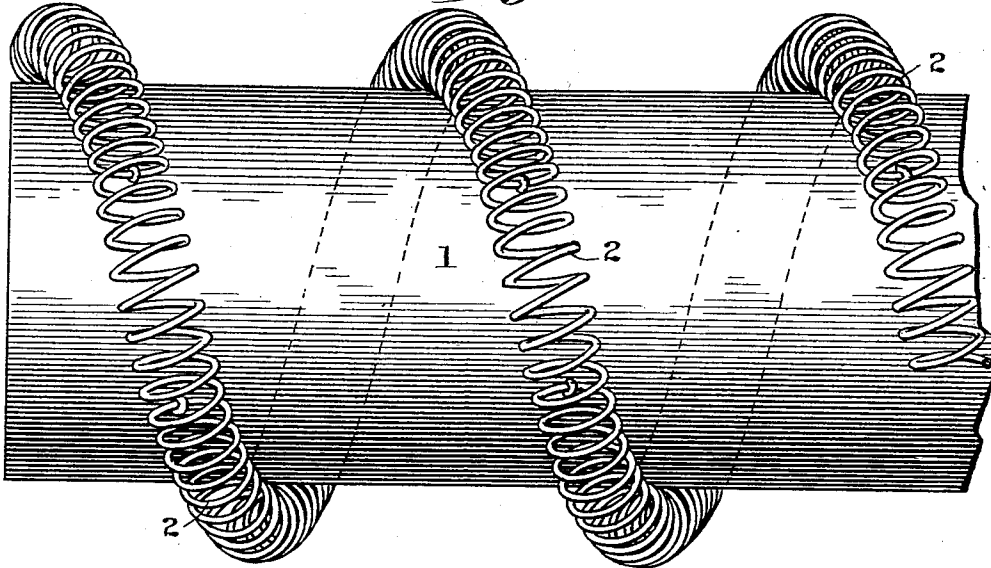
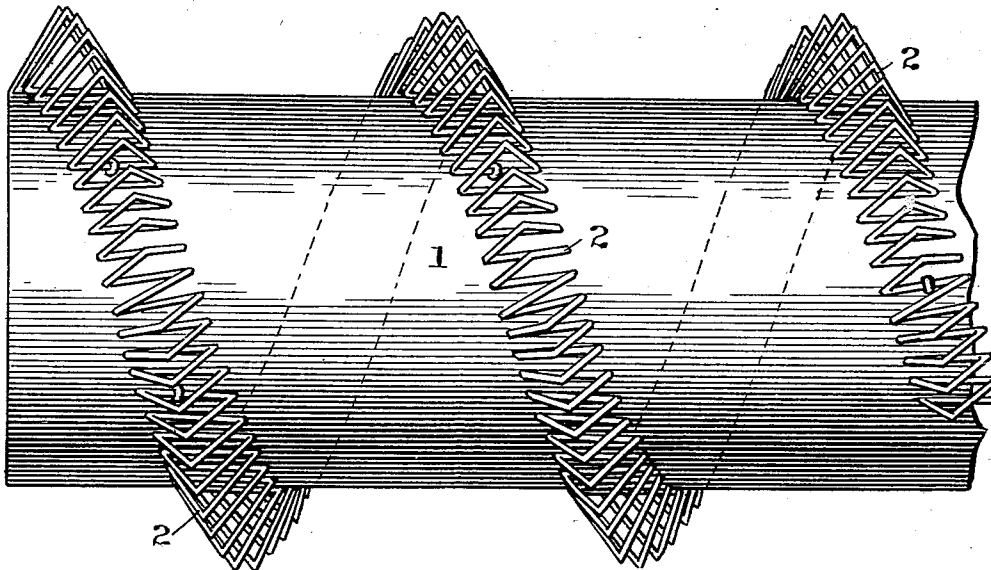


Fig. 2.



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Fig. 3.

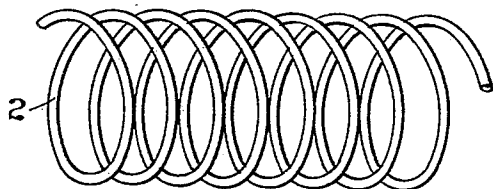


Fig. 4.

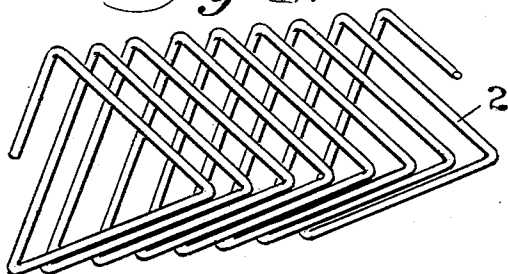
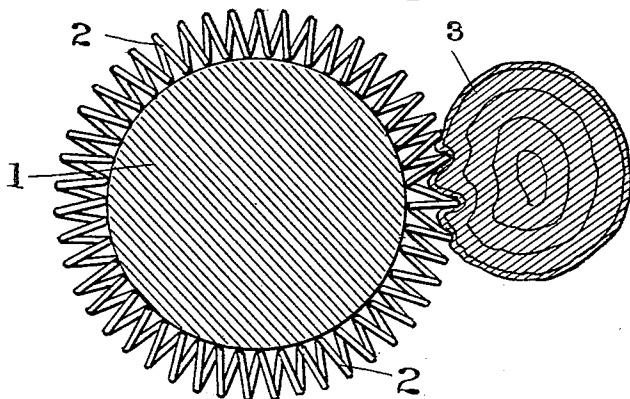


Fig. 5.



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HAT-SIZING ROLLER.

SPECIFICATION forming part of Letters Patent No. 623,285, dated April 18, 1899.

Application filed January 30, 1899. Serial No. 703,890. (No model.)

To all whom it may concern:

Be it known that I, JOHN MARSHALL, a citizen of the United States, residing at Fall River, in the county of Bristol and State of Massachusetts, have invented certain new and useful Improvements in Hat-Sizing Rollers; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention has reference to certain new and useful improvements in the sizing of hats, but, more properly speaking, relates to the provision of a novel sizing-surface to be carried by one or more of the rollers in what is commonly known as a "roller sizing-machine."

The object of my invention is to obtain a squeezing action against the hat-bundle in a plane substantially at right angles to the axis of the roller carrying or sizing surface, while at the same time a punching action shall be maintained against the hat-bundle in addition to the squeezing action lengthwise of the hat-bundle.

With these ends in view my invention consists in certain details of construction and combination of parts, such as will be hereinafter more fully set forth and then specifically be designated by the claims.

In the accompanying drawings, which form a part of this application, Figure 1 is an elevation of a sizing-roller equipped with one form of my improvement; Fig. 2, a similar view showing a sizing-roller equipped with another form of my improvement; Fig. 3, a detail perspective, on an enlarged scale, of the form of coil-spring shown at Fig. 1; Fig. 4, a detail perspective, on an enlarged scale, of the form of coil-spring shown at Fig. 2; and Fig. 5 is a cross-section of the roller shown at Fig. 1, illustrating particularly the action of the coil-spring upon a hat-bundle.

Similar numbers of reference denote like parts in the several figures of the drawings.

Heretofore the rollers of hat-sizing machines have been equipped with rope and rubber wound spirally around the roller throughout its length, and also the rollers have been turned down by a proper tool, so as to leave

a spirally-disposed wooden "thread," so to speak, projecting from said roller. Also plain spring-wire, necessarily of a large size, has been wound spirally around the roller throughout its length, and the various coils have been left free and have also been secured to the roller at the points in contact therewith. The wooden thread or lag was not a practical success, for the reason that it would speedily become water-soaked and by frequent soakings and dryings would quickly splinter, so that the roll would either have to be thrown away or turned down and provided with other lags, this being necessary for the reason that the splinters would drop in the sizing-kettle and produce disastrous results. Rope has proved a vast improvement over wood in these respects, not because rope itself possesses any advantages over wood as a hat-sizing surface, but for the sole reason that the rope was durable and would shortly, on account of frequent soakings and dryings, become almost as hard as iron. There is no advantage whatever that has been discovered with respect to rope, except that when spirally wound around a hat-sizing roller it will effect a punching action against the hat-bundle and a squeezing action lengthwise of said bundle. Rubber has been discarded, for the reason that it rapidly deteriorates, and while it is probably superior to wood nevertheless it is inferior to rope and, moreover, cannot act on the hat-bundle, as far as any pinching or squeezing in a plane at right angles to the axis of the roller is concerned.

In the sizing of some grades of hats an excess of the punching action is very desirable, and in the sizing of other grades of hats an excess of the squeezing action in a line parallel with the axis of the sizing-roller is desirable, while in other instances a combination of such actions will produce the best results. From my observation and experience, however, it appears to be a well-settled fact that the combination of a punching action, a squeezing lengthwise of the hat-bundle, and a squeezing or pinching in a plane substantially at right angles to the axis of such bundle produce results that are beneficial to all grades of hats, and my present improvement contemplates these several actions against

the hat-bundle and will be best understood from the following description.

1 is an ordinary hat-sizing roller, and 2 is a coil-spring which is spirally wound around said roller and is secured thereto in any suitable manner and at any suitable points with respect to its convolutions. It is immaterial whether the spring be coiled originally around a circular mandrel, a triangular mandrel, a square mandrel, or, in fact, around any mandrel of a specified shape in cross-section, and I therefore have illustrated in Fig. 1 an ordinary coil-spring, while in Fig. 2 I have shown a spring that is coiled around a triangular-shaped mandrel. In all instances the coil-spring will, in addition to its punching action and its squeezing action, in a direction parallel with the axis of the roller, exert a pinching in a plane substantially at right angles to such axis, and this action last referred to will absolutely insure a uniform thickness to the hat and will, moreover, render the hat-body firmer and the operation of sizing more rapid. Also this pinching action against the hat-body in a direction substantially at right angles to the axis of the hat-sizing roller will be exerted by the coils of the spring both during the punching action of the coils and during the squeezing action of the latter while the hat-bundle is being contracted between the convolutions formed by the winding of the coil-spring around the drum.

Referring to Fig. 5, the hat-bundle is denoted by the numeral 3, and it will be clear that the individual coils of the spring will separate and will exert a pinching action against the hat-bundle as the convolutions of the coil-spring act upon said bundle, and this is true whether the coil-spring be of the shape shown at Fig. 3 or of the shape shown at Fig. 4.

In some grades of hats I would prefer to use a coil-spring which has sharp punching-points, such as is shown at Fig. 4, since a sharp prodding of the hat-bundle, in addition to the other actions above enumerated, is very desirable in such instance.

I do not therefore wish to be limited to any particular shape in cross-section of the coil-spring, since the gist of my invention resides in the broad idea of winding a coil-spring around a roller for hat-sizing purposes, whereby the various coils of such spring may extend in a plane substantially at right angles

to the plane of the convolutions of the spring, so as to exert a pinching action against the hat-bundle at right angles to the length of the latter.

My improvement may be applied to one roller, two rollers, or, in fact, to any number of the rollers in a roller hat-sizing machine, and I therefore do not wish to be limited in this respect.

In the instance of the triangular-shaped spring it will be observed that the little nubs or points of the spring are of course staggered owing to the spiral disposition of the spring around the hat-roller, and therefore such nubs or points act on the hat-bundle after the manner of a trip-hammer, giving such bundle a rapid and delicate punching action in different planes, thus effecting an exceedingly delicate and effective shrinking of the hats and entirely avoiding the harsh action which is peculiar to the use of wooden lags and rope.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A hat-sizing device, comprising a roll, and a coil-spring wound spirally around said roll throughout its length, substantially as set forth.

2. In a roller hat-sizing machine, a sizing-surface composed of a coil-spring wound spirally around a roller, the coils of said spring extended from the surface of said roller in planes which substantially intersect the axis of said roller, substantially as set forth.

3. A hat-sizing surface, consisting of a roller, and a coiled spring, which latter in coiled form is bodily wound spirally around said roller and secured thereto at points where the coils are in contact with the surface of said roller, substantially as set forth.

4. A hat-sizing device, comprising a roller having a helical sizing-surface, said surface composed of the coils of a coil-spring, which latter in its entirety is wound spirally around said roller, whereby the individual coils of said spring extend flexibly from the surface of said roller, substantially as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

JOHN MARSHALL.

Witnesses:

E. H. ANTHONY,
L. W. BURRELL.