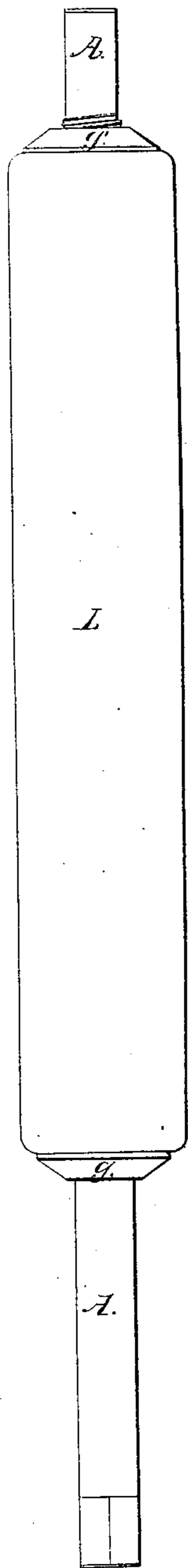


J. F. Holt,

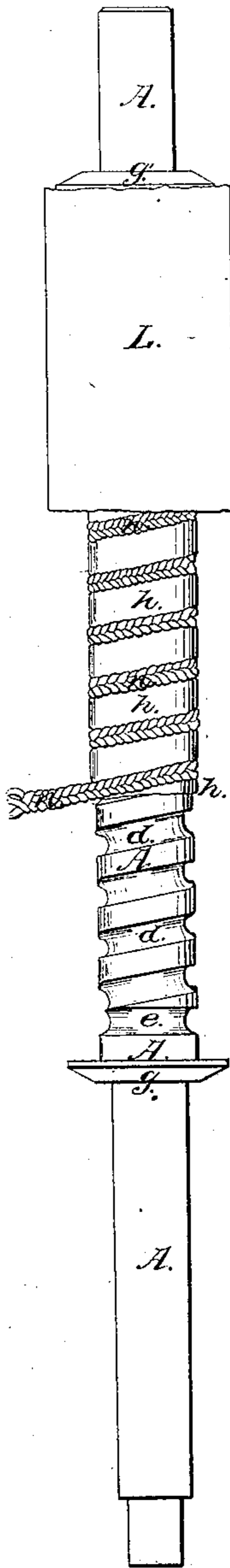
Wringer Roll,

N^o 49,030.

Patented July 25, 1865.



Witnesses.
Isaac A. Binnell
Dybborsie.



Inventor.
John F. Holt.

UNITED STATES PATENT OFFICE.

JOHN F. HOLT, OF PROVIDENCE, RHODE ISLAND, ASSIGNOR TO WOON-SOCKET RUBBER COMPANY.

ROLLER FOR CLOTHES-WRINGERS.

Specification forming part of Letters Patent No. 49,030, dated July 25, 1865.

To all whom it may concern:

Be it known that I, JOHN F. HOLT, of Providence, in the county of Providence and State of Rhode Island, have invented a new and useful Improvement in Rolls for Clothes-Wringing Machines and other Similar Purposes; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a longitudinal view of my improved roll complete; and Fig. 2 is a sectional view of the same, which exhibits the improved mode of its construction.

Similar letters of reference indicate corresponding parts in both figures.

My invention relates to a mode of securing a cylinder of india-rubber or a like suitable material in a permanent and substantial manner upon a mandrel or shaft to form a useful and serviceable roll for wringing or squeezing clothes in well-known machines for that purpose, and for other similar uses and purposes.

The great difficulty which has hitherto been experienced in the application of india-rubber, gutta-percha, and like material in the construction of rolls for the purpose mentioned is that of preventing the exterior cylindrical body of india-rubber, &c., from becoming detached from and slipping on the mandrel instead of turning with it, in which case the roll is rendered permanently inoperative and useless; and although a great many ingenious contrivances have been employed to overcome this difficulty I am not aware that any such have succeeded in doing so without rendering the roll otherwise objectionable.

My invention for this purpose consists, first, in constructing the mandrel with a spiral groove in the portion occupied by the elastic cylinder of india-rubber or like material; second, in binding a preliminary sheet or thickness of the vulcanizable compound of india-rubber or like material upon such mandrel by means of any suitable inelastic cord, braid, or thong, which is wound over said sheet or thickness of material in the spiral groove in such a manner as to confine the material in unyield-

ing spiral corrugations upon the mandrel to prevent its slipping thereon, and to fill the spiral groove, so as to present an even cylindrical surface for the reception and confinement of the body of the material which constitutes the roll; third, in constructing the roll for the purpose specified by combining the spiral grooved mandrel, the mode described of binding thereon a preliminary thickness of india-rubber compound or vulcanizable gum, and a suitable cylindrical body of the same material, and afterward curing and thereby fusing the whole together on the mandrel by the process of "vulcanizing," so called, as hereinafter specified.

To enable others skilled in the art to make and use my invention, I will proceed to describe the same.

In the drawings, A is the mandrel, and *d d* is the spiral groove, cut or otherwise formed therein in the same manner as a screw-thread is formed, except that for this purpose the form of the groove is best made semicircular, and at the termination of the groove at each end there is made a semicircular score, *e*, directly round the mandrel, to receive the end of the binding-thong *f*. There are also on the mandrel two fixed collars, *g g'*, near the circular score *e*, between which the elastic material of the roll is held and confined to prevent any endwise or lateral movement of the same on the mandrel.

The mandrel may be of either wood or metal, and the spiral grooves or scores may be cut therein in the usual way of cutting a screw-thread, or by casting the mandrel in such form, which being done the elastic roll is formed thereon in the following manner, viz: The grooved portion of the mandrel between the collars is wrapped with a suitable thickness—say one-sixteenth (1-16) of an inch—of the soft compound of india-rubber or other vulcanizable gum, *h*, completely enveloping this portion of the mandrel. I then prepare a suitable binding cord or thong, *n*, which may consist of a single cord, or three or more strands of cotton or other twine or cord braided together, and this I saturate or coat with "india-rubber cement," so called; or the binding device may

consist of a strip of metal—brass, copper, or iron—of a form and size that will, when wound upon the rubber in the groove, fit and completely fill the same. The thong or binding device thus formed and prepared I wind in the spiral groove of the mandrel from the score *e* at one end to the like score at the other end upon the rubber compound or preliminary sheet, which is thus compressed into a spiral corrugated form and bound tightly in the groove, forming, as it were, a female screw of india-rubber corresponding with the male screw on the mandrel, and presenting, by a combination of the binding braid or thong with the portion of the rubber compound which protrudes between the convolutions of the binding, an even and regular cylindrical surface, to and with which a subsequent thickness or body of the rubber compound or like material would adhere and unite, if properly applied, as well to the binding covered with the cement as to the rubber compound itself. After the preliminary thickness *h* of material is thus bound and secured on the mandrel I wrap the surface thus formed with the vulcanizable compound of india-rubber or like gum by winding a sheet of the same thereon until a sufficient thickness or body is obtained to form the diameter of roll *L* required. The roll *L* is then subjected to the well-known process of vulcanizing india-rubber and like gums, which unites the body of the compound last put in solidly with that which is bound upon the mandrel, confining the whole securely and permanently thereto and rendering the roll elastic and fit for use.

Instead of forming or constructing the roll *L* of india-rubber permanently upon the mandrel, as above described, I contemplate, by means of the process above described, constructing the rubber portion in the same manner upon a temporary mandrel formed like that shown and described, except that the

semicircular scores *e* are omitted, so that the india-rubber cylinder *L*, after being vulcanized, may be unscrewed from the temporary mandrel upon which it was formed or made up, as described, and screwed on the mandrel to which it is to be permanently confined for use on the machine, in which case one only of the collars, *g*, is fixed on the mandrel, the other one, *g'*, being removable by means of a screw-thread cut therein and on the mandrel to admit of the screwing of the rubber cylinder thereon.

It will be seen that the mode described of binding a preliminary thickness of india-rubber compound on the mandrel formed as described forms a complete and perfect screw-thread within the rubber cylinder, which derives greater firmness from the inelastic binding device, and is therefore the more substantial and effective as a means of confining the cylinder on the mandrel than could be obtained by any process at present known to me of molding in the rubber itself, although approximate results may be obtained by so molding the rubber in connection with a mandrel substantially like that described.

What I claim, and desire to secure by Letters Patent, is—

1. The spiral grooved mandrel constructed substantially as described, for the purpose specified.
2. The binding of the preliminary sheet or thickness of vulcanizable material on the mandrel, substantially in the manner and for the purpose described.
3. An elastic roll for the purpose specified, constructed substantially in the manner described.

JOHN F. HOLT.

Witnesses:

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