

A. O. BOURN.

Improvement in Rollers for Wringing-Machines.

No. 133,076.

Patented Nov. 19, 1872.

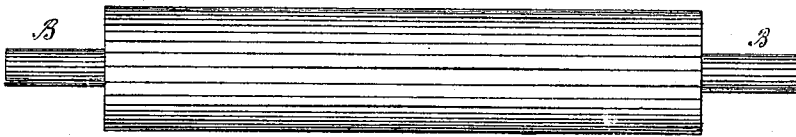


FIG. 1.



FIG. 2.

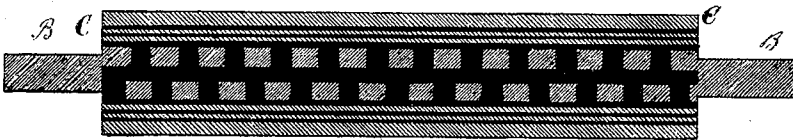


FIG. 3.



FIG. 4.

WITNESSES.

INVENTOR.

A. J. Cushing
P. T. Hughes

Augustus O. Bourn

UNITED STATES PATENT OFFICE.

AUGUSTUS O. BOURN, OF PROVIDENCE, RHODE ISLAND.

IMPROVEMENT IN ROLLERS FOR WRINGING-MACHINES.

Specification forming part of Letters Patent No. 133,076, dated November 19, 1872.

To all whom it may concern:

Be it known that I, AUGUSTUS O. BOURN, of the city and county of Providence and State of Rhode Island, have invented a new and useful Improvement in Elastic Rollers for Wringing-Machines and other purposes; and I do hereby declare that the following specification, taken in connection with the drawing making a part of the same, is a full, clear, and exact description thereof.

Figure 1 is a front view of a complete roller. Fig. 2 exhibits the shaft. Fig. 3 is a longitudinal section through the axis of the roller. Fig. 4 is a transverse section.

My invention relates solely to the means by which the elastic rubber covering of rollers, used in wringing-machines, printing-machines, &c., may be secured to their shafts so as not to break away therefrom when such rollers are subjected to the strains incident to their use. My object is to provide an effectual means of mechanically uniting the rubber shell or covering to the metal shaft, which shall be inexpensive as compared with the various devices and constructions for the same purpose with which I am acquainted.

A, Fig. 2, represents a wrought-iron shaft. This shaft is provided with end journals B B, between which it consists of a series of "twists" or "convolutions," extending continuously from one journal to the other, after the manner of and somewhat resembling an auger, as clearly shown in the drawing. I prefer to attach the elastic covering C, Figs. 3 and 4, to such shaft by winding the convolutions of the twisted shaft with some strong fibrous material or mixed fibrous matter and rubber until a cylinder is formed. I then, upon the cylindrical core so made, wind the alternate folds of soft rubber and mixed rubber and fibrous material particularly described in the Letters Patent for an improvement in rollers for wringing-machines granted to me under date of November 29, 1870, to which, for more particular instructions as to the application of the same, reference may be had.

Instead of covering the shaft A with the combined sheets of soft rubber and mixed fi-

brous material and rubber described in the patent referred to, any of the several kinds of material and compositions of rubber used for the manufacture of elastic rollers may be employed, and the material used be secured to the shaft by filling the convolutions of the shaft with the same to constitute, with the metal, a core for the roller; or such convolution may be filled, as already described, with fibrous material and the composition for the covering of the roller be applied thereto. In all cases it is understood that the covering for the roller, when applied, is soft, and is to be vulcanized by heat in the well-known way.

From the foregoing it will be understood that the convolutions of the shaft, when filled with the substance of which the covering of the roller is composed, are surrounded or embraced by the combined fibrous and elastic matter, which extends continuously from a point near the axis of the shaft to the outer surface of the roller, and therefore prevents the covering from turning on the shaft upon the application of any strain to which, in practical operation, it will be subjected.

I am well aware that wringer-rolls have heretofore been constructed with arbors having simple peripheral grooves extending spirally from end to end, for the purpose of securing by cord or wire a foundation-sheet of textile or other fabric or elastic matter to the shaft. In such rolls the line of connection between the shaft and covering is nearly parallel with the line of the shaft and is but slightly undulating at the grooves, while the mass of elastic matter or fibrous and elastic compound, in a roll, provided with my twisted shaft as described, extends through the shaft adjacent to its axis.

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

The convoluted or twisted shaft A and the elastic covering C, combined substantially as described.

AUGUSTUS O. BOURN.

Witnesses:

PETER F. HUGHES,
A. J. CUSHING.