No. 722,928. PATENTED MAR. 17, 1903.

C. E. THURMAN.

BUSHING OR PLUG FOR PAPER ROLLS.

APPLICATION FILED SEPT. 12, 1902.

NO MODEL.

Fig. 1

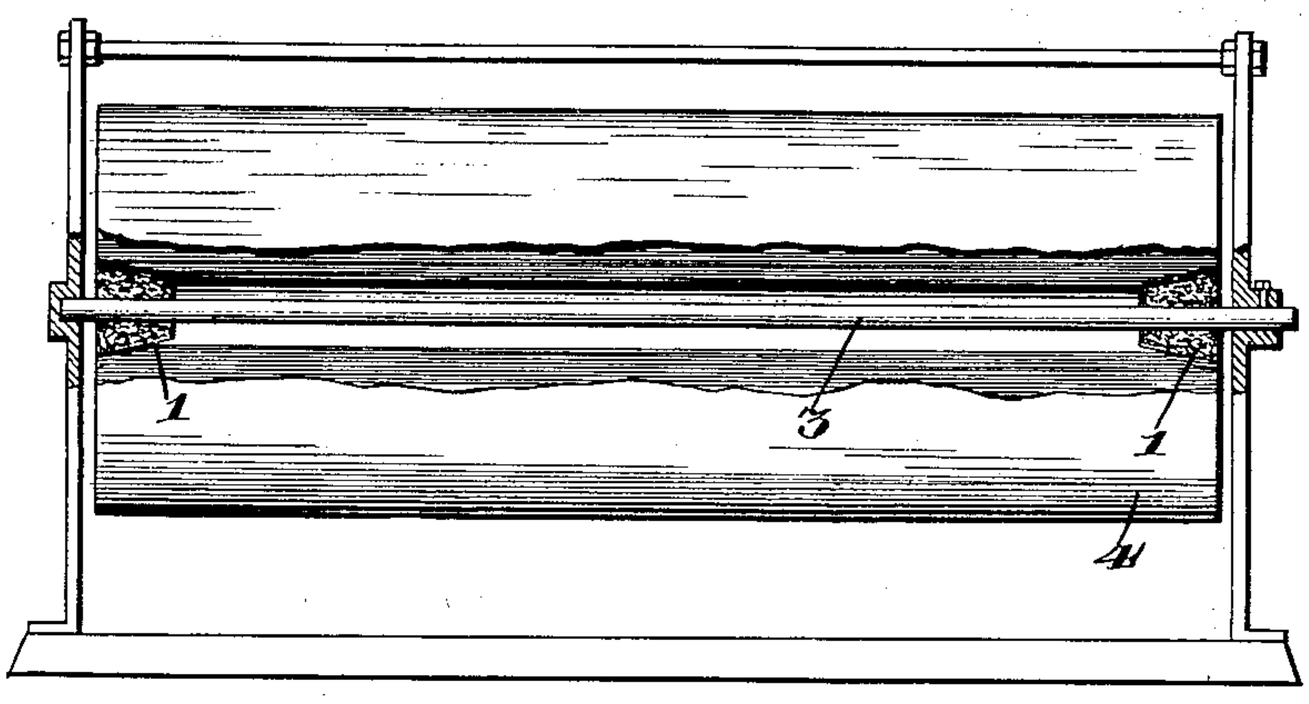


Fig. 2.

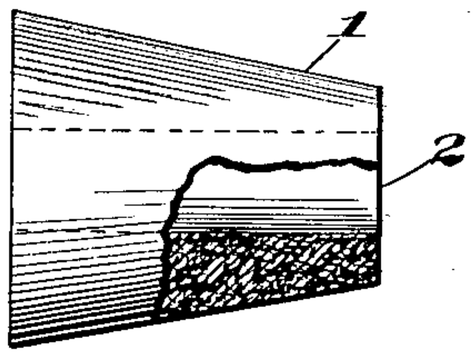


Fig. 4.

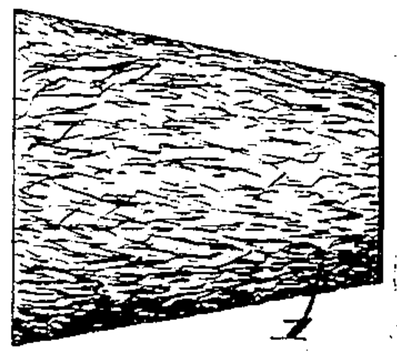
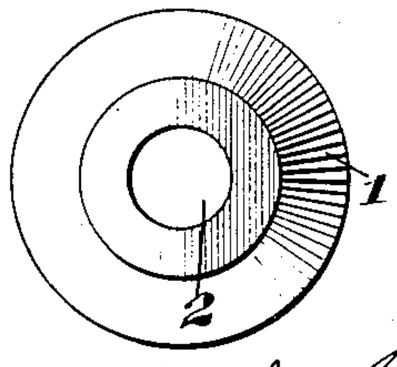


Fig. 3.



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UNITED STATES PATENT OFFICE.

CHARLES E. THURMAN, OF CHICAGO, ILLINOIS, ASSIGNOR, BY DIRECT AND MESNE ASSIGNMENTS, OF THREE-FOURTHS TO JOHN A. KIMBERLY, OF NEENAH, WISCONSIN.

BUSHING OR PLUG FOR PAPER-ROLLS.

SPECIFICATION forming part of Letters Patent No. 722,928, dated March 17, 1903.

Application filed September 12, 1902. Serial No. 123,052. (No model.)

To all whom it may concern:

Be it known that I, CHARLES E. THURMAN, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Bushings or Plugs for Paper-Rolls, of which the following is a full, clear, and exact specification.

My invention relates to that class of bushings or plugs used in the ends of rolls of paper as a means of supporting the roll upon the pintle or shaft on which the roll turns while being unwound. These bushings are usually in the form of truncated cones, so as to be more readily inserted in the ends of the roll, which is done while the paper is hot, and it is found in practice that the bushings become loose as the paper cools and fall out, giving rise to considerable annoyance and difficulty.

The object of my invention, therefore, is to avoid those defects and provide a bushing or plug upon which the paper-roll will retain its grip after the roll has cooled, a further object being to compose a bushing of a practically waste product and which shall be much less expensive than the wooden bushings heretofore employed.

With these ends in view my invention consists in certain features of novelty by which the said objects and certain other objects hereinafter appearing are attained, all as fully described with reference to the accompanying drawings and more particularly pointed out in the claims.

In the said drawings, Figure 1 is an elevation of a roll of paper supported in a stand or roll-holder, partly in section, showing my improved bushings or plugs applied thereto. Fig. 2 is an enlarged side elevation of the bushing or plug partly broken away and sectioned. Fig. 3 is an end view thereof, and Fig. 4 is a side elevation showing the condition of the plug after it has been driven into the hot roll.

In carrying out my invention I compose the plug or bushing 1 of the long fibers or screenings usually discarded in pulp-mills as a waste product. These fibers or screenings are of course composed of wood and are the particles which are not fit for the manufacture of paper; but they contain the natural gums or rosins of the wood, and when treated in the usual manner for making paper-pulp they may be compressed into a homogeneous or solid body, especially if previously mixed with a small proportion of paste, which causes the fibers to adhere together and better adapts the finished bushing or plug for the purposes of my invention. This composition may be compressed into truncated cone-shaped bodies with central passages 2 for the insertion of the pintle or shaft 3, upon which the paper-roll 4 revolves, this being the customary shape of such bushings. After the bushing is thus compressed its exterior is reasonably smooth, the long fibers of the pulp having been laid flat and compressed to an even surface by the pressure of the molding-die; but after the plug or bushing is inserted in the hot roll of paper 4 the smooth character of the plug's surface is destroyed, and the fibers are raised or caused to stand out as a result of the heating and sweating of the plug in the hot roll, and this roughened condition of the plug, in conjunction with the adhesive properties of the gums and rosins in the plug, effects the knitting of the fibers of the paper and of the plug or bushing in a sufficient degree to cause the plug to adhere and remain in place in the roll during the transportation and ordinary handling to which the roll is subjected, it being understood that the bushing does not shrink away from the paper, because being composed of pressed pulp it does not undergo any appreciable degree of expansion and contraction when subjected to heat or moisture.

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

1. As a new and useful article of manufacture a bushing for paper-rolls, composed of paper-pulp, substantially as set forth.

2. As a new and useful article of manufacture a bushing for paper-rolls, composed of the screenings of paper-mills solidified, substantially as set forth.

CHAS. E. THURMAN.

Witnesses:
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