E. CARD.

Top-Rolls for Spinning-Machines, &c.

No. 164,716. Patented June 22, 1875.

FIG. 1.

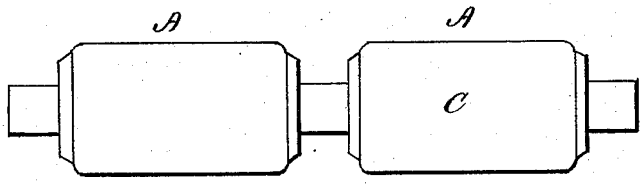


FIG. 2.

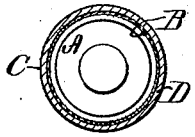


FIG. 3.

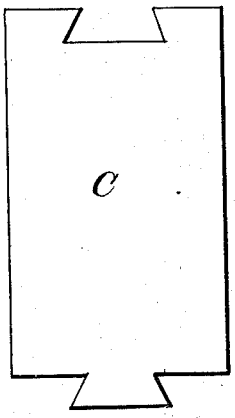
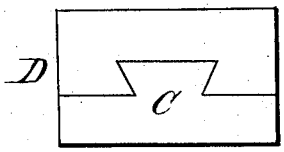


FIG. 4.



WITNESSES;

S. Scholfield.

C. E. Baker

Inventor;

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UNITED STATES PATENT OFFICE.

EDWARD CARD, OF PAWTUCKET, ASSIGNOR TO HIMSELF, ISAAC LINDSLEY, AND BRADFORD BORDEN, OF SAME PLACE, AND SOCRATES SCHOLFIELD, OF PROVIDENCE, RHODE ISLAND.

IMPROVEMENT IN TOP ROLLS FOR SPINNING-MACHINES, &c.

Specification forming part of Letters Patent No. **164,716**, dated June 22, 1875; application filed May 11, 1875.

To all whom it may concern:

Be it known that I, EDWARD CARD, of Pawtucket, in the county of Providence and State of Rhode Island, have invented an Improvement in Top-Rolls, of which the following is a specification:

The nature of my invention consists in the employment of the outer bark of the white-birch tree, as a material for covering the top rolls of spinning frames, mules, railway-heads, &c.

Various attempts have been heretofore made to discover some material possessing in a greater degree than leather the qualities necessary for a covering for rolls, but thus far the leather roll has been given the preference in practice. I have, however, by experimental test, discovered that the outer bark of the white birch is most eminently suited for this purpose, and forms a roll covering in every respect far superior to leather or other material heretofore experimented upon.

Figure 1 is a longitudinal view of the covered roll. Fig. 2 is an end view of the same. Fig. 3 is a view of a piece of the bark cut with dovetail edges preparatory to being formed into a tube of the proper diameter for covering the roll, as shown in Fig. 4.

A A is the roll, which is first covered with a layer of cloth, B, as usual, and the piece of white-birch bark C, after being cut out with dovetailed edges, as shown in Fig. 3, by means of a die, or otherwise, is to be joined and cemented so as to form a tube, D, of the proper dimensions, which is then to be passed loosely over the cloth B, and shrunk tight upon the cloth around the roll, by means of the application of heat, either in an oven or by means of a bath of steam or hot water. One of the most valuable properties of this material for purpose of a roll-covering is the property of shrinking upon the application of heat without again expanding at a lower temperature. The extent of this shrinkage is about six per cent. After the covering has been shrunk tightly upon the roll it is to be turned off in a lathe, so as to present a perfectly true and uniform surface. The bark may be softened for working, by soaking it in kerosene or in oil.

The white-birch bark has many decided advantages over leather as a roll-covering. It will last in use for a number of years, whereas the leather must be renewed about once in three months. Oil upon the leather-covered rolls destroys their efficiency by causing the fibers of the roping to adhere to them, whereas oil does not injuriously affect the bark-covered roll. If the leather of the roll-covering is soft, the lower rolls will crease it so that the fibers of the roping will adhere. The bark, being of a firmer nature and more elastic, does not allow the formation of these creases. The surface of the leather sometimes peels off, and thus destroys its efficiency. The bark is not subject to this difficulty. The leather cannot be made to hug a roll tightly after being run for a short time. The bark continues tight in use. The leather is affected by the state of the atmosphere, causing it to shrink and swell. The bark is not so affected. The bark when first worked shrinks by heating about one-sixteenth of an inch to an inch. The prepared covers may, therefore, be put upon the rolls loosely with the fingers, whereas the leather covers must be drawn on by means of machinery. The bark may be shrunk upon the roll, and placed in a lathe and turned off perfectly true, whereas the leather ones can only be sandpapered, and if out of true must remain so. The bark is also cheaper than leather.

I claim as my invention—

A top roll covered with the outer bark of the white birch, as a new article of manufacture.

EDWARD CARD.

Witnesses:

S. SCHOLFIELD,

C. E. BAKER.