

A. F. CRICHTON.

TOP ROLL FOR SPINNING FRAMES.

No. 246,870.

Patented Sept. 13, 1881.

Fig. 1.

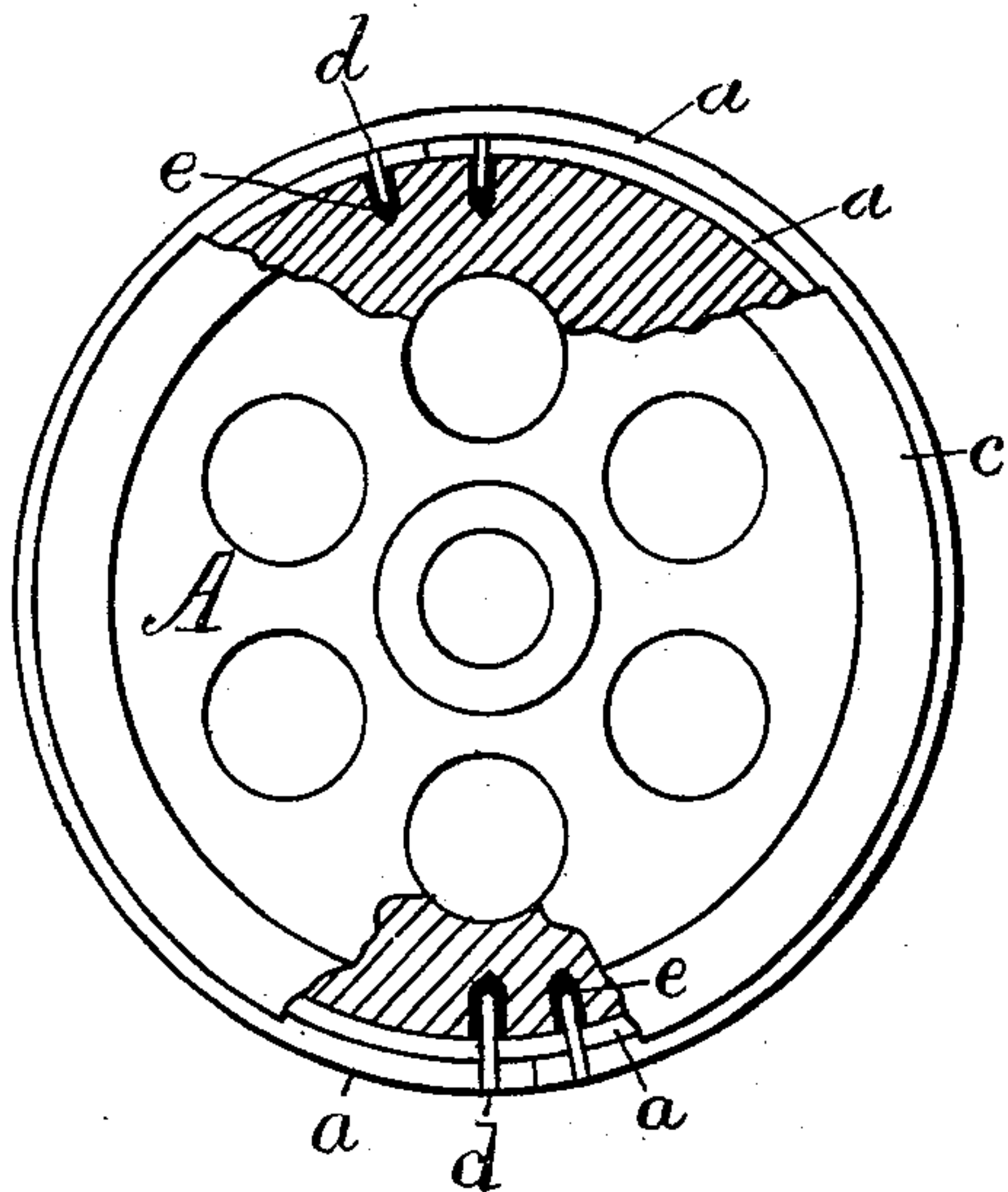
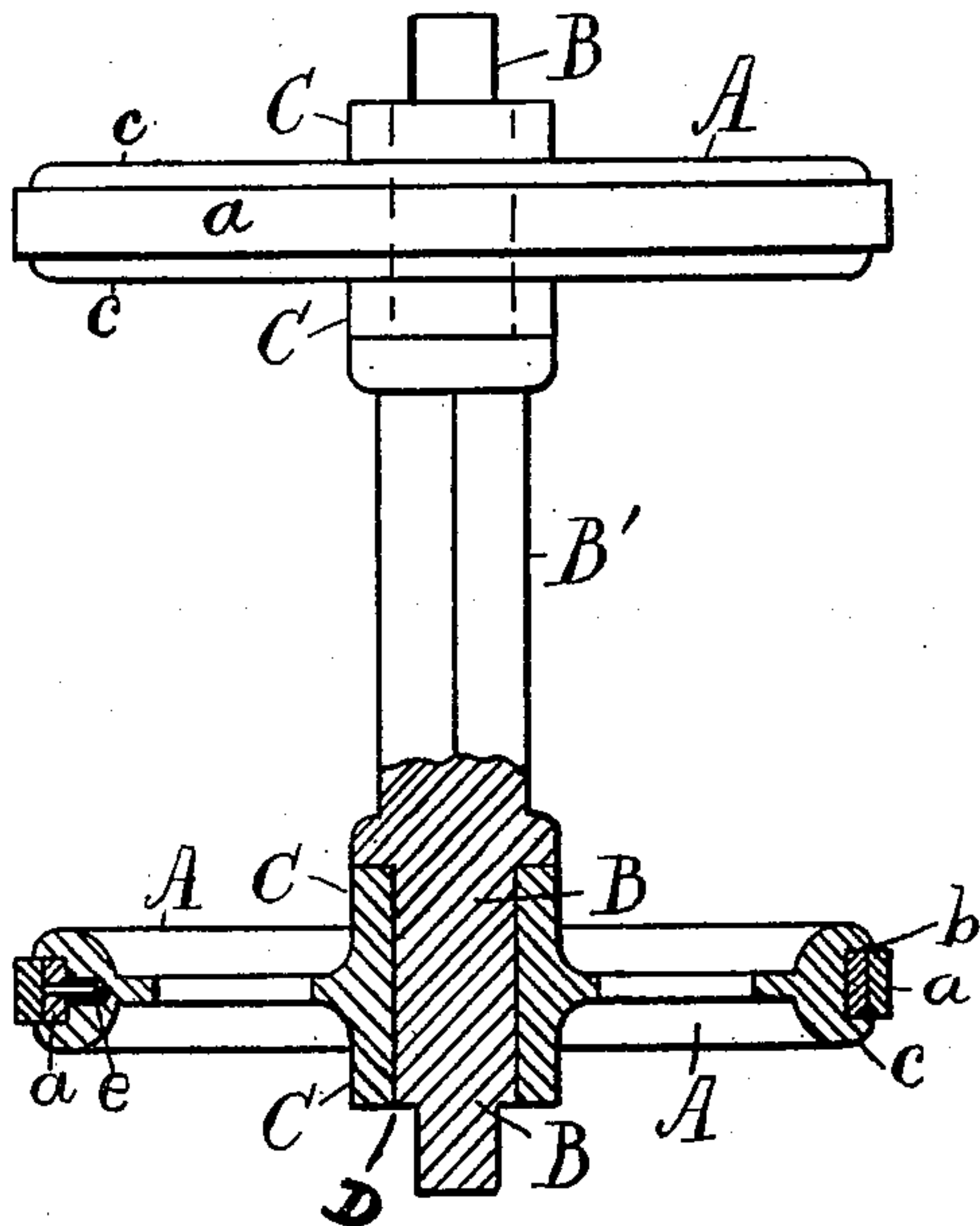


Fig. 2.



Attest:

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UNITED STATES PATENT OFFICE.

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TOP ROLL FOR SPINNING-FRAMES.

SPECIFICATION forming part of Letters Patent No. 246,870, dated September 13, 1881.

Application filed November 26, 1879.

To all whom it may concern:

Be it known that I, ALEXANDER F. CRICHTON, of the city and State of New York, have invented a new and useful Improvement in
5 Top Rolls for Spinning-Frames, of which the following is a specification.

My invention relates to an improvement in top rolls for spinning-frames; and it consists in a metallic boss constructed in the manner
10 described herein and operated to turn loosely when in use upon a stationary spindle.

The nature of my invention is shown in the accompanying drawings, wherein—

Figure 1 is a side view of a boss, A, having
15 a portion of its rim removed to show a band of leather applied in two layers. In Fig. 2 is shown a spindle, B, having a boss mounted upon each end, one of the same being shown in section to display its construction.

20 The purpose of my invention is to supply a boss more durable and better adapted to draw the roving uniformly than the wooden bosses still in general use in mills for spinning jute and similar long fibers; and I effect this object
25 by making the body or wheel of iron to avoid the warping and cracking to which wood is subject, and secure the use of leather in a narrow band for the wearing-surface by forming a groove in the rim of the wheel, in which
30 the leather is secured in the manner herein described. I also mount the wheels loosely upon a stationary spindle, and thus avoid the dragging that constantly results from the connection of two bosses of unequal diameters
35 with the same spindle when they are both fastened thereto.

In the drawings, A A are the bosses, which are arranged upon opposite ends of the spindle B, the latter being mounted in the spinning-
40 frame in the same manner as the ordinary spindle and kept from revolving by any suitable fastening. A groove, *b*, is shown in the rim of the iron boss or wheel, being formed between flanges *c* at each side to keep in place
45 the narrow band of leather I employ to draw the roving. To secure the leather therein I apply it in two or more layers, breaking joints with one another, cementing each layer to the surface beneath it, and securing the ends of
50 the strips by pegs while the cement is drying, after which the leather is turned off upon the

wheel in a lathe. To make the leather very tight upon the wheel I wet it thoroughly and stretch it in its place before pinning it fast, and then insert pins through the leather into
55 plugs of wood or similar material inserted in holes formed in the bottom of the groove. The holes for these plugs are shown at *e*, and are formed by drilling in the bottom of the groove, thus affording a seat for the insertion
60 of the pins or pegs *d*, in the manner described. Iron or wooden shoe-pegs may be used for this purpose, and may be withdrawn when the leather is dry or left in their places if of wood, as they would not then do any injury to the
65 rovings. By this mode of construction the leather is supported at each side by the flanges *c* and prevented from slipping sidewise, and is secured in the groove very much tighter than it could be if stretched over the flanges
70 to get it in, or first formed in a dry ring and pressed on sidewise, the wheel requiring in the latter case to be made in two disks and clamped together after the ring of leather is pressed on. The leather I employ is also much more firm
75 and durable than india-rubber, which has been stretched or pressed upon bosses heretofore, as in British Patent No. 2,074 of 1864, and, the bosses shown in that patent being rigidly secured to their spindles, either leather or rub-
80 ber would soon be abraded by the unequal velocities of the rims in practical use. To prevent such an effect is the object of mounting the bosses to revolve independent of each other, and to adapt the iron wheel I employ for such
85 a connection with the spindle I form the eye *D'* with an extended hub, C, and thereby adapt the wheel to revolve loosely upon the spindle without injurious wear. The hubs thus constructed may be provided with oil-holes, or the
90 oil introduced through a channel in the spindle, as is already common in such constructions.

In the drawings the body of the spindle is shown square, as at *B'*, to indicate that it is to be held stationary in the spinning-frame; 95 but the bosses above described may be fitted to the round spindles in old spinning-frames by turning their ends smoothly to fit the hubs C and clamping them in their pressing-straps to keep them from turning.

The use of my loosely-running iron boss with leather rim secures very important savings in

operating a jute-mill, where workmen of the highest skill are constantly employed in fitting and repairing the wooden bosses generally employed, as an iron wheel will run for years, 5 where the wooden one sometimes runs but a few days, and at best lasts only five or six weeks. The diameters of the iron wheels are also easily kept uniform, while the wooden bosses are reduced by wear and truing up 10 from eight inches to three and one-half inches before they are discarded. The wheels, when thus reduced in size, have to travel at a much greater velocity in the frame, and the saving in steam-power in a mill of three thousand 15 spindles is about thirty horse-power by the substitution of my iron bosses for the wooden ones rigidly fixed to their spindles. The saving in repairs and in maintaining the rims in good condition is also a very considerable 20 item, and the product from the bosses is so much more uniform that the yarn produced is of better quality, and the attendance of the operator is greatly diminished by that reason.

It will thus be seen that my improvement 25 depends alike upon the substitution of a per-

manent iron boss with a very narrow rim of leather for the wooden or rubber bosses in common use and upon the mounting it loosely upon its spindle, and I therefore limit my claim 30 to the combination of both these elements and the construction of wheel necessary to receive the leather in the manner described herein, as I consider it preferable to any other mode of securing the leather to the wheel.

Having thus set forth the essential features 35 of my invention in a full and explicit manner, I claim the same, as follows:

The combination of the stationary spindle B with the loosely-running boss A, constructed as herein shown and described, having the 40 elongated hub C, flanges *c*, groove *b*, provided with holes *e*, and the leather *a*, secured in the groove, substantially as and for the purpose set forth.

In testimony that I claim the foregoing as 45 my own I have hereunto set my hand.

ALEX. F. CRICHTON.

Attest:

W. F. D. CRANE,
THOS. S. CRANE.