

(No Model.)

J. BOOTH.

TOP ROLL FOR SPINNING MACHINES, &c.

No. 344,434.

Patented June 29, 1886.

Fig. 1.

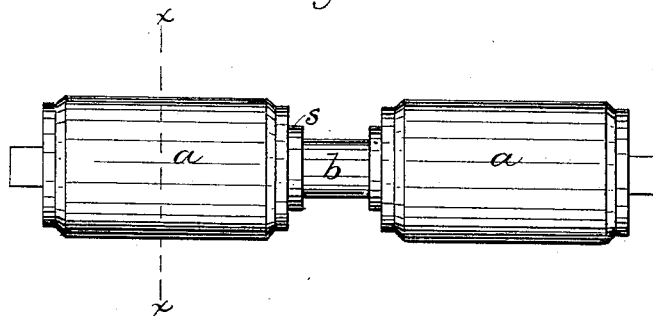


Fig. 2.

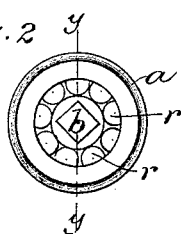


Fig. 3.

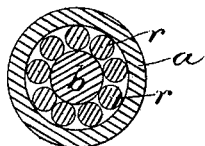
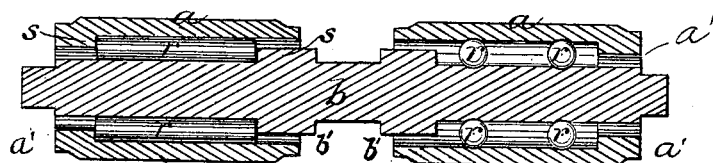


Fig. 4.



Witnesses.

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UNITED STATES PATENT OFFICE.

JOHN BOOTH, OF LINCOLN, RHODE ISLAND, ASSIGNOR OF THREE-FOURTHS
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TOP ROLL FOR SPINNING-MACHINES, &c.

SPECIFICATION forming part of Letters Patent No. 344,434, dated June 29, 1886.

Application filed September 29, 1884. Serial No. 144,178. (No model.)

To all whom it may concern:

Be it known that I, JOHN BOOTH, of Lincoln, in the county of Providence and State of Rhode Island, have invented certain Improvements in Top Rolls for Spinning-Machines, &c., of which the following is a specification.

This invention relates to the top rolls of spinning-frames, drawing-frames, mules, speeders, and other like machines; and it consists in providing said rolls with anti-friction bearings, so that they will run freely without lubrication.

The object of my invention is to obviate the objections which attend the use of oil on the bearings of said rolls—viz., the creeping of the oil from the bearings to the external surfaces of the rolls, whereby the yarn is caused to adhere to the rolls and the use of rubber surfaces on said rolls is prevented, it being well known that oil has an injurious effect on rubber.

Of the accompanying drawings, forming a part of this specification, Figure 1 represents a side view of a set of two top rolls embodying my improvement. Fig. 2 represents an end view of the same. Fig. 3 represents a section on line *x x*, Fig. 1; and Fig. 4 represents a section on line *y y*, Fig. 2.

The same letters of reference indicate the same parts in all the figures.

In the drawings, *a a* represent two of the rolls composing the set of top rolls of a spinning-frame or other analogous machine. Said rolls are hollow or of shell form, and are made separate from the rod or bearing *b*, on which they rotate. The usual saddles through which the pressure of the holding-down weights is applied to the top rolls rest on the rod or bearing *b*, between the rolls *a a*. The ends of said rod, which rest in slots in the supporting-frame, may be square or equivalently formed, as shown in Fig. 2, so that the rod cannot rotate, said slots being correspondingly formed. If preferred, however, said rod may be circular at the points where it rests in the slots of the supporting-frame, so that it can rotate.

In carrying out my invention I interpose between the rod or bearing *b* and the inner

surface of the hollow rolls *a a* a series of anti-friction rollers, *r*, which may be elongated cylinders, as shown at the left in Fig. 4, or balls, as shown at the right in Fig. 4. The rod *b* has annular ribs or projections, *b'*, and the rolls or shells *a* have inturned flanges *a'* in the construction herein illustrated. Said rollers are kept in place by means of shoulders *s s*, formed on the rolls *a* and bearing *b*, if cylindrical rollers are employed, and by means of grooves formed in the rolls and bearing, if balls are employed. The anti-friction bearings thus provided enable the top rolls to run without oil, so that the surfaces of said rolls are kept clean and free from oil. The adhesion of the yarn to the top rolls is thus prevented, and the use of rubber or any other desired material as a surface for said rolls is made practicable. The anti-friction bearings enable the rods or bearings *b* to be formed and fitted to the slots of the supporting-frame, so that said bearings cannot rotate, as above described. The friction caused by the rotation of the journals of the top rolls under the pressure of the heavily-weighted saddles is thus obviated.

I am aware that shell-rolls, rotating independently of the rods or bearings on which they rest have been before used, the saddles resting on said rods or bearings; but such rolls have always required lubrication, and in case of failure to keep said rolls properly lubricated they will bind on the rods or bearings, causing the latter to rotate with considerable friction at the points where the saddles bear upon them. It has therefore been considered necessary to lubricate the meeting surfaces of the saddles and rods or bearings, even when internally-lubricated shell-rolls are used, the oil working rapidly from the saddles to the external surfaces of the top rolls.

The employment of anti-friction bearings enables me to fit the rods or bearings *b* to the saddles, so that they cannot rotate as above described; hence no friction will occur and no lubrication is required at the points where the saddles rest on the bearings.

I claim—

1. A top roll for a spinning-frame, having a central bearing and interposed anti-friction rolls, substantially as described.

2. In combination in a spinning-machine
5 roll, the central bearing having polygonal ends, the interposed anti-friction rolls r , and the outer shell, a , inclosing said rolls and bearing, as set forth.

3. The combination of the bearings b , hav-
10 ing polygonal ends and annular projections b' , the spinning-machine rolls having inturned

end flanges, a' , and the interposed anti-friction rolls, substantially as described.

In testimony whereof I have signed my name
to this specification, in the presence of two sub- 15
scribing witnesses, this 20th day of September,
1884.

JOHN BOOTH.

Witnesses:

WM. H. GOODING,
JAMES E. BOWEN.