

(No Model.)

L. W. CAMPBELL.
TOP ROLL.

No. 578,705.

Patented Mar. 9, 1897.

FIG. 1.

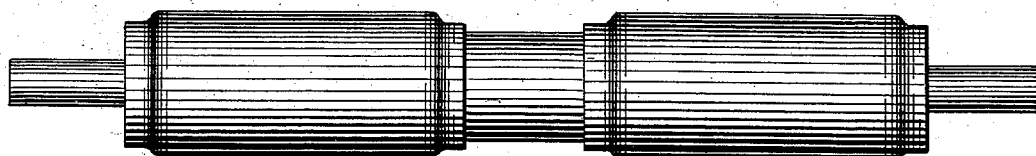
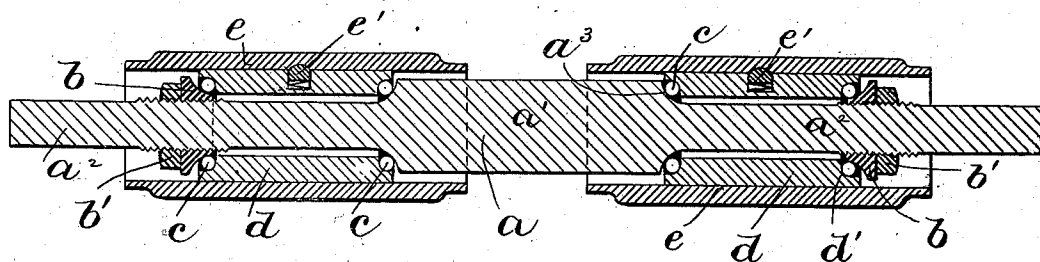


FIG. 2.



WITNESSES:
A. D. Harrison
P. W. Pizzetti,

INVENTOR:
L. W. Campbell
by Wright, Bennett & Quincy
Attys.

UNITED STATES PATENT OFFICE.

LEON W. CAMPBELL, OF WOONSOCKET, RHODE ISLAND, ASSIGNOR OF
ONE-HALF TO MALCOLM CAMPBELL, OF BOSTON, MASSACHUSETTS.

TOP ROLL.

SPECIFICATION forming part of Letters Patent No. 578,705, dated March 9, 1897.

Application filed November 11, 1896. Serial No. 611,719. (No model.)

To all whom it may concern:

Be it known that I, LEON W. CAMPBELL, of Woonsocket, in the county of Providence and State of Rhode Island, have invented certain new and useful Improvements in Top Rolls, of which the following is a specification.

This invention relates to top rolls for spinning frames, drawing frames, mules, speeders, and other like machines, and has for its object to provide a roll equipped with antifriction-bearings whereby it will be capable of revolving with a minimum of friction and without the employment of lubricating-oil.

One of the greatest disadvantages resulting from the employment of bearings for which lubricating-oil is a necessity is that the oil creeps onto the leather or rubber of the rolls, so as to injure them and shorten their lives, besides causing the cotton or yarn to adhere to their peripheries. Moreover, it is impossible to always revolve rolls requiring the use of lubricating-oils evenly and without dragging, since there are many times when the operative neglects to lubricate the bearings, and since the top roll is not positively driven its stoppage, even though it may be minute, is injurious and a detriment to the production of perfect yarn.

Therefore my invention consists of a top roll possessing those features of construction and arrangement of parts which I shall now proceed to describe in detail and then point out in the claims hereto appended.

Reference is to be had to the accompanying drawings, and to the letters marked thereon, forming a part of this specification, the same letters designating like parts or features, as the case may be, wherever they occur.

Of the drawings, Figure 1 is a side elevation of a roll constructed in accordance with my invention. Fig. 2 is a vertical longitudinal section through the same.

Referring to the drawings, *a* represents the main arbor or bearing, upon which the pressure of the holding-down weights is applied through the usual saddles, it having an enlarged central portion *a'*, a reduced spindle *a²* projecting from each end, each spindle *a²* being connected with the central portion *a'* by a concavo-conical bevel surface *a³*. Each of the spindles *a²* is threaded to receive a

concavo-conical nut *b*, which may be adjusted along the spindle and secured in any position by the lock-nut *b'*.

The nut *b* and the concavo-conical portion *a³* of the arbor furnish cone-bearings for the antifriction-balls *c*, which are held between them and the sleeve *d*, the latter being counterbored at each end to provide an internal bevel surface *d'*. By adjusting the conical nut *b'* any wear may be compensated for and the sleeve may be kept running smoothly and evenly.

Upon the sleeve *d* is placed the shell *e*, held thereon temporarily by any convenient means, such as a spring-ring shown at *e'*. The periphery of the shell may be covered with leather, rubber, or other material to form frictional cushioning-surfaces for the yarn.

From the foregoing it will be observed that I have provided a peculiarly simple roll which will run true for a great length of time and which does not require the use of oil.

After the sleeve *d* has once been adjusted and secured in place it is unnecessary to move the nut *b* except to "take up" wear, and there is therefore no chance for the antifriction-balls *c* to be removed or lost, since the shell may be easily removed and another one inserted without any delay and without requiring the removal of the sleeve or even requiring any parts to be adjusted.

Having thus explained the nature of the invention and described a way of constructing and using the same, though without attempting to set forth all of the forms in which it may be made or all of the modes of its use, I declare that what is claimed is—

1. An improved top roll, comprising a central bearing, an outer shell, an interposed sleeve secured to said shell to turn therewith, and antifriction devices interposed between the bearing and the sleeve.

2. An improved roll top comprising a central bearing, a sleeve revoluble around the bearing, antifriction devices interposed between the bearing and the sleeve, and an outer shell placed on the sleeve and confined thereon, whereby the shell is held against longitudinal movement and is capable of rotating with the sleeve.

3. An improved top roll comprising an ar-

bor having cone-bearings, a revoluble sleeve secured on the main arbor, antifriction-balls between the sleeve and the bearings, and a removable cylindrical shell mounted on the sleeve and having devices for connecting it to said sleeve to turn therewith.

4. An improved top roll, comprising a central arbor equipped with bearing-cones, one of which is adjustable, an outer removable revoluble shell, a sleeve turning on said central arbor and secured to said shell so as to turn therewith, the said sleeve being counterbored at its ends, and antifriction-balls interposed between said counterbored ends and the cone-bearings of the central arbor.

5. An improved top roll comprising a cen-

tral arbor having a concavo-cone bearing-surface a^3 , an adjustable concavo-conical nut b , a locking-nut b' , a sleeve counterbored at its ends, antifriction-balls placed between said counterbored ends, and said concavo-conical bearings, a removable cylindrical shell, and means for temporarily securing the shell to the sleeve.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, this 7th day of November, A. D. 1896.

LEON W. CAMPBELL.

Witnesses:

MALCOLM CAMPBELL,
ERWIN J. FRANCE.