

(No Model.)

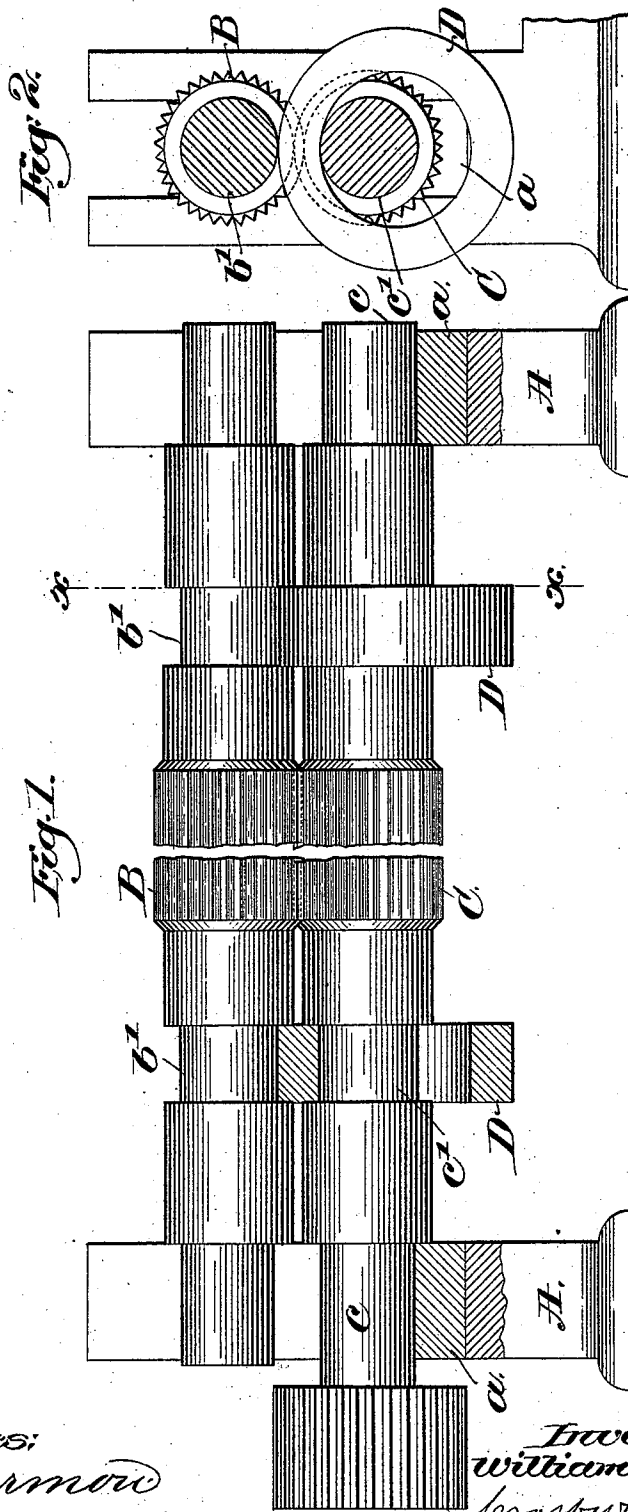
2 Sheets—Sheet 1.

W. HINCHLIFFE.

DRAWING ROLLS FOR FIBROUS MATERIAL.

No. 527,554.

Patented Oct. 16, 1894.



Witnesses:  
*a. c. Harmon*  
*Fred S. Grunlof.*

Inventor:  
*William Hinchliffe.*  
 by *Levy & Gregory*  
*attys.*

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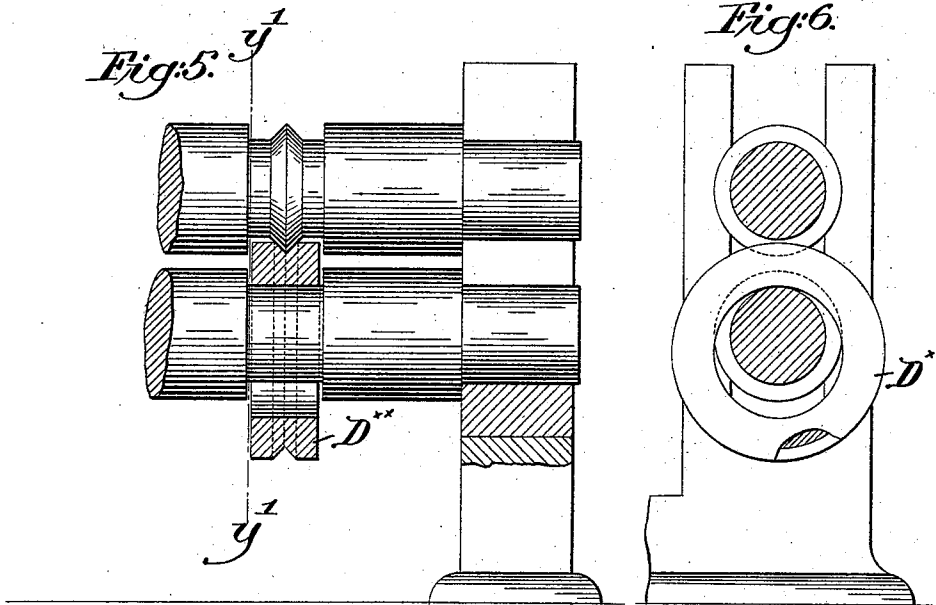
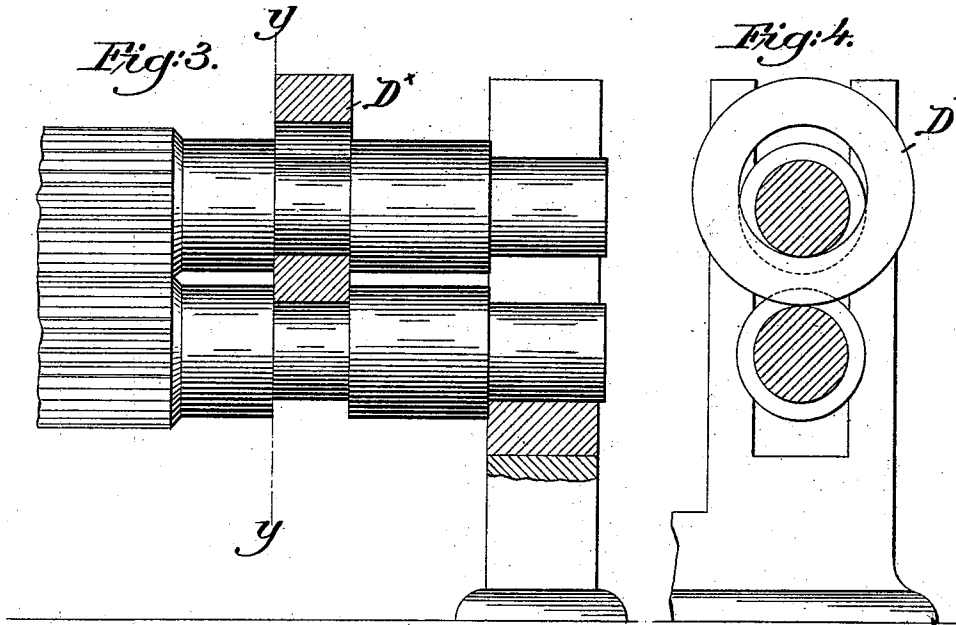
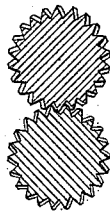


Fig. 7.



Witnesses.

Fred S. Gunderhof  
A. C. Harmon

Inventor:  
William Hinchliffe.  
by Leroy H. Hinchliffe  
Attys.

# UNITED STATES PATENT OFFICE.

WILLIAM HINCHLIFFE, OF HUNTSVILLE, ALABAMA.

## DRAWING-ROLLS FOR FIBROUS MATERIAL.

SPECIFICATION forming part of Letters Patent No. 527,554, dated October 16, 1894.

Application filed May 16, 1894. Serial No. 511,441. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM HINCHLIFFE, of Huntsville, county of Madison, State of Alabama, have invented an Improvement in Drawing-Rolls for Fibrous Material, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

In the use of toothed drawing rolls of the intermeshing variety, it is necessary to provide means to prevent the projections or teeth of one roll from bottoming in the grooves of the co-operating roll as the said rolls are being rotated to draw the material from usual rolls back of them.

This invention has for its object to provide novel means whereby the extent to which the flutes or teeth of the rolls intermesh, may be determined.

In accordance with my invention, I interpose between the toothed rolls, rings of greater or less thickness to thus determine the extent of the intermeshing of the toothed parts of the rolls, a ring of one thickness being changed for a ring of another thickness when the extent of intermeshing of the teeth is to be changed. To retain these interchangeable gaging rings in place as against lateral movement, I may provide one or both rolls with annular guides, preferably made as grooves, with which the rings co-operate, to prevent such lateral slipping.

The diameter of the openings in the ring will preferably be enough larger than the diameter of the part of the toothed roll carrying them that the rings may move radially on the roll and also rotate therewith. The rings may surround either of the toothed rolls and be restrained from slipping laterally by a guide on one of the rolls.

One part of my invention consists in the combination with a pair of toothed drawing rolls, of a pair of rings mounted loosely thereon and having a diameter sufficiently in excess of the diameter of the part of the roll surrounded by them as to move radially thereon and be revolved thereby, substantially as will be described; also, in a pair of toothed drawing rolls having guiding surfaces, combined with a pair of loose rings suspended on one of said rolls, and having a

portion of each ring interposed between said rolls, the guiding surfaces preventing lateral movement of the rings on the rolls; a change of a ring of one thickness for a ring of another thickness providing for a greater or less degree of intermeshing of the teeth of the rolls, substantially as and for the purposes to be described.

Figure 1, in front elevation, shows a pair of rolls embodying my invention, the center portions of the rolls being broken out to save space upon the drawings, one of the rings being shown in section and one in elevation, the roller stands being also partially broken out to show the roll. Fig. 2, is a section in the line  $x$  looking toward the left. Fig. 3 is a modification; Fig. 4, a section thereof in the line  $y-y$ . Fig. 5 shows another modification; Fig. 6, a section thereof in the line  $y'-y'$ , and Fig. 7 shows a modified form of roll.

The roller stands A having the bearings  $a$ , are and may be all as usual.

B represents the top roll, and C the bottom roll of a pair of toothed rolls, the teeth of the rolls being of sufficient length to enter more or less the spaces of the opposed roll, the journal  $c$  of the bottom roll resting on the bearings  $a$ .

In Figs. 1 and 2 a portion of the lower roll is represented as provided with a ring guide, shown as an annular groove  $b$ , leaving at each side thereof suitable shoulders to co-operate with and prevent lateral movement of the ring.

My improved ring-like regulating device D, is made to surround the roll, the diameter of the opening in the ring being of such larger diameter than the portion of the ring surrounded by it, that when said ring is applied loosely to said roll it will co-operate with said guide and prevent longitudinal motion of the ring on the roll, or longitudinal motion of the ring with relation to the center of motion of the rolls, but the ring may move radially on the rolls as the latter rotate, the rings rotating with the rolls.

I have shown the top roll B as provided with similar annular grooves  $b'$  leaving shoulders to act as a guide, and the parts of the roll having said grooves substantially fit the ends of the ring D, as represented clearly in the drawings, and according to the thickness

of that part of the ring D between the two rolls, so will the teeth of the two rolls B, C, intermesh more or less, the thinner the ring the greater the extent of intermeshing.

5 In Fig. 1, the ring D at the left is represented in section to show how it is supported entirely by one roll and how it serves as a rest or support for the other roll, to thus gage the distance from the center of one roll to the  
10 center of the other roll, and at the right in Fig. 2 said ring D is shown in elevation.

A ring D of one thickness may be readily changed for a ring of another thickness, thus readily regulating the extent to which the  
15 teeth or flutes will intermesh. By the employment of rings such as described, this change may be effected quickly, and I am enabled to dispense with the employment of tapering or conical-shaped collars which have  
20 heretofore been applied to drawing rolls for controlling the extent of intermeshing of the teeth of the toothed rolls. As the rolls are rotated in usual manner the rings are also rotated at greater or less speed.

25 In Fig. 3 I have shown the ring D<sup>x</sup> applied to the upper roll.

In Figs. 5 and 6 I have shown one roll provided with a projection to enter a groove in the ring D<sup>xx</sup> hung on the other roll.

30 Instead of making the teeth of the rolls ex-

actly parallel to the axis of rotation of the roll, I may give to the teeth a spiral trend, as shown in the modification Fig. 5, and as more fully described and shown in my application, Serial No. 509,348, filed April 28, 1894.

35

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

1. A pair of toothed drawing rolls, combined with a loose ring surrounding a portion of  
40 one of said rolls and having an internal diameter greater than the diameter of the portion of said roll within said ring, substantially as described.

2. A pair of toothed drawing rolls having  
45 guiding surfaces, combined with a pair of loose rings suspended on a part of one of said rolls and adapted to travel between parts of both rolls of the pair, said guiding surfaces preventing lateral movement of the rings on  
50 the rolls surrounded by them, as and for the purposes set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

WILLIAM HINCHLIFFE.

Witnesses:

GEO. W. WILKES,  
GEO. W. WISE.