

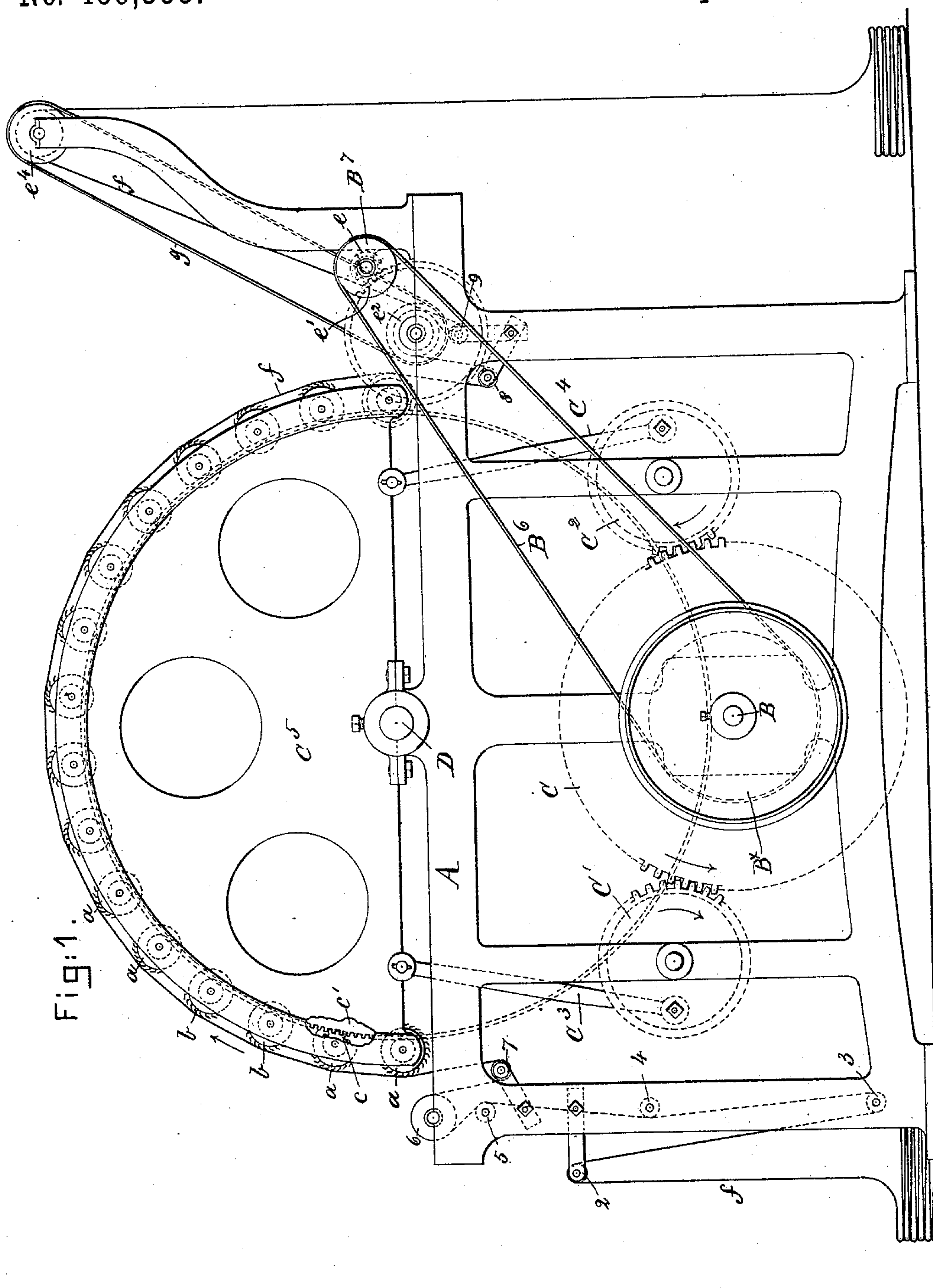
(No Model.)

2 Sheets—Sheet 1.

C. WOOD.  
MACHINE FOR NAPPING CLOTH.

No. 459,353.

Patented Sept. 8, 1891.



Witnesses.

*Fred S. Greenleaf.*  
*Geo. C. Huntington.*

Inventor.

*Charles Wood.*  
*by Lersey & Gregory attys.*

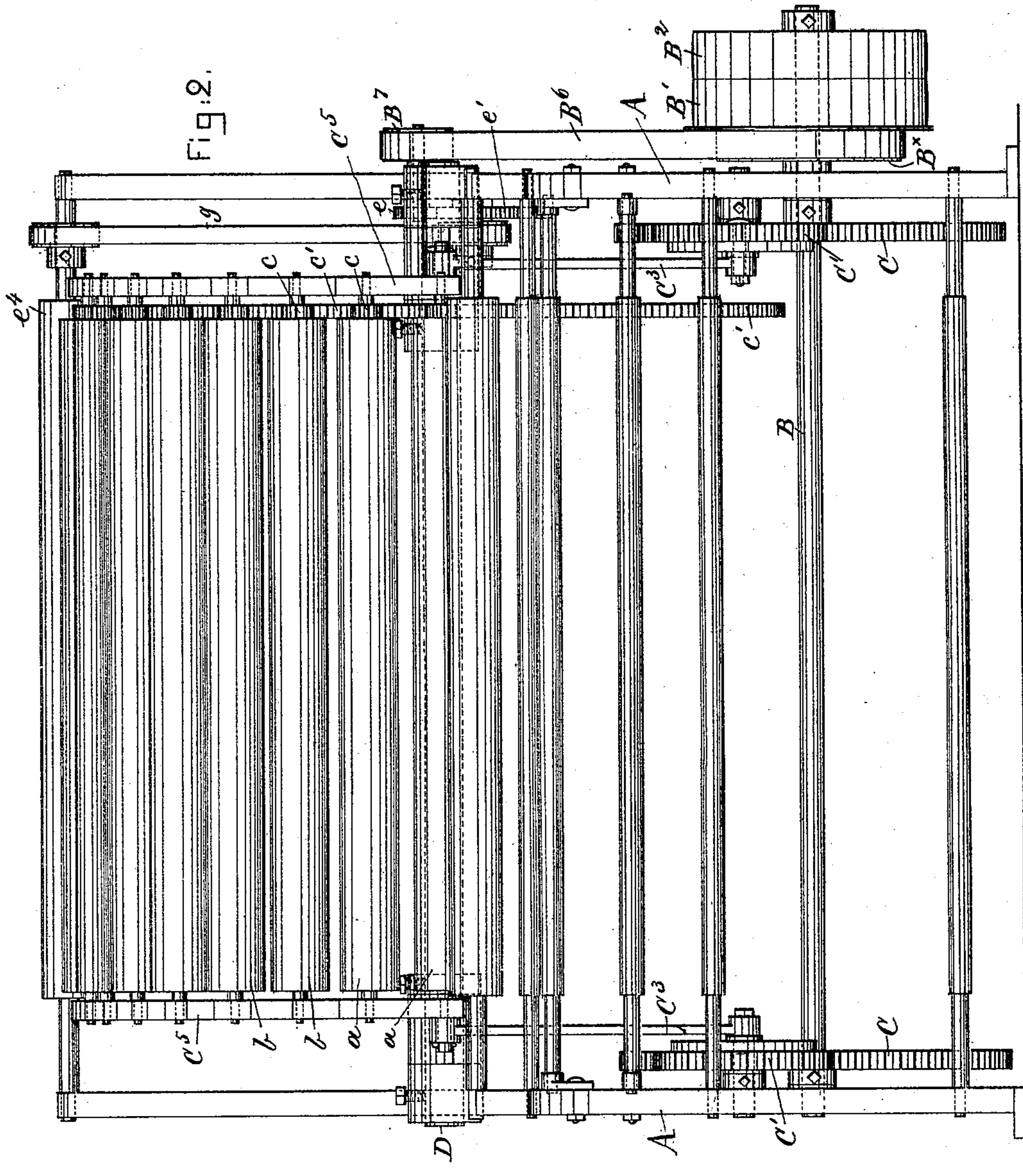
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*by Lemby & Gregory Attys*



# UNITED STATES PATENT OFFICE.

CHARLES WOOD, OF BOSTON, ASSIGNOR OF TWO-THIRDS TO GEORGE HILL,  
OF NEWTON, MASSACHUSETTS.

## MACHINE FOR NAPPING CLOTH.

SPECIFICATION forming part of Letters Patent No. 459,353, dated September 8, 1891.

Application filed October 2, 1890. Serial No. 366,879. (No model.)

*To all whom it may concern:*

Be it known that I, CHARLES WOOD, a subject of the Queen of Great Britain, and residing at Boston, county of Suffolk, State of Massachusetts, have invented an Improvement in Machines for Napping Cloth, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

This invention has for its object the production of a novel machine by which to nap cloth.

My improved machine has a series of card-clothed or toothed rollers mounted in journals of a vibrating frame, the said rolls having, as represented, pinions which are made to engage a circular toothed plate, the vibrations of the frame with the rolls while the said toothed plate is stationary, imparting to the rolls a more or less rapid backward and forward rotation. In accordance with my invention the cloth is taken from a suitable pile or other source and subjected to tension, is led over a series of toothed rolls arranged in the arc of a circle, and is then conducted over certain directory rolls and thereafter piled or wound, as may be desired, into usual form.

One part of my invention consists in a cloth-napping machine containing the following instrumentalities, viz: an oscillating frame, a series of toothed napping-rolls carried thereby, means to oscillate the said frame, and means to rotate the rolls independently of the oscillations of the frame, substantially as will be described.

Figure 1 of the drawings in side elevation represents a sufficient portion of a cloth-napping machine to enable my improvements to be understood; and Fig. 2, a left-hand end elevation of the machine shown in Fig. 1, the card-clothing or teeth being, however, omitted from the greater part of the napping-rolls.

The frame-work A consists, essentially, of side frames united together by suitable girts or cross-bars. This frame has suitable bearings for the power-shaft B, provided at one end with suitable fast and loose pulleys B' B<sup>2</sup> to receive a belt by which to drive the shaft

B. The shaft B has fast upon it a toothed gear C, which meshes with two smaller gears C' C<sup>2</sup>, connected, respectively, by links C<sup>3</sup> C<sup>4</sup> to an oscillating frame C<sup>5</sup>, mounted loosely upon a stud or stationary shaft D, having bearings in the frame-work. This oscillating frame C<sup>5</sup> has in practice a series of suitable bearings of usual shape to receive the journals of a series of rolls *a a b b*, arranged in the arc of a circle, as best represented in Fig. 1, the said rolls being represented as provided with card-clothing or teeth, the points of which teeth are preferably made to stand in different directions. As herein represented, the teeth of the rolls *a a* point in one direction, whereas the teeth of the pair of rolls *b b* next to it point in the opposite direction, such arrangement of the teeth enabling the toothed surfaces of the rolls to engage the cloth in opposite directions, as with and against the nap.

I have provided the journal of each roll *a b* with a suitable toothed pinion *c*. (Represented chiefly by dotted lines in Fig. 1, part of the frame C<sup>5</sup> being broken away to show part of one of the said pinions in full lines.) These pinions are all alike, one on each roll, and they engage with the peripheral teeth of a large toothed wheel *c'*, fixed upon the shaft or rod D. The fast pulley B' has an auxiliary pulley B<sup>x</sup>, which receives and drives a belt B<sup>6</sup>, extended over a pulley B<sup>7</sup> on a short shaft, having a pinion *e*, the said pinion engaging a toothed gear *e'* (see Fig. 1) on the shaft of a cloth-roll *e<sup>2</sup>*, thus rotating the said roll to draw the cloth *f* from the pile or other source at the left of the machine. (See Fig. 1.) The cloth from the pile is passed over a series of tension-rolls 2 3 4 5 6 7, and thence about and in contact with the series of napping-rolls *a b*, arranged in the arc of a circle, under the guide-roll 8, over the pulley or feed-roll *e<sup>2</sup>*, under the guide-roll 9, and thence over the delivery-roll *e<sup>4</sup>*, from whence the cloth falls into a pile, or from which it may be taken in any usual manner common to cloth-napping machines. The roll *e<sup>4</sup>* is driven by a belt *g* from a small pulley on the drawing or feed roll *e<sup>2</sup>*.

In operation the frame C<sup>5</sup>, over which the



cloth to be napped is led, (the cloth resting upon the rollers *a b*,) is vibrated by or through the gears *C' C²*, having the crank-pins and links, and during the vibration of the said frame the pinions *c* of the rolls in engagement with the teeth of the plate *c'* are made to rotate more or less in one and then in the opposite direction, that depending upon the stroke given to the frame *C⁵*. In this way each roll, while the cloth rests upon it, is made to scratch the cloth both with and against the nap, the cloth being at the same time drawn through the machine at a speed regulated by the belt *B⁶* running over the pulleys referred to.

I claim—

1. A cloth-napping machine containing the following instrumentalities, viz: an oscillating or reciprocating frame, a series of toothed rollers carried thereby, and gearing to effect the rotation in one and then in an opposite

direction of the said rolls during the oscillation or reciprocation of the frame carrying them, substantially as described.

2. A cloth-napping machine containing the following instrumentalities, viz: an oscillating or reciprocating frame, a series of toothed rolls carried thereby and gearing to effect the rotation in one and then in an opposite direction of the said rolls during the oscillation or reciprocation of the frame carrying them, and means to draw the cloth through the machine and over the said rolls, substantially as described.

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

CHARLES WOOD.

Witnesses:

GEO. W. GREGORY,  
EMMA J. BENNETT.