

(No Model.)

2 Sheets—Sheet 1.

F. O. ELLIS.

MACHINE FOR CUTTING CLOTH INTO STRIPS.

No. 438,915.

Patented Oct. 21, 1890.

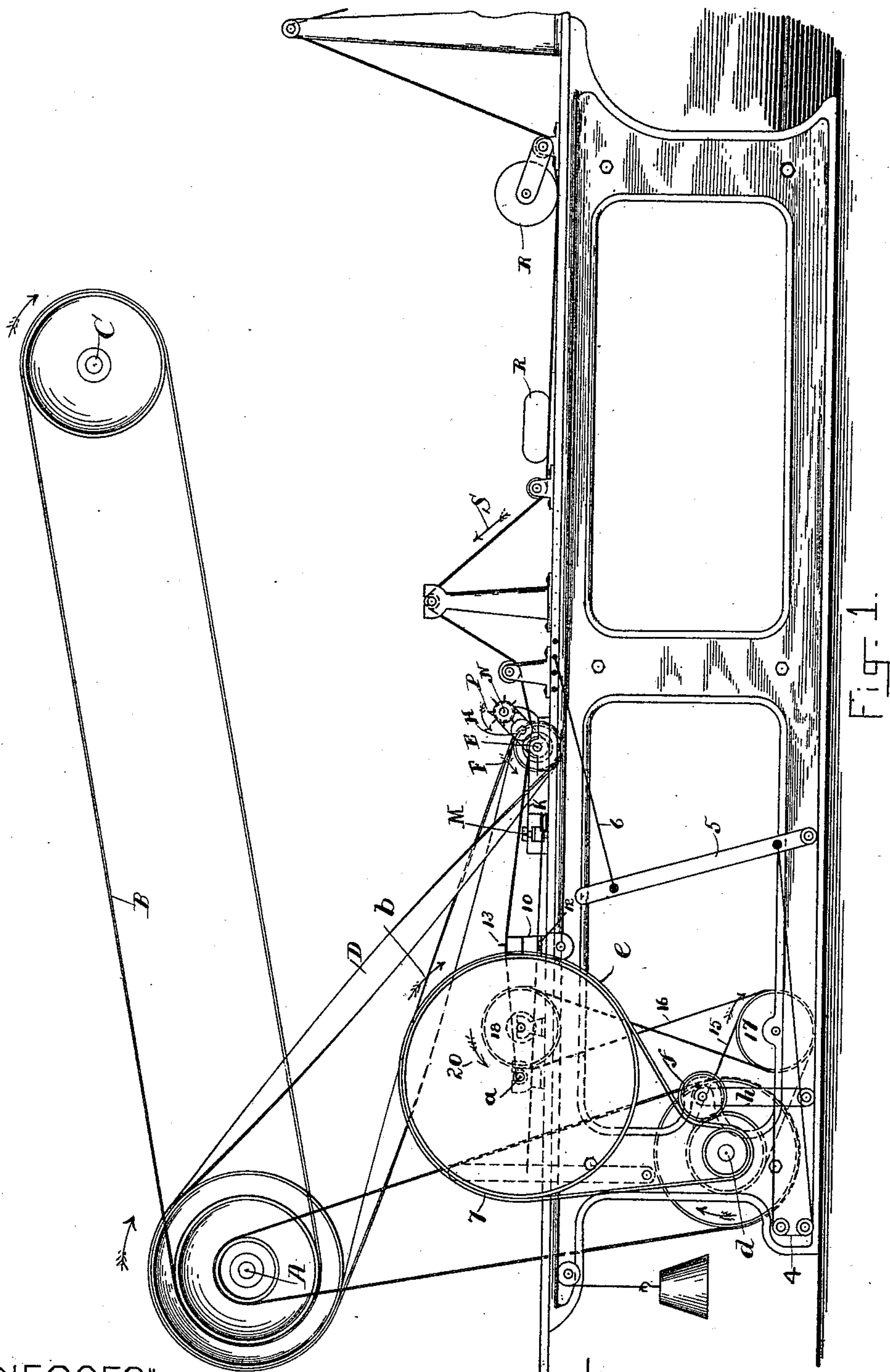


Fig. 1.

WITNESSES:

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E. C. Hamill

INVENTOR:

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A. 224

(No Model.)

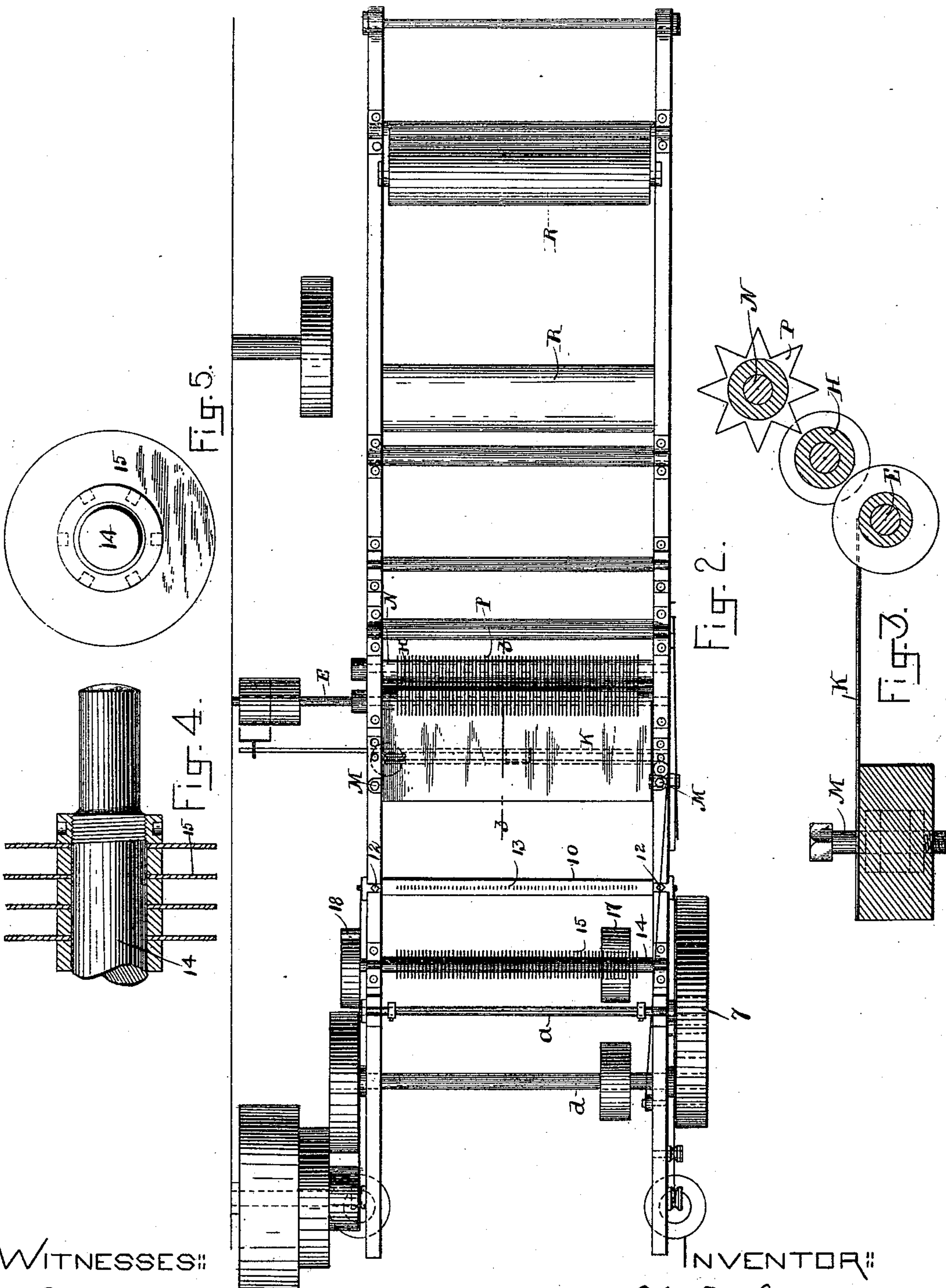
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F. O. Ellis

By C. B. Fitts
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UNITED STATES PATENT OFFICE.

FRANK O. ELLIS, OF SWAMPSCOTT, MASSACHUSETTS.

MACHINE FOR CUTTING CLOTH INTO STRIPS.

SPECIFICATION forming part of Letters Patent No. 438,915, dated October 21, 1890.

Application filed November 7, 1888. Renewed May 8, 1890. Serial No. 351,031. (No model.)

To all whom it may concern:

Be it known that I, FRANK O. ELLIS, of Swampscott, in the county of Essex and Commonwealth of Massachusetts, have invented
5 Improvements in Machines for Cutting Cloth into Strips, of which the following, taken in connection with the accompanying drawings, is a specification.

This invention relates to improvements in
10 mechanism whereby a web of cloth is cut lengthwise into narrow strips, and said strips are wound into coils or rows distinct from each other.

In the drawings, Figure 1 is a side elevation
15 of a machine embodying this invention. Fig. 2 is a plan view of the same. Fig. 3 is a section of a portion of the machine on line 3 3 of Fig. 2. Figs. 4 and 5 represent details to be referred to, and described hereinafter.

20 The counter-shaft A is revolved by a belt B, extending from the driving-shaft pulley C, as shown in Fig. 1. Said shaft A carries a pulley from which a belt D extends to and surrounds, as represented, (see Fig. 1,) a pulley
25 on the shaft E. Said shaft E carries the cutting-knives, which are mounted thereon (see Fig. 2) a distance apart equal to the width of strip or strips into which the cloth is to be cut. The cutters travel in the direction shown
30 by arrow F, Fig. 1. A roll H operates to keep the material or cloth depressed below the cutters, and said roll is provided with grooves for receiving the cutters. (See Fig. 3.) In front of the cutters is a plate K,
35 which is also grooved serially to receive the cutters on that side. This plate is adjustable vertically by means of adjusting-screws M, and operates to prevent the strips of material from being unduly depressed by the
40 downward rotary movement of the cutters. On a shaft or arbor N are mounted a series of notched plates P, which travel in the grooves of roll H, and operate to lay hold of and lift the ends of thread which are left
45 hanging from the cut material and wind up over the said roll. To this end a revolving motion is imparted to the arbor N by means of a belt extending from a pulley on the end of arbor E to a pulley on the end of arbor N.

50 The cloth is carried from a web at the rear of the machine forward under and over rolls

in the direction indicated by arrow S (see Fig. 1) to the cutter devices. In rear of the cutters the cloth is weighted by rolls R, whereby a tension is given to the cloth as it approaches
55 the cutters. The divided strips of cloth pass from the cutters rearward to an arbor *a*, about which they are wound into small rolls or coils. To this end the arbor is rotated in the direction of arrow *b*. (See Fig. 1.) From the shaft
60 A a belt travels to a shaft *d*, said shafts being suitably provided with the necessary pulleys, as represented in Fig. 1, and from said shaft *d* motion is transmitted through a belt *e* and intermediate pulleys, as shown, to revolve the
65 arbor *a*. The tension of said belt *e* is increased or diminished by means of an idler *f*, which to that end is supported in a swinging frame *h*, which frame is connected with
70 a cord 4, lever 5, and cord 6, whereby a swinging movement may be imparted to said frame by the operator standing midway of the machine. A pin on the end of cord 6 enters a
75 hole in the side of the machine-frame, so as to retain a position given by the operator to the idler *f*, through said intermediate manipulating mechanism.

It will be understood that the rolls of cloth about the arbor *a* are constantly increasing
80 in diameter from a small beginning the size of the arbor to the full size of the intended coils while the material moves through the machine at a uniform rate of speed. Therefore it becomes necessary to have the rotary
85 motion of the arbor *a* variable. This I obtain by giving to the belt *e* a tension sufficient to revolve the arbor *a* through a frictional contact with the pulley 7. Said movement is
90 against the tension of the cloth strips and is readily overcome thereby, so that the belt *e* during a part of the time slips on the wheel 7 and revolves the arbor *a* only fast enough
95 to take up the material being wound. On the machine-frame is a carriage 10, mounted to slide on suitable ways at the ends of said carriage and is adjustable thereon by suitable
100 set-screws 12. In the upper surface of said carriage are set the upwardly-projecting pins 13. These pins set in between the divided strips of cloth as they come from the cutters and operate to guide said strips to the winding-arbor *a*. In front of said arbor *a* is a

shaft or arbor 14, on which are mounted thin circular plates 15, which also travel in between the divided strips of cloth directly in front of the winding-arbor. A revolving movement is imparted to the arbor 14 from the shaft *d* through intermediate belts 16 16 and pulleys 17 18, as shown in Fig. 1. Said movement of the arbor 14 carries the plates 15 round in the direction of arrow 20, Fig. 1. Said plates travel in between the coils, winding on the arbor *a*, and thereby operate to keep the thrum ends left hanging from the edges of the divided strips from interlacing with the strips of adjacent coils.

The rotary movement of the plates is more rapid than the movement of the coils, and they operate by frictional contact with the edges of the separate coils, respectively, to overcome the varying thickness of the material and keep the coils wound tightly. They also operate to engage and cut thrum ends of adjacent coils which, by accident or otherwise, become entangled with each other. The result is that when the arbor *a* has become loaded and is removed the coils thereon wound will be separately removable from the arbor. Fig. 4 of the drawings is a section of

this dividing mechanism, and Fig. 5 an end view thereof.

I claim—

1. In combination, the cutters for dividing the cloth into strips, an arbor *a*, with operating mechanism therefor for winding the strips, the plates 15, located in front of the arbor and carried on a revoluble shaft, and means for moving said shaft, substantially as described.

2. In combination, the cutters, the winding-arbor, the revolving plates located in front of said arbor, and the series of pins 13 in front of the revolving plates to guide the strips thereto, substantially as described.

3. In combination, the rotary cutters, the pressure-roller arranged in proximity thereto to press the material upon the knives, the picker-plates acting with the pressure-roller, and means for operating the cutters and picker-plates, substantially as described.

Signed at Lynn, Massachusetts, this 20th day of October, A. D. 1888.

FRANK O. ELLIS.

Witnesses:

GEO. H. WILLIAMS,
ANDREW J. CHASE.