No. 670,187. Patented Mar. 19, 1901.

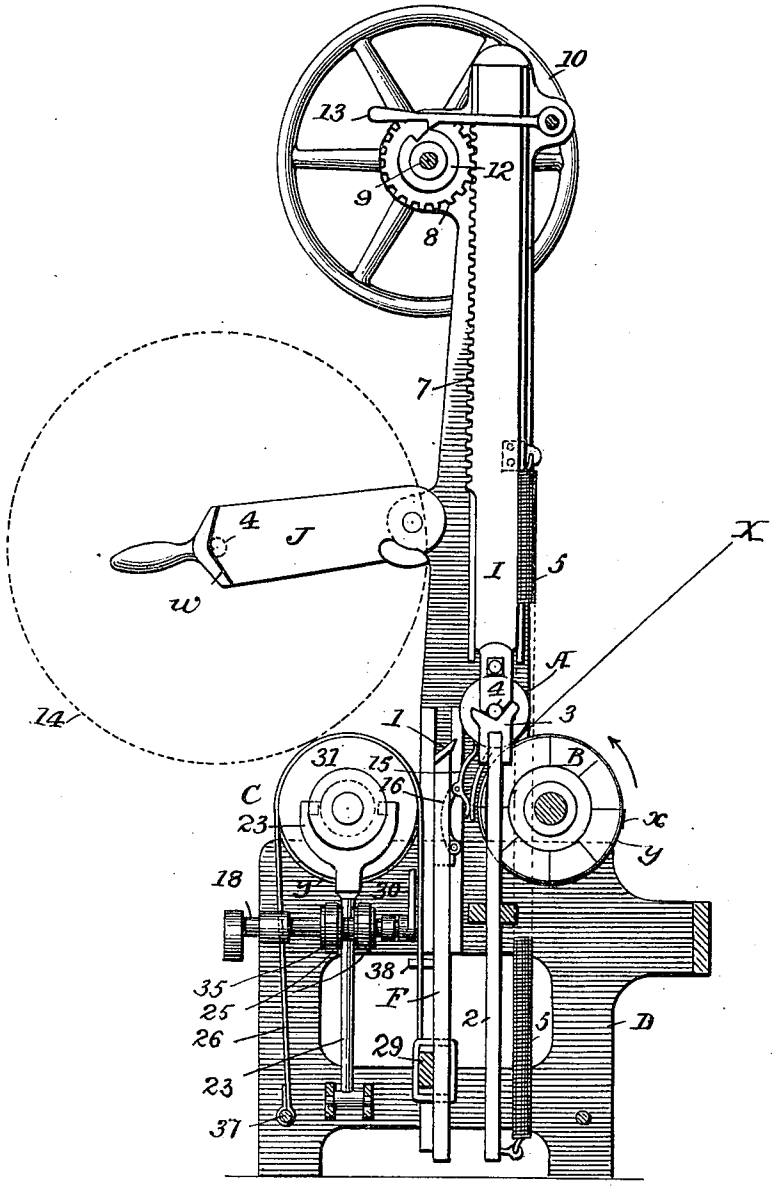
W. P. SIMPSON.

WINDING MACHINE.

(Application filed July 17, 1900.)

(No Model.) 5 Sheets—Sheet 1.

Fig. 1.



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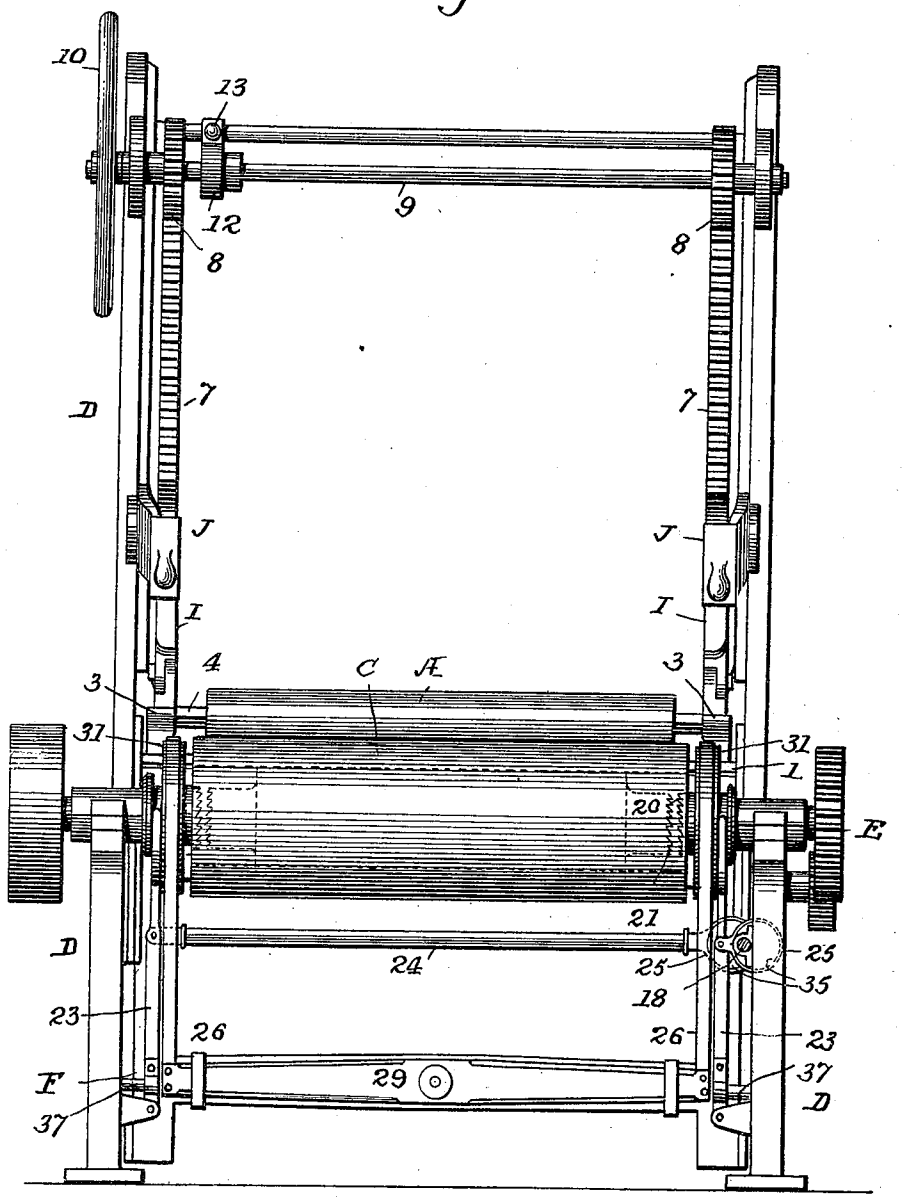
WINDING MACHINE.

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Fig. 2



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5 Sheets—Sheet 3.

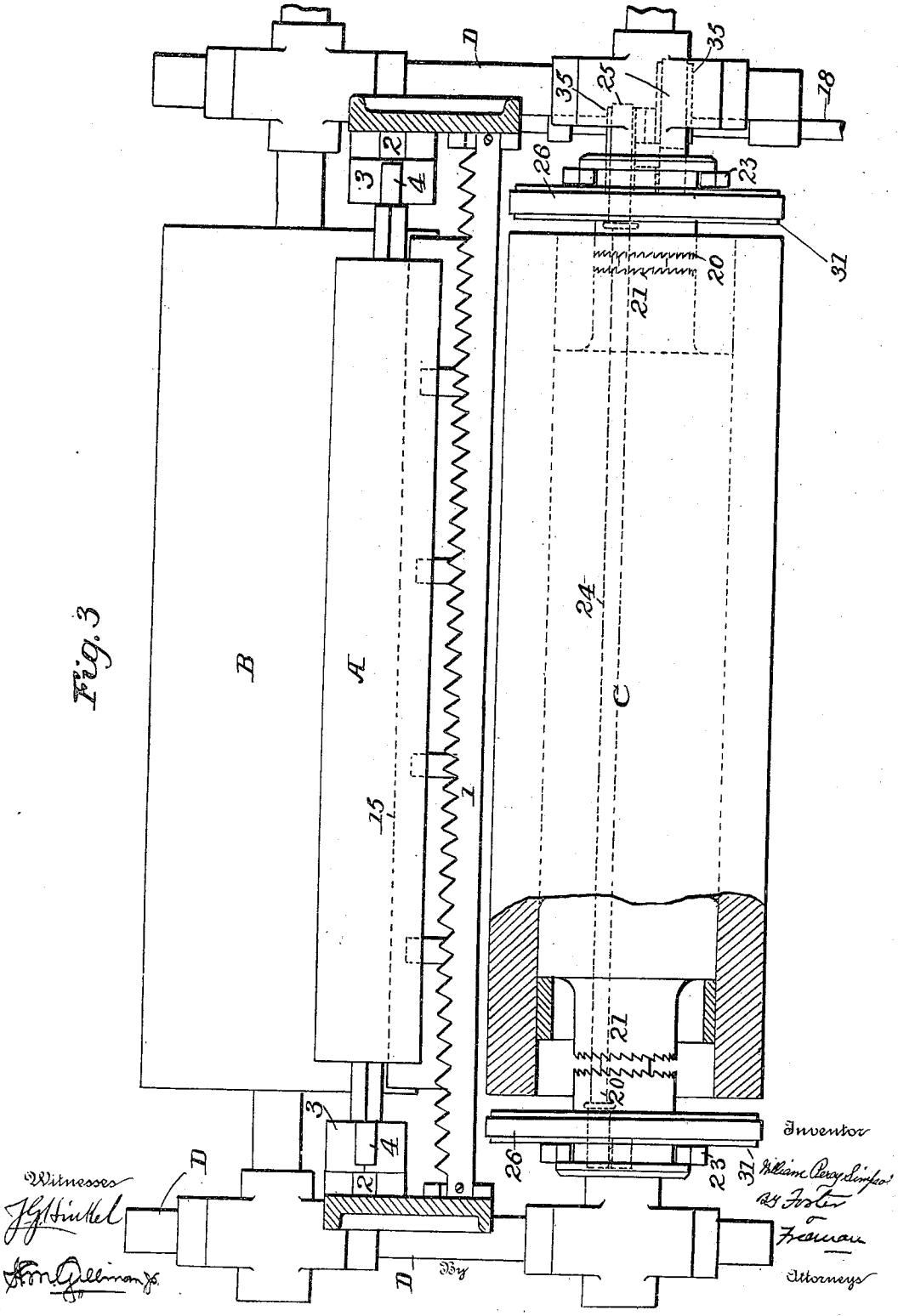


Fig. 3

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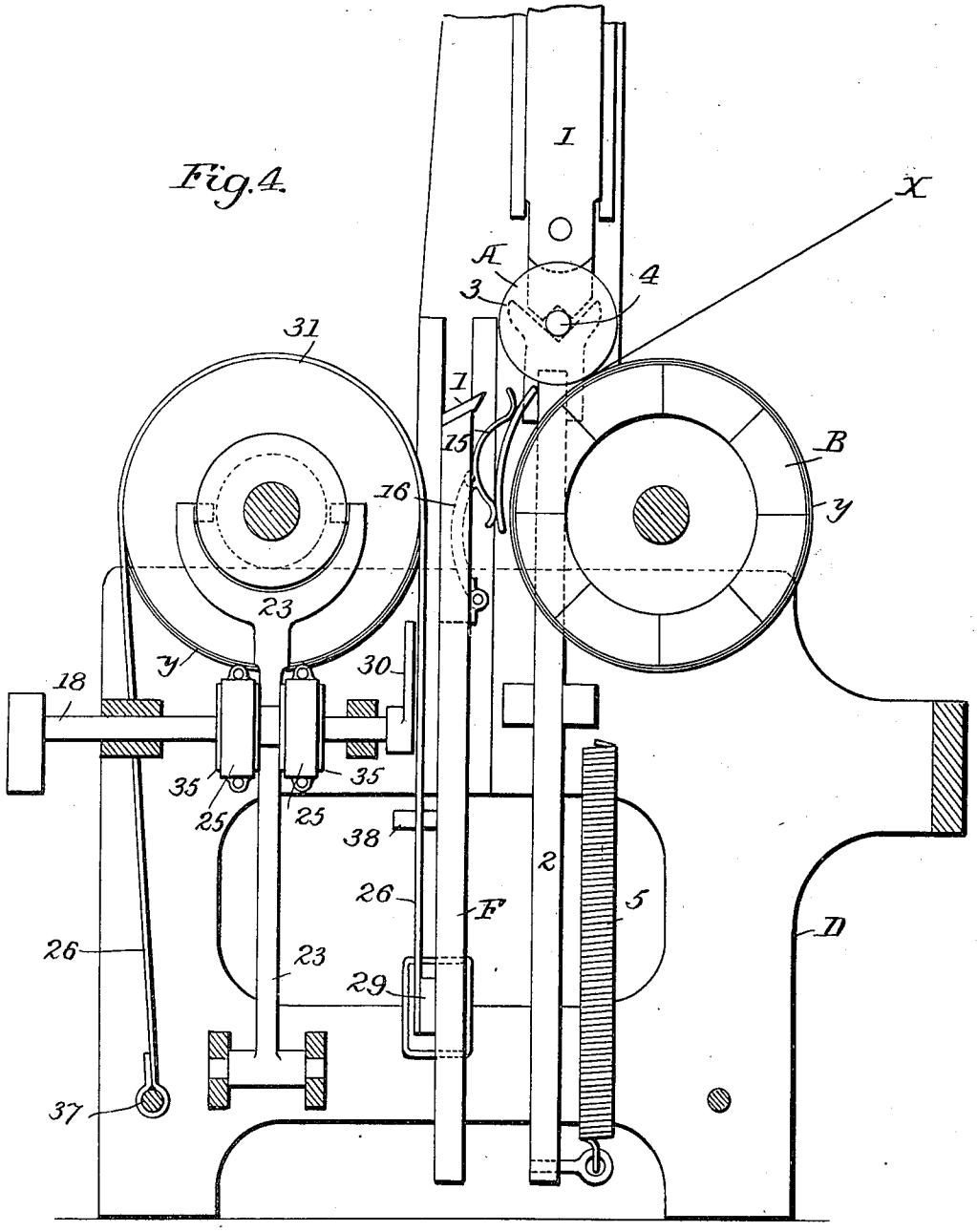
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(No Model.) (Application filed July 17, 1900.)

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Fig. 4.



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(No Model.)

5 Sheets—Sheet 5.

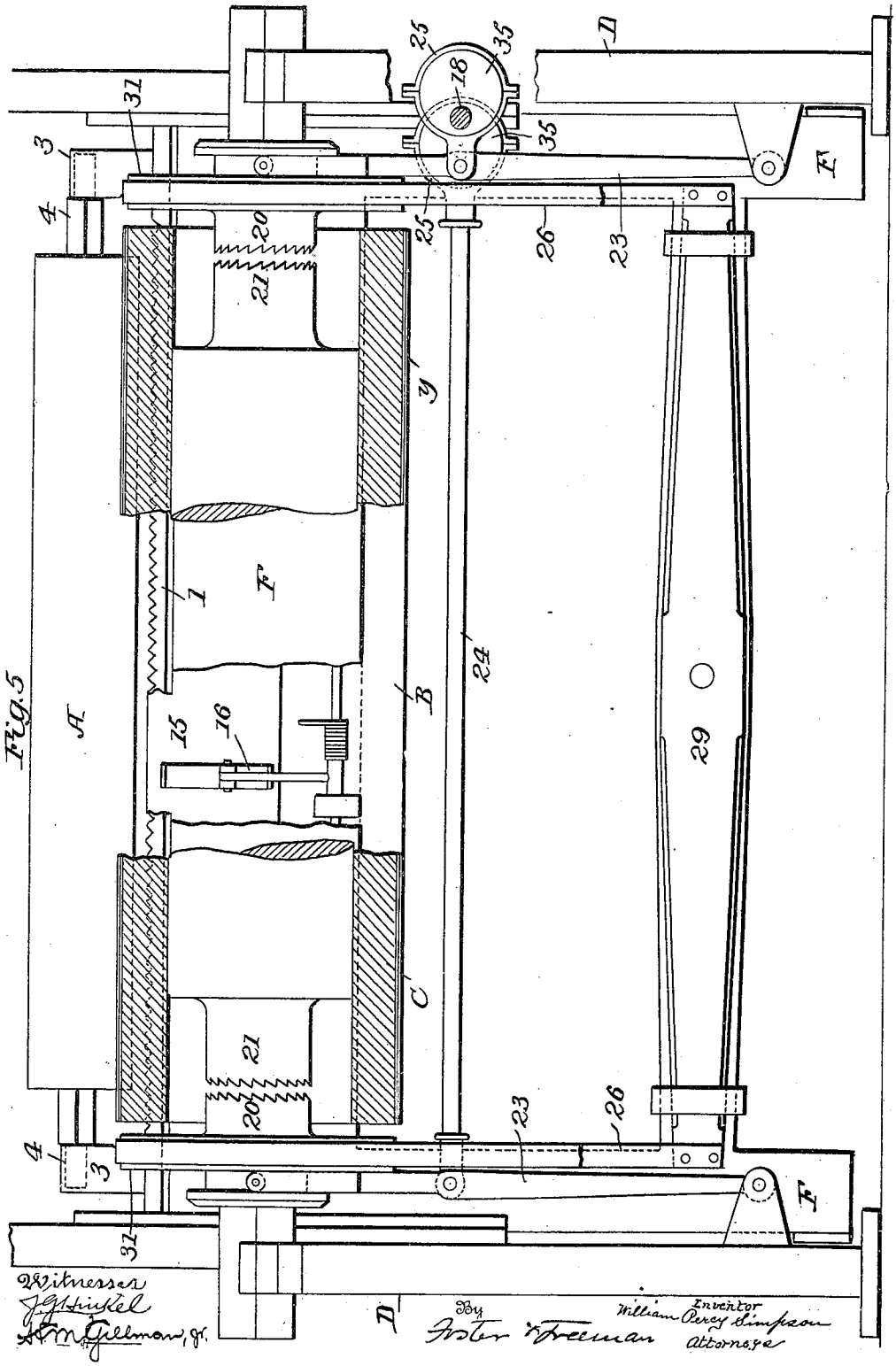


Fig. 5

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

WILLIAM PERCY SIMPSON, OF OVERBROOK, PENNSYLVANIA.

WINDING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 670,187, dated March 19, 1901.

Application filed July 17, 1900. Serial No. 23,957. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM PERCY SIMPSON, a citizen of the United States, residing at Overbrook, in the county of Montgomery and State of Pennsylvania, have invented certain new and useful Improvements in Winding-Machines, of which the following is a specification.

My invention relates to machines for winding cloth, and more especially to that class of machines in which the operation is continuous by winding a roll of cloth in contact with a driving-roll and then transferring it while continuing the rotation and cutting the cloth and starting the winding of another roll. Heretofore this has been accomplished by the use of three driving-rolls, the cloth-roll resting upon two of the same and turning therewith until it is of the proper size and being then transferred to a position to be turned by one of the first pair of rolls and a third roll.

The object of my invention is to reduce the cost of construction and facilitate the operations in this class of machines, to which end I construct the same with the two driving-rolls, as fully set forth hereinafter and as illustrated in the accompanying drawings, in which—

Figure 1 is a sectional elevation of a cloth-winding machine embodying my improvements. Fig. 2 is a rear elevation. Fig. 3 is a sectional plan view enlarged. Fig. 4 is a sectional elevation, enlarged, of the lower part of the machine. Fig. 5 is a front elevation, in part section, of Fig. 4.

The cloth X is wound upon a shell A, of wood or other material, and rests upon a drum B, the rotation of which turns the shell A, with the cloth upon it, until the roll is of the proper size, when it is transferred to another drum C, the rotation being continued, and a knife 1 is lifted, so as to sever the cloth between drums B C and at the same time carry the end of the strip X which has been severed onto another shell which has been placed in the position first occupied by the shell A. The winding then continues on the second shell, and when the second roll has reached the proper size these operations are repeated. The jonrnals of the drums B C turn in bearings upon the side frames D, the shafts of the drums being connected by gearing E and driven in any suitable manner.

There are side pieces 2, which slide in guides in the side frames D, and at the upper ends of the side pieces 2 are blocks 3, with V-shaped notches, constituting bearings for the journals 4 of the shells A, and springs 5 are connected with the side pieces 2, so as to tend to lift the same, but are not of sufficient power to raise the side pieces and shell when the latter is in position resting on the bearings 3.

To hold the shell against the face of the drum B under proper tension to insure the winding of the fabric, there are sliding bars I, sliding between guides in the side frames D and notched at their lower ends to fit over the journals 4 and serving by their weight to maintain the said journals in place in the bearing-blocks 3, but rising with the latter and with the shell as the diameter of the roll of fabric increases.

In order to lift the bars I, the latter are provided with racks 7, engaging pinions 8 on the shaft 9, provided with a hand-wheel 10, which may be turned to raise the slides to any extent desired. They may also be held in a position to which they are lifted by means of a disk 12, having a notch adapted to receive a hand-pawl 13, pivoted to the side frame. This pawl may be lifted at any time out of the notch of the wheel 12, when the weight of the sides will cause them to descend.

As the material is fed to the shell and winds upon the latter the roll gradually increases in diameter, and the shell passes upward from the driving-drum B, together with the bearings 3 and slides I, until the roll is of proper size. Then without arresting the rotation of the driving-drums the hand-wheel 10 may be turned to lift the bars I, when the roll may be pushed onto the drum C, and another shell will be placed in the bearings 3, which will then descend under the weight of the shell onto the fabric, which extends beneath the new shell and to the roll upon the drum C. The knife 1 is then raised to sever the fabric.

Any suitable means may be employed for holding the roll upon the drum C until it is necessary to remove the same. A preferable means consists of arms J, pivoted to the side frames and limited in their downward movement, so that when the roll is in the position shown in dotted lines, Fig. 1, the journals 4 will be in position to enter V-shaped sockets *w* of

the side arms, when the roll will be supported in the position shown by dotted lines 14 until the arms are raised to permit the roll to pass to any suitable receptacle.

In order to secure better adhesion and insure the rotation of the roll under the action of the drum, either or both of the drums may be coated with a facing *y*, of rubber.

The cutter 1 may be constructed and operated in any suitable manner; but, as shown, it is upon a frame F, which also carries wipers 15, pivoted to links 16, connected to the frame, so that as the knife rises and cuts the fabric the wipers will fold the latter around the shell to insure that it is evenly and regularly laid thereon to start the new winding.

On the shaft of drum C, at either end, is a pair of ratchet-toothed clutch members 20 21—right and left hand—the members 21 of each pair attached to the heads of the drum C and each member 20 on a wheel 31 mounted loosely on the shaft of the drum C and having a grooved rim about one-fourth inch less in diameter than the drum and also having a slot or groove in its hub to receive a shipper-fork 23. The shafts of the forks 23 are pivoted at their lower ends to the side frames of the machine and each fork is connected by a rod 24 to a strap 25 of an eccentric 35 on a shaft 18. By turning the shaft 18 by hand the forks may be swung so as to carry the clutch members 20 into or out of gear with the members 21. In the grooves of the wheels 31 lie straps 26, each connected at one point to the periphery of the wheel and attached at one end to a cross-bar 37 of the frame and at the other end to one end of a singletree 29, pivoted centrally to the frame F.

The operation is as follows: When it is desired to cut the cloth and start a new roll, a knob at the end of the shaft 18 is turned about a quarter of a revolution, drawing the shipper-forks and members 20 toward the members 21 to engage the latter, causing them and the wheels 31 to revolve sufficiently with the drum to draw on the straps 26 to raise the frame F and the parts connected therewith. When the frame F has reached a proper height, a projection 38 on the same strikes a short lever 30 on the inner end of the rock-shaft 18, rocks the latter, and causes it to return to its former position, thus disengaging the clutches and allowing the frame D to drop back by its own weight until the slack in the strap 26 is taken up.

Without limiting myself to the precise construction and arrangement of the parts shown, I claim as my invention—

1. The combination in a winding-machine, of two parallel supporting-drums, a vertically-movable support for the journals of a shell when resting upon one of the drums, and arms pivoted to the frame of the machine, with bearings for the journals of the shell when the roll is resting solely upon the other drum, substantially as set forth.

2. The combination of the frame, drums B, C, and arms having bearings for the journals of a shell after the roll is transferred to the drum C, substantially as set forth.

3. The combination of the frame, drums B, C, and arms pivoted to the frame having bearings for the journals of the shell after the roll is transferred to the drum C, substantially as set forth.

4. The combination of the two drums, the vertically-movable bearings 3, the knife 1, the frame supporting the same, and connections between the drum C and the knife-frame whereby to lift the frame on the rotation of one of the said drums, substantially as set forth.

5. The combination of the drum C, knife-frame and knife, wheels 31, clutches between the wheels and drum, bands passing over the wheels and connected to the knife-frame, and means for shifting the clutches, substantially as set forth.

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

WM. PERCY SIMPSON.

Witnesses:
EDW. RAMSEY,
M. A. GALLAGHER.