

No. 630,863.

Patented Aug. 15, 1899.

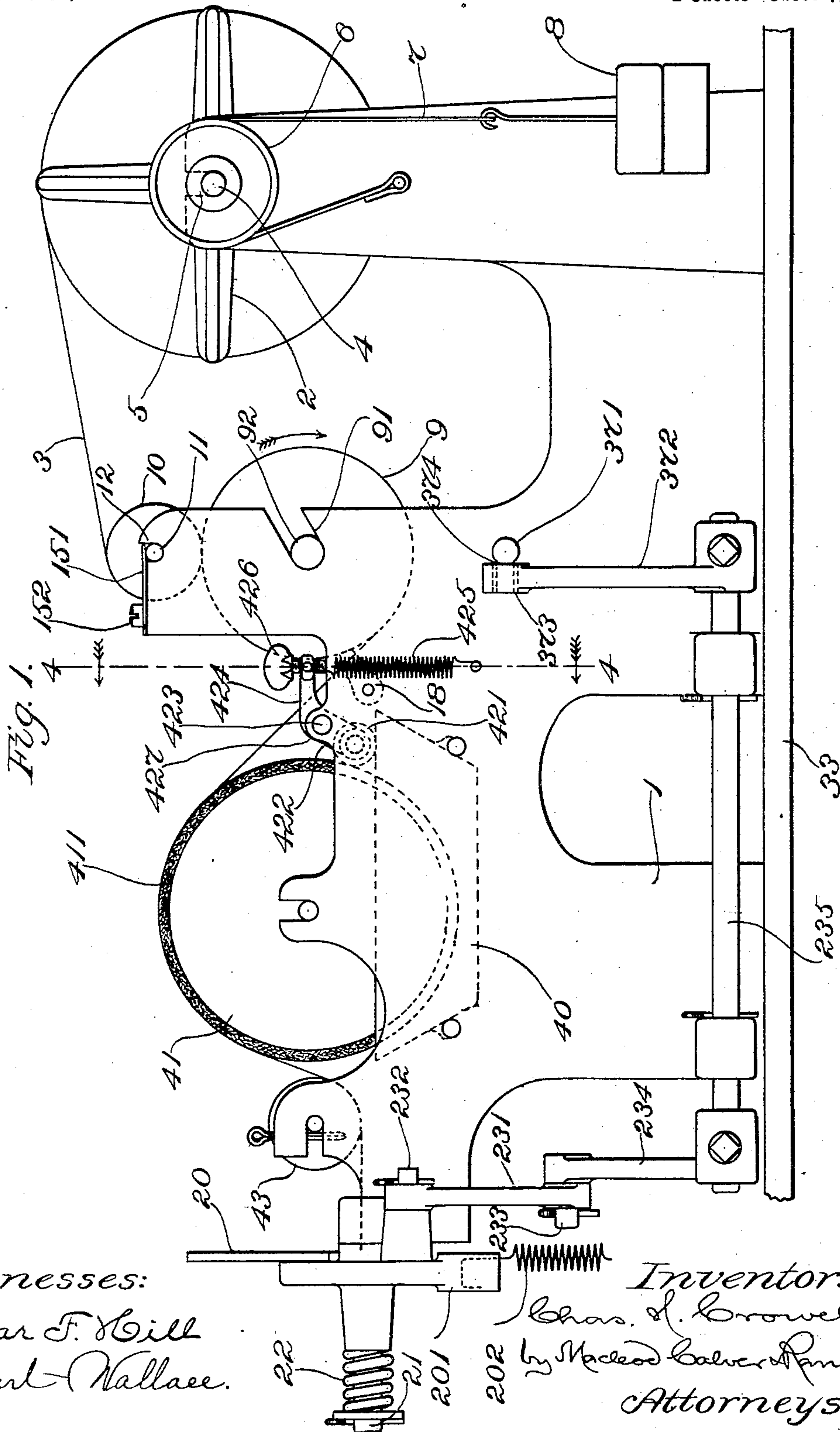
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MACHINE FOR CUTTING CLOTH INTO PREDETERMINED LENGTHS.

(Application filed Mar. 25, 1898.)

(No Model.)

2 Sheets—Sheet 1.



Witnesses:

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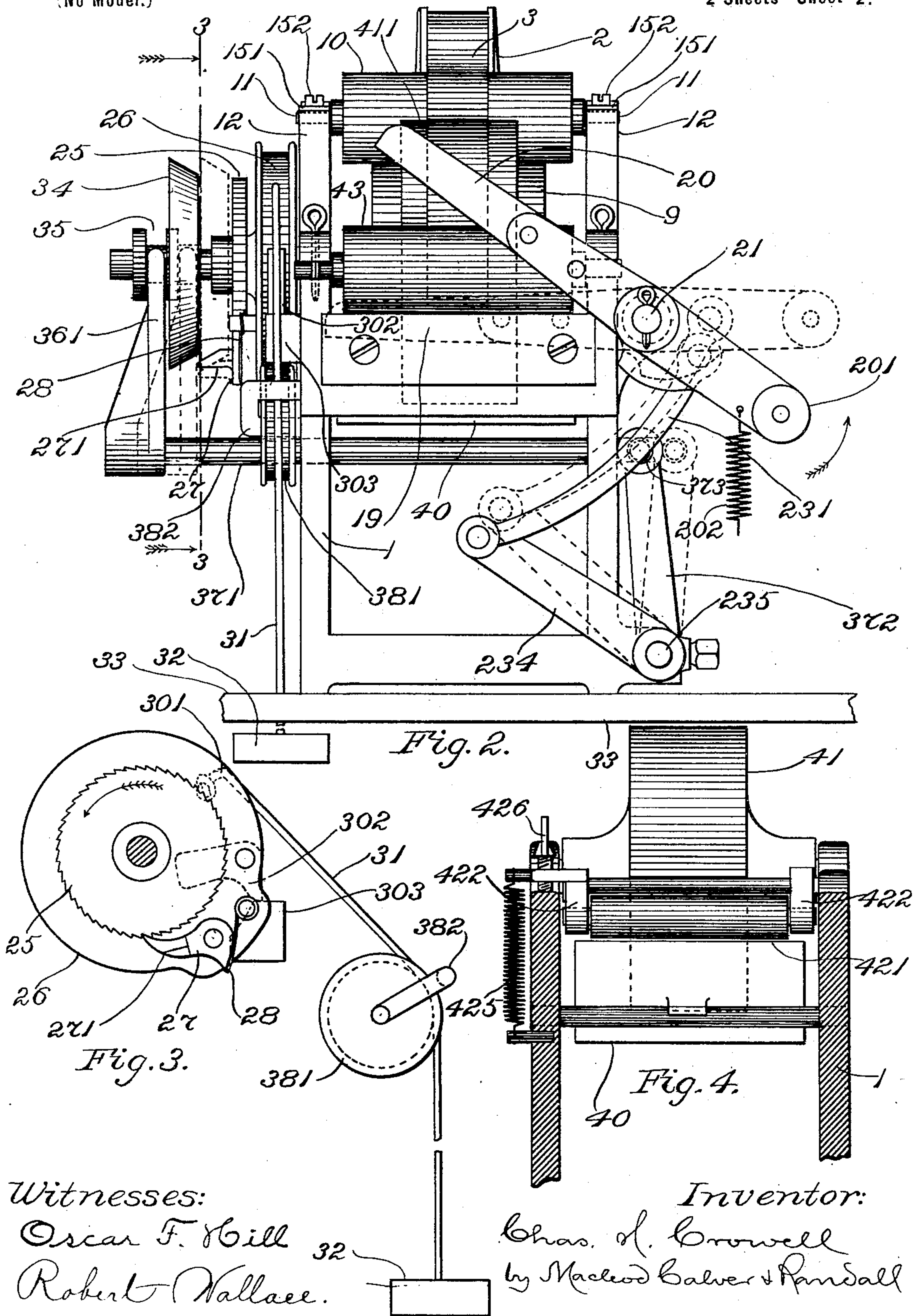
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UNITED STATES PATENT OFFICE.

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MACHINE FOR CUTTING CLOTH INTO PREDETERMINED LENGTHS.

SPECIFICATION forming part of Letters Patent No. 630,863, dated August 15, 1899.

Application filed March 25, 1898. Serial No. 675,058. (No model.)

To all whom it may concern:

Be it known that I, CHARLES H. CROWELL, a citizen of the United States, residing at Lynn, in the county of Essex and State of Massachusetts, have invented certain new and useful Improvements in Machines for Cutting Cloth into Predetermined Lengths, of which the following is a specification, reference being had therein to the accompanying drawings.

10 My invention consists in a machine by means of which a continuous strip of cloth or paper may be divided up readily, conveniently, and without waste of material into sections of predetermined length and where-
15 by the said strip, if previously gummed, may be moistened to prepare the said sections or lengths for immediate use, or if not previously gummed may have gum or other adhesive applied thereto.

20 The invention will be described first with reference to the accompanying drawings, in which latter I have illustrated the best embodiment thereof which I have thus far contrived, after which the distinguishing characteristics of the invention will be particularly pointed out, and distinctly defined in the
25 claims at the close of this specification.

Figure 1 of the drawings shows in side elevation a machine containing the said embodiment of the invention. Fig. 2 shows the said machine in end elevation looking from the left-hand side in Fig. 1. Fig. 3 is a view of certain parts, showing them in section on the plane indicated by the dotted line 3 3 in Fig. 2, looking in the direction that is indicated
35 by the arrows that are adjacent to the ends of the said dotted line. Fig. 4 is a view in section on the plane that is indicated by the dotted line 4 4 in Fig. 1, looking in the direction of the arrows that are adjacent to the
40 ends of the said dotted line.

1 designates the framework of the machine.

2 designates the supply-reel, the same having wound thereupon a continuous strip of material 3. The said reel is made fast upon
45 a shaft 4, the latter being journaled in open bearings 5 on the framework 1 and having fast thereon the brake-pulley 6, around which latter is passed the brake-band 7, the said
50 brake-band having one end thereof made fast

to the framework 1 and having a weight 8 applied to the other end thereof.

9 designates a measuring-roll having the journals 91 thereof mounted in open bearings 92 in the framework 1. To the said measuring-roll 9 the strip of material 3 is taken after
55 leaving the supply-reel. The strip is held in frictional contact with the surface of the measuring-roll 9, so that when the strip is drawn forward by the operative taking hold
60 of the same at the delivery end of the machine and pulling thereon the contact of the said strip with the said surface of the measuring-roll shall rotate the roll. A convenient means of pressing the strip into contact with
65 the surface of the measuring-roll 9 and gripping it firmly thereagainst comprises a presser-roll 10, the journals 11 11 of which are mounted in open or slotted bearings 12 12 in the
70 framework. Each journal 11 receives the pressure of a leaf-spring 151, the free extremity of which extends over the opening of the slotted bearing 12 for such journal, the spring being secured in place on the framework by
75 a screw, as 152. The strip of material 3 passes partly around the presser-roll, then between the two rolls 9 and 10, and then around more than half the circuit of the periphery of the measuring-roll. For the purpose of preventing
80 accidental reverse movement of the measuring-roll a dog or detent 18 (see dotted lines, Fig. 1) is or may be pivoted to the framework with its extremity disposed in contact with the surface of the adjacent end of the
85 roll, the said dog being arranged to operate in obvious manner to permit forward rotation of the roll, while acting to arrest instantly the said roll upon rotation thereof in reverse direction. Thereby backward movement of
90 the strip of material in the machine is prevented.

In practice the strip of material 3 is pulled through the machine by hand by taking hold of the advance end thereof at the delivery end of the machine, and after the required
95 length of the strip has been drawn forward at the delivery end of the machine the strip is severed at the said delivery end, so as to cut off the said length. For the purpose of severing the strip I employ at the delivery
100

end of the machine cutting devices, which may be of any preferred construction, but which conveniently may consist of a fixed cutter-blade 19 and a movable cutter-blade 20, the latter being mounted pivotally at one side of the machine upon the pin 21 and acted upon by a spring 22, which presses it up against the edge of the fixed cutter-blade. The movable cutter 20 is provided with an arm 201, moving in unison therewith and which at the required time in the working of the machine is to be caused to move in the direction of the arrow, Fig. 2, by means of power transmitted thereto through suitable power connections. The movable cutter is caused to occupy normally the open position in which it is represented in the drawings—as by means of a spring, for instance, as indicated at 202, applied to any suitable point—this normal position of the movable cutter enabling the strip of material 3 to be drawn forward between the two cutters 19 and 20. In order to assist the operative in accurately cutting the strip of material 3 into proper lengths, I combine with the measuring-roll 9 devices whereby the feed of the strip is automatically retarded or arrested after a portion of the required length has been caused to pass the cutters. Thus at 25 is a detent-wheel which is made fast upon the shaft of the measuring-roll, and 26 is a barrel which is mounted to turn loosely upon the said shaft and has connected pivotally thereto a pawl 27. (See Fig. 3.) The said pawl is pivoted to the side of the barrel 26 and overhangs the detent-wheel 25, so as to engage normally in the teeth of the latter, it being acted upon by a spring 28, which holds its engaging end in contact with the said teeth. Thereby as the measuring-roll is rotated by the forward movement of the strip the barrel 26 is caused to rotate in unison with the said roll. One end of a cord or wire 31 is connected to the barrel 26, as at 301 in Fig. 3, the said cord or wire having attached thereto and suspended thereby a weight 32. As the measuring-roll and barrel continue to rotate in unison the cord or wire 31 is wound upon the periphery of the barrel 26 until a stop or enlargement upon the cord or wire, which stop or enlargement preferably is constituted by the weight itself, is brought into engagement with a fixed stop, which last may be constituted by a portion of the framework or by a suitable attachment thereto or by the support for the machine. In the drawings I have shown the said fixed stop as constituted by the bench 33, upon which the machine is mounted. When by the winding up of the cord or wire upon the barrel 26 the stop or enlargement upon the said cord or wire is brought against the said fixed stop, the rotation of the measuring-roll is arrested, which serves to arrest or resist the forward movement of the strip under the pull that is communicated to the same by the operative, he having hold of the advance end

of the strip. In this way I provide for determining when a sufficient length of the strip has passed the cutters, which last may then be operated by the operative to sever the said length.

The mechanism which I have described as employed in connection with the measuring-roll constitutes detent mechanism by means of which to arrest the forward rotation of the measuring-roll when the proper length of material has been drawn forward between the cutters. After such length of material has been severed it becomes necessary to disengage the said detent mechanism from the measuring-roll and reset the said mechanism prior to drawing forward and severing a second length of the strip of material coming from the supply-reel. To this end I mount loosely upon the shaft of the measuring-roll a throw-off disk 34, the same being mounted at the side of the detent-wheel 25 and being capable of movement along the said shaft toward and from the said detent-wheel. The hub of the said throw-off disk is grooved, as at 35, Fig. 2, the groove receiving the upper forked end of the arm 361, the said arm being affixed to the rod or slide-bar 371 and the said rod or slide-bar being mounted to slide or move endwise transversely or crosswise of the machine. When the said rod or slide-bar and its arms are moved so as to carry the throw-off disk 34 toward the detent-wheel 25, the beveled edge of the said disk acts against the lateral projection 271 of the pawl 27 and disengages the said pawl from the teeth of the detent-wheel. When this disengagement has been effected, so that the barrel has been rendered free to turn independently upon the shaft of the measuring-roll 9, the weight 32 operates to unwind the cord or wire 31 and rotates the barrel 26 reversely upon the shaft of the measuring-roll. The cord or wire 31 passes over a guide pulley or roll 381, that is located adjacent to the periphery of the barrel 26, a loop or keeper, as at 382, being employed in connection with the said pulley or roll to prevent the cord or wire from leaving the same. For the purpose of arresting the reverse rotation of the barrel at the proper point—that is to say, after the cord or wire has unwound sufficiently—I employ in connection with the barrel a dog or pawl, as 302, which is mounted pivotally upon the barrel. The nose or engaging portion of the said dog or pawl tends normally to project sufficiently to engage in the backward rotation of the barrel with a fixed stop, as 303, herein shown as projecting from one side frame of the machine. Any suitable means of causing the nose or engaging portion of the said dog or pawl thus to project so as to engage at the proper time with said fixed stop 303 may be adopted. In the drawings (see Fig. 3) I have represented it as provided with a tail portion of sufficient proportions to cause the nose or engaging portion to project

from the periphery of the barrel 26 under the influence of either centrifugal force or unaided gravity.

During the forward rotation of the barrel 5 in unison with the measuring-roll as the strip of material 3 is drawn forward by the operative the cord or wire 31 as it winds upon the barrel overlies the nose or engaging portion of the dog or pawl, holding the said nose or 10 engaging portion pressed inwardly toward the center of the barrel, and during the unwinding operation the cord or wire continues to hold the said portion thus pressed inwardly toward the center of the barrel, so as to prevent it from engaging with the stop 303 until 15 the last coil of the cord or wire has become unwound, when the nose or engaging portion becomes freed and engages with the said stop. (See Fig. 3.) For the purpose of moving the rod or slide 371 and arm 361 so as to occasion 20 the movement of the throw-off disk into position to disengage the pawl 27, as aforesaid, I connect the rod or slide 371 to the rock-shaft 235 by means of an arm 372 upon the 25 said rock-shaft, having a hole 373 through its upper end receiving loosely therein the pin 374, projecting from the said rod or slide. When the said rock-shaft is turned, it moves the slide or rod 371 endwise, and through the 30 forked arm 361 moves the throw-off disk 34. In order that the movement of the throw-off disk, which disengages the detent mechanism from the measuring-roll, may take place simultaneously with the operation of the cut- 35 ters, so that at the same moment that the length of material 3 last drawn forward is severed the devices of the machine shall be freed to permit the strip of material to be advanced again, I connect the rock-shaft 235 40 with the cutter-actuating connections. Thus in the drawings I have represented the said rock-shaft as having an arm 234 fixed thereon, with the said arm connected by a rod or link 231 to the arm 201. Thereby the rock-shaft 45 is moved in unison with the movable cutter, so that when arm 201 is moved upwardly to cause the cutters to sever the strip the connections, which have been described, operate to move the throw-off disk simultaneously 50 therewith to disengage the pawl from the detent-wheel on the shaft of the measuring-roll, thereby freeing the said measuring-roll and also allowing the detent mechanism to reset itself preparatory to measuring a fresh 55 length of the strip coming from the supply-reel. When the arm 201 is allowed to resume the position in which it is shown in the drawings, the throw-off disk is moved outwardly through the described connections away from the detent-wheel, and thus releases the pawl 60 27, allowing the spring 28 to force the said pawl again into engagement with the teeth of the detent-wheel. The parts are now in readiness to permit another length of material to 65 be drawn forward through the cutters.

40 designates a trough which preferably is located between the measuring-roll and the

cutters. 41 designates a roll that is journaled in bearings on the framework above the said trough, with its lower portion entering the 70 said trough, and 421 designates a doctor-roll which is arranged to cooperate with the surface of the said roll 41. The strip of material 3 after passing the measuring-roll passes over this roll 41 and in contact with the pe- 75 riphery thereof, the said strip being held down in contact with the surface of the said roll 41 by a guide-roll 43, that is located adjacent the cutters. When the said strip of material 3 is already gummed, the trough 40 80 and roll 41 may be used simply for moistening purposes. When, however, the said strip has not already been gummed, the said trough and roll may be utilized for applying gum, glue, paste, or other adhesive to the strip as 85 it is drawn through the machine.

The roll 41 has its periphery covered with absorbent material 411. The doctor-roll 421 is for the purpose of expressing from the said covering the excess of moisture or adhesive 90 substance which it takes up in the trough 40. The said roll is furnished at its opposite ends with journals which are received in bearings in the side arms 422 422 of a carrier-frame having its journals 423 423 fitted to bearings 95 at 427 on the machine-frame, the said carrier-frame having an arm 424, to which is connected one end of a spring 425, the other end of said spring being connected to the fixed framework of the machine. The said spring 100 acts to rock the carrier-frame in a direction to press the doctor-roll 421 against the periphery of the roll 41. The extent of such movement under the influence of the spring 425 is determined and varied at will by means of 105 an adjusting-screw 426, having its threaded stem fitted to a tapped hole in the arm 424, the end of said screw making contact with a fixed part of the framework. (See Figs. 1 and 4.) 110

I claim as my invention—

1. The combination with the measuring-roll, its detent-wheel, the barrel having a pawl or detent to engage the detent-wheel, the cord secured to said barrel and provided with a 115 stop, the throw-off disk, and the cutters, of the rock-shaft in operative connection with the cutters, and the connections intermediate said rock-shaft and the throw-off disk, to effect the release of the barrel at the same time 120 with the cutting of the strip, substantially as described.

2. The combination with the measuring-roll, its detent-wheel, the barrel having a pawl or detent to engage the detent-wheel, the cord 125 secured to the said barrel and provided with a stop, the throw-off disk, and the fixed cutter and movable cutter, of the arm connected to the movable cutter, the rock-shaft having an arm connected operatively to the former 130 arm, a slide or rod engaged by a second arm on the said rock-shaft, and a fork carried by said slide or rod and engaging with the throw-off disk, substantially as described.

3. The combination with the measuring-
roll, of its detent-wheel, the barrel having a
detent to engage said detent-wheel, the cord
connected at one end to a portion of the pe-
5 riphery of the barrel and having a weight ap-
plied thereto, a gravitating dog or pawl ap-
plied to said barrel and held in retracted po-
sition by overlying coils of the said cord, a
fixed stop to be engaged by the said dog or
10 pawl when the latter is permitted to project

after the unwinding of the cord, and throw-off
devices to disengage the said detent from the
said detent-wheel.

In testimony whereof I affix my signature
in the presence of two witnesses.

CHARLES H. CROWELL.

Witnesses:

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