

J. T. TULLIS.
CLOTH MEASURING MACHINE.
APPLICATION FILED AUG. 6, 1917.

1,345,811.

Patented July 6, 1920.
4 SHEETS—SHEET 2.

Fig. 5.

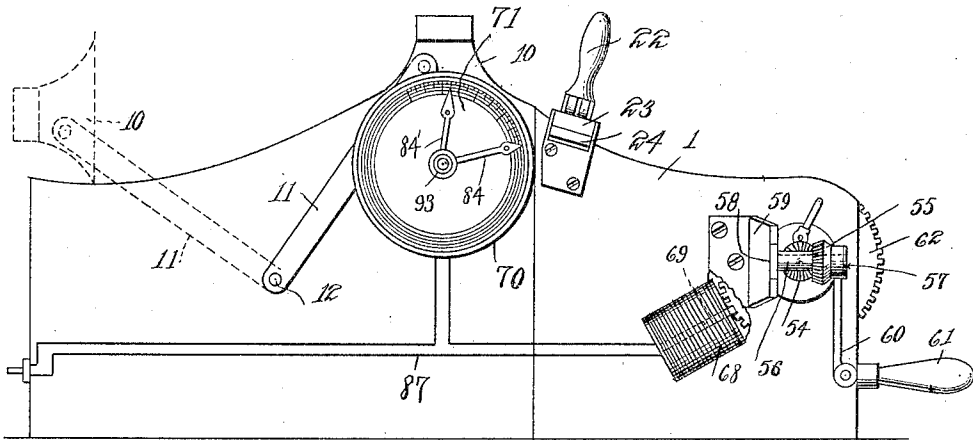


Fig. 6.

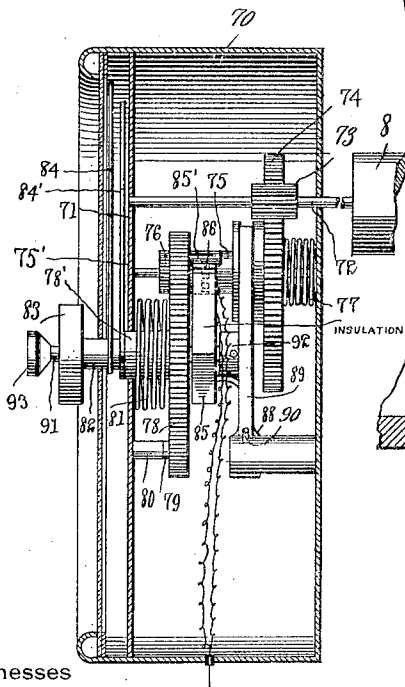
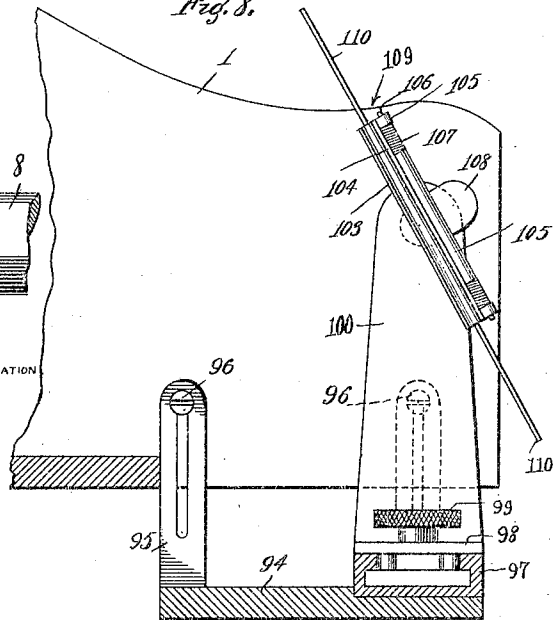


Fig. 8.



Witnesses

J. T. Tullis
H. A. Mitchell

J. T. Tullis

Inventor

by

C. A. Snow & Co.
Attorneys

J. T. TULLIS.
CLOTH MEASURING MACHINE.
APPLICATION FILED AUG. 6, 1917.

1,345,811.

Patented July 6, 1920.

4 SHEETS—SHEET 3.

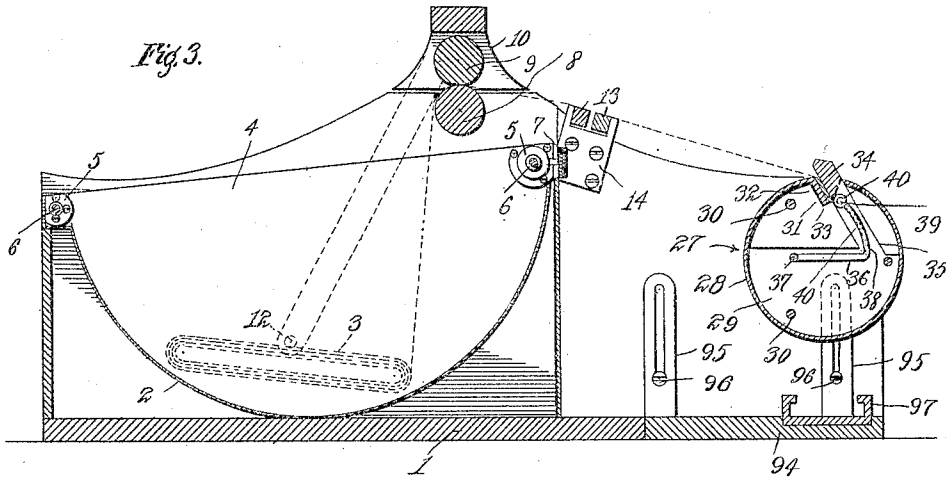
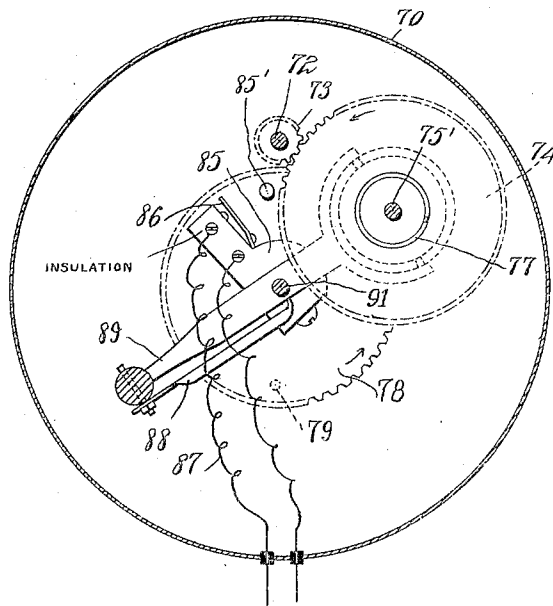


Fig. 5.



J. T. Tullis.

Inventor

Witnesses

J. R. Toney
H. A. Mitchell

by

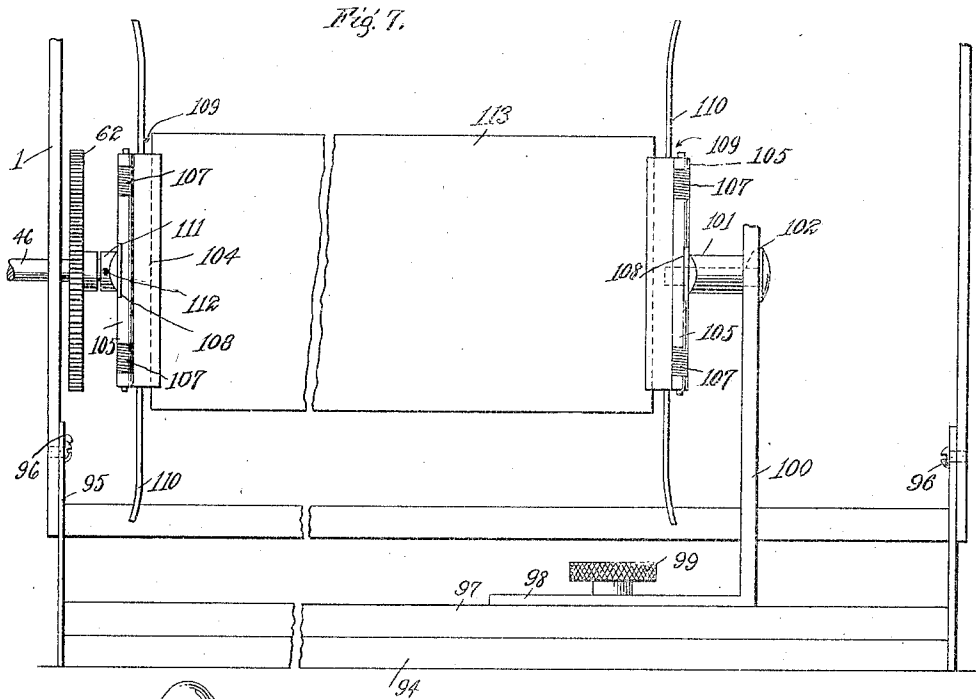
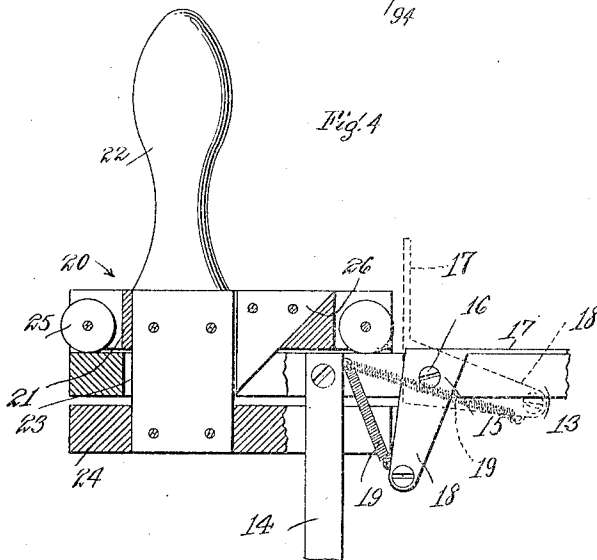
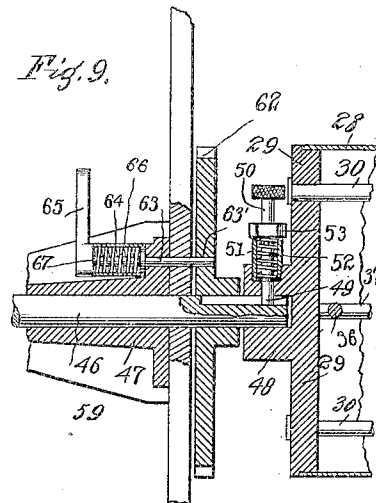
C. A. Snow & Co.

Attorneys

J. T. TULLIS.
CLOTH MEASURING MACHINE.
APPLICATION FILED AUG. 6, 1917.

1,345,811.

Patented July 6, 1920.
4 SHEETS—SHEET 4.



Witnesses

J. R. Lane
H. R. Mitchell

J. T. Tullis.
Inventor

by

Cash & Co.
Attorneys

UNITED STATES PATENT OFFICE.

JOHN T. TULLIS, OF HOPE, ARKANSAS, ASSIGNOR OF ONE-HALF TO J. N. RILEY, J. P. BRUNDIDGE, ELDRIDGE GREENING, ALBERT BETTS, AND HARRY ALPHY, ALL OF HOPE, ARKANSAS.

CLOTH-MEASURING MACHINE.

1,345,811.

Specification of Letters Patent.

Patented July 6, 1920.

Application filed August 6, 1917. Serial No. 184,634.

To all whom it may concern:

Be it known that I, JOHN T. TULLIS, a citizen of the United States, residing at Hope, in the county of Hempstead and State of Arkansas, have invented a new and useful Cloth-Measuring Machine, of which the following is a specification.

The present invention relates to a machine for measuring, winding and cutting cloth or other similar material, and aims to provide a novel and improved machine of that character having improved features of construction, to enhance the utility and efficiency thereof.

One of the objects of the invention is the provision of novel means for winding up the desired length of material, and enabling it to be readily removed when cut, thus facilitating the retailing of cloth and other fabrics.

A further object of the invention is the provision of a device used interchangeably with the winding drum, for rebolting cloth, when taking invoice of the stock on hand, or the like.

A still further object of the invention is the provision of novel means for indicating the amount of material wound up, and for stopping the machine when a desired length of material has been wound.

With the foregoing and other objects in view, which will appear as the description proceeds, the invention resides in the combination and arrangement of parts and in the details of construction hereinafter described and claimed, it being understood that changes in the precise embodiment of the invention can be made within the scope of what is claimed without departing from the spirit of the invention.

The invention is illustrated in the accompanying drawings, wherein:

Figure 1 is a plan view of the machine, portions being broken away.

Fig. 2 is a side elevation thereof, portions being broken away.

Fig. 3 is a longitudinal section.

Fig. 4 is a detail view illustrating the cutter and gripper.

Fig. 5 is a rear view of the indicator mechanism.

Fig. 6 is an elevation of the indicator mechanism.

Fig. 7 is an elevation of the rebolting device.

Fig. 8 is an end view of the rebolting device.

Fig. 9 is a sectional detail of said device.

The frame 1 is of suitable construction, 60 having upstanding sides, and a transverse concaved basket or receptacle 2 for holding the bolt 3 of cloth or other material, permitting said bolt to flop over as the cloth is unwound therefrom. A partition 4 is 65 fitted snugly within the basket 2, being provided at opposite ends with bearings 5 slidable on transverse rods 6 supported by the sides of the frame at the edges of the basket, whereby the partition 4 can be slid 70 longitudinally within the basket to accommodate bolts 3 of various lengths, and to hold the bolts adjacent the front side of the machine. The partition 4 is held in any adjusted position by means of a set screw 75 7 carried by one bearing 5 to bear against the respective rod 6.

An indicator roller 8 is carried by the sides of the frame 1 above the basket 2, and the cloth passes over said roller to rotate 80 the same as the cloth is unwound from the bolt. The cloth is held frictionally against the roller 8 by a pressure roller 9 thereover carried by a transverse yoke 10, the ends of which are secured to arms 11 at the opposite sides of the frame and pivoted thereto, 85 as at 12. The yoke 10 and roller 9 can, therefore, be swung with the arms 11 to the dotted line position in Fig. 2, thus permitting the cloth to be readily placed over 90 the roller 8, after which the weight of the yoke 10 and the weight of the roller 9, will press the roller on the cloth, thus assuring of the rotation of the roller 8 as the cloth is moved over it.

The cutting device embodies a transverse 95 slotted bar 13 supported by brackets 14 secured to the sides of the frame, the material passing over the bar 13 from the roller 8. Cloth gripping means is carried by the bar 100 13 at the front side of the frame to hold the material while being cut. This gripping means embodies rocking members 15 at opposite sides of the bar 13 adjacent to the forward end thereof mounted on pivots 16 105 carried by the bar, and the members 15 have jaws 17 projecting toward the rear side of the frame to overlap the bar 13 at the opposite sides of its slot, whereby to clamp the forward edge of the material on the bar. 110

The members 15 are connected by a depending yoke 18 so as to swing as a unit, and the yoke 18 is connected by a retractile spring 19 with the frame, thereby tending to swing the members 15 to press the jaws 17 against the material, thus gripping the same and holding it against slipping rearwardly when the cutter is moved in that direction. The jaws 17, when swung upwardly, will remain in this position, due to the fact that the yoke 18 in being swung rearwardly will move the spring 19 above the axis of the pivots 16, thus tending to hold the gripper, comprising the members 15 and jaws 17, in said position, until the jaws are swung rearwardly sufficiently to bring the spring 19 below the axis of said pivots so that the spring will now swing the jaws onto the bar 13. The jaws 17 can thus be readily swung upwardly out of the way, when placing the material over the bar 13, and during the movement of the material over said bar.

The cutting device includes a slide 20 movable longitudinally along the bar 13 and comprising a carriage 21 movable on the bar and provided with an upstanding handle 22 and a hanger 23 movable in the slot of the bar and carrying a block 24 at its lower end movable below the bar, to prevent the carriage being lifted from the bar. Said carriage has rollers 25 moving on the bar, so that the cutter can be readily moved. The carriage 21 has a depending cutter blade 26 movable within the slot of the bar 13. Before the material is cut, the jaws 17 are swung to grip the fabric, and the carriage can then readily pass over the jaws and the cutter blade can pass between them. Then, by moving the slide 20 rearwardly by grasping the handle 22, the cutter blade 26 in moving rearwardly, will cut the fabric.

A drum or reel 27 is employed for winding up the cloth, the same embodying a hollow or tubular body 28 and ends 29 connected by stay rods 30. This drum is provided with means for gripping the end of the cloth, and for this purpose the periphery of the drum has a longitudinal V-shaped recess or pocket 31, and a clamping plate 32 is swingable within said recess, having its inner end hinged, as at 33, to the drum. A longitudinal bar 34 is slidable into and out of the recess 31 in a chordal direction relatively to the drum, its ends sliding in grooves 35 with which the ends 29 of the drum are provided. The actuating means of the bar 34 embodies arms 36 carried by a longitudinal rock shaft 37 journaled to the ends 29 of the drum and located therein, said arms having arcuate portions 38 pivoted at their ends, as at 39, to the inner edge of the bar 34, whereby the swinging movement of the arms 36 will reciprocate the bar 34 transversely of itself, whereby it can be retracted and projected. A knob or

handle 40 is connected to the portion 38 at one end of the drum and extends through one end of the drum, whereby the knob 40 in being moved by hand, will move the bar 34 accordingly.

To apply the cloth to the drum, the knob 40 is moved to retract the bar 34, and the clamping plate 32 is then swung toward the retracted bar 34 to admit the end of the cloth. Then, by projecting the bar 34, it will swing the plate 32 to clamp or grip the end of the cloth, and the bar 34 in being projected across said plate, will hold the plate in clamping position. Furthermore, the bar 34 can be projected the desired distance from the drum, in order that the cloth will be wound over said bar. Thus, when the bar is retracted after the winding of the material thereon, the material will be loose on the drum, so that it can be readily pulled therefrom endwise.

The drum 27 is mounted for rotation to wind up the material, and for oscillation so that it can be swung to remove the material therefrom. For this purpose, the rear end 29 of the drum has an outstanding hub 42 carried for rotation by a spindle 43 which is in turn carried by the leaf 44 of a hinge whose other leaf 45 is secured to the rear side of the frame, the axis of the hinge being vertical. Thus, the hub 42 can rotate on the spindle 43 with the drum, and by swinging the forward end of the drum away from the frame, the spindle 43 and hinge leaf 44 can swing with the hub 42, thereby enabling the material to be readily slipped longitudinally off of the drum over the forward end thereof, especially after the bar 34 has been retracted. The forward end of the drum is detachably supported for rotation and to actuate said drum for winding the material thereon. Thus, a shaft 46 is journaled through an outstanding bearing 47 carried by the front side of the frame, and its rear end is receivable in an outstanding hub or boss 48 with which the forward end 29 of the drum is provided. The shaft 46 is provided with a socket 49 near its inner end, and a radial latch 50 is slidable through the wall of the hub 48 and an outstanding tubular guide 51 attached to the hub. A coiled wire expansion spring 52 is housed within the guide 51 and is confined between a cap 53 and the latch 50, tending to move the latch into engagement with the shaft 46. When the drum 27 is swung into operative position, the shaft 46 being retracted, said shaft can be slid rearwardly to move into the hub 48, the latch 50 being retracted and then snapping into the socket 49 to key the drum to the shaft 46, whereby the drum will be rotated by said shaft.

The actuating means includes, in connection with the shaft 46, a bevel pinion 54 secured

to the outer end thereof and meshing with a bevel pinion 55 carried by a sleeve or hub 56 rotatable loosely on a pintle 57 carried by a member 58 hinged on a vertical axis to an outstanding bracket 59 attached to the front side of the frame. A crank 60 is connected to the pinion 55 to rotate about the longitudinal axis of the pintle 57, and the crank has a handle 61 pivotally connected thereto, whereby it can be swung at an angle with the arm of the crank or toward the line thereof. When the pintle 57 is swung toward the frame, the pinion 55 meshes with the pinion 54, and the crank in being rotated will rotate the shaft 46 and drum 27. To swing the drum for removing the material therefrom, the pintle 57 is swung away from the frame, to remove the pinion 55 from the pinion 54, and the shaft 46 can then be withdrawn outwardly after the latch 50 has been moved to releasing position. The forward end of the drum 27 can then be moved outwardly.

As a means for locking the drum 27, a peripherally notched wheel 62 is feathered upon the shaft 46 within the frame adjacent to the front side thereof, permitting the shaft 46 to be slid into and out of engagement with the hub 48. A latch 63 is slidable through the front side of the frame to engage in an aperture 63' in the wheel 62 for holding the drum 27 in position with the cloth or material clamping or gripping means at the top. The latch 63 is slidable in an outstanding tubular guide 64 attached to the base of the bearing 47, and the latch has a handle 65 at its outer end. A spring 66 held within the guide 64 serves to move the latch 63 inwardly to snap into the aperture 63' when the drum 27 is turned to cloth receiving position. The latch 63 can be retracted by pulling on the handle 65, to permit the drum to rotate.

A solenoid 68 is carried by the front side of the frame and its core 69 provides a latch to engage the notched periphery of the wheel 62, for locking the drum against rotation at any position thereof. The latch core 69 is brought into operation automatically by the mechanism which will be described presently.

The indicating and automatic drum stopping mechanism is operated by the roller 8 which is actuated by the passing of the material over it, as above described. This mechanism embodies a casing 70 carried by the front side of the frame and having a graduated dial 71 for indicating yards or other units of linear measurement. A shaft 72 mounted within the casing 70 is connected to the forward end of the roller 8 to be actuated thereby, and a pinion 73 on the shaft 72 meshes with a gear wheel 74 rotatable loosely on a shaft 75, the gear wheel 74 having a clutch hub 75 to move into and out

of engagement with a pinion 76 on said shaft. The gear wheel 74 is slidable on its shaft, and is moved into engagement with the pinion 76 by means of a spring 77. The pinion 76 meshes with a gear wheel 78, and the gear wheel 78 has a hub or tubular shaft 78' journaled through the face or dial 71. The train of gears provides for the desired speed reduction, and a pointer 84' is carried by the shaft 78' to indicate on the graduations of the dial 71, the number of yards or other units of material measured. The gear wheel 78 has a pin 79 movable against a stop 80 when the pointer 84' is returned to zero, and a spring 81 is connected to the gear wheel 78 and casing to rotate the gear wheel 78 back to starting position. A tubular shaft 82 extends through the tubular shaft 78' and is provided at its outer end with a knob 83 and a pointer 84 which can be set to the desired graduation, according to the number of yards of material desired, so that when the pointer 84' reaches the pointer 84, the mechanism will operate for stopping the further winding of the material. An arm 85 is secured to the inner end of the shaft 82 and carries a spring switch 86 controlling an electrical circuit 87 in which the solenoid or electro-magnet 68 is disposed, whereby the switch 86, which is normally opened, in being closed will close the electrical circuit and energize the solenoid to project the latch core 69 into engagement with the wheel 62, thus stopping the drum 27 and preventing the excessive winding of the material thereon. A pin 85' is carried by the gear wheel 78 to contact with the switch 86 and close it. A spring 88 bears against the arm 85 to hold it in any angular position to which it is set, said arm being set to the desired position by rotating the knob 83 to bring the pointer 84 to the proper graduation of the dial. It will, therefore, be apparent that when the desired number of yards of material has passed over the roller 8, the gear wheel 78 will have been rotated sufficiently, to bring the pin 85' against the switch 86 to close said switch and, therefore, result in the drum being stopped as above indicated. The pointer 84' is movable with the pin 85' to register the amount of material which has passed, and the arm 85 and switch 86 are movable with the pointer 84 to be set the desired distance ahead of the pointer 84' and pin 85'. To clear the mechanism or restore it to starting position, a lever 89 is engaged with the hub of the gear wheel 74 and is pivoted, as at 90, within the casing 70, and a spindle 91 slidable through the tubular shaft 82, is swiveled, as at 92, to the lever 89 at its rear end, and the forward end of said spindle has a knob or button 93, which when pressed will swing the lever 89 rearwardly and move the gear wheel 74 with it to release the clutch 75 and

consequently to release the gear wheel from the pinion 76, whereby the spring 81 which is wound up by the advance movement of the gear wheel 78, will return said gear wheel to initial position, the pin 79 striking the stop pin 80 to hold the pointer 84' and pin 85' at zero.

The operation of the machine is readily understood from the foregoing, but briefly described is as follows:

The yoke 10 is moved out of the way and the bolt 3 of cloth dropped into the basket 2 and the cloth passed over the roller 8 and the forward end of the cloth laid on the bar 13 at the slot thereof. The yoke 10 is then swung back so that the pressure roller 9 bears on the cloth to assure of the rotation of the roller 8 when the cloth is advanced. The pointer 84 is then advanced to the graduation indicating the desired length of material, the pointer 84' being at zero. The cloth is then pulled to the drum and attached thereto as above described. The drum is then rotated to wind the material thereon, the length of material which has passed the slot of the bar 13 being indicated by the pointer 84', and when said pointer reaches the pointer 84, the pin 85' of the gear wheel 78 will contact with the switch 86 and close it to close the electrical circuit and energize the solenoid for projecting the latch core 69 into engagement with the wheel 62. This will automatically stop the rotation of the drum when the desired length of material has passed the slot of the bar 13. Then, when the forward edge of the material is gripped on the bar 13 by the gripper, the cutter is moved rearwardly to cut the cloth, and the remaining end of the cloth is then wound on the drum after the drum has been released, by opening the electrical circuit. The forward end of the drum is then detached and swung away from the frame, to remove the material from the drum.

The machine also embodies a rebolting device used interchangeably with the drum 27, and designed for rebolting material when making an invoice of stock or the like. This rebolting device embodies a supplementary frame 94 disposed transversely below the drum 27, and provided at its ends with outstanding slotted hangers 95 engaged by screws 96 carried by the sides of the main frame 1. The supplementary frame 94 is normally raised, and held in this position by tightening the screws 96, but when the rebolting device is used, the supplementary frame 94 is lowered by loosening said screws. The frame 94 has a grooved guide 97 in which a slide 98 works, a bolt 99 being carried by the slide for clamping it in any adjusted position. The slide 98 has a standard 100 provided with a bearing 101 through which a spindle 102

extends for rotation. The rebolting device has end clamps or board holders 109, one carried by the spindle 102 and the other detachably engageable with the shaft 46 to be rotated thereby. Each of the clamps 109 embodies the elongated jaws 103 and 104 having hinged butts 105 connected by a hinge pin 106. Springs 107 on the hinge pin 106 serve to bring the jaws together, and the jaw 104 has a finger piece 108 for swinging it open. The jaw 103 of one clamp is attached to the spindle 102 to rotate therewith, and the jaw 103 of the other clamp is provided with a boss or hub 111 to fit on the shaft 46, a set screw or latch 112 being carried by the hub 111 to engage the shaft 46, whereby the corresponding clamp will rotate with said shaft. The clamps 109 are adapted to clamp the ends of a board 113 upon which the material is bolted or wound. The ends of one jaw of each clamp have outstanding arms 110 serving to retain the material on the board 113 and guide the material onto the same.

In using the rebolting device, the drum 27 is removed from the spindle 43 and shaft 46, and one clamp 109 is then applied to the shaft 46. The frame 97 is lowered, and the slide 98 applied thereto carrying the other clamp 109. The slide 98 can then be adjusted to accommodate the length of the board 113, which has its ends applied to the clamp. Then, when the shaft 46 is rotated, this will rotate the board 113 about its longitudinal axis, to wind the material thereon, the material being taken from one bolt in the basket 2 and wound upon the board 113 and the material will be measured as above described, in order that the length thereof can be determined, as when taking an inventory of stock.

Having thus described the invention, what is claimed as new is:

1. A cloth measuring machine embodying a receptacle, a cloth winding means co-operating with the receptacle, a bar over which the cloth is movable, means for supporting the bar independently of the winding means, means for measuring the cloth as it traverses the bar, a cloth gripper on one end of said bar, and a cutter movable along the bar over said gripper to a point beyond the gripper.

2. A cloth measuring machine embodying a bar over which the cloth is movable, a gripper pivoted to said bar and having a jaw to clamp the cloth thereon at one edge of the cloth, a spring connected to the gripper to hold it in either clamping or releasing position, and a cutter movable along said bar over the gripper when in clamping position.

3. A cloth measuring machine embodying a slotted bar over which the cloth is movable, a gripper pivoted to the bar near one

end thereof and having jaws to clamp one edge portion of the cloth on the bar, the gripper having a yoke, a spring connected to the yoke for holding the gripper either in clamping or releasing position, and a cutter slide movable along said bar and having a cutter working in said slot and movable between said jaws, the slide being movable over said jaws.

10 4. A cloth measuring machine embodying cloth winding means, means operated by the movement of the cloth, indicating means operated by said means, means for returning the indicating means to starting position,
15 manually adjustable means movable in advance of the indicating means and coöperable therewith, and stopping means for the winding means controlled by the last mentioned means when it coöperates with the
20 indicating means.

5. A cloth measuring machine embodying cloth winding means, means actuated by the movement of the cloth, indicating means operated by the second mentioned means,
25 means for returning the indicating means to starting position, an electrical circuit, means movable manually in advance of the indicating means and arranged to be engaged by the indicating means in said circuit for closing the electrical circuit, and
30 electrical stopping means controlled by the engagement of said indicating and manually movable means for stopping the winding means.

35 6. A cloth measuring machine embodying a drum, a hinged member to which one end of the drum is connected for rotation and oscillation, a rotatable actuating member for connection with the other end of the drum,
40 and means for stopping the rotation of said drum.

7. A cloth measuring machine embodying a winding member, a hinged member to which one end of the winding member is
45 connected for rotation and oscillation, and an actuating shaft mounted slidably for movement into and out of engagement with the other end of the winding member.

8. A cloth measuring machine embodying
50 a winding member, a hinged member to which one end of the winding member is connected for rotation and oscillation, an actuating shaft mounted slidably for movement into and out of engagement with the
55 other end of the winding member, a wheel on said shaft, and stopping means engageable with said wheel.

9. A cloth measuring machine embodying

a winding member, a hinged member to which one end of the winding member is
60 connected for rotation and oscillation, a slidably mounted shaft engageable with the other end of the winding member, and actuating means movable into and out of connection with said shaft.
65

10. A cloth measuring machine embodying a winding drum, a cloth clamping member at the periphery thereof, and a member projectable from the periphery of the drum for holding the clamping member in place
70 and retractable within the drum to loosen the cloth for removal.

11. A cloth measuring machine embodying a winding drum having a recess in its periphery, a clamping member hinged with
75 in said recess, and a member movable within said drum through said recess for swinging and holding the clamping member in clamping position and projectable from the drum for the winding of the cloth thereover,
80 said last mentioned member being retractable within the drum to loosen the material for removal from the drum.

12. A cloth measuring machine embodying a winding drum having a recess in its
85 periphery, a clamping member hinged within said recess, a bar slidably within the drum through said recess and movable outwardly to swing the clamping member to and hold it in clamping position, said bar
90 being projectable from the drum and retractable therein, and a rock shaft within the drum having arms connected to said bar for the manual movement thereof.

13. A measuring machine embodying an
95 actuating shaft, an adjustable slide, board clamps embodying spring-pressed jaws, one jaw of one clamp being attached to the shaft and one jaw of the other clamp being connected rotatably with the slide.
100

14. A cloth measuring machine embodying an actuating shaft, an adjustable slide, a pair of board clamps embodying elongated spring-pressed jaws, one clamp being
105 connected between its ends with the shaft, the other clamp being connected between its ends with the slide for rotation, and arms projecting from the ends of the clamps.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.
110

JOHN T. TULLIS.

Witnesses:

MONROE E. MILLER,
PHILOMENA A. ROCKELLI.