

(No Model.)

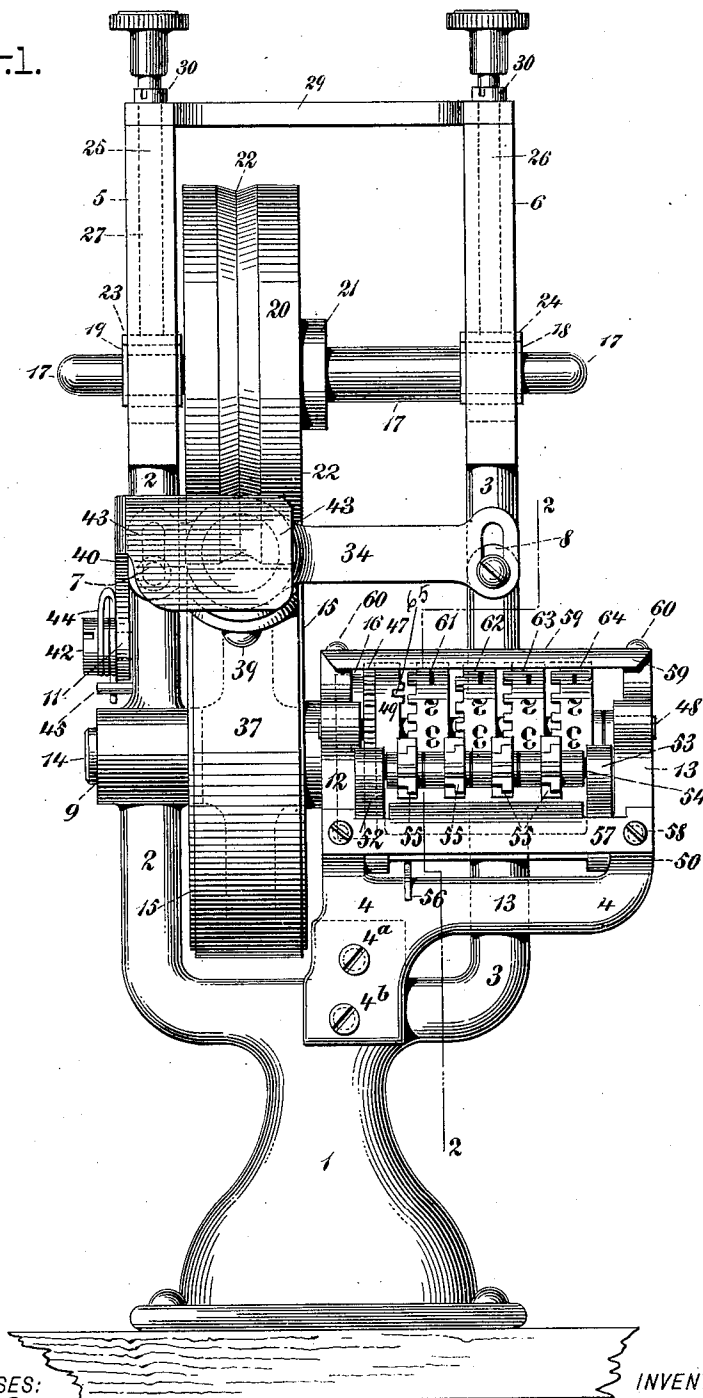
2 Sheets—Sheet 1.

W. L. CANDEE.
CLOTH MEASURING MACHINE.

No. 565,603.

Patented Aug. 11, 1896.

Fig. 1.



WITNESSES:

Gustave Dietrich

August Berrigand

INVENTOR

Willard L. Candee

BY

Butts, Atterbury, & Hyde Butts
ATTORNEYS.

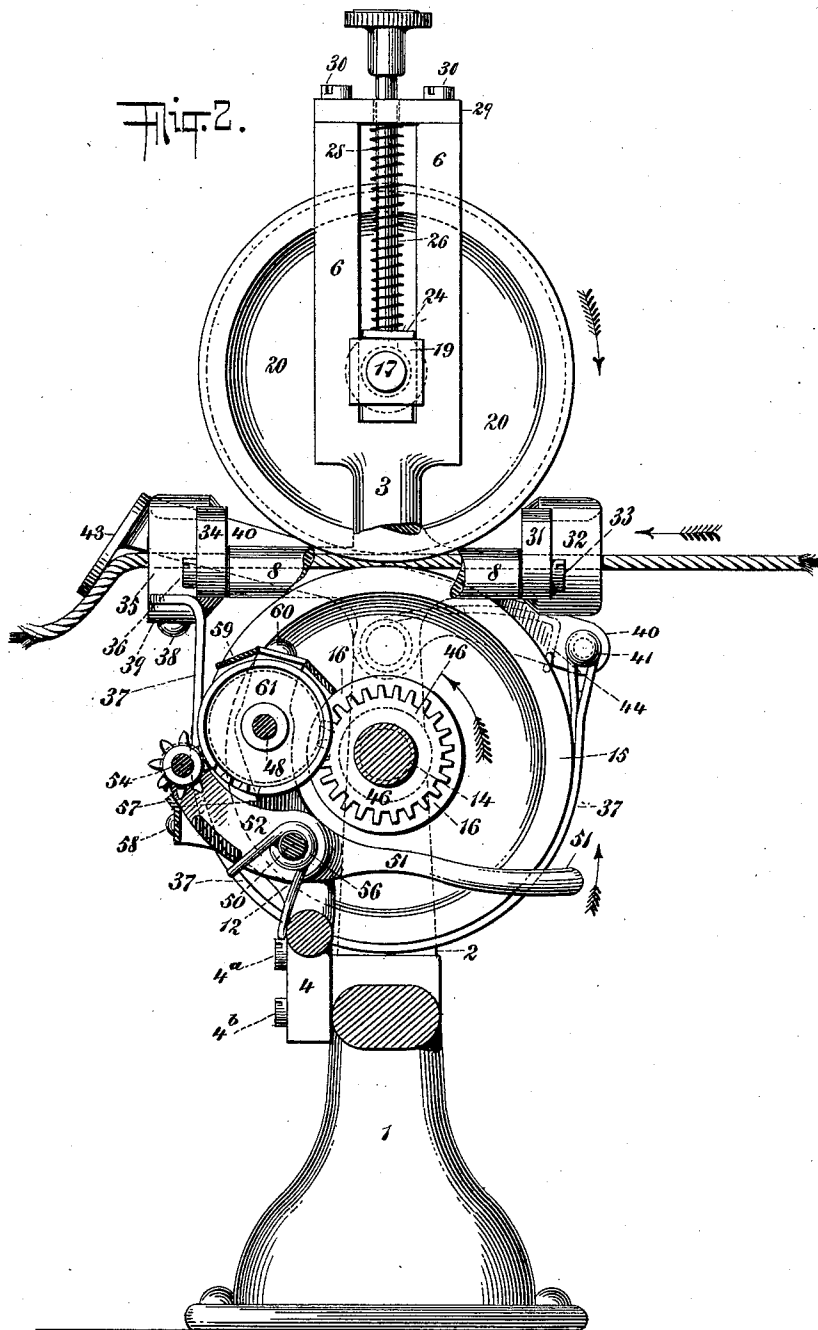
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UNITED STATES PATENT OFFICE.

WILLARD L. CANDEE, OF BROOKLYN, NEW YORK.

CLOTH-MEASURING MACHINE.

SPECIFICATION forming part of Letters Patent No. 565,602, dated August 11, 1896.

Application filed October 14, 1893. Serial No. 488,114. (No model.)

To all whom it may concern:

Be it known that I, WILLARD L. CANDEE, a citizen of the United States, residing at Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Measuring-Machines, of which the following is a full, true, and accurate description, reference being had therein to the accompanying drawings, in which drawings corresponding parts bear similar figures.

My invention relates to improvements in measuring-machines for measuring wire, tape, cloth, rods, &c., in which the measurement of the material is positively controlled and a visible registry of the number of inches, feet, yards, or other unit is actuated simultaneously with the operation of the rolls between which the material to be measured is forced or drawn; and the objects of my improvement are, first, to provide rolls for positively measuring the material, and means for automatically controlling the said rolls; second, to operatively combine with said rolls registering wheels or dials, which will be actuated simultaneously with the movement of the measuring-rolls; and, third, to provide means for throwing the aforesaid registering-wheels out of engagement with the measuring-rolls to permit the return of the registering-wheels to zero when desiring to again commence measuring.

Heretofore, when selling wire, whether bare or insulated, sales have usually been based on the cost of a pound or a fraction thereof; but it has been found to be preferable to sell the wire by the foot or yard. By my invention I provide at a small cost a simple apparatus for carrying out this process, and my machine may also be advantageously used to measure tape, cloth, &c.

Figure 1 is a front view of the apparatus; and Fig. 2 is a side view, showing part of the machine cut away on the line 2 2 of Fig. 1.

The frame of my machine consists of the base 1 and the outwardly and upwardly extending arms 2 3. In addition there is a supplementary frame 4, which is fastened to the base 1 by screws 4^a 4^b, all as shown in Fig. 1. The upper ends of the arms 2 and 3 bear the uprights 5 and 6, made integral with the arms, and these arms 2 and 3 have the bars 7 and 8 (preferably made from the same piece as

the arms) for supporting the wire-guiding funnels, as hereinafter described. Below these bars 7 and 8 there are openings 9 9 in the arms, in which the shaft of the lower measuring-roll is journaled. Immediately above the opening 9 in the arm 2 there is another and smaller threaded opening 11, which is to receive the shank of a screw which supports the band-controlling lever, as hereinafter described. The arms 2 and 3 support the measuring-rolls, the devices for guiding the wire between said rolls, and the lever controlling the band which permits the operation of the lower measuring-roll. The supplementary frame 4 bears the arms 12 13 for supporting the registering-wheels and the device for throwing them in and out of engagement with the measuring-rolls, as hereinafter fully described.

Upon a shaft 14, which is journaled in the openings 9 and 10, hereinabove referred to, is fastened the lower measuring-roll 15 by a screw passing through a collar formed on the right-hand side of the roll, and this collar bears a flange 16, to which is fastened the wheel which engages the registering-wheels, as hereinafter described. A shaft 17 is journaled in the sliding boxes 18 19, which boxes fit in the uprights 5 and 6, above referred to, and on this shaft there is fastened the upper roll (hereinafter called the "guiding-roll") 20 by a screw passing through a collar 21, formed on the right-hand side of the roll. The guide-roll 20 may have a groove 22 cut around it to hold the wire to be measured and assist in guiding it. The sliding boxes 18 19 are made with flanges on their outer and inner faces to prevent their being drawn from the uprights and assist in guiding their longitudinal motion, and these boxes bear upwardly against washers 23 24, and these washers 23 24 are threaded through their centers to receive the lower ends of the rods 25 26, around which fit the springs 27 28, held in position by the washers 23 24 and the bridge or plate 29, fitting across and on top of the uprights 5 and 6. To permit of the regulation of the springs, the rods 25 26 are fitted with milled heads. This bridge or plate 29 has openings through which pass the rods 25 26, and the plate is fastened to the uprights by screws 30, which pass through the plate and into

openings in the uprights, internally threaded to receive their shanks.

The bars 7 and 8, heretofore referred to, support an adjustable wire-guiding plate 31, which has a funnel-shaped opening 32 therein directly opposite the groove 22 in the guide-roll 20, and this plate is held to the bars 7 and 8 by screws 33, passing through slots and into the bars which are threaded to receive their shanks. The plate may be adjusted by loosening these screws and sliding the plate to get the funnel to the desired position with relation to the rolls. The opposite ends of the bars 7 8 support an adjustable plate 34, which has an exit-opening 35 therein directly opposite the groove 22 in the guide-roll 20, and this plate is held to the bars by screws 36, passing through slots and into the bars which are threaded to receive their shanks. The plate may be adjusted by loosening these screws and sliding the plate to bring the exit-opening to the desired position and to loosen the band-brake, as hereinafter described. One end of a strap 37 is fastened to the plate 34 directly underneath the exit-opening by a screw 38, which passes through a washer 39, through the strap, and into the plate which is threaded to receive its shank, and this strap 37 is passed under the roll 15, so as to embrace the same, and the other end of the strap, formed into a loop, is attached to a pin 41 on one end of a lever 40 by passing the loop over the pin when the lever is lowered. This pin is so cut away as to form a head thereon, which prevents the loop from working off of the pin.

The lever 40, which controls the band-brake, is journaled upon the shank of a screw 42, Fig. 1, which passes into the threaded opening 11, and the form of this lever is a flat strip, having an opening in an extension thereon whereby to mount it on the screw 42. One end of this lever bears the pin 41, and the other end is bent at right angles to the strip, so as to form an outwardly-inclined plate 43, which, when the lever is raised, covers the exit-opening 35. The lever 40 is held in position to draw the band-brake tight and drop the plate 43 over the opening 35 by a coiled spring 44, which is also fitted around the shank of the screw 42, and one end of this spring bears against a pin 45, attached to the arm 2 of the frame, and the other end of the spring is bent so as to bear against the bottom of the strip near to the pin 41.

It will be seen now that when desiring to measure wire the material is passed into the funnel 32, into the groove 22 of the guide-roll 20, and out through the exit-opening 35, being turned slightly downward by the inclined plate 43. The end of the wire is then grasped and, having first lifted it upward to tilt the lever and loosen the band-brake, the wire is drawn outward and slightly upward until the required amount has been measured, when the end of the wire is instantly lowered and the band-brake tightens around the measuring-

roll and positively clutches it and arrests its further movement.

Having now described the construction and operation of the devices for guiding the wire and controlling the roll which is connected with the record-wheels, I will describe the construction and operation of the mechanism for operating the visible register, and for throwing it in or out of engagement with the measuring-roll.

As heretofore stated, 4 is a supplemental frame, bearing the upright arm 12 and the outwardly and upwardly extending arm 13, the whole forming a bracket which supports the registering-wheels and the hand-lever for throwing those wheels into or out of engagement with the measuring-roll 15 and with each other. Upon the shaft 14 there is a sleeve, to one end of which is mounted a geared wheel 46, which is also fastened to the flange 16 of the collar attached to the measuring-roll 15, and this wheel 46 meshes with the toothed wheel 47, which is rigidly attached to a shaft 48, mounted in openings in the arms 12 13 of the supplemental frame 4. The registering-wheels, hereinafter described, are all loosely mounted upon this shaft. The wheel 47, Fig. 1, has a flange 49 in the right-hand side thereof, and a single notch 65, Fig. 1, is cut in this flange. Upon a rocking shaft 50, Fig. 2, mounted in the arms 12 13 a little below the shaft 48 and to the right thereof, is rigidly mounted a lever, consisting of handle 51 and arms 52 and 53, supporting a shaft 54. The pinions 55, which transfer motion from the wheel 47 to the nearest registering-wheel and thence to the other registering-wheels, are loosely mounted upon this rocking shaft.

A coiled spring 56, one end of which abuts against the frame and the other underneath the arm 53, serves to hold the pinions in engagement with the registering-wheels. To the arms 12 and 13 is fastened a plate 57 by screws 58, the object of which is to limit the movement of the lever, and the outwardly and upwardly extending edge of this plate serves to preserve the pinions in their original position when drawn from the registering-wheels. Another plate 59, with an opening therein to exhibit the record, is fastened by screws 60 to the tops of the arms 12 13.

The operation of the above mechanism is as follows: When the measuring-roll 15 is rotated, the wheel 46 (upon the sleeve) engages with the wheel 47, the notch 65, Fig. 1, in which engages with pinion on the right-hand side thereof at every revolution of the measuring-roll, (which, in this instance, is one foot in circumference,) and so communicates motion to the units-wheel 61. This units-wheel has ten notches in the left-hand flange and one notch in its right-hand flange, and this single notch engages with the pinion at the right-hand side thereof, which, in turn, communicates motion to the decimal-wheel 62. This decimal-wheel and the hundreds-wheel 63 and

the thousands-wheel 64 are constructed similarly to the units-wheel and transmit motion to their neighbors in a similar manner. When the desired amount has been measured, a copy is taken of the record shown by the wheels, and the lever bearing the pinions is tilted so as to disengage them from the registering-wheels and range them against the plate 57. The registering-wheels are then returned, one at a time, to zero, and the lever having been released the machine is again ready for measuring.

While I have described and shown herein those details of construction which I consider best adapted for practical purposes, yet I desire not to be understood as confining myself to such details, as it will be obvious that the form and arrangement of the parts may be greatly changed without departing from the limits of my invention. For instance, instead of the funnel 32 a wheel may be centered on the plate 31 and may bear a number of openings, each of which is a little nearer the center than the others, and the plate 31 need not then be adjustable. Again, it is not desirable to have the band-brake always strained when the machine is at rest, and in the precise structure shown to relieve the tension on the strap the screw 38 and washer 39 would have to be withdrawn; but instead of this a latch or hook may be added to the frame of the machine, which will hold the end of the lever 40, near the pin 41, down, when desired, or the head of the pin 41 may be removable and the loop of the strap withdrawn therefrom. Any of these devices may be usefully employed to loosen the belt when desiring to throw it out of tension, and any of them will permit access to the face of the belt which bears against the roll 15 to remove the strain thereon, and, if desirable, roughen that belt.

Just such another wheel, as hereinabove suggested, to be used instead of the funnel 32, may be usefully substituted for the exit-opening 35, and a severing device (to cut the wire when the required quantity is measured) may be combined with this substitute or with the specific device shown herein. Again, it may be found useful to have a signal sounded when a predetermined length has been measured, and to attain this a bell may be added to the registering-wheels, which will be sounded when the length desired has been measured, and it may be found useful to add means to the record-wheels of permanently preserving the different lengths measured. Instead of

making the frame 4 supplemental it may be cast integral with the main frame.

My improved machine may be used alone to measure wire when selling it, or may be combined with wire-bending, wire-straightening, or wire-drawing machines, (and may be separate therefrom or integral therewith,) and may be used to measure the output or the amount used for sale for purposes of ascertaining royalties due for the use of patented processes or machines, and for various other purposes.

Having described my invention, what I desire to secure by Letters Patent is—

1. In a measuring-machine, the combination of rolls to guide the material to be measured, registering mechanism in engagement with one of said rolls, mechanism for throwing the rolls and registering mechanism out of engagement and simultaneously throwing the wheels comprising such registering mechanism out of engagement with each other, and automatic means for controlling and stopping of the roll which engages the registering mechanism, substantially as described.

2. In a measuring-machine, the combination of rolls to guide the material to be measured, registering mechanism which may be thrown in or out of engagement with one of said rolls, and automatic means for releasing the last-named roll when the material to be measured is drawn upward to permit a registry of the measurement, substantially as described.

3. In a measuring-machine, the combination of rolls to guide the material to be measured, registering mechanism which may be thrown in or out of engagement with one of said rolls, the wheels comprising such registering mechanism being adapted to be disengaged from each other, and automatic means for releasing the last-named roll when the material to be measured is drawn upward, substantially as described.

4. In a measuring-machine, the combination of rolls to guide the material to be measured, registering mechanism which may be thrown in or out of engagement with one of said rolls, and a lever, tilted by the material to be measured, and operating a band-brake to stop or release the roll, operating the measuring mechanism, substantially as described.

WILLARD L. CANDEE.

Witnesses:

JAMES J. COSGROVE,
FREDK. L. HOLMES.