

W. E. MORTON.
 MEASURING DEVICE.
 APPLICATION FILED FEB. 14, 1911.

1,012,894.

Patented Dec. 26, 1911.

2 SHEETS—SHEET 1.

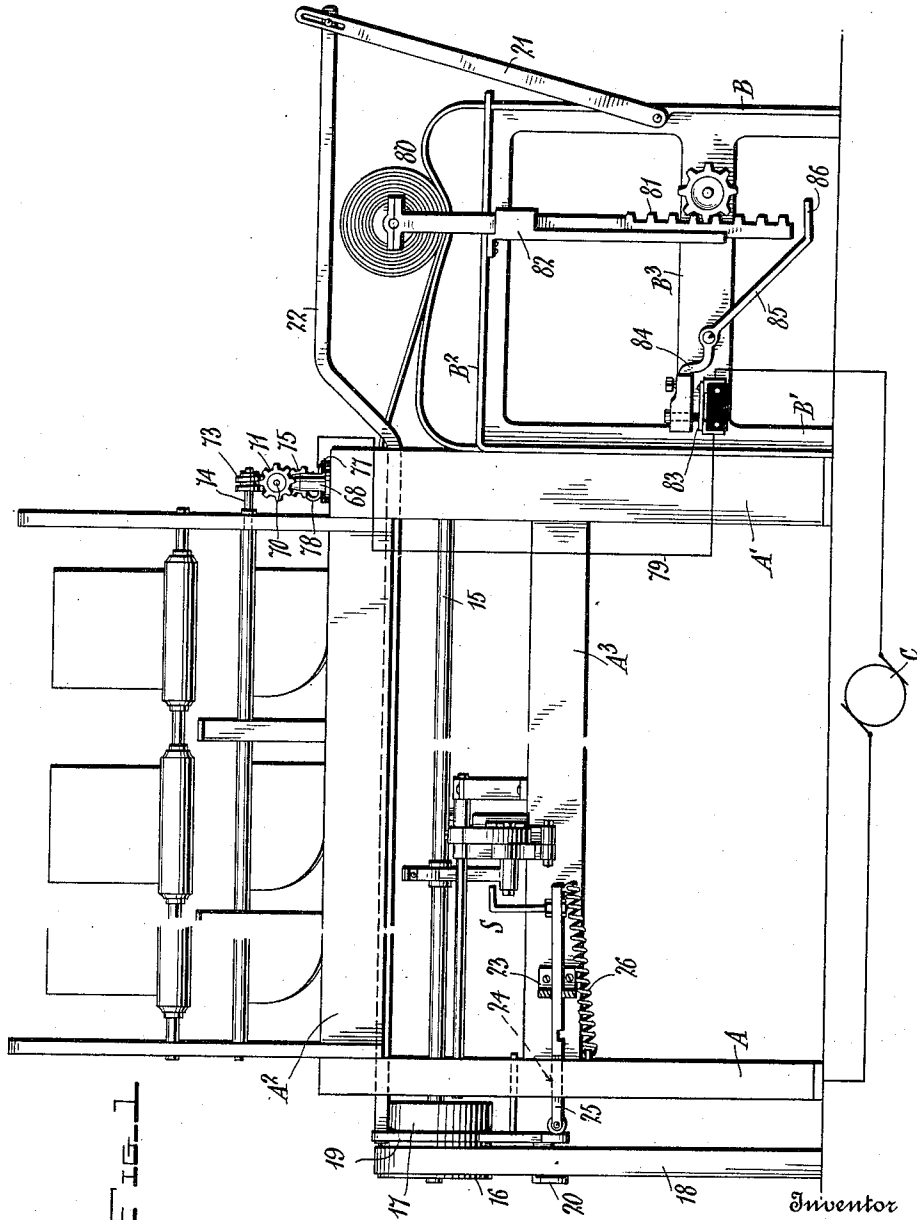


FIG. 1

Witnesses
W. E. Morton
 Henry P. Brought

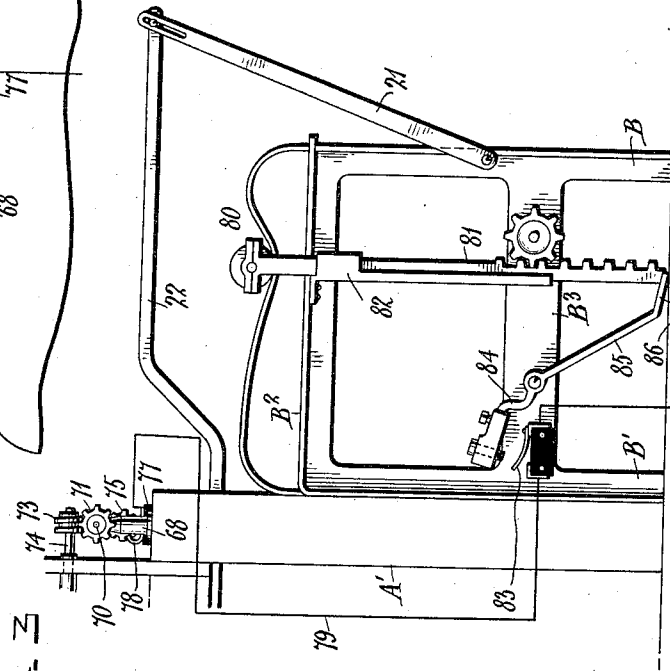
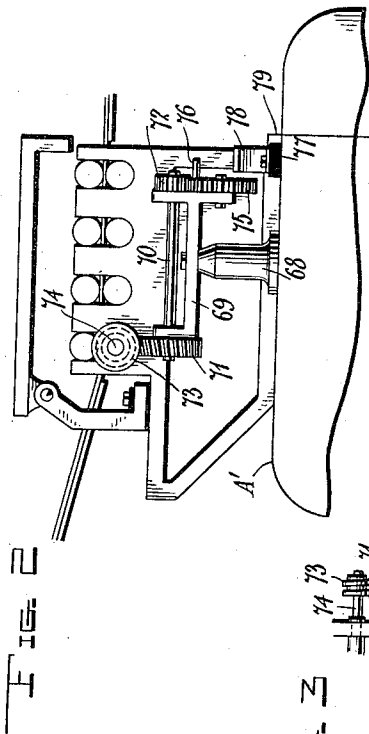
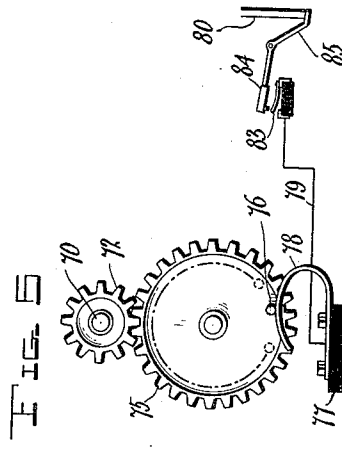
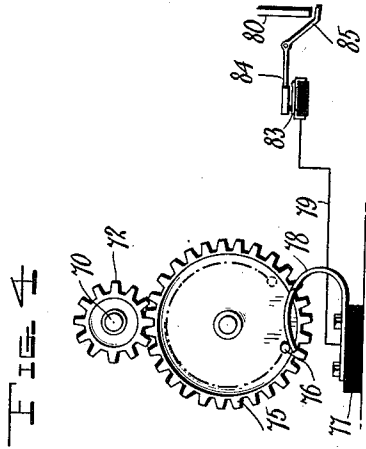
Inventor
 Worthington E. Morton
 By *W. E. Morton*
 Attorneys

W. E. MORTON.
 MEASURING DEVICE.
 APPLICATION FILED FEB. 14, 1911.

1,012,894.

Patented Dec. 26, 1911.

2 SHEETS—SHEET 2.



Witnesses
W. B. ...
 Henry P. Bunt

Inventor
 Worthington E. Morton
 By *Handley ...*
 Attorneys

UNITED STATES PATENT OFFICE.

WORTHINGTON E. MORTON, OF SHELBY, NORTH CAROLINA.

MEASURING DEVICE.

1,012,894.

Specification of Letters Patent.

Patented Dec. 26, 1911.

Original application filed October 11, 1909, Serial No. 522,009. Divided and this application filed February 14, 1911. Serial No. 608,606.

To all whom it may concern:

Be it known that I, WORTHINGTON E. MORTON, a citizen of the United States, residing at Shelby, in the county of Cleveland, State of North Carolina, have invented certain new and useful Improvements in Measuring Devices; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to measuring devices and particularly to that type adapted for use in connection with machines provided with electrically controlled stop motions and which deliver material in continuous form.

In machines of the type named it is important, especially in cases where it is desired to secure an even run out of several separate supplies of material in another machine, that the stop motion be actuated when a predetermined length of material has been delivered. Attempts have been made to reach this result by instituting the actuation of the stop motion when a given bulk of material has been delivered upon a suitable roll, but this method has proven unsatisfactory by reason of the fact that certain materials lie closer in damp weather than in dry and the length of material in a given bulk would vary according to the state of the weather.

It is therefore the object of this invention to provide an improved construction for effectually and efficiently causing the actuation of the stop motion when a predetermined length of material has been delivered from the machine with which it is associated, independent of what its bulk may be.

For a more detailed understanding of the construction and operation of the invention same will be described with reference to the accompanying drawings wherein like characters of reference denote corresponding parts in several views, and in which,

Figure 1 is a rear elevation of a standard ribbon lap machine with the invention incorporated; the central portions of the machine being broken away; Fig. 2, an end elevation of a portion of the machine shown in Fig. 1; Fig. 3, a detail view of the delivery end of the machine showing the switch adapted to be actuated to break the

stop motion controlling circuit at one point by the application of any empty receiving element, while said circuit is maintained closed at another point by the circuit closing mechanism which is controlled by the length of material delivered; Fig. 4, a detail view showing the position of the fixed and movable contacts of the material length stop motion circuit closing mechanism when a predetermined length of material has been delivered, and the receiving element cut-out switch closed, the full receiving element being still upon the machine; and, Fig. 5, a view similar to Fig. 4 showing the position of the fixed and movable contacts of the same mechanism after an empty receiving element has been applied and the machine started; the switch actuated by the receiving element approaching closed position and the movable contact of the material length circuit closing mechanism about to pass out of engagement with the fixed contact.

Referring to the drawings, A and A¹ represent respectively the samsons of a standard ribbon lap machine, said samsons being connected at their upper ends by a beam A² which is adapted to support directly and indirectly certain elements of the machine disposed thereabove. Positioned against the outer face of the samson A¹ is a supporting table for the elements of the machine which have directly to do with the delivery of the material therefrom; said supporting table being formed of the uprights B and B' connected at their upper ends by the beam B² and intermediate their ends by a cross beam B³. Connecting the samsons A and A' intermediate their ends is also a cross beam A³ and journaled in the samsons A and A' between the cross beam A³ and the beam A² is the main drive shaft 15 of the machine. A loose pulley 16 and a fixed pulley 17 are mounted on said drive shaft and a power transmitting belt 18 is adapted to shift from one pulley to another to start and stop the machine as may be desired. The shift of this belt from the pulley 16 to the pulley 17 and vice versa is accomplished through the medium of a belt shifting mechanism which comprises an arm 19 having one end provided with a strap fork 20 to receive the belt 18 and its other end connected by a link rod 22 to a lever 21 which latter is pivotally mounted on the upright B. The belt 18 is further adapted to be shifted from the pul-

ley 17 to the pulley 16 through the instrumentality of a stop motion S which is electrically controlled and designed to be automatically operated when a given length of material has been delivered by the machine. Said stop motion includes a normally restrained thrust rod 25 which is adapted to travel in a guide bracket 23 secured to the cross beam A³ and in a slot 24 formed through the samson A, the outer end of said thrust rod 25 being adapted for engagement with the arm 19. A spring 26 has one end secured to said thrust rod and the other end to the samson A; said spring constantly tending to move said thrust rod to shift the belt 18 from the fixed pulley 17 to the loose pulley 16. Said thrust rod 25 is normally held against such movement by engagement with the guide bracket 23 and is adapted to be automatically released from such engagement when a predetermined length of material has been delivered by the machine, by the operation of certain mechanical parts which receive their motion from the machine, the operation of said mechanical parts to release said thrust rod being in turn controlled by an electrically operated apparatus. As the construction and operation of the mechanical elements which effect the release of the thrust rod 25 to stop the machine is fully described in my co-pending application, filed October 11, 1909, and serially numbered 522,009, of which this application constitutes a division, a detail reference thereto will be omitted herein; it being sufficient to say that when the circuit which controls the operation of the mechanical elements for automatically releasing the thrust rod 25 is broken, the movements of said elements will fail to effect a release of the thrust rod, while on the other hand when said circuit is closed the movements of the mechanical elements of the stop motion are so altered that the thrust rod is immediately released and the machine stopped. The circuit controlling the stop motion S issues from the generator C, one pole of which latter is connected to the machine, while the other pole thereof is connected to certain circuit breaking contrivances as will hereinafter appear.

Mounted upon the samson A' is a standard 68 which serves as a support for a journal bracket 69. A shaft 70 is journaled in said bracket and has a worm wheel 71 secured at one end thereof and a gear 72 secured at its other end. The worm 71 is adapted to operatively engage a worm 73 which is mounted upon and receives its motion from a draft roll 74. Also mounted on the journal bracket 69 and meshing with the gear 72 is another gear 75 which carries a projecting contact finger 76 a suitable distance from its center.

Mounted upon the samson A' is an insu-

lated standard 77 which supports a U-shaped spring contact 78 adapted to be engaged by the contact finger 76 at a predetermined point in the rotation of the gear 75. It will be noted that the contact finger 76 constitutes one terminal and the U-shaped spring 78 the other terminal of the circuit which is adapted to be closed to actuate the stop motion when a given length of material has been delivered from the machine, said electrical contact finger 76 being connected with the generator C by the connection 79, in which connection are also disposed the electrical elements of the stop motion S. The movement of the contact finger is so proportioned by the arrangement of gears heretofore described that when same has traveled one complete revolution the desired length of material shall have been delivered upon the delivery element 80. Said delivery element 80 is mounted upon the frame which is disposed adjacent to the samson A' and is supported at each side by the rack bars 81 which extend through suitable guides 82 suspended from the cross beam B² of said frame. After the stop motion controlling circuit has been closed by the contact between the finger 76 and the spring 78 it will be impossible to start the machine again so long as the closed state of said circuit is maintained; as some movement is necessary to remove the finger 76 from its initial position of contact with the spring 78 provision will have to be made for breaking the circuit during its movement. To this end, a normally open switch 83 is inserted in the connection 79 and the closing of said switch is maintained through the medium of the gravity-operated pivoted arm 84 which is provided with an extension 85 beyond its pivot terminating in a tripping toe adapted to be engaged by the lower end of one of the rack bars 81 of the receiving element 80.

Assuming the desired length of material to have been delivered upon the receiving element 80 the circuit will be closed and the machine stopped, as has been previously described. Under these conditions the switch 83 will also be maintained closed by the influence of gravity. When an empty receiving element is applied, however, the lower end of the rack bar 81 will extend downwardly a sufficient distance to engage the tripping toe 86 and raise the arm 84 against the influence of gravity and thus open the switch 83 and break the circuit controlling the stop motion S. The starting of the machine can then be accomplished irrespective of the contact between the finger 76 and the spring 78. After the machine is started and the element 80 begins to receive the material from the machine the rack bar 81 will be raised and gradually release the arm 84 to the influence of gravity until same again rests upon the switch

83 and closes said switch, said closing of the switch being had after the finger 76 has passed out of contact with the spring 78. The machine will then continue running until the contact finger 76 again passes into engagement with the spring 78 when the stop motion will again be automatically operated.

What is claimed is:

10 1. The combination of a machine adapted to deliver its work in continuous form, a receiving element for the work, an electric circuit, a stop motion adapted to be actuated when said circuit is closed, means for
15 closing said circuit when a predetermined length of material has passed through the machine, and means automatically actuated by the application of an empty receiving element to break said circuit to permit the
20 return of said stop motion to inactive position.

2. The combination of a machine adapted to deliver its work in continuous form, a receiving element for the work, an electric
25 circuit, a stop motion adapted to be actuated when said circuit is closed, a resilient arm mounted upon the machine, and constituting one terminal of said circuit, a rotatable member geared to said machine having a
30 contact finger fixed thereto adapted to engage the resilient arm during a portion of the rotation of said member to close said circuit, the movement of said rotatable member having a predetermined relation to the
35 length of material passing through the machine, and means automatically actuated by the application of an empty receiving element to break said circuit at another point to permit the return of said stop motion to
40 inactive position and the movement of said

contact arm out of engagement with the resilient arm.

3. The combination of a machine adapted to deliver its work in continuous form, a receiving element for the work, an electric
45 circuit, a stop motion adapted to be actuated when said circuit is closed, means for automatically closing said circuit at one point when a given length of work has
50 been deposited upon said receiving element, means automatically actuated by the application of an empty receiving element to break said circuit at another point to permit the return of said stop motion to inactive
55 position, and means for automatically closing said circuit at said last named point subsequent to the breaking of the circuit at said first named point.

4. The combination of a machine adapted to deliver its work in continuous form an
60 electric circuit a stop motion adapted to be actuated when said circuit is closed, means for automatically closing said circuit at one point when a given length of work has passed through the machine, a
65 switch in said circuit at another point adapted to normally lie in closed position, a receiving element for the work, provided with a member adapted to engage and move
70 said switch to open position when said element is empty and to release said switch to closed position during the feeding of the work to said element.

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

WORTHINGTON E. MORTON.

Witnesses:

J. H. RAMSAUR,
C. H. REINHARDT.