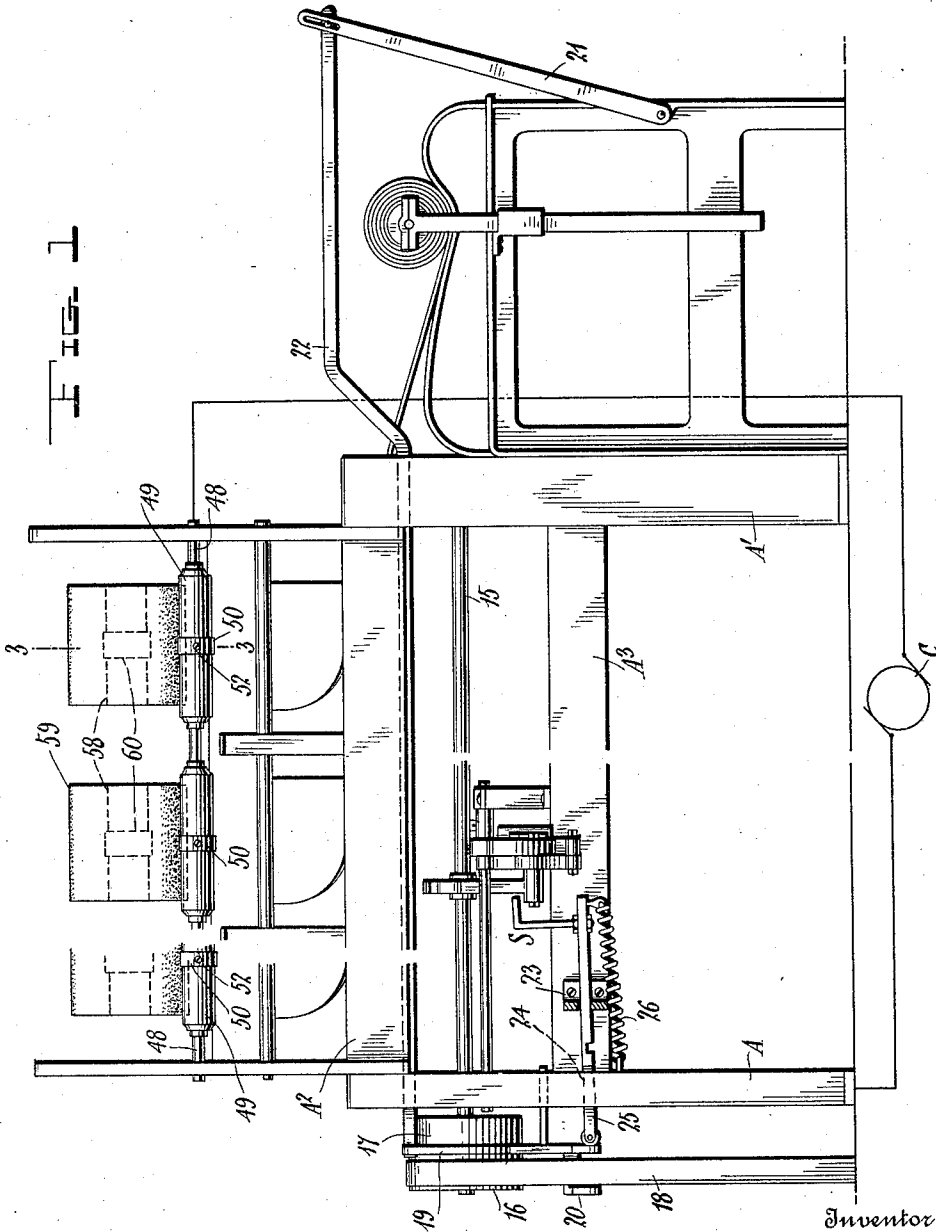


W. E. MORTON.
CIRCUIT CLOSING DEVICE.
APPLICATION FILED FEB. 14, 1911.

1,006,395.

Patented Oct. 17, 1911.

2 SHEETS-SHEET 1.



Witnesses
W. E. Morton
Henry T. Wright

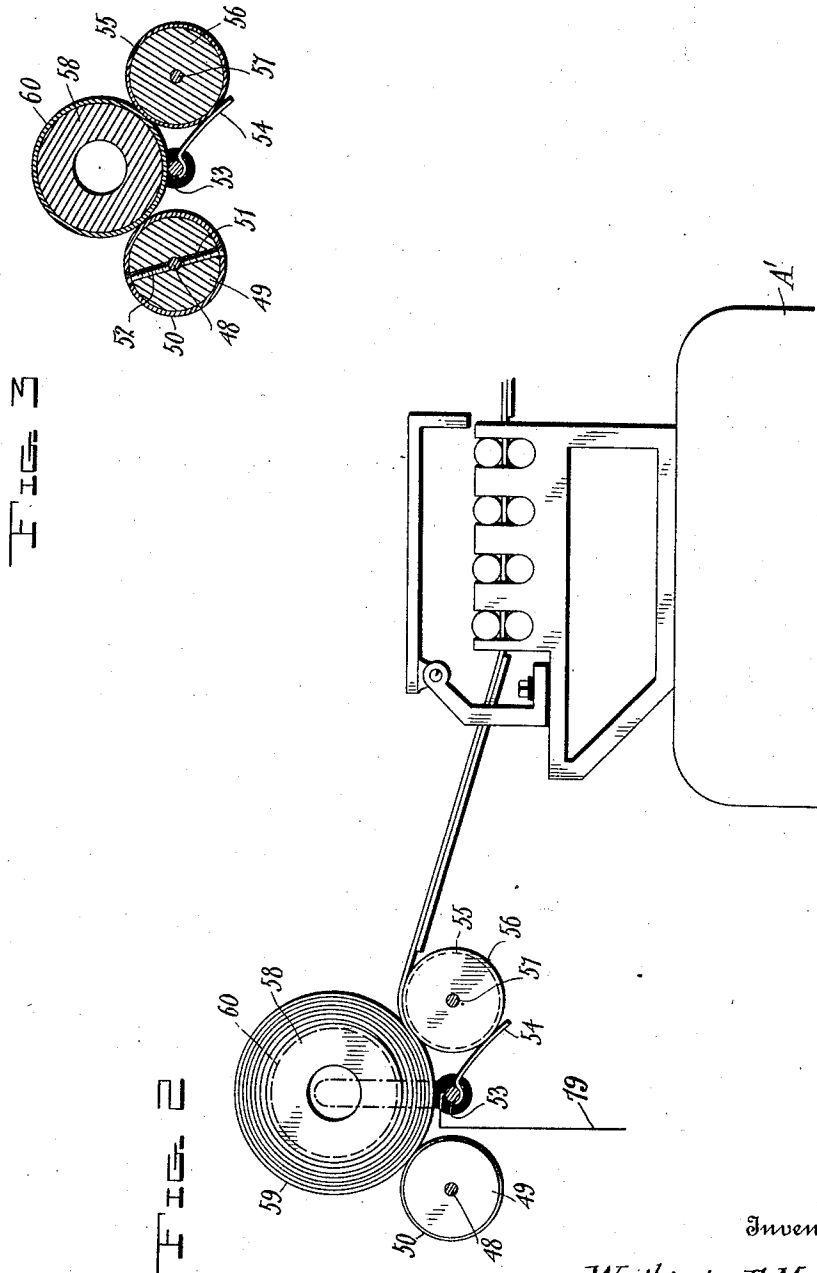
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By *Handley* Attorney

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334

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UNITED STATES PATENT OFFICE.

WORTHINGTON E. MORTON, OF SHELBY, NORTH CAROLINA.

CIRCUIT-CLOSING DEVICE.

1,006,395.

Specification of Letters Patent.

Patented Oct. 17, 1911.

Original application filed October 11, 1909, Serial No. 522,009. Divided and this application filed February 14, 1911. Serial No. 608,607.

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 Circuit-Closing 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 circuit closing devices and is particularly adapted for use in connection with machines which receive material in continuous form and are provided with electrically controlled stop motions.

The object of the invention resides in the provision of a device of the character named which will automatically close the circuit controlling the stop motion when the supply of material passing to the machine from any given head has become exhausted.

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 the several views; and in which—

Figure 1 is a rear elevation of a standard ribbon lap machine with the invention incorporated; the central portion of the machine being broken away; Fig. 2, an end elevation of a portion of the machine, shown in Fig. 1, illustrating the detailed construction of the lap spool and the lap rolls; and the electrical connection for closing the circuit of the stop motion of the machine when the supply of material from any given lap spool has become exhausted; and Fig. 3, a partial section on the line 3—3 of Fig. 1.

Referring to the drawings, A and A' represent respectively the samsons of a 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. 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 crossbeam 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 shifting 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 the lever 21, which latter is pivotally mounted upon the machine at a suitable point. The belt 18 is further adapted to be shifted from the pulley 17 to the pulley 16 through the instrumentality of a stop motion S which is electrically controlled and designed to be automatically operated when the supply of the material from any of the lap rolls of the machine becomes exhausted. 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 the supply of material has become exhausted from any of the lap rolls of the machine. 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 is 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 from engagement with the bracket 23 and the machine stopped.

The circuit which is adapted to be closed

when the supply of material is exhausted from any of the lap rolls of the machine is supplied by a generator C one pole of which is connected to the machine so that the current passing therethrough travels by way of the metallic uninsulated portions of the machine and through a shaft 48 which carries the lap rolls 49. Each of the lap rolls 49 is constructed of wood and has a metallic annular band 50 secured to the periphery thereof, which constitutes one terminal of the circuit controlling the stop motion; said band being in turn electrically connected with the shaft 48 through the medium of screws 51 and 52, which extend transversely through the roll 49. The remainder of the circuit controlling the stop motion is formed by connecting the other pole of the generator C with an electrical conductor 79, which latter is in turn connected to a rod 53 mounted on the machine but suitably insulated therefrom. It will of course be understood that the electrically operated portions of the stop motion S are suitably located in the connections 79 so that when the circuit, of which said connections form a part, is closed, said stop motion will be operated. A spring finger 54 is mounted on said rod 53 and is adapted for continuous contact with a metal band 55 which is secured to the periphery of another lap roll 56, said last mentioned lap roll being in turn mounted on a shaft 57 insulated from the machine; said band 55 thereby constituting the other terminal of the circuit which controls the stop motion. Supported upon the lap rolls 49 and 56 is the lap spool 58 which carries the supply 59 in the usual ribbon form. The periphery of the spool 58 is provided with an annular band 60 which is adapted to simultaneously contact with the band 50 of the roll 49 and the band 55 of the roll 56 when the supply is entirely removed from said spool, thereby closing the circuit and instituting the actuation of the stop motion.

While the invention has been described as applied to a ribbon lap machine, it will be evident that it is not confined to this particular class of machine, same being applicable to any machine provided with an electrically operated stop motion and which receives its material in continuous form from a roll or spool.

What is claimed is:

1. The combination with electric circuit and a stop motion adapted to be automatically operated by the closing of said circuit of a machine adapted to receive its work in the form of a continuous lap, said machine including a pair of electrical conductive lap rolls forming the terminals of said electric circuit and an electric conductive lap spool supported by said rolls and adapted to receive between it and the lap rolls the supply of material, whereby when said supply is exhausted the spool will close the circuit between the rolls.

2. The combination with an electric circuit and a stop motion adapted to be automatically operated by the closing of said circuit, of a machine adapted to receive its work in the form of a continuous lap, and including a pair of lap rolls each of which carries a terminal contact of said circuit in the form of an annular metallic band, a lap spool supported by said rolls, the supply of said spool being interposed between the rolls and said spool during the feeding thereof, and an electric conducting element carried by said spool adapted to conduct the terminal contacts carried by the lap rolls when the supply of lap is exhausted from said spool.

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

WORTHINGTON E. MORTON.

Witnesses:

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