

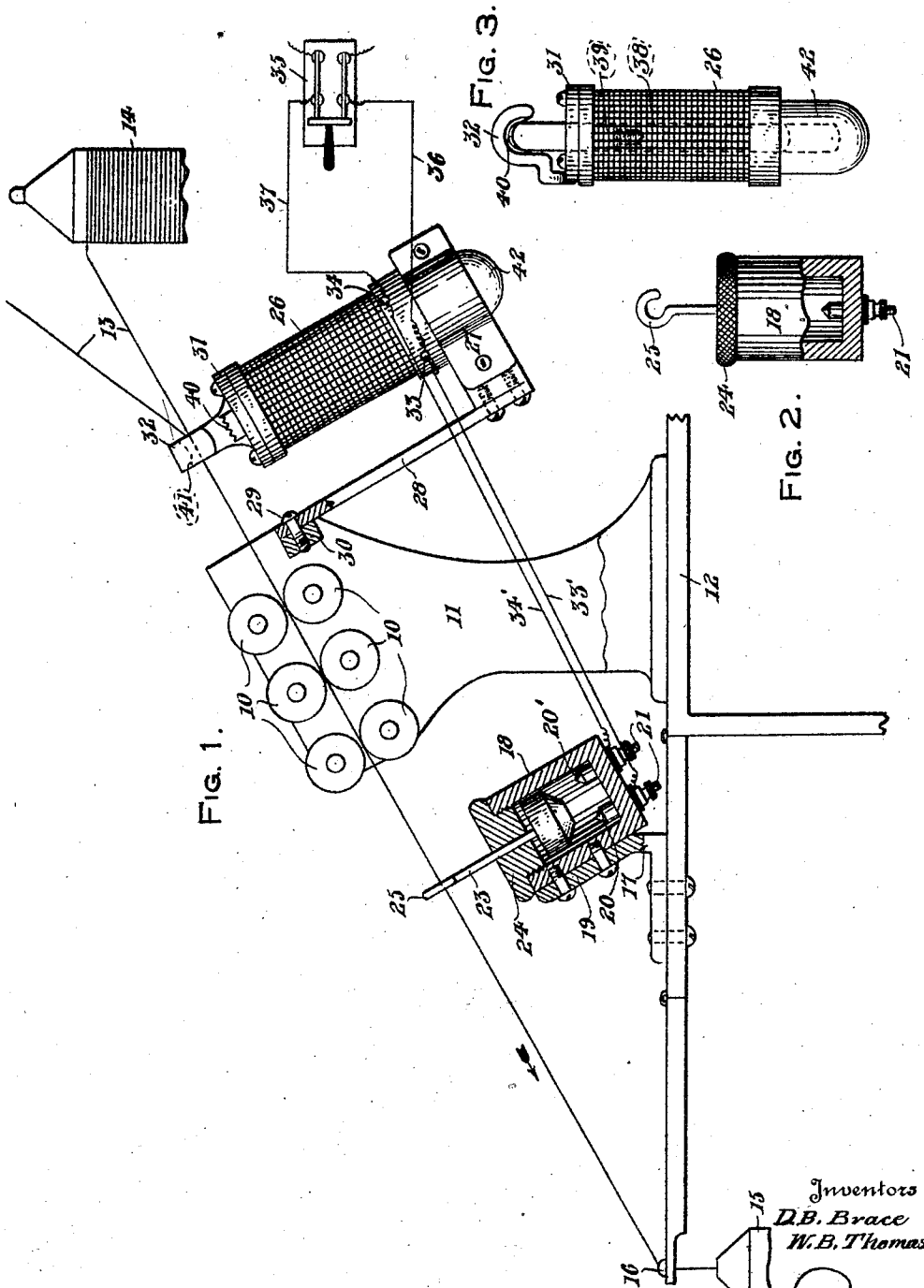
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AUTOMATIC ELECTROMAGNET ROVER STOP OR BREAKER FOR SPINNING MACHINES

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AUTOMATIC ELECTROMAGNET ROVER STOP OR BREAKER FOR SPINNING MACHINES.

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To all whom it may concern:

Be it known that we, DELBERT B. BRACE and WILLIAM B. THOMAS, citizens of the United States of America, residing at Elmira, in the county of Chemung and State of New York, have invented certain new and useful Improvements in Automatic Electromagnet Rover Stops or Breakers for Spinning Machines, of which the following is a specification.

The primary object of the present invention is to prevent any broken thread of a spinning machine from being wrapped around the roving rollers and not only destroying the thread but causing injury to the covering of the rollers.

A further object of the invention is the provision of an automatic breaker for the thread at the roving guide before the thread enters the rollers, the same being brought into action upon the accidental severing of the thread after leaving the rollers on its way to the take up spool.

A still further object of the invention is the provision of a device that is simple in construction, easy and inexpensive to manufacture and which can readily be installed upon any spinning machine for increasing its efficiency and automatically preventing damage to the machinery.

With these general objects in view the invention consists of the novel combination and arrangement of parts hereinafter more fully described in connection with the accompanying drawing and in which like reference characters designate corresponding parts throughout the several views.

In the drawing,

Figure 1 is an elevational view showing a portion of a spinning machine and showing our device operatively installed thereon,

Figure 2 is an elevational view partly broken away of the automatic electric switch employed in our device, and

Figure 3 is a similar view of the combined roving guide and electro-magnetic thread breaker employed therewith.

Referring more in detail to the drawings the roving rollers 10 forming a part of the spinning machine are shown journaled in a support 11 upon the base or table 12 of the machine while the threads 13 pass in the usual manner from roving spools 14 through the rollers 10 to a receiving or take-up spool

15 at the opposite side of said support. The thread 13 often becomes broken between the rollers 10 and the thread guide 16 adjacent the spool 15 which permits the thread to become entangled around the rollers 10 and destroying a considerable amount of the thread and sometimes injuring the engaging surface of the rollers 10 which are usually leather-covered.

To prevent such loss and injury it is desirable to have the thread 13 automatically severed or broken at a point rearwardly of the rollers 10 adjacent the point of entrance to the rollers whenever the thread accidentally breaks at any point between said rollers 10 and the spool 15. An automatic electric switch is mounted forwardly of the support 11 by means of a bracket 17 secured to the table 12 and includes a cup 18 rigidly secured to an inclined arm 19 of the bracket. Spaced contacts 20 and 20' positioned within and on the bottom of the cup 18 have binding posts 21, 21' respectively outside of the cup. A switch-closing member 22 in the form of a weight is movable within the cup 18 having a stem 23 freely slidable axially through the removable screw-threaded cover 24 of the cup and having a hook 25 at its outer free end through which the thread 13 normally passes with the stem 23 and weight 22 suspended by said thread.

An electro-magnet 26 is mounted by a clamp 27 upon an arm 28 fixed as at 29 to a rigid portion or brace 30 of the support 11 rearwardly of the rollers 10. A plate 31 upon the upper end of the magnet 26 is provided with a roving guide 32 in the form of a hook and through which the thread 13 passes in its travel from the roving spools 14 to the rollers 10. The terminals 33 and 34 of the electro-magnet 26 are electrically connected to the binding post 21 and 21' of the switch by means of circuit wires 33' and 34' respectively, while a manually-operable service switch 35 is connected to the magnet terminals 33 and 34 by circuit wires 36 and 37 respectively and whereby the entire device may be rendered operative or inoperative at will.

A two-part core is provided for the electro-magnet 26 comprising an iron portion 38 and a brass portion 39, the latter having a toothed upper end 40 adapted for engaging the thread 13 and severing the thread

by cutting the latter between the teeth 40 and the arcuate inner face 41 of the hook 32. The core 38—39 of the magnet 26 constitutes the thread-breaking plunger and the downward movement thereof is limited by the socket member or stop 42 upon the bottom of the magnet 26 and within which socket member the core or plunger is normally seated when the magnet 26 is deenergized.

The complete operation of the device will be apparent from this detailed description thereof, and whereby the thread 13 is automatically severed substantially simultaneously with the breaking of the thread 13 adjacent the automatic switch mechanism heretofore described. When the stem 23 is released upon breaking the thread 13 passing through the hook 25, the switch member 22 drops of its own weight upon the contacts 20 and 20' thereby closing the circuit between said contacts and the circuit wires 33' and 34' resulting in the energizing of the electro-magnet 26, it being understood that the service switch 35 is closed for supplying electrical current from any desired source.

The energizing of the coil 26 causes the core 38—39 to move upwardly and outwardly bringing the toothed end 40 thereof forcibly against the thread 13 and cutting the thread against the cooperating face 41 of the roving guide 32. The continued operation of the rollers 10 after the cutting of the thread by the electrically-operated breaker fails to feed any further thread from the spools 14 and the injury and clogging of the rollers 10 is prevented. The operating switch and electro-magnetic thread-cutter are substantially enclosed as illustrated leaving none of the contacts or mechanism open for the collection of dust and lint during the operation of the spinning machine.

It will be understood that the thread or roving need not necessarily be severed by the teeth 40 of the gripping means, but may be merely gripped thereby, whereupon the draft of the rolls will cause a breakage or severance of the thread or roving. The term "cutting" as used herein should therefore be interpreted accordingly.

While the form of the invention herein set forth is believed preferable it will be understood that minor changes may be made therein without departing from the spirit and scope of the invention.

Having thus described our invention what we claim as new and desire to secure by Letters Patent, is:

1. A device of the class described comprising a weight-operated electric switch controlled by the thread, such switch including a casing having a closed chamber, electrical contacts located in such chamber and

arranged in an electrical circuit, a weight movable within such chamber, a stem secured to the weight and extending through the casing and provided with an eye through which the thread passes, and an electrically operated gripping means arranged in said circuit and adapted to grip the thread, said circuit being normally open but adapted to be closed by said weight upon the dropping of the latter when the thread breaks.

2. A device of the class described comprising, in combination with drawing rolls and a spool, a weight-operated electric switch controlled by the thread as it passes from the rolls to the spool, such switch including a casing having a closed chamber and located between the rolls and the spool, electrical contacts located in such chamber and arranged in an electrical circuit, a weight movable within such chamber and normally held suspended therein out of contact with said contacts by said thread, a stem secured to the weight and extending through the casing and provided with an eye through which such thread passes, and an electrically operated gripping means arranged in said circuit and adapted to grip the thread, said means being located behind said rolls, and said circuit being normally open but adapted to be closed by said weight upon the dropping of the latter upon the contacts when the thread breaks.

3. A thread breaker for spinning machines comprising a roving guide through which the thread is adapted to travel, an electrically-operated plunger adapted for cutting engagement with the thread in said guide, electrical actuating means for the plunger and circuit closing means for the actuating means adapted for automatic operation upon the accidental breaking of the thread, at a point removed from the roving guide at the opposite side of the roving rollers.

4. A device of the class described comprising an electric switch forwardly of the roving rollers of a spinning machine and including a shiftable switch member adapted for a normal open position suspended from the thread passing through the machine, a solenoid at the opposite side of the rollers from the switch, a roving guide for the thread mounted on the solenoid, the latter having a shiftable core within the path of movement of which the roving guide is positioned and electrical connections between the solenoid and switch.

5. In a spinning machine having roving rollers for the passing of the thread there-through, an electric switch mounted forwardly of the rollers including a shiftable switch member normally maintained in open circuit by suspension from the thread and adapted for falling to closed position upon the accidental breaking of the thread, an electro-magnet rigidly mounted at the op-

posite sides of the rollers from said switch in electrical circuit with the latter, a roving guide upon the magnet through which the thread is adapted to travel to said rollers and a shiftable core in the electro-magnet having a free end adapted for cutting engagement with the thread in the roving guide when the electro-magnet is energized upon the closing of the switch.

6. A device of the class described comprising an electric switch forwardly of the roving rollers of a spinning machine and including a shiftable switch member adapted for a normal open position suspended from the thread passing through the machine, a

solenoid at the opposite side of the rollers from the switch, a roving guide for the thread mounted on the solenoid, the latter having a shiftable core within the path of movement of which the roving guide is positioned and electrical connections between the solenoid and switch, said solenoid having at the end opposite the roving guide a socket forming a stop and enclosing member for the core.

In testimony whereof we affix our signatures.

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