No. 876,349. PATENTED JAN. 14, 1908.

D. B. HATHAWAY.

STOP MOTION.

APPLICATION FILED JAN. 31, 1907.

2 SHEETS—SHEET 1.

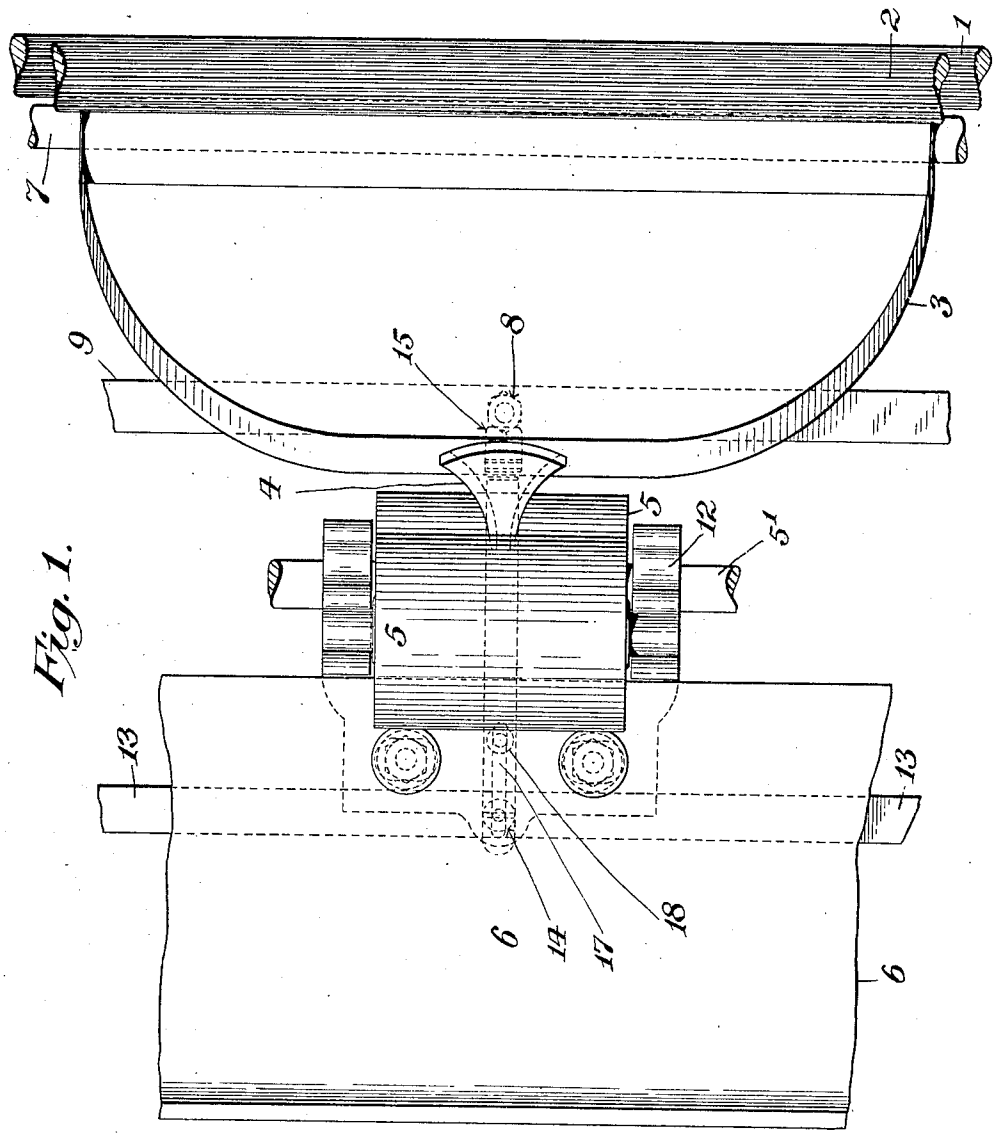

Fig. 1.

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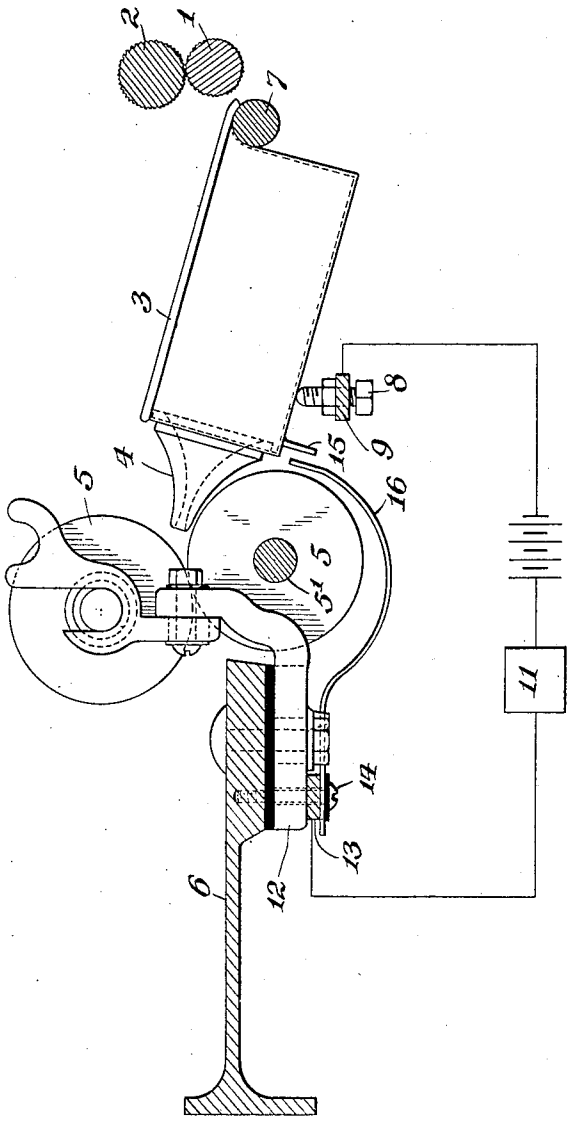
2 SHEETS—SHEET 2.

Fig. 2.



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UNITED STATES PATENT OFFICE.

DALLAS B. HATHAWAY, OF MOOSUP, CONNECTICUT, ASSIGNOR TO THE WHITIN MACHINE WORKS, OF WHITINSVILLE, MASSACHUSETTS, A CORPORATION OF MASSACHUSETTS.

STOP-MOTION.

No. 876,349. Specification of Letters Patent. Patented Jan. 14, 1908.

Application filed January 31, 1907. Serial No. 354,998.

To all whom it may concern:

Be it known that I, DALLAS B. HATHAWAY, of Moosup, Windham county, Connecticut, have invented certain new and useful Improvements in Stop-Motions, of which the following is a full, clear, and concise specification.

My invention relates to stop motions for cotton combing and like machines, and consists in the relative arrangement of parts, the circuit connections and the operation thereof as will be hereinafter described and claimed, whereby defects in the combed sliver between its point of delivery from the piecing mechanism and its point of formation into round sliver, may be caused to arrest the motion of the machine.

In the accompanying two sheets of drawings, forming a part of this specification, Figure 1 is a top plan view of so much of an ordinary cotton combing machine as is necessary for an understanding of my invention; and Fig. 2 is a side elevation of Fig. 1 with parts in section, including a diagram of the stop-motion circuit.

In said drawings the rolls 1 and 2 are the usual intermittently rotating detaching rolls of one of the heads of an ordinary combing machine, which coöperate with the combing cylinder and other parts of the piecing mechanism, not shown, to detach and piece the staple according to a well understood principle of operation, and the combed staple emerges from between said rolls in the form of a continuous flat ribbon which falls into the sliver pan 3 and passes from thence through the trumpet condenser 4 of said pan to the calender rolls 5, the lower of which rolls is positively driven by means of the shaft 5′ mounted as usual in the frame of the machine, not shown. From thence the sliver passes on to the longitudinal sliver apron 6 in the usual manner. The sliver-pan, with its trumpet 4, serves as a conducting and condensing apparatus to condense the sliver into round form and direct it into the bite of the calender rolls. The pan is removably supported upon a longitudinal supporting rod 7 and upon a centrally located set-screw 8 which is carried by a longitudinal bar 9, and according to the present invention the means for supporting the sliver-pan, whether constructed as just described or in any other appropriate manner, is arranged to permit a slight movement of the pan toward and from the calender rolls so that in the event of the combed sliver becoming bunched in the pan so that it jams in the trumpet condenser, as sometimes occurs, the draft of the calender rolls upon the sliver will draw the pan bodily toward the rolls. Such failure of the condensing and conducting function of the sliver-pan obviously results in a rupture of the sliver and incapacitates the particular combing head from further participation in the work of the machine. If the machine is not stopped the continued operation of the detaching rolls produces an accumulation of sliver in the pan, which is likely to result in serious injury to the machine by falling over and becoming entangled with adjacent parts. To the end of preventing such injury, my invention contemplates the provision of an appropriate stop-motion apparatus controlled by the position of the sliver-pan, movably mounted as above stated, so that the forward movement of said pan, as above explained, will set the said stop-motion in operation to arrest the motion of the machine, and in the drawings hereto I have shown said stop-motion as comprising an electrical circuit adapted to be closed by said forward movement to energize an appropriate knock-off apparatus, stopping the machine, but it will be understood that the invention in its broader aspect is not limited to the kind of stop motion specifically described herein, and that it may be immaterial, so far as concerns the apparatus of this invention, whether the machine is stopped by the act of closing the circuit or by opening it, either arrangement being within this invention.

Combing machines as heretofore constructed have been supplied with electric stop-motions adapted to be set in operation by detector fingers or other circuit-closing means normally resting upon the cotton at different points in its course through the machine, and my invention is capable of application to such machines without alteration of their existing electrical appliances. Fig. 2 represents in diagram the usual arrangement of current source and circuit, of which one pole is connected to the machine frame, as at the bar 9, and the other is connected, through the interposition of the electrical knock-off device 11 (diagrammatically represented), with the bracket 12 which supports or guides the upper of the two calender rolls 5. The bracket 12 is

secured to the under side of the sliver apron 6, as usual, being insulated from it by any suitable means, and a longitudinal conductor-bar 13 is secured by a screw 14 in contact with the bracket so that these parts constitute one terminal of the stop-motion circuit, while the machine frame and other parts supported in metallic contact with it, such as the lower calender roll and sliver-pan, constitute the other.

In the normal operation of the machine the upper and lower calender rolls are separated by the sliver passing between them, and upon the failure of the supply of sliver the upper roll will come into contact with the lower roll, thereby closing the circuit and actuating the knock-off device for stopping the machine; but in the case of the bunching or jamming of the sliver in the sliver-pan, this action of the rolls cannot occur, although the sliver may be immediately ruptured, because the orifice of the trumpet condenser is normally separated from the rolls a distance less than the length of staple usually combed, and a tuft of cotton fibers with their tail ends all jammed in the trumpet, is therefore left protruding from its orifice, which prevents the rolls from touching and which said rolls are also ineffectual to remove although their motion continues. The draft of the rolls on the cotton tuft, however, will pull the pan forwardly, provided it is freely movable, and cause it to make contact with some part of opposite polarity and close the circuit notwithstanding.

My invention contemplates a variety of modifications of the contact-making devices which are capable of operation by the movable sliver-pan, some of which will not require that the pan itself constitute a part of the circuit. As usually constructed, however, the pan is made of conducting material, and a portion of said pan, such as the depending ear 15, comes into contact with a contact finger 16 bolted to the insulated conductor-bar 13 and extending beneath the lower roll to a point in the path of movement of said ear, so that the circuit is completed through said pan and finger. This arrangement can be modified, if desired, by making the finger sufficiently flexible so that it can be pressed by the pan against the lower calender roll which, as above mentioned, is grounded to the frame, in which case the depending ear is not necessary, and the contacting surfaces of the roll and finger will always remain bright on account of the friction between the roll and finger. In the same manner any other convenient part of the metallic pan can serve as a contact terminal and may have contact with the upper calender roll or with any other convenient part of opposite polarity located in its path of movement. In the arrangement shown in the present drawings the contact terminal 16 is secured to the conductor-bar 13 by means of the slot 17, which is engaged by the retaining screw 14 above described, and held in alinement with the ear by means of a holding lug or screw 18, shown in dotted lines in Fig. 1, and also engaging the slot.

The foregoing means for stopping the motion of the machine may be applied to existing machines without requiring any alteration of them further than to see that their sliver pans are capable of free movement as above described.

Having described my invention, what I claim and desire to secure by United States Letters Patent, is:

1. In a combing machine having sliver-pan supporting means, the combination of the condensing sliver-pan removably resting on said means between the piecing and calender rolls of said machine, said pan being adapted to be bodily moved toward the calender rolls by the action of the sliver and an electric stop-motion circuit adapted to be closed by said movement.

2. In a combing machine, a condensing apparatus comprising a movably mounted sliver pan having electrical contact with the machine frame, and adapted to be bodily moved by the action of the sliver, in combination with an electric stop-motion circuit having one pole connected to said machine frame and the other to an insulated contact member in the path of movement of said movable sliver pan.

3. In a combing machine, the combination of the supporting rod and set screw, a sliver pan movably supported thereon and an electric stop-motion circuit having one pole connected to the machine frame and the other to an insulated contact member in the path of movement of said sliver pan.

4. In a combing machine, the combination of the sliver pan movably mounted in electrical connection with the machine frame, a sliver apron, an insulated contact finger carried by said apron and a stop-motion circuit having its poles connected respectively with said frame and finger.

5. In a combing machine, the combination of the sliver pan movably mounted, the calender rolls and the sliver apron, with an insulated contact finger carried by the apron and extending beneath the rolls into the path of movement of said sliver-pan and a stop-motion circuit having its poles respectively connected to the machine frame and to said finger.

In testimony whereof, I have signed my name to the specification in the presence of two subscribing witnesses.

DALLAS B. HATHAWAY.

Witnesses:
HENRY W. CRAY,
OSCAR L. OWEN.