

J. A. POIRIER.
ELECTRIC STOP MOTION MECHANISM.
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1,052,955.

Patented Feb. 11, 1913.

Fig. 1.

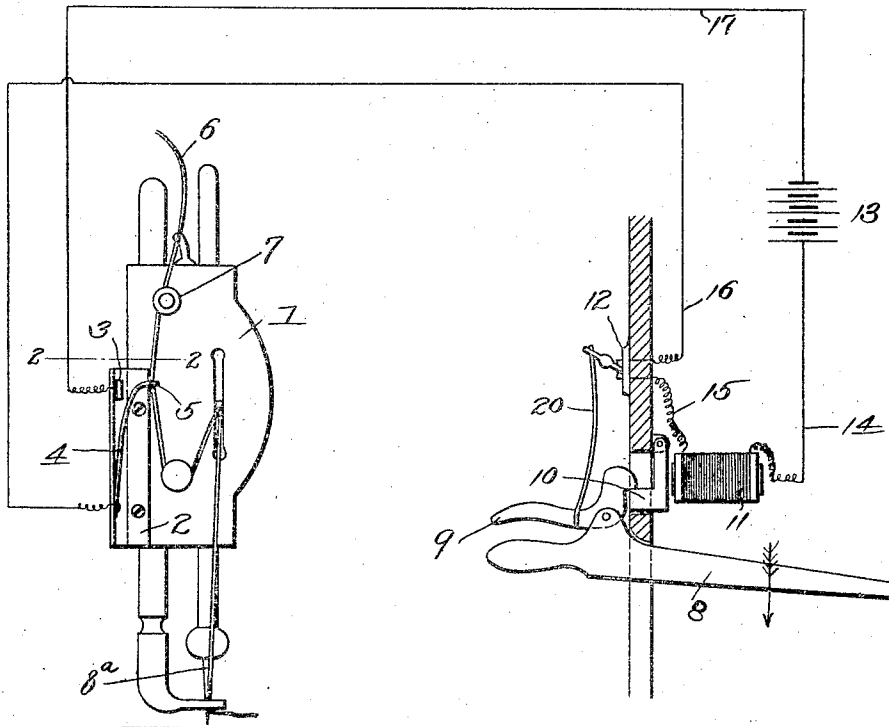
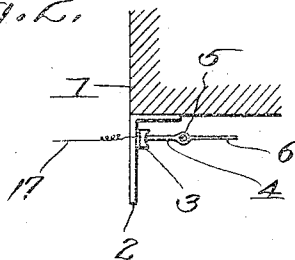


Fig. 2.



WITNESSES

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ELECTRIC STOP-MOTION MECHANISM.

1,052,955.

Specification of Letters Patent.

Patented Feb. 11, 1913.

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To all whom it may concern:

Be it known that I, JOSEPH A. POIRIER, a subject of the King of Great Britain, residing at Woonsocket, in the county of Providence and State of Rhode Island, have invented new and useful Improvements in Electric Stop-Motion Mechanism, of which the following is a specification.

My present invention pertains to electric stop motions for sewing machines; and it has for its object to provide a simple, inexpensive and reliable electric stop motion designed more particularly for use on power machines such as are employed in the manufacture of inexpensive handkerchiefs.

The invention in all of its details will be fully understood from the following description and claim when the same are read in connection with the drawings accompanying and forming part of this specification, in which:

Figure 1 is a view of the forward end of the overhanging arm of a power sewing machine equipped with my invention; the said view showing diagrammatically the normally interrupted electric circuit and also showing the means for stopping the machine when the electric circuit is completed and for automatically interrupting the circuit so as to prevent burning out of the electro-magnet employed. Fig. 2 is a section taken in the plane indicated by the line 2—2 of Fig. 1, and showing the means for completing the electric circuit when the upper thread employed in the sewing operation is for any reason relaxed.

Similar numerals of reference designate corresponding parts in all of the views of the drawings.

In furtherance of my invention the head 1 on the overhanging arm of the machine is equipped with a conductive plate 2, preferably of right-angle form in cross-section, and carried by but insulated from the forwardly extending portion of the said plate 2 is a contact piece 3. Also connected with the said forwardly extending portion of the plate 2 is the lower end of a spring strip 4. This latter connection is both a mechanical and electrical one, and at its upper end the spring strip 4 terminates in an eye 5. The upper thread 6 employed in the sewing operation is carried to and in engagement with a suitable tension device 7, and is then passed through the eye 5 of the spring strip 4, after which it is carried over conventional

or other suitable guides to the point of the needle 8^a. So long as the said upper thread 6 is held under tension it operates to retain the upper portion of the spring strip 4 away from the contact piece 3. When, however, the upper thread 6 is relaxed or loosened, as by a break, the upper portion of the spring strip 4 will be released, and will then spring into engagement with the contact piece 3 and close the electric circuit and stop the machine. It will be manifest from the foregoing that the capacity of the spring strip 4 to move laterally when the thread 6 is released, and thereby close the electric circuit contributes to the reliability of the stop motion mechanism; also, that the compact relative arrangement of the conductive plate 2, the contact piece 3, and the spring strip 4, as shown in Figs. 1 and 2, adapts my improvement for ready application to and convenient use on the head 1 of a sewing machine such as at present in use. The said stoppage of the machine is brought about through the medium of a shipping lever or other suitable device 8 adapted when released to move in the direction indicated by arrow in Fig. 1. On the said shipping lever 8 is a lever latch 9 which is designed to be engaged and held, so long as the machine is running properly, in the position shown by the armature 10 of an electro-magnet 11.

The plate 2 and the contact piece 3 together with the electro-magnet 11, the armature 10 and an electric switch 12, of the handle or any other suitable type, are arranged in a normally interrupted electric circuit with a source of electric energy 13, the electric connections being through a wire 14 from one pole of the source of energy to the magnet, through a wire 15 from the magnet 11 to one of the contact pieces of the switch, through a wire 16 from the other contact piece of the switch to the conductive plate 2, and through a wire 17 from the contact piece 3 back to the opposite pole of the source of electric energy.

By virtue of the arrangement described it will be manifest that in the event of the upper thread 6 being loosened by a break or by any derangement of the organized mechanism employed in the sewing operation, the spring strip 4 will contact with the piece 3, whereupon the magnet 11 will be energized, and the armature attracted thereto. This will release the lever latch 9, and

then the shipping device moving in the direction indicated by arrow in Fig. 1, will bring about a stoppage of the machine.

Intermediate the lever latch 9 and the handle of the switch 12 is a connection 20 which is preferably, though not necessarily flexible. By virtue of this provision it will be manifest that when the shipping device 8 is moved in the direction indicated by arrow by a spring or weight or other means, the switch will be opened and in that way the electric circuit will be interrupted and the electro-magnet deenergized. This will be appreciated as an important advantage when it is stated that my invention contemplates operating the stop motion mechanisms of a battery of machines from the same source of electric energy, in which case it is the part of wisdom to provide voltage sufficient to operate a plurality of the stop motion mechanisms at the same time. From this it will be seen that in the event of a single machine being automatically stopped, and for some reason the attendant could not immediately put the machine in operation, the magnet 11 would be burned out in the absence of my automatic means for interrupting the circuit and deenergizing the magnet immediately after the release of the shipping device.

As before stated, my improvement is designed to be used upon machines comprised in a battery and used for manufacturing handkerchiefs, aprons, dresses and the like, and the improvement serves to stop any one of the machines in the event of a break in the thread. This avoids the liability of a considerable amount of cloth running through the machine before the attendant who supervises a number of the machines

discovers the break, and the resulting necessity of the cloth being moved back in the machine before the operation of the same can be reestablished.

It will be gathered from the foregoing that when machines are equipped with my improvement, a girl or other person can properly attend a large number of the machines.

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

The combination of the face plate on the overhanging arm of a sewing machine, a conductive plate, of angular form in cross-section, having one of its portions arranged against and fixed to said face plate, a contact piece carried by and insulating from the forwardly extending portion of the conductive plate, a spring strip, of conductive material connected to the forwardly extending portion of the conductive plate and carried thereby and having a tendency to spring into engagement with the contact piece; said spring strip being free at one end and provided with an eye whereby it can be retained by a thread away from the contact piece, a source of electric energy arranged in a normally interrupted electric circuit with the conductive plate and the contact piece, and means constructed and arranged on completion of the electric circuit to bring about a stoppage of the machine.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

JOSEPH A. POIRIER.

Witnesses:

LEDA DUGAS,

EDGAR L. SPAULDING.