

(No Model.)

2 Sheets—Sheet 1.

F. HAMMOND.

ELECTRIC STOP MECHANISM FOR KNITTING MACHINES.

No. 499,921.

Patented June 20, 1893.

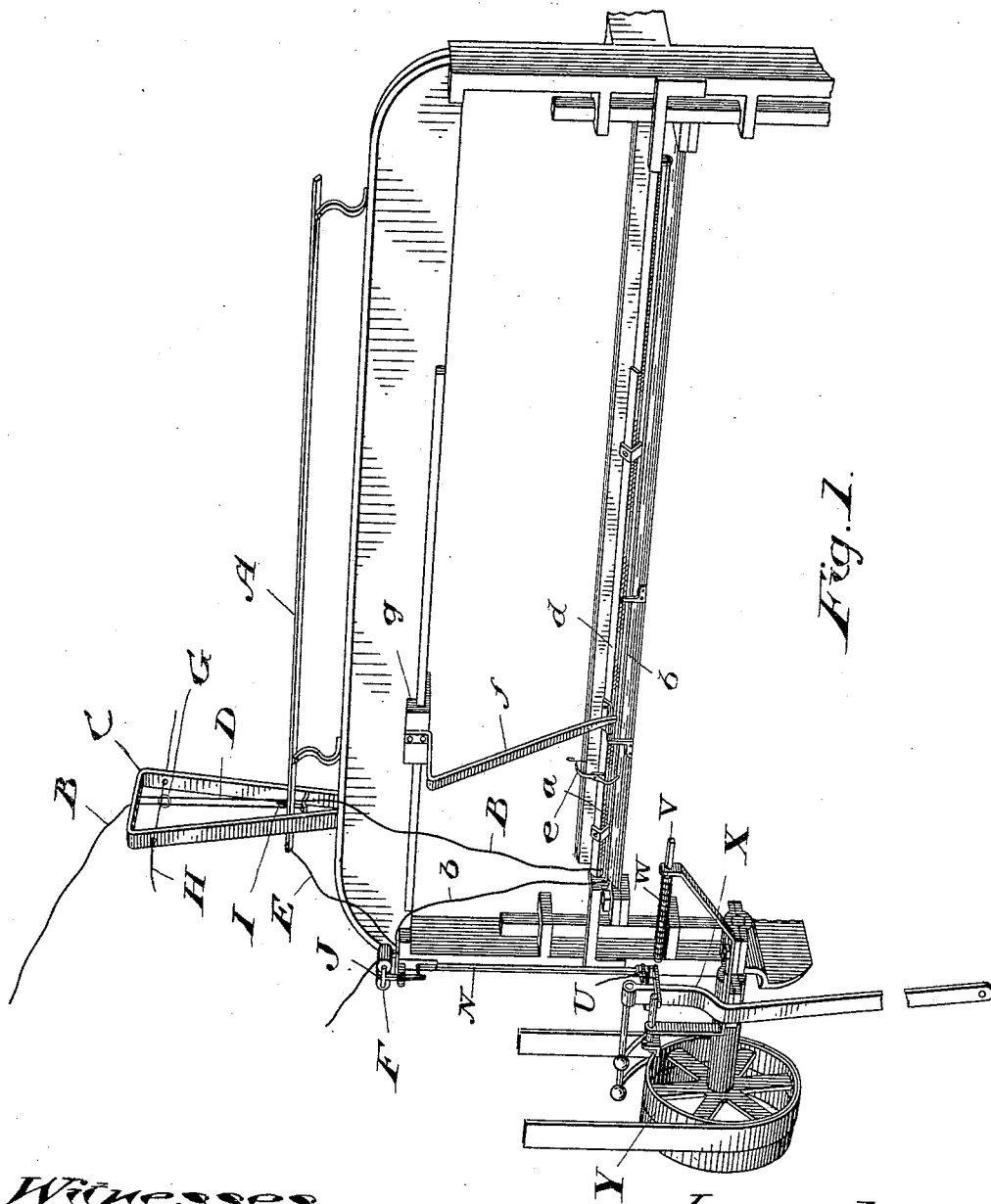


Fig. 1.

Witnesses

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By Donald L. Kidout & Co
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(No Model.)

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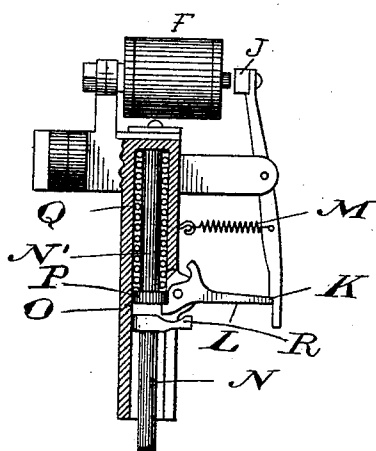


Fig. 2

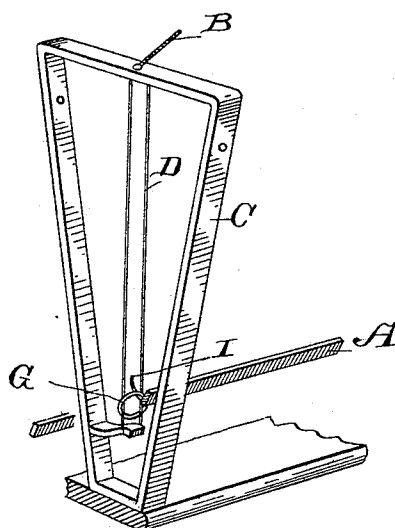


Fig. 3

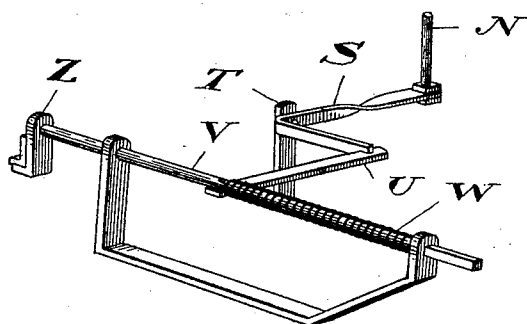


Fig. 4

Witnesses
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UNITED STATES PATENT OFFICE.

FRANK HAMMOND, OF PARIS, CANADA, ASSIGNOR OF ONE-THIRD TO JOHN PENMAN, OF SAME PLACE.

ELECTRIC STOP MECHANISM FOR KNITTING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 499,921, dated June 20, 1893.

Application filed January 9, 1893. Serial No. 457,749. (No model.)

To all whom it may concern:

Be it known that I, FRANK HAMMOND, of the town of Paris, in the county of Brant, in the Province of Ontario, Canada, have invented a certain new and Improved Electric Stop Mechanism for Knitting-Machines, of which the following is a specification.

The object of the invention is to provide simple mechanism for stopping the motion of a knitting machine should the yarn break, and it consists, in the peculiar construction, arrangement and combinations of parts hereinafter more particularly described and then definitely claimed.

In the accompanying drawings—Figure 1, is a perspective view of that portion of the mechanism of a knitting machine immediately connected with my invention. Fig. 2, is a detail of the magnet and mechanism connected therewith. Fig. 3, is a perspective detail of the mechanism by which the breaking of the yarn causes the belt-shifting mechanism to operate. Fig. 4, is a perspective detail of the belt-shifting mechanism.

In the drawings, A, is a metal bar rigidly attached to the machine, but insulated therefrom.

B, is a wire leading from a battery and connected to a plate C, from which the guide wires E, extend.

E, is a wire extending from the bar A to the magnet F, which is connected to the other pole of the battery.

G, is a tension ring supported by the yarn H.

I, is a finger extending from the bar A, between the guide wires D.

J, is the armature of the magnet F, the said armature having a tail with a shoulder or notch K, formed on it, to engage with the tail of the pivoted dog L, when the tail of the armature J, is held against the tail of the dog L, by the action of the spring M, (see Fig. 2).

The upper end of the rod N, is fitted into a cylinder O, between the end of which and the collar P, on the rod N', is fitted a powerful spiral spring Q, which is compressed when the rod N, is pushed up so that the dog L, engages with the collar P, formed on the rod N'. The finger R, projecting from the rod N, through a vertical slot made in the cylinder O, serves to keep the rod N, from turning. The lower

end of the rod N, is connected to one end of the bell-crank lever S, which is pivoted on the post T, and has its other end shaped to engage with a finger U, extending from the rod V, when the said rod is pushed back to compress its spring W. This finger U, also extends behind the belt-shifting lever X, which is of ordinary construction and may be moved freely in the usual way so long as the finger U, is held clear of it by engagement with the bell-crank lever S.

In the event of the yarn H, breaking, the tension ring G, will of course fall down the guide wires D, and the moment that the said ring strikes the finger I, the circuit through the magnet F, is completed and consequently the armature J, is drawn toward the magnet carrying the shoulder K, clear of the pivoted dog L, and as the pivoted dog L, will no longer be locked, the spring Q, will push the rod N', down against the rod N, and as the bottom of the rod N, is connected to the bell-crank lever S, the said lever is tilted on its pivot so as to bring it clear of the finger U, thereby releasing the said finger U, and permitting the spring W, on the rod V, to push the said rod out and bring the finger U, against the belt-shifting lever X, thereby forcing the belt of the driving-pulley Y, onto the loose pulley beside and simultaneously bringing the head Z, on the rod V, against the edge of the said driving-pulley, thereby causing the said head to act as a brake and thereby arrest the motion of the said pulley. From this description it will be seen that in the event of the yarn breaking, the machine will immediately be stopped and it will be noticed that the mechanism for effecting this purpose does not in any way interfere with the belt-shifter when used in the ordinary way.

What I claim as my invention is—

1. In an electric stop mechanism, a belt shifter, a rod provided with an actuating spring, a finger connected to said rod and arranged to act on the belt shifter, an electromagnet, a longitudinally movable rod, a pivoted lever having one end connected to said rod and arranged to engage said finger, a spring for actuating said longitudinally movable rod, and mechanism in connection with said magnet for holding said spring in com-

pression, in combination with means for automatically completing the circuit so that the consequent action of the magnet shall release the spring and put the mechanism in action
5 to operate the belt-shifter, substantially as described.

2. In an electric stop mechanism, a belt-shifter, mechanism arranged to act on the same, a rod connected with said mechanism,
10 a spring for operating said rod, a pivoted dog arranged to hold said spring under compression, and an electro-magnet having a connection with said pivoted dog arranged to allow said dog to release said spring when the circuit is completed, in combination with a finger
15 projecting from an insulated bar connected with said electro-magnet, and a tension-ring arranged to automatically complete

the circuit between the magnet and battery, substantially as described. 20

3. A rod located in proximity to the belt-shifting lever and provided with a head to act as a brake upon the driving pulley, a spring arranged to impart longitudinal motion to the said rod, a finger connected to the said rod
25 and projecting behind the belt-shifting lever to a point where it engages with a pivoted lever when the spring is compressed, in combination with electrical means for disengaging the said pivoted lever, substantially as and
30 for the purpose specified.

Paris, December 31, 1892.

FRANK HAMMOND.

In presence of—

B. C. CAPRON,

C. W. FINLAYSON.