J. BULLOUGH.

ELECTRO STOP MOTION FOR DRAWING-FRAMES, &c.

No. 190,127. Patented May 1, 1877.

Fig 1

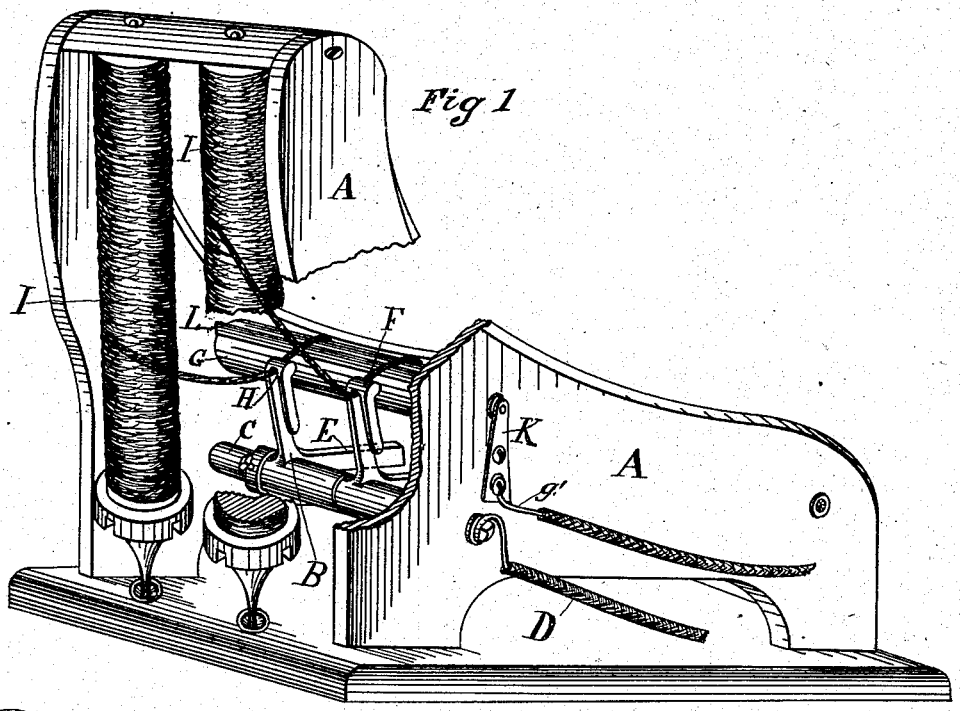


Fig 2

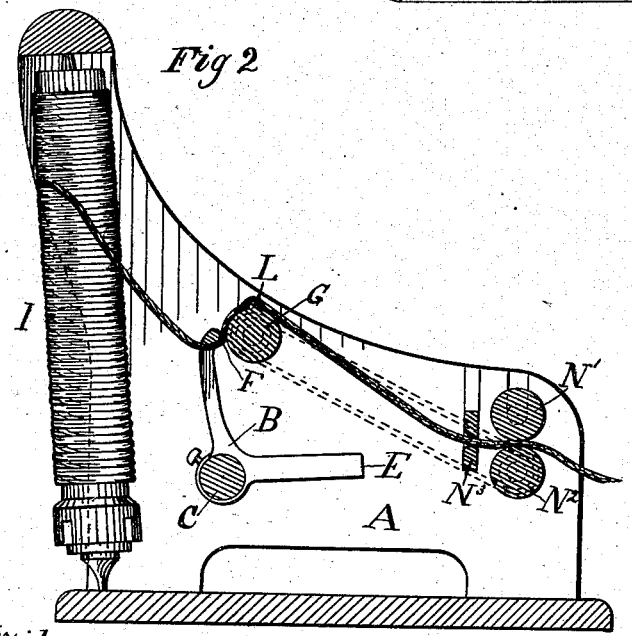
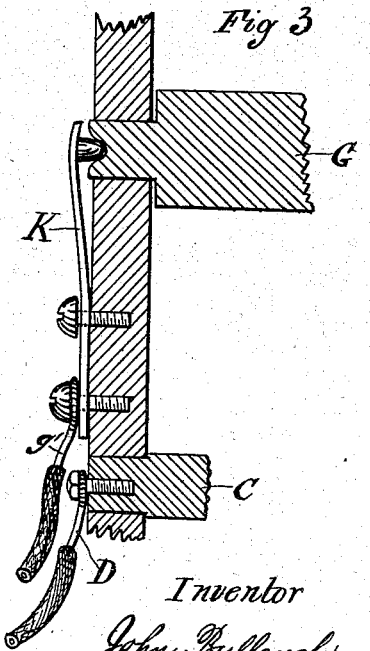


Fig 3



Witnesses
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UNITED STATES PATENT OFFICE.

JOHN BULLOUGH, OF ACCRINGTON, ENGLAND.

IMPROVEMENT IN ELECTRIC STOP-MOTIONS FOR DRAWING-FRAMES, &c.

Specification forming part of Letters Patent No. **190,127**, dated May 1, 1877; application filed March 23, 1877.

To all whom it may concern:

Be it known that I, JOHN BULLOUGH, of Accrington, in the county of Lancaster, England, have invented certain new and useful Improvements in Electric Stop-Motion for Drawing-Frames, and Slubbing, Intermediate, and Roving Frames, Speeders, &c.; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

My present improvements in one respect resemble those set forth in my Patent No. 185,164, dated December 12, 1876—viz., in causing the roving or thread to prevent a metallic connection for completing the electric circuit until such roving or thread breaks, and then permitting such metallic connection or contact to take place, and to operate the stopping mechanism; but instead of making use of the top and bottom rollers of the machine for effecting such connection or contact, by reason of the top roller dropping or gravitating to the bottom roller when the cotton or thread breaks, I dispense with the top roller or rollers, and cause contact to be made by levers of a peculiar shape and character, and which are substitutes for the top rollers.

In the drawings, which illustrate my improvements, Figure 1 is a perspective view of a machine embodying them, partly broken away, the better to display the invention. Fig. 2 is a longitudinal vertical section, and Fig. 3 a detail in section on an enlarged scale.

A is the frame; B, the levers, any appropriate number of which are arranged or threaded on a shaft, C, which shaft is, by means of wire D, placed in connection with one pole (say the negative) of a battery or electro-magnetic apparatus. (Not necessary to be shown.) These levers B are made with a projection or spur, E, which is made sufficiently heavy, or so weighted, as to give to that part F of the lever over which the cotton or thread runs a constant tendency to fall against a roller, G, such roller being connected, by means of a wire, g', to the opposite (or positive) pole of the battery or electro-magnetic machine. The levers B are made so as to form a guide or slot, H, for the cotton or thread.

When the machine is ready for operation, the thread, from its respective bobbin I, is passed into the guide or slot H, and up and under the nose F of its appropriate lever, and then over the surface of the roller G. By the influence of the spur E of lever B the lever is caused to gravitate toward the roller G; but it cannot come into contact with the latter so long as the thread or cotton is present; but when it is absent, because of a breakage taking place, there is nothing to prevent the nose F of the lever B from coming into contact with the roller G, and the circuit being thereby completed, (because the roller G represents one pole of the battery, and the shaft C, on which the levers B are threaded, the other,) the machine is stopped, by thus causing the stop-motion devices to be brought into action, which may be by any proper mechanism—as, for instance, such as is set forth in patent above referred to, and which need not be herein described, as it forms no part of my present invention.

The wire g' may connect with the roller G by means of a metallic spring-plate, K, which may be adjustable, and which has constant contact with such roller, preferably by means of a conical nipple entering a conical axial cavity in the end of the roller.

In some cases I put one or more ribs, L, on the roller G. These ribs raise the levers B slightly and let them drop suddenly, and by so dropping they come in contact with the roller G with greater force, and so make a sure connection in case of a break in the thread.

The guide or slot H, formed by the peculiar shape of the lever, renders it very easy for the operative to replace the broken thread, and is much simpler and more convenient than having a separate guide-rail, (shown and described in my above-named patent, where top rollers are used instead of these levers.)

The levers also have the further good property of not being removable. Unlike the top rollers, they cannot be knocked out of their

working position, and they are not dependent on the attention or care of the operative for being replaced in their working position.

It will also be seen that the nose F of the levers and the part of the roller G with which contact is formed are kept bright and clean by the rubbing of the cotton over these two connecting surfaces. The better to insure the result, I drive the roller G at a speed somewhat greater than the speed at which the cotton or thread is traveling over its surface. This causes the surface of the roller to slip over the cotton, and by so doing the roller is kept very clean and bright, and in a favorable condition for making contact with the nose of the levers, which nose, being stationary, is also rubbed bright and clean by the cotton passing over it. N^1 N^2 are the ordinary draft-rollers which draw the thread or cotton through the guide N^3, off the bobbin I; but N^1, N^2, N^3, and I are not new, being found on every ordinary speeder.

I claim—

1. The combination, with a single or bottom roller, of the system of levers threaded on a shaft, the combination being such that the cotton or thread shall pass between any given lever and the roller, and prevent a metallic connection, substantially as and for the purpose set forth.

2. The levers described, adapted to be threaded upon a shaft, and provided with a spur, E, nose F, and slit H, all substantially as and for the purposes set forth.

3. The rollers provided with a longitudinal rib or ribs, L, and operating in combination with the levers, to lift and drop them suddenly, as and for the purpose set forth.

JOHN BULLOUGH.

Witnesses:
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