(No Model.)

J. E. PREST.

ELECTRIC STOP MOTION FOR WARPING MACHINES.

No. 424,997. Patented Apr. 8, 1890.

Fig. 1.

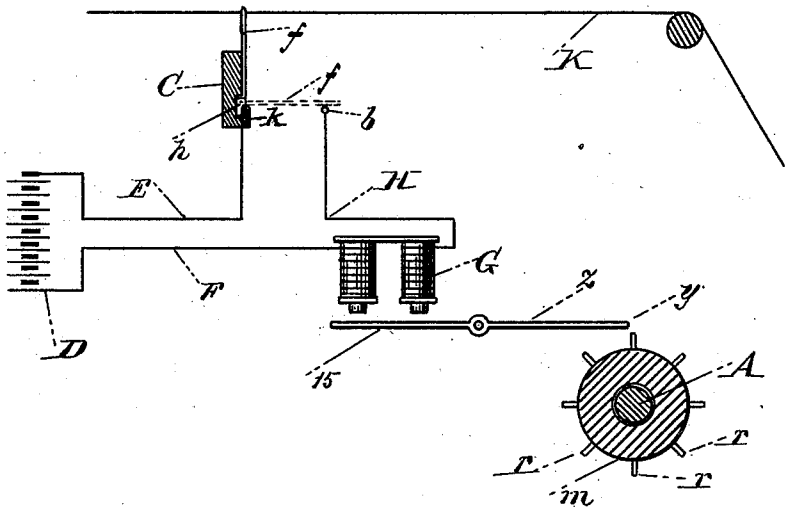
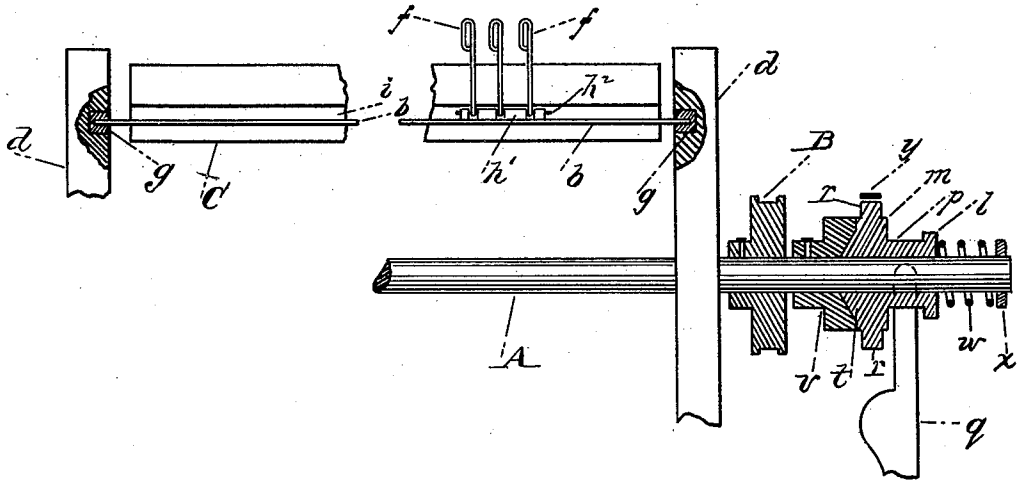


Fig. 2.



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UNITED STATES PATENT OFFICE.

JOHN E. PREST, OF NORTHBRIDGE, MASSACHUSETTS.

ELECTRIC STOP-MOTION FOR WARPING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 424,997, dated April 8, 1890.

Application filed February 20, 1889. Serial No. 300,532. (No model.)

To all whom it may concern:

Be it known that I, JOHN E. PREST, of Northbridge, in the county of Worcester, State of Massachusetts, have invented a certain new and useful Improvement in Electric Stop-Motions for Warping-Machines, of which the following is a description sufficiently full, clear, and exact to enable any person skilled in the art or science to which said invention appertains to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a diagram and partly sectional view illustrating the position of the conducting-wires, magnet, and adjunctive mechanism; and Fig. 2, an elevation showing the drop-wire bar and a portion of the driving-shaft and belt-shifter, the gears on the shaft being shown in vertical section.

Like letters and figures of reference indicate corresponding parts in both figures of the drawings.

My invention relates to means for automatically stopping a warping-machine when an "end" or thread breaks; and it consists in certain novel features, as hereinafter fully set forth and claimed, the object being to produce a simpler, cheaper, and more effective device of this character than is now in ordinary use and one in which the drop-wires shall be so pivoted and supported as to prevent clogging and imperfect action resulting from accumulations of lint and dust about the pivoted portions thereof.

The nature and operation of the improvement will be readily understood by all conversant with such matters from the following explanation.

In the drawings, A represents the driving-shaft, and B a pulley.

As the main parts of the warping-machine are of the usual form, it is not deemed essential to illustrate or describe them.

C is the drop-wire bar, formed with a longitudinal groove *i* in one side thereof, as shown.

A metallic bar or plate *h* is disposed in the groove *i* in the wire-bar C. This bar or plate is provided with perforated ears *h'*, through which a pintle-wire h^2 passes, said ears being formed by slotting the bar or plate *h*. The drop-wires *f* are supported by the metallic bar or plate *h*, and are preferably pivoted indirectly thereto between the ears *h'* by means of the pintle-wire h^2. A plate *k*, attached to the drop-wire bar C, partially covers the groove *i* in the side of said bar and holds the bar *h* in place.

A horizontally-arranged metallic rod *b* is secured in standards *d* of the frame-work of the warper in position to be engaged by the drop-wires when they fall. The rod *b* is surrounded by an insulating substance *g* at its ends.

A wheel *m* is disposed loosely on the shaft A, its hub *l* being provided with an annular groove *p*, in which the end of the lever *q* of an ordinary belt-shifter plays. The wheel *m* is provided on its periphery with broad radially-projecting flanges or teeth *r* and on the side opposite its hub with an outwardly-projecting eccentrically-tapering nose *t*, which fits into a corresponding socket formed in a collet *v*, secured to said shaft. A coiled spring *w*, disposed on the shaft between a collar *x* and the hub *l*, acts expansively to hold the wheel *m* in engagement with the collet *v*.

Pivoted to the frame of the warper is a bar *z*, in such position that one end *y* thereof may be made to engage the teeth *r* on the wheel *m*. An ordinary electro-magnet G is disposed above the opposite end 15 of said bar, which forms an armature therefor. A conducting-wire F connects said magnet with one pole of an electric battery D, the opposite pole being connected by a wire E with the bar *h*, to which the drop-wires are pivoted, or with some metallic portion of the machine in contact with said bar. A wire H connects the rod *d* in front of said drop-wires with the magnet G.

In the use of my improvement the wheel *m*, being held in engagement with the fixed collet *v* by the spring *w*, revolves with the shaft A when the machine is running. Should a thread or end K become accidentally broken, the drop-wire *f* through which it passes will fall and come in contact with the rod *b*, thus closing the circuit in the wires E F H and charging the magnet G. The end 15 of the pivoted bar *z* will be at once attracted to the magnet and the end *y* thereof thrown down into engagement with a tooth *r* on the wheel *m*, at once checking the same. Said wheel being geared into the collet *v* by the eccentric nose

t is forced outward by said collet as it continues to revolve and carries with it the lever q of the belt-shipper, which is of the ordinary construction, and slips the driving-belt onto a loose pulley, thereby stopping the machine in a manner which will be readily understood without a more explicit description. As soon as the drop-wire f is lifted from the rod b the circuit is broken and the pivoted bar z will fall away from the magnet, thus releasing the wheel m, the end 15 of said bar being constructed sufficiently heavy to accomplish this. The spring w returns the wheel m into engagement with the collet v as soon as the mechanism is stopped, in position to be again operated when a thread breaks. The teeth r on the wheel m are of such width that they will not disengage from the rod z as said wheel slips outward on the shaft. By pivoting the drop-wires to a bar or plate placed within a groove formed in the side of the bar C the pivotal portions of the drop-wires are completely shielded, and it is practically impossible for the drop-wires to become clogged at such portions by accumulations of dirt and lint.

I do not herein separately claim the supporting-bar formed with the longitudinal groove in the side thereof, in combination with the slotted plate placed in such groove and having the drop-wires pivoted thereto, inasmuch as such combination is claimed by me in my Letters Patent, No. 402,278, granted April 30, 1889, upon the application filed by me September 17, 1888.

Having thus explained my invention, what I claim is—

1. The combination of a horizontal drop-wire bar provided with a longitudinal groove in one side thereof, a metallic bar disposed in said groove, a series of drop-wires pivoted to said metallic bar and provided with thread-eyes, a horizontal metallic rod disposed adjacent to the drop-wires, against which any of said wires fall when released by the breaking of a thread, an electric circuit having one pole connected with said bar and the other pole connected with said rod, an electro-magnet, an armature for said electro-magnet, and a stop mechanism actuated by said armature when the circuit is closed by the dropping of one of the drop-wires.

2. The combination of a warping-machine frame, a horizontal drop-wire bar supported in said frame and provided with a longitudinal groove in one side thereof, a metallic bar supported in the groove in the drop-wire bar, a series of drop-wires pivoted to said metallic bar and provided with thread-eyes, a source of electricity, a wire connecting said source with said horizontal metallic bar, an electro-magnet, a wire connecting said magnet with the source of electricity, an armature for said magnet, a stop mechanism actuated by said armature, a horizontal metallic rod supported in said frame and insulated therefrom, said rod being disposed adjacent to said bar, whereby the drop-wires fall against said rod when released by the breaking of the thread, and a wire connecting said rod with the electro-magnet.

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