S. Eccles,

Bobbin Winder.

No. 109,502. Patented Nov. 22, 1870.

FIG. 1.

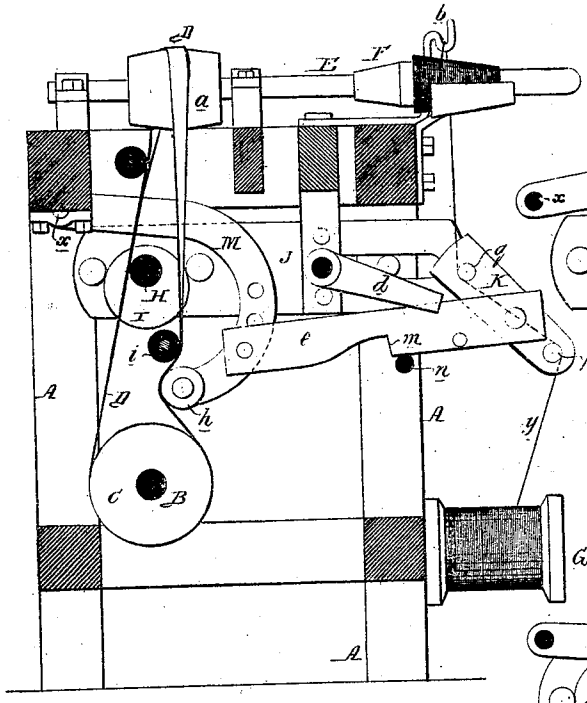


FIG. 3.

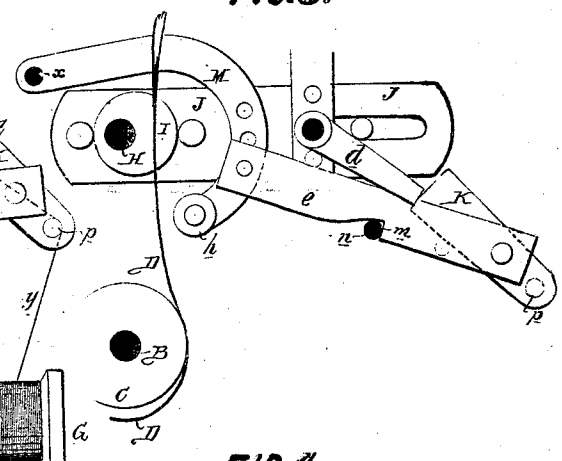


FIG. 4.

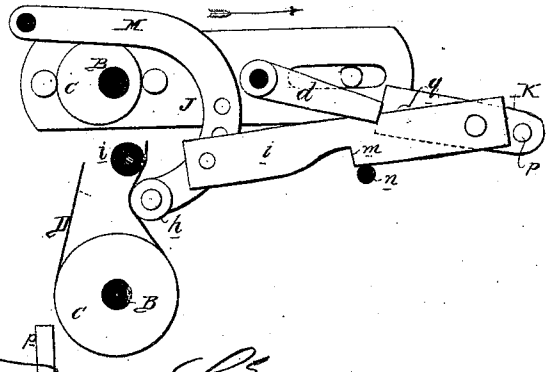
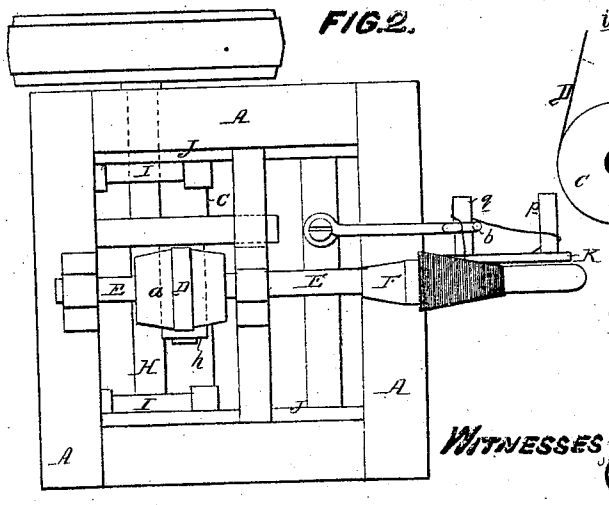


FIG. 2.



S. Eccles
By his Attys
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WITNESSES { Wm. A. Steel,
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United States Patent Office.

SAMUEL ECCLES, OF PHILADELPHIA, PENNSYLVANIA.

Letters Patent No. 109,502, dated November 22, 1870.

IMPROVEMENT IN WINDING-MACHINES.

The Schedule referred to in these Letters Patent and making part of the same.

I, SAMUEL ECCLES, of Philadelphia, county of Philadelphia, State of Pennsylvania, have invented an Improvement in Winding-Machines, of which the following is a specification.

Nature and Object of the Invention.

My invention relates to an improvement in machines for winding yarn from a series of spools onto a series of tapering tubes, and consists of mechanism fully described hereafter, whereby the revolution of a winding-spindle is stopped on the breaking of the thread which is being transferred to the tube on said spindle without the movements of the other spindles being interfered with.

Description of the Accompanying Drawing.

Figure 1 is a vertical section of a part of a winding-machine with my improvement;

Figure 2, a plan view; and

Figures 3 and 4, detached views of the operating parts in different positions.

General Description.

A is the frame of the machine, in suitable bearings, on which revolves the pulley *a* of one of a series of horizontal spindles, E, each of which, on the latter, passes a belt, D, round the pulley *a* of a horizontal spindle, E, which turns in bearings on the top of the frame, and to the end of which is fitted the detachable tapering tube F, for receiving the yarn from one of a series of bobbins, G.

Through the medium of a belt or suitable gearing, motion is communicated from the shaft B to a shaft, H, to which, below each spindle E, is secured an eccentric, I, the latter serving to impart a horizontal reciprocating motion to the guided sliding bar J, which carries the thread-guide *b*, and to which is hung loosely a pawl, *d*, the outer end of the latter being arranged to slide freely on the edge of a rod, *e*, which carries at its outer end the trigger K; and being jointed at its opposite end to a curved arm, M, hung loosely to the frame at *x*, the lower end of the said arm having a roller, *h*, which, under the circumstances described hereafter, will tighten the belt D by forcing it to the position shown in figs. 1 and 4, between the drum C and a roller, *i*, arranged to revolve in stationary bearings.

The rod *e* has in its under edge a notch, *m*, for catching onto a stationary pin, *n*, on the frame of the machine.

The yarn *y* passes from the bobbin G over the lower pin *p* of the trigger K, round the upper pin *q* of the same to the guide *b*, and thence to the tapering tube F of the spindle E.

As this spindle revolves rapidly, a slow reciprocating motion is imparted to the sliding bar J, and its guide *b*, directs the yarn as it is wound round the tube F.

There is always sufficient tension on the yarn, as long as it remains entire, to maintain the trigger K in the inclined position shown in fig. 1, where it is free from contact with the pawl *d*, as the latter traverses to and fro; therefore, with the sliding bar J the arm M remains undisturbed, and continues, by its own weight, to maintain the belt D tight.

Should the yarn break, however, the trigger will at once fall to the position shown in fig. 4, so as to be within the range of the reciprocating pawl or traverse motion *d*, and the latter, as the sliding bar J moves in the direction of the arrow, (fig. 4,) will come in contact with the end of the trigger, and will, through the medium of the rod *e*, elevate the arm M, as shown in fig. 3, so that its roller ceases to bear on the belt D, and the latter ceases to be the medium of turning the spindle.

Owing to the notch *m* in the rod *e* catching on the stationary pin *n*, the arm M is maintained in the position shown in fig. 3 until the yarn is "pieced" and properly adjusted to the trigger, when, by raising the rod *e* free from the pin *n*, the arm may be restored to its original position, the belt being thereby tightened and the spindle E caused to revolve as before.

Inasmuch as mechanism of the character above described is connected with each spindle, it is apparent that the stopping of any single spindle on the breaking of a thread will not interfere with the operations of the other spindles.

It will be seen that, inasmuch as the spindles are arranged in a horizontal position, and the bands D are vertical, or nearly so, the removal of the roller *h* from a band will cause the latter to slacken and hang below the drum B, touching the same only at two points, so that the revolution of the band ceases on the instant the roller *h* is withdrawn.

By this arrangement the automatic brakes for stopping the spindles, which are required in machines having horizontal bands, may be dispensed with, the wearing of the belt is prevented, and the machine is rendered much less complicated in its construction.

Claims.

1. The arrangement of the horizontal drum *c*, series of horizontal spindles E, vertical driving-belts D, rollers *h*, and devices, substantially as described, for operating said rollers, all substantially as and for the purpose set forth.

2. The combination of the arm M, rollers *h*, bar J, pawl *d*, rod *e*, and trigger K with its pins *a a*,

the whole being arranged and operating in connection with the spindles E and driving-belts D, as described.

3. The combination of the above, the rod *n*, and notch *m* of the rod *e*, as and for the purpose specified.

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

SAMUEL ECCLES.

Witnesses:
WM. A. STEEL,
HARRY SMITH.