J. DORNAN.

Bobbin-Winder.

No. 165,807. Patented July 20, 1875.

Fig. 1.

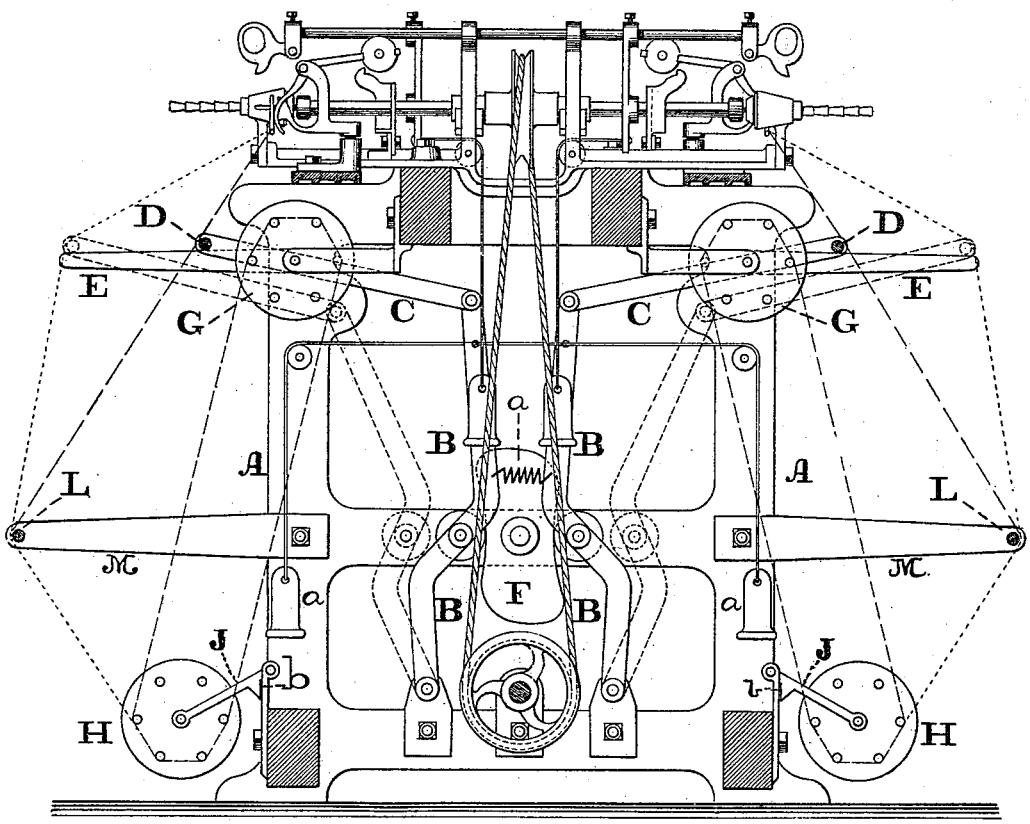
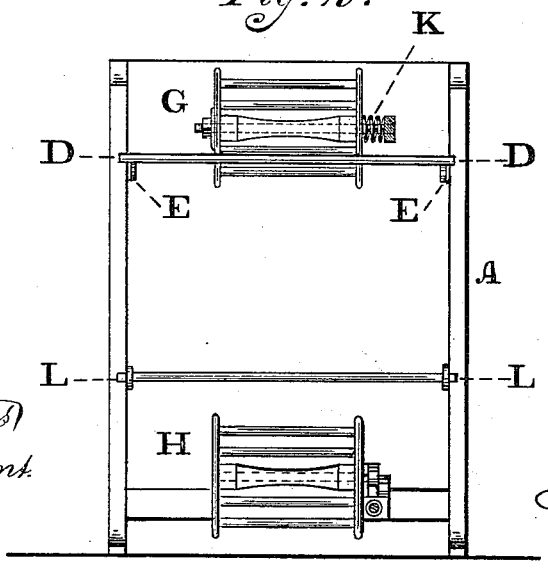


Fig. 2.



Witnesses

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JOHN DORNAN, OF PHILADELPHIA, PENNSYLVANIA.

IMPROVEMENT IN BOBBIN-WINDERS.

Specification forming part of Letters Patent No. **165,807**, dated July 20, 1875; application filed June 2, 1875.

To all whom it may concern:

Be it known that I, JOHN DORNAN, of the city and county of Philadelphia, and State of Pennsylvania, have invented a new and useful Improvement in Bobbin-Winders or Quillers; and I do hereby declare the following to be a clear and exact description of the nature thereof, sufficient to enable others skilled in the art to which my invention appertains to fully understand, make, and use the same, reference being had to the accompanying drawings making a part of this specification, in which—

Figure 1 is an end view, partly sectional, of the device embodying my invention. Fig. 2 is a side view of a portion thereof.

Similar letters of reference indicate corresponding parts in the two figures.

Heretofore yarn has been spooled, and then transferred from the spool to the bobbin or quill. This necessitates double handling of the yarn, and weakens the same, and, owing to the conical shape of the bobbin or quill, the yarn is liable to overlap and snap.

My invention is designed to remedy these defects; and it consists in means for taking up the slack of the yarn at the time the yarn is winding on the lowest part of the bobbin or quiller, and the yarn, not requiring to be passed over guides adjacent to the take-up rods, is prevented from snapping or breaking. It also consists in a take-up rod and a gravitating-barrel or runner, which automatically adjusts itself, due to the lengthening or shortening of the hank or skein, in combination with an upper barrel, having a spring for creating the proper friction on said barrel, thus regulating the running off of the yarn, and producing a hard and firm bobbin.

Referring to the drawings, A represents the frame of the apparatus, on which are mounted levers B, which have a motion toward and from each other, and to their upper ends there are connected levers C. D represents transversely-extending rods, which are secured to the levers C, and receive motion therefrom, and said rods are supported on longitudinally-arranged arms E, which are connected to the frame A. To a shaft operated by proper gearing there is keyed or otherwise fixed a cam, F, which rotates between the levers B, and serves to separate the same, thus imparting motion thereto in one direction, the return motion being accomplished by a spring or weights, *a*, suitably applied. G represents a barrel or roller, which is mounted on a bracket, stud, or hanger at or about the upper portion of the frame A, and H represents a similar barrel, which is mounted on a swinging or gravitating arm, J, jointed to the same at or about the lower portion thereof. On the axes or axial pins of the upper barrels or rollers G are located springs K, which are placed in contact with the said barrels, and serve to create friction thereagainst. Stops *b* are arranged with the gravitating-arms J and their bearings, or adjacent portions of the frame A, so as to limit the lowering motion of the barrels H. L represents transversely-extending rods, which are connected to supporting-arms M, projecting from the frame A, and occupy positions between the upper and lower rollers. The other parts of the apparatus are in general use.

The yarn is placed around the upper and lower barrels. Power is communicated to the cam F, whereby the levers B are reciprocated, and inward and outward motions are imparted to the rods D, which are beneath the bobbin-holders. As the yarn runs off the barrels it is passed outside of the fixed rod L in contact therewith, and in contact with the sliding rod D, from which it is directed to the bobbin without requiring guide-rods adjacent to the rod D.

It is well known that the bobbin or quill in running, owing to the cone shape thereof, necessarily takes more yarn at what is termed the highest point than at the lowest point, and the rate of speed is the same; therefore, when the rods D move out they take up the slack at the time the yarn is winding on the lowest point of the bobbin or quiller, whereby the winding or quilling is properly performed, the yarn will not overlap or snap, prior spooling is avoided, and the yarn is not weakened.

The lower barrels will automatically rise and fall, due to the lengthening and shortening of the hanks or skeins, and thus prevent breaking of the yarn. The springs K, bearing against the upper barrels G, preserve a uniform tension of the yarn, and cause the bob-

bin to be hard and firm. The lower rods L separate the yarn that is run off the barrels from the portion that is still running on the barrels, and thus prevent entanglement or interference between the parts of the yarn as separated.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination, with the winding mechanism, of the sliding rods D, supporting-arms E, levers C, levers B, operating-cam F, and spring or weight *a*, all arranged as described, whereby the slack is taken up, and the yarn does not require to be passed over guides adjacent to said rods D, substantially as and for the purpose set forth.

2. The combination of the sliding rods D, upper barrels G, lower gravitating-barrels H, springs K, and separating-rods L, substantially as and for the purpose set forth.

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