(No Model.)

L. C. BALDWIN.

APPARATUS FOR PAINTING BOBBINS, &c.

No. 296,506. Patented Apr. 8, 1884.

Fig. 1.

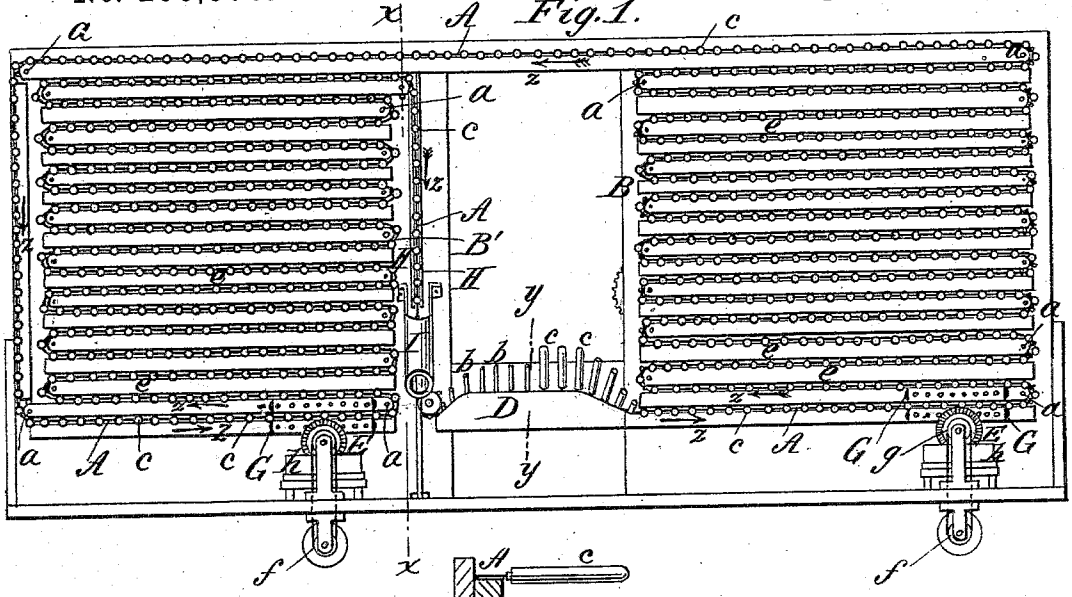


Fig. 3.

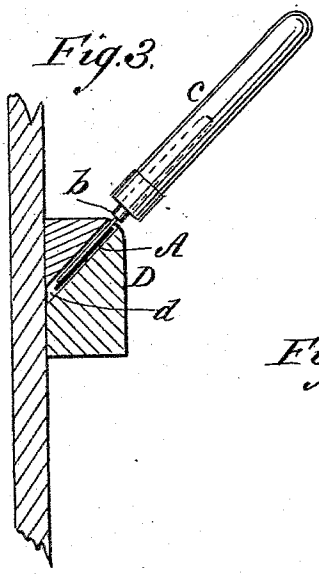


Fig. 2.

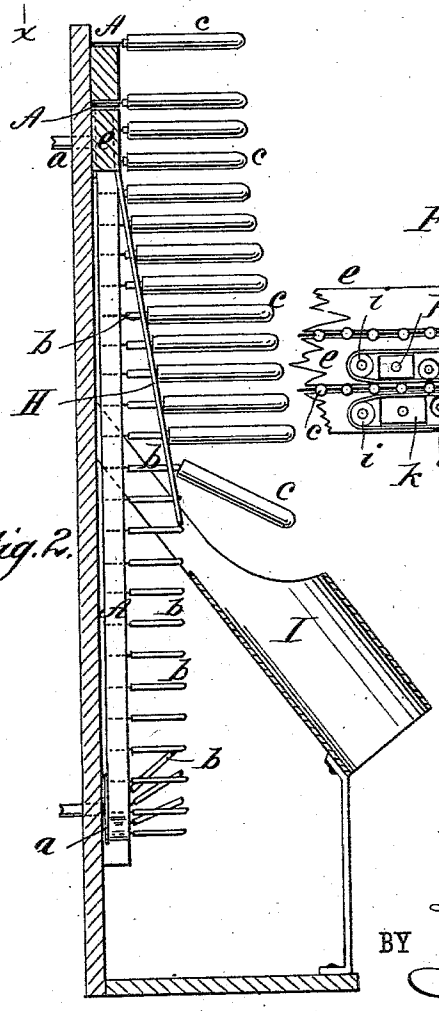
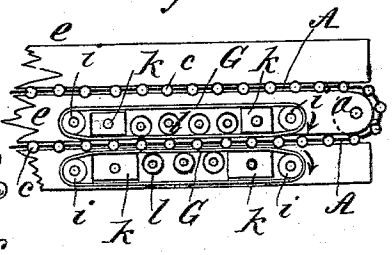


Fig. 4.



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LUTHER C. BALDWIN, OF MANCHESTER, NEW HAMPSHIRE.

APPARATUS FOR PAINTING BOBBINS, &c.

SPECIFICATION forming part of Letters Patent No. 296,506, dated April 8, 1884.

Application filed July 10, 1883. (No model.)

To all whom it may concern:

Be it known that I, LUTHER C. BALDWIN, of Manchester, in the county of Hillsborough and State of New Hampshire, have invented certain new and useful Improvements in Apparatus for Painting and Drying Bobbins and other Articles, of which the following is a full, clear, and exact description.

This invention, while it may be used for painting and drying handles of different kinds and various other articles, is more especially intended for painting and drying spinning-machine bobbins, which require to be painted on their ends, and the invention will here be described more particularly with reference to such use. Its object is in part the same as that of the apparatus for drying bobbins secured to me by Letters Patent No. 237,074 on January 25, 1881, and it resembles said apparatus to the extent that the bobbins have a prolonged travel on an endless moving belt, to give them an opportunity of drying after being painted without laying them on boards for the purpose, and whereby they are collected without handling or attention; but the invention essentially differs from said apparatus in several important respects, and not only is designed for drying bobbins, but also for painting them; and it consists in a novel arrangement of the belt or belts by which the bobbins are carried and traversed, whereby a prolonged travel is obtained for them in a very contracted space; also, novel means for placing and delivering the bobbins, and for painting, or guiding, steadying, and rotating them while being painted, substantially as hereinafter described.

Reference is to be had to the accompanying drawings, forming part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 represents a front elevation of my improved apparatus. Fig. 2 is a vertical section of the same, upon a larger scale, mainly on the line *x x* in Fig. 1. Fig. 3 is a further vertical section in part, upon a still larger scale, on the line *y y* in Fig. 1; and Fig. 4, a vertical longitudinal section of a device for rotating, guiding, and steadying the bobbins while being painted.

The apparatus represented in the drawings is a double one—that is, it is constructed to provide for giving the bobbins or articles to be painted a second coat of paint, and intermediately and subsequently drying them; but the appartus may be a single one—that is, be constructed to apply only one coat of paint.

A is the endless belt, which is made of flexible material, and is arranged to run in a series of any number (more than two) of closely-disposed forward and backward paths—one above the other—and downward to the delivery device.

The apparatus represented in the drawings being a double one, two tiers, B B′, arranged side by side of such forward and backward "runs" for the belt, are shown in Fig. 1, the arrows *z* indicating the course of its travel. Said belt is supported on rollers *a a*, to which power will be applied in any convenient manner to give a slow continuous movement of the belt around the rollers. The rollers *a a* are sustained in a frame or supports of any suitable kind.

Secured crosswise upon the belt A, and so as to project from the front edge of it, are spindles or mandrels *b b*, forming carriers for the bobbins *c c*, or articles to be painted and dried. Said mandrels may, if desired, be secured in sockets on the belt, so as to be capable of rotating, instead of the bobbins *c c* rotating upon them, as hereinafter described. These mandrels *b b* may be arranged only at such distances apart throughout the length of the belt to receive over them the bobbins without touching one another.

D is a fixed lower receiving stand or guide behind or longitudinally through a way or slot, *d*, in which (that may or may not be fitted with guide-rollers) the belt A travels, said way being set inclining upward toward the front of the stand, as shown in Fig. 3, and the belt being deflected to correspond as it passes therethrough, in order that the mandrels *b b* may incline forwardly in an upward direction, to facilitate the placing of the bobbins *c c* on them. The deflection of the belt should be gradual as it enters and leaves the stand D.

The articles or bobbins *c c* to be painted and dried are slipped on and over the mandrels *b b* as they pass with the belt through the stand D, and are carried by the belt A first

along their lower line of travel in the tier B of successive forward and backward belt-paths, separated by guide-strips *e*, to and over a right-hand rotary paint-brush, E, that may be driven by pulleys *f g*, and which is supplied with paint from a receptacle, *h*, arranged to receive the lower portion of the brush within it. Said bobbins *c c*, as they pass with the belt A over the brush E, are rotated, so as to present the whole circumferential portion of their ends to the action of the brush, to secure their being thoroughly painted. This may be done either by fitting the bobbins *c c* tightly on the mandrels *b b*, and rotating said mandrels by any suitable gear at their back ends, or, as here shown, it may be done by two short upper and lower endless friction-belts, G G, supported by end rollers, *i*, and intermediate blocks, *k*, or otherwise, and arranged to receive between them the body portions of the bobbins *c c*, fitted loosely on the mandrels *b b*, said belts G G being driven by any suitable gear applied to their end rollers, or certain of them, and so causing the bobbins *c c* to be rapidly rotated as they pass over the brush, for the purpose hereinbefore stated. Such bobbin-rotating device also serves to guide and steady the rotating bobbins as they pass over the brush, and for this purpose, and to prevent the friction-belts G G from flexing out of contact with the bobbins, the running portions of said belts, which bear against the bobbins, are supported by a series of rollers or other supports, *l l*, arranged within the belts in interposed relation with each other in the one belt relatively to the other, as shown in Fig. 4. The bobbins *c c*, having been thus painted on their ends, are carried backward and forward along the different belt-paths throughout the tier B of such courses of travel of the belt A, for the purpose of drying the painted bobbins, and afterward, if the apparatus be a single one, are conveyed by said belt A down to the delivery devices; but when the apparatus is a double one, as shown in Fig. 1, the painted and partially or wholly dried bobbins *c c*, after leaving the tier B of the belt's courses of travel, are passed along and overhead and down to the bottom of another and corresponding tier, B′, of forward and backward pathways for the belt before conveying them to the delivery devices. This is for the purpose of giving the bobbins *c c* a second coat of paint, or of varnishing them, by causing said bobbins to pass and be rotated, by means as hereinbefore described for the tier B, over a second brush, E, in or applied to the tier B′, and afterward, by the continued backward and forward travel of the belt A, of drying the bobbins. As the belt A leaves its upper course of travel in the tier B′, it passes down on the inner end of said tier to the delivery device or devices, which are here shown as consisting of two parallel rods, H H, set inclining forward in a downward direction, and arranged so that while the mandrels *b b* pass down in between them, the back ends of the bobbins travel down over them, whereby said rods or inclines, acting as an ejector, cause the bobbins *c c* to be forced from off the mandrels, as shown in Fig. 2, and to be delivered through a spout, I, into any suitable receptacle, where they are collected without any further handling or attention. In this way or by these means provision is made for rapidly and automatically painting and drying the bobbins, and the arrangement of the belt which carries them secures a prolonged travel and thorough drying of them in large quantities in a very small space or compass. Any suitable registering mechanism may be used, if desired, in connection with the apparatus, for registering the number of bobbins or articles passing through it.

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

1. In an apparatus for painting and drying bobbins and other like articles, the traveling endless belt provided with work-carrying spindles or mandrels, and arranged to form one or more vertical tiers of forward and backward horizontal courses of travel, substantially as specified.

2. In painting and drying apparatus for bobbins and other like articles, the endless belt A, arranged to travel backward and forward throughout a vertical series of courses, and provided with work-carrying spindles or mandrels *b b*, in combination with the rollers *a a* and a rotary paint-brush, E, essentially as described.

3. The combination of the friction-belts G G with the endless traveling belt A, carrying spindles or mandrels *b b*, and the rotary paint-brush E, substantially as and for the purposes specified.

4. The work-rotating friction-belts G G, provided internally with a series of rollers or supports, *l l*, arranged so that said supports in the one belt are in intermediate relation with those in the other belt, for operation in connection with a work-carrying belt arranged to pass in between the friction-belts, and with a mechanically-driven paint-brush, essentially as described.

5. In an apparatus for painting and drying bobbins and other like articles, the combination, with the endless traveling belt A and its spindles or mandrels *b b*, of the receiving stand or guide D, constructed to flex the belt as it passes therethrough, and to give said mandrels an upward pitch or inclination, whereby the placing of the bobbins or like articles on the mandrels is facilitated, substantially as shown and described.

6. In combination with the endless traveling belt A and bobbin or other work carrying spindles or mandrels *b b* thereon, the inclined delivering device or ejector H H, for operation on the inner ends of the bobbins or like articles carried by said mandrels, essentially as specified.

7. In an apparatus for painting and drying bobbins and other like articles, the combina-

tion of an endless traveling belt armed with spindles or mandrels for supporting the work, a mechanically-driven and self-feeding brush for painting the bobbins or like articles, a device for rotating the work while being painted, and a device for automatically delivering or ejecting the work after it has been painted and dried, substantially as described.

8. The combination of the endless belt A, arranged to travel forward and backward first through one tier, B, of upper and lower courses, and then through another tier, B′, of like courses, the spindles or mandrels *b b*, carried by said belt, the receiving stand or guide D, constructed to flex the belt A, as described, the work guiding or steadying and rotating friction-belts G G, applied to each tier B B′, the rotary paint-brushes E E, and the work-delivering device H H, essentially as and for the purposes herein set forth.

LUTHER C. BALDWIN.

Witnesses:

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J. C. LITTLEFIELD.