

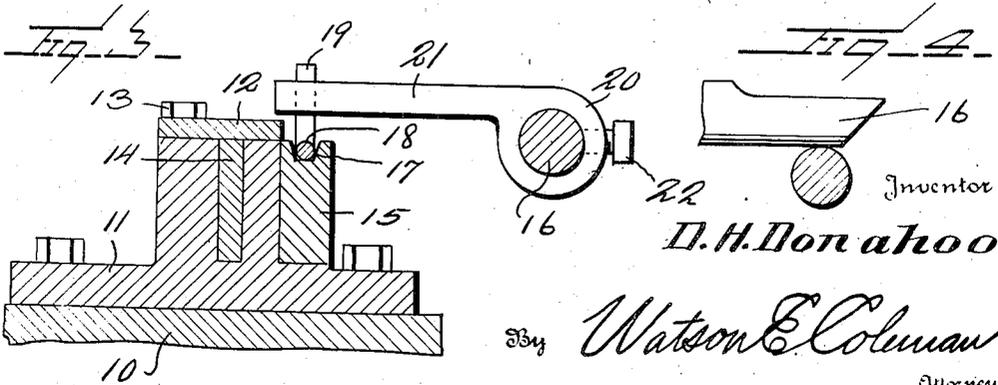
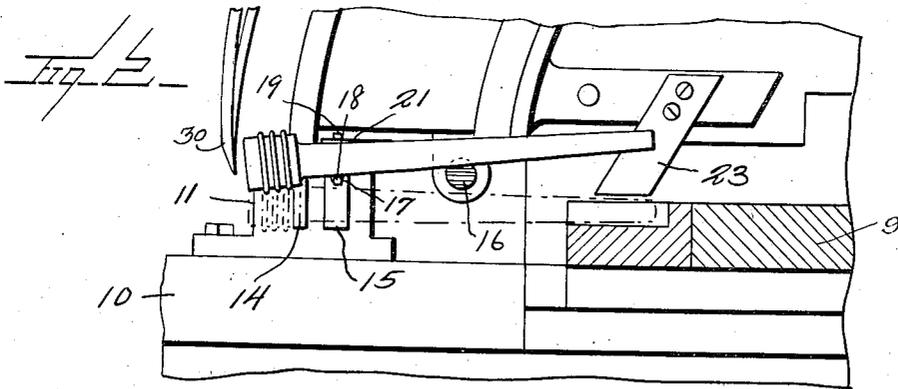
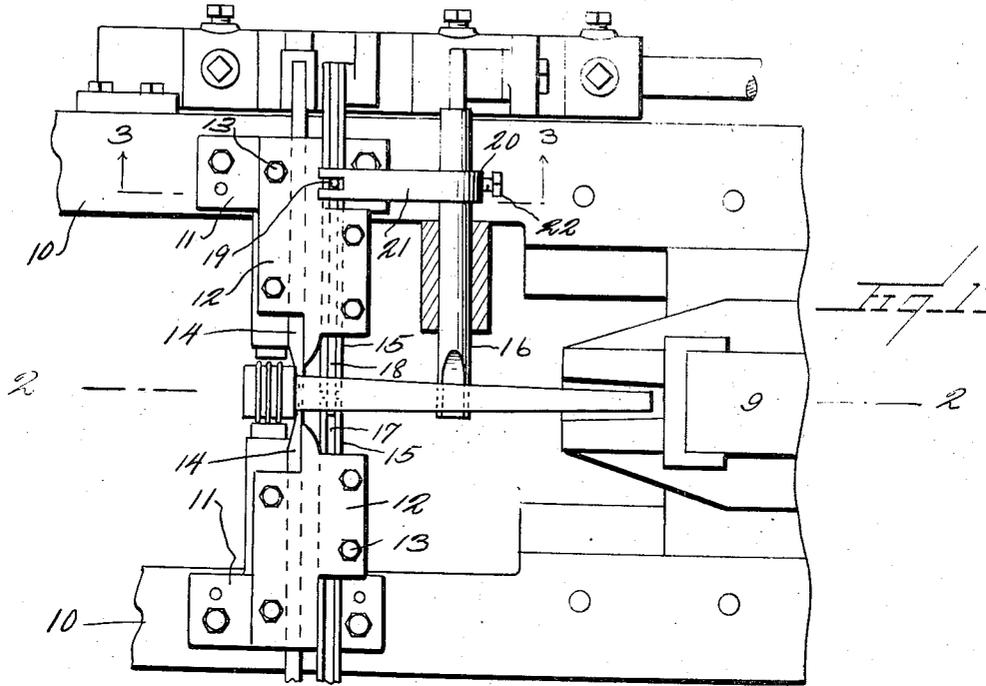
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BOBBIN STRIPPING MECHANISM

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BOBBIN STRIPPING MECHANISM

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This invention relates to bobbin stripping mechanism of the character generally illustrated in the patents to Terrell, Nos. 1,740,128, 1,925,062, and 1,977,097, and to mechanism of the type referred to in said patents.

In mechanism of this character, the bobbins are fed into a hopper and descend one by one into horizontal position between certain stripping jaws or blades while the blades are open. The blades are then closed against the bobbin and the bobbin is pulled by head-grasping jaws through the stripping blades to thus remove the waste yarn therefrom.

In mechanism of this character, a plunger is provided having a beveled or wedge-shaped extremity which acts as it is projected inward to force a bobbin down into the space between said blades and support the next succeeding bobbin.

With the construction above described, there is a liability (particularly when the hopper is not kept filled and the train of bobbins is not continuous but is interrupted) of the head of the bobbin dropping down between the blades while the tip or tapered portion of the bobbin is supported on top of the plunger, or of the head of the bobbin being caught between the bottom end of the curved head-guard above and the head-supports below the stripping blades, and held in this oblique position, in either event causing the machine to function improperly.

The object of the present invention is to provide means, cooperating with the plunger, to support a bobbin in a horizontal position with its head above the stripping blades, if the bobbin should by chance fall or lie upon the upper surface of the plunger with no bobbins above it to keep it in place, and more specifically, to provide a supporting rod carried adjacent to one of the blades but shiftable independently thereof and operatively connected to the plunger for movement therewith, which when the plunger is projected (if no bobbin has passed below the plunger and into the space between the blades) will be simultaneously projected across the gap between the blades and at the top of said gap to thus hold the bobbin horizontal so that it may fall into its proper position upon the retraction of the plunger. Heretofore, it has been necessary for a workman, under the circumstances mentioned, to force the bobbin into position by hand or remove the bobbin if the head of the bobbin has fallen downward between the blades with the body of the bobbin resting upon the plunger, or otherwise upwardly inclined.

My invention is illustrated in the accompanying drawing wherein:

Figure 1 is a fragmentary top plan view of a bobbin stripping mechanism with my improvement applied thereto.

Figure 2 is a fragmentary section on line 2—2 of Figure 1.

Figure 3 is a section on line 3—3 of Figure 1. Figure 4 is an elevation of the beveled end of the main plunger, the bobbin being in section.

In the drawing, I have shown only such parts of a bobbin stripper of the type referred to as are necessary to an understanding of my invention.

The machine includes main frame side pieces 10 slidingly supporting a pull head (not shown) having bobbin gripping jaws and the usual push head 9.

Mounted on each frame member 10 is a base or guide block 11 having a cover plate 12 held in place by screws 13. A narrow reciprocating stripping blade 14 is mounted in each guide block, these blades 14 being opposed to each other, and a relatively wide stripping blade 15 is also slidingly mounted between the cover plate and each base block, the two blades 15 being opposed to each other. Each pair of stripping blades has a concavely curved end. The blades 14 engage the bobbin just forward of its head and the blades 15 are disposed slightly in advance of the blades 14. Disposed in advance of one of the base blocks 11 is a plunger 16 having a downwardly and outwardly beveled extremity which, when it is projected, extends over the tapering body of a bobbin and is intended to force the tip of this bobbin downward out of the grip of spring fingers 23 at the time when the blades 14 and 15 are closing on the bobbin adjacent its head.

The blades 14 and 15 on each side are reciprocated toward and from each other by mechanism set forth in the above-named patents, and not necessary to describe, as this mechanism forms no part of this invention. The plunger is reciprocated by like mechanism and is properly timed with relation to the blade 15 on the same side. Leaf spring fingers 23 extend downward from the hopper in position to engage the sides of the tip of the bobbin and yieldingly resist the downward movement thereof.

So far, I have described generally the mechanism which is illustrated in Patent No. 1,925,062, and in Figures 2, 3, 4 and 7 of Patent No. 1,977,097. With this mechanism, so long as the hopper is kept filled with bobbins, the bobbins will feed evenly downward and into a horizontal position,

the extremity of the plunger 16 acting to wedge the body of each bobbin downward and hold the succeeding bobbin from downward movement as the barrel of the bobbin is about to be engaged by the stripping blades 14 and 15.

It is to be understood that the leaf spring 23 supports the extremity of the bobbin until the push head 9 arrives beneath the bobbin. Then the plunger forces the small end of the bobbin downward into a recess or seat in the push head. The plunger forces the small end of the bobbin downward into this recess in the push head but the head of the bobbin is not forced down to any great degree but falls of its own weight into register with the space between the stripping blades where it is caught by stops (not shown).

If the hopper is kept filled with bobbins they stack one on the other and each one supports the bobbin above it. In the ordinary operation, and if there are plenty of bobbins in the hopper or guideway leading downward to the stripping mechanism, then the head of the bobbin holds the head of the next bobbin up off of the blades while the leaf spring 23 holds the tip of the bobbin up out of the recess in the push head. If the hopper is not kept filled, however, there is no first bobbin, which when in the space between the blades, will support the next adjacent bobbin.

Now the timing in this machine is such that there is a specific instant when the blades are open and the plunger is moving outward. This outward movement of the plunger is much slower than the movement of the blades so that the blades are again fully open while the plunger is still moving outward, but has not been wholly retracted out of the path of the descending bobbins. If now the hopper is not kept filled, the bobbin at the lower end of the hopper or chute is likely to be overbalanced by the weight of its head as it strikes the plunger and fall down with its head lower than its tip. Tipped up thus at an angle it is likely to be cut, peeled or otherwise damaged by the push-head or blades. Also, the head sometimes slides forward and gets caught between the head-rests and the lower end of the head-guard 30, and remains in the tipped-up relation attained by rocking on the plunger.

My improvement consists in the provision of a second plunger acting to support the head of the bobbin against tipping downward under the circumstances last detailed. To this end, I form a channel 17 in the upper edge of the blades 15 and dispose in the channel of that blade 15 adjacent the plunger 16, a second or auxiliary plunger or rod designated 18. This rod has a small diameter and reciprocates within the channel 17. The rod at its rear end has an arm 19. Adjustably mounted on the plunger 16 is a collar 20 having an extension or arm 21 provided with an open slot at its outer end. The arm 19 engages in this slot. The collar may be held in place by a set screw 22. The plunger 18 is so adjusted relative to the plunger 16 that its tip end is approximately flush with the tip end of the plunger 16.

Now when a bobbin descends upon the upper face of the plunger and is supported thereby, the head of the bobbin will be supported by the auxiliary plunger 18 and the bobbin will be held in horizontal position with the head above the blades 15 when the blades are moved inward. Both blades 15 are channeled upon their upper faces so that the auxiliary plunger may extend across the gap between the blades 15 and, under these circumstances, be disposed within both

channels. Upon the retraction of these blades and the retraction of the plungers 16 and 18, the bobbin will drop bodily into place with its head in position to be engaged by the drawing jaws (not shown) with its other end on the curved extremities of spring fingers 23, whence it is depressed by returning plunger 16 into the cavity of pusher 9, and with its body in position to be engaged by the stripper blades 14 and 15 and the yarn stripped from the body of the bobbin.

In actual practice, it has been found that this device entirely eliminates the damage to bobbins due to the failure of the bobbin to descend into proper position for stripping. It entirely eliminates the chance of the head of the bobbin falling between the blades while the body of the bobbin is supported by the plunger. A very large number of bobbins are damaged in the manner described and this damage is entirely eliminated by my attachment. While, of course, a stripping machine may be initially made with my attachment applied thereto, it is also the case that this device may be applied to any machine having the opposed blades 15 and the plunger 16.

While I have illustrated one embodiment of my invention, I wish it understood that my invention might be embodied in other forms without departing from the spirit of the invention as defined in the appended claims. Thus I have illustrated the auxiliary plunger or bobbin support 18 as being mounted upon the blades 15, but it is within the purview of my invention to dispose this auxiliary bobbin support in other positions adjacent said blades. It is also to be understood that when I refer in the claims to the auxiliary plunger 18 as closing or bridging the gap between the blades 15, I mean that this auxiliary plunger 18 extends across the longitudinal axis of the gap between the blades, that is, the path of movement of the bobbin while it is being stripped, and that the auxiliary plunger 18 might be disposed either in front of or behind the blades but sufficiently adjacent thereto to act as a support for the head of the bobbin at the time when the tip of the bobbin is supported by the plunger 16.

What is claimed is:

1. In a bobbin stripper, in combination, a pair of opposed stripping blades reciprocating toward and from each other and a bobbin feeding plunger entering between and forcing the bobbins downward to the stripping blades, reciprocable in timed relation with said blades, and means for closing the gap between the blades, said means operating in a plane approximately coincident with the upper portions of the opposed blades.

2. In a bobbin stripper, a pair of opposed stripping blades reciprocable toward and from each other, a plunger entering between and forcing the bobbins one by one downward to the stripping blades reciprocable in timed relation to said blades, means engageable beneath the head end of the bobbin following the one being forced down for supporting the head of such bobbin from downward movement, and means shifting the supporting means into supporting position upon the projection of the plunger to force a bobbin down.

3. In a bobbin stripper, a pair of opposed stripping blades reciprocable toward or from each other, a reciprocable plunger disposed in advance of one of said blades and reciprocable in timed relation therewith to force a bobbin down between the stripping blades, a member closing the gap between the upper portion of such blades,

located in the plane of one of said blades, and means for moving the member across said gap as the plunger is moved into bobbin-forcing position.

4. In a bobbin stripper, a pair of opposed stripping blades reciprocating toward or from each other, the upper edge surfaces of both of said blades having alined channels, a plunger in advance of the blades and reciprocated in time therewith, an auxiliary plunger disposed within the channel of one of said blades and reciprocable across the gap between said blades and in the channel of the other blade, and means connected to the first named plunger for reciprocating the auxiliary plunger.

5. In a bobbin stripper, a pair of opposed stripping blades reciprocating toward or from each other, the upper edge surfaces of both of said blades having alined channels, a plunger in advance of the blades and reciprocated in time therewith, an auxiliary plunger disposed within the channel of one of said blades and reciprocable across the gap between said blades and in the channel of the other blade, and an arm adjustably mounted upon the first named plunger and having operative engagement with the second named plunger to reciprocate it in time with the first named plunger.

6. In a bobbin stripper, in combination, opposed stripping blades movable toward each other to clasp a bobbin, means moving the bobbins through the stripping blades when clasp the bobbin, means forcing the bobbins downward one by one into the range of the blades, and other means engaging beneath a surface on the bobbin following that being forced down to the blades, and preventing the head end of such bobbin from dropping before the rest of the length of such bobbin is forced downward.

7. In a bobbin stripper, in combination, opposed stripping blades movable toward each other to clasp a bobbin, means moving the bobbins through the stripping blades when clasp the bobbin, means guiding the bobbins downward and presenting them in recumbent position to the stripping blades, and driven means engaging the bobbin following that being delivered to the blades at spaced points in its length and preventing change of angle of the axis of such bobbin.

8. In a bobbin stripper, in combination, a pair of opposed stripping blades reciprocating toward and from each other to grip a bobbin between them, a magazine in which bobbins lie one on top of another, a plunger entering between and forcing the bobbins downward one after another to the stripping blades, reciprocable in timed relation with said blades, and means disposed above the blades and moving across the gap between the blades to prevent access of a bobbin thereto so long as the plunger is in bobbin-engaging position, such means being retracted to admit a bobbin to the gap when the plunger is out of bobbin-engaging position.

9. In a bobbin stripper, in combination, opposed stripping blades movable toward each other to clasp a bobbin, means moving the bobbins through the stripping blades when clasp the bobbin, devices yieldingly upholding the tips of the bobbins above the stripping blades, means forcing down the bobbins one by one to the stripping blades, and means moving across the path of each bobbin in succession barring entrance of the head end of such bobbin into range of the stripping blades until the forcing-down means is ready to feed the bobbin.

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