F. S. CULVER.

THREAD BREAKING ATTACHMENT FOR DOUBLING AND TWISTING MACHINES.

APPLICATION FILED APR. 30, 1908.

917,013. Patented Apr. 6, 1909.

Fig. 1.

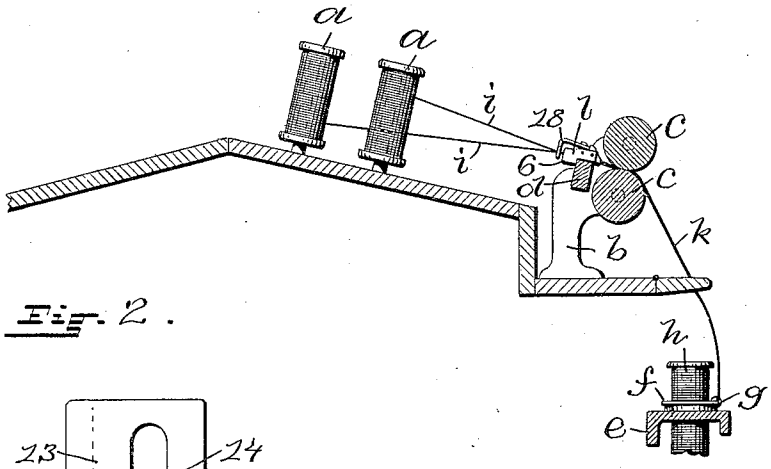


Fig. 2.

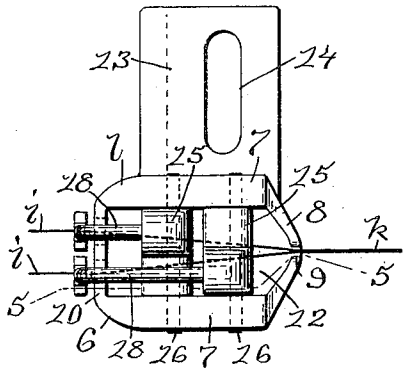


Fig. 3.

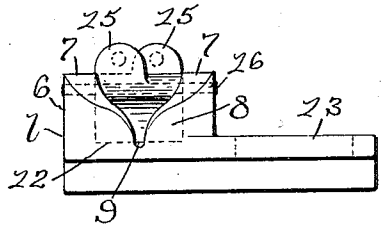


Fig. 4.

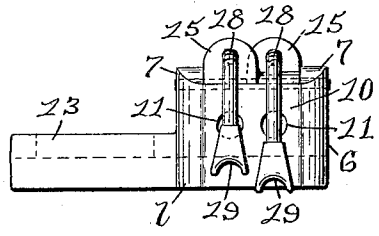
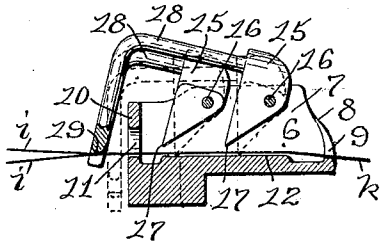


Fig. 5.



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THREAD-BREAKING ATTACHMENT FOR DOUBLING AND TWISTING MACHINES.

No. 917,013. Specification of Letters Patent. Patented April 6, 1909.

Application filed April 30, 1908. Serial No. 430,106.

To all whom it may concern:

Be it known that I, FREDERICK S. CULVER, a citizen of the United States, residing at Taunton, in the county of Bristol and State of Massachusetts, have invented a new and useful Improvement in Thread-Breaking Attachments for Doubling and Twisting Machines, of which the following is a specification.

This invention has reference to an improvement in doubling and twisting machines and more particularly to an improvement in automatic thread breaking attachments for doubling and twisting or similar machines.

Thread breaking attachments for doubling and twisting machines, as heretofore constructed, depended, after the breaking of one thread, on the tension or pull of the spindle bobbin to break the other thread between the rolls and the spindle bobbin before the thread breaking attachment could operate to break the remaining thread between the rolls and the top bobbins and prevent waste. The operative arms of these attachments engaged with the doubled threads in front of the rolls and required to be so delicately adjusted that any unusual slackness in the doubled threads or vibration of the machine would cause the attachment to operate and break the threads when not required, also after the breaking of one thread the remaining thread is liable to run indefinitely or until a weak place occurs in the thread between the rolls and the spindle bobbin.

The object of my invention is to improve the construction of a thread breaking attachment for doubling and twisting machines, whereby the attachment is positive in its operation on both threads, when one thread breaks the remaining or both threads are broken by the attachment, and the ends may be easily and perfectly pieced, the operating arms of the attachment are placed back of the rolls, leaving the rolls free for the removal of lint or fiber, and no adjustment of the attachment is required, thereby simplifying the construction of the attachment.

A further object of my invention is to construct such an attachment so that the same cannot operate except on the breaking of one of the threads.

My invention consists in the peculiar and novel construction of an automatic thread breaking attachment for doubling and twisting or similar machines, said attachment having details of construction, as will be more fully set forth hereinafter and claimed.

Figure 1 is a vertical transverse sectional view through the upper front portion of a doubling and twisting machine provided with my improved thread breaking attachments. Fig. 2 is an enlarged top plan view of the attachment removed from the machine. Fig. 3 is an enlarged front view of the attachment. Fig. 4 is an enlarged back view of the attachment, and Fig. 5 is an enlarged vertical sectional view of the attachment taken on line 5 5 of Fig. 2, showing the operative arms of the attachment in their normal operative position in full lines and in the position they would assume on the breaking of a thread to break the remaining or both threads in broken lines.

In the drawings, *a a* indicate the top bobbins, *b* the roller stand supporting the drawing rolls *c c* and the traverse rod *d*, *e* the ring rail having the usual rings *f* and travelers *g*, and *h* the spindle bobbin of a doubling and twisting machine, all of the usual construction; *i i* the single threads coming from the top bobbins to the drawing rolls, *k* the double thread coming from the drawing rolls to the spindle bobbin, and *l* my improved thread breaking attachment secured to the top of the traverse rod *d*, as shown in Fig. 1.

My improved thread breaking attachment *l* consists of a compact box-shaped frame 6 open at the top and having the sides 7 7, the front 8 in which is a V-shaped opening 9 shaped to guide the double thread *k* to the rolls *c c*, the closed back 10 in which are the two guide eyes 11 11 on a horizontal line, the flat bottom 12 which extends out on one side and forms an extension 13 in which is a slot 14 for adjustably securing the attachment to the top of the traverse bar *d* by a screw or other means. The two clamping blocks 15 15 which extend the entire width of the frame are pivotally secured in the frame, one back of the other, by the pins 16 16 which extend through holes in the side frames 7 7 and the clamping blocks 15 15. Each clamping block 15 has a chisel-shaped lower edge 17, the flat face of which is toward the guide eyes 11 11, an operating arm 18 extending rearwardly from the top of the clamping block and bent downwardly at right angles over the back 10 of the frame and having a notched end 19 in a vertical line with a guide eye 11 in the back 10 of the frame. The

arms 18 18 on the clamping blocks 15 15 are parallel with each other, the arms on the front block extending over the rear block and the arm on the rear block is preferably shorter, so as to bring the notched ends 19 19 of the arms on a line with each other, as shown in Figs. 2 and 5.

When in use the thread breaking attachment *l* replaces the usual guide trumpets on the traverse rod *d* and is secured to the top of the traverse rod *d* in a position to guide the threads to the drawing rolls *c c*, as shown in Fig. 1.

In the operation of the thread breaking attachment the operating arms 18 18 are lifted and the threads *i i* from the top bobbins *a a* are each threaded through a guide eye 11 and between the flat bottom 12 and the chisel-shaped lower edges 17 17 of the clamping blocks 15 15, when they are brought together in the V-shaped opening 9, as shown in Fig. 2, which guides the now doubled thread *k* to the rolls *c c*. The operating arms 18 18 are now released and held by the notched ends 19 19 on the threads *i i* in a position to raise the chisel-shaped lower edges 17 17 of the clamping blocks 15 15 from the flat bottom 12 of the frame 6, as shown in full lines in Fig. 5. When either of the threads *i i* breaks the corresponding operating arm 18 and clamping block 15 fall by gravity, both threads are clamped between the flat bottom 12 of the frame and the chisel-shaped lower edge 17 of the clamping block, when the tension or pull of the spindle bobbin *h* will break both of the threads evenly, so that they may be quickly and perfectly pieced. By the construction and position of the chisel-shaped lower edges of the clamping blocks, very little weight is required on the clamping blocks in the operation of the same, as the pull of the double thread *k* will tend to increase the clamping action of the blocks and the weight of the operating arms 18 18 on the threads is thereby materially reduced.

It is evident that the guide eyes 11 11 could be in the form of slots extending down from the upper edge of the frame, and that the attachment could have as many clamping blocks and operating arms as there are threads to be twisted in the machine, without materially affecting the spirit of my invention.

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

1. In a thread breaking attachment for doubling and twisting machines, a frame having a flat bottom, sides, a back in which are guide eyes for separately guiding the threads from the top bobbins, a front in which is an opening shaped to double the threads and guide the threads to the drawing rolls, transverse clamping blocks pivotally secured to the sides of the frame in a position for each block to clamp all the threads between the flat bottom of the frame and the clamping blocks, arms on the clamping blocks operatively connecting each clamping block with its corresponding thread, and means for adjustably securing the attachment to the traverse bar of the machine.

2. In a thread breaking attachment for doubling and twisting machines, the combination of the following instrumentalities; a frame 6 open at the top and having the sides 7 7, the front 8 in which is a V-shaped opening 9, the back 10 in which are the guide eyes 11 11, the flat bottom 12, the extension 13 of the bottom having a slot 14, the transverse clamping blocks 15 15 pivotally secured in the frame by the pins 16 16 one back of the other, each clamping block having a chisel-shaped lower edge 17 and an operating arm 18 extending rearwardly from the top of the clamping block, bent downwardly at right angles and having a notched end 19 in a position to engage with its corresponding thread, as described.

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

FREDERICK SLOCUM CULVER.

Witnesses:
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J. A. MILLER.