M. P. WILLIAMS.

PROTECTOR AND GUIDE.

APPLICATION FILED MAY 21, 1915.

1,180,094.

Patented Apr. 18, 1916.

2 SHEETS—SHEET 1.

Fig. 1.

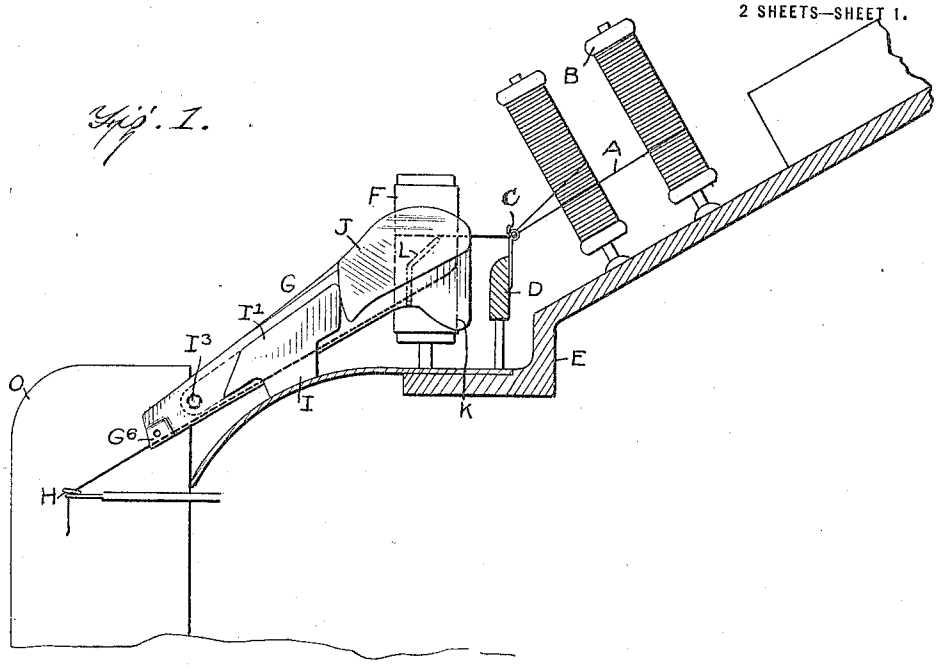


Fig. 3.

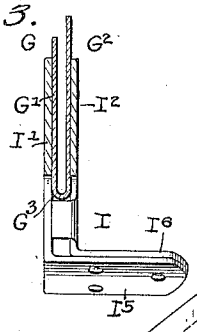


Fig. 2.

Fig. 4.

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2 SHEETS—SHEET 2.

Fig. 8.

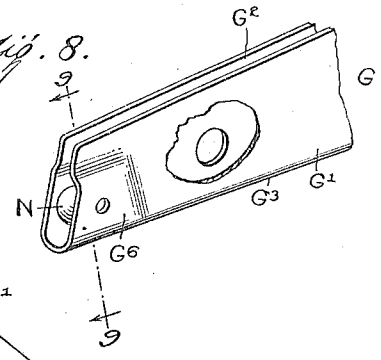


Fig. 5.

Fig. 6.

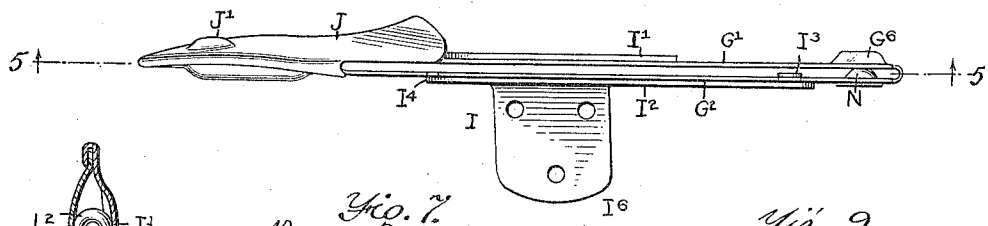


Fig. 7.

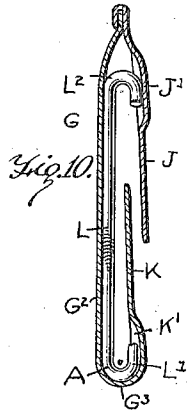


Fig. 10.

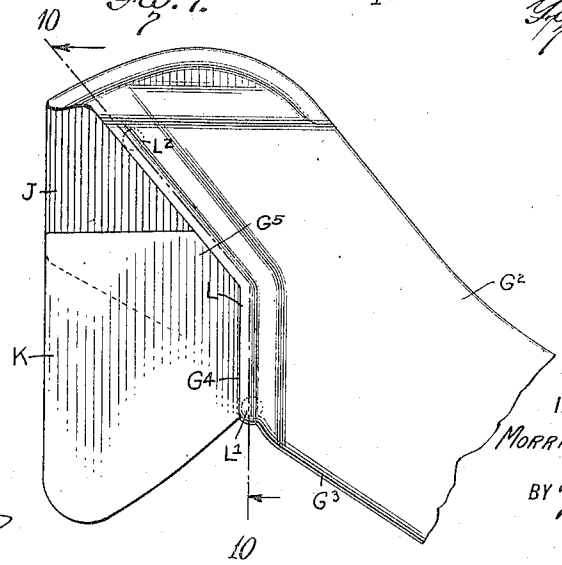
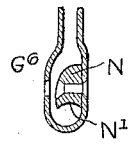


Fig. 9.



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PROTECTOR AND GUIDE.

1,180,094. Specification of Letters Patent. Patented Apr. 18, 1916.

Application filed May 21, 1915. Serial No. 29,534.

To all whom it may concern:

Be it known that I, MORRIS P. WILLIAMS, a citizen of the United States, and a resident of Gilbertville, in the county of Worcester and State of Massachusetts, have invented a new and Improved Protector and Guide, of which the following is a full, clear, and exact description.

The invention relates to twisting frames, and other similar textile machinery, and its object is to provide a new and improved protector and guide arranged to prevent adjacent threads from becoming entangled in case one breaks, to insure proper twisting of the threads without danger of the threads dropping under the roller on stopping the machine, and to enable the operator to quickly and correctly pass the thread around the roller and into the guide at one operation.

In order to accomplish the desired result, use is made of a channel for the passage of the thread, the channel being provided at its upper end with a vertical elongated thread guide and means to one side of the channel for guiding a thread into the said thread guide and channel, the upper end of the protector and guide being adjacent to one side of the usual roller around which the thread passes after leaving the traverse.

A practical embodiment of the invention is represented in the accompanying drawings forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views.

Figure 1 is a cross section of a portion of a twisting frame provided with the protector and guide; Fig. 2 is an enlarged side elevation of the protector and guide with part broken out; Fig. 3 is a transverse section of the same on the line 3—3 of Fig. 2; Fig. 4 is an inverted plan view of the same; Fig. 5 is a sectional elevation of the same on the line 5—5 of Fig. 6; Fig. 6 is a plan view of the same; Fig. 7 is an enlarged side elevation of the head of the protector and guide; Fig. 8 is a perspective view of the tail end of the protector and guide with part broken out; Fig. 9 is a cross section of the same on the line 9—9 of Fig. 8; and Fig. 10 is a cross section of the protector and guide on the line 10—10 of Fig. 7.

As shown in Fig. 1, the two threads A, A to be twisted together unwind from the bobbin B and then pass through the eye C of the traverse D mounted to travel up and down in the usual manner on the main frame E of the machine. The double thread A after leaving the eye C passes around the vertically disposed roller F and then enters and passes through the protector and guide G to finally pass through an eye H down to the twisting spindle (not shown).

The protector and guide G is supported in the inclined position on a double bracket I attached to the main frame E, as plainly shown in Fig. 1. The protector and guide G in its general construction is formed of a single piece of metal of approximately U shape in cross section (see Fig. 3), thus providing side members G′, G^2 and a rounded off bottom G^3 so that a channel is formed for the passage of the double thread A, as indicated in Figs. 1 and 5. The upper end of the said member G^2 is provided with a flange J hanging downward over the upper end of the other side member G′ and being spaced therefrom. The side member G′ is provided at its upper end with an extension K, over the top portion of which the flange J extends, as will be readily understood by comparison of Figs. 2 and 7. The upper edge of the side member G^2 has an approximately vertical portion G^4 (see Fig. 7) and an upwardly and rearwardly inclined portion G^5, and on the inner faces of the said portions G^4 and G^5 is arranged a thread guide L, preferably made of a piece of wire, following the edge portion G^4, G^5 and being provided at the bottom with an upwardly extending hook L′ and at its upper end with a downwardly extending hook L^2, and this hook portion extends into a recess J′ formed in the inner face of a flange J. The free end of the hook L′ fits into a recess K′ formed at the junction of the extension K with the side member G′.

The inner face of the extension K is disposed in close proximity to the peripheral face of the roller F so that the double thread A after leaving the roller F readily passes through the thread guide L into the channel formed by the side members G′, G^2 and the bottom G^3. In order to prevent the lower portion of the thread in the channel from accidentally moving out of the same, use is made of a retaining lug N arranged on the inner face of the side member G^2 near the lower end thereof, as plainly indicated in Figs. 6 and 9. The portion G^6 of the side member G′ opposite the lug N is bent outward and recessed to form sufficient space

between the face of the lug N and the said portion G^6 to allow the thread to pass downward under the concave bottom N' of the lug N. Thus the lug N prevents the thread from accidental upward movement out of the channel.

In case a thread is broken and it is desired to place the same around the roller F and into the protector and thread guide G, then it is only necessary for the operator to pass the threads under the flange J and draw them up for the threads to pass between the flange J and the extension K and the upper portion of the side member G and into the channel to extend within the thread guide L. The threads are then passed in the usual manner through the eye C mounted on the traverse D at the rear of the roller. The threads are then looped up over and around the roller F. The threads are now passed through the eye H mounted at the end of the trip lever, then to the twisting spindle, the operator having gone through practically the same movements in the usual manner as though the protector and guide was not there. As soon as the threads get the pull from the spindle they readily find their own way into the channel and down under the retaining lug arranged on the inner face of the side member G^2 near the lower end thereof, as plainly indicated in Figs. 6 and 9. The retaining lug N is used to prevent the loose threads from blowing out of channel caused by the draft from spindle. Should it be necessary this same lug can be used to give more pressure on the trip lever H by mounting the protector and guide on the machine with the lower end tilted down more. Should the operator place the threads around the roller then the threads are also accidentally placed around the top of the protector at the same time. The shape of the protector is such that as soon as the roller starts in motion it lifts the threads up and over the top of the protector into their proper position on roller without causing any irregular twist. The overhanging flange J extends down low enough to prevent the threads from being caught under same when the threads are accidentally thrown over the top of protector.

The double bracket I consists of two plates I', I^2, of which the plate I' overlies the outer face of the side member G', and the other plate I^2 overlies the outer face of the side member G^2. The plate I^2 is provided near its lower end with a pin I^3 engaging an aperture in the side member G^2, and the upper end of the said plate I^2 is likewise provided with a pin I^4 engaging an aperture in the side member G^2. The plates I' and I^2 are provided with overlying angular lugs I^5, I^6 fastened to the main frame E by bolts or other fastening means. By the arrangement described the protector and guide can be readily passed between the bracket plates I' and I^2 and engaged with the pins I^3, I^4 to hold the protector and guide in position on the bracket. It is understood that the pins I^3, I^4 can be readily swung into place.

It will be noticed that when the twisting frame is running the double thread A is free to move up and down in the elongated guide L to correspond with the up and down movement of the traverse D. As the protector and guide G extends from between two rollers F to and between adjacent separating boards O for the spindles, it is evident that a broken thread is confined in the guide and is not liable to become entangled with an adjacent thread. The bottom hook L' of the guide L is a distance above the bottom of the roller F and hence the thread on the roller F is held up and is not liable to drop to the bottom thereof on stopping the machine. By the use of the double bracket I the protector and guide may be readily placed in correct position on the machine or removed therefrom whenever it is desired to do so.

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

1. In a machine of the class described, the combination of spaced rollers around which pass threads, separating boards for adjacent spindles and a thread protector and guide extending from between the said rollers to and between adjacent separating boards to protect and guide a thread during its passage from a roller to the spindle.

2. In a machine of the class described a protector and guide having inclined side members and an inclined bottom member forming a channel for the passage of a thread, the upper edge of one of said side members having an approximately vertical portion, and an upwardly and rearwardly inclined portion, an elongated thread guide at the entrance end of said channel and arranged on the inner faces of said edge portions of said member, a flange on said side member adjacent the channel and overhanging the other side member for guiding a thread into the thread guide, and a retaining lug for the thread on the inner face of one side of the channel adjacent the bottom of the channel at the exit end thereof, and beneath which the thread passes.

3. In a machine of the class described, a protector and guide, comprising side members and a bottom member forming a channel for the passage of a thread, one side member of the channel having an extension at its entrance end and the other side member of the channel having at its entrance end a flange overhanging the top portion of the said extension to form a passage between

the extension and flange to conduct the thread into the channel, and a thread guide in the entrance end of the channel, the said thread guide having a bottom and a top hook, the hooks extending toward each other, the passage between the extension and the flange leading into the channel between the said hooks of the thread guide.

4. In a machine of the class described, a protector and guide, comprising side members and a bottom member forming a channel for the passage of a thread, one side of the channel having an extension at its entrance end and the other side of the channel having at its entrance end a flange overhanging the top portion of the said extension to form a passage between the extension and flange to conduct the thread into the channel, and a thread guide in the entrance end of the channel, the said thread guide having a bottom and a top hook, the hooks extending toward each other, the upper hook engaging a recess in the inner face of the said flange at a point above the top edge of the said extension and the lower hook engaging a recess formed in the inner face of the extension at the lower edge thereof at the junction of said extension with the side member.

5. In a machine of the class described, a protector and guide, comprising side members and a bottom member forming a channel for the passage of a thread, one side of the channel having an extension at its entrance end and the other side of the channel having at its entrance end a flange overhanging the top portion of the said extension to form a passage between the extension and flange to conduct the thread into the channel, a thread guide in the entrance end of the channel, the said thread guide having a bottom and a top hook, the hooks extending toward each other, the upper hook engaging the inner face of the said flange at a point above the top edge of the said extension and the lower hook engaging the inner face of the extension at the lower edge thereof, at the junction of said extension with its side member, the said inner faces of the flange and extension being recessed for the reception of the free ends of the hooks, and an angular bracket to which the protector and guide is secured for attaching the latter to the frame of the machine.

6. In a machine of the class described, the combination with a traverse having an eye through which pass threads, and a vertically disposed roller around which the threads pass from said eye, of a thread protector and guide supported on the frame of the machine and having its upper end adjacent one side of said roller, the said protector and guide having a channel for the passage of the thread from said roller, an elongated thread guide at the entrance end of said channel, means in the exit end of the channel for preventing upward movement of the thread, and an eye through which the thread passes to a spindle after leaving the protector and guide.

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

MORRIS P. WILLIAMS.

Witnesses:
JOHN S. HOYLE,
CHAS. J. STRITCH.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."