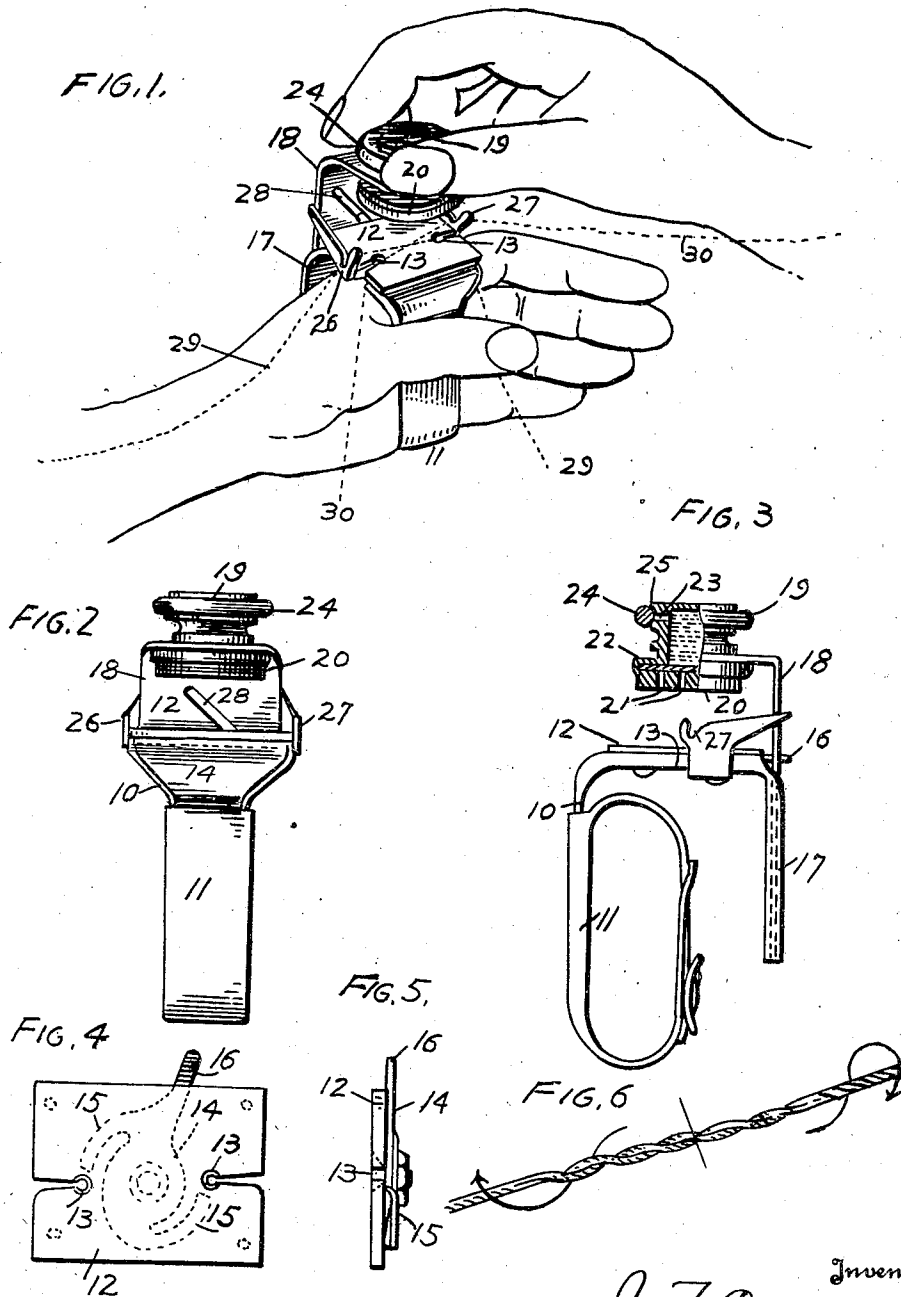


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APPARATUS FOR SPLICING YARN

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APPARATUS FOR SPLICING YARN

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In the textile art, in the processes of manufacture, it is necessary to join or secure together thread ends to make the threads continuous. The practice is to knot or tie them, and the resulting knots are objectionable for various reasons. First, they are objectionable in the manufacturing operations in that they obstruct, or hinder the smooth even passage of the knotted threads through the small thread guides and eye-holes of the machines. Second, the presence of knots in the woven or finished fabric or goods is objectionable, especially in the finer grades. The principal object of the invention is to avoid the presence of knots in the spliced threads and this object is achieved by a form of splice that requires no knots and avoids enlargement of the thread diameter or thickness at the splice. Another, and important object is to enable the splicing to be done by mechanical means of compact and small bulk so that the operator can hold it with one hand and can manipulate it so held, and which when not being used, will not impede the use of that hand in other work about the machine.

The invention consists in whatever is described by or is included within the language or meaning of the appended claims.

In the drawing:—

Fig. 1 is a perspective view of a splicer, embodying and which can be used in the practice of the invention;

Figs. 2 and 3 are respectively, front and side views, parts being shown in section in Fig. 3;

Figs. 4 and 5 are, respectively, detail top and edge views of the base plate and thread cutter;

Fig. 6 is a view in perspective of the spliced product, shown enlarged.

Briefly described, the splice is formed by placing alongside one another substantial lengths of the ends of the two threads to be joined, and twisting them, an adhesive being applied to them, so that when twisted, they are retained in the twisted condition by the adhesive. The union is thus due to both the interlacing by twisting the adhesive and is thus very strong. The twisting operation, of course, reduces the thickness at the overlap or the double portion and thus there is no substantial increase in gauge or diameter of the thread at the splice. Threads thus spliced are "cabled" with others to form the finished yarn, and for this reason are of soft twist. This makes for or enables the production of a frayed end when the strand is cut and that means that no ends are visible in the splice.

Describing in detail to what is shown in the

drawing, 10 is a frame of substantially U shape to arch over the operator's hand, to one leg of which is secured a flexible buckle strap, 11, to receive the palm portion of the hand and leave thumb and fingers free.

Mounted upon the top of frame, 10, is base plate, 12, preferably covered with a friction material such as rubber or cork. Base plate, 12, is provided with two diametrically opposite holes, 13, each with a bevelled edge to form a thread cutter on the lower side, as shown in Figs. 4 and 5. Pivoted to the lower side of the base is an oscillating plate, 14, having two arms, 15, with cutting edges, which respectively pass across the holes, 13. The cutter carrier plate 14 is provided with an operating arm, 16.

The rear portion of frame, 10, is provided with a vertical guide, 17, in which slides the vertical leg of an L-shaped arm, 18, which has its end forked to journal a knob, 19, in such manner that the latter may be freely rotated.

Knob 18 is hollow to provide a chamber for a liquid adhesive. At the bottom is a disk 20, of elastic, friction material with vertical ducts, 21. Pressing against the upper face of disc 20, is a disc of sponge material, 22, which serves to control the flow of adhesive from the hollow portion of the knob to the ducts, 21. When the disc 20, is pressed down upon the flat top of the base plate, 12, a small amount of adhesive is forced through ducts, 21, by the compressing of sponge 22.

Any suitable means may be provided for introducing adhesive into the knob but a satisfactory method is to provide an inlet hole, 23, covered by a removable rubber band, 24, which encircles knob, 19 and is retained by a deep groove, 25. The hole 23, connects groove 25, with the interior of the knob. The band, 24, effectively seals hole, 23, and is easily removed and replaced.

Mounted upon the sides of frame 10, are thread guides 26 and 27 and so arranged that they are respectively in line with holes 13 in base plate, 12.

Knob support, 18, is provided with a cam slot, 28, for engaging cutter operating arm, 16. It will be seen that when knob 19 is pushed downward, cutter 14 is caused to slide across holes, 13, in base plate, 12, in a cutting operation, and for a purpose to be described.

Describing the method or procedure and referring to Fig. 1, a thread, 29, is drawn over guide 26 and under guide 27 into hole 13, and left hanging as shown. The other thread 30 is then drawn

over guide 27 and under guide 26, into the other hole, 13, and likewise left hanging. Knob 19, is then pushed straight down upon base plate 12, thus gripping the pair of threads between splicing disc, 20, and base plate, 12, and coincidentally cutting the free ends of the threads by the action of cutters, 14. As soon as splicing disc 20 makes contact with base plate, 12, the knob is twisted about one-third of a revolution and a twisted splice results, adhesive being applied in the manner heretofore described, as the operation proceeds.

It will be realized that a rolling motion is imparted to the pair of threads in opposite directions with respect to a central point which comes under the center of the splicing disc, and the product shown in Fig. 6 results.

What is claimed is:—

1. A thread splicer comprising opposing members that have thread contacting faces, that are relatively rotatable on an axis perpendicular to such faces, such faces by contact with the thread and when relatively rotated exerting a twisting action upon the threads and means to retain the thread at points beyond the center of relative rotation of the contacting faces.

2. A thread splicer comprising opposing members that have thread contacting faces, that are relatively rotatable on an axis perpendicular to such faces, and means to supply an adhesive to threads between the faces.

3. A thread splicer comprising opposing members that have thread contacting faces, that are relatively rotatable on an axis perpendicular to such faces, such faces by contact with the thread and when relatively rotated exerting a

twisting action upon the threads and means to retain the thread at points beyond the center of relative rotation of the contacting faces and shiftable one towards the other to contact thread between them.

4. A thread splicer comprising opposing members that have thread contacting faces, that are relatively rotatable on an axis perpendicular to such faces and shiftable one towards the other to contact thread between them, and means to supply an adhesive to threads between the faces.

5. A thread splicer comprising opposing members that have thread contacting faces, that are relatively rotatable on an axis perpendicular to such faces, one of said members having an adhesive container, with an outlet to its thread contacting face.

6. A thread splicer comprising opposing members that have thread contacting faces, that are relatively rotatable on an axis perpendicular to such faces, such faces by contact with the thread and when relatively rotated exerting a twisting action upon the threads and means to retain the thread at points beyond the center of relative rotation of the contacting faces, and means to attach the same to the palm portion of the hand.

7. A thread splicer comprising a base with opposite thread guides, a knob slidably rotatably supported for movement towards and from the base, opposite faces of base, and knob being thread contacting surfaces, a thread cutter, and means to supply an adhesive between said faces.

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