The invention relates generally to tufting and it has particular relation to a device for fabricating a tufted rug or the like.

As an illustration of the field to which the invention is applicable, it is the practice at the present time to make tufted rugs by placing tufts at selected and adjacent points on a fabric. These tufts are formed from windings of yarn having their looped ends cut so as to provide substantially equal lengths of yarn, which are then tied and anchored to the fabric by yarn stitching. While it is not new to make tufted rugs in this manner, the practice is most tedious and considerable care is required if uniformly appearing tufts are to be obtained.

One object of the present invention is to provide a device for facilitating the forming and securing of tufts to a fabric base or the like, to the end that the work is much simpler while requiring only a fraction of the time ordinarily found necessary.

Another object of the invention is to provide a device on the order mentioned which can be made very inexpensively so that widespread use of the device may be obtained.

Other objects of the invention will become apparent from the following specification, from the drawing relating thereto, and from the claims hereinafter set forth.

For a better understanding of the invention, reference may be had to the drawing, wherein:

Figure 1 is a plan view of a device constructed according to one form of the invention;

Figure 2 is a view of this device after the yarn has been wound thereon;

Figure 3 illustrates a succeeding step in the tufting operation wherein the tuft is connected to the base fabric by stitching;

Figure 4 illustrates a later stage in the tufting operation showing the manner in which yarn is tied about the center of the windings;

Figure 5 shows a further step in this tying operation and how the tuft may be drawn on the base fabric;

Figure 6 is a plan view of the structure as seen in Figure 5;

Figure 7 is on the order of Figure 4 but illustrates a different method of tying the windings together and to the fabric.

Referring to Figures 1 and 2, the plate or device illustrated at 10 may be formed from stamped sheet metal or molded plastic as will be readily understood by those skilled in the art. The plate is generally rectangular in shape and opposed side edges thereof are provided with recesses 11 and 12 of generally channel shape with the recesses laterally aligned. Inwardly directed narrow notches 13 and 14 at the ends of the recesses 12 serve to frictionally hold the initial and final ends of the yarn 16 wound about the edges and in the recesses. In other words, a person winding the yarn may easily press the initial end of the yarn into the notch 13, as indicated at 17, and then the yarn may be wound about the plate and in the recesses and finally pressed into the notch 14 as indicated at 18, after which it may be cut.

It is to be appreciated that the notches relieve the operator from manually holding the yarn in place both during and after the winding procedure and if the operator is interrupted for any reason, the work can remain at rest in any intermediate stage without disturbing that which already has been done.

Centrally between the recesses 11 and 12, a slot 20 extends generally parallel thereto and this slot has its edges diverging at one end, as indicated at 21. Intermediate its ends the slot is enlarged to substantially circular character, as indicated at 22, and this enlarged part of the slot is located substantially midway between the ends of the recesses, so that it will be located substantially midway of the windings of yarn, as seen in Figure 2. At opposite sides of the enlarged part 22, the slot is relatively narrow, as indicated at 23, and the width of the slot here may be on the order substantially of the thickness of the stitching yarn. The inner end of the slot is slightly enlarged, as indicated at 24, and it may be observed in connection with Figure 2 that the inner end of the slot is located beyond the left ends of the recesses 11 and 12 so that it is exposed at the left side of the collected windings 16.

Now referring to Figure 3, it may be supposed initially that one tuft 27 has been secured to a base fabric, and that the tying and stitching yarn indicated at 30 has a needle 31 at its end. The operator then stiches through the fabric at the intermediate point indicated 32 and then extends the yarn, as indicated at 33, over the fabric to the next point of tuft location, indicated at 34, where the yarn is stitched downwardly through and then upwardly above the fabric. The operator may now hold the plate 10, with collected yarn 16 thereon, above the fabric and the needle 31 is passed upwardly through the exposed end 35 of the slot in the plate. Following this, the needle is brought downwardly through the diverging end 21 of the slot and again through the fabric, as indicated at 36. The yarn now has once encircled the windings 16 and following this, the
needle is again passed upwardly through the end 24 of the slot and again over the windings. Next, the needle is passed under the yarn portion 33 laying over the fabric and then upwardly and under second encircling strand of yarn, as indicated at 37, and then it is brought over the latter, as indicated at 38, and then through the loop 39 which has been formed. It will be apparent now that pulling of the needle and yarn attached thereto will draw the latter about the windings 36 and draw them towards and against the fabric 28. Fig. 5 shows an intermediate step in this 15 drawing operation and it will be understood that the pull on the needle may be continued until the bunched yarn is drawn upwardly against the fabric.

The operator, after the central parts of the winding are tied sufficiently together in a bunch, will cut the ends of the windings by means of a pair of scissors and it will be appreciated that this may be readily done by extending one blade of the scissors along the edges of the plate as shown in Fig. 6. Tightening of the tying yarn about the windings positively holds them collected and anchored to the fabric and after this is done the operator stitches through the fabric again at a new intermediate point such as referred to at 32 in Fig. 3, and then another tufting operation may be repeated at a new tuft location.

By having the narrow portions 23 of the slot, the tying yarn is guided centrally of the windings 18 and this ensures that the latter will be tied and drawn together at their centers and therefore that the ends of the finished tufts will be equal and uniform in length. These narrower portions 23 of the slot also prevent the windings 16 from bunching through the slot until the drawing has proceeded sufficiently to collect the central parts over the enlargement 22. Then during the tying operation, the intermediate yarn portions at both sides of the plate 10 will be drawn together through the enlargement 22 to prevent the effect of the windings being drawn closer together, as shown by Fig. 3 in the finished tuft and by Fig. 5 in the intermediate stage. After the ends of the windings are cut as mentioned before, the plate 10 may be easily lifted away or it can be moved to the left and freed from the tuft. It might be observed here that the diverging part 21 of the slot provides a very large space for manipulation of the needle and tying yarn during fashioning of the looped knot as shown by Fig. 4. It also helps to easily guide the tying yarn into the slot during manipulation of the needle around the collected yarn windings.

Now referring to Fig. 7, the device may be used in forming tufts in substantially the same way, with the exception that in this case the needle is passed downwardly through the fabric 28 only at the tuft location and an end 40 is left projecting above the fabric. Then the needle is passed upwardly through the end 24 of the slot and over the windings, then downwardly through the fabric again and upwardly through the end 24. Then, the yarn at the needle end, indicated at 41, may be suitably tied to the other end 40 so as to draw the windings together and to fasten them to the fabric during the tying operation. Loose ends of the tying yarn then may be clipped. While this method is satisfactory, it will be apparent that a slightly larger knot will be located above the center of the tufts, since a double knot must be used. This method moreover requires clipping the stitching yarn at each point of tuft location.

Although only one form of the invention has been described and illustrated in detail, it will be apparent to those skilled in the art that various modifications may be made without departing from the scope of the invention.

What is claimed is:

1. A tufting device comprising a member having spaced and opposed side edges about which yarn or the like is to be wound in side by side relation to form a series of adjacent windings, the member centrally between said side edges having a slot extending generally parallel to said edges so that the windings may be drawn together at their centers and tied and stitched to a base fabric by yarn or the like encircling the central parts of the windings through the slot, said slot intermediate its ends being enlarged to allow the drawn material to bunch together and against the base fabric, and the slot at either side of the enlarged portion being narrow on the order of the thickness of the tying yarn so that the latter is maintained at the center of the windings.

2. A tufting device comprising a member having spaced and opposed side edges provided with elongated recesses of channel shape for receiving yarn or the like to be wound around said edges so that a series of windings will be formed having their ends located in the recesses, said member having a slot extending substantially parallel to said edges so that the windings may be drawn together and tied by yarn or the like encircling the central parts of the windings through the slot, said slot being enlarged intermediate its ends to allow the drawn together material to bunch together through the slot, the slot also extending linearly beyond the length of the edge recesses so that the slot is exposed at each side of the windings, and being narrow at the sides of the enlargement on the order of the thickness of the tying yarn so that the latter is positively guided in the tying operation, said slot having outwardly diverging edges at one end so as to provide a tying space.

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