Jan. 18, 1927. 1,614,576

E. W. STEINBECK

TUFTING MACHINE

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FIG. 1

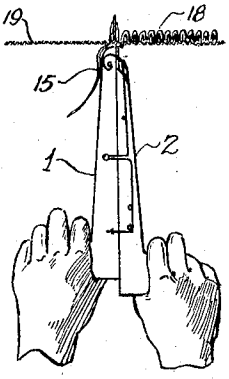



FIG. 3

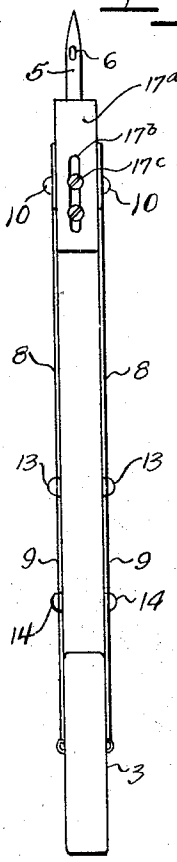



FIG. 2

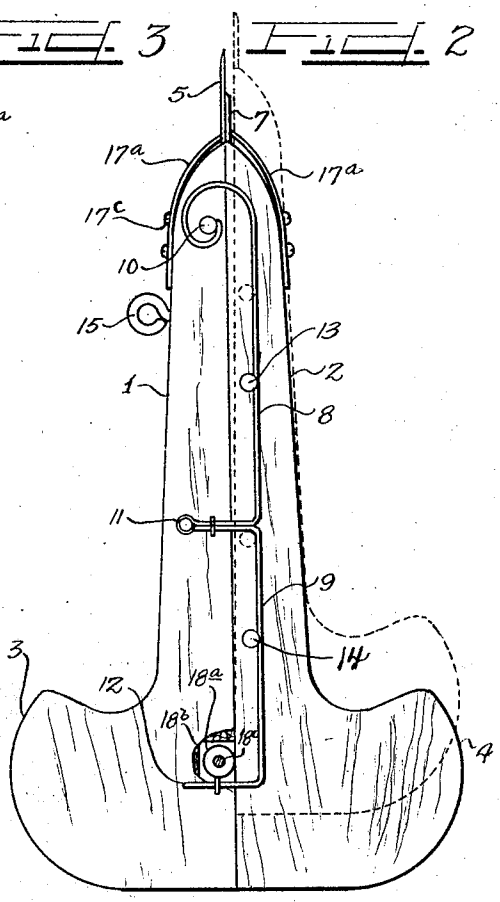



FIG. 4

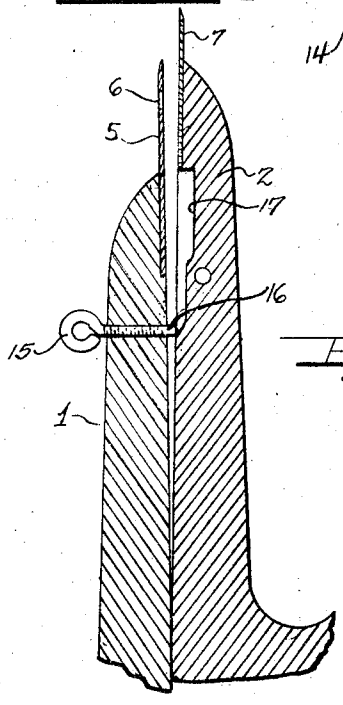



FIG. 5

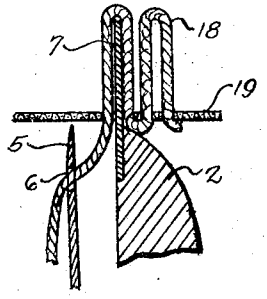
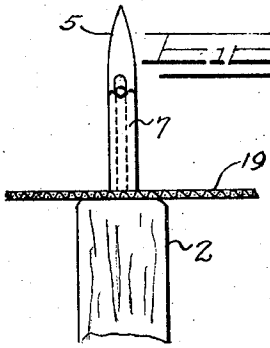



FIG. 6




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FIG 7

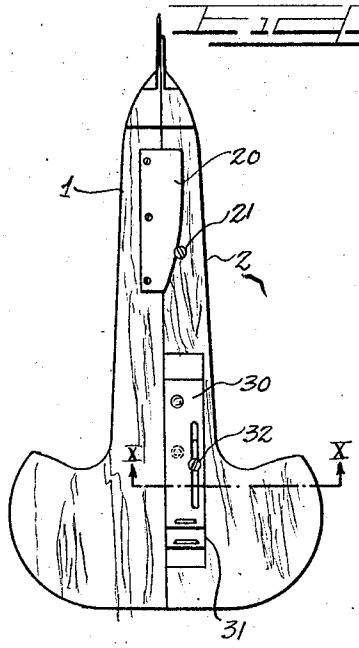



FIG 8

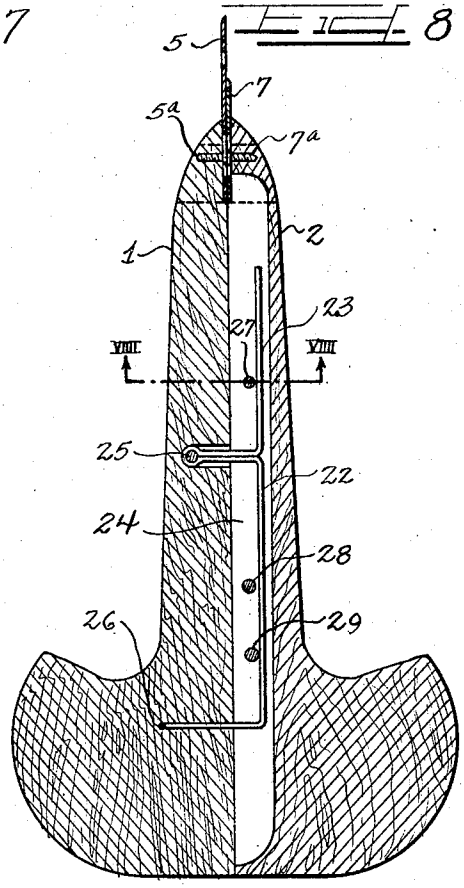



FIG 9

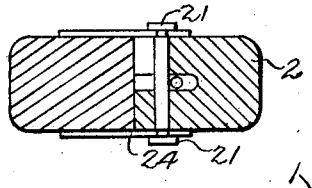



FIG 10

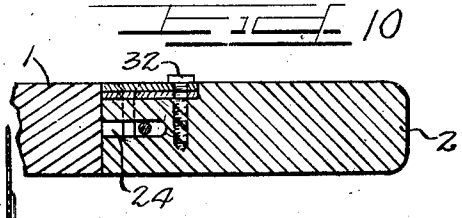



FIG 11

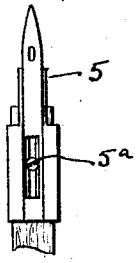
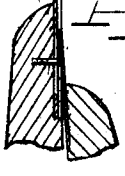



FIG 12



Inventor

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By Attys

Patented Jan. 18, 1927. 1,614,576

# UNITED STATES PATENT OFFICE.

ERLE W. STEINBECK, OF CHICAGO, ILLINOIS.

## TUFTING MACHINE.

Application filed December 6, 1924. Serial No. 754,270.

This invention relates to tufting devices of the type adapted to be used for tufting rugs and the like.

It is an object of this invention to provide a device of this character which will facilitate and expedite tufting but which will still enable the person doing the work to apply such skill and craft to the work as to make it hand made.

With the above and other objects in view as will be apparent, this invention consists in the construction, combination and arrangement of parts, all as hereinafter more fully described, claimed and illustrated in the accompanying drawings.

On the drawings:

Figure 1 is a view of the device in operation.

Figure 2 is an enlarged plan view of the device.

Figure 3 is a side view of Figure 1.

Figure 4 is a horizontal section of the forward part of the device.

Figure 5 is a detail sectional view showing the tufting operation.

Figure 6 is a side view of the same.

Figure 7 is a modification of the device.

Figure 8 is a horizontal section of Figure 7.

Figure 9 is a section at the line IX—IX of Figure 8.

Figure 10 is a section along the line X—X of Fig. 7.

Figure 11 is a detail view of an adjustable needle.

Figure 12 is a sectional view of the construction shown in Figure 11, taken at a right angle thereto.

As shown in the drawings:

The device comprises two similar body members 1 and 2 having the respective handles 3 and 4 integral therewith. As shown in Figure 2 the body members 1 and 2 are slidable vertically along their inner sides relative to each other. Secured at the upper inner end of the body member 1 is a needle member 5 having an eye 6 therein. In juxtaposed position with said needle 5 is a flat pin member 7 secured to the body member 2. By reference to Figure 6 it will be seen that when the body members 1 and 2 are together in normal position the pin member 7 extends just up to the eye 6 of the needle 5. The end of the pin member has a flat sharp edge and is shaped to extend part way up on either side of said eye 6.

On each side of the device is a wire member having a forward section 8 and an after section 9. Said wire members are secured on each side of the body member 1 at the points 10, 11 and 12 and may be formed of a single wire extending through the member 1 at the point 12. Pins 13 on either side of the body member 2 coact with the forward section 8 of the wire member to normally impel the two body members together by the spring action of said section 8. Both of said sections 8 and 9 on either side of the device serve also as guides for the slidable body members.

Pins 14 coact with the after sections 9 of the wire member to provide forward and rear stops respectively when the body members are moved relative to each other for tufting. An adjustable eye member 15 having a rounded inner end 16 thereon in the body member 1 coacts with a groove 17 in the body member 2 to move the forward ends of said members apart a short distance as the member 2 is moved upward relative to the member 1 as shown in dotted line position in Figure 2 or full line position in Figure 4. The distance which said body members will be moved apart by said member 15 may be varied by adjusting the member 15. The eye member 15 serves also as a lead for the yarn or thread 18. Guard members $17^a$ secured to the body members on the outside thereof by means of screws $17^c$ in slots $17^b$ provide a means for varying the effective lengths of the pin 7 and the needle 5. A roller $18^a$ secured in a recess $18^b$ in the member 1 by means of a transverse pin $18^c$ is adapted to abut the inner surface of the body member 2 for reducing the friction between the inner surfaces of the body members.

Figures 7 to 10 inclusive show a modified form of the device in which plate members 20 on either side of the forward end of member 1 have curved edges coacting with pins 21 for moving said end away from the body member 2. These plates thus take the place of the eye member 15 and groove 17 (Figure 4) and the guide function of the sections 8 (Figure 2). A spring member having sections 22 and 23 lying in a recess 24 in the body member 2 and secured as at points 25 and 26 to the body member 1, coacts with transverse pins 27, 28 and 29 and takes the place of forward section 8 in normally holding the body members together,

as well as the place of after sections 9 as a guide for the after portions of said slidable body members, and the place of after sections 9 in coacting with stop pins 14 to form forward and rear stops for the relative movement of the two body members.

The pins 28 and 29 are secured to the respective plates 30 and 31 which are slotted to permit relative movement with respect to a common retaining pin 32. As shown in Figure 8 and in detail in Figures 11 and 12 the lower ends of the needle 5 and the pin 7 may be slotted and adapted to be vertically adjusted with respect to the screws $5^a$ and $7^a$ thus taking the place of the guards $17^a$ for varying the depth of the stitch.

The operation is as follows:

The yarn or thread 18 is led from the spool or ball through the eye member 15 and the eye 6 of the needle 5. In the position shown in Figure 1 with the body member 1 in forward position, the needle is inserted through the fabric or the like 19 carrying a loop of the yarn 18 therethrough. The body member 2 carrying the pin 7 thereon is then moved forward to the position shown in Figure 2. The pin 7 enters the same hole alongside of the needle 5 and on further relative movement of the body members the needle 5 is moved out of the hole leaving the pin 7 therein to hold the loop of the yarn 18 in the fabric 19. Due to the inner end 16 of the eye member 15 coacting with the groove 17 the needle 5 is moved away from the pin 7 as said needle is moved downwardly. On the next insertion of the needle 5 in the fabric 19 it will be found that due to the above-mentioned moving away on the outward stroke the needle 5 has been automatically spaced away from the pin 7 for the new stroke or stitch.

It will be apparent that a person using this device can put practically the same amount of personal skill into the work as if the needle were held in the hand and that it affords a pleasant and amusing means for tufting. In addition to the above-mentioned advantages it greatly facilitates the work and enables one to turn out a much greater amount of work.

It will also be seen that the device is simple of structure and operation.

I am aware that numerous details of construction may be varied through a wide range without departing from the principles of this invention, and I therefore do not purpose limiting the patent granted otherwise than necessitated by the prior art.

I claim as my invention:

1. A tufting device, comprising a pair of relatively movable members, a needle member on one of said members for making a hole in a fabric, said needle being adapted to support a strand of thread and carry the bight thereof through said hole, a pin member on the other of said members adapted to enter said hole alongside of said needle member, a spring wire connected to one of said members at one end and intermediate its length, pins on the other member engaging said wire on opposite sides of said intermediate connection, one pin serving to limit the relative movements of the members, the other pin serving to increase the tension on said wire when said members are forced apart, and means for forcing said members apart at the needle end under certain relative adjustment of said members.

2. A tufting device, comprising a pair of relatively movable members, a needle member on one of said members for making a hole in a fabric, said needle being adapted to support a strand of thread and carry the bight thereof through said hole, a pin member on the other of said members adapted to enter said hole alongside of said needle member, a spring wire passing through an aperture in one member at the end opposite the needle end, said wire on each side being connected to said member intermediate its length and extending at its other end into a spring member, pins on the other member engaging said wire on opposite sides of said intermediate connections, one pair of pins serving to limit the relative movements of the members, the other pair of pins serving to increase the tension on said wire when said members are forced apart, said wire acting to prevent lateral displacement of said members, and means for forcing said members apart at the needle end under certain relative adjustment of said members.

In testimony whereof I have hereunto subscribed my name.

ERLE W. STEINBECK.