Nov. 12, 1940. C. S. ANTCLIFF 2,221,419

NEEDLE

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Fig. 1.

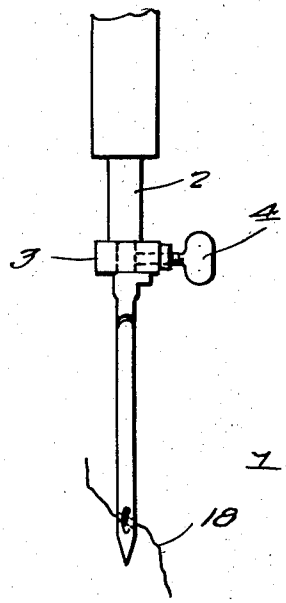


Fig. 2.

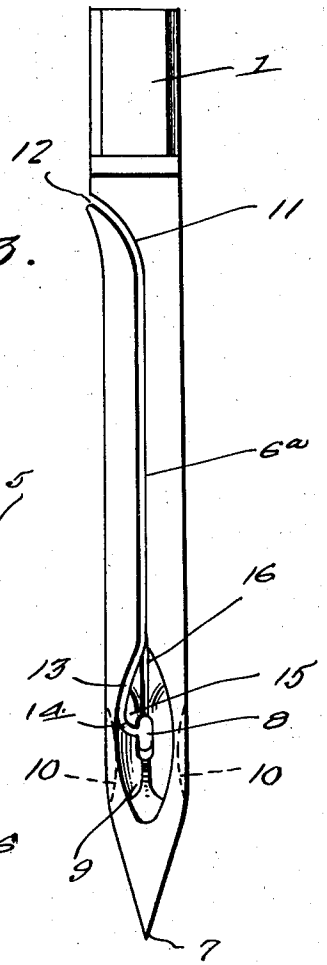


Fig. 3.

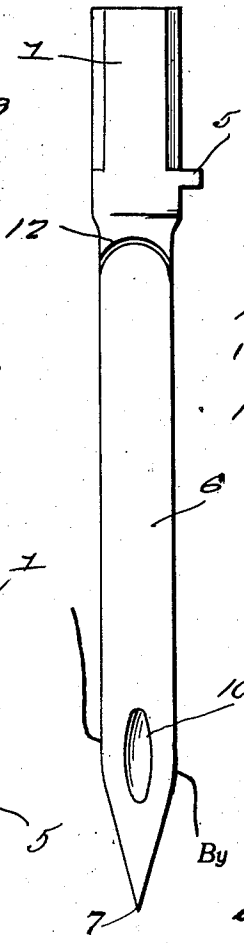
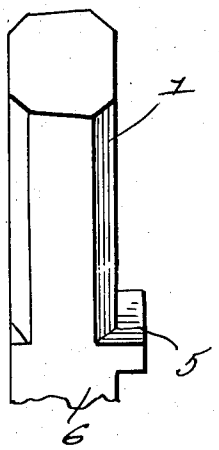


Fig. 4.



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Fig. 5.

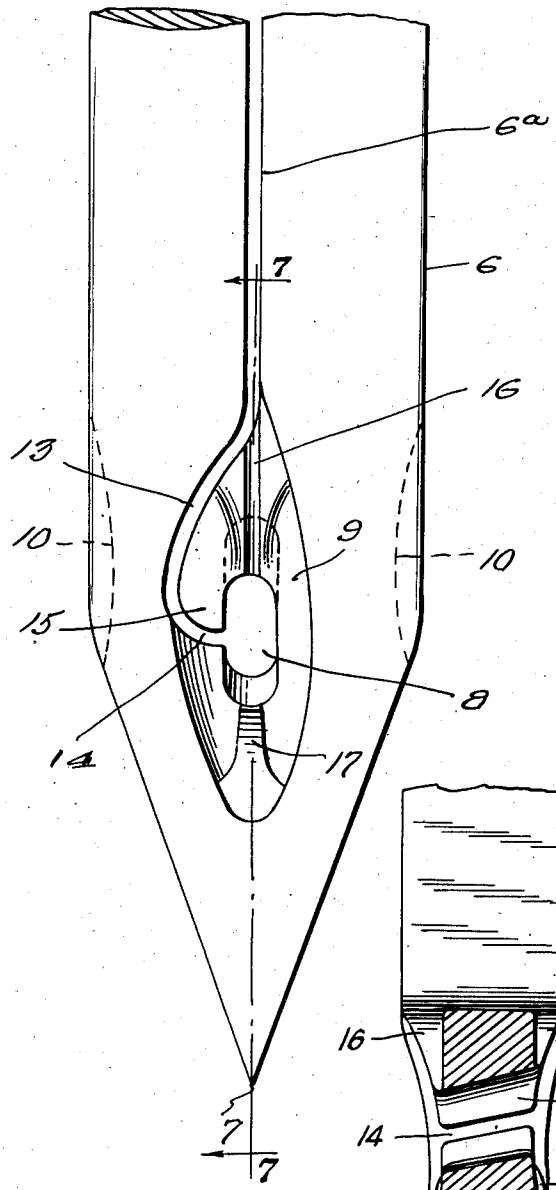
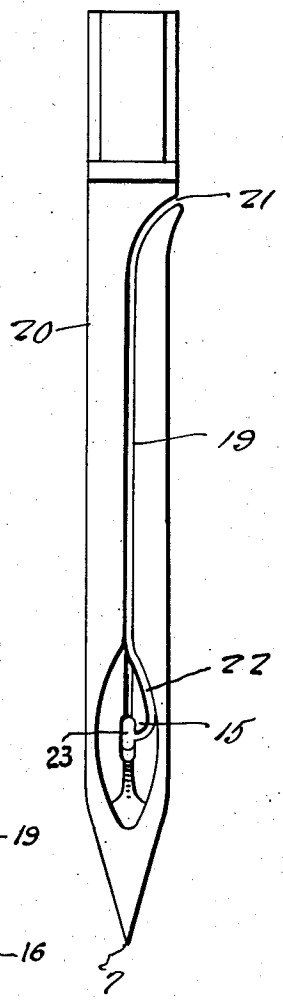


Fig. 6.



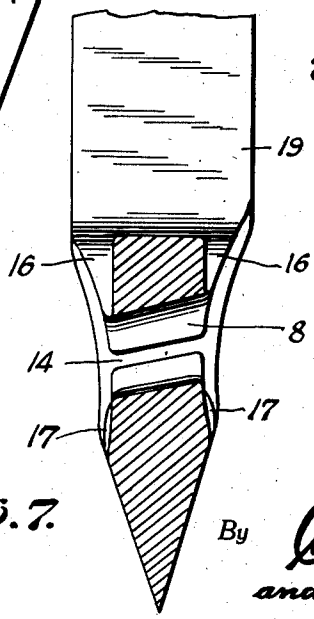


Fig. 7.

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Patented Nov. 12, 1940 2,221,419

UNITED STATES PATENT OFFICE

2,221,419

NEEDLE

Claud S. Antcliff, Salem, Ark., assignor to Myrtle L. Antcliff and said Claud S. Antcliff as joint tenants

Application November 22, 1938, Serial No. 241,863

1 Claim. (Cl. 112—224)

My invention relates to improvements in sewing machine needles and the principal object is to provide an efficient needle of the self-threading type which is strong and durable, will not chafe nor break the thread, and will not become unthreaded.

Other and subordinate objects are also comprehended by my invention all of which together with the precise nature of my improvements will become readily apparent when the succeeding description and claim are read with reference to the drawings accompanying and forming part of this specification.

In said drawings:

Figure 1 is a view in front elevation illustrating my improved needle and constructed for a right-hand rotary sewing machine, and attached to the usual needle bar,

Figure 2 is a view in side elevation drawn to an enlarged scale and showing the needle detached,

Figure 3 is a view in front elevation detached,

Figure 4 is a view in perspective of the butt end of the needle,

Figure 5 is a fragmentary view in side elevation of the leading end of the needle drawn to a further enlarged scale, and

Figure 6 is a view in side elevation of a modified form of needle for a left-hand rotary type machine.

Figure 7 is a view in longitudinal section taken on the line 7—7 of Figure 5.

Referring to the drawings by numerals, and first to Figures 1 to 6, the needle of my invention comprises a substantially hexagonal butt end 1 for fitting into the usual socket part 2 of the needle bar 3 to be retained therein by the set screw 4. Preferably the butt end 1 is slightly convergent laterally toward what constitutes the left-hand side thereof to facilitate insertion into different types of socket parts 3. At the base of the butt end 1 is a lateral stop flange 5, on the right-hand side, for cooperation with the socket part 3 to establish the limit of movement of said end into said part.

The shaft 6, or body, of the needle is round and at a suitable point remote from the point 7 is provided in the longitudinal center thereof with an eye 8 extending from right to left and inclining downwardly from left to right, said eye being substantially elliptical and extending lengthwise of the shaft 6. As will presently more clearly appear, the needle is threaded from left to right and the described inclination of the eye 8 provides against cutting or chafing of the thread by the ends of said eye. Surrounding the eye 8, on opposite sides of the same, are elliptical countersinks, or depressions, 9 extending lengthwise of the shaft 6 in opposite sides of said shaft, respectively, and in which said eye 8 is centered. A pair of similar smaller countersinks, or depressions, 10 are provided on the front and rear sides of the shaft 6, respectively, opposite said eyes 8 for easy passage of the shuttle, not shown. As will be presently clear, the countersinks 9 are for housing the thread as the needle descends into the work.

The shaft 6 is split longitudinally to provide a threading slot 6a extending from side to side of the shaft, said slot for the greater part of its length splitting the shaft along the longitudinal center thereof. The upper end of the slot 6a curves upwardly and forwardly, as at 11, and opens on to the front of the shaft 1 just below the stop flange 5 so that under the full downstroke of the needle said opening 12 is well above the work and the latter cannot catch therein. The lower end of the slot 6a curves forwardly and downwardly along the edge of the countersinks 9, as at 13, and then rearwardly, as at 14, to open rearwardly into the center of the eye 8 thereby forming together with the upper part of said eye a down-turned hook 15, at one side of the eye in which the thread will be caught under the downstroke of the needle to prevent it from escaping from said eye back into the slot 6a and the needle from becoming unthreaded.

Above the eye 8, upon opposite sides of the shaft 6, are a pair of thread-receiving, or clearing, slots 16 extending vertically along the bottom of the countersinks 9 in the longitudinal center of the same from the upper end of the eye 8 to the slot 6a, said slots 16 receiving the thread under the downstroke of the needle and further preventing the thread from entering the slot 6a, that is to say the end 14 thereof, and the needle from becoming unthreaded.

Below the eye 8, upon opposite sides of the shaft 6, is a pair of downwardly divergent ribs 17 extending from the bottom of the eye 8 to the lower ends of the countersinks 9 and merging with the latter, said ribs functioning to prevent the edges of the countersinks 9 from cutting the thread under the upstroke of the needle.

As will be understood, without explanation, the described needle is threaded by entering the thread 18 in the opening 12 of the slot 6a and passing the same down said slot into the eye 6.

In the form of the needle shown in Figure 6, the arrangement of the parts is somewhat re-

versed, the threading slot 19 opening on to the back of the shaft 20, as at 21, and said slot curving at its lower end rearwardly and downwardly and then forwardly, as at 22, into the rear side of the eye 23. Otherwise the construction is the same as described with reference to the needle described previously. As will be understood, this form of needle is for use on left-hand rotary machines and the described somewhat reversed arrangement of parts is for facilitating threading on such machines, whereas, the needle described with reference to Figures 1 to 5 is for use on a right-hand rotary machine and the arrangement of the parts described for facilitating the threading on that particular type of machine.

The foregoing will, it is believed, suffice to impart a clear understanding of my invention without further explanation.

Manifestly the invention, as described, is susceptible of modification in other respects than as set forth, without departing from the inventive concept, and right is herein reserved to such modifications as fall within the scope of the subjoined claim.

What I claim is:

A needle for attachment to the socket of the needle bar of a sewing machine comprising a shaft having a pointed leading end, and a butt end shank for insertion in said socket, said shaft being provided with a central eye adjacent the pointed end thereof and having a threading slot therein leading to said eye and including a straight part extending longitudinally along the center of the shaft, and an upper end part curving upwardly and laterally and opening on to one side of the shaft adjacent to said shank, said slot having a lower end opening into the eye at one side of the latter and forming together with the upper part of the eye a downturned hook blocking escape of the thread out of the eye during downstrokes of the needle, said shaft being recessed on opposite sides thereof around said eye for the accommodation of the thread therein, the bottoms of said recesses being provided with thread-clearance channels therein above the eye and in the longitudinal center of the shaft, said channels being deeper than said recesses to receive the thread therein.

CLAUD S. ANTCLIFF.