

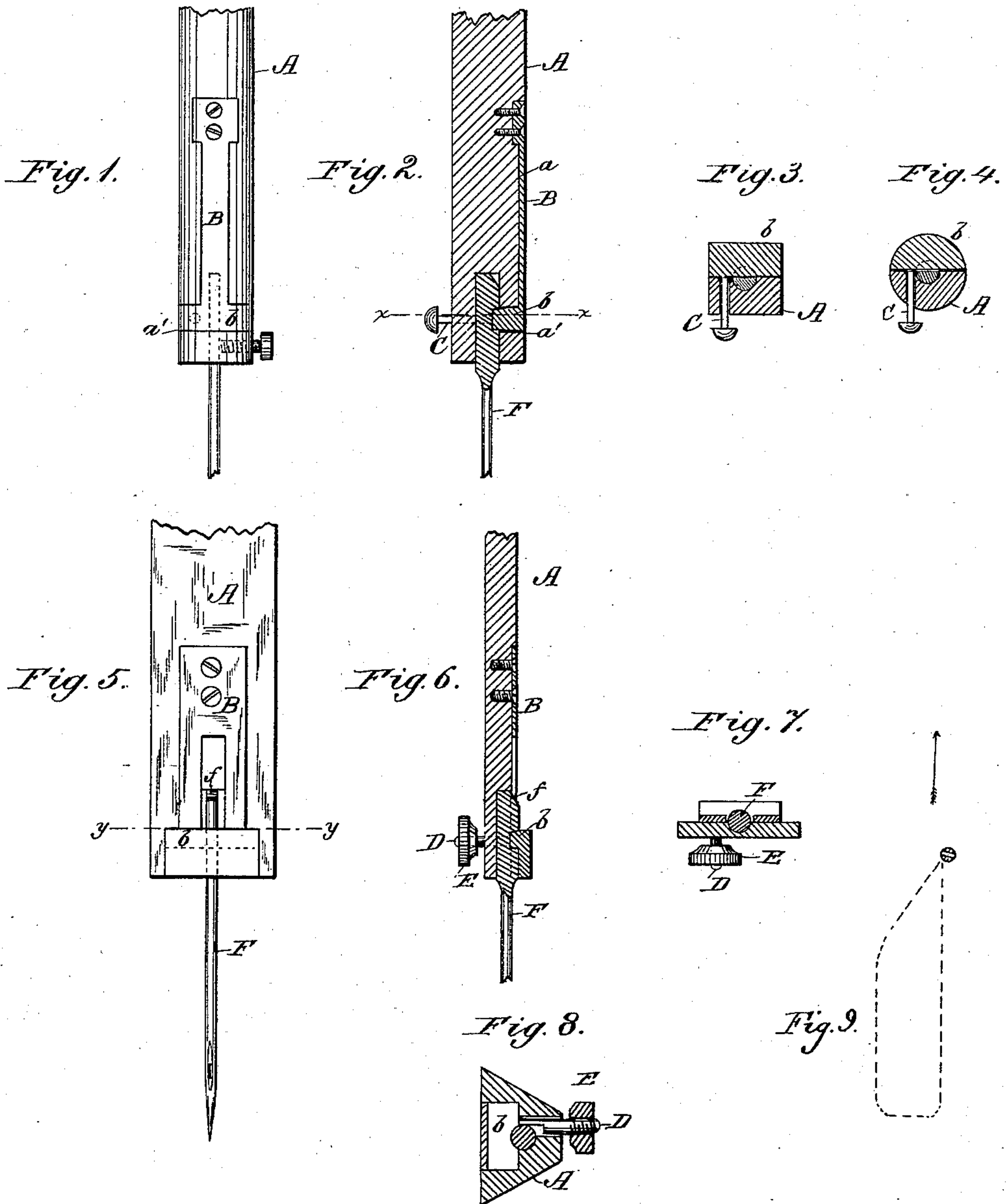
(No Model.)

M. W. SIMKINS.

NEEDLE CLAMP FOR SEWING MACHINES.

No. 279,607.

Patented June 19, 1883.



Witnesses;  
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# UNITED STATES PATENT OFFICE.

MILES W. SIMKINS, OF NEWBURG, ONTARIO, CANADA.

## NEEDLE-CLAMP FOR SEWING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 279,607, dated June 19, 1883.

Application filed November 27, 1882. (No model.)

*To all whom it may concern:*

Be it known that I, MILES W. SIMKINS, a subject of the Queen of Great Britain, residing at Newburg, Addington county, Province of Ontario, Canada, have invented certain new and useful Improvements in Sewing-Machines, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to improvements in sewing-machines, and more particularly to certain improvements in the devices for holding the needle, which will be hereinafter more fully described, and then pointed out in the claims.

In the accompanying drawings, Figure 1 shows a front view of a needle-bar, showing one form of my improvement with a needle having a small shank; Fig. 2, a sectional side view with a needle having a large shank; Fig. 3, a cross-section through *xx*, Fig. 2; Fig. 4, a similar section through Fig. 1; Fig. 5, a front view of another form of my improvement having a small-shanked needle; Fig. 6, a sectional side view of Fig. 5 with a large-shanked needle; Fig. 7, a cross-section of Fig. 6; Fig. 8, a cross-section showing my improvement applied to a triangular needle-bar; and Fig. 9 shows a horizontal section through the needle at the eye. The figures are all on an enlarged scale the better to show the parts.

A represents the needle-bar, which may be of any suitable form, having a shallow recess, *a*, adapted to receive a spring, B, provided at its lower end with a cross-bar, *b*, which may either be made in one piece therewith or be firmly secured thereto in any desirable manner, and which fits into a groove, *a'*, at right angles to the recess *a*, which receives the spring B. This cross-bar has its upper edge made slightly beveled to fit into a correspondingly-shaped notched recess in the needle F, so that the force of the spring B, acting on the cross-bar to push it against the upper edge of the notch in the needle, will force the top of the shank of the needle against the top of the hole in the bar, so that the needle will have a perfectly solid bearing in the needle-bar. Passing through the needle-bar from the side opposite to the cross-bar is a small push-pin, C, provided with a suitable head on the outside of the bar, and having its inner portion slightly

upset to enlarge it to prevent it coming out. This pin is arranged on one side of the needle, as will be plainly seen in Figs. 3, 4, and 7. The advantage of having the push-pin in this position is that it leaves a solid bed for the needle, whereas if the pin were set in the center the needle would necessarily pass through it, and as the pressure of the spring tends to force that portion of the needle inclosed within the pin into the hole through which the pin passes the needle would be warped or bent out of shape, especially if the shank of the needle is no larger than the needle itself, as is sometimes the case. By pressing on the head of the push-pin the cross-bar will be pushed out of the notch of the needle, which can then be readily removed. To set another needle in its place, it is only necessary to insert the new needle in the hole in any position and turn it around until the beveled portion *f* of the needle's shank will enter between the cross-bar and the needle-bar, when a slight pressure upward will cause said beveled portion of the needle's shank to force the cross-bar outward, and thus allow of the needle being pushed "home," when the cross-bar will be immediately forced back by the spring to its original position, thereby entering the notch in the needle and forcing the latter against the top of the hole in the needle-bar to give it a solid bearing, as before explained. Instead of having the pin separate from the cross-bar, it may be screwed into it; or it may be made a part thereof and projected far enough through the needle-bar to receive a button or head, which may be either screwed or riveted in place.

In that form of my invention shown in Figs. 5, 6, and 7 I employ a flat needle-bar, and the spring is much broader, and is forked, as shown in Figs. 5 and 7, so as to show the end of the needle rising through it. The cross-bar has a screw, D, (which I consider the equivalent of my pin,) preferably formed on or rigidly attached to it by riveting or otherwise, which screw passes through the lower part of the needle-bar at one side of the needle, as shown in Fig. 7, and has at its outer end a thumb-nut, E. This device is used in the same way as the other.

Instead of permanently fixing the screw in the cross-bar, I sometimes use a milled-head screw passing through the needle-bar into the



cross-bar, in lieu of the nut and screw shown, and by making a tapped hole in the cross-bar the device will operate in the same way as the screw and nut before described; but it is not, in my opinion, as good, for obvious reasons. Where a triangular needle-bar is used the screw may be notched in at one side, as shown in Fig. 8; or, if preferred, the screw may be placed entirely on one side of the needle, either by having the needle placed a little on one side of the center of the needle-bar, or the screw may pass through a little more on one side of the needle-bar, if it should be inconvenient to have the needle on one side of the center.

In making the cross-bar and spring, I deem it important to be particular to have the various parts fit accurately, and especially as to the cross-bar in the groove, because in case the needle should be too short to touch the top of the needle-hole, then the pressure due to the puncturing of the cloth would come on the cross-bar, and there would be a tendency to buckle or bend the spring if there were no support above the cross-bar. The screw D should be preferably fitted to the bar in the same way, as it will help to support the cross-bar.

In making the notch in the needle it may be so arranged that the eye will be parallel with the flat part of the notch, or at a right angle thereto, according to the way the shuttle runs; but I prefer to make the notch so that the eye of the needle will be at a slight angle thereto, so as to counteract the bending of the loop caused by the twist or kinking of the thread, which causes the missing of stitches, as, the loop being apt to bend to one side of its proper position, the shuttle does not pass through it, and a missed stitch is the result. To produce the best effect the needle should have the hole and notch so arranged with relation to each other and the motion of the shuttle that a line drawn through the center of the needle's eye will make an angle of from seventy-five to eighty degrees with the path traversed by the shuttle, leaning in that direction in which the point of the shuttle is traveling while taking the loop, as shown in Fig. 9. By this arrangement all tendency of the loop to turn aside, caused by the kinking of the thread, is counteracted, and thus all slipping of stitches is avoided.

I have shown my invention applied to different forms of bars such as round, square, and triangular, but do not limit myself to these special forms, as it is obvious that my invention may be applied to bars of other forms than those shown.

I am aware of the Patents Nos. 130,357 and 204,294, and make no claim to anything shown therein.

What I claim as new is—

1. A needle-bar having the usual vertical needle-receptacle and a lateral groove or recess opening into said receptacle, in combination with a needle provided with a notch in its shank, a bar having its upper edge beveled to act on the notch in the needle and force its top against the top of the needle-receptacle, and a suitable device to force the bar into the notch, substantially as described.

2. A needle-bar having the usual vertical needle-receptacle and a lateral groove or recess opening into said receptacle, in combination with a needle whose shank is provided with a beveled notch, and a bar constructed and arranged to be pressed into said notch, substantially as and for the purpose specified.

3. A needle-bar having the usual vertical needle-receptacle and a lateral groove or recess opening into said receptacle, in combination with a needle whose shank is provided with a notch, a spring, B, and a bar, b, constructed and arranged to force the top of the needle against the top of the needle-receptacle, substantially as described.

4. A needle-bar provided with a longitudinal recess, *a*, a groove or recess, *a'*, at right angles thereto, in combination with a spring, B, fitting in the recess *a*, rigidly attached to the needle-bar, and having a cross-bar, *b*, rigidly attached to its lower end, fitting in the groove or recess *a'*, and constructed to be supported by the edge or edges of said groove or recess, substantially as and for the purpose specified.

5. A needle-bar, A, provided with a groove or recess, *a'*, at right angles thereto, in combination with a spring, B, having one end attached to the needle-bar and its other end provided with the cross-bar *b*, rigidly attached thereto and resting against the upper edge of said groove or recess, having its upper edge beveled to fit into a notch in the needle, substantially as described.

6. The combination, with a needle-bar having a groove or recess, *a'*, of a spring-bar, *b*, forced by a spring through said recess into a notch in the needle's shank, and a pushing device arranged on one side of the needle, whereby a solid bearing is left in the needle-bar to resist the pressure of the spring and cross-bar, substantially as described.

In testimony whereof I affix my signature, in presence of two witnesses, this 27th day of November, 1882.

MILES W. SIMKINS.

Witnesses:

T. J. W. ROBERTSON,  
F. O. McCLEARY.