To all whom it may concern:

Be it known that we, WILLIAM ALBERT WHITE and EUGENE W. KELLER, citizens of the United States, and residents of West Hoboken, in the county of Hudson and State of New Jersey, have invented certain new and useful Improvements in Needle-Holding Attachments for Embroidering-Machines, of which the following is a specification.

This invention relates to needle bars for embroidering machines, and our improvements have especial relation to means whereby the needle holder devices are automatically retracted upon the application of pressure to a trigger device when it is desired to remove them from their sphere of activity.

In the drawing: Figure 1 is a plan view of a portion of a needle bar with the associated parts. Fig. 2 is a section on the line 2-2 of Fig. 1. Fig. 3 is a section on the line 3-3, of Fig. 2, and Fig. 4 is a partial detail view showing a modified form of tensile support for ring g.

A portion of a needle bar is shown in the drawing, it being in form of a channel, having the forward wall a, rear wall b, and base c.

The wall a is provided with orifices a', in each of which is placed the reduced portion d of a needle holder, which is of the same section as orifice a' and adapted to slide therethrough. Said reduced portion d is adapted to receive and support a needle, as e, at its free end. The major or rear portion d' of the needle holder is slidably entered within an orifice b' in the rear wall of the channel, and a shoulder, d'', at the junction of said holder portions d d', serves as a seat for a helical spring f, that lies between said shoulder and wall a. The function of said spring f is to retract said holder when the latter has been released.

The holder is held projected, against the tension of spring f', by means of a vertically positioned ring g, having a lower horizontal engaging portion g', adapted to enter a recess d'' in the lower rear portion of the holder. As thus held the needle is in operative position. The ring g is vertically slidable in guides h, stationed against the rear wall b of the channel, and said ring has at its top a horizontally disposed flange or pressure plate h', by whose aid the operator may press the ring downwardly to release the ring from its engagement with recess d'', thus allowing spring f to exercise its function of retracting the holder. The ring g is normally held in its upward position, in engagement with recess d'', by means of a flat spring member i, which at one end is lodged in a recess or groove j provided in the wall a, and at its other end is forked, as at j', and thus adapted to straddle the neck k which connects plate h' to top of ring g, said spring i being removably fitted under tension which is exerted against the underside of plate h' to thereby hold ring g upwardly as described.

The holder, at its major portion d', is provided on its under surface with a flat inclined recess k, beginning at a point near recess d'' extending forwardly to a point toward shoulder d'', having at its extremity a shoulder or stop k' to serve as a stop engaging with ring g in the retractile movement of the holder, thus limiting such movement and preventing the holder from passing rearwardly through the wall b of the channel or bar. It will be understood that upon releasing finger pressure upon plate h', said plate with the ring g is able to return to its upward position under the influence of the tension of spring i, whereby the engaging portion g' of the ring will follow the incline k with the rearward movement of the holder and become seated against shoulder k' for the purpose described. Instead of the flat spring i, a coiled spring l with guide m thereof may be placed between the ring g and base c to serve the same purpose.

The device is thus thoroughly automatic in its operation wherein the function of retracting the needle holder and needle is served simply through the application of finger pressure upon the plate h' to depress ring g and thereby release the holder from its forward, needle operative position. By the means shown and described any one or more of the needle holders may be put out of action according to the character of the design being embroidered. The convenient manner of operation and the quick response of the mechanism are features which commend this device to the operator and render it highly serviceable and efficient.

We claim:

1. A needle bar for embroidering machines having a plurality of needle holders bearing needles, said holders being movable at right angles to and from the work,
tensional means for the retraction of said holder, and means retaining the holders in projected, operative position, said retaining means being separately operable to release and permit the retraction of individual holders.

2. A needle bar for embroidering machines composed of a channel having parallel walls with alined orifices to receive respectively the forward and rear portions of a set of needle holders, the orifices in the forward wall being smaller than the orifices in the rear wall, together with a plurality of needle holders, the forward portion of each holder carrying a needle, and being slidable within the orifice in the forward wall, and the rear portion of each needle holder being enlarged and slidable within the alined orifice in the rear wall, a spring between the larger portion of the holder and the forward wall, a recess near the rear end of the holder, a vertical ring having an upper horizontal pressure plate at its upper end, said ring adapted when elevated to engage in said recess, a flat spring lodged in a longitudinal recess in the forward wall, and at its opposite end having bearing against the under side of said pressure plate to tensionally hold said ring engaged in said recess, and a forwardly inclined recess on the lower surface of said holder, with a shoulder at the end thereof, whereby upon depressing the ring the holder will be tensionally retracted until its shoulder meets the ring.

Signed at the borough of Manhattan, in the city, county and State of New York this 19th day of August A. D. 1913.

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Witnesses:
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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."