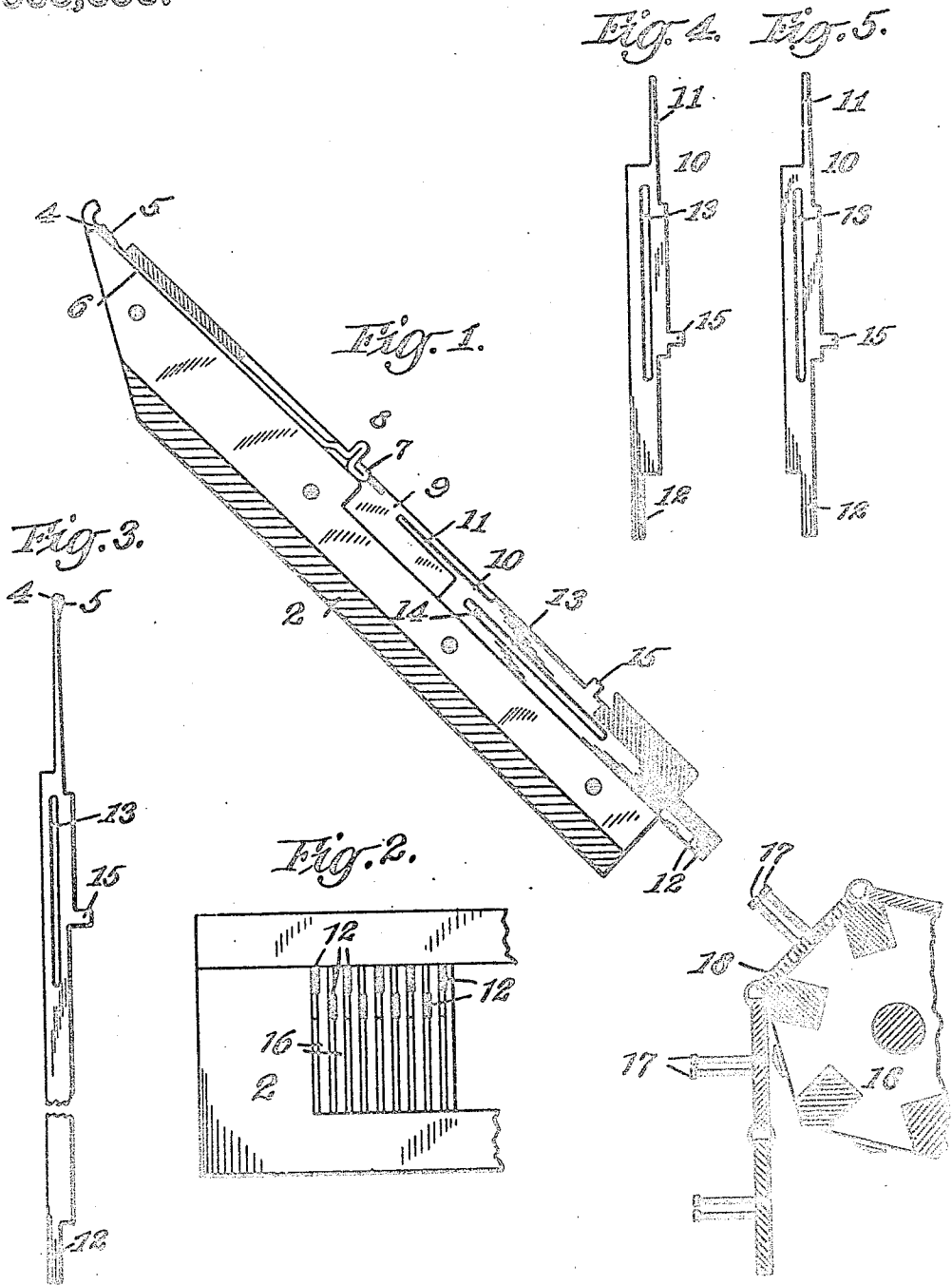


J. KELLNER.
 NEEDLE AND NEEDLE HELPER.
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1,063,353.

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NEEDLE AND NEEDLE-HELPER.

1,063,353.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, JOSEF KELLNER, a subject of the Emperor of Germany, residing at Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Needles and Needle-Helpers, of which the following is a specification.

This invention relates to needle mechanism for knitting machines, particularly to that class known as flat knitting machines, the object of the invention being to provide a combined knitting needle and helper for flat knitting machines so constructed that they may be used in connection with a jacquard mechanism whereby certain of the needles may be pushed or advanced beyond certain companion needles, so that in the operation of the machine various designs, according to the setting of the jacquard, may be provided on the article being knit, as for instance a neck-tie or muffler, or other articles adapted to be made on a machine of this character, and in which this needle mechanism will be extremely simple, comparatively inexpensive, durable and the companion needles so formed and disposed that they may be effectively operated by the jacquard mechanism without liability of operating any but the desired number of needles according to the design to be formed.

In the drawings accompanying and forming part of this specification, Figure 1 illustrates the needle mechanism shown partly in section and a jacquard mechanism in position to cooperate with the lower ends of the needle helpers, the carrier being located in the position in which it is usually located in the machine; Fig. 2 is an enlarged lower end view of the bed and a series of needles and needle helpers properly assembled; Fig. 3 is a view of the needle and its helper when integrally constructed; and Figs. 4 and 5 are views of the needle helper when made separate from the needle itself.

Similar characters of reference indicate corresponding parts throughout the figures of the drawings.

In the present embodiment of this improvement the needle bed comprises a suitable inclined support 2 having suitable longitudinal recesses 3 for the needle and its

helper, whether these be formed as an integral structure or as separate members.

In the form shown in Figs. 1, 4 and 5 the needle and its helper are shown as separate members, and in this construction the needle proper is of the usual form, having the hook 4, the spoon latch 5, and the shank 6 provided with the tail 7 having a butt 8. In line with the tail of each of these needles and supported in a channel 9 of the bed 2 is the needle helper, comprising a thin bar 10 having a forwardly extending tail-engaging end 11 and a rearwardly extending jacquard-engaging end 12. This bar is provided with a longitudinal slot 13 through which passes a rod 14 by means of which the helper is guided and prevented from movement in a vertical plane. The helper is also provided with a butt or projection 15 in position to be engaged by cams for performing their proper function. Since these needle helpers are extremely thin, corresponding in thickness as a rule with the thickness of the needles and therefore being not much, if any, over a sixty-fourth of an inch in thickness, it follows that if the needle helpers were located side by side, where the needles are placed as closely as twelve to the inch, even though spaced apart by the side walls 16 of the bed, there would be insufficient distance between the helpers to permit the pins 17 of the jacquard mechanism 18 to engage one helper and advance it without danger of such pins also engaging a companion helper unless the pins were made so small that they would not be durable or sufficiently rigid. In consequence, the ends of the needle helpers are so formed that the heel or tail ends of each pair are in opposition, that is to say the tail end of one helper is located to project in a plane above that of the other, this being obtained by rabbeting the ends of each pair in opposite directions, as shown in Figs. 1, 4 and 5, so that the tail ends of the assembled needle helpers are located in alternation as it were, whereby the pins of the jacquard mechanism may be made sufficiently large to give them the proper rigidity and durability and at the same time insure that only those particular helpers which it is desired to advance will be engaged by the jacquard pins.

In the form shown in Fig. 3 the needle and its helper is made as an integral structure, but the tail ends of each pair are formed in precisely the same manner as those shown in Figs. 4 and 5.

In operation, whether the needle be formed as an integral structure with its helper or separable therefrom, the jacquard mechanism will be advanced by suitable cams, not shown, so that the pins thereof will engage the ends of the particular needle and needle helper for which they are set, thereby to advance the needle through the medium of its helping end beyond its companion needles.

The means for operating the needle and its helper constitutes the subject-matter of a separate application filed April 1st, 1912, Serial No. 687,564.

In the present embodiment of the needle helpers, or of the needle having the helper integral therewith, it will be observed that while they are extremely thin in cross section yet the body of the helper is considerably wider than the needle or needle engaging end, or the heel or tail end.

I claim as my invention:

1. A needle mechanism for flat knitting machines comprising a bed, a needle supported thereby for reciprocatory movement, and means extending beyond the tail end of the needle for advancing said needle and comprising a helping member having a slot and means for guiding said helping member.

2. A needle mechanism for flat knitting machines comprising a bed, a series of needles supported thereby for reciprocatory movement, and means extending beyond the tail thereof a helping member, each helping member having a projecting tail located in alternation with the projecting tail of its companion member.

3. A needle mechanism for flat knitting machines comprising a bed, a series of needles supported thereby for reciprocatory movement, and means extending beyond the tail of each thereof and comprising a helping member, each helping member having a projecting tail located in alternation with the projecting tail of its companion member, said helping members having aligned slots and butts, and a member extending through said slots for guiding the helping members.

4. A helping member for a needle comprising a bar having a needle-tail-engaging end and a tail at its opposite end and an elongated slot.

5. A helping member for a needle comprising a bar having a needle-tail-engaging end and a tail at its opposite end and having a projecting butt and an elongated slot.

6. A pair of needle helpers, each having a needle-tail-engaging end and a projecting tail, the tail of one being offset differently from that of its companion member.

7. A pair of needle helpers, each having a needle-tail-engaging end and a projecting tail, the tail of one being offset differently from that of its companion member and each of said helpers having a projecting butt.

8. A pair of needle helpers, each having a needle-tail-engaging end and a projecting tail, the tail of one being offset differently from that of its companion member and each of said helpers having a projecting butt and an elongated slot.

9. A needle mechanism for flat knitting machines comprising a bed, a needle supported thereby for reciprocatory movement, and means extending beyond the tail end of the needle for advancing said needle and comprising a helping member, said needle and helping member having one an elongated slot for the reception of guiding means.

10. A needle and a needle helper, one having an elongated slot for the reception of guiding means.

11. A series of needles and a series of needle helpers, each member of one series having an elongated slot for the reception of guiding means and said needle helpers having staggered ends.

12. A helping member for a needle comprising a bar having an elongated slot for the reception of a guide rod effective to permit sliding movement of said helper but prevent the elevation of said helper transversely of its plane of sliding movement.

13. A helping member for a needle comprising a bar having one end adapted to engage the needle, and having at its opposite rear end a projection offset from the body portion of such helping member and of less width than such body portion and extending rearwardly of such body portion and in position to be directly engaged by a jacquard mechanism.

14. A helping member for a needle comprising a bar having a needle-tail-engaging end and an offset projection at its opposite end extending rearwardly of such helping member and also having an elongated slot for the reception of guiding means.

Signed at New York, county and State of New York, this 13th day of February, 1912.

JOSEF KELLNER.

Witnesses:

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