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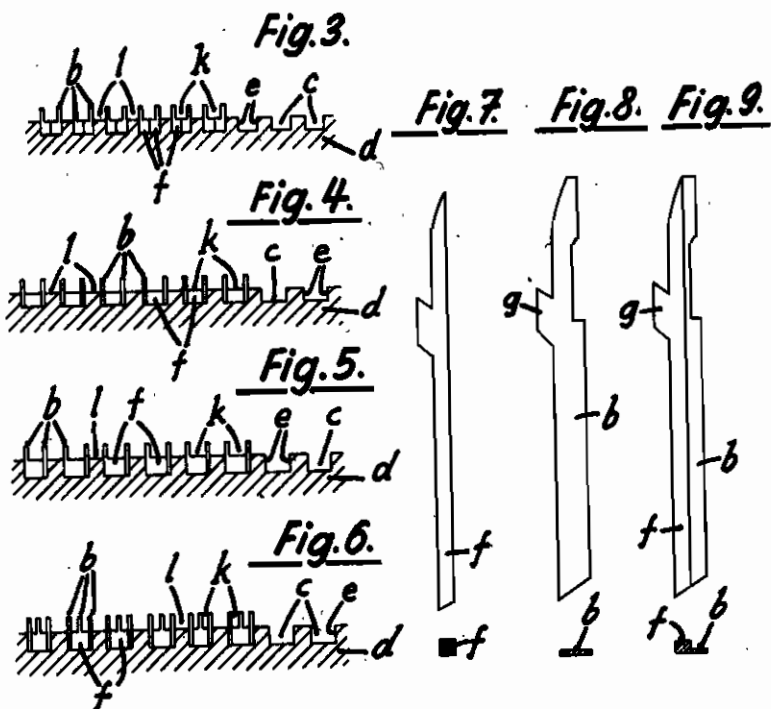
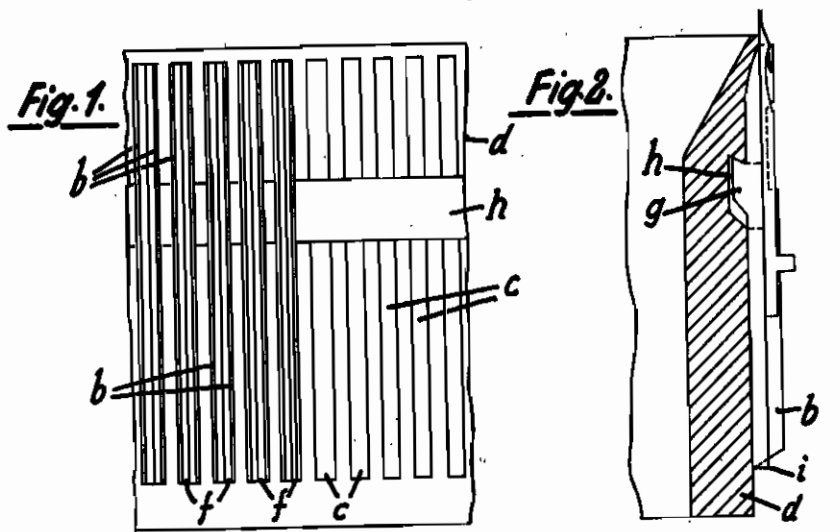
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NEEDLE BED FOR USE IN KNITTING MACHINES

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NEEDLE BED FOR USE IN KNITTING MACHINES

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This invention relates to a needle bed for use in knitting machines.

The slots in the needle beds of knitting machines, which act as guides for the needles, particularly in coarser gage machines with larger spacing of the needles, are usually produced by milling and correspond in size to the thickness of the needles. This method is, however, not applicable to finer gage machines, since the portions separating the slots would become too weak and break easily, and the needle guides in machines of this class are therefore produced at present by inserting steel members in milled slots of the needle beds. These steel insertions are made of high-grade material and strong enough to resist damaging stresses, but their use is nevertheless open to objections.

In the first place, the number of slots and insertions must be equal to that of the needles of the machine concerned. Furthermore, as the thickness of the insertions and thus the width of the slots to be cut are determined by the gage of the machine, it is obvious that the insertions employed in machines of fine or finest gage must be extraordinarily weak. The production of slots for these thin insertions is, moreover, very difficult and sometimes practically impossible, because the tools required for this kind of work are extremely sensitive and possess little resistance, and the necessary accuracy with respect to the width of the slots can hardly be obtained. In view of the large number of cuts to be made the difficulties mentioned are quite serious, and it takes therefore disproportionately much time to manufacture such needle beds.

The invention overcomes these drawbacks by providing a needle bed, particularly adapted for fine and finest gages, in which at least two separate needle guiding members are inserted in each slot, the slots being therefore so wide that the prevailing difficulties involved in the production of the slots serving for the reception of only one guiding member are eliminated. The width of the slots according to the invention amounts at least to twice the thickness of the insertions plus the space between them, i. e., plus the thickness of the needle.

The invention is of course particularly adapted to needle beds having fine or finest divisions, but it can be applied also to standard gages, since only one-half of the number of slots need be made as wide as indicated.

The insertions are suitably secured in the slots and prevented from lateral displacement by means of fillers. The insertions are preferably

arranged so that they bear against the side walls of the slots, which thus mechanically insure their proper position.

The fillers may form separate pieces or projections of the insertions and constitute therefore either plain sections or are offset so as to produce projections.

The space between the insertions may be occupied by one or more fillers.

The invention is illustrated by way of example in the accompanying drawing, in which

Figures 1 and 2 are each a sectional front view of a portion of a needle bed according to the invention;

Figs. 3, 4, 5 and 6 show four different arrangements of the insertions;

Fig. 7 is a cross-sectional side view of the filler shown in Fig. 4; and

Figs. 8 and 9 are sectional side views of the insertions shown in Figs. 4, 5 and 6 on the one hand and in Fig. 3 on the other.

The needles *a* are guided in members *b* which are inserted in milled slots *c* of the needle bed *d* of a knitting machine. In the arrangements shown in Figs. 3, 4 and 5 two insertions *b* are provided in a common slot *c*, whilst in the construction shown in Fig. 6 three insertions *b* occupy a common slot *c*. The number of insertions for each slot may be chosen at will.

According to the invention, the slots *c* are so wide that at least two insertions *b* can be accommodated, the width of the slots *c* depending upon the gage of the machine. The arrangement is preferably such that the insertions *b* bear against the side walls *e* of the slots *c* and their relative position is fixed by the walls *e* serving as stops. The space between the insertions *b* in the slots *c* is fully occupied by fillers *f* of any suitable shape.

Fig. 3 shows a construction in which the fillers have the form of shoulders *f* of the insertions *b* whose portion placed within the slots *c* is offset so that the shoulder *f* is alternately disposed to the right and left. The members *b* are inserted in pairs in the slots *c* so as to hug the side walls *e* thereof whilst the shoulders *f* bear against each other, and they are held in the slots *c* in suitable manner. In the example shown this is effected by means of noses *g* formed at the upper portion of the members *b* and engaging an undercut groove *h* of the bed *d*, as indicated in Fig. 2. The lower end *i* of the members *b* is calked, and the members *b* are thus firmly held in the slots *c*. The fillers *f* are held in position in the same manner, see Fig. 7.

When the members *b* have been inserted in the slots *c*, a guide channel *k* for the needle *a* is formed between every two members *b* inserted in the same slot *c* and another guide channel *l* of equal width between two adjacent members *b* of two succeeding slots *c*.

In the construction shown in Fig. 4 the insertions *b* are of uniform profile corresponding to their thickness, and the fillers *f* are inserted as separate units.

Fig. 5 shows a construction in which the inser-

tions *b* form a combination of those shown in Figs. 3 and 4, i. e., one of the two members *b* has a lateral shoulder serving as filler *f* and the other is plain, the shoulder *f* extending up to the plain insertion *b*.

In Fig. 6 the filler *f* extends from one insertion *b* to the other as in Fig. 4 and supports an additional member *b*, so that the members *b* of each slot *c* form two needle guides *k*. The shape of the members *b* formed by the fillers *f* is optional.

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