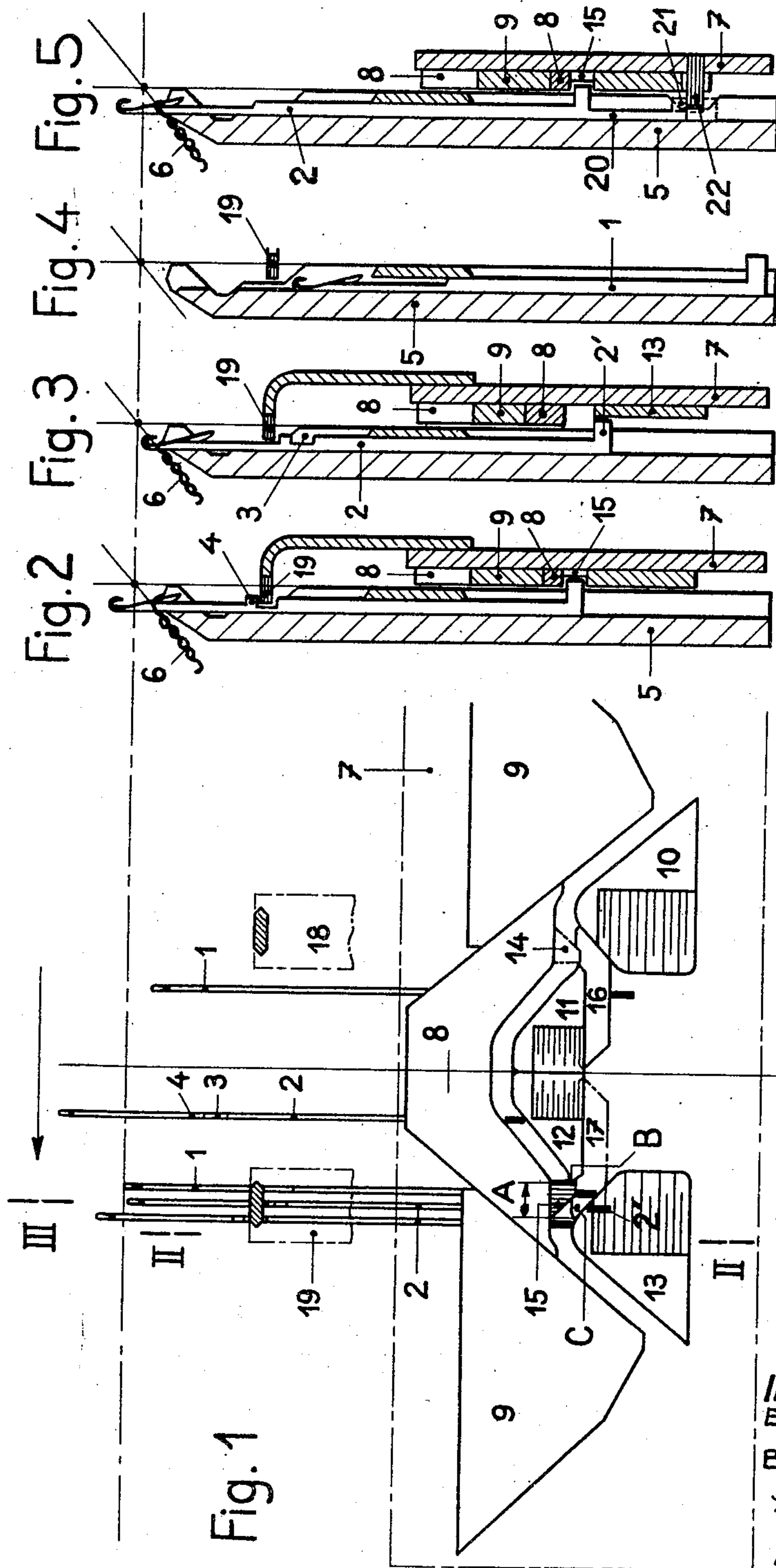


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KNITTING MACHINE WITH A DEVICE FOR TEMPORARILY SECURING THE
NEEDLES IN THEIR POSITION DURING A WORKING OPERATION
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KNITTING MACHINE WITH A DEVICE FOR TEMPORARILY SECURING THE NEEDLES IN THEIR POSITION DURING A WORKING OPERATION

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3 Claims. (Cl. 66—60)

It is known in the art to use brakes for the needles of knitting machines, comprising a band of steel, crosswisely laid over the shanks of the needles and pressed down in such a way that the needles are prevented from falling, by parts associated with the cams, so that a corresponding braking action of the needles results. However, with such brakes not only the braking bands but more particularly the needles are subject to great wear and tear.

It is also well-known to provide a practically friction-free locking of the needle pushers, i. e., of parts which are very similar to the needles instead of making use of braking friction. For this purpose stop members are provided, which temporarily engage into the shanks of the pushers and which are controlled by the cam.

There are also resilient stop members existing, which engage into the shanks of the needles, in order to temporarily hold the latter out of the field of operation of the cam.

In contradistinction thereto, according to the present invention, it is provided in a knitting machine, the cam or lock member of which comprises a device for temporarily securing the needles in their position during a working operation, that during the course of the needles through the knitting cam, stop members provided in the latter engage, into the shanks of the needles in given intervals of time, in order to secure the needles separately or in groups in their needle bed channels at different distances with respect to the loop formers, so as to avoid arbitrary movements of the needles.

It is thereby attained, in a simple way, that during the knitting, the needles are temporarily secured in the field of action of the cam, thereby avoiding shaking movements resulting in wrong needle courses leading to mistakes in the knitting. Likewise impacts of the needles with edges of the cam are avoided, which could result in breaking of the needles and in a reduced knitting output.

Preferably, the stop members are slidably disposed vertically to the needle bed surface over the needle bed channels in direction of movement of the cam. They cooperate, according to the desired knitting, with stops provided at the shanks of the needles in order to maintain the latter.

According to a further embodiment the stop members, in order to maintain the needles, cooperate with abutments provided below the needle-butt at an extension of the shank of the needle.

In the partly diagrammatic drawings, an embodiment of the invention is shown in connection with a flat-knitting machine as far as it is necessary for a clear understanding of the invention.

Fig. 1 is a top view of a lock or cam box with a certain number of needles, whereby high butt needles are slid from their partially raised position into their inoperative position of rest by means of a needle distributor.

Fig. 2 is a section according to the line II—II in

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Fig. 1, whereby low butt needles are maintained in their partially raised position.

Fig. 3 is a section according to the line III—III in Fig. 1 and shows the low butt needles in the out-of-work or inoperative position during at least one course of the carriage.

Fig. 4 is a cross-section through the needle bed, showing a high butt needle in an inoperative position.

Fig. 5 is a section corresponding to the one of Fig. 2 but showing a different embodiment.

The numeral references 1 designate high butt and the numeral 2 low butt needles, while 3 and 4 designate stops, provided in alignment on the shanks of the needles and having the form of a notch and a shoulder respectively. Further designated in the drawings are the needle bed 5, the knitting 6, the cam plate 7, the safety cam 8, the lowering cams 9, the raising cams 10—13, the needle distributors 14 and 15, two cam-bridge parts 16 and 17 and the stop members 18 and 19, which are slidable over the needle bed channels at right angles. All elements of the lock are in the usual way adjustably disposed on the lock-box, which is in a known way fixed to the carriage (not shown). Thus the high butt needles are, as known, moved by cams which are either in the working position or in the intermediary working position. In order to move the low butt needles it is, on the other hand, necessary to put the cams in the working position.

The fully drawn, movable lock elements are in working position, the needle distributor 15 is in an intermediary working position and the lock elements represented in dotted lines are in the out-of-work position.

In order to maintain the needles, during the movement of the carriage in the direction shown by the arrow in Fig. 1, i. e. from the right to the left, the stop member 19 is fixed to the knitting lock cooperates either with the notches 3 or with the shoulders 4 of the needles 2.

In the first-mentioned case the low butt needles 2 are secured in their partially raised or operable position (Fig. 2) during the course of the needles on the passage A (Fig. 1) of the lock channel. Thereby abutting of the needle butts of the needles 2 against the edge B of the raising cam 12 is avoided so that these needle butts may safely be operated by the raising cam 12. In the other case, i. e., if the stop member 19 cooperates with the shoulders 4 of the low butt needles 2, and the raising cam 13 is in the intermediary working position, only the high butt needles 1 are in action. The shaking or translatory forward movement of the low butt needles, which may appear during this knitting operation, is limited by the stop member 19, so that abutting of the butts 2' of the needles 2, against the edge C (Fig. 1) of the part 17 of the cam bridge is avoided.

When the carriage is moved in the opposite direction, i. e. from the left to the right in Fig. 1, the stop member 18 takes over the same function as the stop member 19 during the movement of the carriage from the right to the left.

The stop members 18 and 19 correspond in breadth with the dangerous zones in the lock for the needles designated for example by A in Fig. 1.

In the embodiment shown in Fig. 5 the abutment 21 cooperating with the stop members 22 for maintaining the needles, is disposed at an extension 20 of the shank of the needle provided below the needle butt. If a sliding back of the needle must be avoided, the abutment 21, as shown in full lines, lies before the stop member 22. In order to avoid a forward movement of the needle the abutment 21 as shown in dotted lines, is situated behind the stop member 22.

What I claim is:

1. In a knitting machine, needles slideably disposed

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in needle bed channels, a lock member movable along the needle bed into operative contact with successive of said needles during the operation of such machine to manufacture knitted goods, shoulder portions on the shanks of particular of said needles adjacent recessed portions in said shanks, a stop member secured to said lock member and movable into the recessed portions of such of said particular needles as are in an operable position relative to said lock member during part of the time of operative contact of said lock member with the latter needles, said stop member during the same period of time being movable into retaining engagement with the shoulder portions of such other of said particular needles as are in an inoperable position relative to said lock member.

2. In a knitting machine, needles slideably disposed in needle bed channels, a lock member movable along the needle bed into operative contact with successive of said needles during the operation of such machine to manufacture knitted goods, shoulder portions on the shanks of particular of said needles adjacent recessed portions therein, stop members slideably disposed transversely over the needles and movable into the recessed portions of such of said particular needles as are in an operable position relative to said lock member during

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part of the time of operative contact of said lock member with the latter needles, each said stop member during the same period of time being movable into retaining engagement with the shoulder portions of such other of said particular needles as are in an inoperable position relative to said lock member.

3. In a knitting machine, needles slideably disposed in needle bed channels, a lock member movable along the needle bed into operative contact with the butts on successive of said needles during the operation of such machine to manufacture knitted goods, shoulder portions on extensions of the needle shanks below the butts of particular of said needles, said shoulder portions being adjacent recessed portions in said extensions, stop members slideably disposed transversely over the needles and movable into the recessed portions of such of said particular needles as are in an operable position relative to said lock member during part of the time of operative contact of said lock member with the latter needles, each said stop member during the same period of time being movable into retaining engagement with the shoulder portions of such other of said particular needles as are in an inoperable position relative to said lock member.

No references cited.