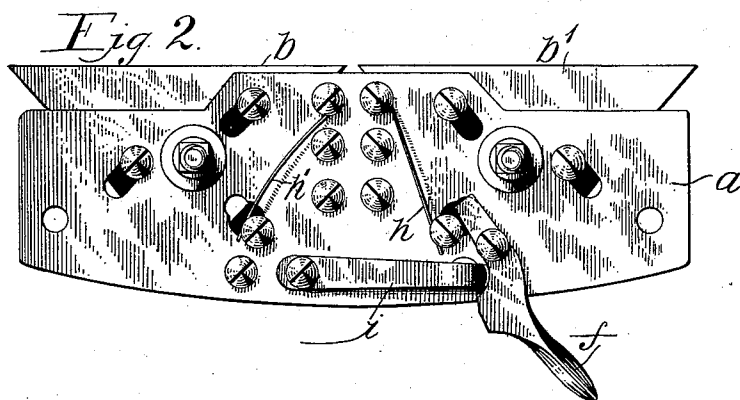
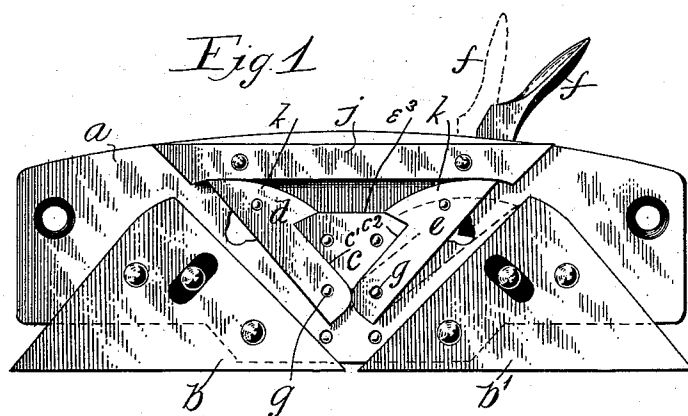


(No Model.)

J. W. RIST.
KNITTING MACHINE CAM MECHANISM.

No. 566,019.

Patented Aug. 18, 1896.



Witnesses
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JOEL W. RIST, OF CHICOPEE FALLS, MASSACHUSETTS.

KNITTING-MACHINE CAM MECHANISM.

SPECIFICATION forming part of Letters Patent No. 566,019, dated August 18, 1896.

Application filed November 5, 1895. Serial No. 568,028. (No model.)

To all whom it may concern:

Be it known that I, JOEL W. RIST, a citizen of the United States of America, residing at Chicopee Falls, in the county of Hampden and State of Massachusetts, have invented new and useful Improvements in Knitting-Machine Cam Mechanisms, of which the following is a specification, reference being had to the accompanying drawings, and letters of reference marked thereon, in which drawings, like letters of reference indicating like parts—

Figure 1 is a bottom view of the plate of a straight-knitting machine having my invention applied thereto, and Fig. 2 is a view of the same as seen from the opposite side.

My invention relates to that class of knitting-machine which is provided with a lock-plate to which are secured actuating-cams adapted to operate in the plane of the face of the plate and acting against the shanks of a series of needles to slide them up and down in the grooves. In this class of machine there is provided an alternative passage for the shanks of the needles, so that while the shanks of the needles will be operated upon by the wing-cams while the plate moves in both directions, if desired, the traverse will be changed if the shifting-lever be moved and the shanks be directed through another passage without engagement with the wing-cams. There are also provided spring-actuated latches, one of which normally closes the passage into the wing-cams while leaving the alternative passage open to the needle-shanks, while the other closes the latter passage while leaving the former freely open. Either latch can be moved aside by the needle-shanks in leaving the passage through which it has been traveling. The pivots of these latches by continued wear are apt to become loose.

It has therefore been one of the objects of my invention to so construct the latches and the parts sustaining the same that the relative position of said latch, when so situated as to actuate the needle-shanks, shall be invariable, notwithstanding any looseness of the pivots of the shanks, and that the strain of the pressure from the needle-shanks shall be removed from said pivots.

A further object has been to so conform the faces of the latches that when said latches are pushed aside by said needles and while the shank of each needle is leaving said latch, as aforesaid, the latch shall be held up by the needle-shanks succeeding the one leaving the latch, whereby the "snapping back" of the latch and consequent disagreeable clicking noise and wear attendant upon prior constructions of this class will be avoided.

In the drawings, *a* indicates the plate, upon which are fixedly secured the wing-cams *b* and *b'* and the first-elevation cam *j*. *d* and *e* are latches pivoted at *g* and actuated by springs *h h'*. *f* is a shifting-lever, which is arranged to actuate the latch *e* from a position closing the passage by the wing-cam, as shown in dotted lines in Fig. 1, to a position closing the passage along the first-elevation cam, as shown in full lines in the same figure. *i* is a bowed spring secured to the plate at one end, the other end passing under an arm of the lever *j* and resting on the plate so as to be compressed when the lever is vibrated, thereby holding the lever in position.

Thus far the description is equally applicable to devices in this class of machine existing prior to my invention.

I will now proceed to describe more particularly the features wherein my improvements reside.

c is an abutment-block fixedly secured to the plate *a*, having two edges *c'* *c''* opposite to the latches *d e* and wing-cams *b b'* and an edge *c'''* opposite to the first-elevation cam *j*. The inner side of each latch has an edge arranged to lie against the corresponding edges *c'* *c''* of the block *c*, an outstanding portion forming a reëntrant angle, and adapted to lie against the terminal portion of the edge *c'''*, and a heel *k* running from thence to the point of the latch.

By providing the abutment-block *c* for both latches engaging the corners of the block the result is attained that perfect rigidity and unmovability of the latch are insured when it is in the position shown in full lines in Fig. 1, notwithstanding any looseness which the latch may have on its pivot.

Without this construction or its equivalent it is apparent that looseness of the pivot will

give rise to a slight movement of the latch along the first-elevation cam when it is pressed upon at the side opposite to the wing-cam. My improved construction therefore removes
 5 this defect and provides a latch which shall be invariably and immovably in the desired position.

A further improvement consists in providing the heel *k* of either latch with a gradual
 10 curve whereby the inner portion, when the latch is closed, is drawn away from the cam *j*, so as to provide easy entrance for the needle-shanks into the terminal portion of the passage along the cam *j*, while the outer portion, when
 15 the latch is open, is substantially parallel to the end of the cam, the effect of which is that while the needle-shanks are passing out of the channel between the cam *j* and the heel *k* of the latch said latch is maintained at a uniform
 20 height by the succeeding shanks which are approaching the end of the passage. Thus I avoid the snapping back and clicking noise and the wear at the point of the latch which accompany existing devices of this general
 25 construction.

Having thus fully described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a knitting-machine cam mechanism,
 30 the combination with the lock-plate *a*, the wing-cams *b b'* mounted thereon, the first-elevation cam *j*, and the latches *d e* pivotally mounted on the plate, of the block *c* mounted on the plate between the latches having three

faces, opposite to said cams *j, b, b'* respectively, and serving as an abutment-block for both latches, said latches having each a re-entrant portion adapted to bear against both the lower face of the block *c* and the side face adjacent thereto, whereby, when pressure is
 40 applied to the outer edge of the latch, said latch will be held firmly in its closed position independently of its pivot, substantially as described.

2. In a knitting-machine cam mechanism, 45 the combination, with the lock-plate *a* the wing-cams *b b'* mounted thereon, the first-elevation cam *j*, and the latches *d e*, pivotally mounted on the plate, of the block *c* mounted on the plate between the latches, having three
 50 faces opposite to said cams *j, b, b'*, respectively, and serving as an abutment-block for both latches, said latches having heels *k*, the lower or outer portion of said heels being con-
 55 formed so as to be substantially parallel with the terminal portions of the cam *j*, so as to provide a channel of substantially uniform width at the ends, while the upper or inner
 60 portion of the heels is curved or directed away from said cam so as to facilitate the entrance of the needle-shanks into the ends of the channel from the middle thereof, substantially as described.

JOEL W. RIST.

Witnesses:

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