(No Model.)

W. AIKEN.

KNITTING MACHINE.

No. 279,902. Patented June 26, 1883.

Fig:1.

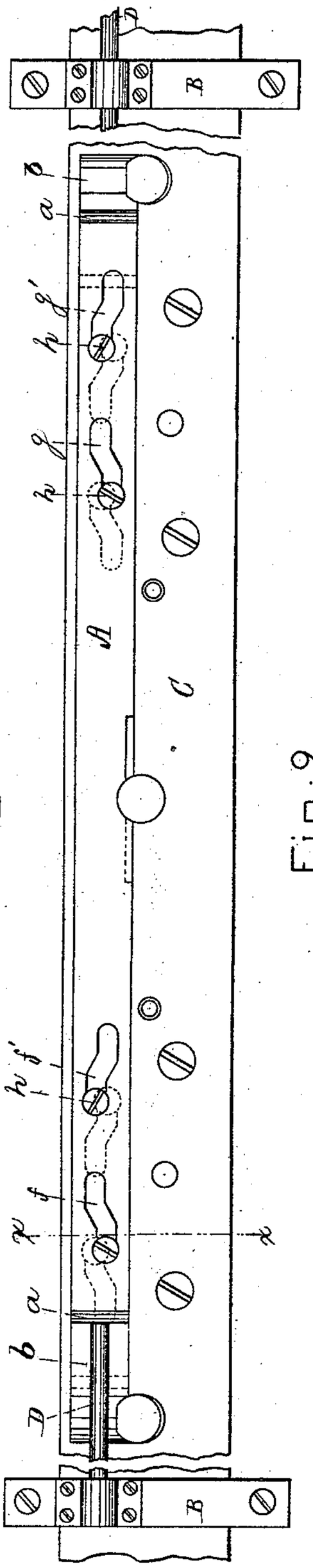


Fig:2.

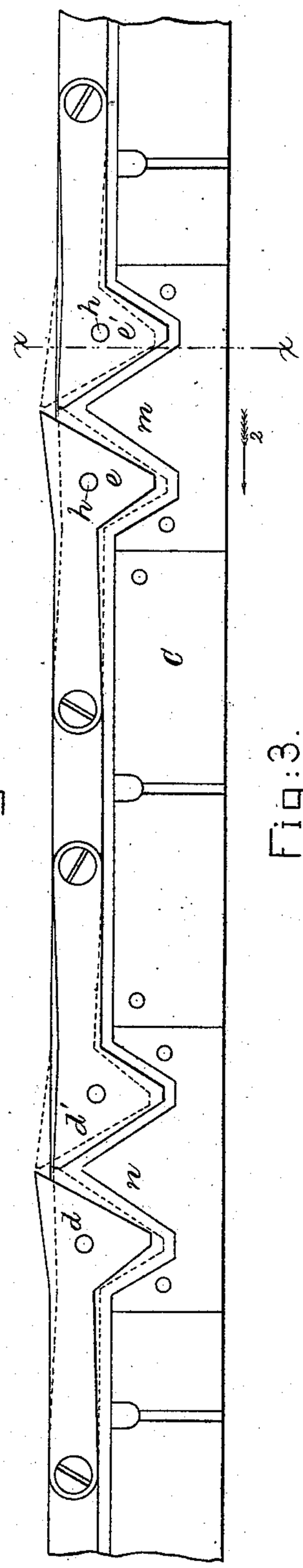
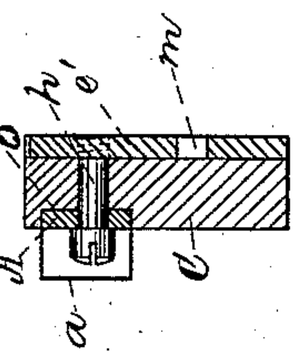


Fig:3.



Witnesses.

Arthur Reynolds.

Bernice L. Noyes.

Inventor.

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UNITED STATES PATENT OFFICE.

WALTER AIKEN, OF FRANKLIN, NEW HAMPSHIRE.

KNITTING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 279,902, dated June 26, 1883.

Application filed March 17, 1881. (No model.)

To all whom it may concern:

Be it known that I, WALTER AIKEN, of Franklin, county of Merrimac, State of New Hampshire, have invented a new and useful Improvement in Knitting-Machines, of which the following description, in connection with the accompanying drawings, is a specification.

This invention in knitting-machines is an improvement on that class of knitting-machine represented in United States Letters Patent No. 217,569, dated July 15, 1879, and No. 222,619, dated December 16, 1879, to which reference may be had.

The object of my present invention is to improve the construction of the cam-plate and the parts which actuate the cams thereon, whereby the machine is made more durable and simple, and this I have accomplished by embedding the cam shifting-bar into the upper side of the reciprocating cam-plate, as will be hereinafter described.

My invention consists in the reciprocating cam-plate and movable cams connected therewith, combined with a cam shifting-bar embedded or fitted to slide in a recess made in the top of the cam-plate.

Figure 1 represents in top view a sufficient portion of the knitting-machine, taken in connection with the patents referred to, to enable one conversant with knitting machinery to practice my invention. Fig. 2 is an under side view of the cam-plate and cam shown in Fig. 1, and Fig. 3 a cross-section on the line *x x*.

The cam-plate C is the same as that marked by the same letter in United States Patent No. 217,569, referred to, and will be reciprocated in the same way. The cap B, which holds the cam-plate down in the guide made for it in the side frames of the machine, is also shown in the said patent. The cap B, near each end of the cam-plate, will be provided with an adjustable stop, D, made as a rod, against the inner end of which the lugs, ears, or ends *a* of the shifting-bar A will strike a little before the cam-plate C reaches the ends of its stroke in each direction. The upper side of the cam-plate C is grooved or recessed at *b*, to receive and guide the cam shifting-bar A, which is fitted into the said recess, as shown in Figs. 1 and 3, so that the said shifting-bar is compelled to move accurately in a straight line, and, being let into the plate, may be easily oiled and kept oiled, and is fully guarded against displacement by reason of blows against its edges, and is also more thoroughly protected against the collection of dust and dirt under its edges.

The shifting-bar A, as herein shown, is adapted to operate two sets of movable cams, *d d' e e'*, they being so held or supported that one cam of each pair of cams may be moved alternately into its full and then into its dotted line position, as shown in Fig. 2, as that cam-plate arrives near the end of its stroke in one or the other direction, the said cams operating substantially as in the Patent No. 222,619, referred to, the rearmost cam of the pair, as the cam-plate is moved in one or the other direction, being thrown fully in, as shown, by cams *d' e'* in full lines, Fig. 2, when the cam-bar is being moved in the direction of the arrow 2, and vice versa. The innermost or rear cam is the one which by its action on the butts of the usual needles draws them back far enough to knit, one or the other of each of the two pair of cams drawing back the needles to knit, according to the direction of movement of the cam-plate.

The shifting-bar A is provided, as herein shown, with two cam-slots, *f f'* or *g g'*, for each pair of cams, the said slots receiving in them the shanks of the pins or screws *h*, secured to the said cams. When the bar A is shifted on the cam-plate, as described, by striking the stops, the cam-slots of the bar, being inclined in opposite directions, act on the said pins *h* and move one cam of each pair in and the other out.

I have herein shown two pairs of cams secured to one cam-plate, as the plate selected to illustrate my invention is adapted to operate two sets of needles, as in some machines made by me.

The heads of the screws *h* keep the bar A down in the recess *b*. The cams *m* move the needles out, as usual.

In Fig. 1 I have broken out the cam-plate

and stops to save room in the drawings. The inner end of the stop at the left is shown as acting against the shifting-bar.

I claim—

The cam-plate provided with the recess *b* in its upper side, combined with the slotted cam-shifting slide-bar fitted in said recess, and one or more pairs of cams, substantially as shown and described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

WALTER AIKEN.

Witnesses:
G. W. GREGORY,
ARTHUR REYNOLDS.