

No. 723,898.

PATENTED MAR. 31, 1903.

E. F. MOWER.
FAIR STITCH MACHINE.
APPLICATION FILED JULY 12, 1900.

NO MODEL.

3 SHEETS—SHEET 1.

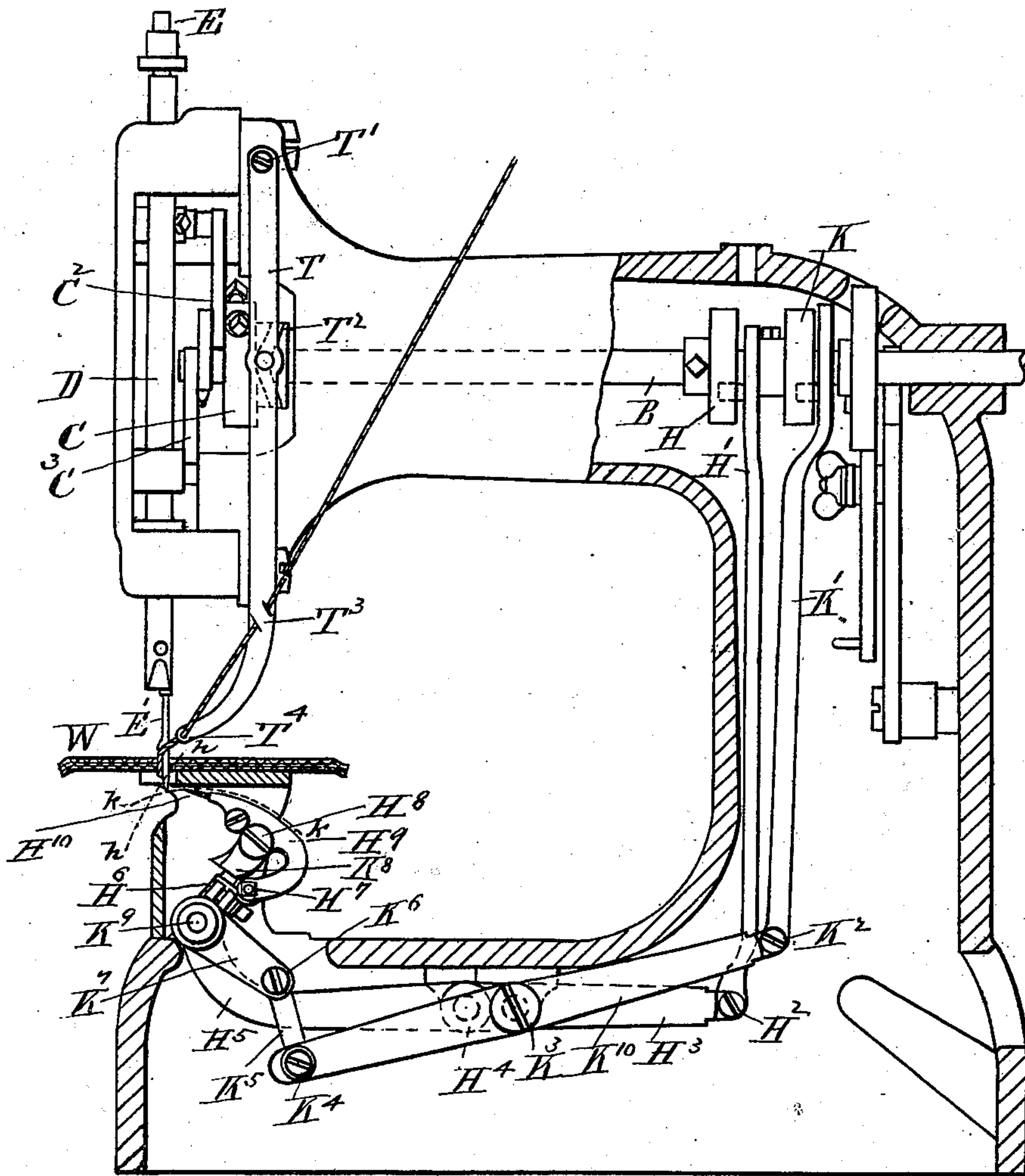


FIG. 1.

WITNESSES
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William Roden

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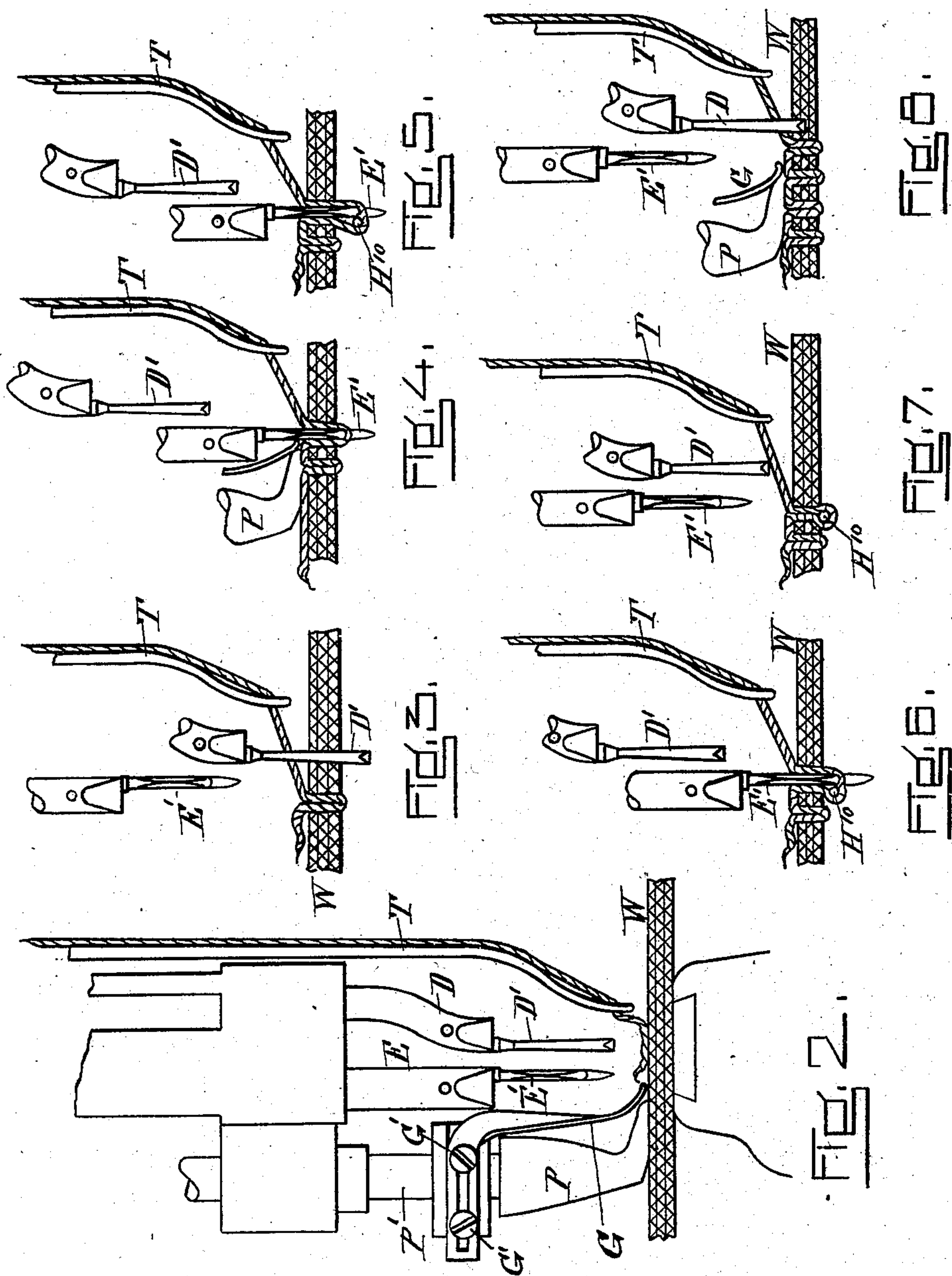
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3 SHEETS—SHEET 2.



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3 SHEETS—SHEET 3.

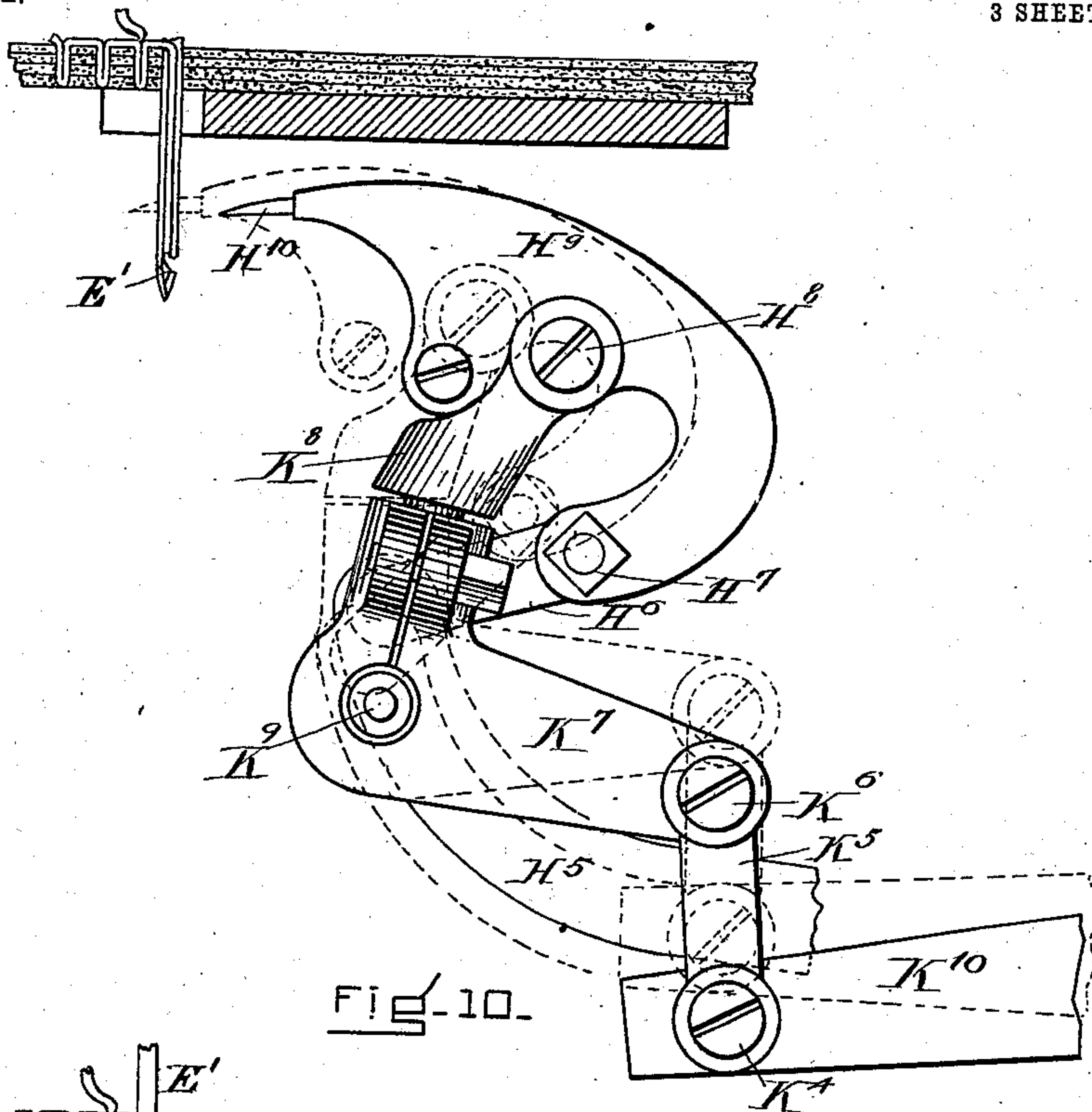


FIG. 10.

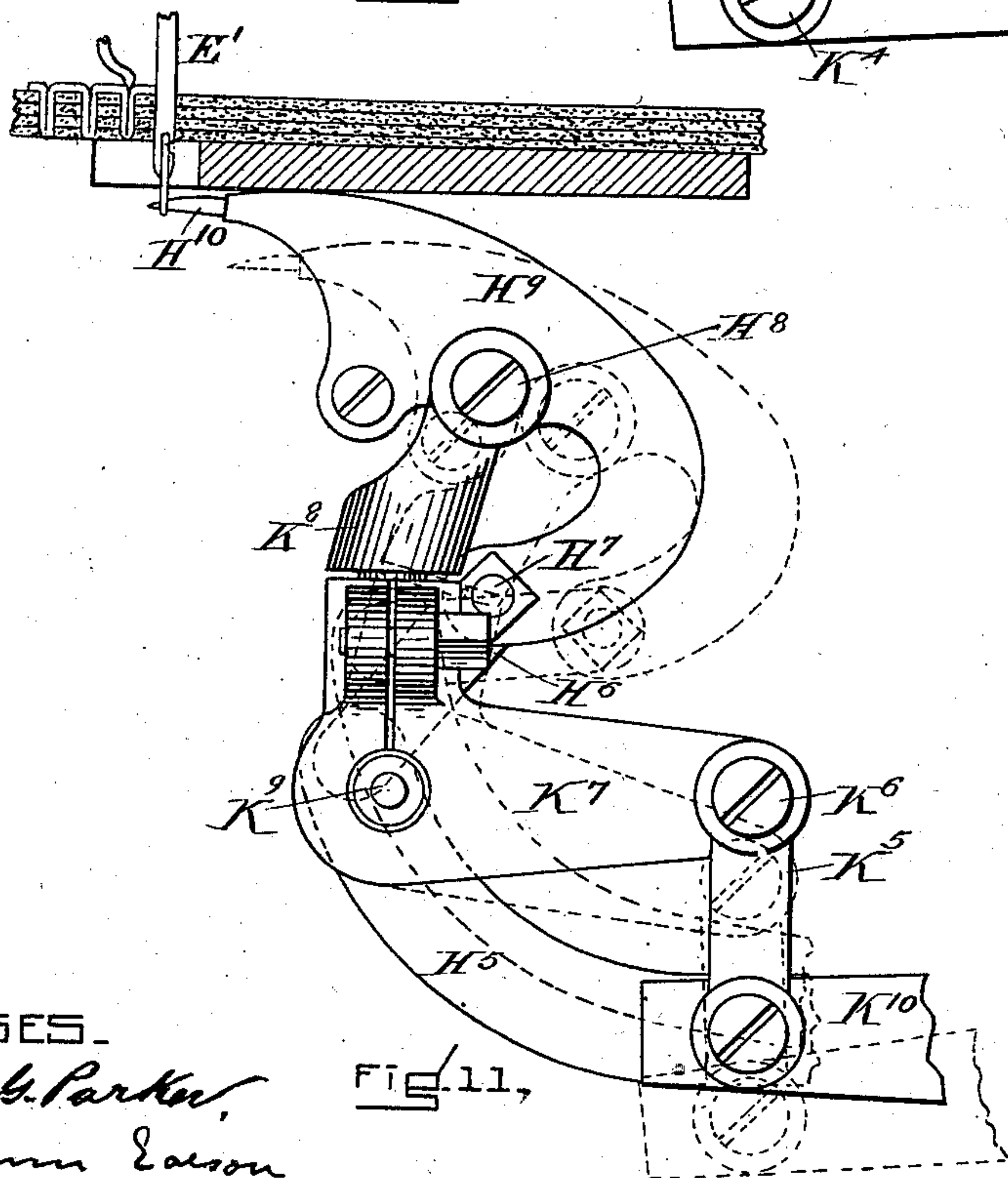


FIG. 11.

WITNESSES.

Frank B. Parker,
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INVENTOR.

Edwin L. Mower

UNITED STATES PATENT OFFICE.

EDWIN F. MOWER, OF BOSTON, MASSACHUSETTS.

FAIR-STITCH MACHINE.

SPECIFICATION forming part of Letters Patent No. 723,898, dated March 31, 1903.

Application filed July 12, 1900. Serial No. 23,355. (No model.)

To all whom it may concern:

Be it known that I, EDWIN F. MOWER, of Boston, in the county of Suffolk and State of Massachusetts, have invented a new and useful Improvement in Fair-Stitch Machines, of which the following, taken in connection with the accompanying drawings, is a specification.

My invention relates to a fair-stitch machine in which a reverse-hook needle and a thread-placer are used in connection with a four-motion loop-controller; and it consists in the arrangement and construction of those parts that are immediately engaged in forming the stitch, the object being to make a cheap, durable, and sure-working machine. This object I attain by the mechanism shown in the accompanying drawings, in which—

Figure 1 is a view, partly in side elevation and partly in section, showing only such parts as are necessary for understanding the working of the stitch-forming parts. Figs. 2 to 8, inclusive, illustrate the formation of the stitch. Fig. 9 is an elevation showing the needle used in this machine. To more clearly show its exact form, the drawing is twice the size of the original. Figs. 10 and 11 are side elevations of the loop-controller and its operating mechanism.

In this machine—that is, a machine in which a needle with a reversed hook is used, as shown in Fig. 9—a thread-carrier is required. I will now proceed to describe this thread-carrier. It consists of a swinging lever T, pivoted at T' and operated by cam-groove T². Near the lower end of this thread-carrier I have a guide, as shown at T³. At the extreme lower end of the thread-carrier a hole T⁴ is made for the thread to pass through. The action of the thread-carrier is simply to draw the thread across the front of the needle, so as to insure its engagement with the hook, so that every downward movement of the needle will carry a loop through the stock W into the field of action of the loop-controller H¹⁰. The needle and awl bars are driven by the disk C, Fig. 1, on the main shaft B. This disk C has two crank-pins mounted upon it in the usual manner of the double crank-pin disk. A pitman C³ connects one of the crank-pins to the awl-bar D, and the pitman C² connects the other crank-pin to the needle-

bar E. By the simple arrangement of two crank-pins diametrically opposite the same disk for operating the needle E' and awl D' the time of the movement of said needle and awl is always correct—that is, one goes up when the other is going down.

The loop-controller H¹⁰ has four motions—that is, a forth-and-back motion nearly horizontal in the direction of the dotted arc k k and an up-and-down motion nearly vertical in the direction of the dotted arc h h, Fig. 1. These motions are given to the loop-controller H¹⁰ by the eccentric H and cam K. (See Fig. 1.) The eccentric H works through the link H', pivot-pin H², lever H³ H⁵, which swings on the fulcrum H⁴, link H⁶, and pivot-joint H⁷, and loop-controller lever H⁹, which tilts on a moving fulcrum H⁸ and causes the loop-controller H¹⁰ to move toward or away in a vertical arc from the stock W or in the general direction of the dotted arc h h. The other motions—namely, the nearly horizontal ones—are imparted by the eccentric K working through the link K', pivot-pin K², lever K¹⁰, (having a fulcrum at K³), link K⁵, pivoted at K⁴ and K⁶, bell-crank lever K⁷ K⁸, having a fixed fulcrum at K⁹ and connected to the loop-controller lever H⁹ at H⁸. The motion thus communicated causes the loop-controller H¹⁰ to move nearly horizontally in the direction of the dotted arc k k.

In addition to the ordinary presser-foot P an additional laterally-adjustable stitch-holder G is used. It is attached to the presser-foot bar P' by screws G' G'.

The method of forming the stitch is illustrated in Figs. 2 to 8, inclusive. Figs. 2 and 3 show the starting positions. In Fig. 4 the thread is shown as carried by the needle E' just through the stock W. For convenience in describing the formation of the stitch, we assume that one has been formed as illustrated in Fig. 4. The needle continues in its downward motion until it has arrived at its lowest position and has just begun its upward movement. This will cause a loop to form, as shown in Fig. 5. Now the loop-controller H¹⁰ will take the loop and the needle will go upward, the loop-controller following but keeping the thread taut. (See Figs. 5 and 6.) A continued upward movement of the needle and of the loop-controller H¹⁰ will

bring the stitch to the condition shown in Fig. 7, the loop-retainer H¹⁰ being close up to the work. The loop-retainer is now withdrawn and the thread is drawn taut, as shown in 5 Fig. 8. The stitch-holder G serves to hold the previously-formed stitch in place.

I claim—

10 In a fair-stitch machine; an awl and a reversed-hook needle and means for operating them; a thread-carrier to hold the thread in position for engagement of the hook of the needle therewith, and mechanism for giving motion to said thread-carrier; a four-motion loop-controller to engage and hold the loop,

and to follow it keeping it taut, and to with- 15 draw from it, whereby the thread-carrier may draw the thread taut and thus complete the stitch; and means for operating the same; substantially as and for the purpose set forth. 20

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, on this 13th day of June, A. D. 1900.

EDWIN F. MOWER.

Witnesses:

FRANK G. PARKER,
HARRY C. CLAPP.