

(No Model.)

2 Sheets—Sheet 1.

S. M. LEVY.
KNITTING MACHINE.

No. 321,733.

Patented July 7, 1885.

Fig. 1.

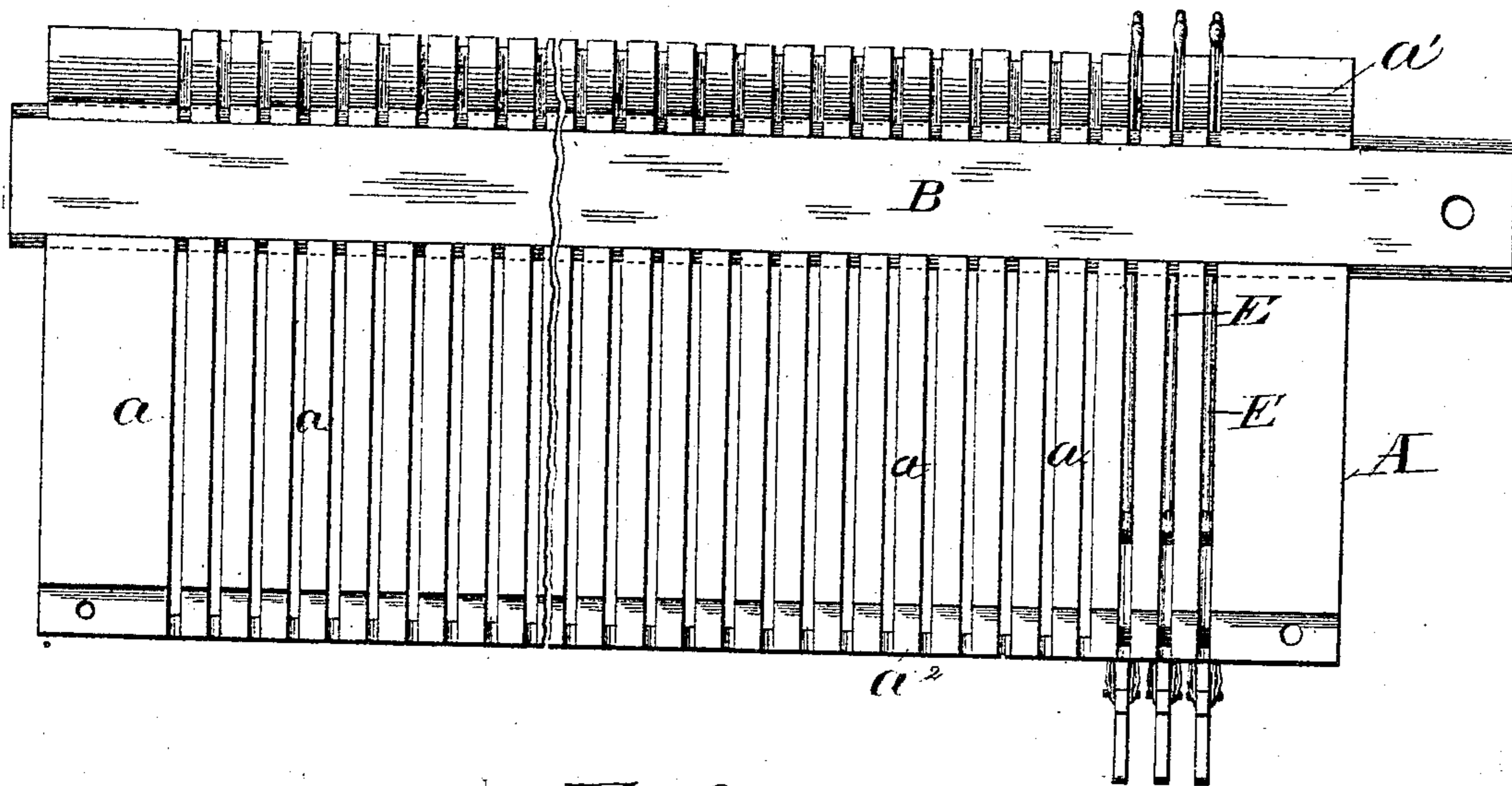


Fig. 2.

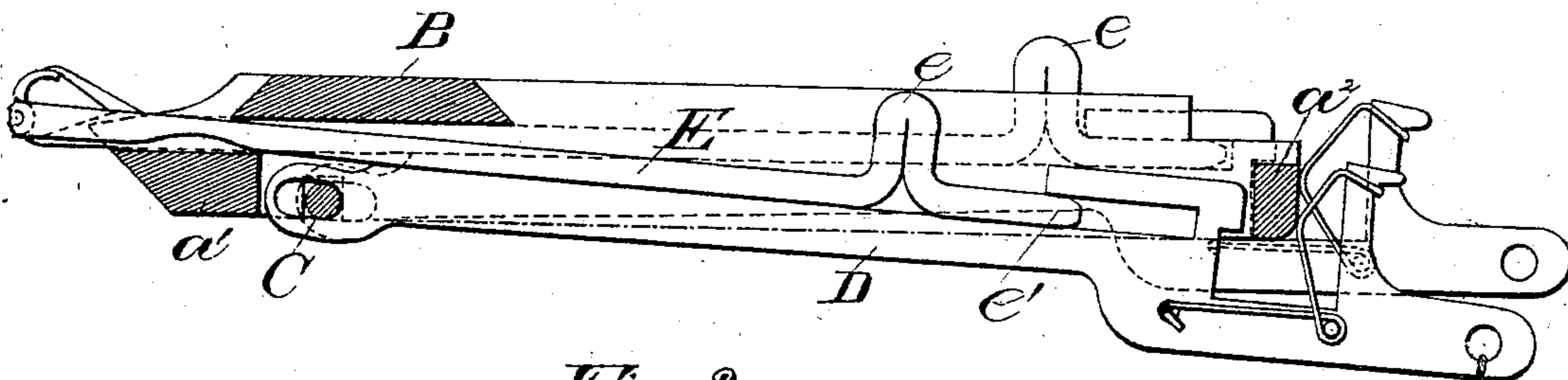
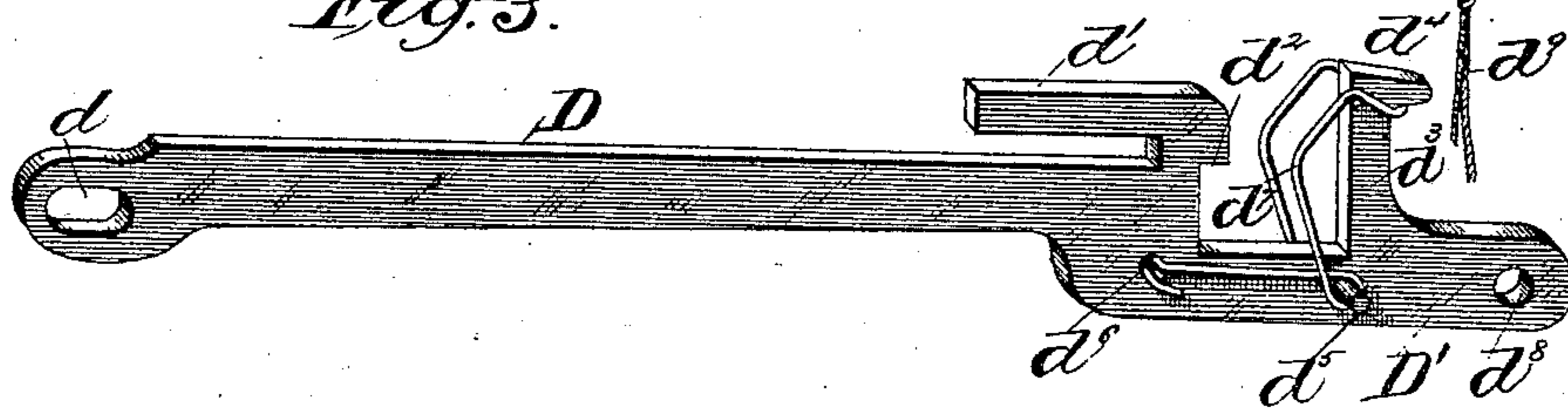


Fig. 3.



Witnesses:

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R. Platz

Inventor:

S. M. Levy

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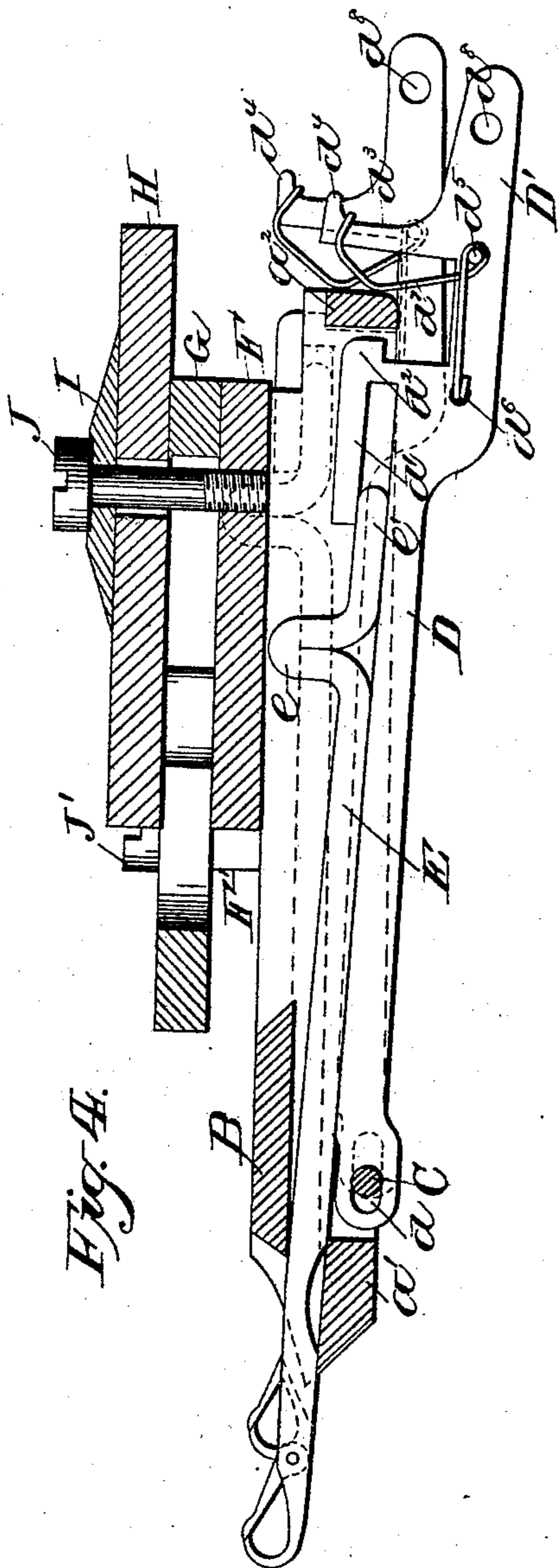
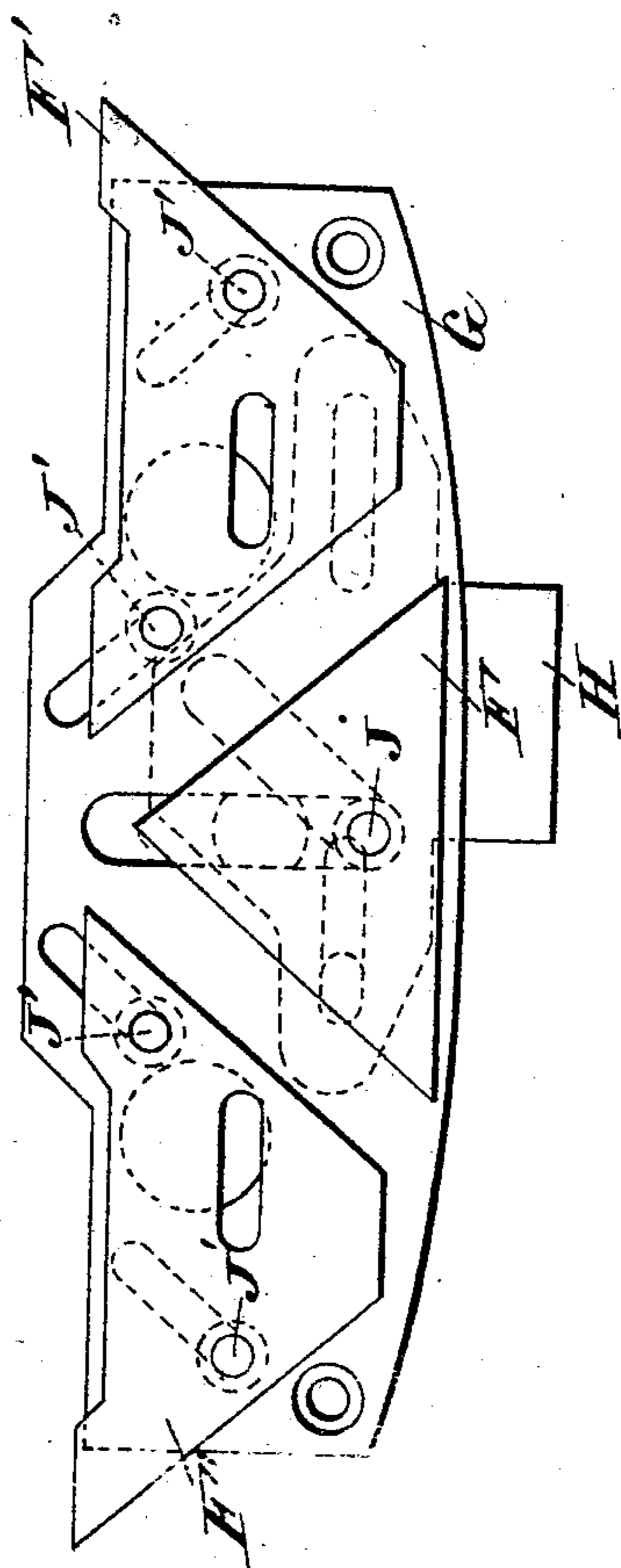


Fig. 4.

Fig. 5.



Witnesses:

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UNITED STATES PATENT OFFICE.

SALLY M. LEVY, OF MILWAUKEE, WISCONSIN.

KNITTING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 321,733, dated July 7, 1885.

Application filed March 3, 1884. (No model.)

To all whom it may concern:

Be it known that I, SALLY M. LEVY, of Milwaukee, in the county of Milwaukee, and in the State of Wisconsin, have invented certain new and useful Improvements in Knitting-Machines; and I do hereby declare that the following is a full, clear, and exact description thereof.

My invention relates to knitting-machines; and it consists in certain peculiarities of construction, as will be fully set forth hereinafter, and particularly pointed out in the claims.

In the drawings, Figure 1 is a plan view of the needle-bed. Fig. 2 is a transverse vertical section of the said bed, showing two needles in different positions, and the front end of one needle broken away. Fig. 3 is a perspective view of one of the needle-shifters. Fig. 4 is a transverse vertical section of the needle-bed and cams, showing two shifters with their needles in different positions; and Fig. 5 is an under side plan view of the needle-operating cams.

A is a needle-bed adapted for use in a "straight" machine, such as the well-known "Lamb knitting-machine," patented September 15, 1863, and October 10, 1865. The needle-bed A is provided with grooves a , which extend entirely through the bed from top to bottom, leaving only a small part of the bed solid and continuous at each side, as at a' and a'' , forming, practically, a series of transverse slots through the length of the said needle-bed.

B is the ordinary longitudinal gib, with beveled edges, adapted to be slid to place within a longitudinal bevel-edged groove above the needles to retain them in the bed, and under this gib, within a longitudinal groove in the lower surface of the bed, is located the rod C, on which are hinged the forward ends of the needle-shifters D, to be hereinafter more particularly described.

E E are the needles, of the shape shown in the drawings, with the upward-projecting heels e for engagement with the needle-operating cams of the machine in the ordinary manner, but beyond these heels the needle is continued into a foot, e' , for engagement with the rear part of the needle-shifters, D. At their forward ends these shifters have the oval slot d through which the before-named

rod C is passed, and toward the rear end of each shifter, from the top thereof, there rises the arm d' , which projects forward over the foot e' of the corresponding needle, and which has also a rear-extending catch, d'' , which normally fits over the upper inner edge of the continuous part a'' of the needle-bed. The arm d' prevents the needles E from rising at their rear ends when the loops are on their hooks, (and especially when weights are attached to said loops,) inasmuch as the feet e' of the needles are securely held under the said arms d' . From a point just under the arm d' the shifter D extends down and back on a lower horizontal plane, and from about midway of this part D' of the shifter D there rises a projection, d^3 , with straight front edge, and a rear-extending hook, d^4 , at the top. Under this projection there is a pin, d^5 , extending horizontally through the part D', and under the arm d' there is a hole, d^6 , and the ends of a wire spring, d^7 , bent as shown, are secured in this hole, and thence the spring passes back on one side of the part D' to the pin d^5 , and around it, and thence up in a curved line and around the projection d^3 , under its hook d^4 , as shown, and so back again on the other side of the part D' to the hole d^6 . In the extreme rear end of each needle-shifter D is a hole, d^8 , in which may be tied a knot of yarn or thread, d^9 , for an indicator, as hereinafter explained.

In Figs. 4 and 5 I show the needle-operating cams and their attachments, which, briefly described, are as follows: F is the V-cam. F' F' are the right and left wing-cams. G is the lock-plate. H is the slide-plate. I is the slide-plate washer. J is the V-cam screw, and J' J' J' J' are the wing-cam screws. These parts are all of the ordinary and well-known construction shown, and perform merely their usual functions common to all machines of this class.

Straight-knitting machines of the before-named "Lamb" pattern are so well known that I do not deem it necessary to illustrate my device further, it being understood that the carriage, frame, jacks, &c., (not shown,) are of the ordinary construction and operation, there being, of course, two needle-beds arranged at an angle with the hooks of the needles facing each other, and with the jacks in

front of each row of needles and nearer together than the adjacent edges of the two needle-beds.

The operation of my device will be apparent to those skilled in the art from the foregoing description of its construction.

If I desire to withdraw any needle or any number of needles from the action of the needle-operating cams, it is only necessary to press the corresponding needle shifter or shifters, D, forward slightly against the force of the spring d^1 , and then, as the catch d^2 will be pushed forward beyond the vertical inner line of the part a^2 of the needle-bed, a slight downward pressure will serve to depress the shifter, and, by reason of its arm d^1 above the foot e' of the needle, to draw down the latter with it so that the heel e of the needle will be below the upper surface of the needle-bed beyond the possibility of action thereon by the cams, while at the same time the hook of the needle whose heel is thus depressed will retain the yarn upon it ready for operation the moment the needle-shifter and needle are pushed up to place again, and the spring d^1 will securely hold the shifter down as long as desired without the possibility of working loose, and hence avoid the danger of accidentally breaking a needle; and the said spring materially assists in the action of bringing the needle back to place, and then, in conjunction with the catch d^2 , helps to keep the shifter and needle in working position.

In order to avoid the necessity of counting the number of needles at any time, as in narrowing and widening or setting up work, &c., I fasten little knots d^3 of yarn or thread (which may be of different colors) in certain of the holes d^3 of the shifters D, or I may use wires or any indicator-marks desired, and this will do away with any need of a numbering-plate on the needle-bed, and yet accomplish the desired result. The shifters D should, preferably (though not necessarily) be of the same width as the needles.

My device will be found especially useful in knitting the fingers of gloves, the thumbs on mittens, and making a finished stocking-heel, or wherever it is desirable to retain the stitches upon a portion of the needles while they are not in operation.

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

1. A solid and continuous needle-bed having the slots a , in combination with needle-operating cams, and with shifters D, provided with arms d^1 , rear-extending catches d^2 , and lower rear-extending parts, D', having vertical projections d^3 , hooks d^4 , pins d^5 , holes d^6 , and wire springs d^7 on each side of the parts D' d^3 , through the holes and around the pins named, and the needles E $e e'$, substantially as set forth.

2. The combination of the needle-bed A, solid and continuous at each end and at each side, a' and a^2 , provided between said sides and ends with transverse slots or grooves $a a$, extending entirely through the bed from top to bottom, and having a longitudinal bevel-edged groove in its upper surface with the bevel-edged gib B, and rod C, located in a longitudinal groove in the lower surface of the bed beneath the gib, the needle-shifters D, having oval slots in their front ends, whereby they are hinged to said rod C, and the needles E, supported on said shifters, substantially as set forth.

3. The combination of the needle-bed A, solid and continuous, as described, and having the transverse slots $a a$, gib B, rod C, needles E, having heels e and feet e' , and shifters D, having oval slots d at one end, and arms d^1 at the other end, by means of which arms the feet e' of the needles are kept from rising when their hooks carry loops, substantially as set forth.

4. The combination of the solid and continuous needle-bed A, provided with the transverse slots $a a$, the gib B, rod C, needles E $e e'$ and the shifters D, having oval slots d at one end and at the other end the arms d^1 , with rearwardly-extending catches d^2 , and the lower rear-extending parts, D', having vertical projections d^3 , hooks d^4 , pins d^5 , holes d^6 , and wire springs d^7 , extending on each side of the parts D' d^3 from the said holes d^6 and around the said pins d^5 , all arranged and adapted to operate substantially as set forth.

In testimony that I claim the foregoing I have hereunto set my hand, at Milwaukee, in the county of Milwaukee and State of Wisconsin, in the presence of two witnesses.

SALLY M. LEVY.

Witnesses:

S. S. STOUT,

H. G. UNDERWOOD.