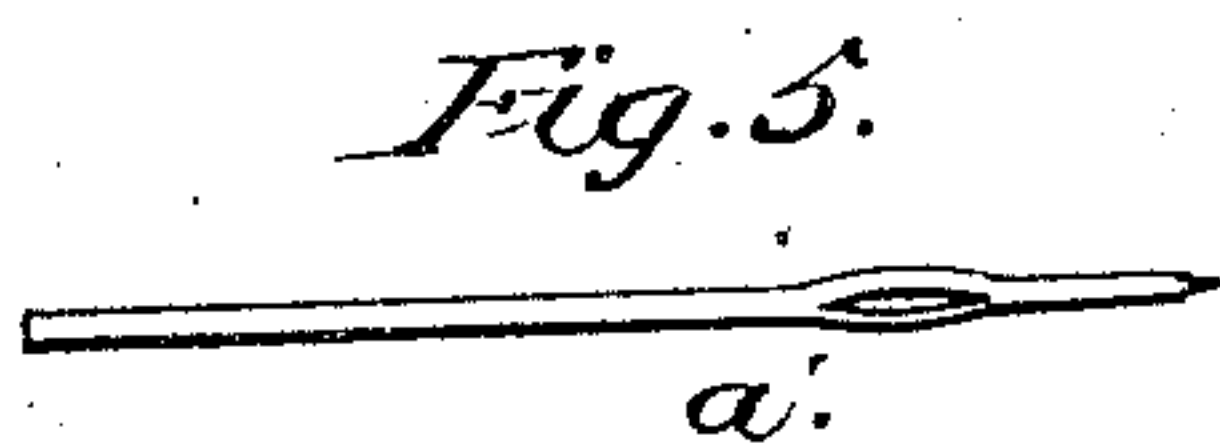
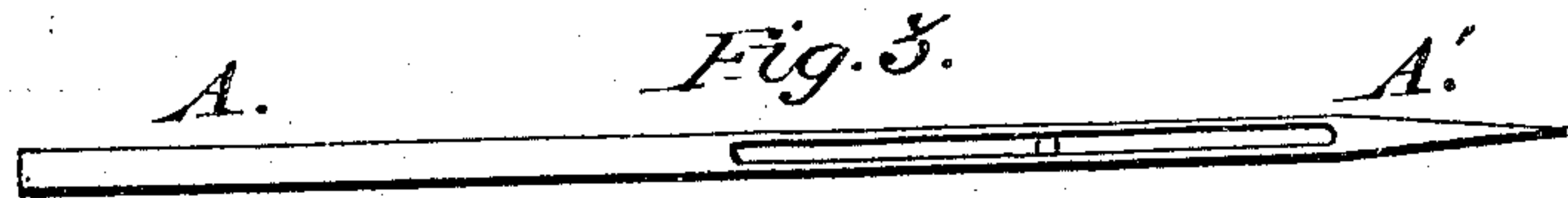
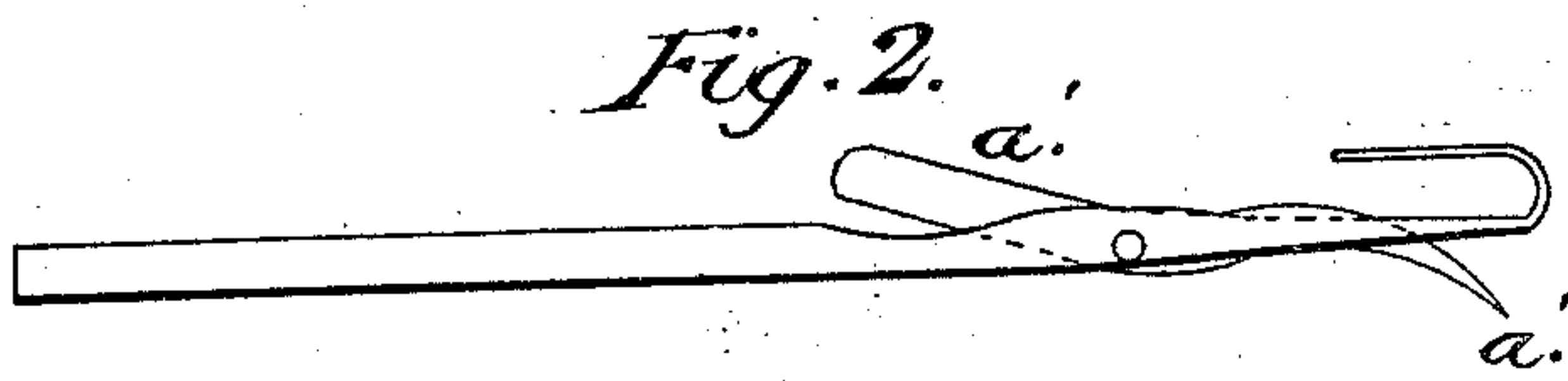
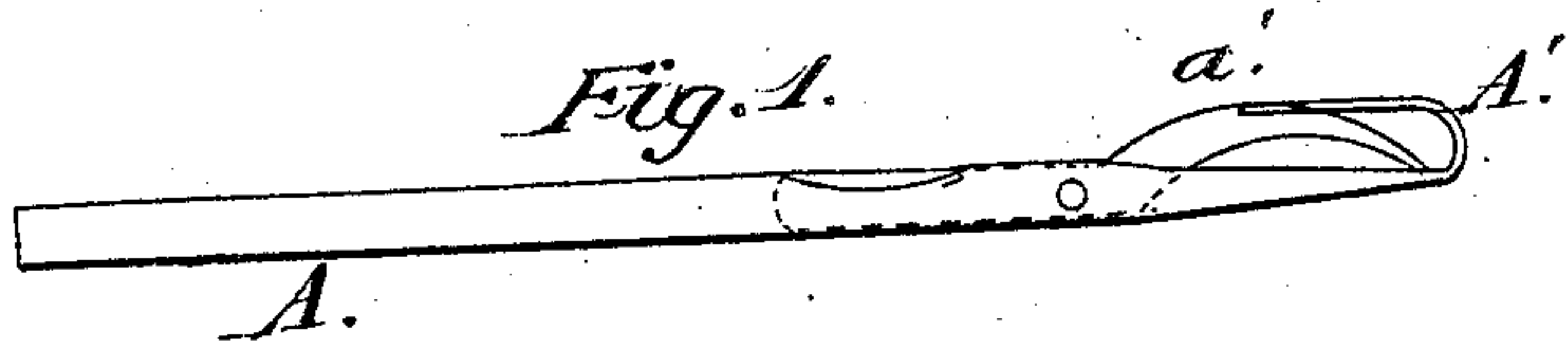


I. W. Lamb,

Knitting Mach. Needle

No. 51,115.

Patented Nov. 21. 1865.



Attest:
N. Melcher
W. C. Kingsley

Inventor:
Isaac W. Lamb.

UNITED STATES PATENT OFFICE.

ISAAC W. LAMB, OF ROCHESTER, NEW YORK, ASSIGNOR TO HIMSELF AND ALVAH STRONG, OF SAME PLACE.

IMPROVEMENT IN KNITTING-MACHINE NEEDLES.

Specification forming part of Letters Patent No. **51,115**, dated November 21, 1865.

To all whom it may concern:

Be it known that I, ISAAC W. LAMB, of Rochester, in the county of Monroe and State of New York, have invented a new and useful Improvement in Knitting-Machine Needles; and I hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which the parts are represented in an enlarged form.

Figure 1 is a side view of one of my improved needles, showing the caster in position to throw off the loop. Fig. 2 is a view of the same with the caster in position to allow the hook to receive new yarn. Fig. 3 is a top view of the body of the needle before the hook is bent or formed thereon, showing the position of the slot in which the caster is secured. Fig. 4 is a side view of the caster, showing the form of the same. Fig. 5 is a top view of the caster, showing the indent for the point of the hook.

Similar letters of reference indicate corresponding parts.

This invention consists of an improved form of the parts of a knitting-machine needle, by which simplicity and effectiveness are combined in a profitable manner. One portion of it relates to the manner of attaching a caster or latch to a needle, by means of which compactness is given to the whole and protection to the caster. Another relates to the peculiar construction and combination of the parts, whereby the needle may be operated by a device that will close the hook at a given point in the backward movement of the needle, and will permit the old loop to open the hook at or near the same point as the needle makes its forward movement, thereby permitting the caster to be operated by simply being drawn under the plate that confines the needle in its groove, the front edge of such plate being beveled sufficiently to cause the rear end of the caster to pass under the same. The caster may also be operated by any other suitable device. Another relates to the construction of the hook of the needle when combined with the caster, so that the hook will yield if the caster is raised farther than necessary, there-

by preventing any severe strain upon the caster and permitting of an easy adjustment of the device that operates the caster.

A A' represent a flexible hooked or barbed needle. Near the front end is a slot cut entirely through it, extending from the point where the needle begins to bend in forming the hook backward a distance equal to or greater than the length of the caster *a'*. A latch or caster made in the form shown in Fig. 4 is hung on a pin or rivet within such slot. The front portion of the caster is curved, having its highest point about half-way from the rivet to the front point, and a small indent is made in the upper side of the caster to receive the point of the hook of the needle. The curvature is such that when the highest part of the caster presses against the point of the hook the extreme point of the caster will be within the slot of the needle, near the front end of such slot. By having the caster swing as in this case, and at the same time having that portion of the caster which is in front of the rivet curved, as herein described, I am enabled to operate the caster with a more simple device than is required by any needle known to me, excepting the needle of Mr. Hibbert, commonly known as the "self-acting needle," and, while my improved needle is not strictly self-acting, it becomes almost practically so, because any sliding needle must have a plate or its equivalent placed over it to retain it in its groove. This is required of Mr. Hibbert's needle; and all that it is necessary to change in a knitting-machine employing a sliding needle with a self-acting latch in order to adapt it to my needle is simply this: The plate that lies on top of the needles to retain them in their grooves must have the under side of its forward edge beveled off, so that, as the needle is drawn back after receiving the yarn in its hook, the rear end of the caster will strike against the beveled edge of such plate, and as the needle is drawn still farther back the beveled surface of the plate will cause the rear end of the caster to drop down within the groove or slot in the needle, and will consequently cause the forward part of the caster to rise up against the point of the hook of the needle, and thus cast off the loop. The hook of the needle will, of course, be and remain

closed so long as the rear end of the caster is held down by the plate under which it was drawn. The result is that the forward point of the caster will be covered in the slot of the needle until the needle has been moved forward far enough to release the rear end of the caster, which should occur when about one-half of the forward movement of the needle has been effected, by which time the old loop will have passed over the front point of the caster, and as the needle continues to move forward the old loop will cause the forward part of the caster to drop down, as shown in Fig. 2, when the hook will be open to receive new yarn.

It will be seen, therefore, that for all practical purposes this needle may be called a "self-acting" needle, or, in other language, a machine fitted to operate a self-acting needle will require no additional parts or attachments before it will operate this needle, it being only necessary to make a slight alteration or modification of the form of one single part of such machine, when this needle may be used with perfect success, while such alteration would not prevent a subsequent use of the self-acting needle in the same machine. Indeed, these needles and the self-acting needles could be used indiscriminately in the same machine at the same time with success. Nor are these the only merits of my needle, for even the self-acting needle is inferior to it in one very important particular, namely: To use the self-acting needle successfully it is necessary to have a latch-opener to insure the opening of the latch before the yarn is passed over the needle, and such latch-opener must be very carefully adjusted and securely fastened in place, or it will be liable to break the needle, while in the use of my needle nothing of the kind is required. I make the hook or barb of the needle slightly flexible, so that in case there should be any variation in the grooves in a knitting-machine in which my needles are used, and some should be slightly deeper than others, or should there be a slight variation in the needles, yet, by so arranging the device that presses down the

rear ends of the casters that all of the hooks of the needles would be closed, the hooks could yield slightly in the cases where the forward part of the casters should rise up higher than needed, and thus I prevent any undue strain upon such casters as may chance to rise a little farther than is required.

I have described somewhat at length one way in which this needle may be readily operated in order that its merits may be clearly understood; but the manner in which the operation of the needle is effected will not be confined to the one described, but I design to adopt any other device for operating the caster that may in any particular machine be found most convenient and profitable.

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

1. A latch or caster swinging within a slot in a knitting-machine needle, and having no longitudinal movement on its pin when the extreme front point of such caster is always either within or under the slot in the needle, substantially as and for the purpose herein described.

2. The combination of a hooked needle with a hinged caster in such a manner that the point of the caster will be covered in the slot of the needle at the same time that the point of the hook is covered by the caster, substantially as and for the purpose herein set forth.

3. In combination with a hinged caster that covers the point of the hook by rising up against the under side of the same, making such hook flexible, for the purpose herein explained.

4. Extending the rear end of a hinged caster back of its pin, so as to permit of applying a suitable device back of such pin to operate the caster, when such hinged caster is combined with a hooked needle in the manner specified in clause second of this claim.

ISAAC W. LAMB.

Witnesses:

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A. C. KINGSLEY.