J. McCLOSKEY.

ROTARY-HOOK SEWING-MACHINE.

No. 181,531. Patented Aug. 29, 1876.

Fig. 1

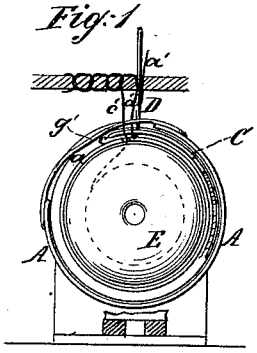


Fig. 2

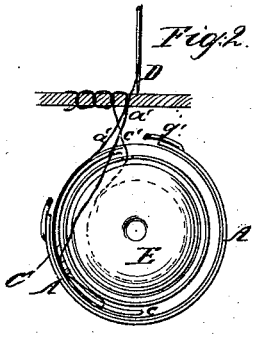


Fig. 3

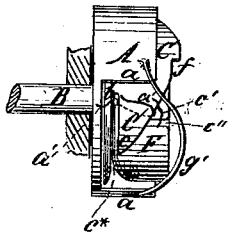


Fig. 4

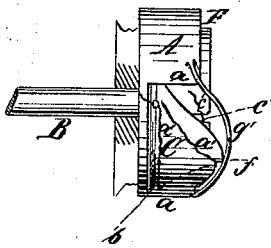


Fig. 5

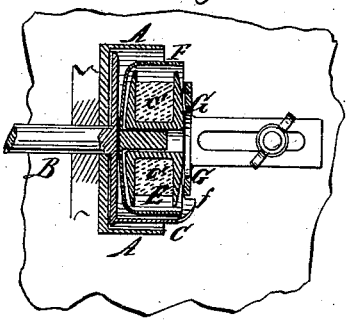
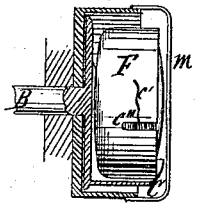


Fig. 6



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UNITED STATES PATENT OFFICE.

JOHN McCLOSKEY, OF NEW YORK, N. Y.

IMPROVEMENT IN ROTARY-HOOK SEWING-MACHINES.

Specification forming part of Letters Patent No. **181,531**, dated August 29, 1876; application filed January 25, 1876.

To all whom it may concern:

Be it known that I, JOHN MCCLOSKEY, of the city, county, and State of New York, have invented certain Improvements in Rotary-Hook Sewing-Machines, of which the following is a specification:

This invention consists in a novel combination of a hook with a bobbin and an independent bobbin-frame, whereby the construction of the hook itself is materially simplified, and whereby the hook is enabled to rotate independent of the bobbin.

The invention further comprises the combination, with the bobbin, of a hook of peculiar construction, whereby the back of the needle-loop is carried behind the bobbin, and the front of the said loop in front of the bobbin, throughout an entire revolution of the hook, in such manner as to form such loop complete without twisting the thread, and without the help of the usual cast-off.

The invention further comprises a novel combination of a fixed guide, with the bobbin and the hook, whereby the slipping of the needle-loop from the bobbin, during the formation thereof, as just described, is prevented.

Figures 1 and 2 are front or face views of my said improvement, showing the parts in the positions occupied at two different stages in the formation of the needle-loop. Figs. 3 and 4 are side views of the same; also, indicating two different positions of the parts; and Fig. 5 is a central longitudinal sectional view of the same; and Fig. 6 is a similar view, showing a modification of the same.

A is a bobbin-frame fixed to a suitable support on the frame of the sewing-machine to which my said invention is applied. This bobbin-frame is of circular form, and at the upper side has an opening, *a*, the purpose of which will herein presently appear. This bobbin-frame is nearly or quite concentric with the shaft B of the rotary hook C, the latter being, when in operation, rotated within the bobbin-frame A aforesaid. The hook C is formed at one lateral edge of a disk, *b*, by which it is attached to the shaft B, the circumferential contour of the hook being, as it were, on the arc of a circle concentric with the bobbin-frame, and with its own axis of rotation. The beak *c* of the hook is at the back thereof, the front edge of said beak sloping forward or outward to the front of the hook, where it terminates in a shoulder, *f*. E is the bobbin, axially pivoted within the usual shell F, the thread *c'*, from the bobbin, passing out in the usual way (or in any suitable manner) through a transverse slit, *c''*, or other opening in the shell. The bobbin, and its shell, are kept to their places within the bobbin-frame by the ring-slide G bearing lightly against the front or face of the bobbin, as represented in Fig. 5. In lieu of the ring-slide, however, a clamp or bar may be attached to the front of the fixed bobbin-frame, and, extending across in front of the bobbin, serve to keep the same in position, as indicated at *m* in Fig. 6.

The needle D of the sewing-machine is arranged in the same relation to the hook as is the case with the ordinary types of rotating hook, and hence requires no specific description here. When the needle descends to form the needle-loop *a'*, the latter is caught in the usual manner by the beak *c* of the hook; but the continued movement of the latter causes the back part of the loop to pass into the deep notch *c** behind the beak *c*, while the sloping front of the beak widens the loop until the front part thereof catches upon the shoulder *f*, whereupon the continued rotation of the hook carries the loop quite around the bobbin, to form, in connection with the bobbin-thread *c'*, the requisite lock-stitch.

It will be observed that in this manipulation of the loop *a'* the back *c* serves to carry the part of the loop behind the bobbin, while the shoulder *f* serves to carry the front part of the loop in front of the bobbin, the loop being thus formed complete without twisting the needle-thead from or of which it is formed, and the loop being thrown off from the hook by the completion of the revolution of the said hook no "cast-off," so termed, is required for the completion of the stitch.

It will be observed that the opening *a*, in the upper part of the bobbin-frame A, permits the passage of the needle D downward into the required relation with the hook C, and also the requisite passage of the needle-loop *a'* to and around the bobbin, as just herein set forth. Bounding this opening *a*, at the front of the bobbin-frame, is a guide, *g'*, the

form and position of which are more clearly represented in Figs. 3 and 4. This may consist of a piece of wire soldered at each end at the opposite front corners *a* of said opening, and it serves the purpose of keeping the front part of the loop from drooping too far forward to catch upon the shoulder *f*, which, if no provision were made against it, would be likely to cause the loop to prematurely slip from the bobbin and thus prevent the formation of the stitch.

It is to be observed that, as the hook C is not, like the ordinary rotating hook, required to set or hold the bobbin, its construction is much more simple, and that it is capable of a movement independent of the bobbin, the operation of the hook being to form the needle-loop requisite in the formation of a lock-stitch by simply carrying the needle-loop quite around the bobbin without hoisting the same, as ordinarily done in rotating-hook machines.

What I claim as my invention is—

1. The combination of the rotating hook C, the fixed bobbin-frame A, and the bobbin E, provided in the bobbin-frame and supported independent of the hook, substantially as and for the purpose herein set forth.

2. The hook C constructed with the shoulder *f* at its front, and the notch *c** behind its beak *c*, in combination with the bobbin E, substantially as and for the purpose herein set forth.

3. The fixed guide *g'*, in combination with the bobbin E and the hook C, constructed with the shoulder *f*, substantially as and for the purpose herein set forth.

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