

(Model.)

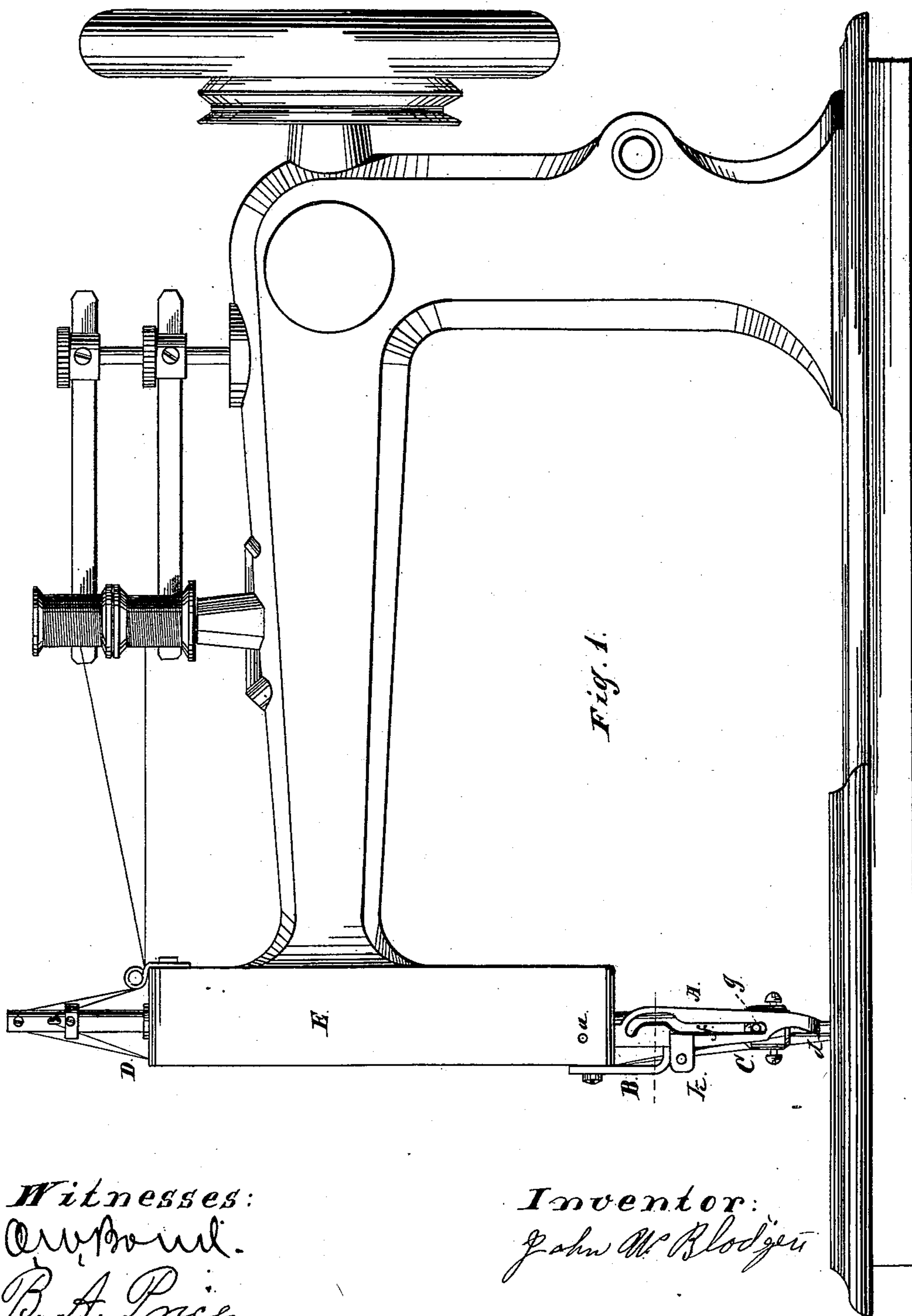
2 Sheets—Sheet 1.

J. W. BLODGETT.

LOOP AND LOCK STITCH SEWING MACHINE.

No. 250,705.

Patented Dec. 13, 1881.



Witnesses:
Amos
B. A. Price

Inventor:
John W. Blodgett

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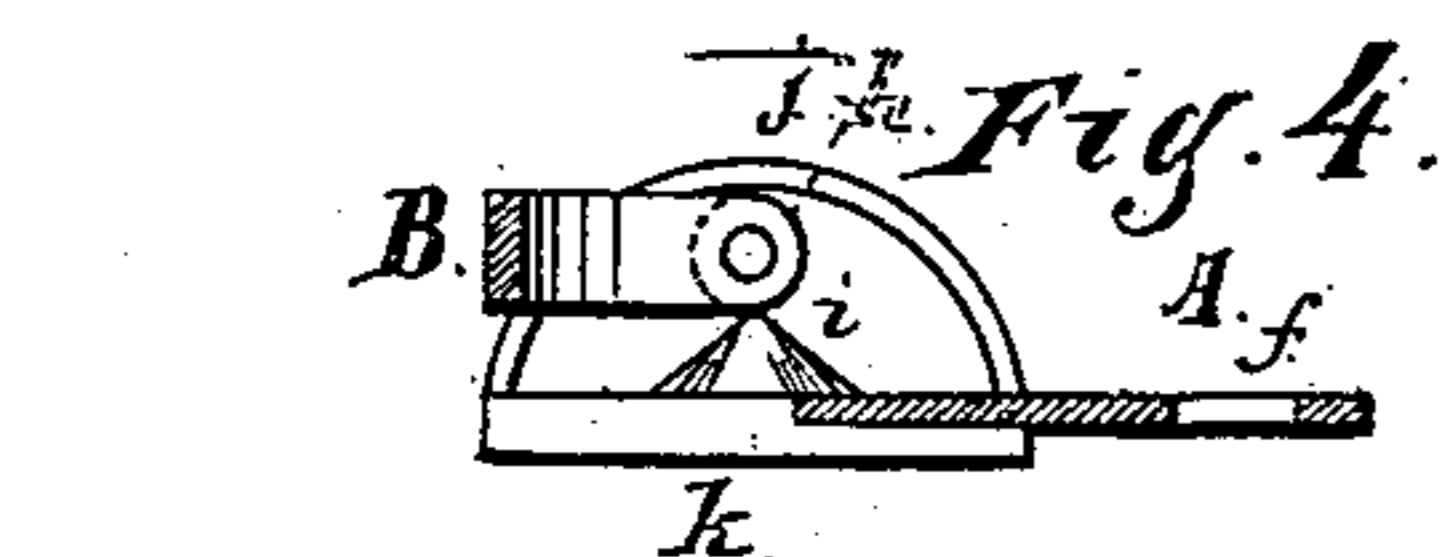
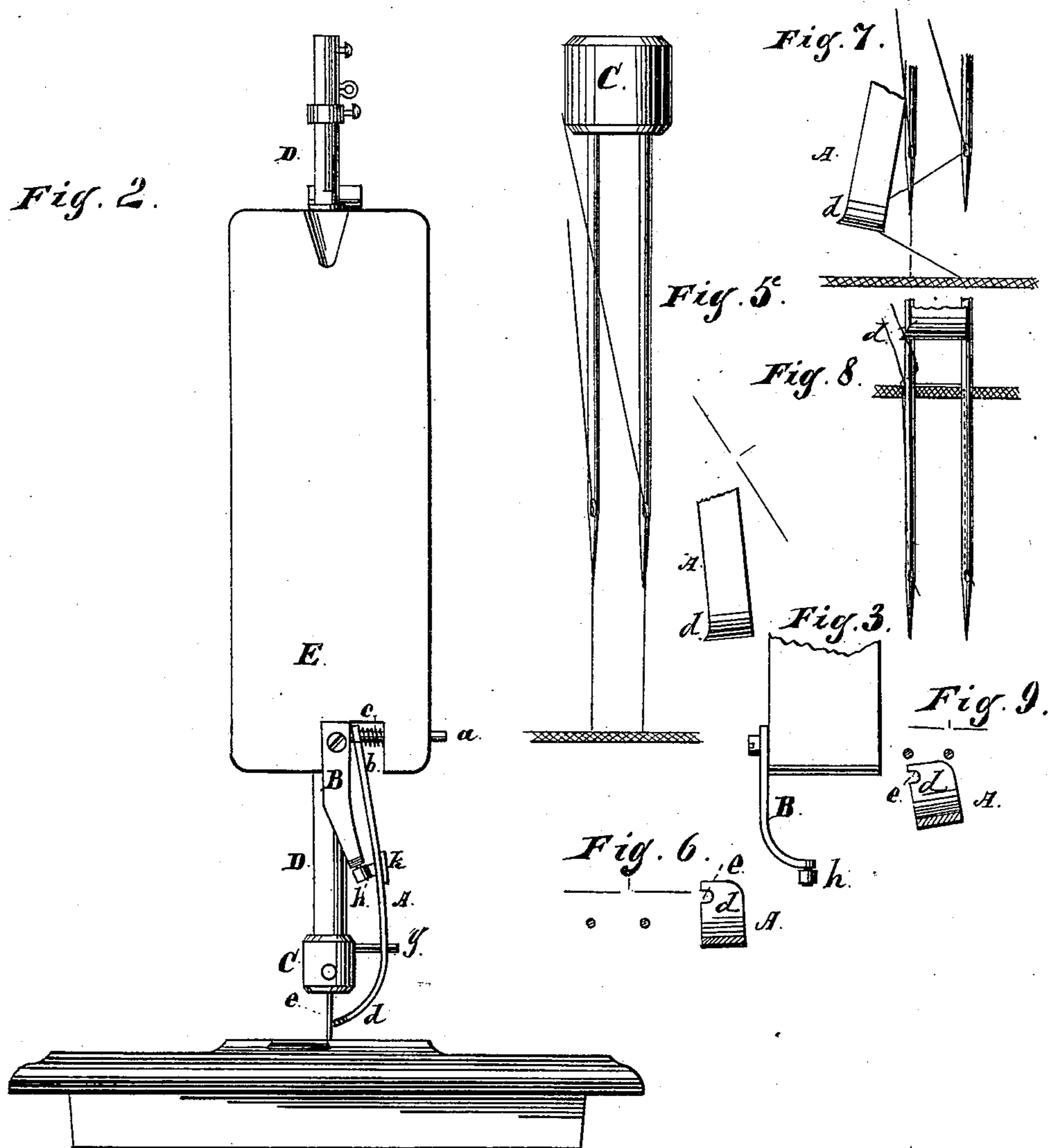
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LOOP AND LOCK STITCH SEWING MACHINE.

No. 250,705.

Patented Dec. 13, 1881.



Witnesses:
O. W. Bond.
B. A. Price

Inventor:
John W. Blodgett

UNITED STATES PATENT OFFICE.

JOHN W. BLODGETT, OF CHICAGO, ILLINOIS.

LOOP AND LOCK STITCH SEWING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 250,705, dated December 13, 1881.

Application filed March 19, 1880. (Model.)

To all whom it may concern:

Be it known that I, JOHN W. BLODGETT, residing at Chicago, in the county of Cook and State of Illinois, and a citizen of the United States, have invented new and useful Improvements in Sewing-Machines for Forming Combined Loop and Lock Stitches, of which the following is a full description, reference being had to the accompanying drawings, in which—

Figure 1 is a side elevation of a sewing-machine having my improvements applied thereto; Fig. 2, an end elevation of the same; Fig. 3, a detail showing the arm which carries the roller or stud for imparting a curvilinear movement to the loop-arm; Fig. 4, a detail showing the devices for giving the curved backward movement to the hook-arm; Figs. 5, 6, 7, 8, and 9, details showing the various positions of the loop-arm while the loop is being made.

This invention is primarily designed for use in completing the upper or outer face of a button-hole, but may be used for other purposes, and has for its object the forming or making of a combined loop and lock stitch by automatic means, so as to produce an overstitched button-hole having a more finished appearance, and resembling what is termed a "hand-made button-hole;" and my invention consists in providing a pin or stud located on the needle-bar, and arranged to engage with a cam-slot in the loop-hook and give the lower or hook end of such hook a reciprocating movement, combined with a bar or support carrying a stud or roller which engages with a curved face and projection on the loop-hook and gives the lower or hook end thereof a curvilinear movement.

In the drawings, A represents the loop-hook, formed from a single piece, with its lower end bent so as to stand in the direction of the needles when ready for use, and form the thread-catcher. The upper end of this loop-hook A extends up, as shown, into a recess, *b*, cut or formed in the lower end of the head of the machine, and is supported by a pin, *a*, in such manner as to allow it to swing therefrom, and its upper end to slide back and forth thereon between the walls of the recess. Around the pin *a*, and between the end of the loop-hook A and the wall of the recess *b*, is a coil-spring, *c*, which acts against the upper end of the loop-

hook A. The lower or curved-in end *d* of the loop-hook A has a notch, *e*, cut therein to catch the thread, which notch should be of sufficient depth to receive the thread and retain it while being looped. The main portion of the hook A has a slot, *f*, one portion of which is straight and the other portion curved or otherwise formed, so that as the pin *g* moves therein it will give a reciprocating movement to the lower end or thread-catcher *d* of the hook. The pin *g*, as shown, is firmly secured in the front side of the needle-clamp, and projects through the slot *f*, with its sides in contact with the sides of the slot, so that as the needle-bar is operated the pin will actuate the loop-hook.

B is a rigid bar, the upper end of which is firmly secured to the head of the machine. This bar projects down, and its lower end is bent at right angles to the main portion, and at its end is provided with a circular stud or roller, *h*, which roller or stud enters a curved groove or slot formed for it in an arm or side extension, *k*, of the loop-hook, in any suitable manner, (see Fig. 4,) so that as the loop-hook is reciprocated its lower end will have a curvilinear movement backward in the arc of a circle given to it by the action of this curved face *j* and the stud or roller *h*. On the arm or extension *k* is a projection, *i*, which strikes the stud or roller *h* and throws the lower end of the loop-hook back away from the needles, so as to prevent the thread from being caught around the needle as it is looped around.

C is the needle-clamp; D, the needle-bar, and E the head of an ordinary sewing-machine. These parts may be of any of the well-known and usual forms of construction for such parts. In the form of construction and arrangement shown the thread of the right-hand or inner needle is caught by the notch *e* and carried or looped around the other needle.

The operation is as follows: When the needle-bar is at its highest point of ascent the pin *g* is in the curve at the upper end of the curved portion of the slot *f*, and the roller or stud *h* is in the outer extremity of its curved slot and to the left or outside of the stud or projection *i*, in which position the loop-hook *d* is carried beyond and back of the inner or right-hand needle, with the notch *e* in position to catch the thread of such needle. As the needle-bar de-

scends the pin *g*, as it passes down the curve at the upper end of the curved portion of the slot *f*, will act to throw the loop-hook *d* to the left, which movement also causes the projection *i* to simultaneously strike the stud or roller *h*, pass over it, withdrawing the point *d* from the needles momentarily, and allowing the stud or roller to enter the inner extremity of its curved slot to the right of the projection, the roller *h* being in contact with the curved face *j* during such movement, so that as the pin *g* reaches the end of the upper curve of the curved portion of the slot *f* the point *d* will be thrown to the left and back of the left-hand needle by the action of the pin *g*, and the roller or stud *h* carrying the thread of the right-hand needle caught by the notch *e* around the left-hand needle in the form of a loop, which movements take place before the needles have descended far enough to enter the material. Then as the needle-bar descends still farther the pin *g* will be in contact with the face of the curved portion of the groove *f* between the curves, and the parts will remain in the position just described. Then the pin *g* enters the lower curve of the curved portion of the slot *f*, which throws the hook *d* backward or to the right, so as to allow the thread caught by the notch *e* to slip therefrom, and at the same time the projection *i* strikes the roller *h* and passes to the left thereof, withdrawing the point *d* and swinging it around in front of the needles, forming a lock and loop stitch. The needles finish their stroke during the passage of the pin *g* down the straight portion of the slot *f*, during which operation the hook *d* remains stationary. Then the needles ascend, and the pin *g* passes up in the straight portion of the slot *f*, the point *d* still remaining stationary, while the pin *g* passes up in this part of the slot *f*, in front of the needles. Then as the pin *g* enters and passes through the lower curve of the curved portion of the slot *f* the point *d* will be thrown to the left and forward by the action of the pin *g* and roller *h*,

and will remain in that position while the pin *g* passes through the portion between the upper and lower curves of the curved portion of the slot. Then as the pin *g* enters and passes to the extremity of the upper curve of the curved portion of the slot *f* the point *d* will be thrown around in the arc of a circle to and back of the right-hand needle, by the action of the pin *g* and roller *h*, to the proper position for again catching the thread of the right-hand needle, and by the descent of the needle-bar looping it around the left-hand needle, which movements will continue until the machine is stopped. By reversing the direction of the curves of the slot *f* and locating the notch *e* on the opposite side of the point *d* the action of the loop-hook will be reversed, and the left-hand thread be caught and looped around the right-hand needle.

Tension and take-up devices for the thread are shown in Fig. 1 of the drawings; but as they form no part of this invention, and are made the subject-matter of a separate application of even date herewith, they are not here specifically described.

What I claim as new, and desire to secure by Letters Patent, is—

1. The loop-hook A, having a projection or cam, *i*, and a curved groove or face, *j*, in combination with the bar or support B, having a stud or roller, *h*, to engage with cam *i* and groove *j* for giving the loop-hook a movement in the arc of a circle, substantially as and for the purposes specified.

2. The loop-hook A, having a slot, *f*, and a cam, *i*, and curved groove or face *j*, in combination with the needle-bar having the pin or stud *g*, and bar or support B, carrying the circular stud or roller *h*, substantially as and for the purposes specified.

JOHN W. BLODGETT.

Witnesses:

O. W. BOND,
B. A. PRICE.