2 Sheets—Sheet 1.

E. E. BEAN.

Sewing Machine.

No. 28,144.

Patented May 8, 1860.

Fig. 2.

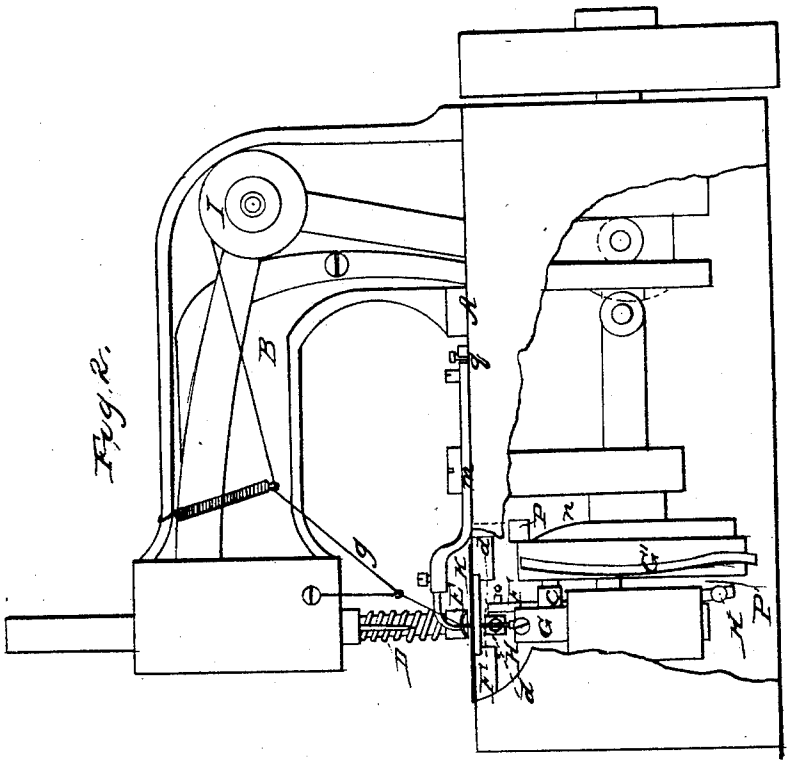
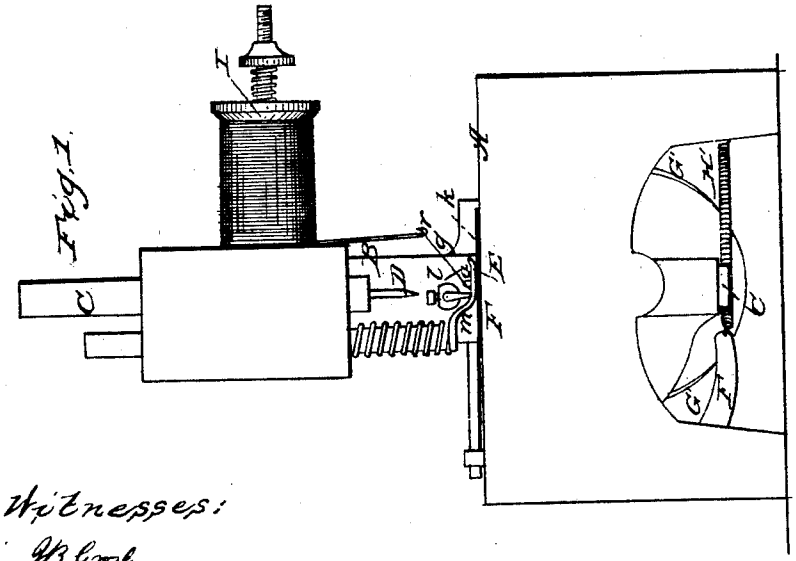


Fig. 1.



Witnesses:

H B Cooley

H B Gleason

E. E. BEAN.

2 Sheets—Sheet 2.

Sewing Machine.

No. 28,144.

Patented May 8, 1860.

Fig. 7.

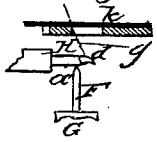


Fig. 8.

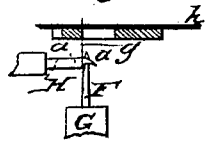


Fig. 9.

Fig. 5

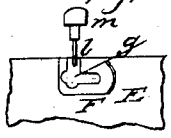


Fig 6.

Fig 10

Fig 3

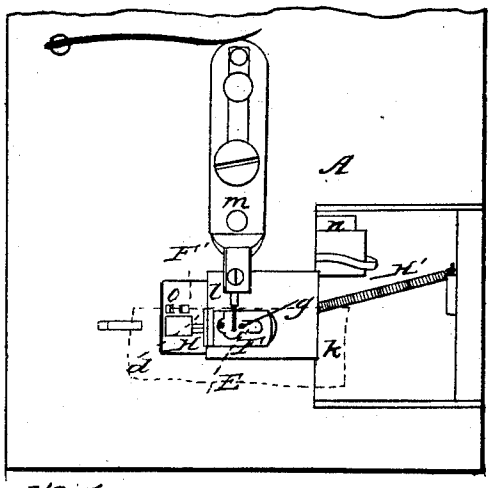
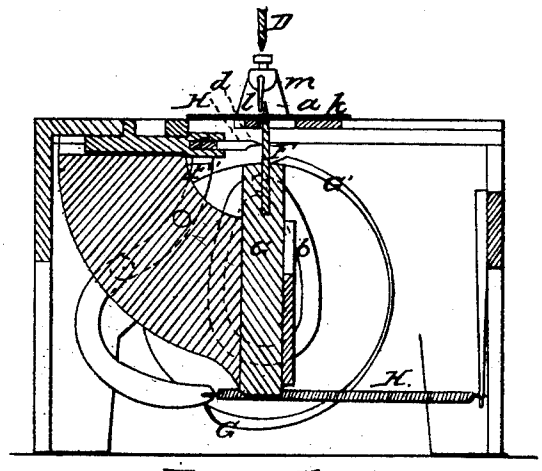


Fig. 4.



Witnesses:
H. B. Cushy
W. B. Gleason

Inventor:
E. E. Bean

UNITED STATES PATENT OFFICE.

EDWARD E. BEAN, OF BOSTON, MASSACHUSETTS.

IMPROVEMENT IN SEWING-MACHINES.

Specification forming part of Letters Patent No. **28,144**, dated May 8, 1860.

To all whom it may concern:

Be it known that I, EDWARD E. BEAN, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Sewing-Machines; and I do hereby declare that the following, taken in connection with the drawings which accompany and form a part of this specification, is a description thereof so full and exact as to enable those skilled in the art to practice my invention.

This invention relates to such sewing-machines as make what is known as the "chain" or "tambour stitch," and to that variety of such machines as make the successive interlocking of loops which form the seam by drawing the thread through the fabric with a "hook" or "crochet-needle." The invention is shown in the accompanying drawings as applied to a machine having an awl-feed, and which is used for stitching leather goods.

The invention consists in the peculiar arrangement and combination of the parts of the mechanism shown and described for producing the single chain-stitch.

In the accompanying drawings, Figure 1 is a front elevation of a machine having my improvement applied thereto; Fig. 2, a side view of the same; Fig. 3, a top view of the front part of the machine, and Fig. 4 a vertical cross-section of the table and looping mechanism.

A in the same denotes the table or frame of the machine; B, the goose-neck; C, the awl-bar carrying the awl D; E, the spring-foot for holding down the fabric.

The action of the awl, which feeds the fabric, is substantially the same as in many other and well-known machines having an awl or needle feed, and will not therefore be particularly described. The presser-bar also operates in holding and releasing the material being sewed, as in most machines of like character and purpose.

F denotes the needle inserted in a needle-bar, G, and having a hook or barb, *a*. The needle-bar is driven up and down at the proper times by any suitable mechanism, a grooved cam, *b*, operating on a projection, *c*, from the needle-bar, being shown in the drawings for this purpose.

The looper is shown at H. It consists of wo flat springs, *d d*, and is seen particularly in Figs 9 and 10, the former of which represents the looper with its prongs sprung together, and the latter as it appears when opened by the needle. The springs approach at their front ends to each other, so as to form a looper point or beak, and at their opposite ends they are united to a horizontal sliding bar, *e*, to which proper reciprocating motions are imparted by the action of a lever, F′, operated against a stud or projection, *o*, by a cam, G′, and a spring, H′, as will be readily understood from inspection of Fig. 4 of the drawings. Any other suitable mechanism can of course be applied to operate the looper-bar, as circumstances may dictate or require.

The spool is shown at I, the thread at *g*, and the material being stitched at *k*.

Fig. 8 shows the relative juxtaposition of the thread, needle, and looper as they appear when the looper is in position to take the thread away from the needle. Fig. 7 shows them as they appear when the looper holds the loop of thread extended for the passage through of the needle in its ascent.

The several operations are as follows: The needle having passed up through the "work," and its hook having received the thread, which is placed in proper position for this by the action of the thread guide or carrier, and the needle, with its thread, having passed down below the table, and so that its point shall be entirely below the horizontal path of the looper-point, the needle is here kept or remains in position, while the looper-points advance into and between the opposite threads or parts of thread held between the needle and the table. The needle then receives an upward movement, its point passing between the two springs of the looper, rising just high enough to relieve the thread from the hold the hook has upon it, leaving it upon the looper, which next recedes, carrying upon or with it the loop of thread, and to such an extent that the looper and its thread or loop shall be entirely away from the vertical path of the needle. Having thus drawn the thread away from the needle, and the material having been then fed forward, the needle descends, so that its point is entirely below the thread upon the looper, leaving the looper and loop free to advance, which movement they then receive in such manner as to carry the lower part of the loop beyond the vertical path of the needle,

leaving an extended or spread loop just above the needle-point, as will be readily understood by reference to Figs. 7 and 10. While in this position the regular upward movement is imparted to the needle, its point forcing apart the prongs or springs of the looper, and entering and passing through the loop thereupon extended. Thus it will be seen that the looper-points operate to release the hook of or from its thread, and having so released it to carry it forward beyond the path of the needle in the form of a loop in such manner as that, when the needle next passes up to draw down or take another stitch, (above the table,) it shall pass through such loop, which movements, in connection with the feed of the work, properly interlock the stitch.

Now I am well aware that a looper used in connection with an eye-pointed needle to take the thread from the side of the needle and to lay it in an open loop for the entrance of the needle-point is not new; and, also, that such loopers have been made in two parts, which, springing or being forced open, form or open a large loop for the needle. My mechanism differs from all such in using in connection with a hook or crochet-needle a looper, which performs the double purpose of taking the thread from the hook of the needle and carrying it in the form of a loop beyond the point, and for the entrance of the needle.

By inspection of Figs. 3, 5, and 6 the manner of carrying the thread against and into the hook of the needle will be readily understood. A thread-carrier, *l*, is attached to a sliding bar, *m*, in such manner that by communicating a horizontal longitudinal movement to the bar and thread-carrier (by means of a cam, *n*, a projecting stud, or a roll, *p*, and a spring, *q*, or by any suitable mechanism) the thread-carrier shall be brought up against the thread, as seen in Fig. 3, or carried back therefrom, as seen in Fig. 5. The thread-carrier remains in the latter position during the upward movement of the needle, and just as the needle reaches its highest point (the thread extending from a thread-guide, *r*, straight to the cloth, as seen in Fig. 5) the thread-carrier *l* springs or is brought forward in such manner as to cause the thread to lie or bear against and partially around the needle, as seen in Fig. 3, and so that as the needle next descends the thread shall be carried into the needle-hook.

Now I remark that there is not, to my knowledge, any machine having a thread-carrier, *l*, or guide, and a hook-needle operating in a vertical line without any spiral or circular movement thereof, and arranged in respect to the stitches formed in the material just as I have arranged them in my machine, the thread-carrier operating, as I have described, between the needle and the already formed stitch and the hook of the needle, this being fixed constantly toward the stitch last formed instead of from it, or partially rotating, as in some other machines.

I do not claim as of my invention the hooked needle, the thread-carrier, or the looper H, or the combination of any two of them in any manner, or the combination and relative arrangement and operation of all their parts in any other manner than that described and set forth. I would add, also, that the position of the hook of the needle relative to the formed stitches enables me to employ the pronged looper H, instead of a slide, for closing or covering the eye or barb of the needle, by which the goods are often marked and the thread frayed, and that by my arrangement less of the thread is required to be drawn through or past the hook than is the case where it is closed by any variety of slide.

I am aware that an instrument similar in appearance to my looper was invented by J. C. Seelye, for which application for Letters Patent has been made and rejected; but its operation is different from mine with regard to the needle and loops, inasmuch as Seelye's needle is not at any time, when in operation, free from a loop in its barb or around its shaft; and the back or smooth side of the needle in Seelye's arrangement is toward the formed stitches, while the converse is true of mine.

What I claim is—

The arrangement and combination of the crochet-needle F, thread-carrier *l*, and looper H, consisting of the spring-prongs *d d*, operating in conjunction, as herein set forth.

E. E. BEAN.

Witnesses:
J. B. CROSBY,
W. B. GLEASON.