2 Sheets—Sheet 1.

E. E. BEAN.

Sewing-Machine.

No. 209,543. Patented Nov. 5, 1878.

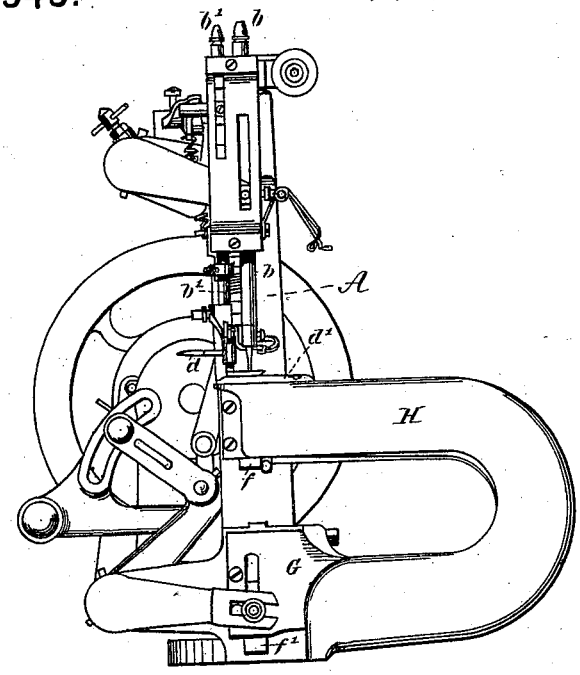

Fig. 1.

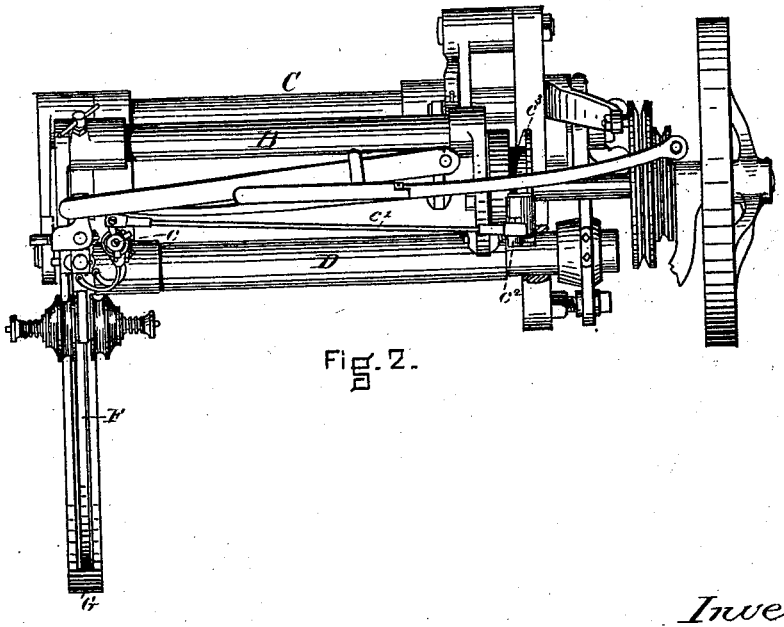

Fig. 2.

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Inventor
Edwin E. Bean
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Atty

2 Sheets—Sheet 2.

E. E. BEAN.

Sewing-Machine.

No. 209,543. Patented Nov. 5, 1878.

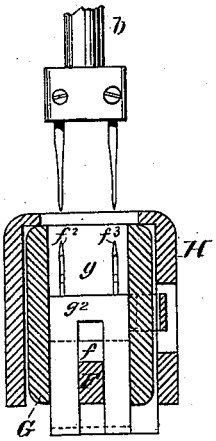

Fig. 7.

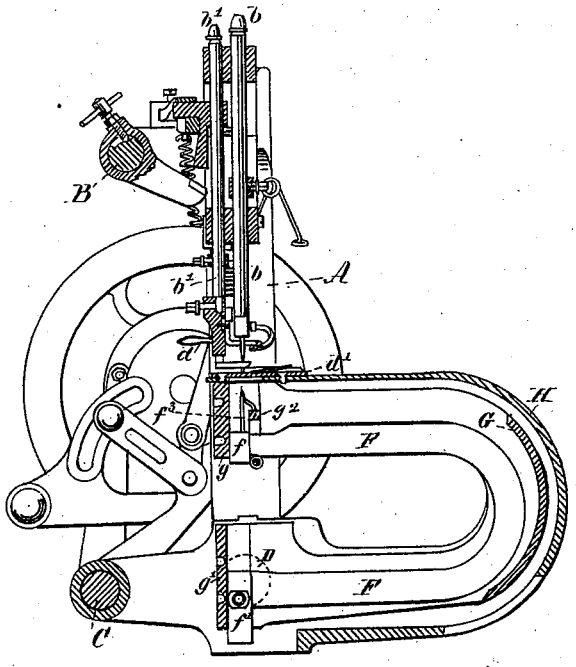

Fig. 3.

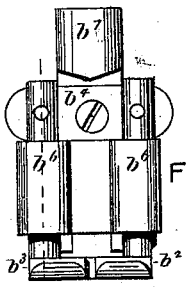

Fig. 4.

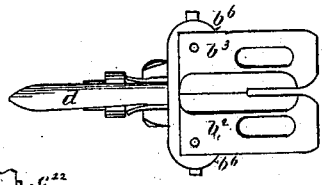

Fig. 5.

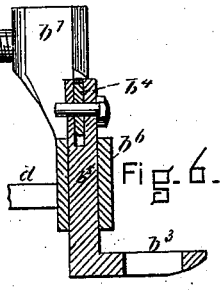

Fig. 6.

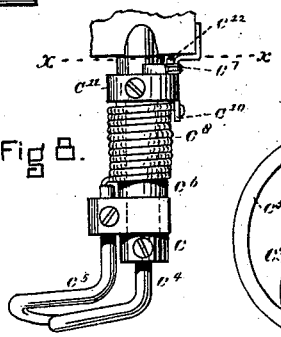

Fig. 8.

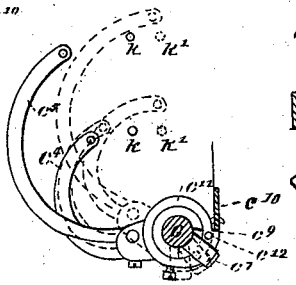

Fig. 9.

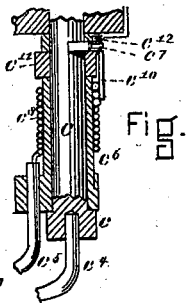

Fig. 10.

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Atty

UNITED STATES PATENT OFFICE.

EDWIN E. BEAN, OF BOSTON, MASSACHUSETTS, ASSIGNOR TO THE CONSOLIDATED WAX THREAD SEWING MACHINE COMPANY.

IMPROVEMENT IN SEWING-MACHINES.

Specification forming part of Letters Patent No. **209,543**, dated November 5, 1878; application filed May 27, 1878.

To all whom it may concern:

Be it known that I, EDWIN E. BEAN, of Boston, county of Suffolk, and State of Massachusetts, have invented certain Improvements in Sewing-Machines, of which the following is a full, clear, concise, and exact description, when taken in connection with the accompanying drawings, making a part hereof.

The drawings illustrate one form of sewing-machine embodying the invention.

Figure 1 is an end elevation, (needles down, presser-foot down,) and Fig. 2 is a plan, with the upper part of the frame omitted, of a National sewing-machine embodying my invention. The other figures show details more fully described below.

The invention relates more especially to the sewing of tubular articles, particularly to sewing the stays in the leg of the well-known saddle-seam boot; and consists of a needle-bar of a peculiar construction; also, a needle-bar carriage of a peculiar construction; also, a new device for operating a second thread-guide where two needles are used; and, lastly, certain combinations of ingredients, all now to be more fully described.

The machine shown in the drawings is adapted especially for the manufacture of saddle-seam boots.

A is the main frame; B, the shaft through which the awl and presser-foot bars *b b'* are worked; C, the shaft which works the needle-bar; D, the feed-shaft. All the parts not lettered are the same as those in the well-known National machine. The projection *d* and the guide *d'* are fully described in Patent No. 200,111, to Joseph H. Walker.

The needle-bar F is a metal bow, having a slide, $f f^1$, at each end. (See Fig. 3, which is a longitudinal section through the bar, its carriage G, and the bow-shaped frame H.) These slides $f f^1$ fit the ways $g g^1$ in the bow-shaped needle-bar carriage G, so that the needle has the usual reciprocating motion imparted to it by the needle-bar shaft C, as in other National machines, and the carriage G is moved to feed the material while the needle extends through it, as in the well-known needle-feed sewing-machines. In this case the needle-bar carriage G is fast to the feed-shaft D, as in the National machine.

The usual cast-off carriage g^2 is mounted in the upper ways, *g*, of the needle-bar carriage G; but a part of the needle-bar passes through it, as shown in Fig. 7.

The bow-shaped work-support H is secured to the main frame A, and projects from it, as shown, the feature of novelty being that its bow is next the operator, the feed carrying the work from the bend toward the free end of the bow instead of on it, as heretofore in all machines known to me with a bow-shaped work-support. The needle-bar F and its carriage G are each new with me. In the machine shown there are two needles, $f^2 f^3$, for sewing seams parallel with each other.

The best form of presser-foot known to me for use with my improved machine is shown in detail in the drawings.

When two needles are used two thread-guides are desirable; and in order to obviate the necessity for using two bars, one for each thread-guide, I have devised a device (shown in detail in Figs. 8, 9, and 10) for attaching a second thread-guide to the bar *c*, which bar *c* is the same in the machine shown as that used in the National machine, and actuated in the same way by the connecting-rod c^1, lever c^2, and cam c^3. The usual thread-guide c^4 is attached to its bar *c* in the ordinary way. The extra thread-guide c^5 is attached to a sleeve, c^6, on the bar *c*, and is moved in one direction by a stud, c^7, projecting from bar *c*, which strikes a shoulder on the sleeve c^6, so that sleeve c^6 moves with the bar *c* in one direction as soon as stud c^7 is in contact with sleeve c^6. This will be understood by reference to Fig. 9, which is a section of the thread-guide bar, taken on the line *x x* in Fig. 8, and shows the relative motions of the two thread-guides, at *k k* being shown the position of the two needles before they feed the material, and at *k' k'* after they have fed the material. This motion of sleeve c^6 is against the force of a spring, c^8, and consequently, as soon as the stud c^7 moves back, the sleeve c^6, under the influence of spring c^8, follows it, the sleeve being held in contact with stud c^7 until the stop c^9, fast to sleeve c^6,

brings up against the pendant c^{10}, when the stud c^7 leaves sleeve c^6. It will be seen, therefore, that guide c^4 begins its motion slightly sooner than guide c^5 and ends its motion slightly after the motion of c^5 has been arrested by stops c^9 c^{10}. This is in order to give guide c^5 its proper motion, which it would not have if fast to bar c, by reason of its eye being considerably farther from the axis of bar c than is the eye of guide c^4. In order to adjust the backward motion of guide c^5, the stop c^9 is on a collar, c^{11}, which surrounds sleeve c^6, and can be set so as to bring the eye of guide c^5 into precisely the right position to make the travel of the eye c^5 practically the same as the travel of the eye c^4.

The pin c^{12} on collar c^{11} will be struck by stud c^7, and thus carry back sleeve c^6 whenever the spring c^8 does not act. This part of my invention consists in the combination of two or more thread-guides on one bar, the eyes of the guides at different distances from the axis of the bar, and suitable mechanism for causing the travel of all the thread-guides to be the same, this being a matter of great practical importance when two or more thread-guides are used, for the reason that if the travel of one be to any appreciable extent greater than that of the other, one of the seams will be tighter than the other, and there will be great danger of breaking the thread. I know no other machine where two thread-guides are used on the same bar, one fast to the bar and the other adjustably secured to it, so that its stroke may be less than that due to its distance from the axis.

What I claim as my invention is—

1. The bowed needle-bar F, having the slides $f f^1$, as above described.

2. The bowed needle-bar carriage G, having ways g g^1 adapted to receive the needle-bar F and cast-off carriage g^2, all substantially as set forth.

3. The combination of the bowed needle-bar F, its carriage G, and the work-support H, all substantially as and for the purposes set forth.

4. In combination, the bar c, sleeve c^6, the two thread-guides c^4 c^5, the former attached to bar c and the latter to sleeve c^6, and mechanism, substantially such as is described, for causing the travel of both guides to be substantially the same, the whole combination being and operating substantially as described.

5. In combination, the cast-off carriage g^2, needle-bar carriage G, and needle-bar F, one arm of the needle-bar passing through the cast-off carriage, all substantially as described.

EDWIN E. BEAN.

Witnesses:
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GEORGE O. G. COALE.