(No Model.)

F. W. MERRICK.

SEWING MACHINE.

No. 490,857. Patented Jan. 31, 1893.

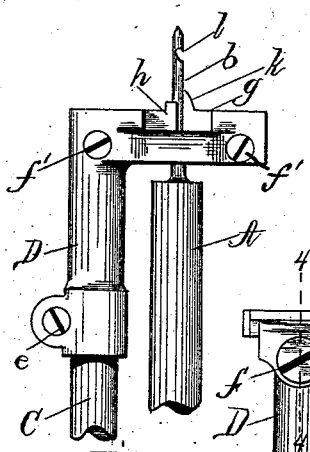

Fig. 5.

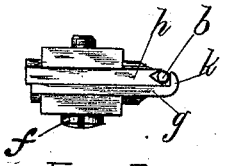

Fig. 3.

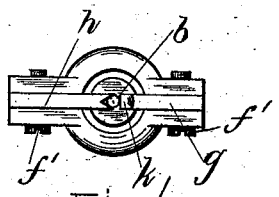

Fig. 6.

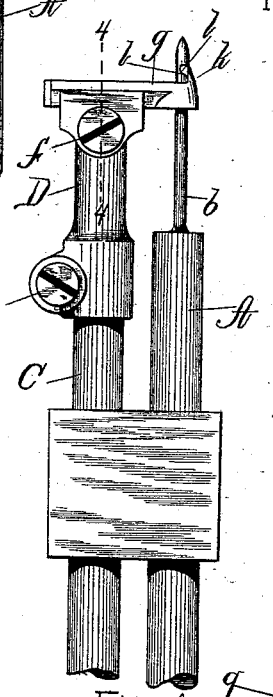

Fig. 1.

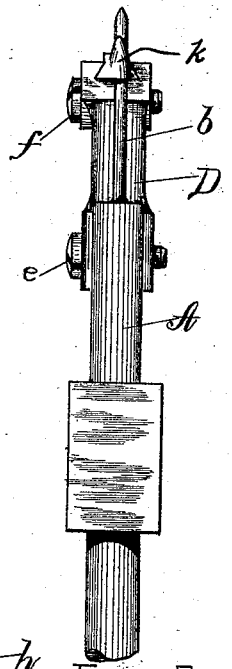

Fig. 2.

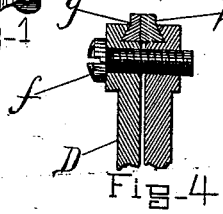

Fig. 4.

WITNESSES—

Arthur F. Randall.

Robert Wallace.

INVENTOR—

Frank W. Merrick,

by Macleod Calver & Randall,

his attys.

UNITED STATES PATENT OFFICE.

FRANK W. MERRICK, OF BOSTON, MASSACHUSETTS.

SEWING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 490,857, dated January 31, 1893.

Application filed March 7, 1892. Serial No. 424,016. (No model.)

To all whom it may concern:

Be it known that I, FRANK W. MERRICK, a citizen of the United States, residing at Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Sewing-Machines, of which the following is a specification, reference being had therein to the accompanying drawings.

In operating sewing machines which employ straight needles, especially such as are used for heavy work, the needle is apt to be bent or deflected from its true path.

To obviate this difficulty and provide a device which shall not only serve to brace the needle and keep it in its proper position but shall also serve as a cast-off is the object of my invention, a particular description of which is hereinafter given and the novel features thereof pointed out in the claims which are appended hereto and made a part hereof.

I have shown my device in the accompanying drawings in which

Figure 1 is a side elevation and Fig. 2 is a front elevation of the needle bar and cast-off bar of a well-known form of sewing machine showing the needle and my improved needle brace and cast-off. Fig. 3 is a top view. Fig. 4 is a vertical section on line 4—4 Fig. 1. Figs. 5 and 6 are, respectively, a side elevation and plan view of a modification hereinafter referred to.

The needle bar is shown at A and is designed to reciprocate vertically in the well-known manner.

b is the needle which is of common form.

C is the cast-off bar to the upper end of which is secured a split sleeve D which is clamped thereto by means of a screw *e*. A clamping screw *f* see Fig. 4 is set through the upper end of the split sleeve and by this means the two parts of the sleeve may be drawn together and made to clamp firmly the two pieces *g h* which are dove-tailed therein as shown Fig. 4 and which form the adjustable needle brace and cast-off. By thus mounting and securing the pieces *g h* they may be adjusted laterally or the piece *h* may be adjusted relatively to the piece *g* to accommodate a needle of greater or less diameter. The piece *h* is simply a straight piece of metal of a shape in cross section which adapts it to be clamped in the sleeve or holder D and it is provided at that end which comes in contact with the needle with, preferably, a V-shaped notch or vertical slot. Both sides of the V-shaped notch bear against the needle and they will bear in the same way against a needle of larger or smaller diameter. In order thus to accommodate needles of varying diameters the slot in the piece *h* is made V-shaped by preference; as will be clear, however it may be concaved or curved instead of V-shaped in which case if the size of the needle be changed another piece *h* having a curved slot of the size to fit the curve of the needle must be supplied. The piece *g* extends outwardly past the needle and is turned at right angles, or substantially so, as shown at *k*, (see Fig. 3) to form the other member of the needle brace or guide as also to form the cast-off proper. The inner face of this cast-off *k* comes in contact with the needle and is straight or flat or convex, so that it will bear along one vertical line only against the cylindrical needle whether said needle be larger or smaller in diameter—that is, the flat face of the cast off will in horizontal section be tangential to the circumference of the needle. It is essential that the face of the cast-off next the needle should be vertically parallel therewith and that when adjusted the cast-off should bear along its whole face against the blade of the needle. In order that the face of the cast-off remain parallel with the blade of the needle the cast-off must be mounted so as to be adjustable toward and from the needle along a line at right angles thereto. By the construction shown of the parts which come in contact with the needle it will be clear that a needle of greater or less diameter may be employed and the parts readily adjusted thereto, the face of the cast-off adjacent the needle always being parallel with the blade of the needle. The cast-off proper or part *k* of the piece *g* extends upwardly above the other portions of the piece *g* as shown in Figs. 1 and 2 and is rounded off or thinned down to a fine edge and rounded point as shown Figs. 1 and 2. When the needle is at the end of its downward movement the cast-off *k* covers the notch or eye *l* of the needle as shown Figs. 1 and 2 and operates to cast off the thread. By loosening the clamping

screw *e* of the split sleeve D the sleeve and the cast-off may be adjusted vertically as desired and the sleeve may also be rotated to effect the proper alignment of the cast-off, needle and needle brace.

In the modification shown Figs. 5 and 6 the top of the split sleeve or holder is projected laterally around and in front of the needle in order to afford a suitable support for the cast-off in front of the needle. This is a convenient form of construction in machines employing more than one needle as I do not consider it practicable to secure a needle brace and cast-off for each one of two or three needles side by side in the same holder.

In the modified form shown Figs. 5 and 6 the needle brace is mounted on one side of the needle and the cast-off on the opposite side and if three needles are employed the three cast-offs will be clamped together side by side at one part of the holder and the three needle braces will be clamped together side by side in the other part of the holder. The same adjustment however, of the braces and cast-offs along a line at right angles to the blade of the needle is maintained and the adjustment of the parts is therefore easily and accurately made by operators who are comparatively unskilled.

What I claim is:—

1. The combination with the needle and its actuating mechanism, of the holder D and the needle brace *h*, said brace being arranged at right angles to the longitudinal axis of the needle and being adjustable toward and from the needle, for the purposes and substantially as set forth.

2. The combination with the needle and its actuating mechanism, of the holder D and the cast-off *k* provided with a shank which is arranged at right angles to the longitudinal axis of the needle, or approximately so, and which is adjustable relative to the said needle; whereby the face of the cast-off adjacent the needle is parallel with the needle in all positions of adjustment, substantially as set forth.

3. The combination with the needle and its actuating mechanism, of the holder D, the needle brace *h*, and the cast-off *k*, said needle brace and the shank of said cast-off being both arranged at right angles to the longitudinal axis of the needle, or approximately so, for the purposes and substantially as set forth.

4. The combination with the needle and its actuating mechanism, of a combined needle brace and cast-off, the needle brace being on one side of the needle and the cast-off on the opposite side thereof and that portion of the needle brace which comes in contact with the needle being V-shaped; whereby needles of different diameters may be employed without changing the needle brace, substantially as shown and described.

5. The combination with the needle and its actuating mechanism of a cast-off mounted at right angles to the longitudinal axis of the needle and having the face thereof which is next the needle tangential to the circumference of said needle and vertically parallel to the needle, substantially as and for the purposes set forth.

6. The combination with the needle and its actuating mechanism, of the needle brace *h*, holder D, and cast-off bar C said holder D having both a vertical and rotary adjustment on said bar C, substantially as shown and described.

In testimony whereof I affix my signature in presence of two witnesses.

FRANK W. MERRICK.

Witnesses:

WM. A. MACLEOD,

ROBERT WALLACE.