

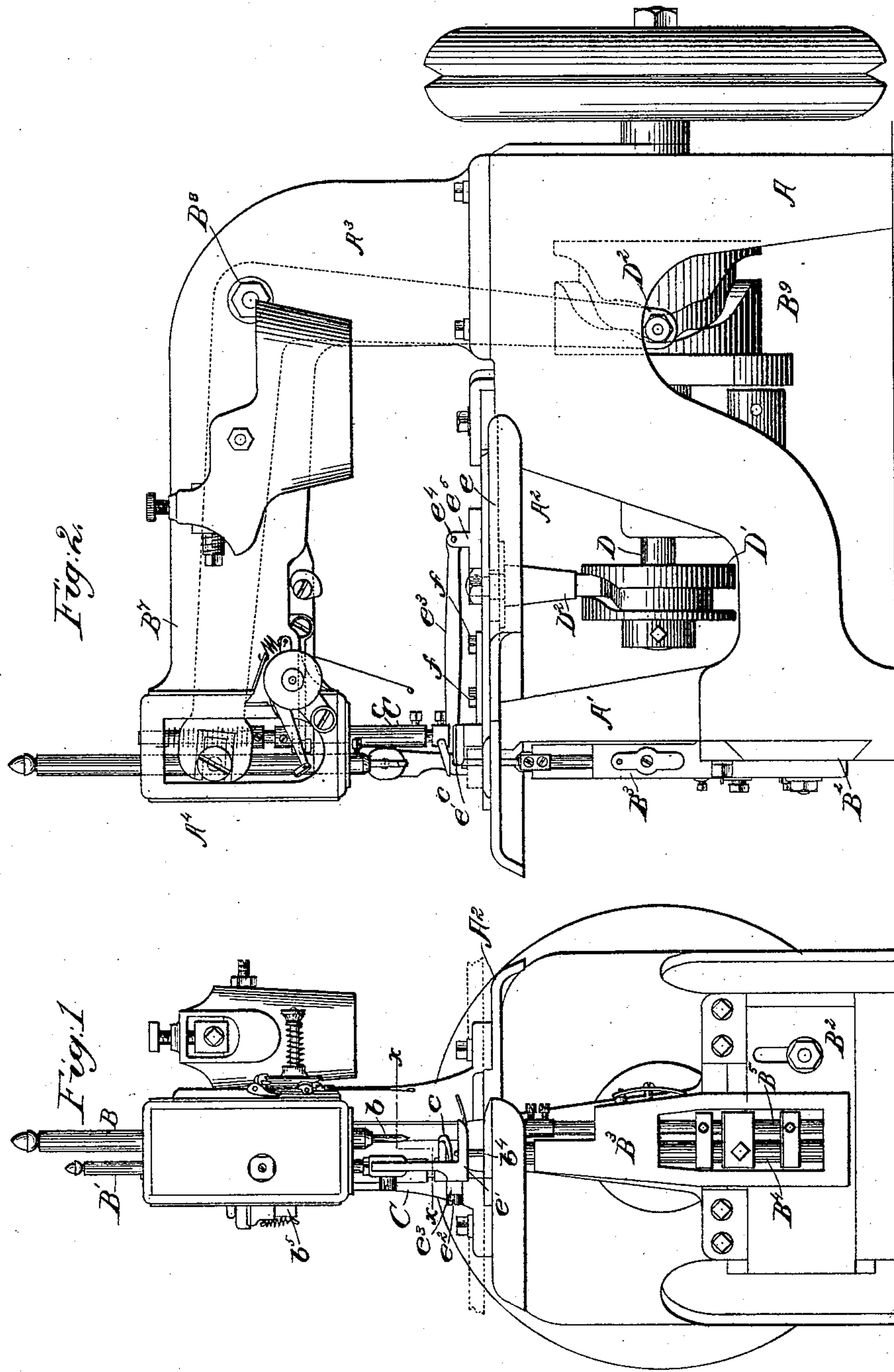
(No Model.)

2 Sheets—Sheet 1.

C. S. REED.
SEWING MACHINE.

No. 455,691.

Patented July 7, 1891.



Witnesses.
Fred S. Church,
Edward F. Allen.

Inventor.
Charles S. Reed,
by Leroy & Gregory Attys

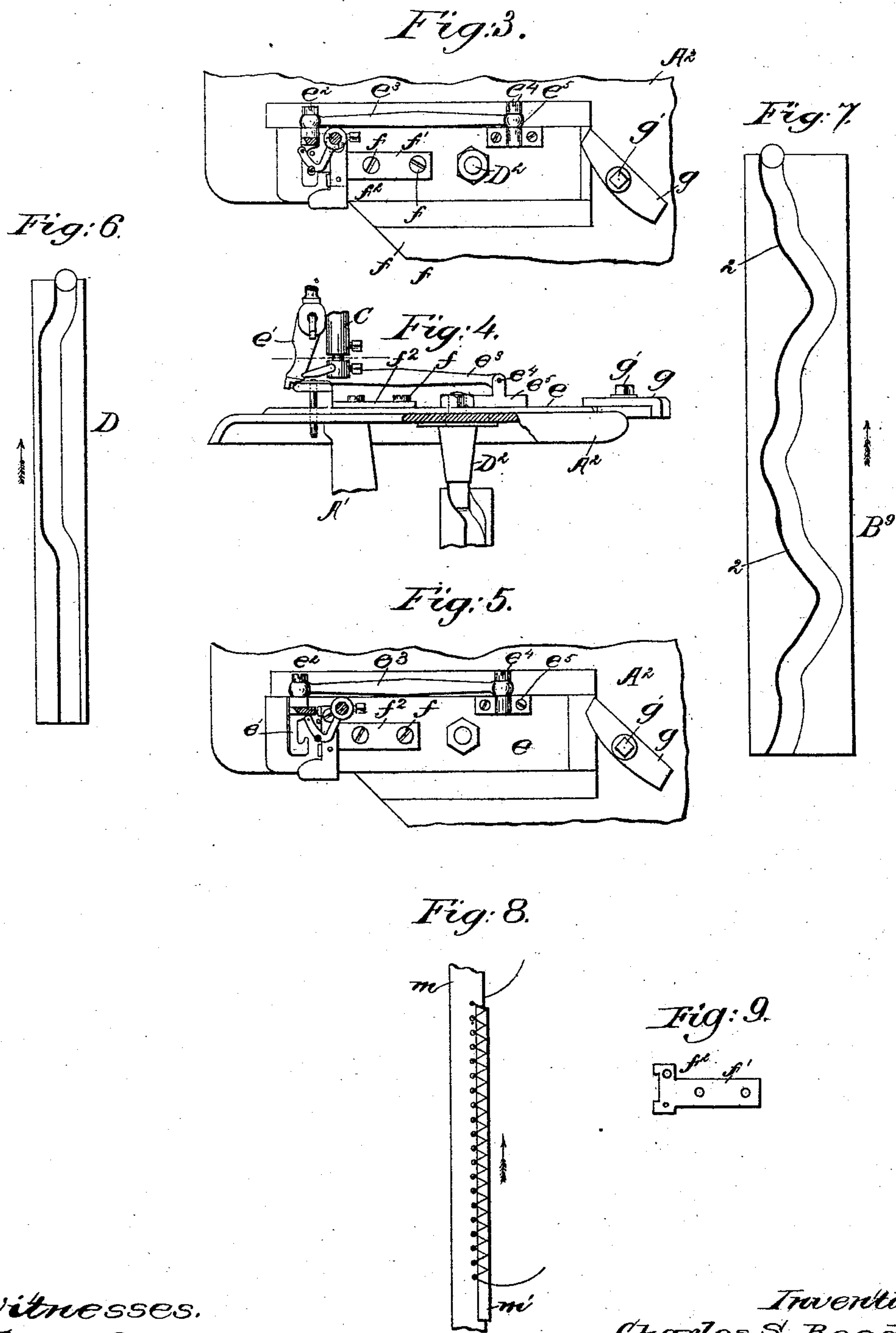
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UNITED STATES PATENT OFFICE.

CHARLES S. REED, OF BOSTON, MASSACHUSETTS, ASSIGNOR TO THE NATIONAL SEWING MACHINE COMPANY, OF NEW HAVEN, CONNECTICUT.

SEWING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 455,691, dated July 7, 1891.

Application filed December 16, 1890. Serial No. 374,874. (No model.)

To all whom it may concern:

Be it known that I, CHARLES S. REED, of Boston, county of Suffolk, State of Massachusetts, have invented an Improvement in Sewing-Machines, of which the following description, in connection with the accompanying drawings, is a specification, like letters and figures on the drawings representing like parts.

This invention has for its object to provide a sewing-machine of the wax-thread variety, using an awl and hooked needle, with means for moving laterally the material being stitched while the needle and awl are out of the material, whereby an overedge-stitch is made with a single thread.

The machine herein to be described is very useful for applying a fibrous or cloth binding or edge to a wooden or other frame for a slate, and it may be used to great advantage in over stitching other heavy articles.

In the machine to be herein described the stitch-forming devices, including the needle, cast-off, awl, and thread-guide, are substantially as common. With these common parts I have combined a work-holder which is moved laterally by a cam on the main shaft below the bed-plate, the said holder consisting, essentially, of a bottom or base plate, a presser-foot or equivalent capable of vertical movement, a link connecting it with a stand, a stud on the said plate, and preferably a gage attached to and moving with the said work-holder. The face of this gage is notched or cut out equal to the length of the longest stitch to be made, so as to let the needle in its horizontal or feeding movement move outside the edge of the material.

The particular features in which my invention consists will be hereinafter described, and pointed out in the claims at the end of this specification.

Figure 1 is a front end elevation of a sewing-machine embodying my invention, the material being omitted from under the presser-foot; Fig. 2, a side elevation partially broken away; Fig. 3, a top or plan view of the work-holder below the irregular dotted line x , Fig. 1; Fig. 4, a detail in side elevation of the parts

shown in Fig. 3; Fig. 5, a top or plan view like Fig. 3, but with the parts in different positions. Figs. 6 and 7 show the two cam-hubs developed. Fig. 8 shows material bound and over stitched by the machine herein to be described, and Fig. 9 a detail showing the guide f^2 detached.

The frame-work consists, essentially, of the casting A, the post A', the plate A², the overhanging arm A³, and head A⁴. The head has bearings for the awl-bar B, having the awl b and the presser-bar B'. The casting A is provided at its front end with a dovetailed groove (see Fig. 2) for the reception of the feed-slide B², provided with the guide B³, in which reciprocate the needle-bar B⁴, having a hooked needle b^4 , and a cast-off B⁵, having secured to its upper end any usual cast-off.

C is the thread-guide shaft, having the attached thread-guide c .

The awl-bar derives its vertical movements from an elbow-lever B⁷, pivoted at B⁸.

The parts so far specifically referred to by letter are old and common in well-known wax-thread sewing-machines for leather-work, and in practice they will and may be actuated in any usual manner to cause the awl to penetrate the material for the passage of the hooked needle through the material and to enable the needle to feed the material, and in practice the presser-foot will be automatically lifted by usual devices acting on the lever b^5 to lift it from the material during the time that the needle in the material acts to feed the same. These parts, being old and common in the so-called "New England wax-thread sewing-machine," need not be herein more fully described further than to say that the thread on its way to the thread-guide c may be waxed, oiled, or treated in any usual way and be subjected to the action of any usual tension device or take-up.

The casting A has suitable bearings for the main rotating shaft D, having a cam B⁹, shaped, as best shown at 2, Fig. 7, to afford a slight dwell in the awl-bar, as when the holder to be described is being shifted laterally. The main shaft has applied to it a second cam-hub D', which receives a roller or other stud D², ex-

tended downward from the under side of the bottom plate *e*, constituting part of the holder for the material. The other effective part of the holder consists of a presser-foot *e'*, having, as represented, a stud-screw *e²* (see Figs. 1 and 3) and a link *e³*, connected with the said screw, and a stud-screw *e⁴* in a stand *e⁵*, attached to the said bottom plate. This bottom plate also has connected to it by screws *f* the shank *f'* of an edge-gage *f²*, which edge-gage, as shown best in Fig. 9, enlarged, has a part of its face cut away for a distance equal to the length of a stitch, the needle traveling in the said cut-away portion when it is moved backward with its point above the bed-plate but not in the material.

The machine herein shown has been prepared more especially to provide material—as, for instance, a slate-frame—with an over-edge-stitch, and in applying the said stitch it is preferred to make the stitch about a binding *m'* of felt or other desired fibrous material. The machine herein described may, however, be used to overstretch any heavy materials wherein it is desired to cover the edge with a single thread stitched either with or without a binding. The dog *g*, held in place by the screw *g'*, serves to keep the bottom plate down in proper place in its guide-ways in the table-plate *A²*.

In this invention the gage *f²* is attached to and so as to travel longitudinally with the work-holder, and the edge of the material to be stitched is placed against the edge of the gage.

Assuming that the material to be stitched has been placed upon the work-holder next the face of the gage *f²*, the presser-foot at such time being lifted in usual manner and the binding *m'* having been placed between the edge of the material to be overstretch and the face of the edge-guide, and that the work-holder has been drawn back fully to the right, as in Figs. 1 and 2, and the machine started, the awl *b* will descend to punch a hole nearly through the material and through the binding thereon, and then the awl will commence to rise and the needle will follow closely the point of the awl and complete and rise through the hole made thereby and above the presser-foot, at which time the presser-foot will be slightly lifted and the needle-bar will be moved in usual manner by the usual devices common to needle-feeding machines to feed the material for the length of a stitch. The material having been fed the length of a stitch, the presser-foot closely descends again upon the material, it having a rising motion given to it in any usual manner to enable the feed to take place, and the thread-guide is then moved forward, so as to deliver its thread into the hook of the needle, when the latter commences to descend and draws a loop of needle-thread down through the material, the thread-guide being retracted in

usual manner and by usual devices common to wax-thread sewing-machines as the needle completes its descent. As soon as the needle descends through the material, taking with it a loop of thread which it yet holds, the work-holder, by or through its actuating-cam *D'*, is moved to the left, the needle yet holding the loop of needle-thread below the material, and the movement of the holder to the left having been completed and the needle-bar having in the meantime again been moved forward toward the front of the machine into its starting-point preparatory to rising the needle is again raised, yet holding upon its shank the last loop of thread pulled down by it and the needle is again moved in the direction of the feed of the material; but at this time the needle does not enter the material, but stands at one side of the material with its hook above the presser-foot, as before. During this second backward movement of the needle in the direction of the feed the needle does not move the material, but it does act upon the needle-thread between the thread-guide and the material at the stitch-making point and pulls the said thread back in the direction of the feed, and the needle having completed its backward stroke the thread-guide again supplies its thread to the needle, which latter pulls a second loop of thread down through the loop then on its shank, the second loop to be pulled down lying, however, outside the edge of the material. The needle having completed its descent as before, the work-holder is again moved, this time to the right to place the material again in position to be penetrated by the awl and needle. The only time that the presser-foot is lifted from the material is when the needle in the material is moving it to feed the same for the length of a stitch. At all other times the presser-foot bears upon the material and holds it down in place upon the lower member *e* of the work-holder. The cam-groove in the cam *B⁹* is of such shape at the points 2 2 as to give to the awl a slight dwell or to slow down its movement sufficiently to permit the work-holder to be moved laterally without interfering with the awl, this slight dwell or slowing down of the speed of the awl adding very materially to the value of my invention.

I claim—

A sewing-machine containing the following instrumentalities, viz: an awl-bar having an awl, a lever to move the said awl-bar, the rotating shaft *D*, having a cam *B⁹*, to actuate the said lever, and a second cam *D'*, a thread-guide, a needle-bar, a hooked needle, a co-operating cast-off, a presser-bar, and a work-holder consisting, essentially, of a presser-foot connected with the presser-bar, a bottom plate *e*, the link *e³*, pivoted thereto, the edge-guide attached to the said bottom plate and having a cut-away portion in its face, and a stud or finger attached to the bottom plate and actu-

ated by the said cam D, the needle moving
in said cut-away portion in its second ascent
in the direction of the feed, but not in the ma-
terial, to thereby engage the needle-thread
5 and form a second loop, substantially as de-
scribed.

In testimony whereof I have signed my

name to this specification in the presence of
two subscribing witnesses.

CHARLES S. REED.

Witnesses:

JAS. H. CHURCHILL,
EMMA J. BENNETT.