3 Sheets—Sheet 1.

W. BUTTERFIELD.

Sewing Machine.

No. 11,240. Patented July 4, 1854.

FIG. 6

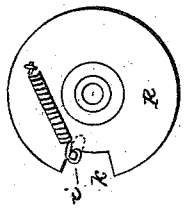

FIG. 4.

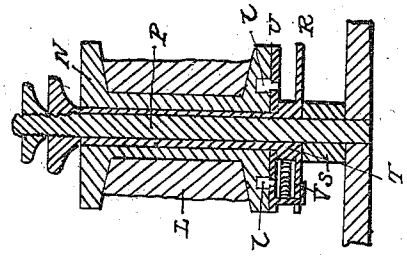

FIG. 5.

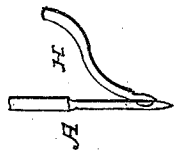

FIG. 7

3 Sheets—Sheet 2.

W. BUTTERFIELD.

Sewing Machine.

No. 11,240.

Patented July 4, 1854.

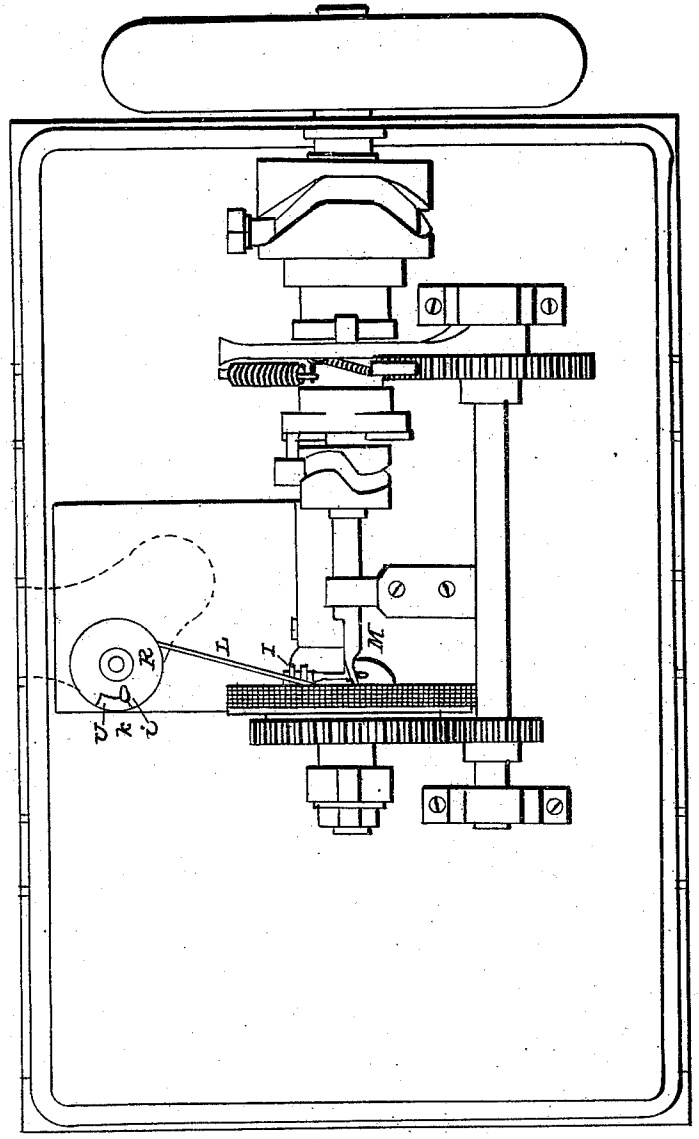

FIG. 2.

3 Sheets—Sheet 3.

W. BUTTERFIELD.

Sewing Machine.

No. 11,240. Patented July 4, 1854.

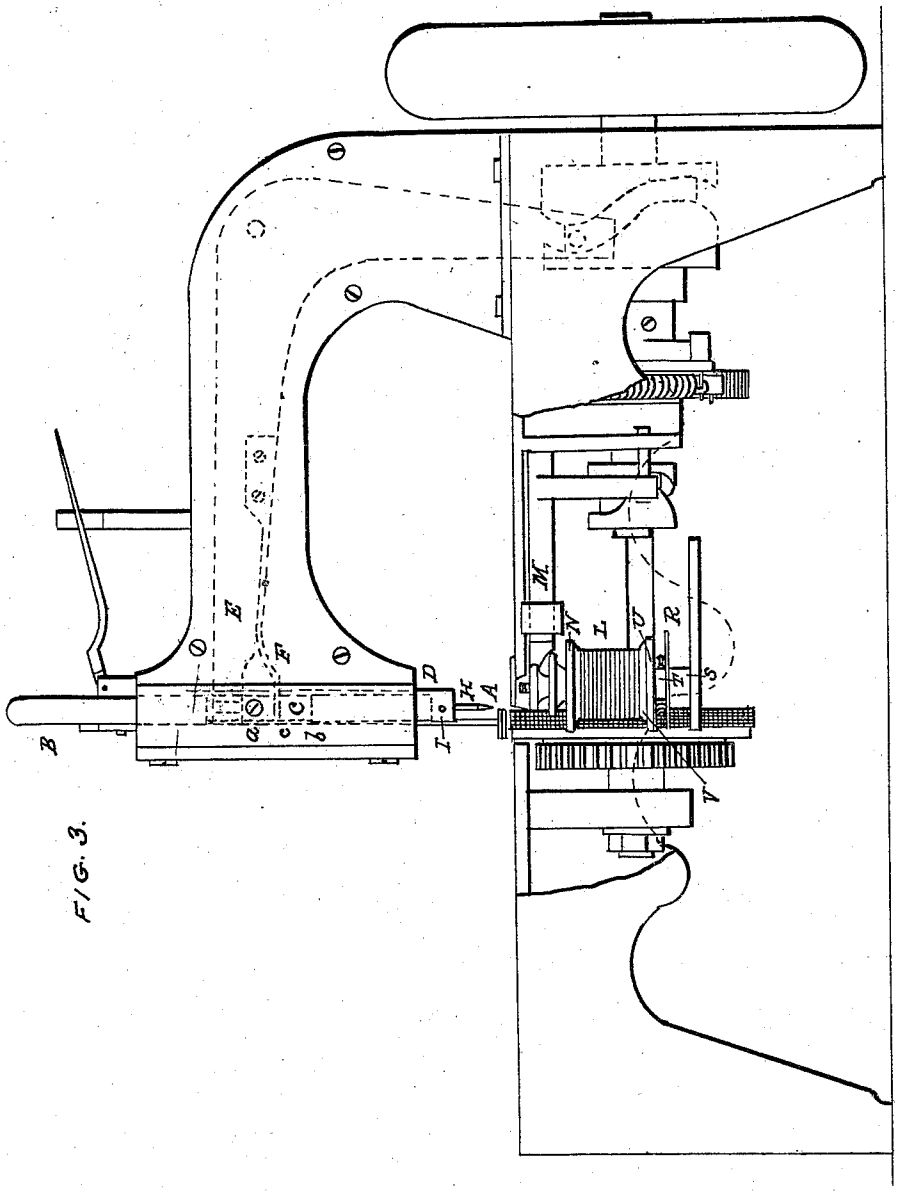

FIG. 3.

UNITED STATES PATENT OFFICE.

WILLIAM BUTTERFIELD, OF BOSTON, MASSACHUSETTS, ASSIGNOR TO BUTTERFIELD & STEVENS.

IMPROVEMENT IN SEWING-MACHINES.

Specification forming part of Letters Patent No. **11,240**, dated July 4, 1854.

To all whom it may concern:

Be it known that I, WILLIAM BUTTERFIELD, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Machinery for Sewing Cloth or other Material; and I do hereby declare that the same are fully described and represented in the following specification and the accompanying drawings, letters, figures, and references thereof.

Of the said drawings, Figure 1 denotes a front elevation, Fig. 2 an under side view, and Fig. 3 a side elevation, of a chain-stitch sewing-machine embodying my improvements, sundry parts of the frame-work being represented as removed or broken away in order to more clearly exhibit the operative mechanism making parts of or connected with the said improvements. Fig. 4 is a vertical section of the bobbin-holder and bobbin.

The machine performs the operation of sewing with a hooked needle, a side view of which, on an enlarged scale or full size, is given in Fig. 5. The said needle (seen at A, Fig. 1) is fixed in the lower end of a carrier, B, to which, by proper mechanism, the usual vertical movements necessary to the operation of the needle is imparted. In the side of this carrier an elongated notch or recess, C, is made, its top *a* and bottom *b* being parallel to each other and perpendicular to its vertical side *c*. There extends into the notch from a vertical slide-bar, D, a projection, *d*. The lever E, by which this needle-carrier is worked, has a spring, F, extended from it, and directly over the projection *d*. The slide-bar D is made to slide against a friction-spring, G, which is pressed against it with a force sufficient to hold it in any position. The lower end of the slide D carries the spring-rest cast-off H, which is a bent piece of steel, formed as seen in the drawings, and attached at its upper end to the slide D. Such slide D is made to project below the upper end of the rest cast-off and to have a set-screw, I, screwed through it and against the rest cast-off, and so as to move the lower end of the said rest cast-off up against the needle. The cast-off is made as a spring, so as to be capable of moving away from the needle when the screw I is unscrewed; and the object of thus making it and providing it with a set-screw in the manner described is to adapt it to a needle of any thickness, as needles of different sizes or thicknesses are used in the machine in accordance with the size and quality of the thread to be employed. When the carrier-lever E is depressed, the spring F is borne down upon the projection *d* of the slide D and forces the slide downward, so as to force the spring-rest cast-off H down upon the leather or material to be sewed. Whatever may be the thickness, or however variable may be the thickness, of the material to be sewed, the rest cast-off H will be made to rest upon it by the action of the spring F. The rest cast-off is raised off and above the leather by the lower end of the recess of the needle-carrier being made to act against and lift the projection *d* while the needle-carrier is being elevated. The rest cast-off is not intended to close or cover the hook of the needle while said hook is being drawn up through the material or cloth to be sewed, for the rest cast-off is not to be made to pass down through the cloth, but only to rest upon it close to the needle, the hook of the needle being so formed or carried back from the shank of it as not to come into injurious contact with the lower end of the cast-off when the point of the barb of the hook is raised out of the material. As soon as the point of the barb has been drawn through the fabric or material the rest cast-off should be elevated with the needle, and made to rise up with the barb as high as it may go. While the needle descends upon the material the rest cast-off should be stationary; but during the further downward movement of the needle it should be forced downward by the spring F, and made to pass into the loop of thread just previously drawn up by the hook of the needle and to rest and press upon the material to be sewed. The rest cast-off is thus interposed between the loop and point or barb of the hook of the needle, so that when the barb rises out of the cloth with the next loop it (the barb) cannot catch in the first-named loop, but draws the new loop freely through it. By means of the rest-spring cast-off, made and operated as specified, I am enabled to dispense with the needle-slide that is commonly used to close the hook of the needle while it is being drawn up through

the fabric or material sewed. As such needle-slide goes through the cloth or material, it is constantly liable to be, and is frequently, broken. Accidents which so often happen to such closing-slides render a machine in which they are employed very expensive in its use. I have therefore aimed to get rid of them, and have effected an improvement which completely removes the objection of the closing-slide of the hook.

The thread L is cast into the hook of the needle by a sliding thread-carrier, M, arranged and operated in the ordinary way. From a bobbin, N, the thread proceeds to and through the carrier M. The said bobbin is placed on a tubular axle, O, that turns upon a fixed or stationary axle, P, and has a friction-disk, R, on its lower end, such friction-disk being made to rest on a shoulder, S, of the fixed axle. A shoulder, T, is arranged on and near the lower part of the tubular axle, and on this shoulder a movable bobbin-holder, U, is placed, it being made to turn freely on the tubular axle and to be connected with the disk R by a spring, V, which is attached at one end to a stud or pin, *i*, that projects down from the holder and into a notch, *k*, made in the disk R, as seen in Fig. 6, which is a top view of this disk. The holder U is provided with one or more studs or pins, *l*, which extend upward from it and into a corresponding recess or recesses formed in the lower head of the bobbin. By means of this holder a full bobbin may at any time be substituted for an empty one; but as machines have heretofore been constructed, the bobbin being directly connected to the disk R by the take-up spring V admitted of said bobbin only being employed. The removing it and supplying it with fresh thread consumed too much valuable time. By means of my improvement I have only to remove an empty bobbin and put another and full one in its place, thus saving the time of winding the thread and adjusting the spring in place. The purpose of the closing slide, point, or lever of a hooked needle, whether used in a sewing or knitting machine, is to perform the function of closing the hook or covering the barb of the needle, so as to prevent the said hook or its barb, when drawn back through the material, from catching in the same. In the sewing-machine of William Wickersham, as patented in the United States on the 19th day of April, 1853, a slide under a particular arrangement and method of use is made to perform this function, and goes down through the cloth or leather with the needle. My spring-rest cast-off does not perform such a function, for it in no respect goes through the cloth or material to be sewed, and does not cover or close the hook so as to prevent it from catching in the cloth or material when it is drawn through such cloth or material. It operates to hold down the cloth or fabric close to the needle while its hook is drawn through the said cloth or fabric, and after the hook has passed entirely through the cloth or material the said rest cast-off rises up with the needle and loop of thread drawn up by and on it and remaining up during the descent of the needle toward the fabric. It thus is made to go up in order to remain above the loop, so that when it next descends it may pass into the loop. The said rest cast-off is next made to descend along the needle and pass into the loop of thread and to rest on the fabric or cloth and hold said loop firmly while the needle descends through the material or cloth receiving the thread in its hook, and is drawn upward, so as to draw a new or another loop up through the fabric, and the loop held by the rest cast-off. The said rest cast-off, by being interlooped between the needle-barb and the first loop, thus not only prevents the said loop from being caught by the hook as it rises out of the cloth, but insures the casting of the loop from the needle. I do not therefore claim the combination of a needle-slide and hooked needle wherein the slide is made to operate so as to close or cover the hook and prevent it from catching in the fabric while it is being drawn through the same; nor do I claim any arrangement of applying the closing slide of a hooked needle to the same side of a needle, as is the barb or hook, so that such slide may slide in a groove in the needle (or carrier thereof) parallel to the motion of the needle; but

What I do claim as my invention or improvement in the chain-stitch sewing-machine operating with a hooked needle or hook to draw the thread through the material to be sewed, is—

1. The rest cast-off in its combination with the hooked needle, and as applied to and made to operate with it and the material to be sewed and in the loop of thread, substantially as specified.

2. The improvement by which the rest cast-off is rendered capable of adapting itself to any ordinary thickness or variation of thickness of the fabric or article to be sewed, such improvement consisting in the above-described mode of operating it by the spring F, applied to the carrier-lever E, and made to operate on the lower end of the recess C, as stated.

3. I do not claim the application of a spring to the bobbin for the purpose of enabling the bobbin to fall or turn backward and take up the slack of the thread; but what I do claim is the combination of the bobbin-holder U with the spring V, the friction-disk R, and the axle on which the holder turns, the same enabling an empty bobbin to be removed from the holder and a full one put in its place without disturbing the connection of the spring with the bobbin and friction plate or disk.

In testimony whereof I have hereto set my signature this 26th day of October, A. D. 1853.

WILLIAM BUTTERFIELD.

Witnesses:

R. H. EDDY,

F. P. HALE, Jr.