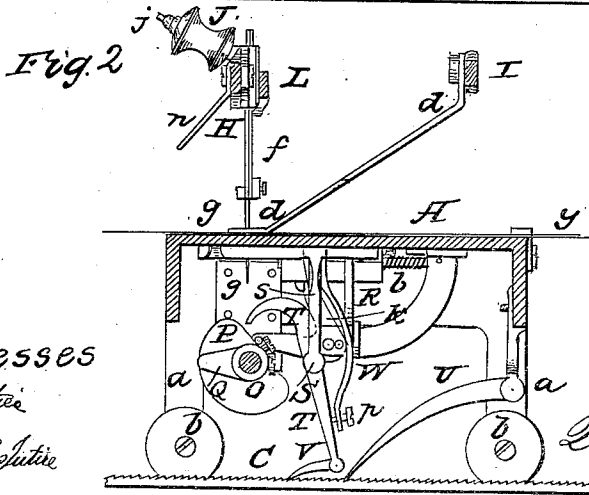
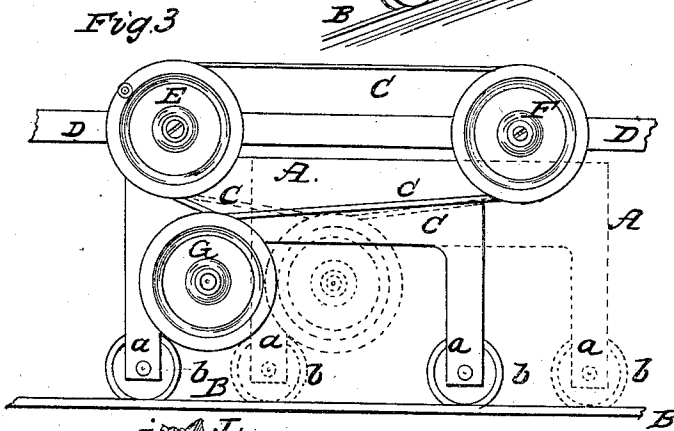
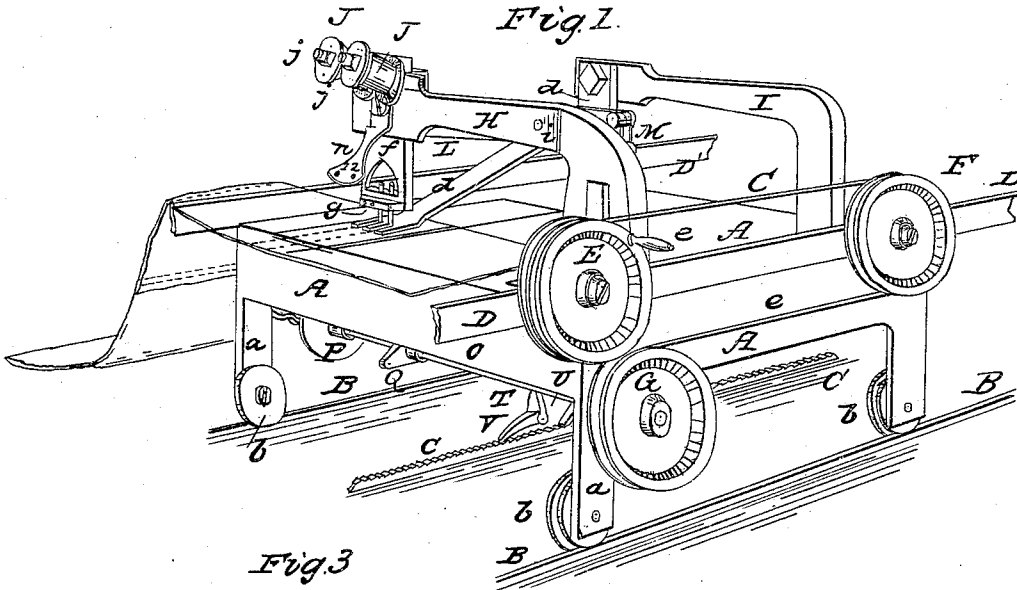


Q. RICE.

Sewing Machine.

No. 31,429.

Patented Feb. 12, 1861.



witnesses
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Inventor
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UNITED STATES PATENT OFFICE.

QUARTUS RICE, OF WEST WINSTED, CONNECTICUT, ASSIGNOR TO HIMSELF
AND L. H. SMITH, OF SALEM, NEW JERSEY.

IMPROVEMENT IN SEWING-MACHINES.

Specification forming part of Letters Patent No. 31,429, dated February 12, 1861.

To all whom it may concern:

Be it known that I, QUARTUS RICE, of West Winsted, in the county of Litchfield, in the State of Connecticut, have invented certain new and useful Improvements in Sewing-Machines; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, making part of this application.

My invention has for its object a more economic and effective method than has heretofore been adopted in the sewing together of long pieces of material in large quantities—as, for instance, in making sails; and my invention consists in the employment of a sewing-machine in combination with a railroad and suitable mechanism for imparting motion from a fixed driving-shaft to the main shaft of the sewing-machine, to cause said machine to travel on said railroad and at the same time perform the operation of sewing on the material, which is held in a fixed and distended condition, as hereinafter fully described.

It has been customary previous to my invention to employ the sewing-machine in such manner, through a great variety of construction, as that the material to be sewed should be fed under the needle, which remained stationary; and in some instances sewing-machines have been constructed with a traversing carriage arranged on the machine, and in other instances with the body of the machine made to traverse ways formed on the table of the machine. It has also been customary to employ a sewing-machine in connection with a railroad in such manner that hand-power must be applied directly to the sewing-machine as it moved; but I have found in practice that none of these methods of sewing is well adapted to putting together in long seams of large quantities of material—as, for instance, in sail-making; and in view of the difficulties presented in this kind of work I have devised my improved method, in which I propose to fasten to points on a frame extending the whole length of an apartment, the widths of material to be united, and so combine the machine with a railroad and a system of driving-pulleys or their equivalents as that the machine (driven from a fixed portion of the apparatus) shall run along the entire length of the seam and effectually unite the breadths of material

with that kind of seam which is suitable for such work.

To enable those skilled in the art to make and use my invention, I will now proceed to describe the same, referring by letters to the accompanying drawings, forming part of this specification, and in which—

Figure 1 is a perspective view of my improved apparatus. Fig. 2 is a vertical longitudinal section of the same, and Fig. 3 is a detail partial side view, which will be explained hereinafter.

In the different figures the same letters of reference indicate the same portions of the apparatus.

A is the frame of the sewing-machine, supported on four legs, *a*, provided at their lower extremities with rolls or truck-wheels *b b*, which are adapted to and run on rails B B, which are arranged on the floor of the apartment in which the sewing is to be done.

C is a toothed or ratchet bar, arranged on the floor, and with which engages the mechanism for feeding the machine along on the rails B, and which will be presently explained.

D D are two parallel bars or frame-pieces, which are arranged one on each side of the machine and a short distance from it, running from one side of the room to the other. On one of these bars D are placed on suitable axes the two pulleys E and F—one of which, E, is the main driving-pulley. I have shown it supplied with a handle, *e*, for applying hand-power; but it may be driven by any motive power.

G is a pulley arranged on the side of the sewing-machine and driven by the belt *e*, which passes around it and also around the pulleys E and F.

From the top of frame A of the sewing-machine project upward two arms, H and I, to one of which is fastened the presser-foot *d*. In the other, H, is arranged the carriage *f*, in which the needles *g* are secured.

h is a guide-plate through which the threads pass at 1 2 from the spools J J, which are hung on studs *j*, projecting from the end of arm H. (See Figs. 1 and 2.) The needle-arm L is hung on the side of arm H by a pivot, *i*, and is vibrated around said pivot in the usual manner, so as to impart a vertical reciprocatory motion to the needle-carriage *f*.

The operating mechanism is driven from a main rotating shaft, O, and on the end of which is fixed the pulley G, and on which are secured the cams P and Q, and also the cam or eccentric which drives the needle-arm. (This eccentric not seen in the drawings.) On the under side of the bed A of the machine is secured a pendent frame, R, in the lower end of which is hung on a pivot, *m*, a bent lever, *k*. The lower end of this lever *k* rests on and is affected by the cam P in such manner as to turn the said lever on its pivot *m* and make its upper end impart motion, in one direction, to the carriage which carries the lower needles or hooks, and which carriage is forced back by a spiral spring, *l*. The cam Q operates the hook-lever T, which is pivoted in the lower end of the pendent arm S, and in the lower end of which is hung the ratchet-pawl V, that works in the toothed bar C and feeds the machine along on the railroad.

U is a lock-pawl, which holds the machine relatively to the road while the pawl V is moving forward to take a fresh bite.

W is a bar extending down from the arm S and having a stop-screw, *p*, in its lower end to regulate the extent of motion and thus the feed of the machine.

The detail of construction and operation of the mechanism by which the stitches are formed need not be here explained, as my invention is not confined to any particular machine in this respect. It will be understood that when motion is imparted to the driving-pulley E the endless belt *c* will cause the pulley G to rotate on its axis, and this pulley will drive the shaft *o*, which moves by cams, as before mentioned, all the operating mechanism. As the lever T is intermittently vibrated the whole machine is caused to move along on the railroad while the needles are sewing. Thus the feed of the machine is caused by the machine moving intermittently, while the work stands still. This feature of operation is illustrated at Fig. 3, where the machine is shown in two positions—one in black, the other in red. (The frame A and pulley G only are shown in this view to make it simple.) The pulleys E and F are permanent in their relative position during the operation of the machine, and may

be arranged at any distance apart, the pulley G always traveling along in connection with the belt *c*. By setting the stop-screw *p* in and out the extent of motion of the vibrating lever T is altered in connection with cam Q, and thus the feed is varied, making the machine move greater or less distance at each step, and consequently take a shorter or longer stitch.

It will be understood that other mechanism can be employed for operating the parts which perform the function of sewing, and also that in lieu of the ratchet-bar and pawl *v*, operating as described, a rack and pinion or other machinery may be employed to make the machine feed automatically along the rails B B.

As before mentioned, the cloth is fastened at its extremities in the apartment. The two edges to be sewed are overlapped and arranged in a guide-clamp, Y, on the bed A of the machine, in such manner as to keep them properly in position as to the lap while the machine moves along. I have illustrated in blue lines in the drawings the position of the cloth; and it will be seen that the bulk of the material is always off of the machine, only one width at the same time lying on the table A, while the seam is seen in a horizontal position. I have shown two needles, but any number may be employed.

Having described my invention and the mode of carrying the same into practice, and disclaiming the employment of a sewing-machine on a railroad, in combination with a fixed condition of the work being sewed, what I do claim as my improvement, and desire to secure by Letters Patent, is—

The employment of a sewing-machine on a railroad in such manner that the machine shall travel on the road while sewing, in combination with any suitable mechanism for imparting motion to the machine and sewing mechanism from a stationary driving-shaft, substantially as and for the purposes hereinbefore described.

In testimony whereof I have hereunto set my hand.

QUARTUS RICE.

Witnesses:

J. N. MCINTIRE,
EDM. F. BROWN.