(No Model.) 2 Sheets—Sheet 1

E. H. SMITH.

METHOD OF AND MACHINERY FOR SEWING HEAVY MATERIALS.

No. 248,892. Patented Nov. 1, 1881.

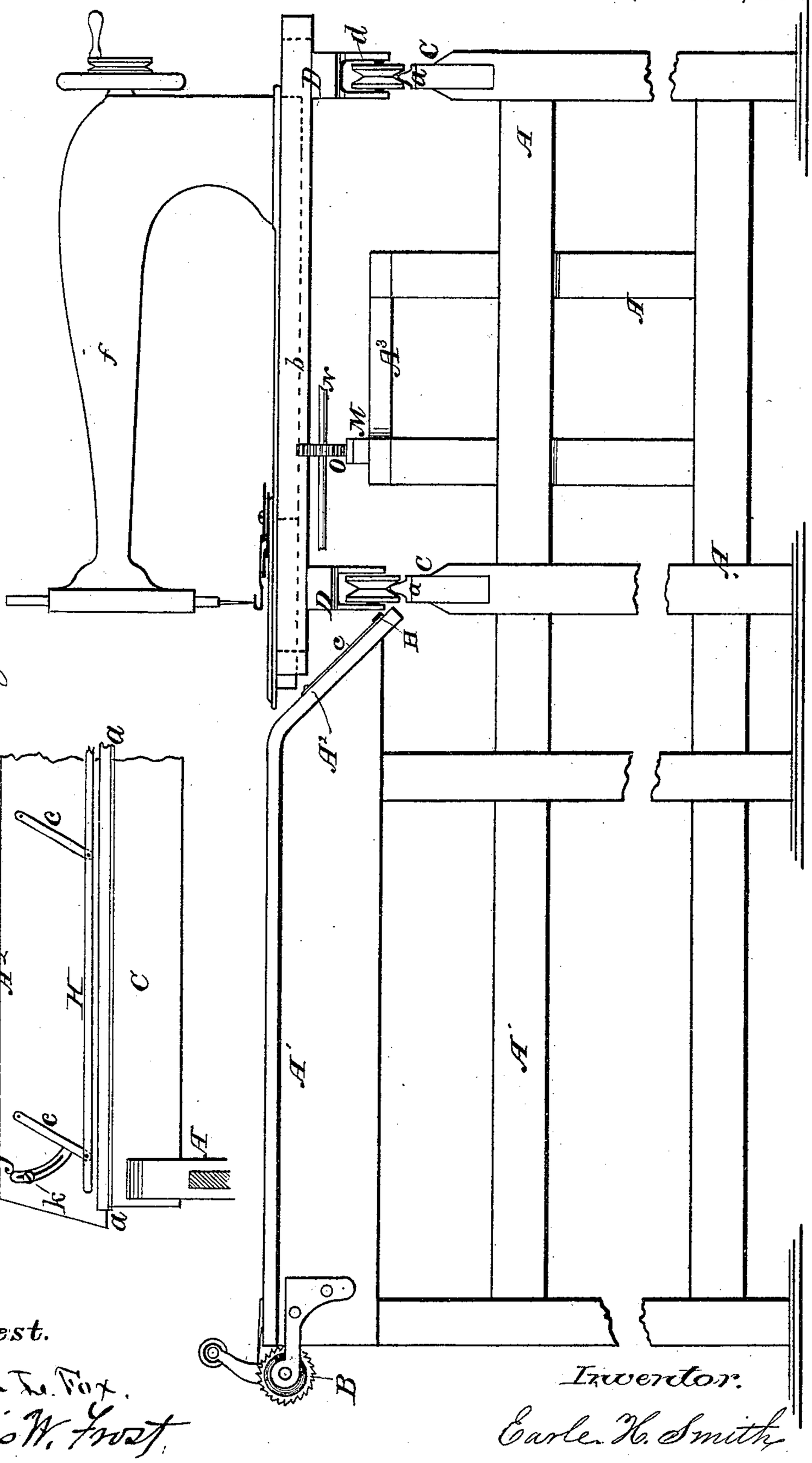

Fig. 1.

Attest.

Byron D. Fox.

Louis W. Frost.

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(No Model.) 2 Sheets—Sheet 2.

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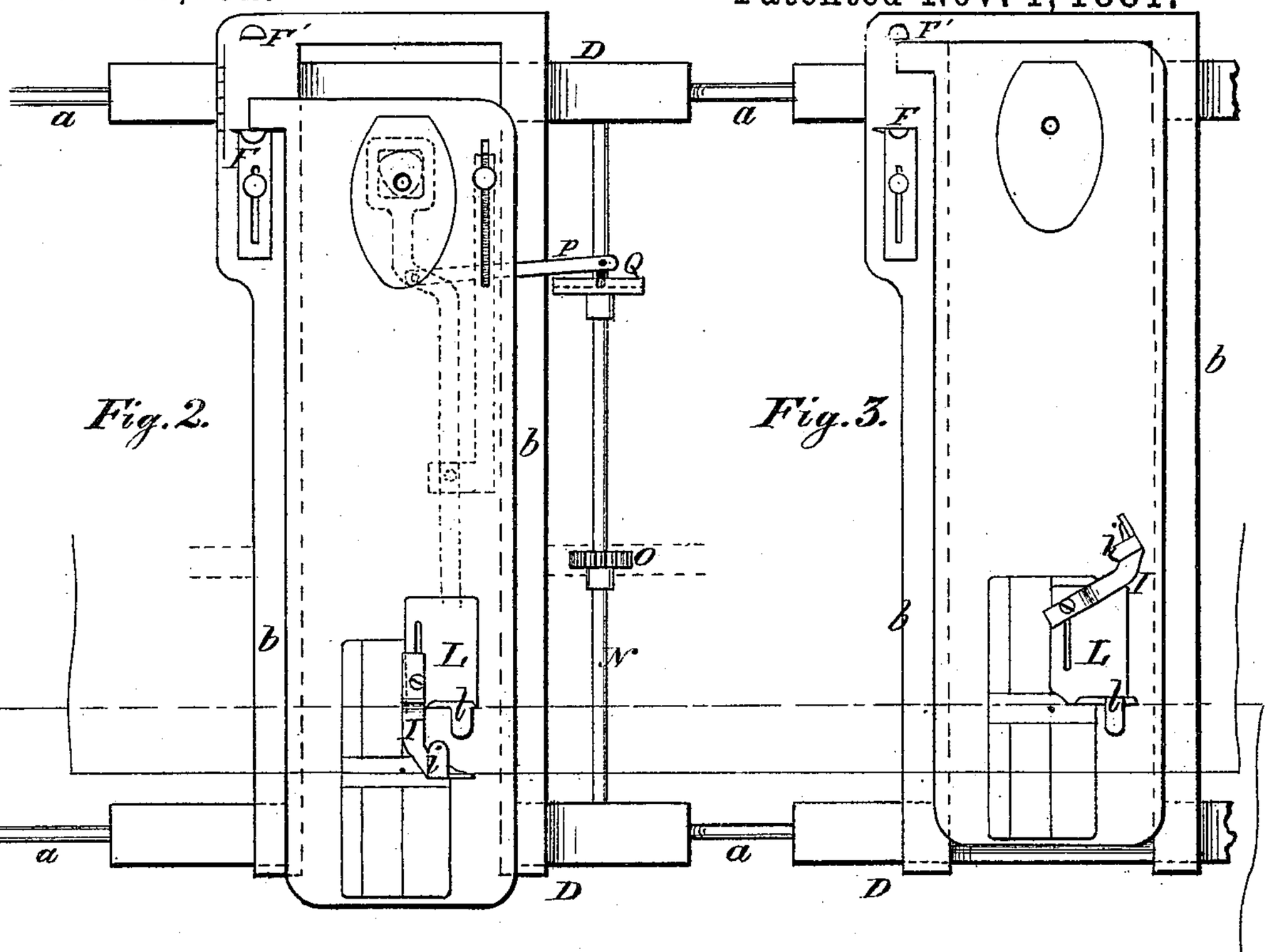

Fig. 2.

Fig. 3.

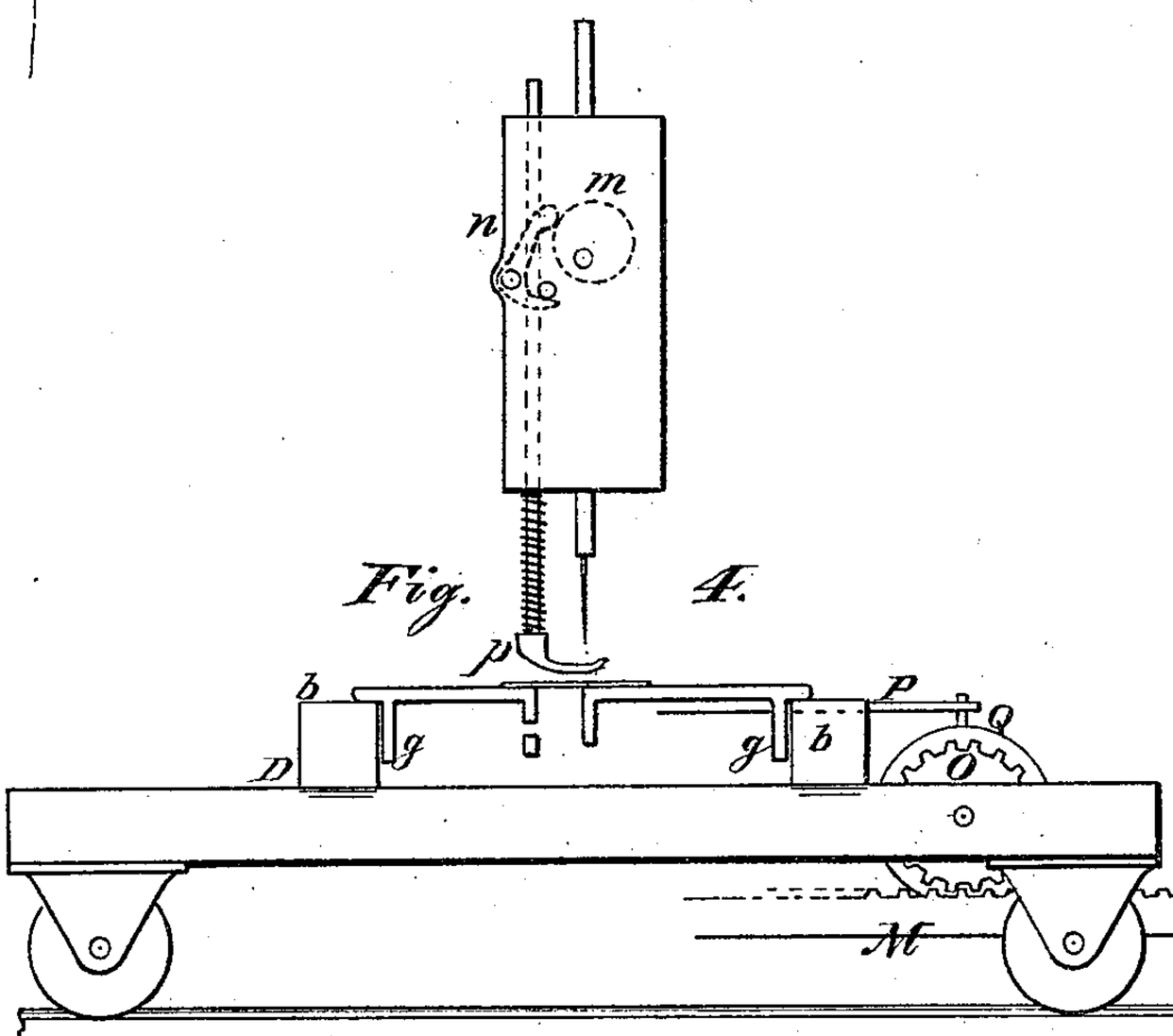

Fig. 4.

Attest.
Byron D. Fox.
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UNITED STATES PATENT OFFICE.

EARLE H. SMITH, OF NEW YORK, N. Y.

METHOD OF AND MACHINERY FOR SEWING HEAVY MATERIALS.

SPECIFICATION forming part of Letters Patent No. 248,892, dated November 1, 1881.

Application filed May 24, 1881. (No model.)

To all whom it may concern:

Be it known that I, EARLE H. SMITH, of New York city, in the county and State of New York, have invented certain new and useful Improvements in Sewing Heavy Materials, whereof the following is a specification.

My said improvements relate to a new method of sewing together breadths of heavy fabric with a traveling sewing-machine operating on such fabric while held at rest; and the invention comprises certain new combinations, with a sewing-machine, of a carriage and a railway therefor, supports for the work, both complete and in process of being sewed, and gages, guides, and other accessories, substantially as hereinafter set forth.

To enable others skilled in the art to practice my invention, I will describe the same as applied to the sewing of lap-seams in making large articles—such as sails, tents, &c.—referring to the annexed drawings, wherein—

Figure 1 is an end elevation of the tramway and supports for the material sewed, giving a side view of the sewing-machine carriage with a sewing-machine mounted thereon, and also a detached view of one of said supports (herein termed a "desk") as seen from the front. Fig. 2 is a top view of a sewing-machine bed as arranged on the carriage, showing the seam-guides and indicating mechanism for moving the carriage intermittently on the tramway stitch by stitch as the sewing progresses. Fig. 3 shows a like sewing-machine bed and seam-guides in a different position. Fig. 4 shows, enlarged, the front end of the carriage as it appears on the tramway, and also indicates mechanism for lifting the presser-foot at each advancement of the machine.

A A′ represent one end of a frame-work, the length of which equals that of the work sewed, the rear portion of which, A′, forms a platform-support for the sewed work, and B indicates a roller, on which the completed work may be wound. The front portion, A, has a tramway, C, extending the entire length of the work-supports, said tramway having rails *a* laid thereon, and the whole constituting an elevated railway structure. The rails *a* of the railway C are shaped to receive and guide the wheels *d* of a carriage, D, on which is mounted a sewing-machine. The railway or tramway C and its rails are elevated as near to the level of the support A′ and of the sewing-machine bed as practicable, whereby greater steadiness of the machine, and hence more certainty of rectilinear stitching, is secured than obtains where no such railway frame-work is employed; but the railway is laid on or near the floor, and a part, A^3, of such frame A also serves to hold up the breadth of goods, which, in process of being sewed, passes under the bracket-arm of the machine, the bed passing under.

The carriage D consists, in part, of a frame, *b*, on which the margin of the sewing-machine bed rests, and the under frame, *g*, of the machine is embraced between the sides of the carriage-frame *b*. Such frame *b* is longer than the machine, to admit of the latter being moved to different locations on the carriage relatively to the work and to the tramway for sewing different lines of stitching, and the carriage is provided with fixed and adjustable stops F F′ or their equivalent, and also a graduated plate for determining the place or places of the machine on the carriage according to the width of lap-seam or the lines of stitching to be sewed. The sewing machine or machines are also furnished with proper lap-seam guides.

The bulk of the completed work lies on the platform or support A′, and the breadth of goods last added thereto is placed so that the front edge thereof may reach forward under the presser-foot and needle of the machine. To have such front edge lie in line with the path of the sewing-machine, I provide a suitable gage or gages adjustably attached to some part of the work-supporting frame, and extending the entire length thereof. The device shown for this purpose consists of a straight bar, H, disposed, in this instance, on a desk, A^2, part of the frame A′. It is pivoted, like a parallel rule, to links *e e*, whereby it may be adjusted nearer to or farther from the railway, while maintaining a parallel relation thereto at every point. By a slotted segment, J, made fast to one of the links and a screw, *k*, the bar may be secured in place when so adjusted, as aforesaid, and is available for gaging or lining the goods to a right line their entire length. I do not

confine myself to this form of gage, as such a gage is new in itself in this connection. While lining the front edge of the back breadth by means of this gage, preparatory to adding a fresh breadth thereto, such back breadth is bent down so as to lie on the desk A^2, and when once properly lined with the line of travel of the sewing-machine and carriage on the tramway such breadth is first temporarily secured to the platform A′, immediately above A^2, leaving a portion of the margin free throughout its length, which margin is then raised up and laid on the machine-bed. The outer or front breadth is next secured by its rear edge or margin to the back breadth and placed in position on the machine for receiving the sewing. At the same time, and before a line of sewing is begun, the lap seam guides I *i* L *l* are adjusted for forming a seam of the width of lap adopted. For instance, if the lap of the seam is two inches, one of the guides is set so as to bring a line of stitching along the edge of one breadth, and the other guide placed two inches therefrom behind the needle; then, having set the adjustable stop F on the carriage D two inches from the fixed stop F′, the sewing-machine is placed in the relation to the stop F shown in Fig. 2.

The two lines of stitching required to secure the two lapping edges—under and upper—may be sewed consecutively by the same machine; but the more expeditious way is to sew them at the same time by different machines, one following the other on the same track, and, as shown in the drawings, the line of sewing first done is that along the overlapping selvage of the front breadth, Fig. 2. In Fig. 3 is illustrated the sewing of the other line of stitching and the relative place of the parts therefor, the machine is set back to the place of the stop F′, the guide I is loosened and turned aside out of the way, and the guide L is moved up to the needle. The edge of the breadth that lies on the support A′ passes under the projection *i* of the guide I, and the edge of the breadth that is supported by the sewing machine and frame A^3 passes over the guides I and L, but under the projection *l* of the guide L. As each seam is completed the work is moved back across the platform or support A′, and, if desired, may be wound on the roller B.

From the foregoing it will be now understood that the completed work and breadth last sewed lies horizontally on the part A^3, and is supported thereby; and that every fresh breadth, when in process of being sewed onto work previously completed, passes under the bracket-arm *f* of the sewing-machine, the bed passing under and on both the near and farther sides of the machine, looking at Fig. 1. Such breadth is supported horizontally on that part of the tramway-frame over which the machine moves in the act of sewing it.

The sewing-machine and its carriage are moved along on the tramway intermittently, as the sewing progresses, by any of the known means for so advancing a traveling sewing-machine. A plan of my invention, which I have used with success, is illustrated in Figs. 2, 3, and 4. It consists of a rack of cogs, M, (or it may be a chain,) made fast to a part of the tramway-frame, and is engaged by a pinion, *o*, affixed to a shaft, N, journaled in the carriage D, and which shaft N is also provided with a friction-clutch and wheel, Q, (like the wheel-feed clutch,) fastened to said shaft, and is turned by a suitable connection, P, communicating with the sewing-machine feed-lever, as shown in dotted lines in Fig. 2. In this combination of feed mechanism the advantages of the friction-clutch, so well known to the art, are combined with those of a positive and frictionless means of engaging the tramway—viz., the rack and pinion—and in the arrangement of the parts the wheel Q is so disposed on shaft N with respect to the connection P with the feed-bar that the machine may be moved to any point within the limitation of the stops F F′ without affecting the operation of the feed mechanism or the length of stitch, while the latter may be regulated in the usual manner. At every advancement of the machine and carriage the goods are released by lifting the presser-foot *p*. The means for this purpose, shown in the drawings, is an eccentric, *m*, on the main shaft, in the arm *f*, which actuates a bell-crank lever, *n*, that engages with a pin affixed to the presser-foot bar, as illustrated in Fig. 4.

In the foregoing invention I do not confine myself to particular form and structure where they may be varied without departing from the substance.

I claim as my invention—

1. The method hereinbefore described of uniting fabrics, consisting in gaging and lining the edge of one breadth of material to a right line throughout its length, securing such breadth so lined to a platform or support, leaving a free margin, and then guiding and sewing another breadth lapped on such margin with a traveling machine.

2. The combination, with the railway and suitable work-supports, of the gage H, substantially as described, for gaging and lining the free edge of the breadth last sewed throughout its length at one operation.

3. The combination, with the carriage D, the sewing-machine, and its lap-seam guides, of the stops F and F′ on the said carriage.

4. In combination, a sewing-machine carriage adapted to travel on a track or tramway, a sewing-machine mounted on such carriage and adjustable thereon transversely to the railway, and lap-seam guides adjustable on the sewing-machine.

5. The combination, with a platform or frame for the sewed work, and with a frame sustaining a track for a traveling sewing-machine, of duplicate traveling machines following each

other on the same track, each machine provided with seam-guides operating on the same seam.

6. The pinion *o* and cogged rack M, for advancing the carriage D, in combination with the adjustable sewing-machine, having its feed-lever connected by the rod P to the clutch and wheel Q, substantially as and for the purpose specified.

EARLE H. SMITH.

Witnesses:
W. H. McDOUGALL,
E. G. DELANEY.