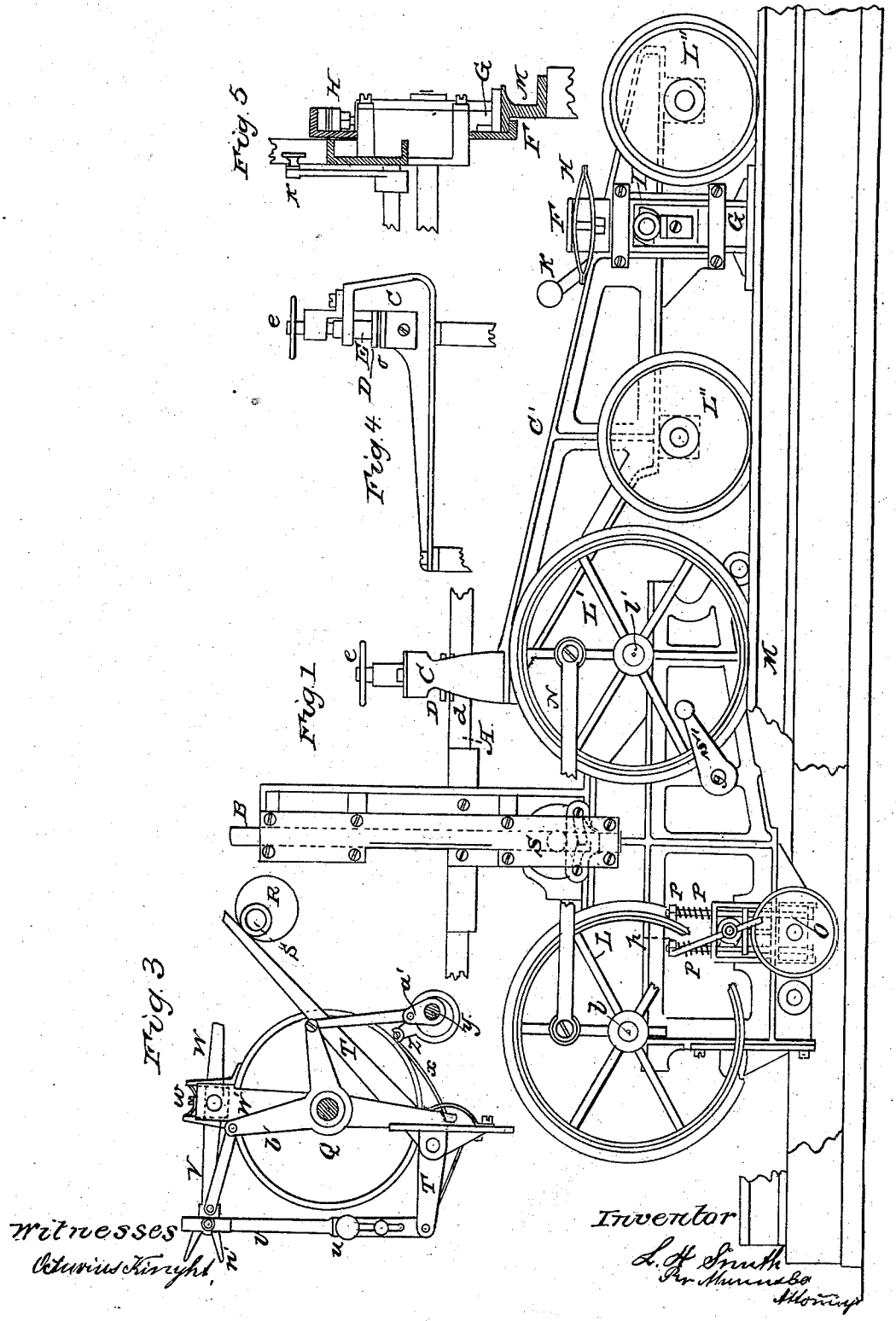
2 Sheets—Sheet 1.

L. H. SMITH.

Sewing Machine.

No. 32,385. Patented May 21, 1861.



2 Sheets—Sheet 2.

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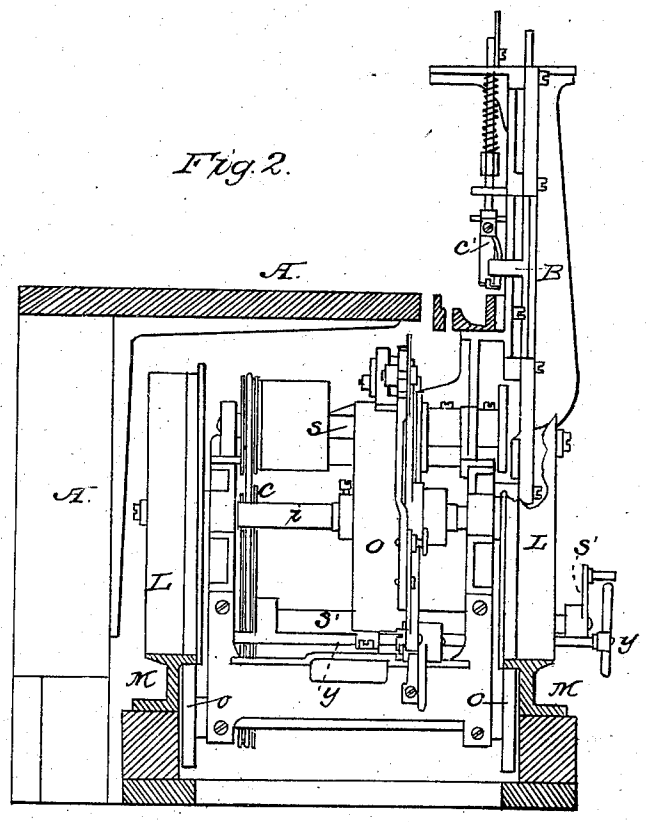
Fig. 2.



Witnesses

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UNITED STATES PATENT OFFICE.

LOUIS H. SMITH, OF SALEM, NEW JERSEY.

IMPROVEMENT IN SEWING-MACHINES.

Specification forming part of Letters Patent No. **32,385**, dated May 21, 1861.

To all whom it may concern:

Be it known that I, LOUIS HENRY SMITH, of Salem, in the county of Salem and State of New Jersey, have invented certain new and useful Improvements in Sewing-Machines; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a side elevation of a portion of a machine illustrating my present improvements. Fig. 2 is an end view of the same. Fig. 3 is a side elevation of the feed-wheel and its connections. Fig. 4 is an end view of one of the cloth-holders. Fig. 5 is a detached sectional elevation of a portion of the cloth-holder carriages in position on the rail.

Similar letters of reference indicate corresponding parts in the several figures.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation.

This machine is particularly designed for the sewing of carpets and for other heavy work where both breadths of the material to be sewed are laid one upon the other on the same side of the needle-bar. Some of the improvements are, however, applicable to machines in which the needle-bar is worked by an arm projecting over one breadth of the material for the purpose of sewing lapped edges.

The improvements consist, first, in a novel construction of cloth-holders for matching, stretching, and holding stationary the materials to be sewed; second, in an improved combination of devices for imparting an intermittent feed motion to the carriage supporting the sewing mechanism; third, in devices for throwing the feed mechanism out of gear.

A is a table on which the materials to be sewed are laid, and at the side of which the sewing mechanism moves.

B represents the sewing mechanism, which may be of any suitable construction, supported on flanged driving-wheels I I′, moving on rails M M, and connected by rods N. The wheels L are firmly secured to their axle *l*, in order to receive motion therefrom, as hereinafter explained.

C is a cloth-holder mounted on the end of a projecting frame, C′, supported on flanged wheels L″, which also move upon the rails M. One of such cloth-holders is applied in front and one in the rear of the sewing mechanism. The work is held between plates D *d*, roughened on the faces next the cloth, the upper plates D being pressed to the cloth by means of a screw, *e*, working in a sliding bar, E. The cloth-holder carriages are adjustable, and may be fixed firmly at any point on the rails by the brakes F G. The lower end of G, where it comes in contact with the rail, may be faced with leather or india-rubber, and the lower end of F has a flange projecting under the flange of the rail. A spring, H, is fitted on a rod projecting from the top of G, and bears against a flange on the upper end of F, thus causing F and G to clutch the rail. The brakes are released from the rail by cams at the end of shaft I. The lever K turns the cam-shaft and throws the brakes clear of the rail.

The feed movement of the sewing-machine carriage is obtained by means of the traction of the wheels L upon the rails M. A part of the face of each wheel is turned off to receive a rubber or leather ring. The traction is further increased by small wheels O, the shaft which revolves in boxes floating up and down in boxes sliding on the frame. These wheels are pressed against the under side of the flanges of the rails by the springs P P, coiled on rods passing through the boxes of the wheels. The force of these springs may be regulated by turning the nuts *p p* at the upper ends of the rods.

S is the main cam-shaft, actuated by a belt, *s*, from the crank-shaft *s′*.

S′ is a crank employed to actuate the machine when it is worked by hand, and to adjust the sewing mechanism when power is employed to operate the machine.

The feed mechanism is represented in detail in Fig. 3. The intermittent motion is given to the driving-wheels L by a feed-wheel, Q, secured to the shaft *l*. The cam R on the shaft S gives motion to the lever T, which is connected by the rod U to the lever V, which actuates a segment-clutch, W. The said clutch has a slight vertical play in guides in the upper end of an arm, W′, journaled on the shaft *l*. *w* is a spring acting to elevate the clutch W when released by the lever V. The length of stitch can be regulated by the set-screw *u* at the lower end of rod U. A spring, X, bearing against the feed-wheel, prevents the carriage from moving during the interval between

the feed movements while the needle is in the cloth. When the carriage is run back to commence a new seam or to any point on the work the clutch-lever V, the spring X, and the wheels O can be thrown out of gear at the same time by turning the hand-shaft Y. This carries a cam, *y*, at each end, which cams depress the boxes of the wheels O and throw the latter clear of the rails. The eccentric Z throws the spring X clear of the face of the feed-wheel, and the arm *a'*, through the medium of the rocker *b'* and the connecting-links, throws the hook *w* at the upper end of the rod U out of gear with the pin at the end of the lever V.

A spring, *c'*, is attached to the cloth-presser. The lower end of the spring runs between the two breadths of carpet in advance of the needle, and serves to keep back the worsted ends of Brussels carpets clear of the needle, so that the needle will pass through the linen base of the fabric only without catching the worsted. The spring may be swung off out of the way when the machine is used on other work.

The operation is as follows: The operator first clamps the edges of the breadths to be stitched in both the cloth-holders, taking care that the figures of the pattern match at the points held between the plates. One of the carriages is then secured by its brake to the rail, and the other close in the rear of the sewing-machine carriage, rolled from it till the work is properly stretched, when the brake of the second carriage is applied. Motion is then imparted simultaneously to the sewing mechanism and its carriage by means of the crank S', and the machine traverses from one cloth-holder to the other, stitching as it goes. A new hold is then taken of the cloth in the manner before described, the feed mechanism thrown out of gear by means of the hand-shaft Y, and the machine run back by hand or otherwise to the place of beginning. It will be seen that the breadths to be sewed are laid on one side of the needle.

The machine might be constructed with a long arm, and with similar arrangements to those in my machine for stitching canvas, patented February 12, 1861. The breadths of such carpets as show the pattern on both sides could in that case be laid one on each side of the needle, with their edges together, and the needle made to stitch from one selvage to the other; but it is found that carpets sewed on one side of the needle with a straight seam look and wear better while the face side is up, and by the time they are turned the ridge formed at the seam on the reverse side is pressed flat.

For some descriptions of work but one cloth-holder is employed.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A cloth-holder mounted on wheels running on the same rails as the sewing-machine carriage and independent thereof, and provided with a suitable brake to secure it to the rail at any point.

2. The combination of the friction-clutch feed-wheel Q, or other suitable feed-wheel, and traction-wheels L L, for imparting motion to a sewing-machine carriage, as explained.

3. The combination of the cam-shaft Y *y*, rocker *b'*, wheels O O, hooked rod U *u*, and spring *w*, operating to throw the feed mechanism in and out of gear, as explained.

The above specification of my improvements in sewing-machines signed this 22d day of March, 1861.

LOUIS HENRY SMITH.

Witnesses:
OCTAVIUS KNIGHT,
L. W. BENDRE.