E. SHAW.

Sewing Machine.

No. 11,571. Patented Aug. 22, 1854.

Fig. 2.

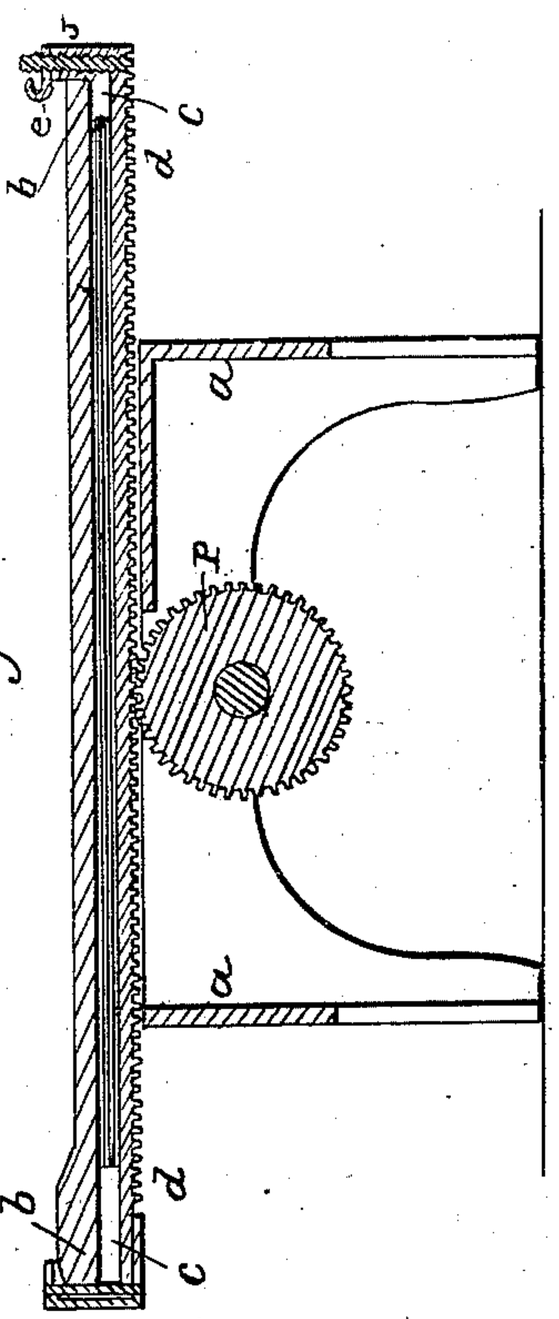


Fig. 3.

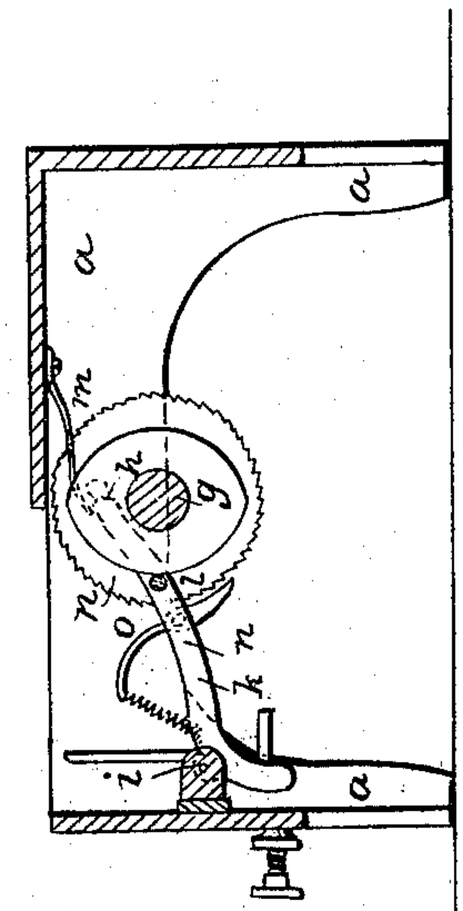
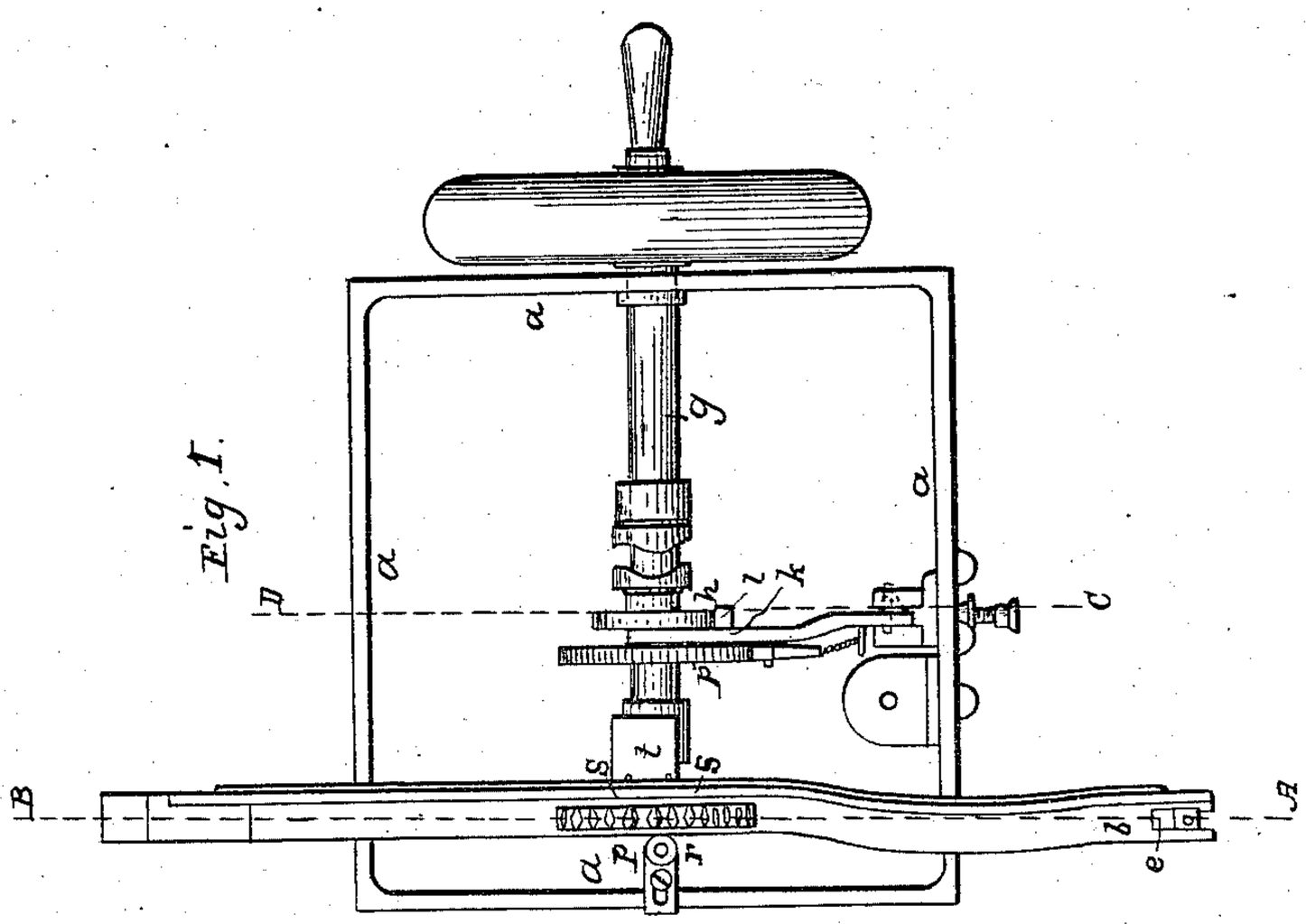


Fig. 1.



UNITED STATES PATENT OFFICE.

EDMUND SHAW, OF EAST ABINGTON, MASSACHUSETTS.

IMPROVEMENT IN SEWING-MACHINES.

Specification forming part of Letters Patent No. 11,571, dated August 22, 1854.

To all whom it may concern:

Be it known that I, EDMUND SHAW, of East Abington, in the county of Plymouth and State of Massachusetts, have invented certain new and useful Improvements in Wax-Thread Sewing-Machines for Siding Up Boot-Legs, &c.; and I do hereby declare that the following description, taken in connection with the accompanying drawings, hereinafter referred to, forms a full and exact specification of the same, wherein I have set forth the nature and principles of my said improvements, by which my invention may be distinguished from others of a similar class, together with such parts as I claim and desire to have secured to me by Letters Patent.

The figures of the accompanying plate of drawings represent my improvements.

Figure 1 is a plan or a top view of a "Wickersham wax-thread sewing-machine," so-called, with my improvements attached thereto, the top or platform of the machine being represented as removed, in order to show the operative parts of the same, and the stitching apparatus, which is not essential to show the operation of my machine, left out. Fig. 2 is a transverse vertical section of the same, taken in the plane of the line A B, Fig. 1. Fig. 3 is a transverse vertical section taken in the plane of the line C D, Fig. 1.

My improvements are made upon that class of sewing-machines which are used for "siding up" boot-legs, &c., in which the needle has a vertical or up-and-down motion. In these machines as heretofore constructed the two pieces of leather to be united are placed and held in a straight clamp, which is fed along and guided to the needle by the hand of the operative. There are many objections attending the use of these clamps, arising, principally, from the difficulty experienced by the operative in accurately guiding the boot-leg, which is of a curved shape, to the needle, and from the fact that, as the clamp is straight, and the pieces of leather to be united of a curved shape, the needle cannot work close up to the clamp, and therefore but imperfectly performs the stitching.

My improvements consist in holding the two pieces of leather of which the boot-leg is composed in a curved clamp, which is shaped to suit the form of the boot-leg, the said clamp being so constructed and actuated as to accurately feed and guide the leather to be sewed to the needle without the aid of the operative.

a a a in the drawings represent the frame-work of the machine. *b b c c* is the clamp for for holding the leather, composed of two curved bars, *b b c c*, the lower bar, *c c*, having a gear or rack, *d d*, joined with it or attached to it. The two curved pieces of leather to be united are placed between the upper and lower bars of the clamp, leaving an edge or margin projecting from the same, as represented in Figs. 1 and 2. The upper end of the clamp is then fastened to the lower bar by means of the nut *e* and screws *f*, so as to rigidly hold the leather in the clamp. The clamp is then fed along, so as to guide the pieces to be stitched to the needle, and also to keep them in proper position with regard to the same, as follows: On the horizontal shaft *g* is placed a cam, *h*, which, in its revolution, abuts against a stud, *i*, in the curved arm *k*, which turns in a fulcrum at *l*. The revolution of the cam *h* thus lifts the arm *k*, which is retracted by a bent spring, *m*. (Shown in Fig. 3.) To the arm *k* and turning on a pivot, *n*, in the same, is attached the spring-pawl *o*, which engages with the teeth of a ratchet-wheel, *p*, and gives an intermittent rotary motion to the same. Motion is thereby given to a gear-wheel, *q*, placed in the same shaft with the ratchet-wheel *p*. The gear *q* engages with the rack *d d*, formed in the lower bar, *c c*, of the clamp *b b c c*, which is thus fed along, carrying with it the two parts of the boot-leg to be united, to the needle. As the clamp is fed along it is guided in its movement, so as to keep the edge of the leather placed in it always at the same distance from the needle, by means of the small wheel *r*, attached to the frame-work of the machine, which bears against the lower bar, *c c*, of the clamp and the two projections *s s* of the plate *t t*, attached to the top platform of the machine, which bear against the opposite side of the bar *c c*. As a portion of the clamp is curved to correspond with the shape of the boot-leg, it will be seen that by the devices above described the said clamp could not be fed through its entire length between the guide-roll *r* and projections *s s*. In order that the curved portion of the clamp may pass between the guides, and thereby carry the leather to the needle, and also keep its edge close up to the same, the

teeth of the gear-wheel *q* are diamond-shaped, as shown by red lines in Fig. 1. By giving this form to the teeth of the wheel *q*, while the teeth of the rack *d d* are shaped in the usual manner, the clamp, while being fed along, is allowed to yield or swing sufficiently to permit the curved portion of the same to pass between the guides *r* and *s s*, thereby carrying the leather to the needle and feeding it along always in a proper position with regard to the same.

From the foregoing description it will be seen that as the clamp is shaped so as to conform to the shape of the boot-leg, and but a narrow edge or margin of the leather projects from the same through its entire length, the leather will be rigidly held upon the part where the most resistance is experienced—namely, where the needle passes through it. In using a straight clamp, as heretofore practiced, the curved portion of the boot-leg necessarily projected a considerable distance beyond the clamp, and therefore was not rigidly enough held by the same to offer a firm resistance to the action of the needle. The peculiar motion, which, by the old method, is given by the hand of the operative to the clamp in order to feed the curved portion of the leather to the needle, I effect by the operation of the curved clamp, which is so fed along and guided by the action of the gear-wheel with its diamond-shaped teeth and the guides *r* and *s s* as to carry both the straight and curved portions of the leather unerringly to the needle without being dependent upon the skill or care of the operator, forming, in fact, a self-feeding and self-guiding clamp. It will further be evident that the upper bar of the clamp may be so constructed as to possess sufficient elasticity to be adapted to the different thicknesses or inequalities of the leather.

Having thus described my improvements, I shall state my claims as follows:

1. The combination of the rack-bar *c* with the bar *b*, both curved in the same shape and forming a clamp capable of receiving a vibrating motion from the diamond-shaped teeth of the pinion *q*, and constituting a clamp for sewing the seams of boot-legs, in the manner substantially described.

2. Feeding the clamp along, and guiding it so as to keep the leather to be sewed always in proper position with regard to the needle and at the same distance from the same, by means of the rack *d d*, gear *q*, with its diamond-shaped teeth, and proper guides, *r* and *s s*, as hereinabove described.

EDMUND SHAW.

Witnesses:
EZRA LINCOLN,
JOSEPH GAVETT.