2. Sheets. Sheet. 1.

C. A. Ensign,

Manf. Soft Rubber.

No. 109,726. Patented Nov. 29. 1870.

Fig. 1.

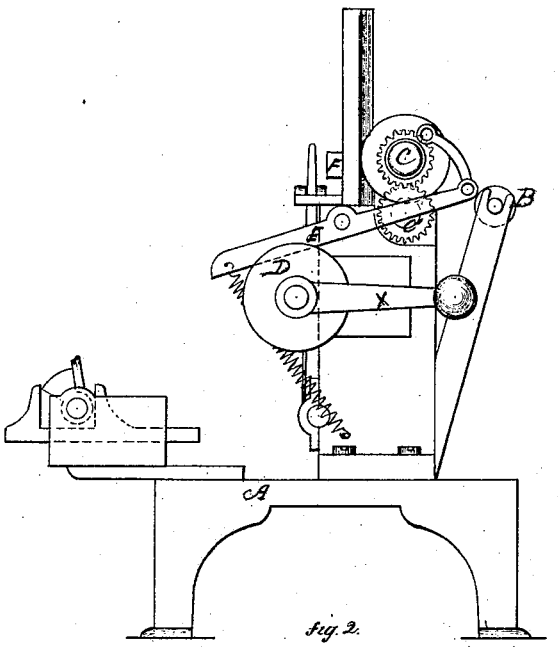
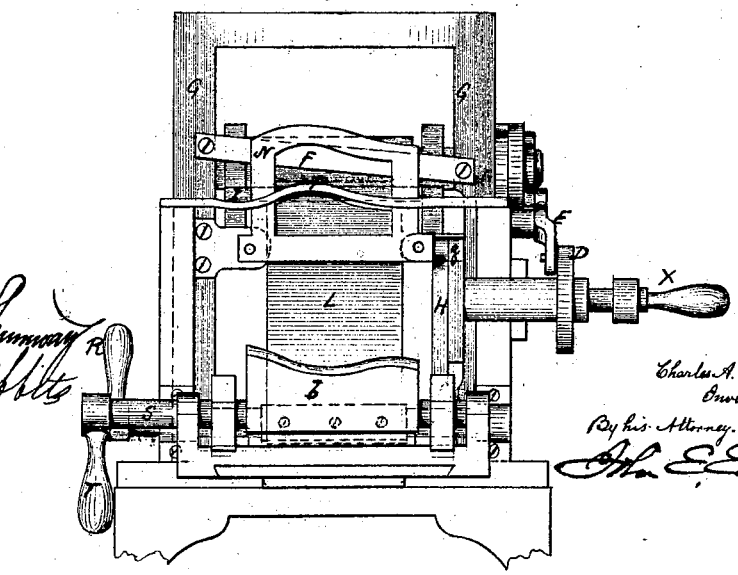


Fig. 2.



Witnesses.
J. H. Shumway
A. J. Tibbits

Charles A. Ensign
Inventor
By his Attorney.
Wm. E. Earle

2. Sheets. Sheet. 2.

C. A. Ensign,

Manf. Soft Rubber.

NO. 109,726. Patented Nov. 29. 1870.

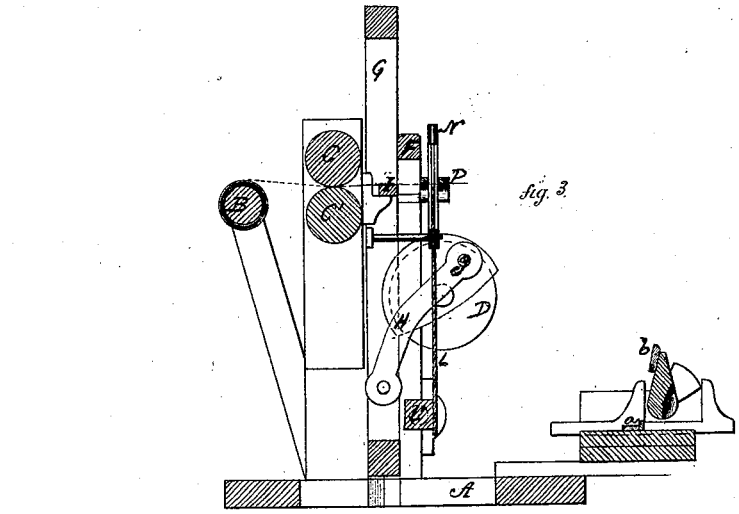
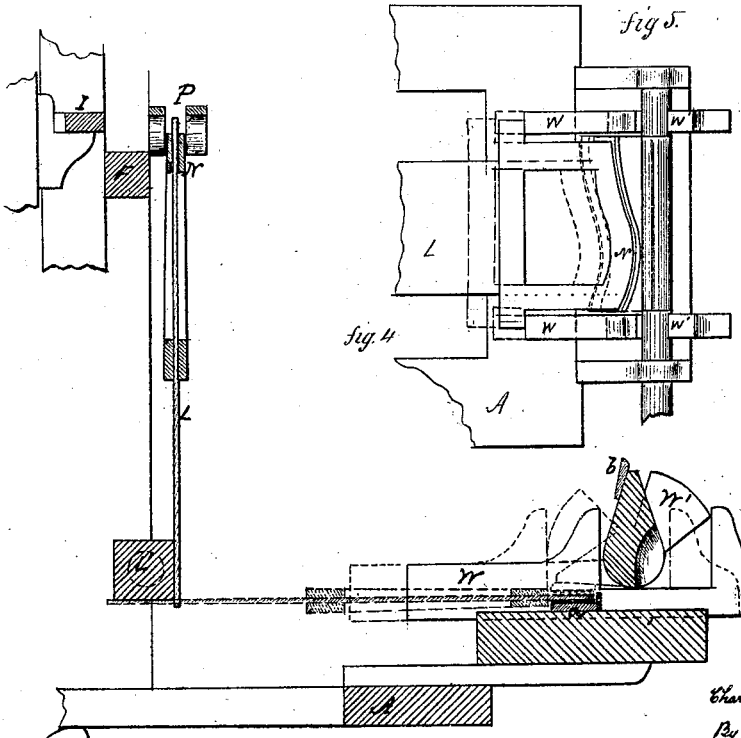


fig. 3.



Witnesses
J. H. Shumway
A. J. Tibbits

Charles A. Ensign
Inventor
By his Attorneys
John Earle

United States Patent Office.

CHARLES A. ENSIGN, OF NAUGATUCK, CONNECTICUT.

Letters Patent No. 109,726, dated November 29, 1870.

IMPROVEMENT IN MACHINES FOR JOINING IRREGULAR SEAMS IN INDIA-RUBBER WORK.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, CHARLES A. ENSIGN, of Naugatuck, in the county of New Haven and State of Connecticut, have invented a new improvement in Machine for Joining Irregular Seams in India-rubber Work; and I do hereby declare the following, when taken in connection with the accompanying drawing and the letters of reference marked thereon, to be a full, clear, and exact description of the same, and which said drawing constitutes part of this specification, and represents in—

Figure 1 a side view;

Figure 2, a front view;

Figure 3, a vertical section;

Figure 4, a sectional view, enlarged to illustrate the operation; and in

Figure 5, a top view.

This invention relates to an improvement in a device for joining seams in India-rubber work, with special reference to the heel-seam of over-shoes, but applicable to other seams; and

The invention consists in a folding device, which, receiving a strip of gummed fabric after it has been cut, doubles the gummed material into the required form, and presents it to one part of the material to be joined, then the other part placed thereon, the two parts are pressed onto the gummed strip, and the folder withdrawn, leaving the two parts secured together by the said gummed strip.

A is the bed of the machine, upon which the machine is arranged.

B is a roll of fabric, gummed, such as is used for joining the seams of India-rubber goods.

C C′ are the feeding-rolls, between which the said fabric passes, as seen in fig. 3, operated to supply the requisite quantity of material by a cam, D, through a lever, E, and may be adjusted to give a greater or lesser amount of gummed material.

F is a cutter, fixed to a vertically-sliding carriage, G, arranged in suitable guides, and operated by a crank, *g*, attached to the slide by a pitman, H. (See figs. 2 and 3.)

I is a fixed cutter, over which the fabric passes, as seen in fig. 3, and so that, as the cutter F descends to the position denoted in fig. 4, the fabric will be cut by the movable knife passing the fixed cutter.

L is a blade, of thin material, fixed to a shaft, L′, and over which a folder, N, works, close upon opposite sides, and the said folder, when in vertical position, as seen in figs. 2 and 3, is operated by connection with the carriage G, so that when the carriage rises the folder N also rises, and passes up through a slotted bar, P, as seen in fig. 3, so that the fabric passes between the said slotted bar and the folder N.

The cutter F is fixed to the carriage a little below the folder N, as seen in fig. 2, so that the cut has been made before the folder N will have reached the bar P, leaving the strip on the bar P. The carriage and folder N still descending, the strip cut is drawn down and doubled over the plate L, the gummed side out.

One part of the shoe, cut to the required form, is placed upon the bed *a*, (see figs. 4 and 5,) then the plate L is turned down onto the bed *a*, as seen in fig. 4, by means of the lever R, fixed to the shaft L′, then the other part, which is to be secured to the first, is laid upon the upper side of the plate L, the edges of the two parts corresponding, then a presser, *b*, arranged upon a shaft, S, is, by means of a lever, T, turned down onto the last-placed part, as denoted in broken lines, fig. 4, and in this operation the folder N is forced back by the slides W, actuated by the cam W′ striking the projections on the lower part of the folder N, as seen in figs. 4 and 5, carrying the folder N entirely off from the gummed material, leaving the gummed surface only in contact with the two parts which are to be secured together. These pressed onto the gummed strip are then taken with the gummed strip from the plate L, and the said plate returned for a second strip and second operation.

The upper edge of the plate should conform to the shape of the seam required to be made, here represented, as before mentioned, the heel-seam of an over-shoe.

For other irregular seams those skilled in the manufacture of India-rubber work will readily devise the requisite form.

The machine is operated by a crank, X, or by any other suitable device.

I claim as my invention—

1. In combination with the fixed and stationary cutters F and I, the plate L and folder N, arranged so as to receive the strip of fabric, cut and double the said strip over the plate L, substantially as set forth.

2. In combination with the plate L and folder N, operating as described, the bed *a* and presser *b*, when arranged so that the strip folded upon the said plate may, by the turning of the plate, be laid upon the said bed, substantially as set forth.

3. In combination with the plate L, folder N, bed *a*, and presser *b*, the arrangement of the slides W, operating to move the folder away from the said strip when laid upon the said bed, substantially as set forth.

CHAS. A. ENSIGN.

Witnesses:

ETHEL C. HINE,

J. B. YALE.