No. 680,156. Patented Aug. 6, 1901.

J. KEATS.

LASTING ATTACHMENT FOR SEWING MACHINES.

(Application filed Sept. 25, 1900.)

(No Model.) 4 Sheets—Sheet 1.

Fig. 5

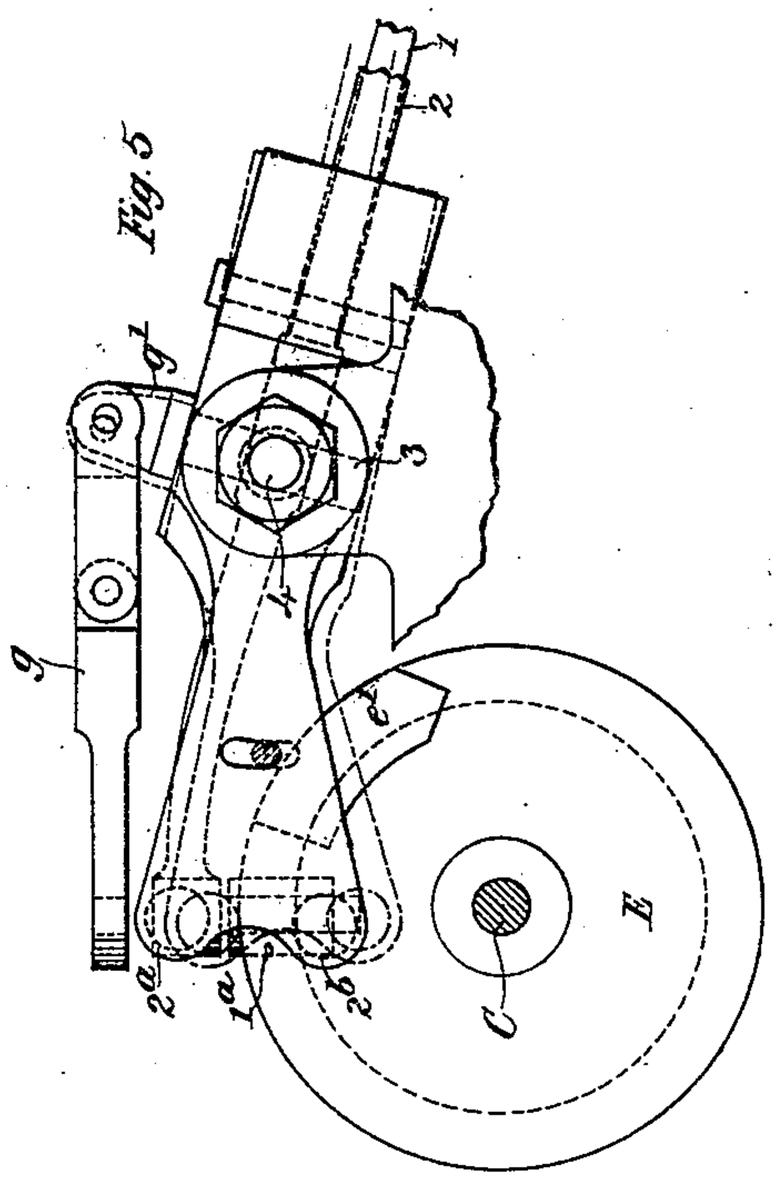

Fig. 1

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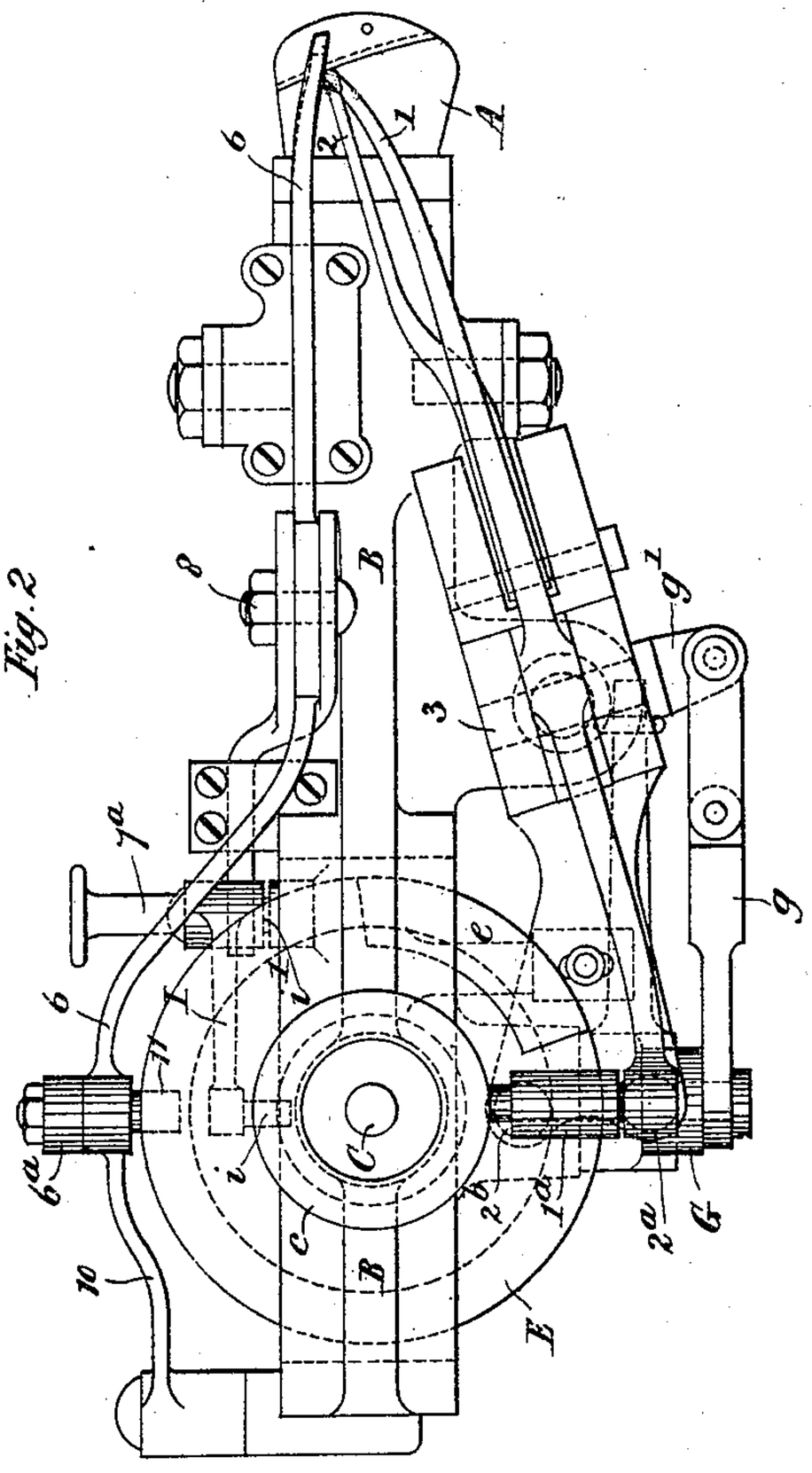
Fig. 2



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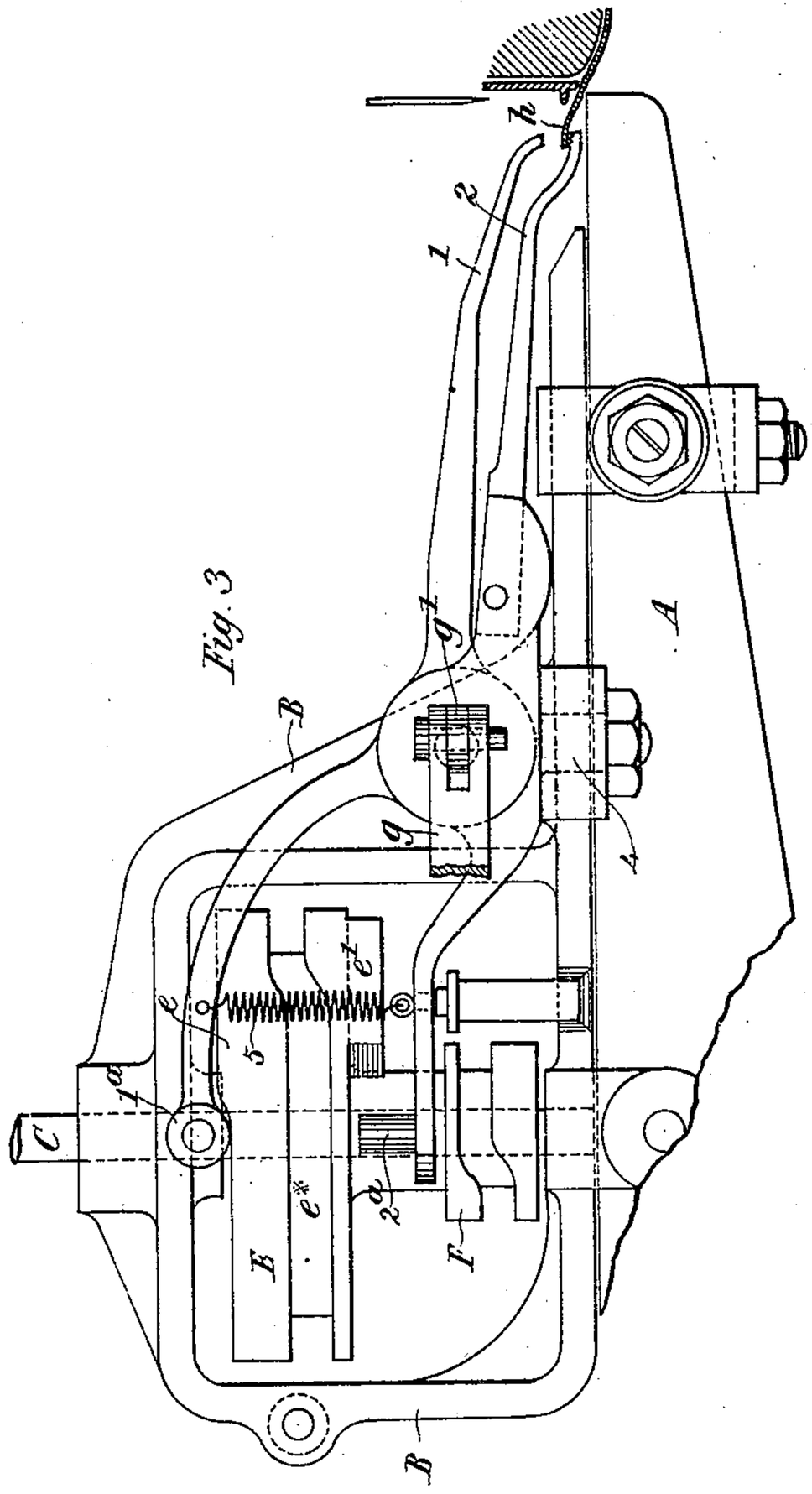
(No Model.) 4 Sheets—Sheet 3.

Fig. 3



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(No Model.) 4 Sheets--Sheet 4

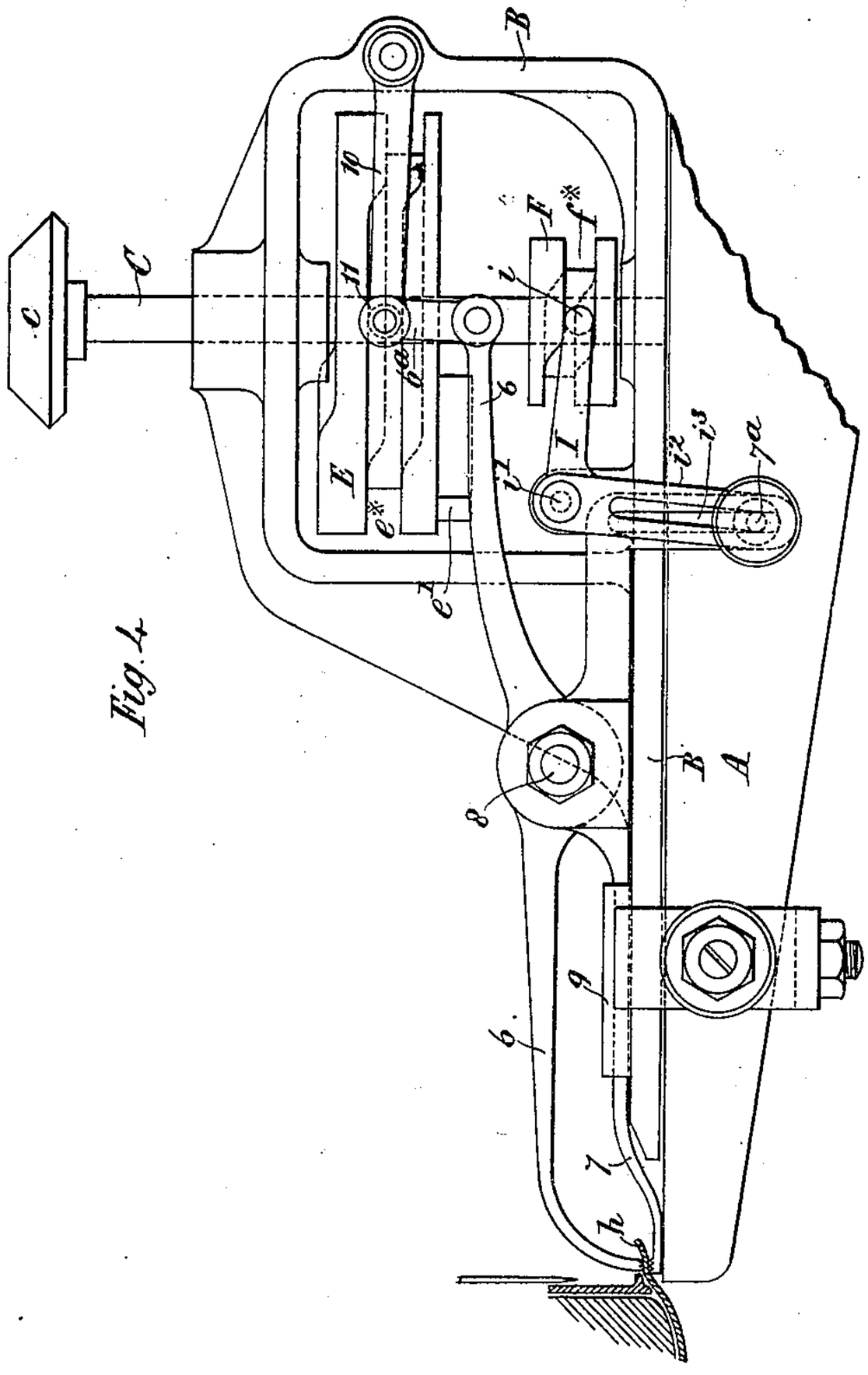

Fig. 4.

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UNITED STATES PATENT OFFICE.

JOHN KEATS, OF BAGNALL, ENGLAND, ASSIGNOR TO PHOENIX BOOT MACHINERY COMPANY, LIMITED, OF STREET, ENGLAND.

LASTING ATTACHMENT FOR SEWING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 680,156, dated August 6, 1901.

Application filed September 25, 1900. Serial No. 31,087. (No model.)

To all whom it may concern:

Be it known that I, JOHN KEATS, engineer, of Bagnall, in the county of Stafford, England, have invented a certain new and useful Improvement in Lasting Attachments for Sewing-Machines, of which the following is a specification.

The present invention has reference to the manufacture of light shoes of the pump class, which are lasted and sewed inside out and afterward turned the right way.

The object of the invention is to provide an attachment for ordinary shoemakers' sewing-machines which will insure the production of pumps and similar goods in the most satisfactory and economical manner.

The attachment according to this invention comprises, in conjunction with a pair of lasting-jaws, a pair of jaws capable of lateral movement in either direction for the purpose of removing or smoothing out the creases from the upper as the sewing proceeds. The sewing is effected upon the last and the work is prepared for the machine by forming in any convenient manner a rib on the inside of the sole to receive the stitches delivered by the straight needle of an ordinary lock-stitch shoemaker's machine.

The attachment is affixed to the working arm of the sewing-machine and is operated by a vertical shaft having a bevel-pinion in engagement with a pinion upon the rotating top shaft which operates the needle-bar.

The lasting-jaws operate in a manner well understood by taking a grip on the edge of the upper and pulling the same tightly upon the last just in advance of the needle-stroke.

The crease-removing jaws operate slightly in advance of the lasting-jaws by taking a grip of the upper and moving laterally in either direction, according to the will of the attendant, so that the lasting-jaws deliver their pull upon the already-smoothed upper.

In the accompanying drawings, Figure 1 shows in side elevation the working arm of a sewing-machine with the present invention applied thereto. Fig. 2 is a plan view of the same. Fig. 3 is a side view of the smoothing-jaws; Fig. 4, a similar view of the lasting-jaws seen from the opposite side of the machine, and Fig. 5 is an underneath plan of the mechanism for operating the smoothing-jaws in a lateral direction.

A is the working arm of the sewing-machine, to which the attachment embodying this invention is secured in any convenient manner.

The attachment comprises a frame B, carrying a vertical shaft C, upon the upper end of which is keyed a pinion *c*, engaging with a pinion *d* on the shaft D, which drives the needle-bar of the sewing-machine. Upon the shaft C are two cam-wheels E and F, which continuously rotate with the said shaft.

1 and 2 are the smoothing-jaws, which are pivoted together at 3 in such a way as to allow the upper jaw 1 to rock in a vertical direction. Besides the vertical movement of the jaw 1 both jaws are capable of lateral oscillation by reason of the lower jaw 2 being mounted on a vertical pivot 4. These movements are communicated to the jaws 1 2 through the rear ends, which carry, respectively, horizontal and vertical bowls 1^a and 2^a 2^b, the bowl 1^a, whose axis is horizontal, being carried by the upper jaw 1 and the bowls 2^a and 2^b, whose axes are vertical, being carried by the lower jaw 2. The bowl 1^a normally lies in the path of the tappet *e* on the cam-wheel E, being so held by the tension-spring 5, which keeps the jaws open, as shown at Fig. 3, until closed by the tappet *e* lifting the bowl 1^a on the rear of the jaw 1.

e' is a tappet, also on the cam-wheel E, arranged to operate against one of the bowls 2^a 2^b, (see Fig. 5,) and thereby rock the jaws 1 2 laterally on their vertical pivot 4 in either direction, according to the will of the operator, who moves the bowls 2^a 2^b from a middle position of rest into the path of the tappet *e'* by any suitable means—as, for example, a treadle-lever T, as shown in Fig. 1. This treadle is connected by a rod *r* with a lever G, which is pivoted to the framing and operates a link *g*, (see Figs. 1, 2, and 5,) jointed to a lug *g'*, fast on the lower member 2 of the smoothing-jaws. By depressing either the front or rear arm of the treadle-lever the smoothing-jaws may be moved in one direction or the other on the vertical pivot 4. It will thus be seen that the tappet *e'* can be made to bear against either of the bowls 2^a

and 2^b, and so work the jaws 1 2 laterally in either direction. The tappet *e* is set slightly in advance of the tappet *e'*, so that the jaws are enabled to grip the leather *h* before the lateral movement of the jaws 1 2 to smooth out the creases from the shoe-upper begins.

6 and 7 are the lasting-jaws. (Shown separately at Fig. 4.) These jaws are operated from the rear, so as to open and shut vertically and to advance and recede horizontally.

The lasting-jaws are pivoted together at 8, and the lower one, 7, is mounted to slide in a guide 9 to and from the work. At the rear end the jaw 6 is pivoted to a link 6^a, which is in turn pivoted to a lever-arm 10, itself pivoted to the frame B. At the point of junction of the link 6^a and lever-arm 10 is a bowl 11, which rests in the cam-groove *e** of the cam-wheel E, by means of which an up-and-down movement is given to the jaw 6. The jaws 6 7 are caused to advance and retire by means of the cam-wheel F, in which is a cam-groove *f**. In this groove rests the bowl *i* of the bell-crank lever I, fulcrumed at *i'*. The other limb i^2 of the lever I is provided with a longitudinal slot i^3, and by its means an adjustable connection is effected with the slotted tail of the jaw 7, the bolt 7^a being introduced into both slots and fixed at such a point as will give the desired travel to the lasting-jaws 6 7.

The action of the mechanism is as follows: The cam-wheels E F are in constant rotation while the machine is working, and the lasting-jaws 6 7 at each revolution take a grip on the shoe-upper *h* and give it a pull slightly in advance of the stroke of the needle, the position of which is indicated in Figs. 1 and 3. The smoothing-jaws 1 and 2 are operated laterally to remove the creases from the upper only when required and at the will of the operator, who uses his treadle to set over either the bowl 2^a or 2^b, according to the direction he desires the jaws to operate. The smoothing-jaws are timed to work slightly in advance of the lasting-jaws, as already indicated.

The feed-foot is suitably timed in connection with the operations of the other parts.

Having now particularly described and ascertained the nature of the said invention and in what manner the same is to be performed, I declare that what I claim is—

1. In a lasting attachment for sewing-machines, the combination with a pair of lasting-jaws, of a pair of smoothing-jaws, and means for operating the latter in either direction laterally to the pulling movement of the lasting-jaws, substantially as described.

2. The combination with the smoothing-jaws, of the means described for moving the same sidewise in either direction, said means comprising a pair of bowls mounted on one of the said jaws, a tappet traveling continuously in a horizontal rotary path, a treadle-lever and connections between said lever and the smoothing-jaws to effect the engagement of one or other of the said bowls with the aforesaid tappet, substantially as described.

3. In a lasting attachment for sewing-machines, the combination of a pair of lasting-jaws, a pair of smoothing-jaws, means for giving said lasting-jaws a longitudinal reciprocating movement, means for giving said smoothing-jaws a movement laterally to the reciprocating movement of the lasting-jaws and an adjustable connection between the lasting-jaws and said means for producing their reciprocating movement whereby said movement may be varied independently of the movement of the smoothing-jaws, substantially as herein described.

Dated September 10, 1900.

JOHN KEATS.

Witnesses:
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