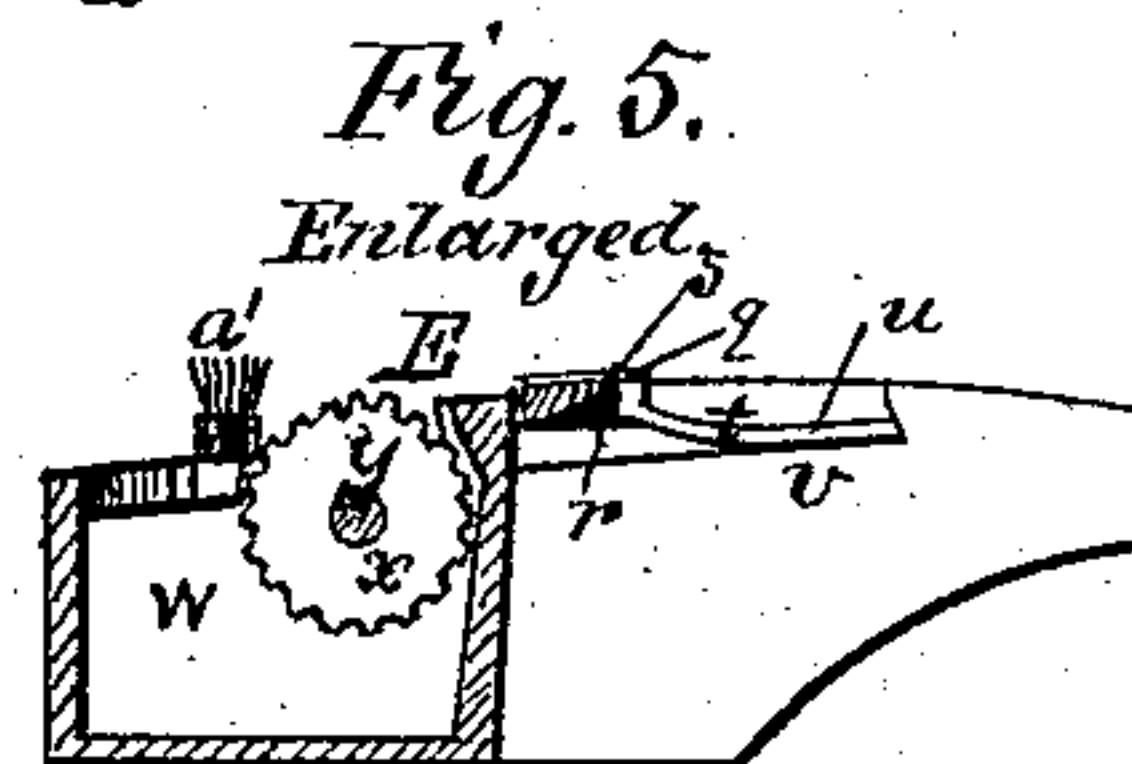
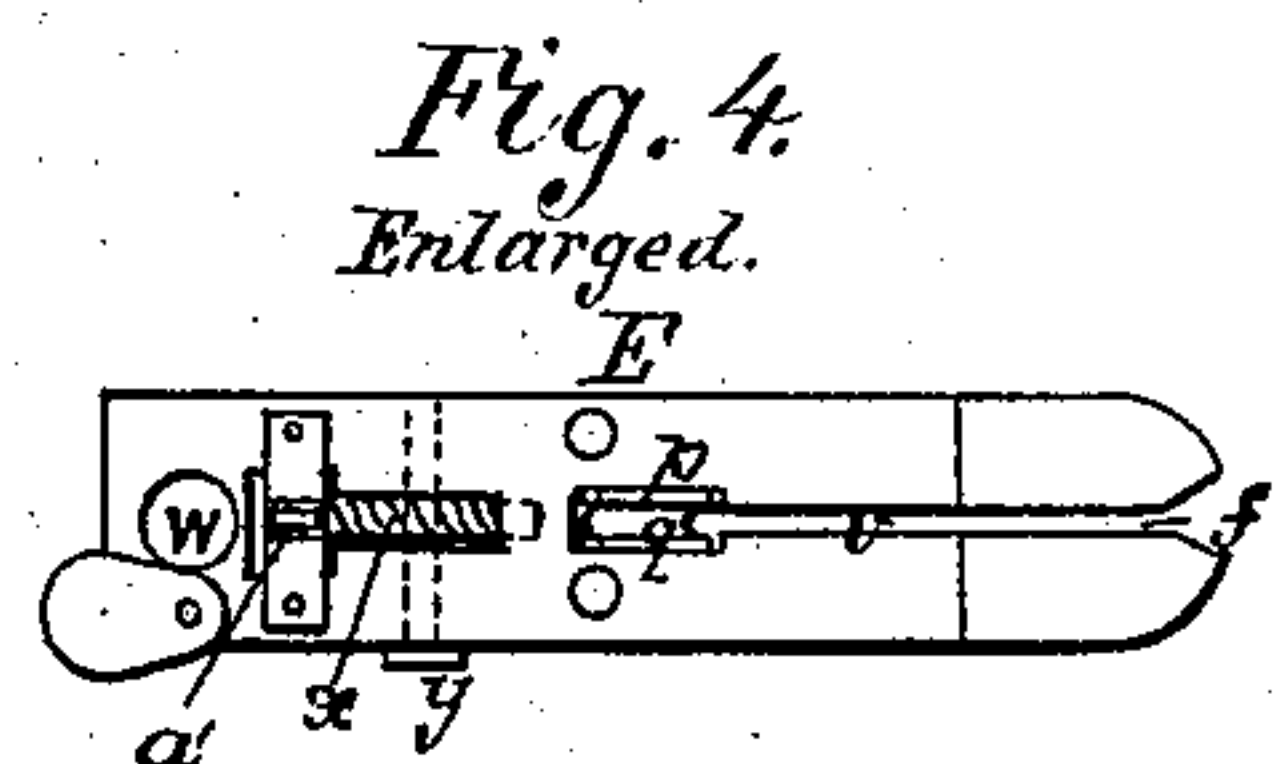
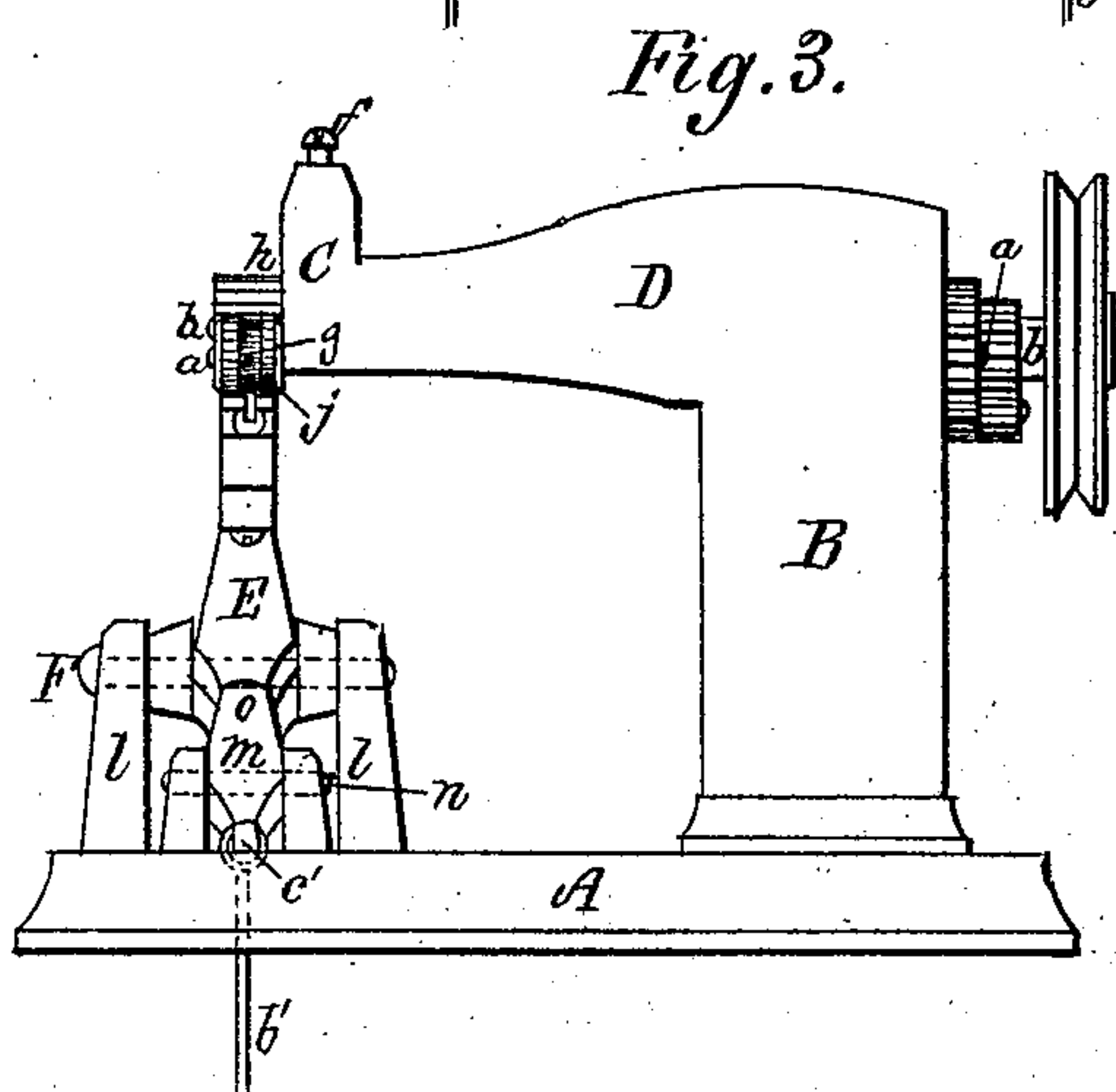
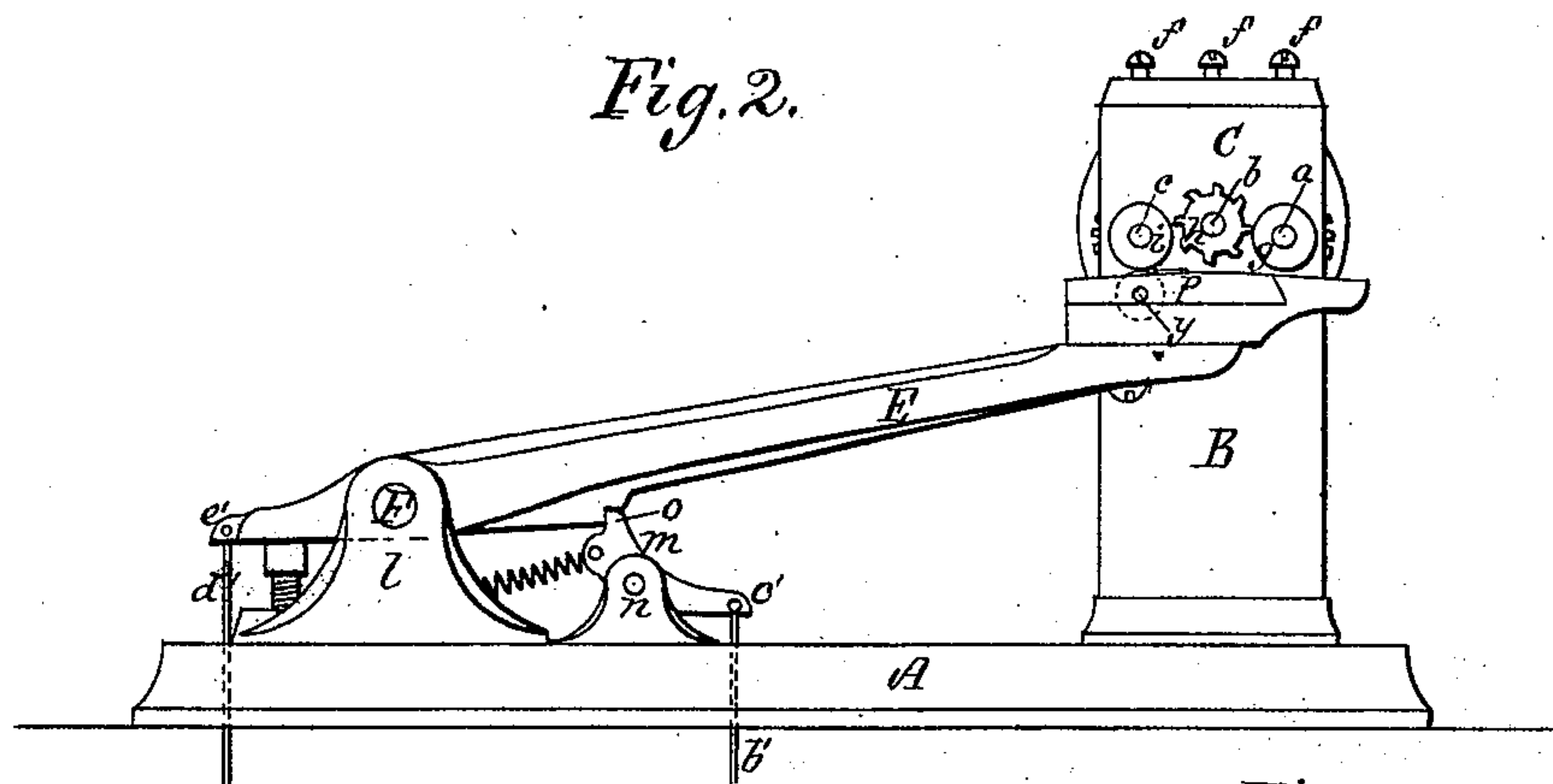
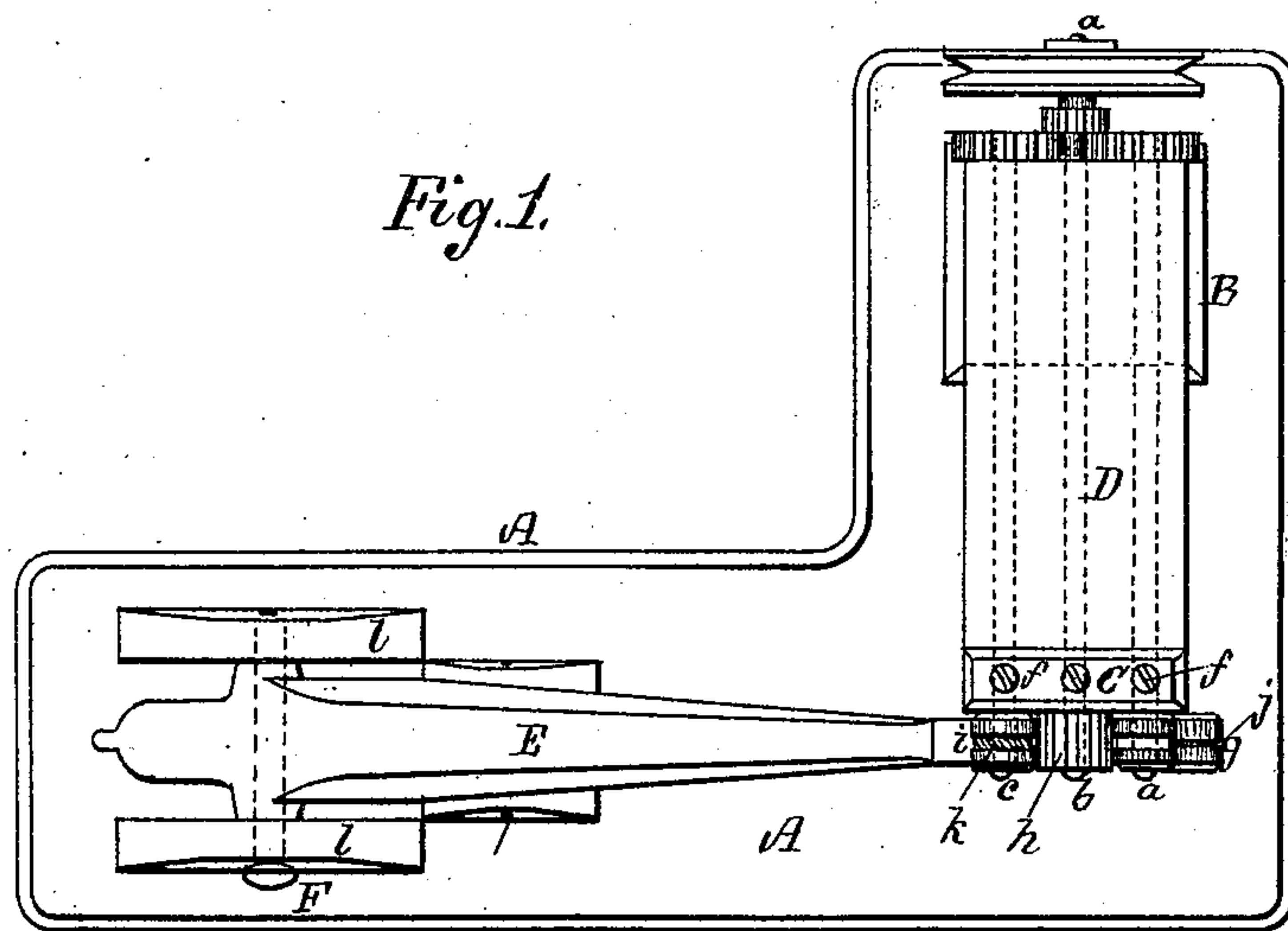


J. G. McCARTER & E. L. WHEELER.
Machine for Finishing Welt-Seams.

No. 197,559.

Patented Nov. 27, 1877.



Witnesses.
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UNITED STATES PATENT OFFICE.

JOHN G. McCARTER, OF MILFORD, AND EDGAR L. WHEELER, OF HUDSON,
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IMPROVEMENT IN MACHINES FOR FINISHING WELT-SEAMS.

Specification forming part of Letters Patent No. **197,559**, dated November 27, 1877; application filed October 30, 1877.

To all whom it may concern:

Be it known that we, JOHN G. McCARTER, of Milford, in the county of Worcester, and EDGAR L. WHEELER, of Hudson, in the county of Middlesex, both of Massachusetts, have invented new and useful Improvements in Machines for Finishing Welt-Seams, of which the following is a specification:

This invention relates to means for effecting the various operations essential to finishing the welts or welt-seams of boots and shoes; and consists in the employment of devices for rubbing down such seam upon the inner or wrong side, for trimming off the excess of welt upon the outer or right side, for "setting up," as it is termed, such right side of the welt, and, finally, for blacking the exposed edge or portion of the welt.

The drawings accompanying this specification represent, in Figure 1, a plan, in Fig. 2 a front elevation, in Fig. 3 an end elevation, of a machine embodying our improvements; and in Figs. 4 and 5, respectively, a plan and section of the inner end of the horn which supports the work and its adjuncts.

In these drawings, A represents the operative table or bed of the machine, and B a curved standard or goose-neck erected upon one side of such bed, and extending over it, the front end of the said goose-neck terminating in a vertical head, C, after the manner of many sewing-machine standards.

Disposed within the horizontal arm D of the goose-neck will be seen three horizontal parallel shafts, *a b c*, which are to be slowly revolved while the machine is in operation, the central shaft *b* being the driving-shaft, and imparting, by a suitable train of gears, motion to the other two, such train of gears being so arranged that the three shafts rotate in the same direction, but not necessarily at the same rate of speed, as it is desirable that the central shaft, or the one carrying the rubbing-down wheel, should travel faster than the other two, which should be of equal speed.

The outer or front ends of the shafts *a b c* are mounted in boxes, over which are placed springs to obtain a yielding pressure, and the

stress of such springs is regulated by screw *f*, extending through the tops of the head C.

The extreme front end of each shaft *a, b*, and *c*, as it protrudes through the head C, carries a wheel or circular disk, *g, h*, or *i*, the first named, viz., *g*, having a milled or roughened periphery, with a central channel, *j*, and serving as a feed-wheel to feed along the material, while the central wheel *h* is fluted longitudinally, and serves to rub down the welt-seam upon the inside of the boot-leg or shoe-upper, and the third wheel, *i*, has a central milled channel, *k*, and serves not only as a feed-wheel, in conjunction with the wheel *g*, but as a yielding abutment or bearing for the setting-up wheel, the three wheels being in line and operating in connection with the horn or arm, which is situated below them and supports the boot-leg or shoe-upper.

This horn is shown in the accompanying drawings, at E, as pivoted at one end by a rocker-shaft, F, to standards *l l* erected upon the corner of the bed-plate A, diagonally opposite the standard B, the opposite or free end of such horn being disposed beneath the three wheels *g h i*, as shown in Fig. 1 of the drawings.

It is essential, in order to permit of ready insertion of the horn within the boot-leg, and removal therefrom, that means should be provided for enabling the free end of such horn to be lowered to a slight extent, and for holding it up to place firmly while the boot-leg is being acted upon; and to this end we dispose beneath the horn, at some suitable point between its pivot and the wheel *i*, a tilting-latch, *m*, which is pivoted to the base-plate A by a horizontal pivot, *n*.

When the horn E is up to its place, immediately beneath the wheels *g h i*, the upright arm *o* of the latch *m* serves as a post to maintain the horn in such position. When it is desired to lower the horn, to remove the boot-leg or shoe-upper, the latch is tilted, and its arm *o* removed from contact with such horn, thus leaving the latter free to drop.

The knife for trimming or removing the excess of welt upon the outside of the boot-legs

is shown at *p* as a block of steel having a longitudinal groove, *q*, in its upper part, and a channel, *r*, in its under part, the metal at the junction of the two being reduced to a sharp edge, as at *s*.

The knife *p* is secured to or makes part of the free end of a stiff spring or yielding arm, *t*, the base of which is secured to the end of the horn *E*, and is channeled or slotted, as shown at *u* in Fig. 5 of the drawings, and this channel or slot *u* of the spring-arm *t* coincides with a channel, *v*, cut in the said horn *E*.

The greater portion of the knife is sunk below the surface of the horn, and only sufficient protrudes above the latter to effect the trimming of the welt.

In rear of the knife or trimmer *p* we create, in the horn *E*, a cell or reservoir, *w*, to contain a supply of blacking, while within this cell, and revolving in the blacking therein, we dispose the lower part of an upright wheel, *x*, which is mounted on a horizontal pivot, *y*, placed over the cell, and at right angles to the longest plane of the horn.

The edge of the wheel *x* is concave, and is milled or otherwise finished, according to the character of the finish which it is desired to impart to the exposed edge of the welt; and such wheel is situated directly below the wheel *i* before named.

As the boot-leg, after being turned inside out, or a shoe-upper, is placed about the horn *E*, and is fed along between the wheels *i* and *x* under pressure of the spring, which depresses the former, the edge of the welt, on the outside of the boot-leg or shoe-upper, is "set-up," as it is termed, or crowded into a rounded shape by the wheel *x*, and receives the impress of the groove of the latter, while at the same time blacking is taken up by said wheel and distributed upon the welt-edge, and the latter becomes dyed black, or such colors as may be employed. In the present instance the edge or groove of the wheel *x* is milled diagonally, and imparts the appearance of a cord to the welt.

In rear of the wheel *x* we add to the top of the cell *w* an upright brush, *a'*, the purpose of which is to aid in thoroughly distributing the blacking over the edge of the welt, and to guide back to the cell the excess of blacking taken up by the wheel.

In practice we place below the table *A* two treadles, and to one of these treadles we connect, by a suitable rod, *b'*, the inner end *c* of the latch *m*, and to the other treadle we connect, by a rod, *d'*, the extreme outer end *e'* of the horn *E*, the first-named treadle serving to release the said latch *m* and allow the free end of the horn to drop away from the wheels *g h i*, and the second treadle to elevate the said end of the horn into working position, the latch *m* operating automatically to lock the horn in this last-named position.

The operation of the above-described machine is, briefly, as follows: If a boot-leg is to be finished, it is to be turned inside out, so that when placed about the horn *E* the outer side or edge of its welt shall be toward the upper part of such horn; and in order to guide the welt properly to the knife, we create in said horn a channel, *f'*, as shown in Figs. 4 and 5 of the drawings.

If a shoe-upper is to be operated upon, it may be carried along over the horn, and need not be turned.

The boot-leg or shoe-upper, as the case may be, is seized by the wheel *g* and fed along until its welt comes in contact with the knife *p*, the movement of the leg or upper continuing until seized by the wheel *i*, when the latter aids the wheel *g* in continuing the advance of the leg or upper until the latter shall have been carried its entire length between the wheels, and expelled from the machine, the knife *p* serving, during the passage, to trim off the excess of welt, and the wheel *h* to rub down or flatten and smooth the seam upon the inside of the boot-leg or shoe-upper, while the wheel *x* serves to "set up" or crowd up into a rounding form the edge of the welt after being trimmed; and, also, at the same time to take up and deposit upon such welt-edge blacking from the cell *w*.

We propose, for some classes of work, adding to the machine an additional wheel, of india-rubber, felt, or bristles, in rear of the wheel *x*, and, like the latter, revolving in the blacking in the well *w*, and pivoted to the horn *E*, a fellow roller being placed over it and pivoted to the head *C*. This roller serves to take up and deliver upon the welt a quantity of blacking from the well *w*.

The knife *q*, in lieu of being secured to the yielding-bar or spring *u*, may be pivoted at its front end to the horn *E*, and rest at its rear end upon the spring. By this method we may gain a sensitive and more advantageous action of the knife.

We claim—

1. The longitudinally-fluted rubbing-wheel *h*, in combination with the wheels *g* and *i*, and horn *E*, substantially as and for purposes stated.
2. The wheels *g h i*, in combination with the horn *E* and setting-up wheel *x*, substantially as described.
3. In a machine for finishing the welt-edges of boots or shoes, the combination, with the work-supporting horn, and feeding, trimming, and finishing devices, of a blacking-reservoir, carried by the horn, and means for conveying the blacking from the reservoir to the welt-edges, substantially as described.
4. The yielding horn *E*, in combination with the wheels *g h i*, substantially as and for purposes stated.
5. The combination, with the upper yield-

ing, pressing, and feeding wheels, of the oscillating work-supporting horn, and a locking device which, when in position, holds said horn rigidly up against the upper yielding wheels.

6. The combination, substantially as set forth, of the wheels *g h i*, with the horn *F* and the wheel *x*, and knife *p* mounted thereon, and the device for locking said horn rigidly in

working position, these parts being arranged for joint operation, as set forth.

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