

(No Model.)

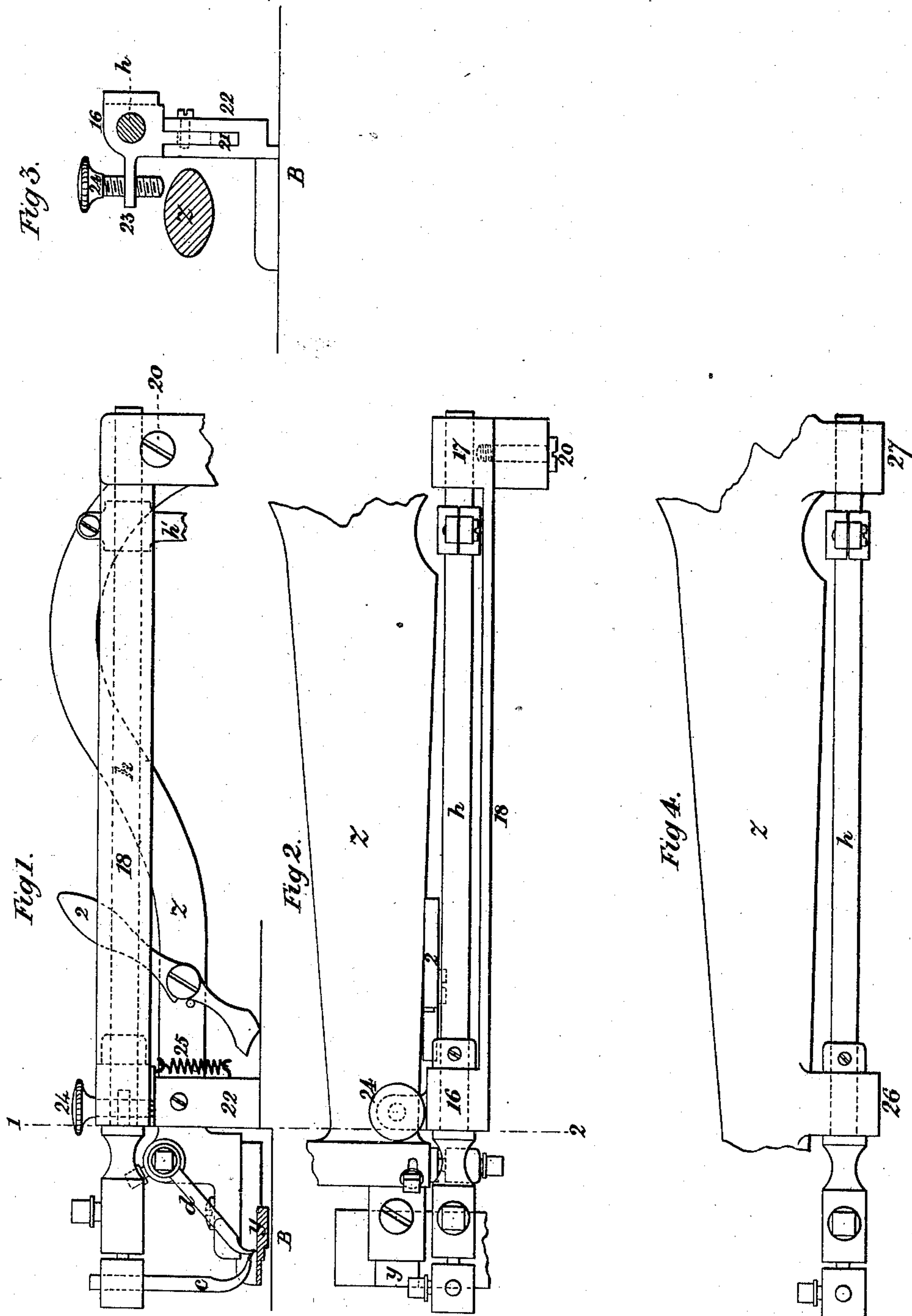
2 Sheets—Sheet 1.

E. WISEMAN.

STRAW BRAID SEWING MACHINE.

No. 257,425.

Patented May 2, 1882.



Attest:
A. E. Hansmann.
William Raton

Edmund Wiseman
By his attorney
Charles E. Foster

(No Model.)

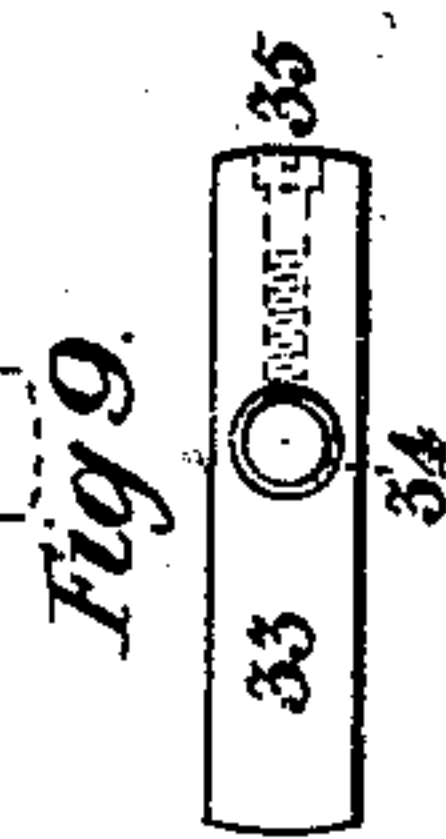
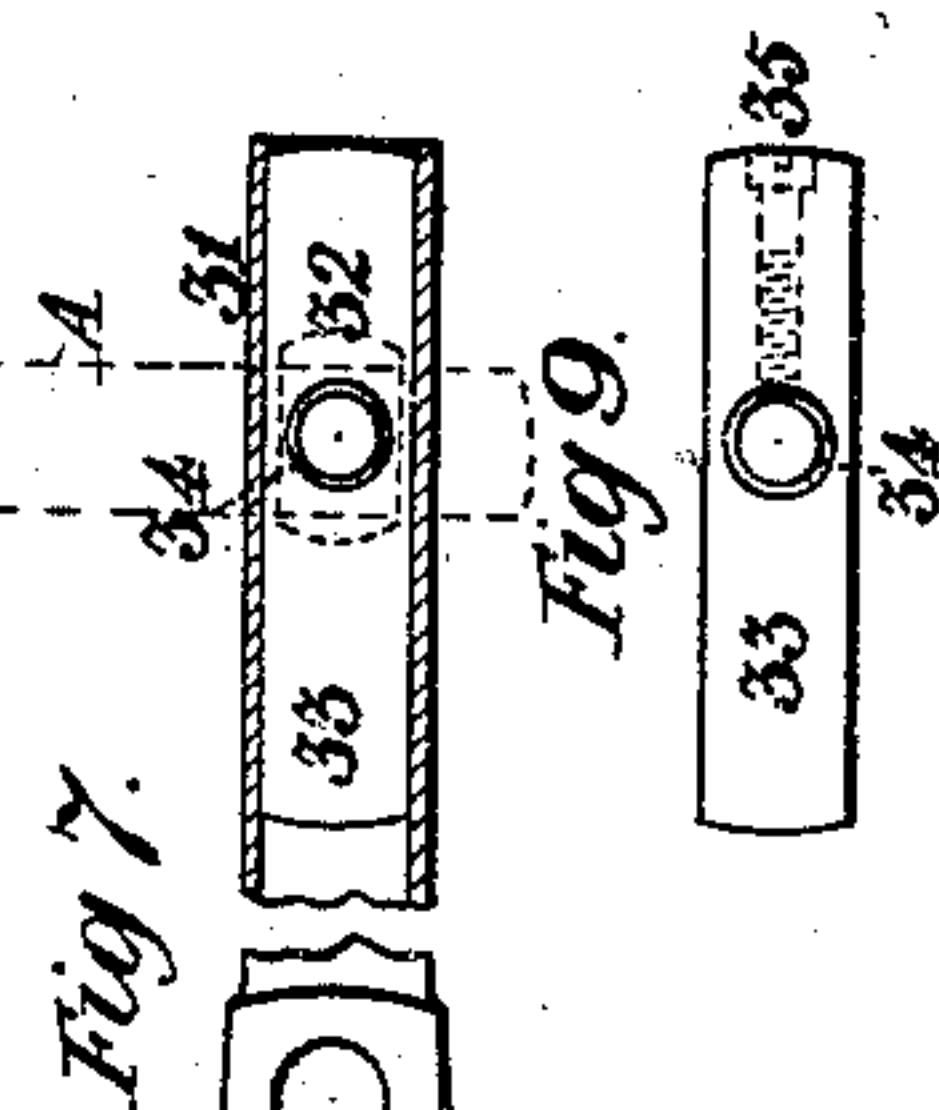
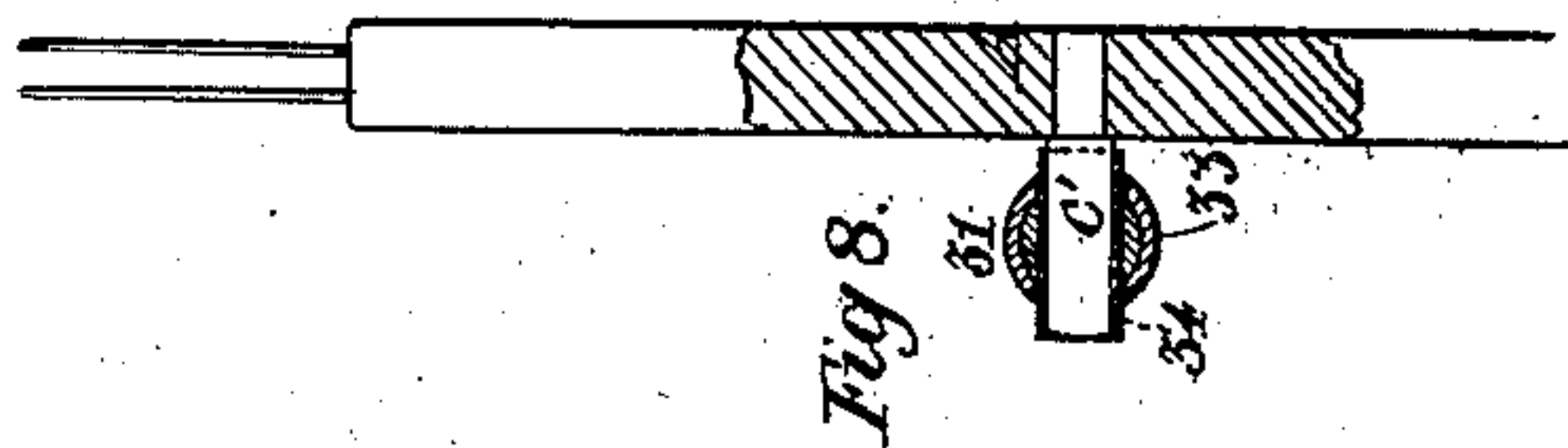
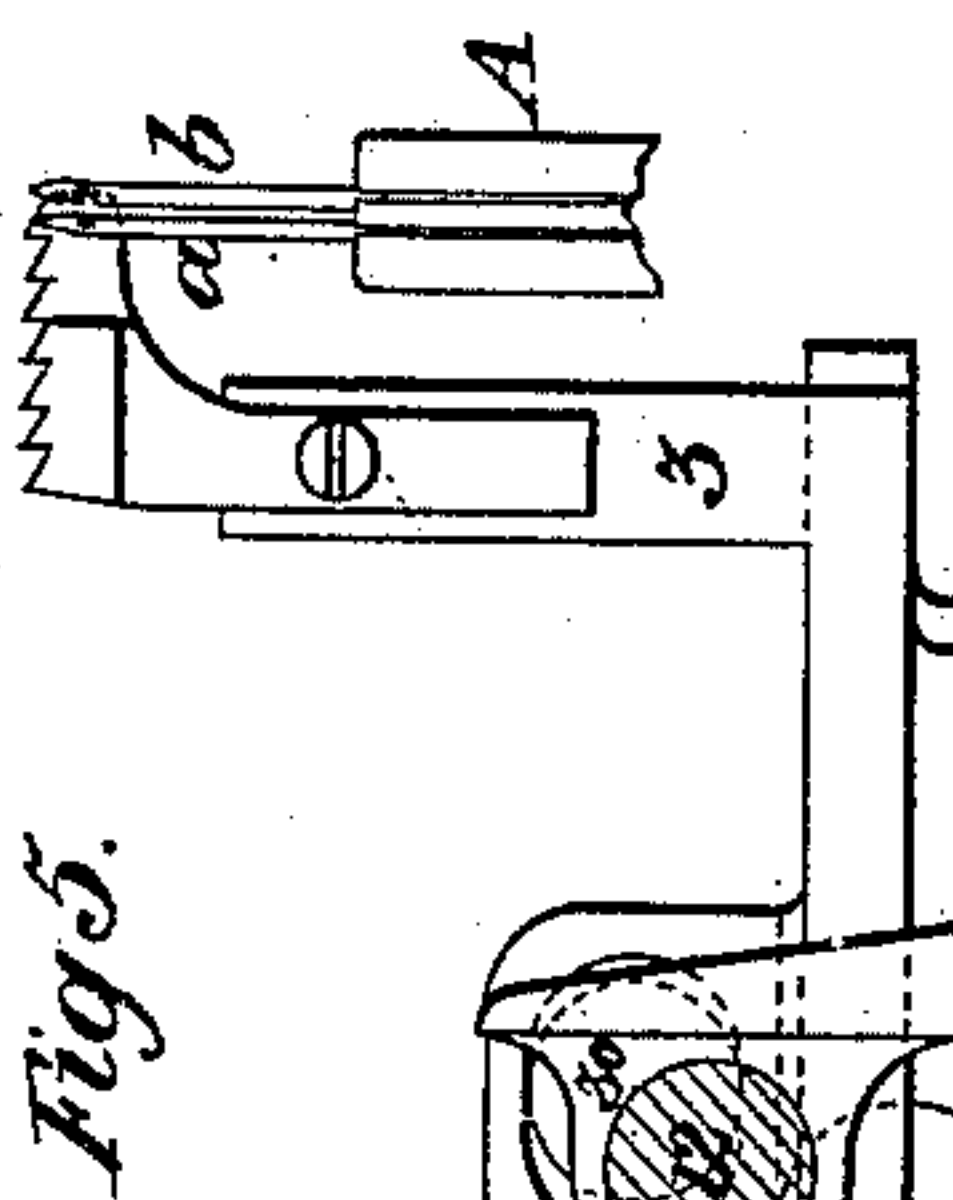
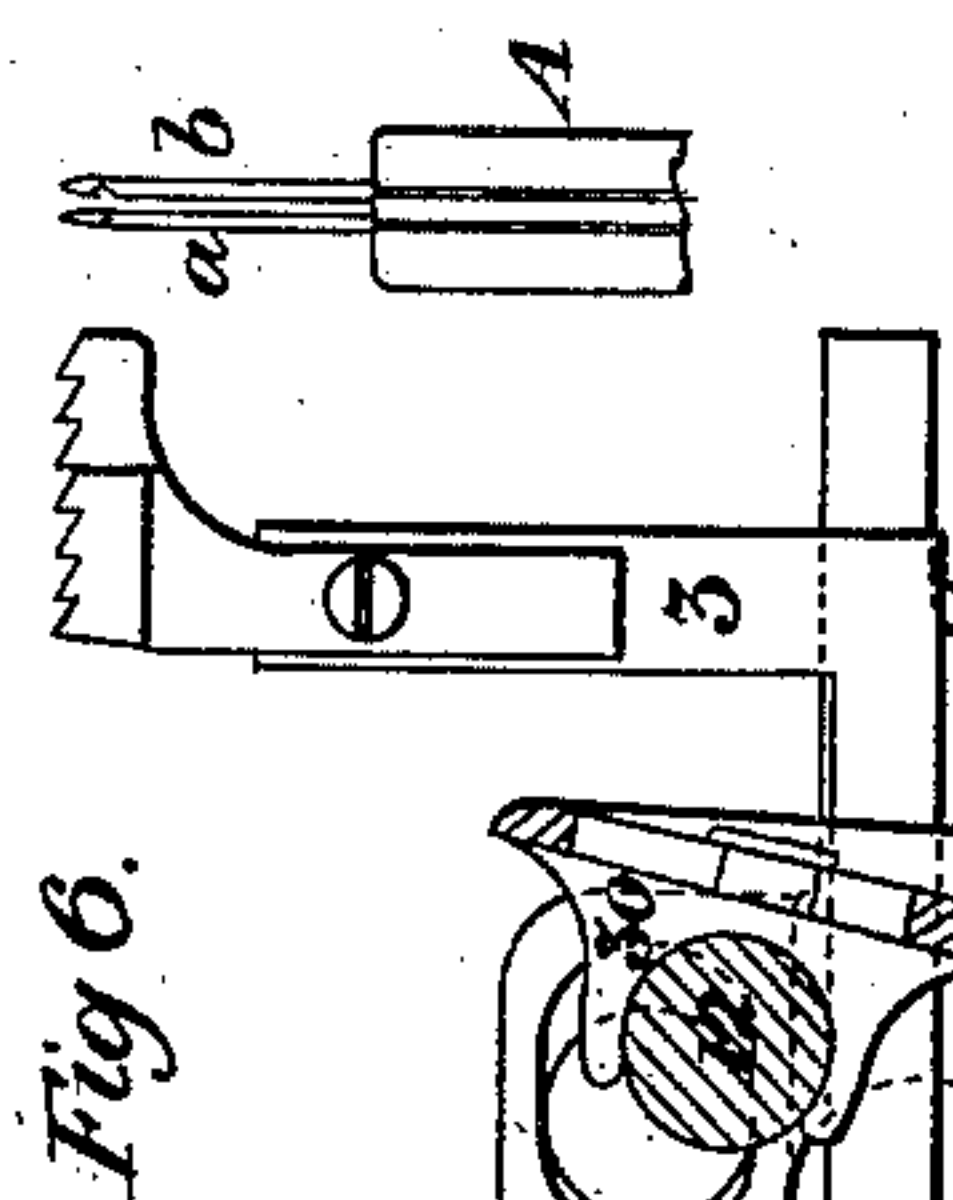
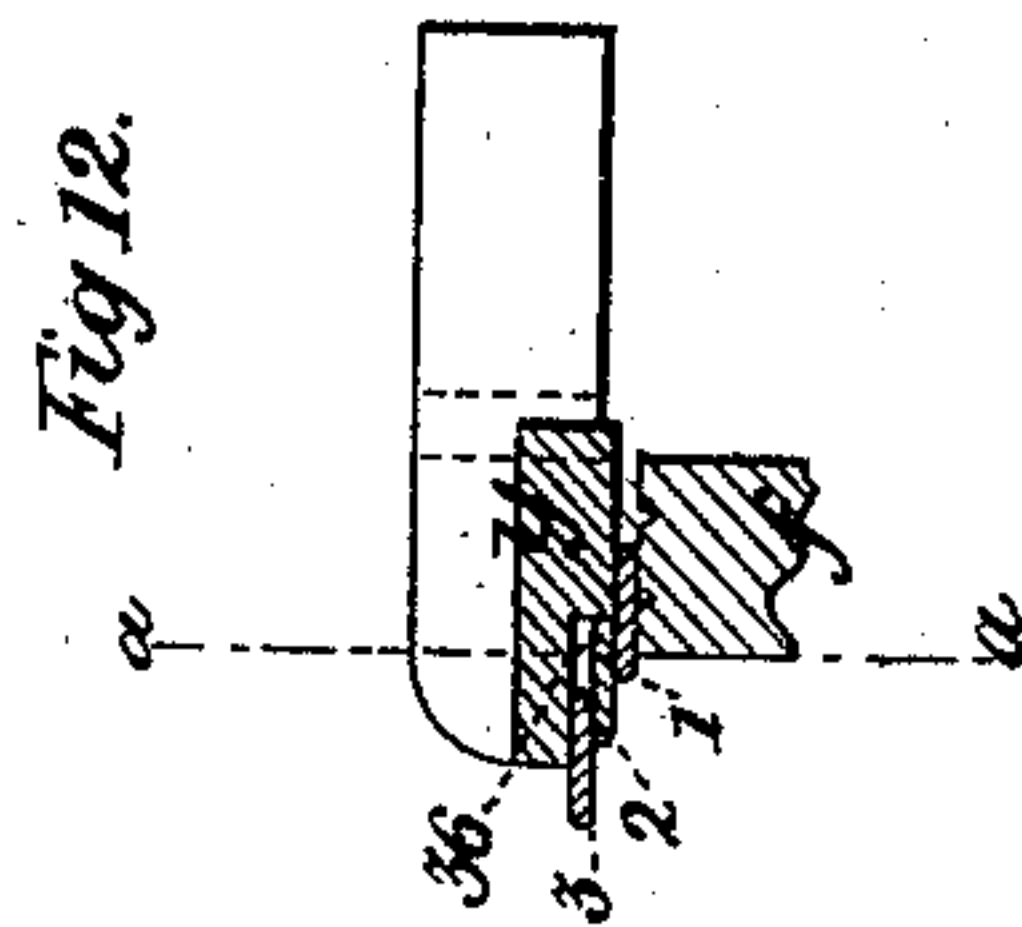
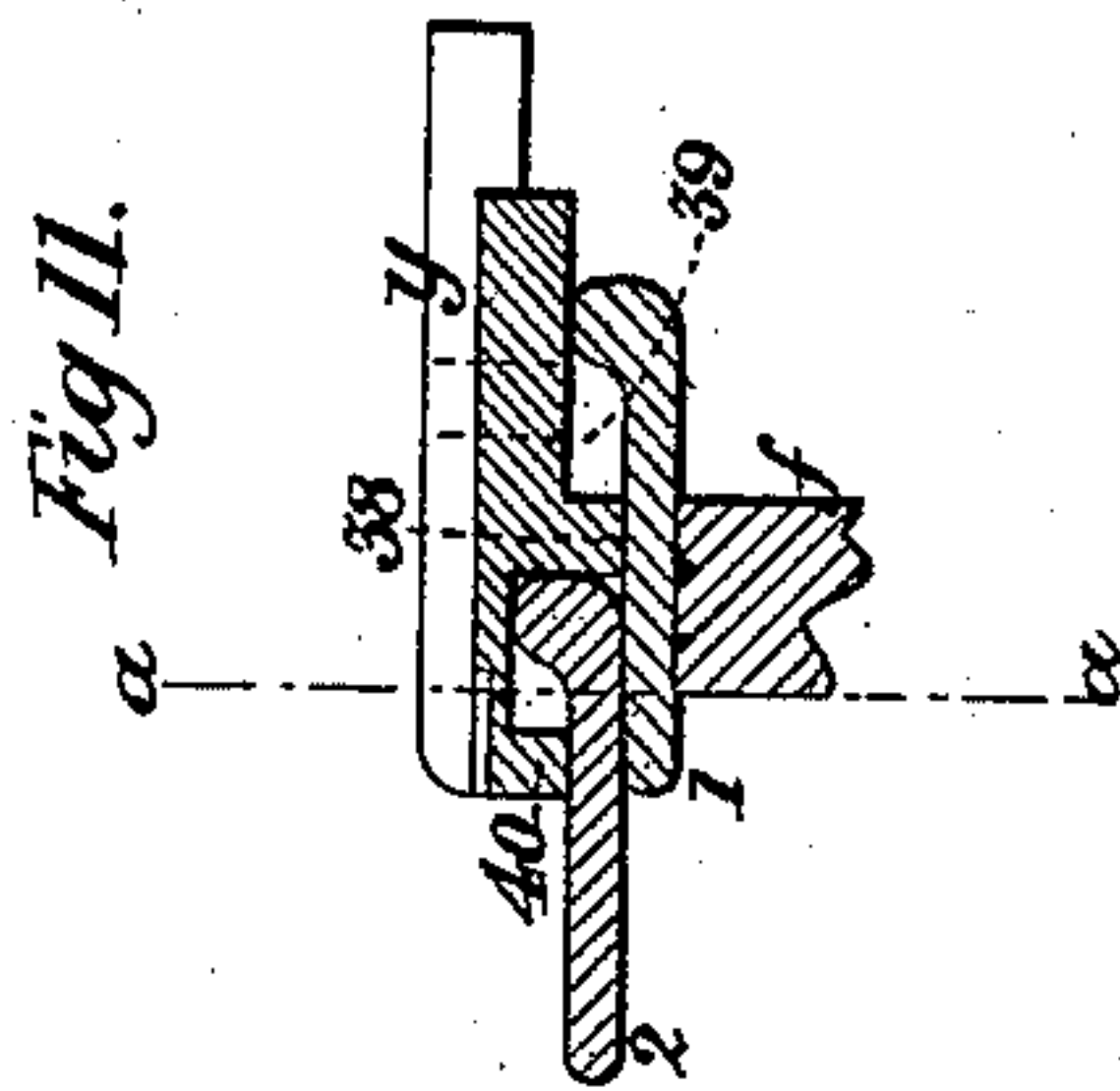
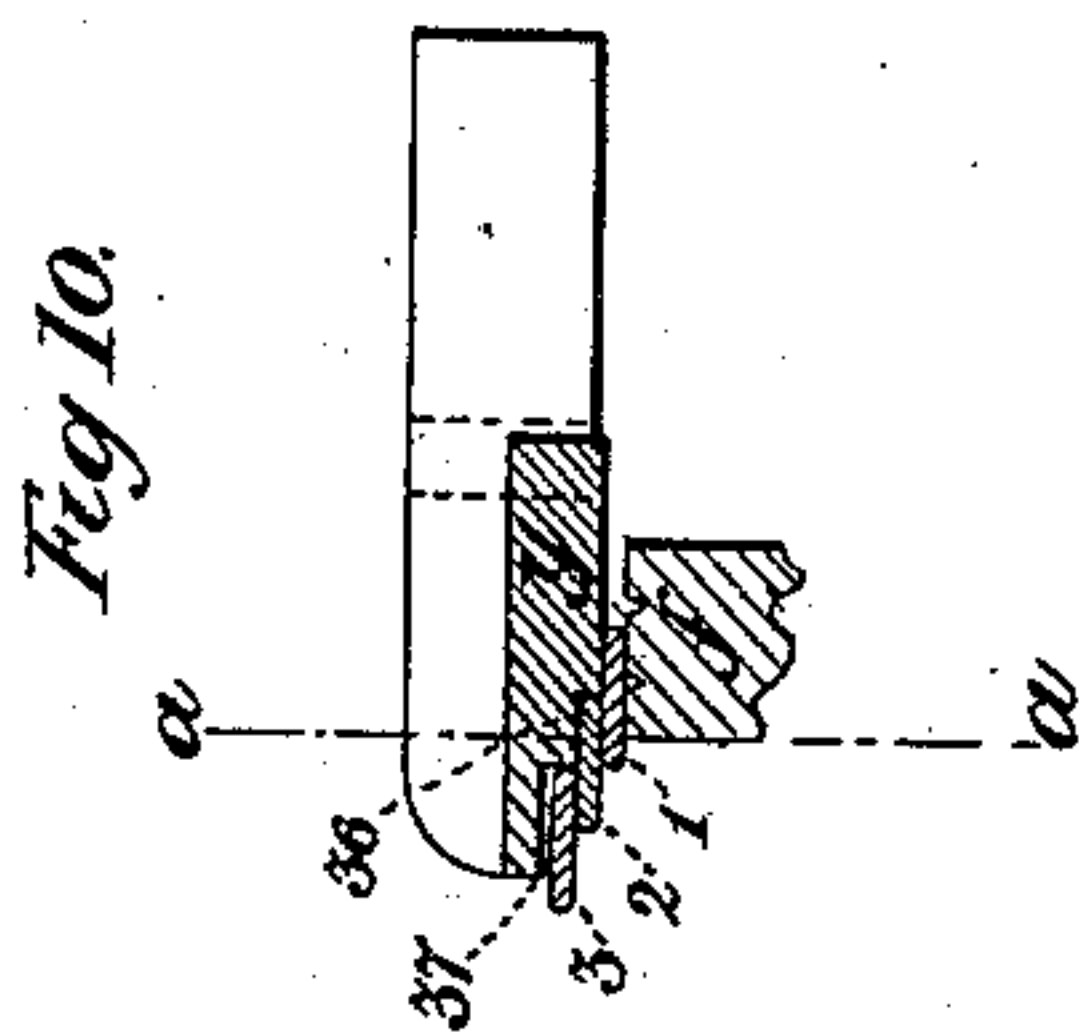
2 Sheets—Sheet 2.

E. WISEMAN.

STRAW BRAID SEWING MACHINE.

No. 257,425.

Patented May 2, 1882.



Attest:
Wm. P. Lammann.
William Paxton

Edmund Wiseman
By his attorney
Charles E. Fox

UNITED STATES PATENT OFFICE.

EDMUND WISEMAN, OF LUTON, COUNTY OF BEDFORD, ENGLAND.

STRAW-BRAID SEWING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 257,425, dated May 2, 1882.

Application filed December 6, 1881. (No model.)

To all whom it may concern:

Be it known that I, EDMUND WISEMAN, a citizen of England, residing at Luton, in the county of Bedford, have invented Improvements in Straw-Braid Sewing-Machines, of which the following is a specification.

My invention relates partly to further improvements upon the straw-braid sewing-machine for which I obtained Letters Patent of the United States of America, bearing date the 8th of June, 1880, No. 228,711, and partly to a certain improved form of presser-foot applicable either to the said machine or to other straw-braid sewing-machines.

Figure 1 of the drawings is a side elevation of the presser-arm *z*, with its presser-foot *y* and rocking spindle *h*, carrying the looper *c* of the said machine, illustrating my present improvements as far as they relate to the mode of mounting the rocking spindle *h*. Fig. 2 is a plan corresponding to Fig. 1, and Fig. 3 is a transverse vertical section taken along the line 1 2 in Figs. 1 and 2. Fig. 4 is a plan showing a modified arrangement for mounting the rocking spindle *h*. Figs. 5 and 6 are details illustrating my improvements so far as they relate to the feed-actuating mechanism of the said machine. Figs. 7, 8, and 9 are details illustrating my present improvements so far as they relate to the mode of coupling the needle-actuating lever or vibrating lever-arm *C* to the slide carrying the sewing-instruments of the said machine, which improvements are also applicable to other kinds of sewing-machines in which a reciprocating needle-slide is actuated by a lever; and Figs. 10, 11, and 12 illustrate forms of presser-feet for straw-braid sewing-machines applicable either to my said patented machine or to straw-braid sewing-machines of other constructions.

Similar letters refer to similar parts throughout the several views, and in order the more readily to identify the parts which correspond to my said patented machine I have marked such parts when they occur in my present drawings by similar letters to those indicating like parts in the drawings to the specification of my aforesaid United States patent.

In the machine as heretofore arranged it has been found difficult to obtain sufficient lift to the presser-foot *y* to allow of thick material being introduced beneath the presser-foot, in

consequence of the upper surface of the presser-foot coming into contact with the looper *c* before the presser-foot has reached the desired height. This could not be obviated without altering the length of the sewing-instruments to such an extent as to be disadvantageous to the working of the machine; and it has also further been found to be undesirable to place the looper *c* at such a height as will allow of sufficient rise being given to the presser-foot, because the looper *c* cannot be placed higher without causing it to come into contact with the looper *d* when the machine is in action and when the said looper *d* is correctly timed. In consequence of the before-named disadvantages the machine has not hitherto been adapted for the thicker kinds of straw braids. To remedy this I arrange the rocking spindle *h* so that it shall be lifted as desired during a portion or the whole of the action of the lift-handle 2, along with the presser-arm *z*, and according to one mode of effecting this I mount said spindle *h* in bearings 16 and 17, carried upon a lever, 18, the lever 18 being mounted upon a stud, 20, at the rear end, thus allowing the free end of the lever 18, together with the rocking spindle *h*, which it carries, an upward movement; but other modes of mounting the said rocking spindle may obviously be employed, producing the like results.

The lever 18 may have attached to its free end a tongue, 21, fitting into a groove formed in a bracket-piece, 22, affixed to the casting carrying the cloth-plate with a view to keeping the shaft-carrying lever 18 in position sidewise. In the present instance the under side of the bearing 16, which carries the front end of the rocking spindle *h*, rests upon the top of the bracket-piece 22, which thus answers as a stop for the shaft-carrying lever 18 when at its lowest position, as shown in Fig. 3. I also arrange a lug or projection, 23, upon the front bearing, 16, of the shaft-carrying lever 18, which overhangs the presser-arm *z*, and may, if desired, carry an adjustable screw, 24, against which the presser-arm comes into contact before it has reached the full extent of its upward movement when raised by the lift-handle 2, but does not act upon the said screw by the rising of the feeder. By adjusting this screw the time of contact with the presser-arm may obviously be varied. The front end of

the rocking spindle *h* is thus elevated, and carries the looper *c* up with it without danger of the said looper coming into contact with the upper surface of the presser-foot *y*, thus allowing for sufficient lift for the thickest braids to be introduced beneath the presser-foot when raised by the lift-handle. When the lift-handle is again depressed the lever 18, carrying the rocking spindle *h*, is returned to its lowest position by a spring, 25, or otherwise, and both loopers *c* and *d* are again brought into proper relation for sewing.

In a modified arrangement (shown at Fig. 4) I arrange the rocking spindle *h* to work in special bearings 26 and 27, forming part of or attached to the pivoted presser-arm *z* itself, whereby the rocking spindle *h* and looper *c* partake of the same movement as the presser-arm, but are, of course, also moved up and down by the action of the feeder, which latter movement can be obviated, if desired, by the first-mentioned arrangement, wherein the rocking spindle *h* does not necessarily partake of the constant up and down movements of the feeder.

I do not confine or restrict myself to the precise mode of mounting the rocking spindle, as this may be varied without interfering with the essential feature of this part of my invention.

In the machines as heretofore arranged under the aforesaid United States patent the thread was occasionally found to draw too tightly around the barb of the hooked needle before the needles had reached the limit of their downward stroke. This was caused by the loop of thread being pulled around the barb of the hooked needle too rapidly by the rapid advance of the braid under the action of the feeder at the commencement of its movement. The feeder also traveled at a slower rate during the finish of its movement in consequence of the lever *v* losing time around the rounded edge of the nose or projection 13 on the vertical lever-arm 5 of the said machine, thus causing the feeder at this time to carry the braid very slowly in relation to the rate of the rise of the needle-bar. The result was that the loop of thread around the barb of the hooked needle, which gets looser upon the rise of the needle-bar when the needle-points are approaching the braid, (particularly when sewing with a short stitch,) was not at this time carried quick enough by the feeder to properly draw up the said loop. It is therefore found advantageous that the feeder shall move slower in relation to the needle-bar during its downward stroke and faster in relation to the needle-bar during its upward stroke—a result readily obtainable by a rotary cam, but which would not, however, be so satisfactory in use or so smooth in working as an eccentric. In order to gain the required advantage of this variation of speed of the feeder—that is to say, to cause it to work relatively slower during the first part of its forward motion and faster during the latter portion of its forward motion, and yet still to retain the eccen-

tric as a primary mover—I employ, in lieu of the nose or projection 13 shown in my said former specification, a cam-shaped piece, 28, (shown clearly in Figs. 5 and 6,) at the opposite extremes of its action, the upper part of which cam-piece is arranged to be acted upon by the lever *v* at a point very near to the fulcrum 29 of that lever (see Fig. 5) when the feeder is about to commence its forward movement, and continually changing the surface or point of contact acted upon by the lever *v* as that lever is moved forward by the eccentric 12, thus giving by the change of the position of the point of contact between the surfaces of the said cam-shaped piece 28 and the lever *v* a very slow speed to the feeder at the commencement of the action of the lever *v*, (see Fig. 5,) which gradually increases until it has reached the fullest speed at about the termination of the stroke, as shown in Fig. 6.

The advantages of the thread not being pulled around the barb of the hooked needle too quickly during the descent of the needle-bar and of the loops of threads being better drawn up during the ascent of the needle-bar are thus obtained in an efficient and simple manner. A sliding shoe, 30, Figs. 5 and 6, is recessed to receive the feed-actuating eccentric 12, and presents a flat sliding surface to the upper end of the lever *v*, thereby reducing wear and tear.

I employ a novel construction of joint for connecting the actuating-lever *C* with the needle-slide of my said improved or other sewing-machines, whereby I also reduce the wear and tear of the parts. In this improved joint (details of which are shown at Figs. 7, 8, and 9) the free end of the actuating-lever *C* is made tubular at 31 and formed with a slot, 32, (shown in dotted lines,) on each side, and inside the tubular part, so as to slide freely therein, is introduced a longitudinal sliding piece, 33, provided with a transverse bush, 34, by preference extending beyond the sides of the sliding piece and working in the slots 32 in the tubular part of the lever, whereby I obtain a longer bearing through the said bush, while allowing of the free play of the sliding piece and bush inside the lever. The bush may be hollow, and for greater convenience of removal and refitting is screwed inside the sliding piece by a set-screw, 35, inserted longitudinally into the sliding piece from the outer end thereof, and a pin, *c'*, may extend from the needle-bar into the bush.

In straw-braid machines, as is well known, the presser-foot heretofore employed is grooved upon its under surface, the edge of the groove forming a guiding-edge, 36, for the sewed part of the hat, the said groove also allowing clearance for the passage of the second layer of braid, as shown in Fig. 12. It is further necessary in sewing narrow braids, in order to insure the work being steadily guided, that the grooved side of the presser-foot *y* should cover at least two rows of braid. This style of press-

er-foot is, however, open to the following objections when used for sewing narrow braids, which cannot be obviated by forming it with either a deep or shallow groove. Thus, if the groove in the presser-foot be too shallow, the layer of entering braid, Fig. 12, is pressed against the presser-foot by the feeder *f*; but the feeder is prevented from pressing the two braids 1 and 2 firmly together, because the braid 3, which overlaps one edge of the braid 2, takes away the pressure from that edge of the braid 2 which overlaps the braid 1. The braid 1, being firmly gripped and pressed against the presser-foot by the feeder *f*, is therefore carried through the machine faster than the braid 2, the braid 2 being also further retarded by the friction of the braid 3 against the presser-foot. These conditions cause loose work and irregular sewing. If the groove in the presser-foot be made deeper, neither of the braids 2 and 3 will be pressed against the presser-foot by the feeder, and consequently will not be assisted by the feeder through the machine, the sewed part being now only carried forward by the thread uniting the braid 2 to the braid 1, which last is under these conditions alone acted upon by the feeder. I remedy these disadvantages by arranging a second groove, 37, and sometimes a third groove in the presser-foot, (see Fig. 10,) whereby I secure three or more bearing-surfaces on different planes and provide sufficient freedom for the layer of braid 3, or following layers, whatever their number may be. The layer of braid 2 is thus allowed to take its proper place in the first groove, and the edge of braid 1 is thus brought into close contact with the overlapping edge of the braid 2, whereby the two braids 1 and 2 are by the action of the feeder bringing them into close contact with each other (the sewed part being guided by the guiding-edge 36) carried along under the presser-foot together, and being thus more firmly pressed together by the presser-foot and feeder during the process of sewing, the braids are more firmly united and better sewed than was possible with the old single-groove presser-foot. The additional groove or grooves above the lowest one may, if desired, be of such a width as not to form guiding-edges.

I also secure a further advantage by this kind of presser-foot, in that I provide ample room in the second groove, 37, for the third layer of braid, 3, or for a fourth or fifth layer, as would sometimes happen in sewing very narrow braids; and I further insure that none of the layers of braid shall be pressed down out of their proper position, but shall be allowed to take more nearly the same position in the machine which they will assume when the hat is completed.

The successive bearing-faces may be recessed to receive the beaded edges of the overlapping layers of braid. Fig. 11 shows these recesses in a foot having two bearing-faces; but they may be applied whatever number of bearing-faces there may be. The dotted line *a a* in Figs. 10, 11, and 12 shows the center line of the sewing-instruments.

I do not here claim the presser-foot with faces on different planes, each face recessed, as this may form the subject of a separate application for Letters Patent.

What I claim, and desire to secure by Letters Patent of the United States, is—

1. The looper *c*, combined with a presser-foot extending beneath the same and with a rock-spindle and devices whereby the latter is turned to insure the rise and fall of the looper along with the lifting movement of the presser-foot, for the purpose set forth.

2. The combination of the work-plate, needle-carrier below the same, looper above the same, presser-foot extending between the looper and work-plate and mounted on an arm provided with an elevating device, and a spindle carrying the looper and having a bearing upon the arm *z*, as set forth.

3. The combination of the vibrating lever *v*, the lever 5, connected to the feeder, and arranged substantially parallel to the lever *v*, and provided with an arm, 28, having an extended face, against which the lever *v* bears, whereby the bearing-point changes vertically with the movement of the levers, producing a varying speed in the feed, substantially as and for the purpose set forth.

4. The combination of the shoe 30, with the eccentric 12, and lever *v*, as and for the purpose set forth.

5. The presser-foot of a straw-braid sewing-machine, provided with two or more steps at the under part thereof, arranged successively on different planes, as and for the purpose specified.

6. The combination of the needle-actuating lever, the needle-slide, and a lever tubular at the free end with lateral slots 32 in the tubular part and a longitudinal sliding piece, 33, and transverse bush 34 for receiving the pin *c'* on the needle-slide, as and for the purpose specified.

In witness whereof I have signed my name in the presence of two subscribing witnesses.

EDMUND WISEMAN.

Witnesses:

EDWIN P. ALEXANDER,
36 Southampton Buildings, London.
FREDK. J. RAPSON,
Clerk to E. P. Alexander.