

(Model.)

H. B. BROWER.

EMBROIDERING ATTACHMENT FOR SEWING MACHINES.

No. 428,884.

Patented May 27, 1890.

Fig. 1

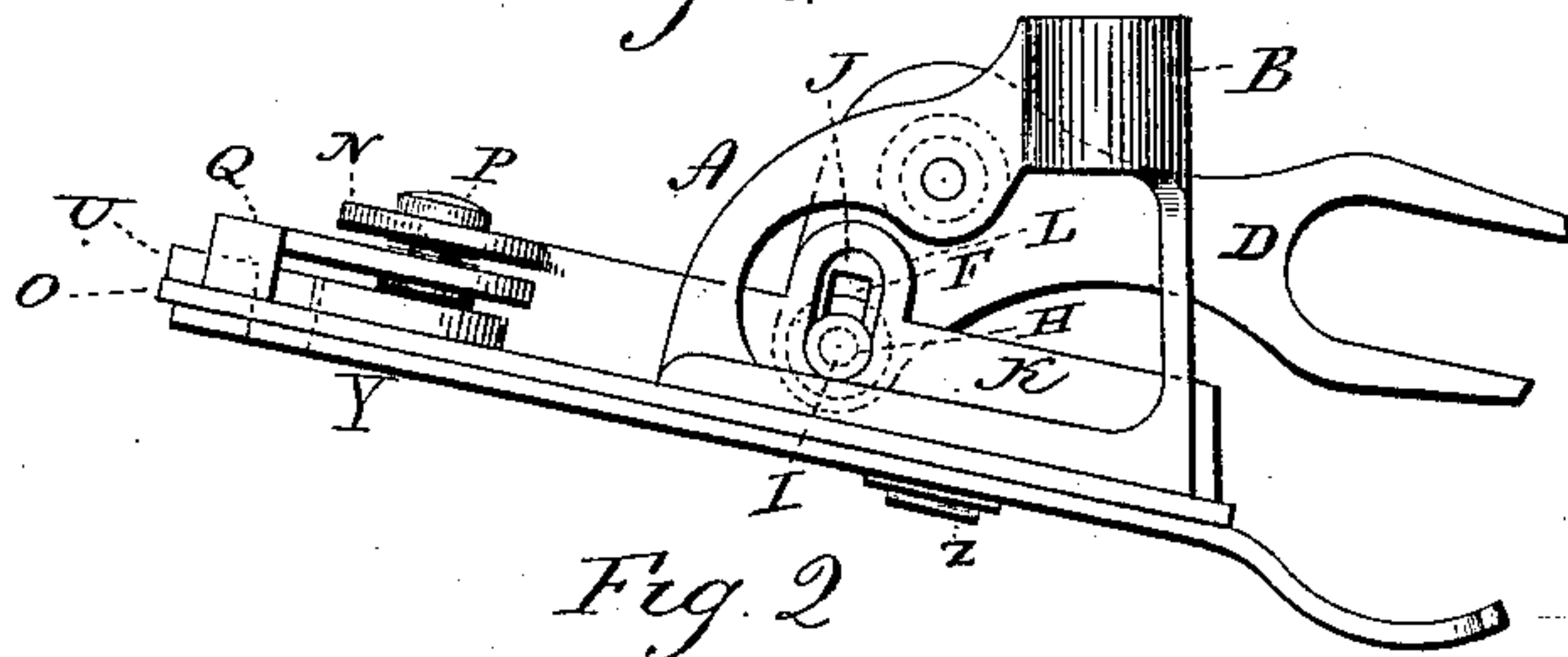


Fig. 2

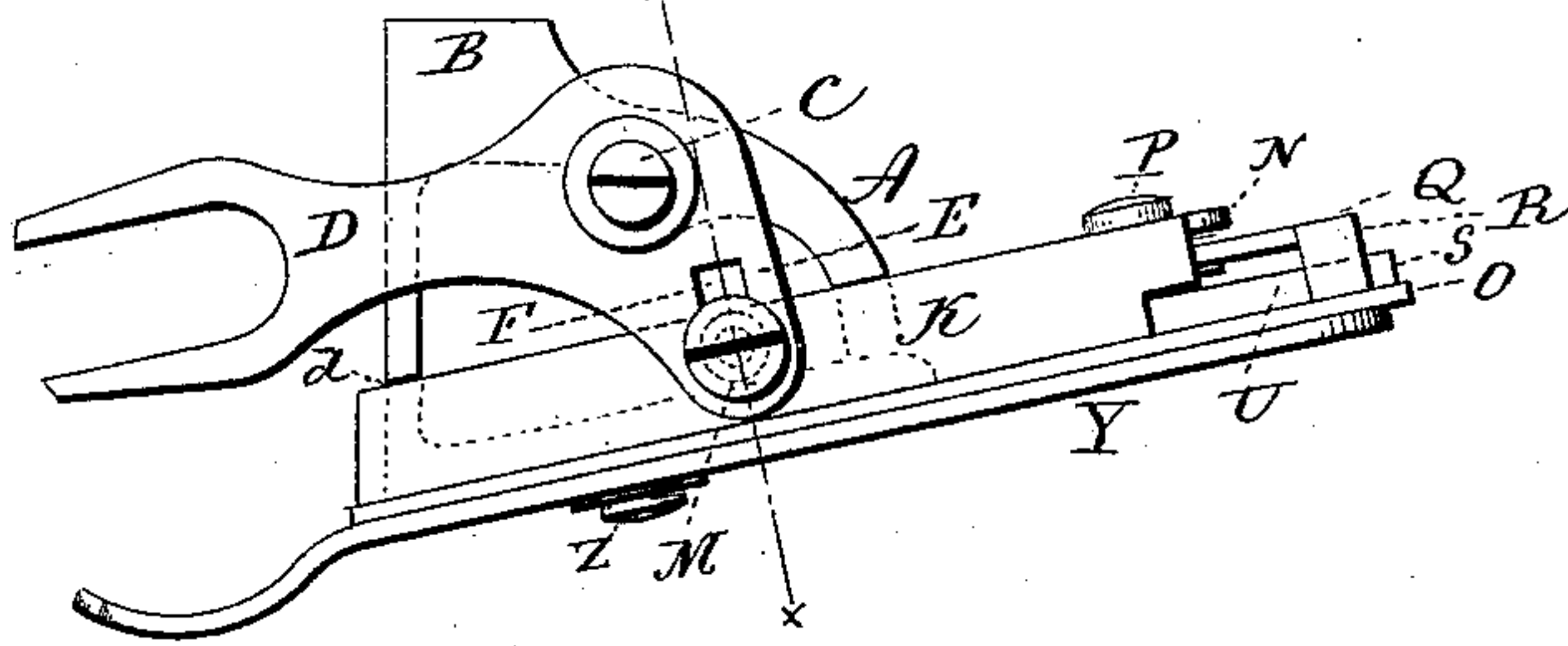


Fig. 3

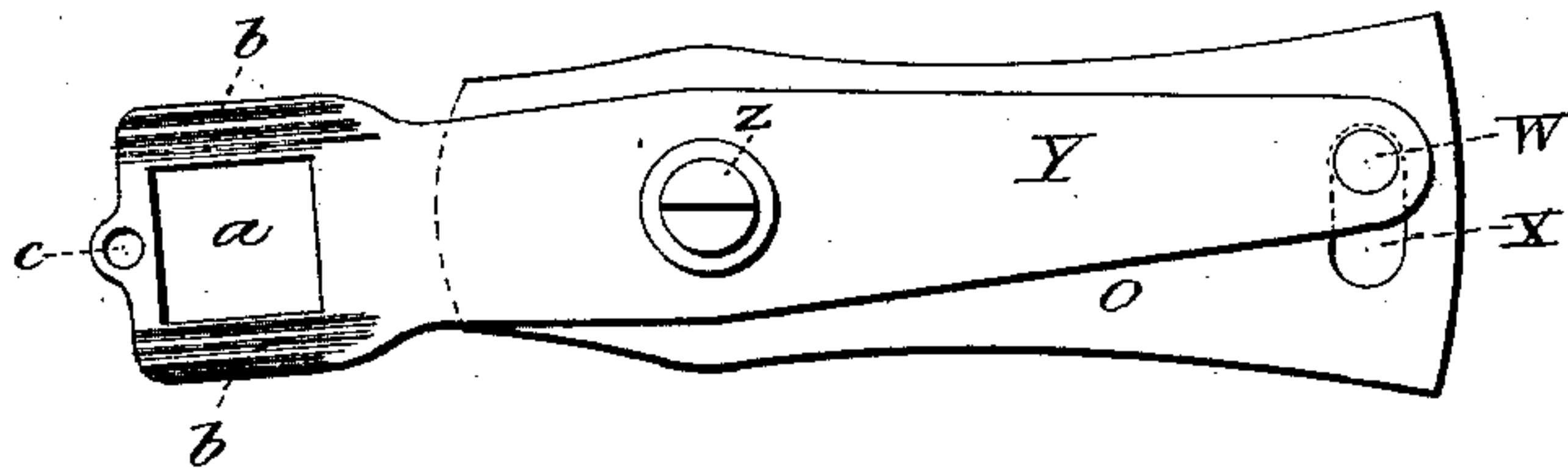


Fig. 4

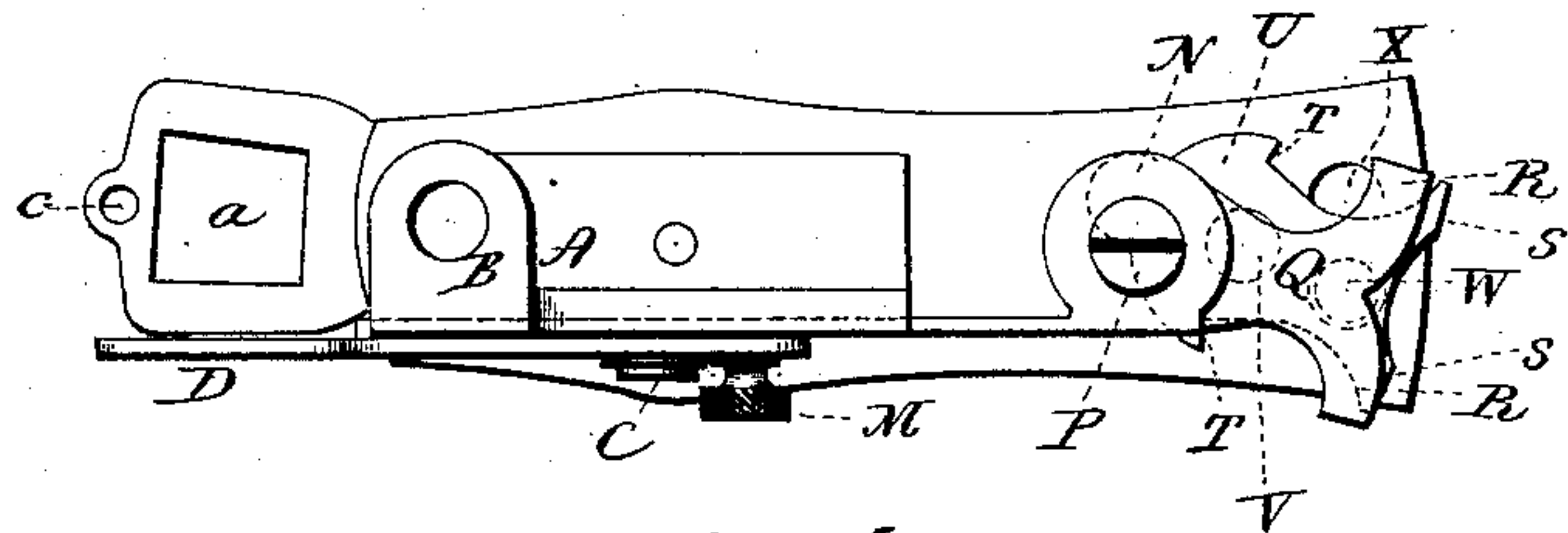
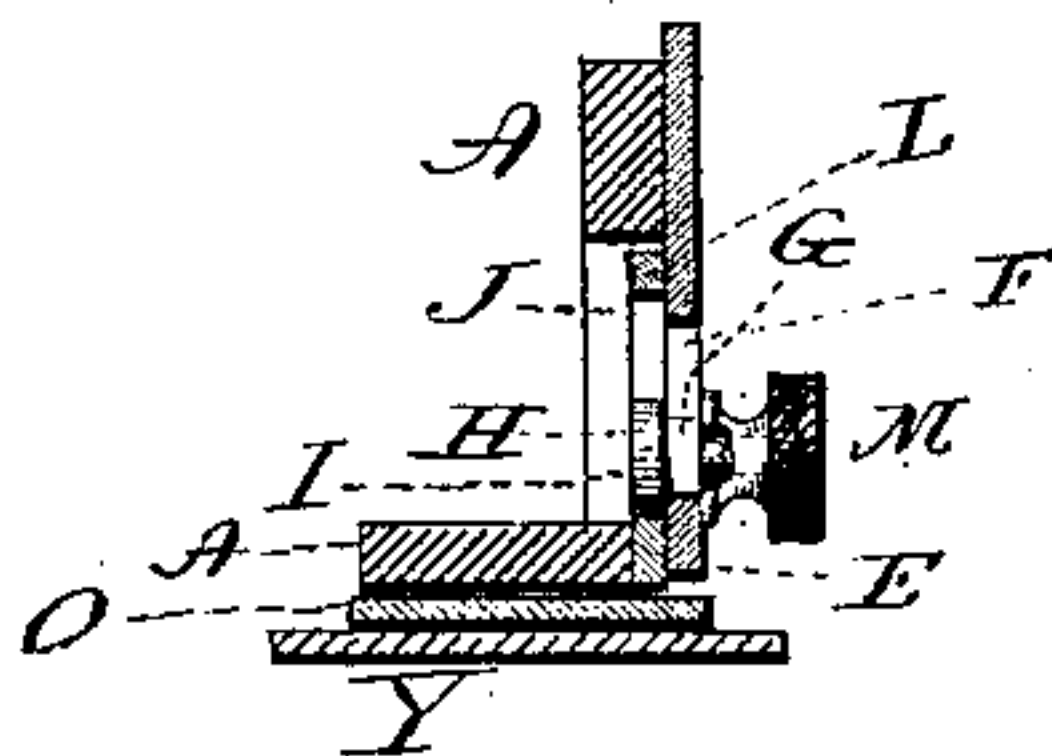


Fig. 5



Witnesses
J. H. Shumway
Fred C. Earle

Hiram B. Brower
By atty's Inventor
Earle & Seymour

UNITED STATES PATENT OFFICE.

HIRAM B. BROWER, OF TYLER CITY, ASSIGNOR OF ONE-HALF TO BENJAMAN O. PRATT, OF MIDDLETOWN, CONNECTICUT.

EMBROIDERING ATTACHMENT FOR SEWING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 428,884, dated May 27, 1890.

Application filed November 13, 1889. Serial No. 330,111. (Model.)

To all whom it may concern:

Be it known that I, HIRAM B. BROWER, of Tyler City, in the county of New Haven and State of Connecticut, have invented a new Improvement in Embroidery Attachments for Sewing-Machines; and I do hereby declare the following, when taken in connection with accompanying drawings and the letters of reference marked thereon, to be a full, clear, and exact description of the same, and which said drawings constitute part of this specification, and represent, in—

Figure 1, a view in front elevation of my improved device, which is shown on the inclination which it has when applied for use; Fig. 2, a similar rear view of the device; Fig. 3, a reverse plan view of the device, and Fig. 4 a top plan view thereof. Fig. 5 is a detached sectional view showing the coupling of the vertical arm of the bell-crank lever and the slide by means of the driving-stud and its thumb-nut.

My invention relates to an improvement in attachments for sewing-machines, and more particularly to a device for working a continuous zigzag embroidery-stitch transversely to the line on which the fabric is fed by the sewing-machine, and for applying, when desired, a cord, narrow ribbon, or braid to the fabric under the embroidery-stitch, the object of the invention being to produce a device of the character described which shall be simple, cheap, and light-running, and adapted to do a wide variety of ornamental work.

With these ends in view my invention consists in an embroidery attachment having certain details of construction and combinations of parts, as will be hereinafter described, and pointed out in the claims.

As herein shown, the device is provided with a frame A, having a socket B, by means of which it is attached to the presser-foot bar of a sewing-machine, which I have not shown, as its application will be fully understood by those familiar with the art to which the invention pertains.

A bell-crank lever, secured by a screw-stud C to the rear face of the frame A, has its longer and horizontal arm D furnished with an open slot, receiving a pin not shown, but located in the reciprocating head of the sew-

ing-machine and communicating motion to the embroidery attachment. The shorter and vertical arm E of the said lever is provided with a vertically-elongated slot F, receiving the faced shoulder G of a driving-stud H, the rounded head I whereof is arranged to turn freely in a similar but wider slot J, formed in the body of a horizontal slide K, and in an ear L, projecting from the upper edge thereof, the said slide being set into a recess *d*, formed in the rear face of the frame A.

The edges of the head of the stud bear against the inner face of the arm E at points thereon adjacent to the vertical edges of the slot F therein, and are held tightly against the said face of the arm by means of a thumb-nut M, screwed upon the threaded outwardly-projecting shank of the stud and against the outer face of the said arm E, whereby the stud may be firmly clamped thereto, within the range of the slot F, by means of the thumb-nut. The rear end of the said slide is provided with an arm N, projecting inwardly from its upper edge over the base-plate O, and centrally perforated to receive a stud P, carrying the switch-shifter Q, which is provided at its outer end with two diverging arms R R, having their extremities turned down for engagement with the fingers S S and the shoulders T T of the switch U, which is secured by a pivot V to the upper face of the base-plate and near the outer end thereof. The said switch is provided with a depending pin W, extending through a transverse slot X, formed in the base-plate into the rear end of the presser-foot Y, which is pivoted by a screw-stud Z to the lower face of the said base-plate and provided at its broad forward end with an enlarged needle-opening *a*, made wide enough to cover the widest embroidery-stitching that the device is adapted to make, with longitudinal corrugations or ribs *b*, which adapt it to bite or take hold of the fabric, and with an eye *c*, centrally located in front of the said opening *a*, and forming a guide through which a cord or braid is fed under the embroidery-stitch.

It will be seen that under the construction described the presser-foot will be vibrated transversely to the line on which the fabric is fed by the sewing-machine and independ-

ently of the feeding mechanism thereof, and that by reason of its adaptation to bite or take hold of the fabric it will shift the same back and forth under the feed in zigzag lines substantially transverse to the line on which the fabric is fed, the feeding of the fabric forward being effected between the vibrations of the presser-foot. The embroidery-stitches will therefore alternately cross and recross the line on which the fabric is fed. Their length will be determined by the adjustment of the driving-stud in the elongated slots F and J, formed in the short arm E of the bell-crank lever and in the horizontal slide. When the stud is carried toward the lower ends of the slots, the said arm E will be virtually lengthened and the throw of the slide increased, whereby a greater vibration of the presser-foot will result, while on the other hand, by moving the stud H toward the upper ends of the slots, the said arm E will be virtually shortened and the throw of the slide and the vibration of the presser-foot decreased. By moving the stud sufficiently toward the upper ends of the slots the play of the slide may be so far reduced that it will not operate the switch-shifter Q in oscillating the switch, whereby the presser-foot will not be vibrated. It will not therefore shift the fabric transversely to the line of the regular feed, and the stitches made by the regular action of the machine will be in a straight line. This provision for retiring, as it were, the switching mechanism of the device by simply changing the position of the stud H permits the formation of a zigzag embroidery-stitch or a straight stitch by the machine without removing the attachment therefrom. A machine provided with my attachment may therefore be readily converted for straight or zigzag embroidery-stitching, whereby the two styles of stitching may be combined with pleasing effect. The said slot F is arranged so that when the slide K is at the extreme limit of its outstroke, which will be when the bell-crank lever is in its lowest position, it will stand at exactly a right angle to the slide. Under this construction, and as the action of the bell-crank lever is uniform, the rear end of the slide will always be carried to the same position, no matter what the adjustment of the driving-stud may be, and throwing the entire variation in the reciprocation of the slide upon its forward stroke. It is obvious that this provision must be made for uniforming the outstroke of the slide, in order to insure a positive operation of the switch-shifter, which will be moved more or less after it has been engaged with the switch, according to the length of the instroke of the slide, that stroke being regulated by the adjustment of the driving-stud.

My improved device may be used for making continuous zigzag embroidery-stitches over other stitching, or to ornament fabric where there are no other stitches; or the zigzag stitches may be employed to cover a lapped

seam, or to secure two edges of a fabric together, or to apply a ribbon or braid to the surface of a fabric. A cord or narrow braid may be laid under the zigzag stitching by feeding it through the eye in the outer end of the presser-foot. It will thus be seen that the device may be employed for a great variety of fancy stitches and for securing purely ornamental effects, as well as effects in which the stitches secure the fabrics together.

I would have it understood that I do not limit myself to the particular switching mechanism herein shown and described, as other devices may be used in their place. I therefore hold myself at liberty to make such changes and alterations in the construction herein shown as may fairly fall within the spirit and scope of my invention.

Having fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In an embroidery attachment for sewing-machines, the combination, with a frame adapted to be connected with the presser-bar of the machine, of a presser-foot hung upon a vertical pivot stationary in the said frame, and thereby limited in its horizontal action to vibratory movement transverse to the line of the feed of the machine, and operating-connections, substantially as described, attached to the said frame, connected with the presser-foot and adapted to be engaged by a part of the sewing-machine moving independently of the feeding mechanism thereof, and including switching mechanism for vibrating the said foot transversely to the line of the feed of the machine, and means for retiring or cutting out the said switching mechanism so as to stop the vibration of the foot without removing any part of the attachment, substantially as set forth.

2. An embroidery attachment for sewing-machines, having a frame adapted to be attached to the presser-bar of a sewing-machine, a horizontal presser-foot hung upon a vertical pivot stationary in the said frame and having a broad forward end containing a needle-opening adapted in its transverse extension to clear the needle, and having an eye, and upon its under face long longitudinal ribs, and operating-connections, substantially as described, attached to the said frame, connected with the presser-foot and adapted to be engaged by a part of the sewing-machine moving independently of the feed mechanism thereof, whereby the movement of the machine is transmitted to the presser-foot, substantially as described.

3. In an embroidery attachment for sewing-machines, the combination, with a frame adapted to be attached to a sewing-machine, of a bell-crank lever pivoted to the said frame, a horizontal slide connected with an arm of the said lever, a vibrating presser-foot hung by a vertical pivot stationary in the frame, and thereby limited in its horizontal action to vibratory movement, and switching mechanism

anism connecting the said horizontal slide and vibrating presser-foot, and means for cutting out or retiring the latter without removing any part of the attachment, substantially
5 as described.

4. In an embroidery attachment for sewing-machines, the combination, with a frame adapted to be attached to a sewing-machine, of a bell-crank lever having a vertically-elongated slot formed in one of its arms, a horizontal slide having a similar slot, an adjustable
10 driving-stud passing through the said slots, a vibrating presser-foot hung upon a pivot stationary in the said frame, and switching mech-

anism between the slide and presser-foot, the said slot in the bell-crank lever being arranged to stand at a right angle with the slide when the same is at the end of its outstroke, whereby the variation in the stroke of the slide caused by shifting the position of the
20 driving-stud is entirely thrown upon the forward stroke of the slide, which is its operating-stroke, substantially as described.

HIRAM B. BROWER.

Witnesses:

LILLIAN D. KELSEY,
FRED C. EARLE.