

(No Model.)

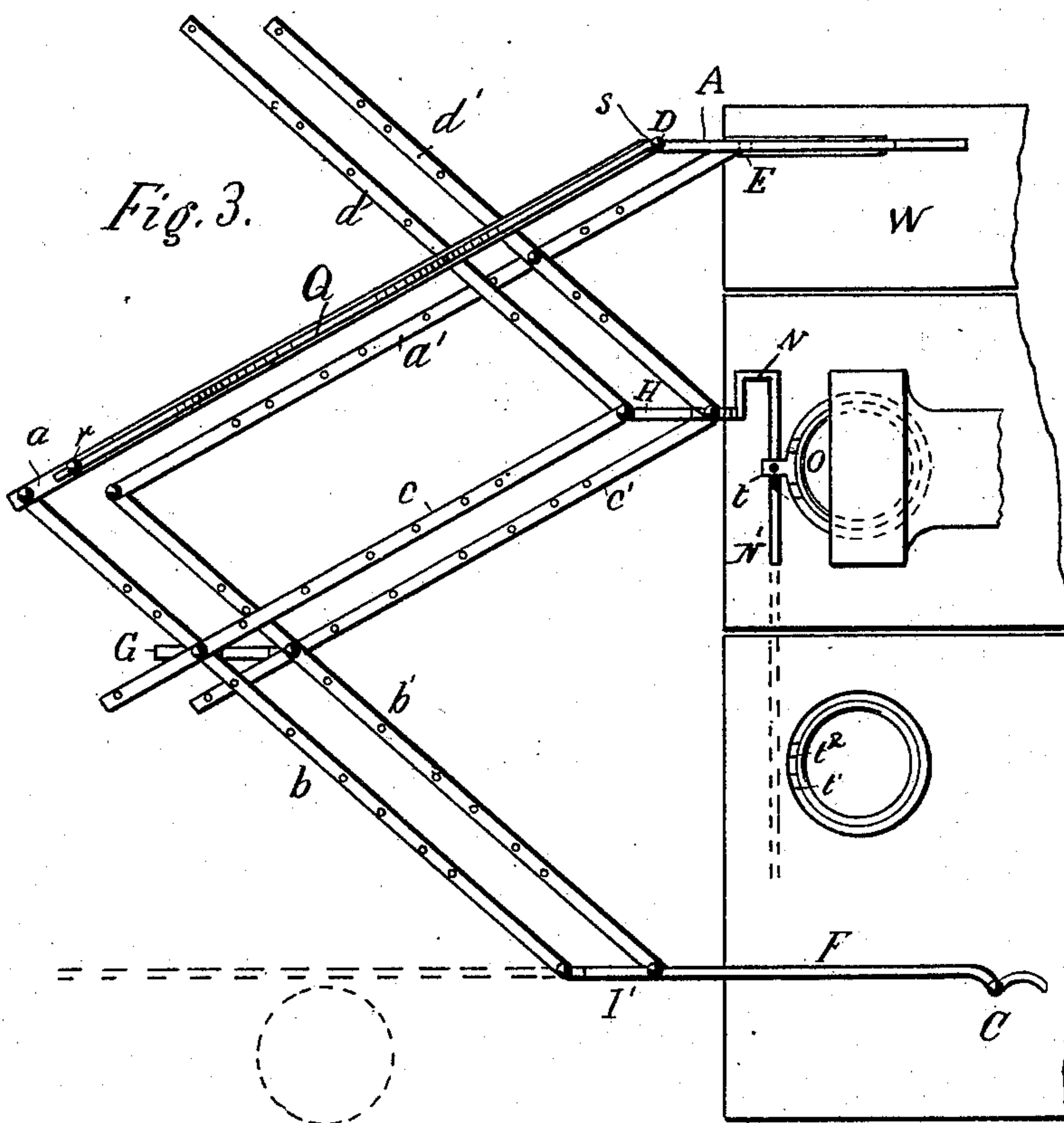
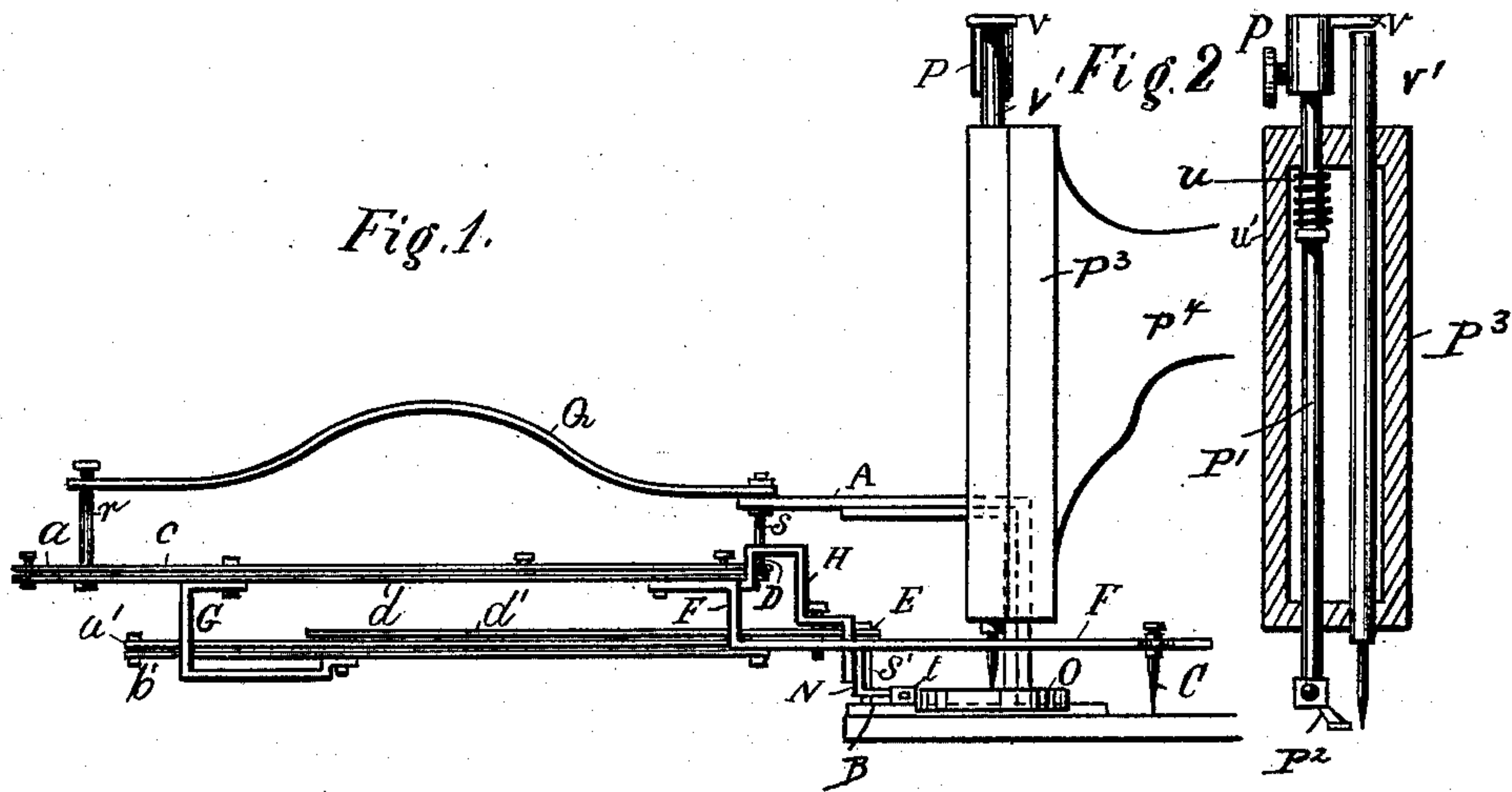
2 Sheets—Sheet 1.

E. FRANKENBERG.

EMBROIDERING ATTACHMENT FOR SEWING MACHINES.

No. 384,198.

Patented June 5, 1888.



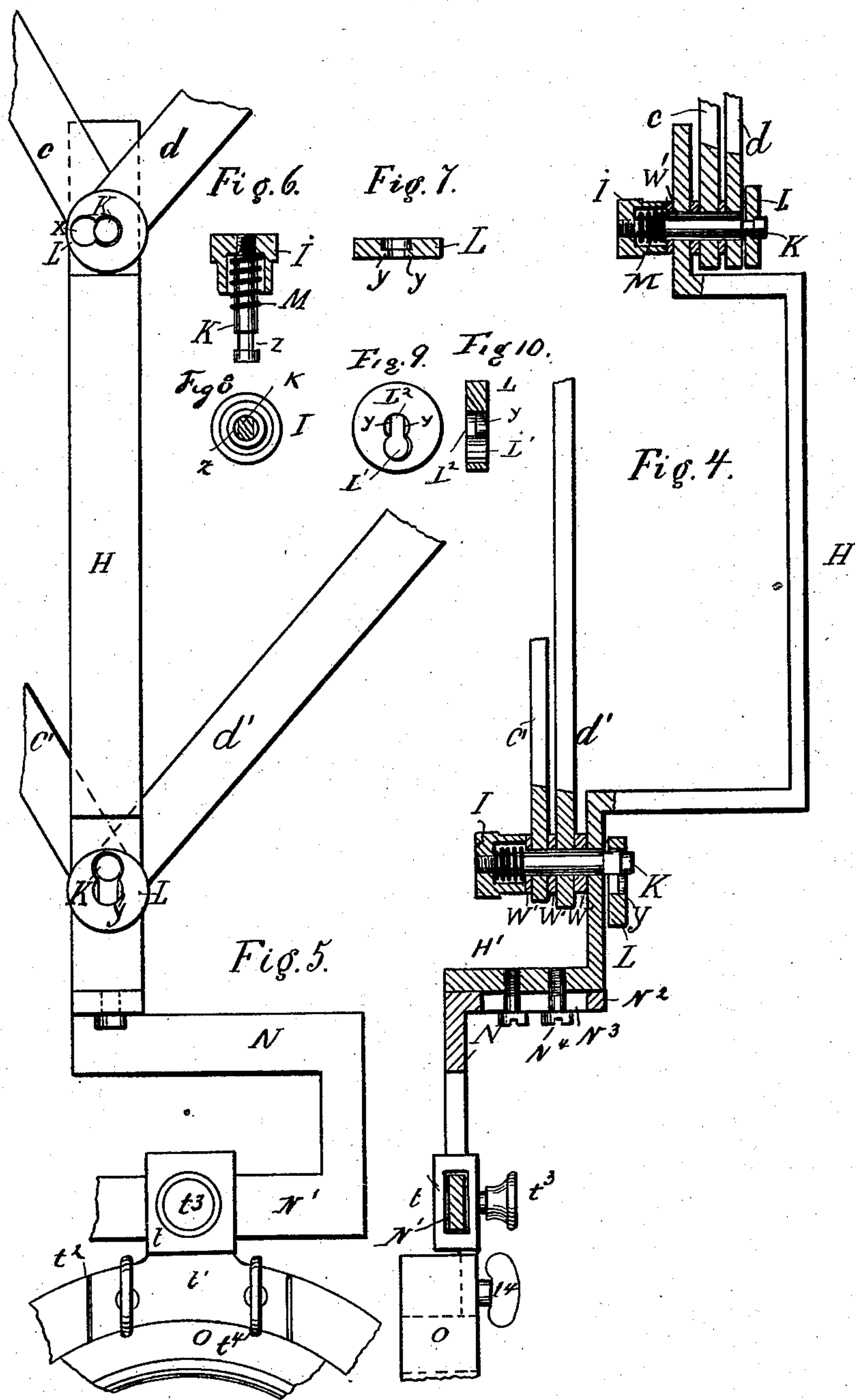
Witnesses:
Carl Kays
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2 Sheets—Sheet 2.

EMBROIDERING ATTACHMENT FOR SEWING MACHINES.

Patented June 5, 1888.



Witnesses:
Carl Karp
Martin Petry.

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UNITED STATES PATENT OFFICE.

EDUARD FRANKENBERG, OF HANOVER, PRUSSIA, GERMANY.

EMBROIDERING ATTACHMENT FOR SEWING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 384,198, dated June 5, 1888.

Application filed November 29, 1887. Serial No. 256,384. (No model.) Patented in England November 7, 1887, No. 15,144, and in Belgium November 30, 1887, No. 79,496.

To all whom it may concern:

Be it known that I, EDUARD FRANKENBERG, of Hanover, in the Kingdom of Prussia, Empire of Germany, have invented certain new and useful Improvements in Embroidery Attachments for Sewing-Machines, (for which Letters Patent have heretofore been granted to me by the Government of Belgium, dated November 30, 1887, No. 79,496, and Great Britain, dated November 7, 1887, No. 15,144,) of which the following is a specification.

Heretofore sewing-machines, in order to adapt them to be used for embroidering, had to be changed considerably, which was more or less expensive.

The object of my invention is to provide a new and improved embroidering attachment for sewing-machines, which can be applied very easily and rapidly on one or more machines placed side and side, and which does not require any change in the construction of the machine, and permits the machine to be used at intervals for ordinary sewing or for embroidering, as may be desired.

In the accompanying drawings, Figure 1 is a side view of my improved attachment for embroidering for sewing-machines applied on a machine, parts of which are broken out. Fig. 2 is a vertical longitudinal sectional view of the head on the end of the arm of the sewing-machine, showing part of the attachment on the presser-bar. Fig. 3 is a plan view of my improved attachment. Fig. 4 is an enlarged side view of one of the connecting-yokes and other parts of the attachment, portions being in section. Fig. 5 is a plan view of the parts shown in Fig. 4. Fig. 6 is a vertical cross-sectional view of the pivot-pin of the pantograph attachment. Fig. 7 is a bottom view of the same, parts being in cross-section. Fig. 8 is a cross-sectional view of the slotted disk or button for locking the pivot-pin. Fig. 9 is a top view of the same. Fig. 10 is a vertical longitudinal section of the same.

Similar letters of reference indicate corresponding parts.

P is the presser-bar of the sewing-machine, on the lower end of which the presser-foot P² is secured. Said presser-bar is provided with a collar, u', on which one end of a spiral spring, u, surrounding the presser-bar P', rests, the

upper end of the said spring resting against the top of the cavity formed in the head P³ of the arm P¹ of the sewing-machine. A cap, P, is held by a screw on that end of the presser-bar P' projecting beyond the top of the head on the end of the arm, and said cap is provided with a laterally-projecting lug, V, extending over the top of the needle-bar V', so that when the needle-bar reciprocates its upper end acts on the lug V, thereby raising the cap P and the presser-bar P' and compressing the spring u. When the needle-bar descends, the compressed spring u expands, and, acting on the shoulder u', presses the presser-bar P' and its foot P² downward. As long as the needle-bar and needle are raised, the presser-foot P² is raised clear of the fabric to be embroidered, thus permitting of shifting said fabric under the needle. When the needle is lowered to pierce the cloth, the presser-foot is pressed by the spring u upon said cloth or fabric.

If desired, the lug V can enter a longitudinal slot of the needle-bar, or the lug may be provided on the needle-bar and enter a slot or recess of the presser-bar; but the construction shown is preferred as being the simplest. The fabric, or that part of the same to be embroidered, is held in a circular embroidering-frame, O, of the usual construction, said frame having a recess, t², in the top of its rim part for receiving a segmental coupling-piece, t', provided with an eye, t, having a binding-screw, t³. Thumb-screws t⁴ serve to hold the segmental coupling-piece t' in the recess t² of the frame O. One shank, N', of an angular bar, N, is passed through the eye t, which eye is locked in the desired position on the said bar N by the screw t³. Said bar N is provided with an upwardly-projecting part, N², having a longitudinal slot, N³, through which the screws N⁴ are screwed into the downwardly-projecting arm H' of a yoke or stirrup, H, which will be described later. Said frame O is moved and shifted by a pantograph, which is composed of the bars a b c d and a' b' c' d', that are united by the stirrups or yokes G and H, and also by the yoke I', formed on the end of the manipulating-bar F, carrying the stylus C, that is to be moved over the design to be embroidered. These bars a b c d and a' b' c' d' are provided with numerous apertures to permit of

adjusting them in different positions in relation to each other. So as to permit the working of the pantograph very readily, the bars *a b c d* are in different horizontal plane from the bars *a' b' c' d'*. One end of the bar *a'* turns on a pivot, *S*, projecting downward from the angle-piece *A*, suitably secured on the top plate, *W*, of the sewing-machine or a table placed adjacent to the sewing-machine. The corresponding end of the bar *a'* turns on a pivot or fixed pin, *S'*, projecting upward from a bar, *B*, also fixed on the plate *W*. A spring, *Q*, is mounted to turn on an extension of the pivot *S*, projecting from the top for the angle-iron *A*, and the free end of the spring *Q* is connected with the upper end of a standard, *r*, projecting upward from that end of the bar *a* opposite the one mounted to turn on the pivot *S*.

The pivots or pins for connecting the several bars of the pantograph are constructed in the following manner: One end of the pivot *K* is screwed into a recessed cap, *I*, having a cavity for receiving a spiral spring, *M*, surrounding the pin. At that end of the pin *K* opposite the one screwed in the cap *I* the pin is provided with two opposite notches, *z*. A button or disk, *L*, is provided with an eccentric aperture, *L'*, and a central aperture, *L''*, in communication with each other. The central aperture, *L''*, is provided in its lower half with two opposite tongues, *y y*. Washers *W'* are interposed between the several bars *a b c d* and *a' b' c' d'* and the yokes *G*, *H*, and *I'*, the washers and ends of the bars and yokes being so adjusted that their apertures are in line. The pivots *K* are then passed through the said apertures and the spring *M* compressed. The notched end of the pin *K* is then passed through the eccentric aperture *L'* of the button *L*, as shown in the lower part of Figs. 4 and 5, and then said button is moved in the direction of the length of the slot formed by the two apertures *L' L''*, so that the two tongues *y* pass into the notches *z* of the pin *K*, thus preventing the withdrawing of the said pin. The spring *M* presses the edge of the cap *I* and the under face of the button *L* against the bars or yokes, and forms a friction-tight joint for the parts, at the same time permitting of readily shifting the parts when required. The operator shifts the stylus *C* over the pattern or design, and by the movements of the pantograph the embroidery-holding frame *O* is moved correspondingly under the needle. Whenever the needle descends, the presser-foot descends with it and holds the

fabric in position during the time it is being pierced by the needle, and when the needle is raised the presser-foot is also raised, thus permitting of shifting the embroidery-frame under said presser-foot and needle. The embroidery-frame can be adjusted vertically by loosening the screws *N'* and moving the shank *N'* of the angle-bar *N* up or down. The embroidery-frame can be adjusted longitudinally on the shank *N'* of the bar *N* after the screw *t'* has been loosened, and then locked in place by means of said nut. In case a mistake has been made the embroidery-frame *O* can easily be detached by loosening the thumb-screws *t'*. The necessary correction of the mistake can then be made and the frame replaced and again secured to the coupling piece *t'*, and will then be in precisely the same position that it had before being removed.

It is evident that if the bar *N* is extended, as shown in dotted lines in Fig. 3, a series of embroidery-holders *O* may be held on the same, it being evident that as many machines must be placed side by side as there are embroidery-holders. If the pattern is to be reproduced full size and not reduced by the pantograph, the embroidery-frame is secured on the extension of the rod *F*, as shown in dotted lines in Fig. 3.

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

1. The combination of an embroidering-frame provided with an eye, a pantograph provided with a vertical arm, and an angular connecting-bar horizontally adjustable in said eye and vertically adjustable on said arm, substantially as described.

2. The combination of an embroidering-frame, a detachable clamp provided with thumb-screws for attachment to said frame and with an eye, a pantograph provided with a vertical arm, an angular connecting-bar comprising a horizontal arm adjustable in said eye and a slotted vertical arm vertically adjustable on said arm of the pantograph, a set-screw in said eye for clamping said bar, and screws for uniting said vertical arms, substantially as described.

In testimony that I claim the foregoing as my invention I have signed my name in presence of two subscribing witnesses.

EDUARD FRANKENBERG.

Witnesses:

C. LÜTTGE,
JOHN KRACKE.