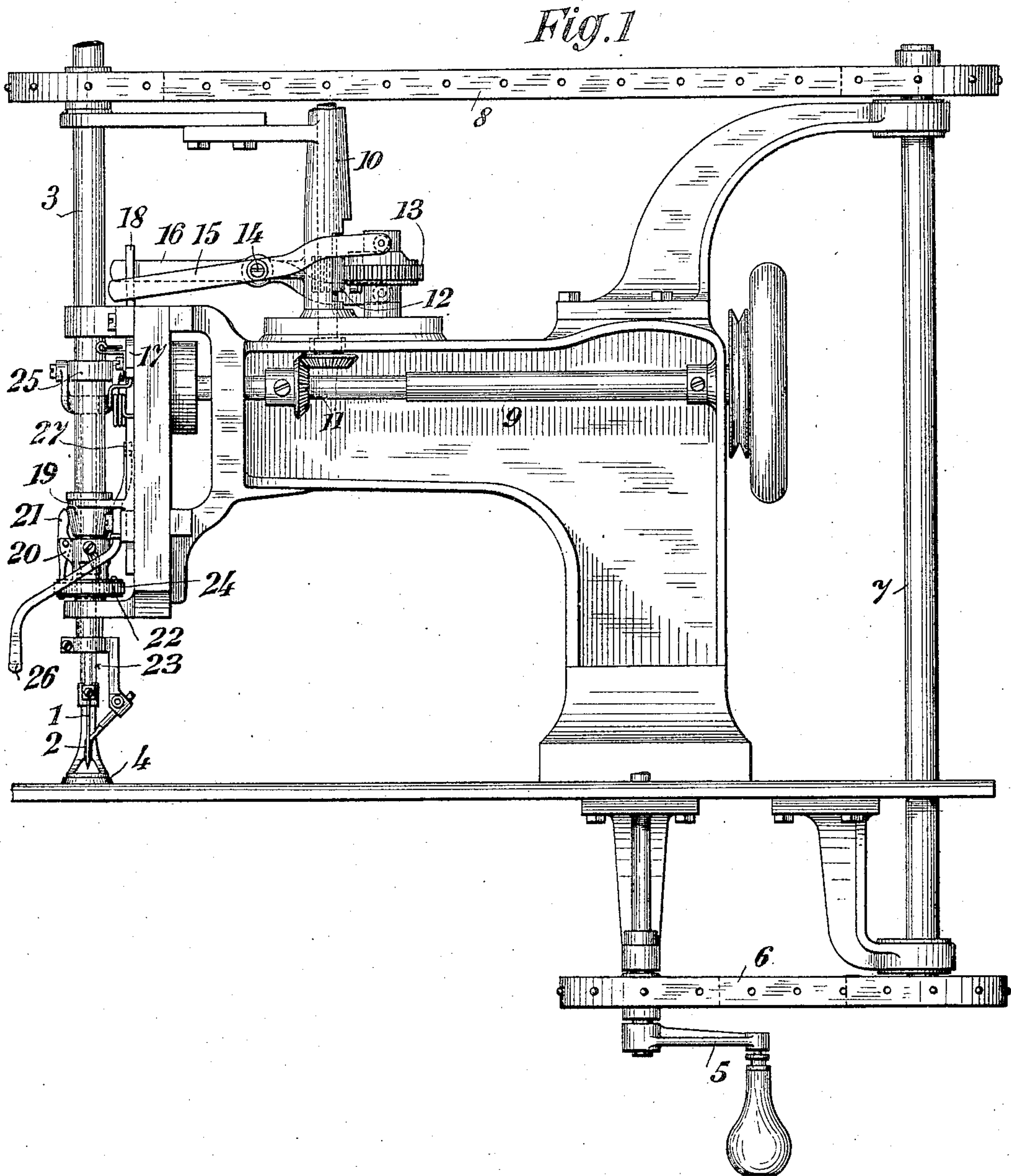


No. 844,015.

PATENTED FEB. 12, 1907.

F. GEGAUF.  
EMBROIDERING MACHINE.  
APPLICATION FILED OCT. 9, 1905.

2 SHEETS—SHEET 1.



*Witnesses:*

*H. L. Amer.*

*P. Mommers*

*Inventor:*

*Friedrich Gegauf.*

*by Henry Orth Esq. atty.*

No. 844,015.

PATENTED FEB. 12, 1907.

F. GEGAUF.  
EMBROIDERING MACHINE.  
APPLICATION FILED OCT. 9, 1905.

2 SHEETS—SHEET 2.

Fig. 2

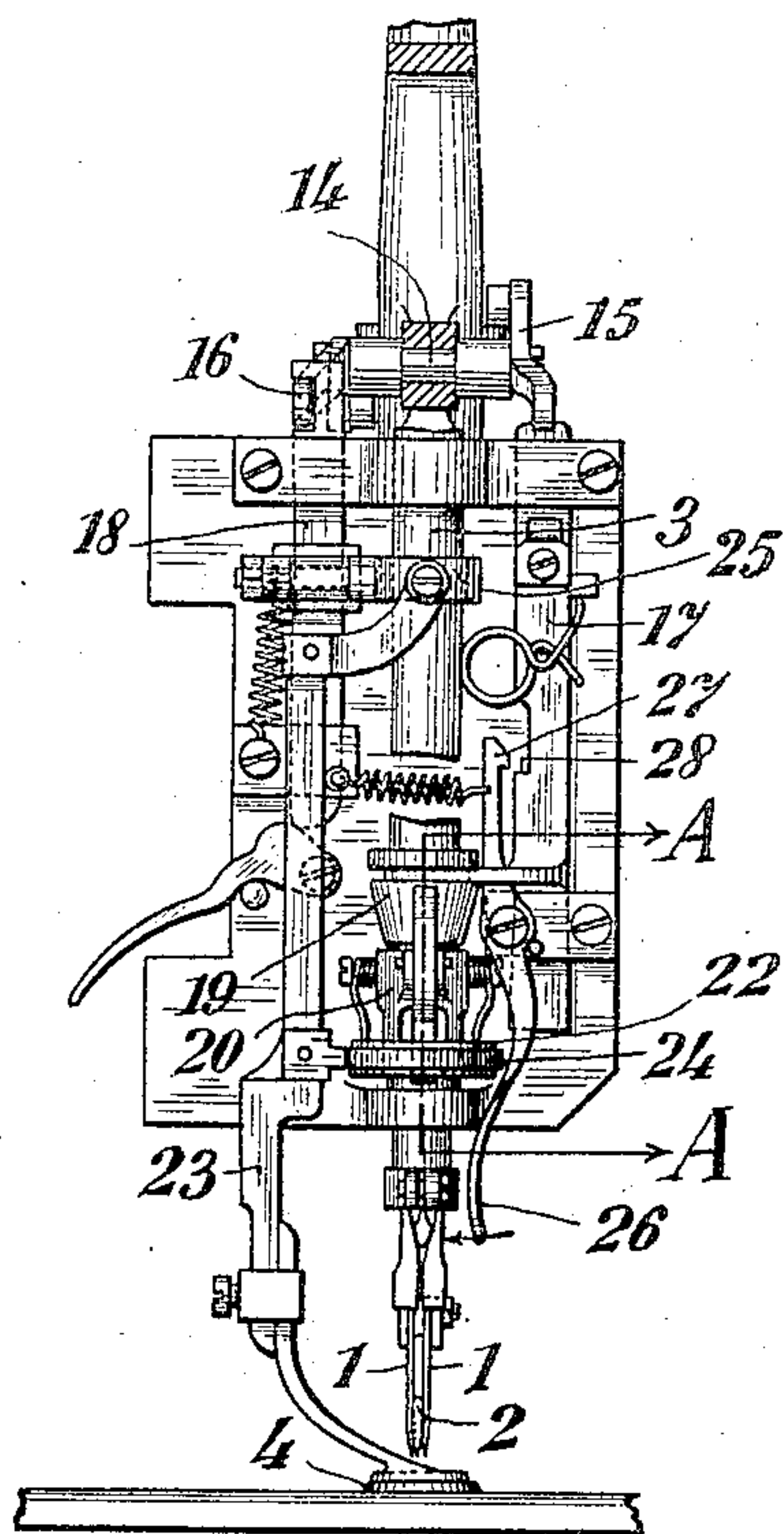


Fig. 3

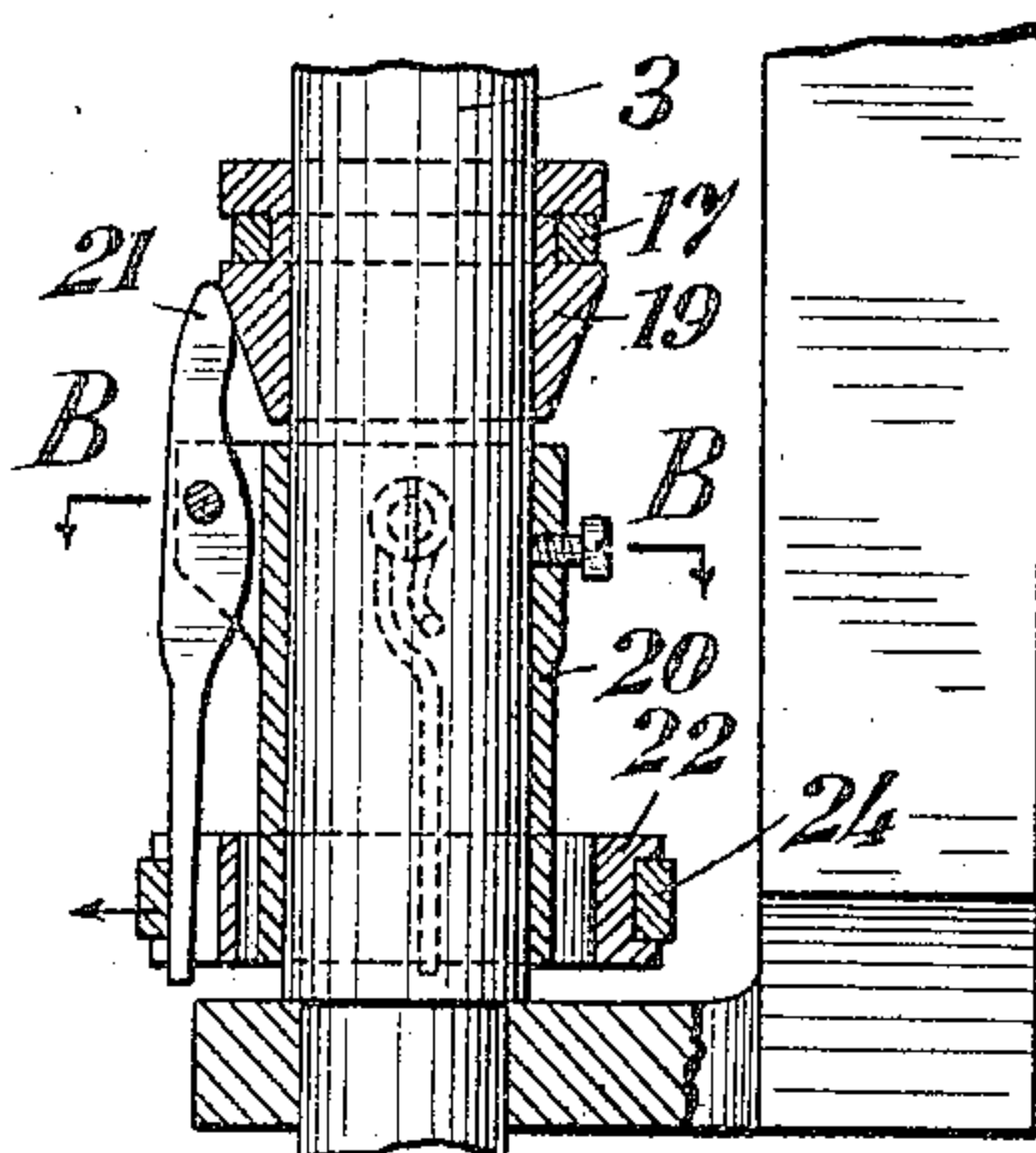


Fig. 4

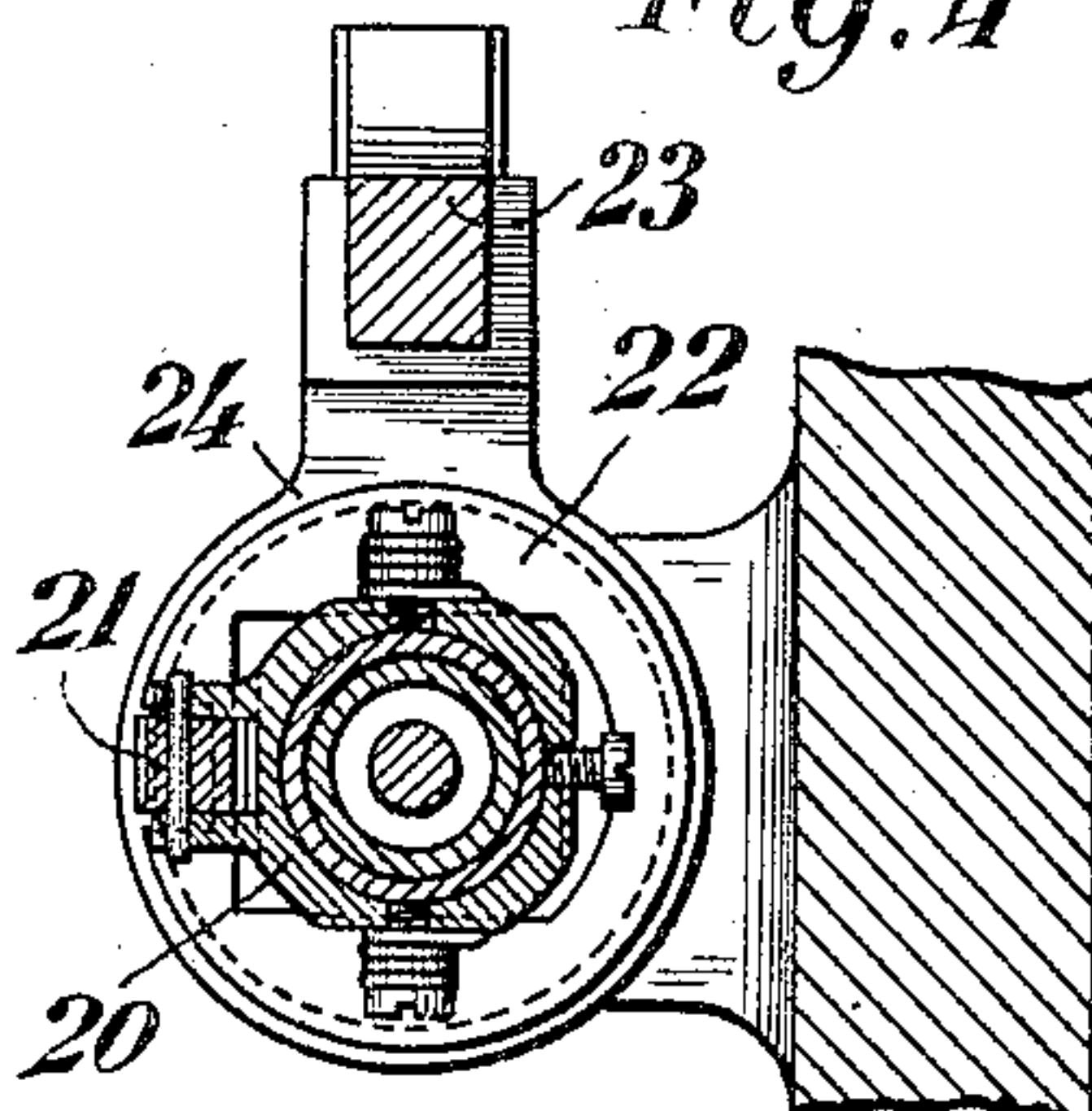


Fig. 5

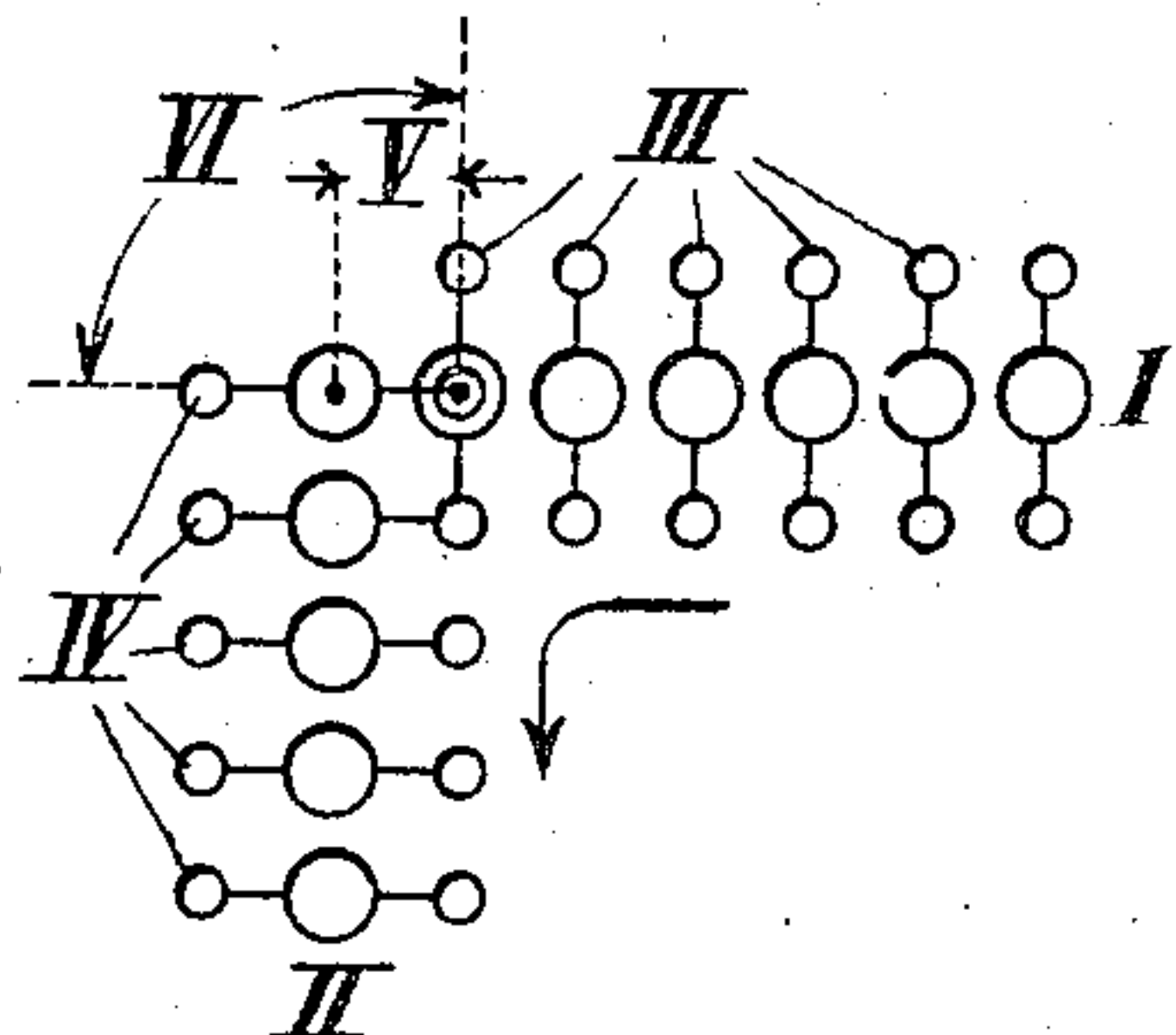
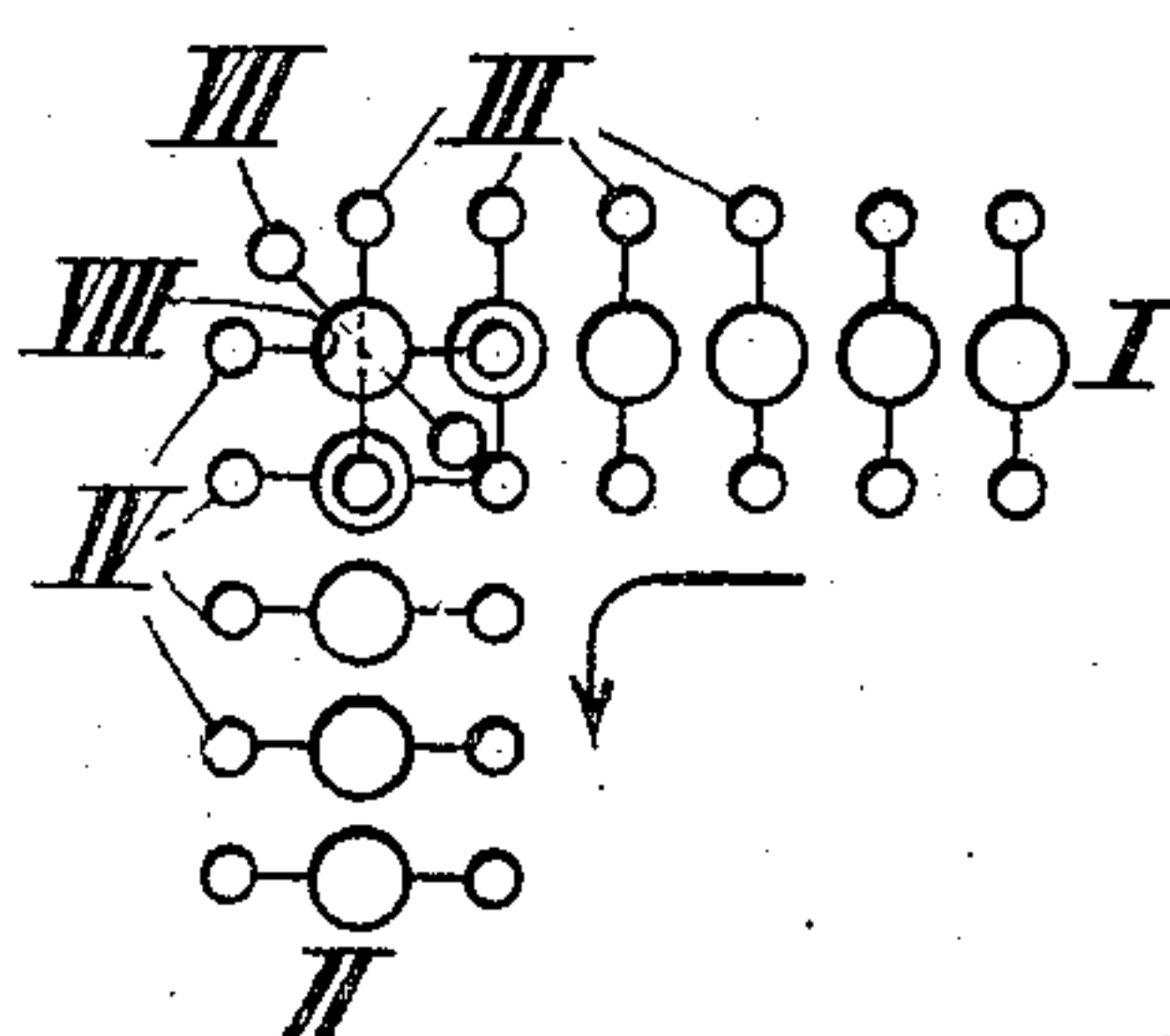


Fig. 6



Witnesses:

H. L. Amer.

B. Rommels

Inventor.

Friedrich Gegauf.

by *Henry C. [Signature]* atty.



# UNITED STATES PATENT OFFICE.

FRIEDRICH GEGAUF, OF STECKBORN, SWITZERLAND, ASSIGNOR TO THE  
FIRM OF GEBR. GEGAUF, OF STECKBORN, SWITZERLAND.

## EMBROIDERING-MACHINE.

No. 844,015.

Specification of Letters Patent.

Patented Feb. 12, 1907.

Application filed October 9, 1905. Serial No. 281,990.

*To all whom it may concern:*

Be it known that I, FRIEDRICH GEGAUF, a subject of the Emperor of Germany, residing at Steckborn, in Switzerland, have invented  
5 new and useful Improvements in and Connected with Stitching and Embroidering Machines, of which the following is a specification.

In crank hemstitch embroidering-machines  
10 in which the progressive movement of the material-shifting device is always directed uniformly to each position of the needles and the direction of which, corresponding to the course of the seam to be made, may be altered by turning a hand-crank the great  
15 drawback becomes evident in executing seams running at right or acute angles or in sudden backward stitching that during the turning of the crank hereby necessary for the purpose of altering the direction of the seam,  
20 a displacement of the material-shifting device takes place between the forming of the last stitch in the old direction of the seam and the forming of the first stitch in the new direction of the seam, and by this shifting of  
25 the material the two stitch formations at the outer edge of the seam which forms an angle or point come to lie too far apart, and thereby no clearly-marked corners and points are  
30 obtained in the seam to be made.

Now the object of this invention is to provide a crank hemstitch embroidering-machine with two needles and a borer which are adapted to be moved up and down independently of one another and may be turned, together with the shuttle, by a hand-crank,  
35 also with a material-shifting device which executes a shifting movement always directed in unison with the actual common position of the needles and shuttle, the direction of which shifting movement may be altered corresponding to the course of the seam to be executed, together with the turning of the needles and shuttle by turning the crank.  
40 This machine has a device enabling the shifting movement of the material-shifting device to be stopped periodically during the working of the machine with the object, when executing seams running at right or acute angles  
45 or in the case of sudden backward stitching, of enabling the shifting movement of the material-shifting device (which takes place during the turning of the handle for the purpose of altering the direction of the seam between

the last stitch formed in the old direction of the seam and the first stitch formed in the new direction of the seam) and the displacement of the material thereby caused to be dispensed with and of allowing of the formation of a further number of intermediate  
55 stitches in order to obtain the formation of as sharp corners and points as possible during the turning of the needle on the same place on the material between the forming of the two stitches.

A form of construction of the object of the invention is shown as an example in the accompanying drawings, in which—

Figure 1 is a side view; Fig. 2, a front view of the machine, partially in section; Fig. 3,  
60 a section on the line A A of Fig. 2 on an enlarged scale; Fig. 4, a section on the line B B of Fig. 3, while Figs. 5 and 6 are different stitch diagrams on an enlarged scale.

In Figs. 1 and 2, 1 indicates the two needles, and 2 the borer or pricker located between them, which parts are arranged in a carrier-tube 3, revolvably mounted on the head-plate of the machine in such a way as to be adapted to be moved up and down independently of one another and are revolvable with the tube.

4 is the material-shifting device.

5 is a hand-crank located under the table-plate of the machine, the rotary movement of which crank may be transmitted by a belt-gear 6 and 8 by the intermediary of a shaft 7 to the carrier-tube 3 and also to a shuttle-carrier arranged under the table-plate and not shown in the drawings.

9 is the driving-shaft of the machine, from which the needles 1 and borer 2 receive their up-and-down movement.

A shaft 10, arranged at right angles to the shaft 9, is provided for transmitting the motion for operating the material-shifting device, which shaft 10 receives its rotary motion by means of bevel-gear 11 from the driving-shaft 9 and transmits this movement by means of a toothed drum 12 to a second  
95 toothed wheel 13, formed as a cam-disk, Fig. 1. One of the arms of the double levers 15 and 16, respectively, pivotally mounted at 14, bears from above and from below, respectively, against this cam-disk, while the other arms of these levers in turn bear against slide-bars 17 and 18, acting under the pressure of springs and mounted vertically on the head-  
100



plate of the machine. The material-shifting device 4 receives its shifting movement from these two bars by means of intermediate members connected with these bars, which members in their arrangement, shape, and action are already known in the Cornely machines. These intermediate members consist of a cone 19, adapted to be moved up and down along the tube 3 by the bar 17, which cone is pivotally mounted on a guide-nut 20, mounted on the tube 3, on which nut a lever 21, bearing against the cone, is pivotally mounted. This lever engages in a ring 22, guided on the outside of the nut and elastically mounted thereon, which ring rotates with the nut and is guided in a ring 24, connected with a bar 23, carrying the material-shifting device, Figs. 3 and 4, the bar 23 being suspended on the slide-bar 18 by means of a universal joint 25, Fig. 2.

A hand-lever 26 is pivotally mounted on the head-plate of the machine, which lever has a hook 27 at its upper end, which hook is intended to engage in a notch 28, formed on the slide-bar 17, when the lever is turned in the direction indicated by the arrow in Fig. 2, when the bar is in its lowest position, but otherwise is held out of engagement with the bar 17 by means of a spring acting on the hook 27, Fig. 2. This lever 26 with hook 27 and also the notch on the slide-bar 17 together form a device for temporarily preventing the material-shifting mechanism from executing any shifting movement during the working of the machine, and their object will be more particularly set forth when Fig. 6 is being explained.

The slide-bars 17 and 18 are alternately raised and lowered by the cam-disk 13, and thereby a horizontal reciprocating motion imparted to the material-shifting device by the intermediary of the cone 19, lever 21, and ring 22, while by the latter rod 18 the material-shifting device is raised and lowered, from both of which movements the movement for shifting the material-shifting device results. This shifting movement is, as already mentioned at the commencement of this specification, an always uniform one, directed at right angles to the vertical plane covered by both needles, as the guide-nut 20 with lever 21 and ring 22 turns with the carrier-tube 3—that is to say, with the needles—while constantly remaining in a uniform position to one another, and after each third stitch executed by the two needles a shifting of the material-shifting device takes place.

As regards the stitch-diagrams shown in Figs. 5 and 6, Fig. 5 represents a portion of a rectangularly-extending hemstitch-seam as hitherto executed with machines without the device 26 27 28, one direction of the seam being indicated with I and the other with II, while III are stitch formations of the first direction of the seam, and IV the stitch forma-

tions of the other direction of the seam. As shown, between the last stitch formation of seam direction I and the first stitch formation of seam direction II during the turning of the needles from one seam direction to the other there takes place a displacement V, whereby the material is displaced or shifted, and a larger interval VI results between the two stitch formations III and IV at the outer edge of the hem-seam corner, by which interval the corner loses in sharpness and clear formation. This drawback makes itself particularly apparent in the case of hem-seams with inserted ornamental threads, as the ornamental thread running along the outer edge of the corner is without support over the entire width of the interval and the corner thus appears as if beveled off. In the machine hereinbefore described this drawback may be removed by the arrangement 26 27 28, as on the completion of the last stitch formation III of the seam direction I (see Fig. 6) the shifting movement of the material-shifting device which would otherwise take place is suspended during the travel of the machine. This is attained by the hook 27 of the lever 26 on the latter being turned coming into engagement with the notch 28 of the bar 17, which is situated in its lowest position, in which position the bar of the material-shifting device 4 holds the material firmly pressed on the table-plate of the machine. During the entire duration of the action on the lever 26 the rod 17 remains in the latter position and is therefore prevented by the hook 27 from rising, while the material-shifting device can rise, but cannot execute a shifting movement. The needles and the borer may now be turned through a quarter-revolution by the hand-crank 5 for the purpose of obtaining the seam direction II, and during this turning a suitable number of stitch formations VII may be executed, while as no displacement of the material has taken place the borer at each of these stitches always probes into the hole VIII belonging to the last-formed stitch III, and the needles and borer turn on the central axis of this hole as a center in such a way that a corner is formed in the hem-seam, which corner is approximately sharp at its outer edge, Fig. 6, as the intermediate stitches at this place come to lie quite close together. In the case of ornamental threads laid in the seam the ornamental thread forming the outer edge of the corner is held by several stitches. As soon as the first stitch formation IV of the seam direction II, which also has the hole VIII as center, has been executed the lever 26 is released, so that its hook 27 quits the notch 28 of the bar 17, and this latter under the action of its spring can again slide upward, whereupon the material-shifting device 4, induced by the thereby-turning lever 21, executes a shifting movement in the seam direction II—



that is to say, again shifts the material in the new seam direction. In the case of stitching backward and the formation of seams running into points the shifting movement of the material which would otherwise take place between the last and first stitch formations of the old and new seam direction, respectively, is also suspended before the half or approximately half crank rotation which must be executed by the operation of the lever 26, so that during the half-turning of the needles a suitable number of intermediate stitches may be executed on the spot, whereby a neatly-executed point is obtained in the hollow hem-seam.

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 crank hemstitch embroidering-machine having two needles, a material-shifting device and a hand-crank for turning these parts corresponding to the progress of the hem to be made, hand-operated means for temporarily suspending the shifting action of the material-shifting device for any period of time during the sewing of the seam, substantially as described and for the purpose set forth.

2. In a crank hemstitch embroidering-machine having two needles, a material-shifting device, and a hand-crank for moving these parts a series of transmitting members for shifting the material-shifting device, and a member adapted to be operated by hand for locking one of the transmitting members, substantially as described and with the object set forth.

3. A crank hemstitch embroidering-machine with two needles, a material-shifting device, a hand-crank for turning these parts and a series of transmitting members adapted to displace the material-shifting device,

and a slide-bar placed beneath them, in combination with a lever adapted to be operated by hand, provided with a hook and a notch located on the slide-bar with which the hook may be brought into engagement in order to lock the slide-bar, substantially as described and shown.

4. In a crank hemstitch embroidering-machine, a material-shifting device on the head of the machine, mechanism to vertically reciprocate the same, mechanism to horizontally move the device in any direction and a hand-operated lever on the head of the machine to temporarily hold the last-named mechanism in inoperative position for any length of time during the sewing of the seam without preventing the vertical reciprocation of the material-shifting device, and hand-operated mechanism to control the direction of movements of the device, substantially as and for the purpose set forth.

5. In a crank hemstitch embroidering-machine, a material-shifting device mounted to have universal movement, mechanism to vertically reciprocate the same, and independently-operated mechanism to horizontally move the device, needles, means to rotate the needles and simultaneously rotate the mechanism for horizontally moving the material-shifting device in the direction of the seam, and hand-operated means to temporarily render the mechanism for horizontally moving the material-shifting device inoperative for any length of time without preventing its vertical reciprocation, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

FRIEDRICH GEGAUF.

Witnesses:

OSKAR ZELLNEGER,  
HERNANDO DE SOTO.