

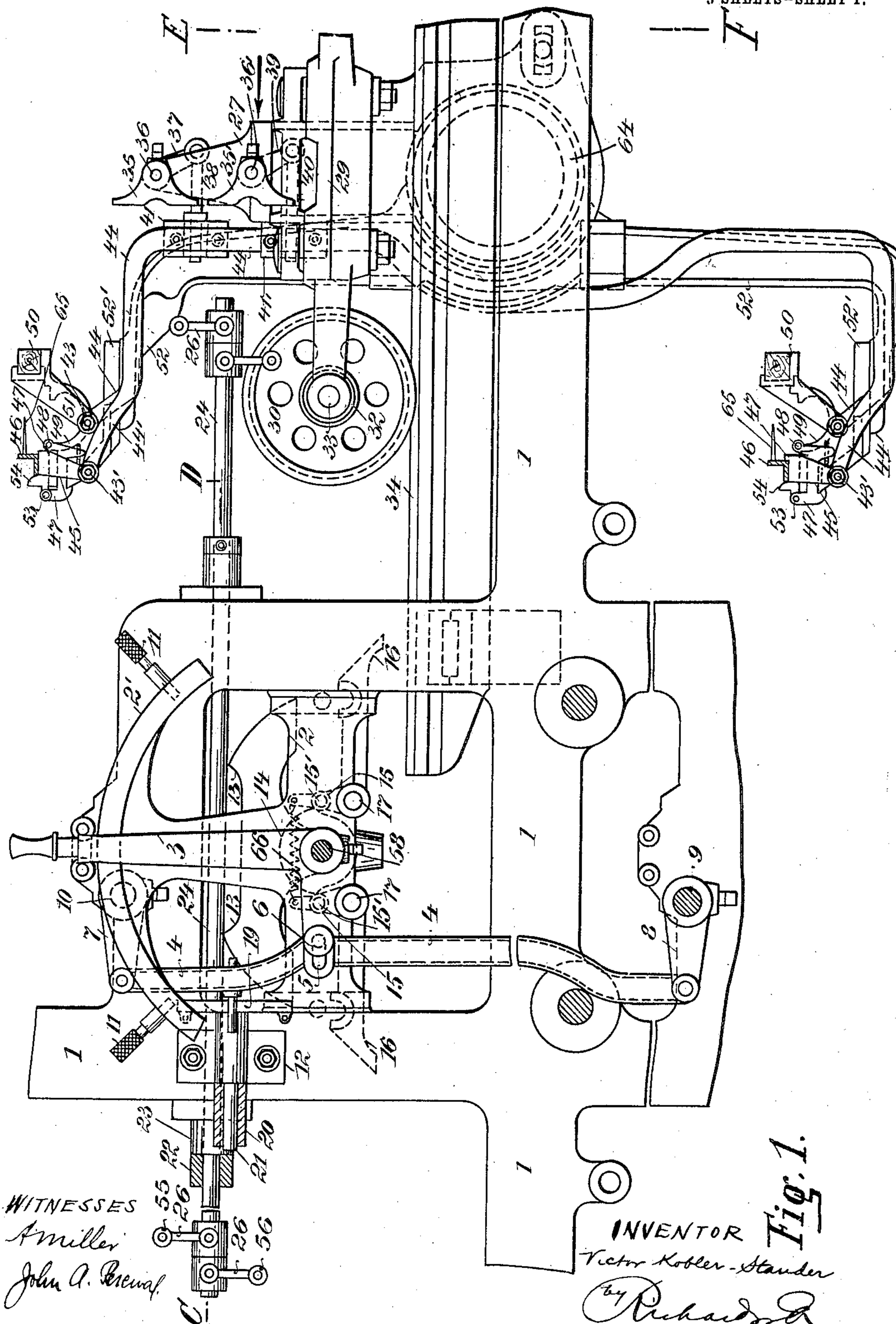
No. 828,612.

PATENTED AUG. 14, 1906.

V. KOBLER-STAUDER.
EMBROIDERING MACHINE.

APPLICATION FILED OCT. 18, 1905.

5 SHEETS—SHEET 1.



WITNESSES

A Miller ©
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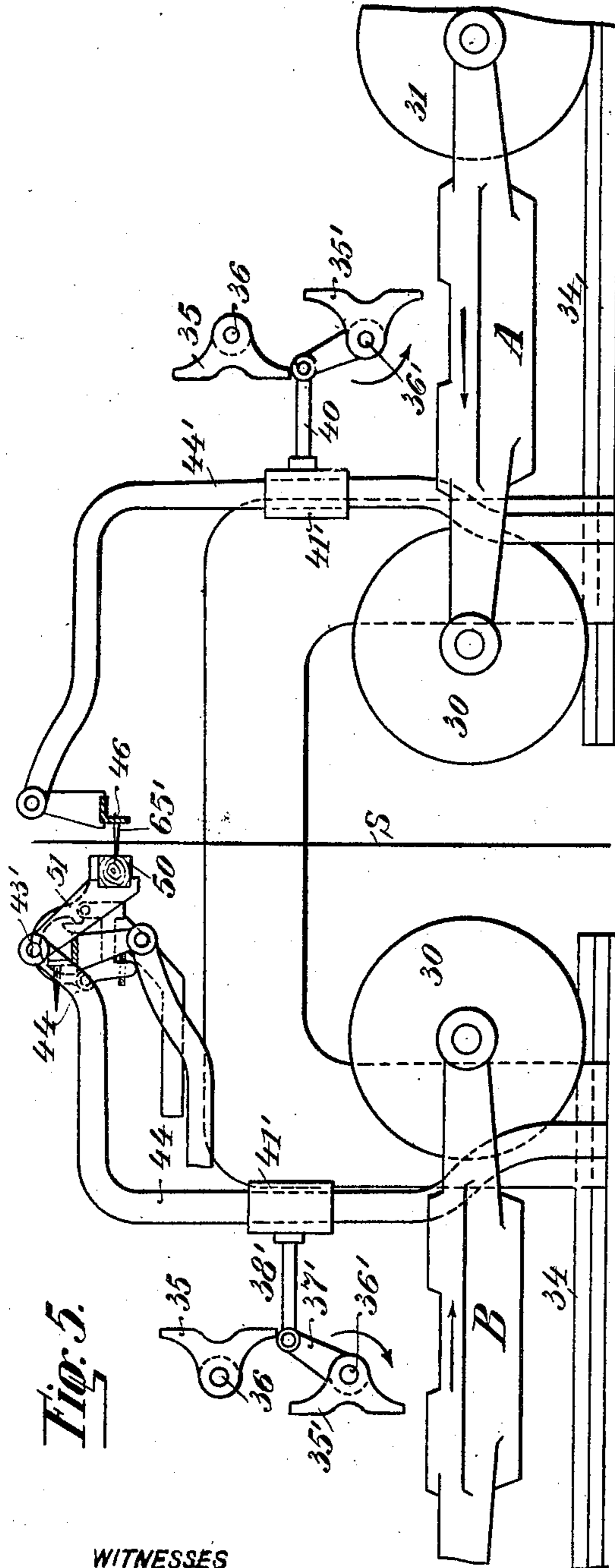


Fig. 5.

WITNESSES
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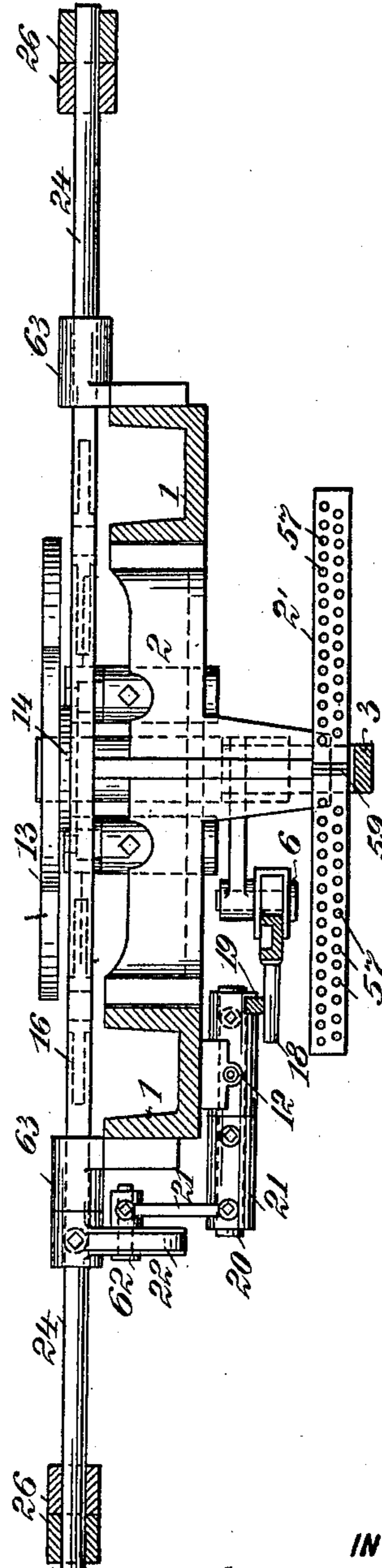


Fig. 2.

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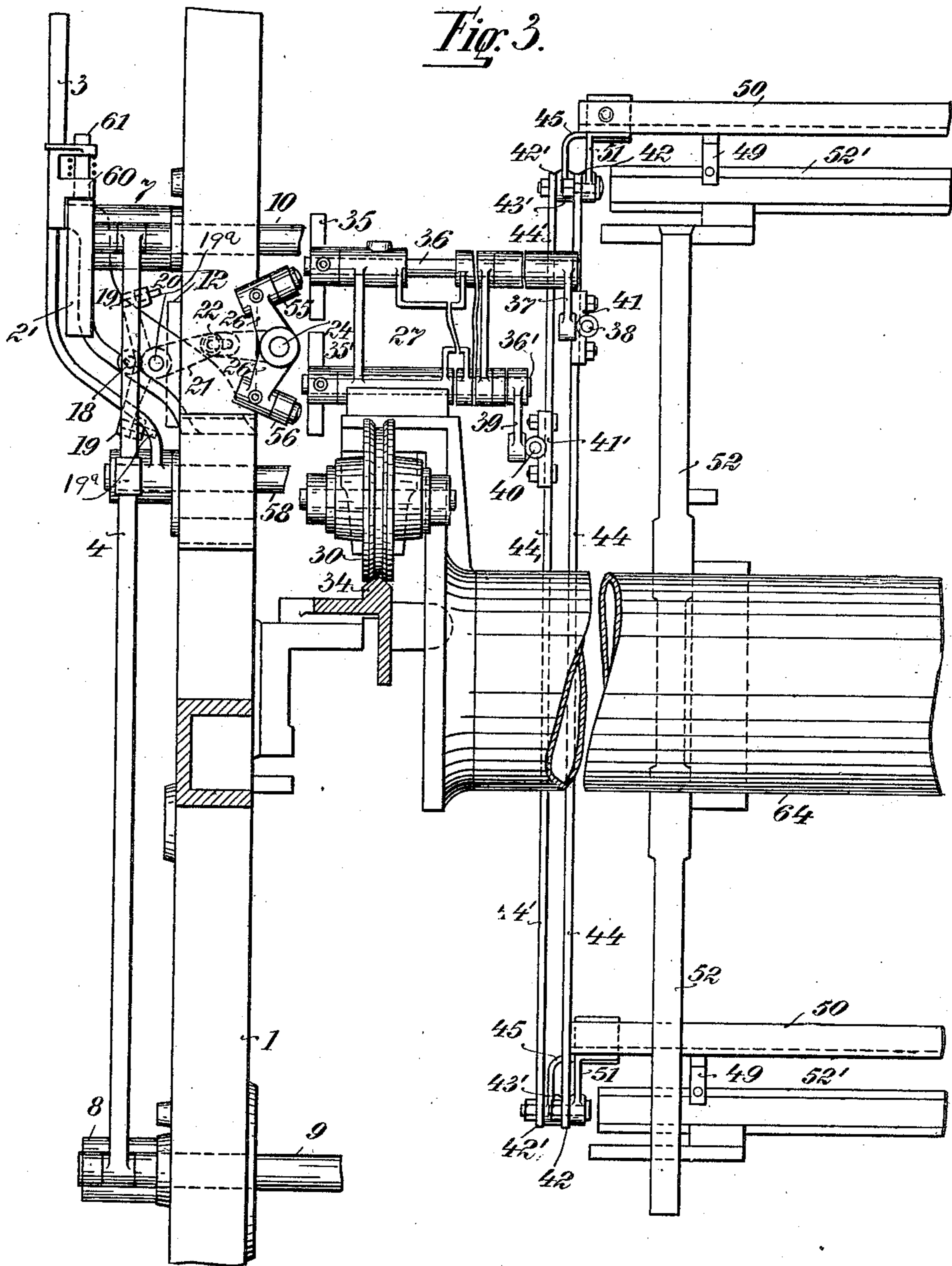
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5 SHEETS—SHEET 3.



WITNESSES:

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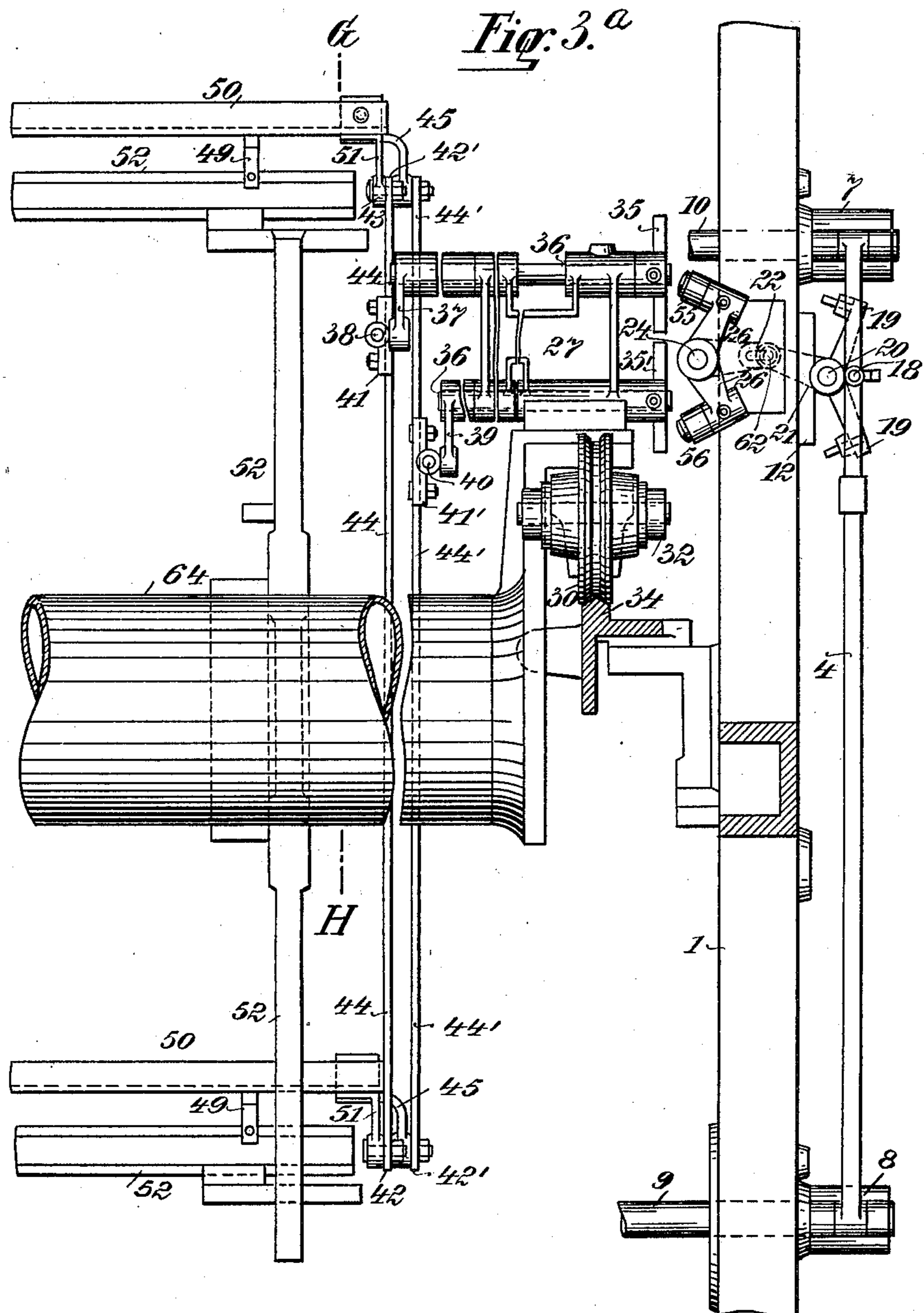
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5 SHEETS—SHEET 4.



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5 SHEETS—SHEET 5.

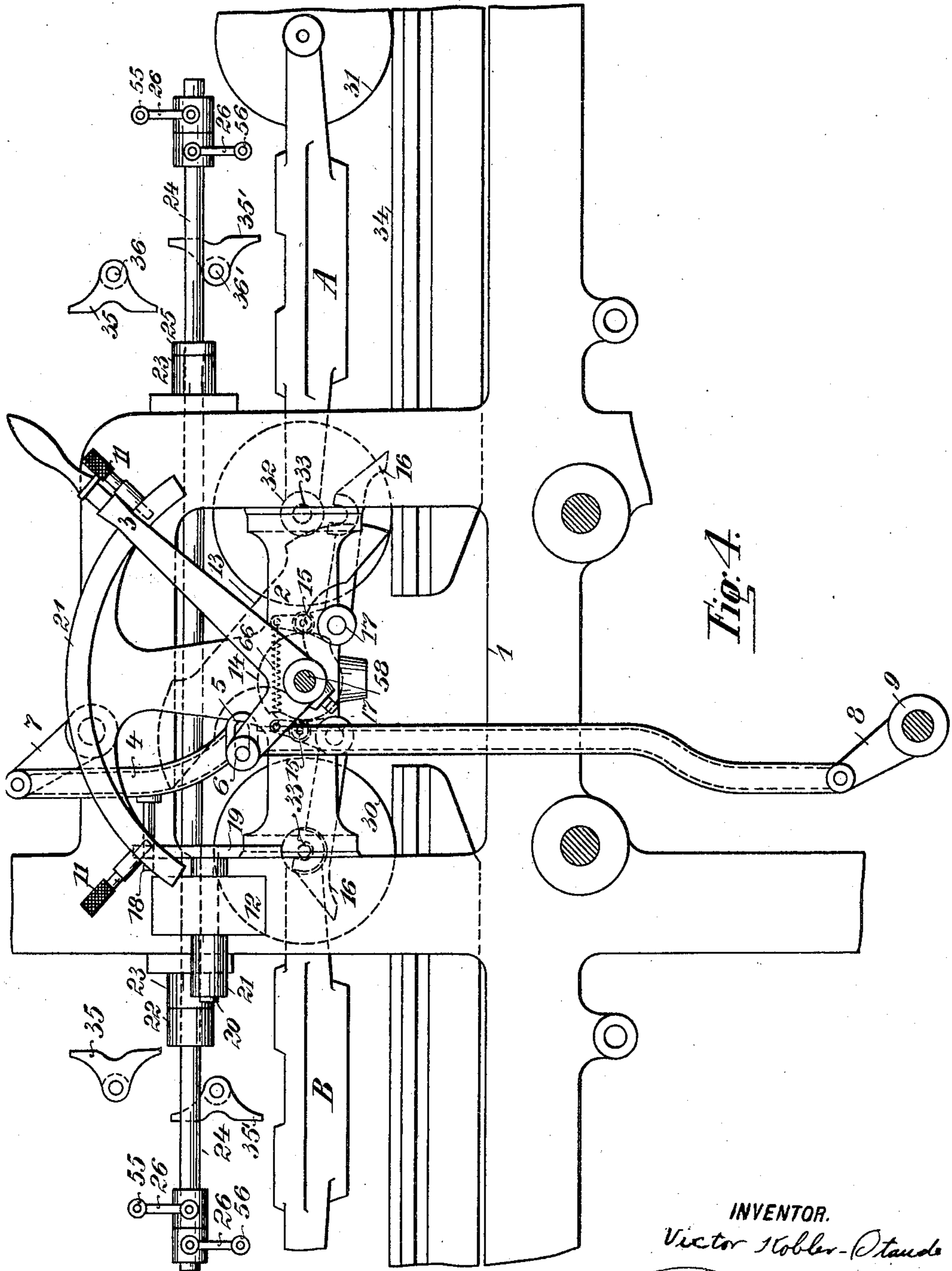


Fig. 4.

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UNITED STATES PATENT OFFICE.

VICTOR KOBLER-STAUDER, OF ROHRSCHACH, SWITZERLAND, ASSIGNOR
TO THE FIRM OF ADOLPH SAURER, OF ARBON, SWITZERLAND.

EMBROIDERING-MACHINE.

No. 828,612.

Specification of Letters Patent.

Patented Aug. 14, 1906.

Application filed October 18, 1905. Serial No. 283,348.

To all whom it may concern:

Be it known that I, VICTOR KOBLER-STAUDER, a citizen of the Confederation of Switzerland, residing in the house "Villa Wyssen-
stein," at Rohrschach, Switzerland, have in-
vented a new and useful Embroidering-Ma-
chine, of which the following is a specifica-
tion.

In embroidering-machines of the kind in-
vented by Heilmann (see British Patent No.
5,788 of 1829) it was for the production of
open or pierced work hitherto necessary to po-
sition by hand the bore-points to produce the
holes during a stitch period of the machine
and to withdraw by hand these tools with
their carriers, so as to permit the needles to
perform their operation during a number of
following stitch periods, either alone or in
combination with the known feston devices.
The positioning and withdrawing of the bore-
point carriers had to be effected mostly from
one end of the machine, so that the operator
was either obliged to move away from and
again back to his pattern or to employ an as-
sistant for the said purpose. This means,
however, a great loss of time, and besides this
there was also a great drawback in that the
long machine parts employed in the position-
ing and withdrawing devices were subjected
to torsions.

My invention relates to improvements in
embroidering-machines of the class men-
tioned above, whereby the production of the
machine is considerably increased, as the op-
erator is now enabled to remain at his place
before the pattern and yet to actuate in an
easy and comfortable manner and without
any assistance the positioning and with-
drawing devices, while the latter are so much
improved upon as to maintain their exacti-
tude for a much longer time than hitherto, so
that the nicety of the open or pierced work is
guaranteed.

The said improvements will be hereinafter
described and explained with reference to the
accompanying drawings, in which—

Figure 1 is a left-side view of a part of a
known Heilmann's embroidering-machine to
which the new positioning and withdrawing
devices, according to my invention, are ap-
plied, intermediate parts being omitted for
want of space. Fig. 2 is partly a plan and
partly a horizontal section through the line C
D in Fig. 1. Figs. 3 and 3^a are parts of a ver-

tical longitudinal section through the ma-
chine on the line E F in Fig. 1, Fig. 3 showing
the left end part and Fig. 3^a the right end
part, while the intermediate part has been
omitted. Fig. 4 is an elevation similar to
Fig. 1 to show certain parts in other posi-
tions; and Fig. 5 is a vertical cross-section
through the line G H in Fig. 3^a, parts being
omitted.

Similar characters of reference refer to
similar parts throughout the several views.

As is well known, the Heilmann's em-
broidering-machine comprises two machine-
frames 1 1, Figs. 3 and 3^a on the left and on
the right and a very long beam (not shown)
connecting the upper ends of central vertical
arms of these machine-frames, a vertical em-
broidering-frame suspended from the long
beam and balanced by counterweights and
adapted to be shifted in its vertical plane, and
two long carriages, one on the front and one
on the rear. The operator sitting on the one
side—for example, on the left beside the left
machine-frame 1—and before his pattern ad-
justs the embroidering-frame for each stitch
by means of the known pantograph. By de-
pressing the one of his two known pedals (not
shown in the drawings) he engages a driving-
wheel in the gearing of, say, the front car-
riage and simultaneously opens the rear
needle-tongs and closes the front needle-tongs.
Then he turns his hand-crank in the one di-
rection to move by means of the driving gear-
wheel the front carriage to the front away
from the embroidering-frame, so that all the
needles secured in the front needle-tongs
draw the threads through the fabric, (marked
S in Fig. 5.) Next the operator adjusts the
embroidering-frame for the following stitch
and turns his hand-crank in the opposite di-
rection to move the front carriage to the rear
until it stops before the fabric. Afterward
he depresses his other pedal to engage the
driving gear-wheel in the gearing of the rear
carriage and to simultaneously open the front
needle-tongs and to close the rear needle-
tongs. Thereupon he turns his hand-crank
to move the rear carriage to the rear, so that
the rear needles draw the threads through
the fabric. Now the operator adjusts the
embroidering-frame for the next following
stitch and turns his hand-crank in the oppo-
site direction to move the rear carriage to the
front until it stops before the fabric.

The front carriage (shown at Figs. 3 and 3^a) comprises a very long tube 64 and two side parts 29 29, Fig. 1, from which the ends of the former are suspended and on which they are fastened. The two side parts 29 29 are each formed at both ends into forks 32 32 for carrying the axles 33 33 of two wheels 30 and 31, respectively. The latter are arranged to roll on four rails 34 34, secured in the machine-frame, two on the front and two on the rear (not shown in Fig. 1, but in Figs. 4 and 5) of the embroidering-frame. I do not show the gear for driving the two carriages, as it is old and forms no part of my invention.

The long tube 64 of each carriage is provided with a plurality of upper and lower arms 52 52 (of which only two, respectively, are shown at Figs. 3 and 3^a for want of space) and two needle-bars 52' 52', one above and one below. I have not shown the two needle mechanisms on the two needle-bars 52' 52', as they form no part of my invention. The embroidering-frame is arranged to receive two pieces of fabric S, one above the other, which are stretched in the frame and periodically fed in any known manner.

All the parts described so far are old; but the following parts are new and form my invention.

On the middle part of the left machine-frame 1 within easy reach of the operator a cross-piece 2 is fastened, which serves as a bearing for the shaft 58 of a hand-lever 3 and is made in one piece with a bow 2'. This bow is provided with a plurality of holes 57 57 and in its middle with a notch 59, Fig. 2. Two adjustable stops 11 11 may be put in any of the holes 57 57 for determining the stroke of the hand-lever 3, a lug 60 on the latter, Fig. 3, being adapted to strike against either stop 11. A spring-pressed bolt 61, guided in this lug 60, is adapted to engage in the notch 59 of the bow 2' for holding the hand-lever 3 in its middle position. Thereby the operator is enabled to quickly return the hand-lever 3 from either extreme position to its middle position. On the internal end of the shaft 58 is fastened a double cam 13, which therefore partakes in the motion of the hand-lever 3 and carries a second cam 14, that will be referred to later on. The hand-lever 3 is provided with a short arm at right angles to it, which carries a pin 6. This pin 6 engages in the horizontal slot 5 of a rod 4, which is pivotally connected with two levers 7 and 8 above and below. The upper lever 7 is fastened on a horizontal shaft 10, which passes through the machine from the one side frame 1, Fig. 3, to the other side frame 1, Fig. 3^a, and carries at the right end a similar lever 7. In a similar manner the lower lever 8 is fastened on a horizontal shaft 9, which passes from the one side frame 1 to the other side frame 1 and carries at the other end a similar lever 8. The levers 7 and 8 on the

right are pivotally connected with each other by means of a rod 4, which has the same shape as the left rod 4. Evidently on moving the hand-lever 3 from its middle position to either side—say to the front, as in Fig. 4—the two rods 4 4, with the upper levers 7 7 and the lower levers 8 8, will be simultaneously raised. Each rod 4 has a pin 18 fastened on it intermediate its upper end and its slot 5. This pin 18 is adapted to slide on the edges of two arms 19 19, which are fastened on a shaft 20 at a certain angle to each other, as shown in Figs. 3 and 3^a. The shaft 20 on either machine side is mounted to turn in a bearing 12 and carries at its rear end a lever 21 with a pin 62. On each machine side a horizontal shaft 24 is mounted to rock in suitable bearings 63 63 and has fastened on it a slotted lever 22 in contact with the one bearing 63 and two levers 26 at each end, which carry two rollers 55 and 56, respectively. Springs of any suitable known construction (not shown) serve for returning the two horizontal shafts 24 24 into their middle positions. (Shown at Figs. 3 and 3^a.) The pins 62 62 of the two levers 21 21 engage in the slots of the two slotted levers 22 22. When the two pins 18 18 on the two rods 4 4 are moved upward by turning the hand-lever 3 to the front—that is, to the right in Fig. 4—these two pins 18 18 will depress the two upper arms 19 19, and so turn the two shafts 24 24 by means of the parts 20, 21, 62, and 22 as to bring the two pins with the two lower rollers 56 56 into a horizontal position. The arms 19 19 are provided with adjustable screws 19^a 19^a, (see Figs. 1 and 3,) which are adapted to alternately bear on the frames 1 1. When the handle-lever 3 is moved in either direction, the pins 18 18 will slide on the upper or lower arms 19 19 (as the case may be) and depress them, so that these arms will now be locked, since their adjustable screws 19^a 19^a bear on the frames 1 1. Thereby also the shaft 24 24 will be prevented from moving. The adjusting-screws have also the purpose to prevent the double lever 19 from moving of its own accord, a certain room for motion being left between the arms of the lever 19 and the frame 1, as shown in the drawings. By turning the hand-lever 3 to the rear (to the left in Fig. 1) the two pins 18 18 on the two rods 4 4 will be moved downward and depress the two lower arms 19 19, whereby the two upper rollers 55 55 will be brought into a horizontal position.

On the two upper projections of the long tube 64 of the front carriage A above the two side parts 29 29 are fastened two brackets 27 27, in each of which two horizontal superposed shafts 36 and 36' are mounted to turn. The two upper shafts 36 36, Figs. 3 and 3^a, have fastened on them two cams 35 35 at their external ends and two levers 37 37 at their internal ends. The two upper cams 35

35 are adapted to strike the two upper rollers 55 55, mentioned above, on the latter being brought into their horizontal position, and thereby into the paths of these cams. The two lower shafts 36' 36' have fastened on them two cams 35' 35' at their external ends and two levers 39 39 at their internal ends. The two lower cams 35' 35' are adapted to strike the two lower rollers 56 56, mentioned above, on the latter being brought into their horizontal position in the manner explained before. On the two needle-bars 52' 52', already referred to above, are fastened several two-armed supports 47 47, which are shown in Fig. 1, but are covered by other parts 49 49 in Figs. 3 and 3^a. The upper ends of the two arms of each support 47 are provided with pins 48 and 53, respectively. On the pins 48 48 in the arms farther off from the embroidering-frame bent levers 49 49 are mounted to turn, which carry a wooden pad 50. The two ends of each pad 50 are rigidly connected with two metal arms 51 51, the free ends of which are nearer the axis of the pins 48 than the wooden pads 50. The free ends of the four arms 51 51 on the two pads 50 50 above and below are pivotally connected with each other by means of two cranked rods 44 44 and four pins 43 43. (See Figs. 1, 3, 3^a, and 5.) Fastened on these two cranked rods 44 44 near their upper ends are two cast pieces 41 41, carrying two adjustable arms 38 38, which latter are pivotally connected with two upper levers 37 37, already mentioned above. The two upper rollers 55 55, on being simultaneously moved into their horizontal position from the hand-lever 3 in the manner described above, can strike and simultaneously turn the two upper cams 35 35 and by the two shafts 36 36 also the two upper levers 37 37 in either direction through an angle of one hundred and eighty degrees, so that the two cranked rods 44 44 will be moved by their adjustable arms 38 38 to simultaneously turn the two pads 50 50 around the pins 48 48. As the length of the two levers 37 37 is equal to the distance of the pins 43 43 from the axis of the pins 48 48 it follows that the two wooden pads 50 50 will also be moved through an angle of one hundred and eighty degrees. On the pins 53 53 in the arms of the several supports 47 47 nearer the embroidering-frame levers 54 54 are mounted to turn, which carry a bore-point carrier 46. The latter is provided with a series of bore-points 65 65 of any cross-section, as usual, and of a uniform length. The two wooden pads 50 50 of either carriage are provided with holes in which the bore-points 65 65 on the bore-point carriers 46 of the other carriage can engage. (See Fig. 5.) The levers 54 54 are each provided with a lug which is adapted to bear against the vertical face of the support 47 nearer the embroidering-frame for holding the bore-points 65 65

in their horizontal position during their operation. In a similar manner the bent levers 49 49 are provided with lugs (see Figs. 1 and 5) adapted to rest on those upper ends of the corresponding supports 47 47 which are nearer the embroidering-frame, so as to position the wooden pads 50 50 during their operation. The two ends of each bore-point carrier 46 are rigidly connected with two arms 45 45, the free ends of which are at the same distance from the axis of the pins 53 as the pins 43 on the arms 51 51 of the wooden pads 50 50 are from the axis of the pins 48 48. The corresponding arms 45 45 on the two bore-point carriers 46 46 above and below are pivotally connected with each other by means of four pins 43' 43' and two cranked rods 44' 44', which resemble those 44 44 mentioned above. Fastened on these two cranked rods 44' 44' are two cast pieces 41' 41', carrying two adjustable arms 40 40, which latter are pivotally connected with the two levers 39 39, already mentioned above. The two lower cams 35' 35' are adapted to strike the two lower rollers 56 56 on the latter being brought into their path and to be thereby moved for turning the bore-point carriers 46 46 in the corresponding direction through an angle of one hundred and eighty degrees. It will be seen that both the wooden pads 50 50 and the bore-point carriers 46 46 may be thrown back over the needle mechanisms to permit the latter to perform their work.

On the rear carriage B substantially the same parts and the same bore-point carriers and wooden pads are disposed as on the front carriage A; but there is a difference between the two carriages in that with the front carriage A the two lower cams 35' 35' are arranged for actuating the two bore-point carriers 46 46, while with the rear carriage B the two lower cams 35' 35' are arranged for actuating the two wooden pads 50 50, and that with the front carriage A the two upper cams 35 35 are arranged for actuating the two wooden pads 50 50, while those on the rear carriage B serve for actuating the two bore-point carriers 46 46.

Either the bore-points 65 on the front carriage A or those 65 on the rear carriage B may be used for piercing the fabric. In the former case the hand-lever 3 is moved to the front for bringing the two lower rollers 56 56 into their horizontal position, so that the bore-points 65 65 of the front carriage and the wooden pads 50 50 of the rear carriage may be positioned. In the latter case the hand-lever 3 is moved to the rear for bringing the two upper rollers 55 55 into their horizontal position, so that the bore-points 65 65 of the rear carriage and the wooden pads 50 50 of the front carriage may be positioned.

For the purpose of adjusting the depth to which the bore-points 65 65 may engage in

the holes of the corresponding wooden pads 50 50, and thereby determining the size of the holes to be bored in the fabric, the following arrangement is made: The double cam 13, already mentioned above, is so shaped that when the hand-lever 3 occupies its middle position (shown at Fig. 1) the bearings 32 32 of the left wheels 30 30 of the two carriages A and B are permitted to pass freely beneath the two cams 13 13. On turning, however, the hand-lever 3 through a small angle to either side the respective cam 13 will stop the bearing 32 of the left wheel 30 if this bearing 32 strikes it. On turning the hand-lever 3 farther the cam 13 will stop the carriage a little later, so that the bore-points 65 65 are permitted to engage a little deeper in the pads 50 50 and to make larger holes in the fabric. The more the hand-lever 3 is turned the larger will be the holes produced in the fabric. In the cross-piece 2 are fastened two pins 17 17, on which two locking-levers 16 16 can swing, while they are pressed upward by a spring 66, connecting their vertical arms 15 15. These two arms 15 15 carry two rollers 15' 15', which are adapted to bear against and to roll on the cam 14. The latter is so shaped as to hold the two locking-levers 16 16 in their normal position (shown at Fig. 1) as long as the hand-lever 3 occupies its middle position. The two locking-levers 16 16 are adapted to be alternately depressed by the projecting ends of the axles 33 33 of the left wheels 30 30 of the two carriages and to lock them for stopping the respective carriage.

The mechanism described so far is operated as follows: According to the desired size of the holes to be bored in the two pieces of fabric S the two adjustable stops 11 11 are put in the corresponding holes 57 of the bow 2' to determine the stroke of the hand-lever 3, and thereby also the depth to which the bore-points 65 65 of the one carriage may engage in the holes of the wooden pads 50 50 of the other carriage. It is assumed that the operator wishes to employ the bore-points 65 of the front carriage A for making the holes in the fabric. The operator sitting at his pattern performs his work in the usual manner, so that the needles pass from the one carriage through the pieces of fabric S to the other carriage, and vice versa, to make the stitches. When the operator desires to make holes in the fabric, he so stops his work that the front carriage A occupies its extreme position on the front, while the rear carriage B is immediately behind the embroidering-frame. He now depresses the other pedal to disengage the driving-wheel from the gearing of the front carriage A and to engage it in the gearing of the rear carriage B and turns his hand-crank in the respective direction to move, by means of the driving-wheel, the rear carriage away from

the embroidering-frame to the rear. At this moment both carriages A and B will be on the external sides of the respective rollers 55 56 55 56 on the front and on the rear of the embroidering-frame. The operator depresses the first pedal to disconnect the driving-wheel from the gearing of the rear carriage B and to connect it with the gearing of the front carriage A. Subsequently he turns the hand-lever 3, which is within his reach, to the front—that is, to the right in Fig. 4. Then the pin 6 on the short arm of the hand-lever 3 and engaging in the horizontal slot 5 of the front rod 4 will have raised the latter, and thereby turned all the four levers 7 8 upward by means of the two horizontal shafts 9 and 10 and the right rod 4. The two horizontal pins 18 18 on the two rods 4 4 will have depressed the two upper arms 19 19, so that by means of the two shafts 20 20, the two levers 21 21, the two pins 62 62, and the two slotted levers 22 22 the two horizontal shafts 24 24 will be turned to bring the four lower rollers 56 56 into the paths of the four lower arms 35' 35'. The cam 14 will have depressed the front locking-lever 16 and raised the rear locking-lever 16 into the position shown at Fig. 4. Now the operator turns his hand-crank to move the front carriage A to the rear, so that the two lower cams 35' 35' of this carriage striking the two front lower rollers 56 56 will be thereby turned through more than a right angle, whereupon the two bore-point carriers 46 46 of the front carriage A, having passed to the rear side of their axes 53 53, will fall down into their other horizontal position and turn the two lower cams 35' 35' into their other extreme position. (Shown at Fig. 5.) In other words, the two bore-point carriers 46 46 on the front carriage A are now positioned. On the front carriage A further advancing the bearing 32 of its left wheel 30 will strike the front cam 13 (see Fig. 4) and be thereby stopped in such a position that its known vertical rod controlling the two needle mechanisms remains out of the reach of the front fork of the known two-armed forked lever, which latter is controlled from the two pedals. Therefore on the operator depressing the other pedal to disconnect the driving-wheel from the gearing of the front carriage A and to engage it in the gearing of the rear carriage B the front needle-tongs will remain closed and hold the needles with the pendent threads. It is to be noted that the needles in the front needle-tongs will have touched the two pieces of fabric S and may have pierced them to the adjusted depth or a part of the same. Now the operator turns his hand-crank to move the rear carriage B to the front, so that the two lower cams 35' 35' of this carriage striking the two rear lower rollers 56 56 will be thereby turned through more than a right angle, whereupon the two

wooden pads 50 50 will swing forward and be positioned. On the rear carriage B further advancing the projecting pin 33 of its left wheel 30 will depress the rear locking-lever 16 until it gets into the recess of the latter and becomes locked, since the spring 66 presses the locking-lever 16 upward. Thereby the rear carriage B is stopped in such a position from the embroidering-frame that its two wooden pads 50 50 are in contact with the two pieces of work S, which means that the two wooden pads 50 50 may have pushed the two pieces of fabric S over the bore-points to the desired depth, so that the holes so produced in the fabric have the proper size. The parts on the rear carriage B which control the rear needle-tongs also remain out of the reach of the said two-armed forked lever, so that neither the needle mechanisms on the front carriage A nor those on the rear carriage B will be in any way interfered with by depressing either of the two pedals. The two pieces of fabric S having been thus bored, the operator depresses the first pedal to disconnect the driving-wheel from the gearing of the rear carriage B and to engage it in the gearing of the front carriage A, whereupon he turns his hand-crank to move the front carriage A to the front, during which motion, of course, the two lower cams 35' 35' of this carriage will have struck the two front lower rollers 56 56 and been thereby turned so that the two bore-point carriers 46 46 are swung back to their normal position. (Shown at Fig. 1.) Afterward the operator depresses the other pedal to disconnect the driving-wheel from the gearing of the front carriage and to engage it in that of the rear carriage, and then he returns the hand-lever 3 for a moment to its middle position, so as to release the rear carriage B by lowering the rear locking-lever 16. Next the operator turns his hand-crank to move the rear carriage to the rear out of the reach of the rear locking-lever 16, and at the same time he moves the hand-lever 3 to the front, so as to bring the two rear lower rollers 56 56 again into the paths of the two lower cams 35' 35' on the rear carriage B, which cams are therefore turned to swing back the two rear wooden pads 50 50 to their normal position. Thereupon the operator depresses the first pedal to disconnect the driving-wheel from the gearing of the rear carriage B and to engage it in that of the front carriage A. After adjusting the embroidering-frame for the following stitch by means of the pantograph and the pattern the operator continues his usual work.

It is evident that the manner described of positioning and withdrawing the bore-point carriers and the pads may be varied. The skilled operator may find it convenient to move the hand-lever 3 and his hand-crank more or less simultaneously to save time. He

need not move either carriage quite to the extreme external position; but he may move it just beyond the reach of the respective rollers 55 or 56 and turn the hand-lever 3, also turn his hand-crank and depress the pedals in a certain sequence to attain the same effect. He may prefer to use the bore-points 65 of the rear carriage B instead of those of the front carriage A for producing the holes in the fabric S, according to the kind of work to be produced. In this case, of course, the hand-lever 3 will require to be turned to the rear, so as to bring the two upper rollers 55 55 into the paths of the two upper cams 35 35 on both carriages A and B. The operator may also first position the two wooden pads 50 50 of the one carriage and afterward position the bore-point carriers 46 46 of the other carriage, so as to produce holes of the correct size.

The whole arrangement described above may be varied in many respects without departing from the spirit of my invention.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. In an embroidering-machine, the combination with two carriages, one on the front and one on the rear of the fabric and each provided with two needle-bars, one above and one beneath, of two bore-point carriers mounted to turn on the two needle-bars of one of said two carriages, two pad-carriers mounted to turn on the two needle-bars of the other of said two carriages and adapted to coöperate with said two bore-point carriers, four cams at both ends of said two carriages, connections on one of said two carriages for connecting two of said four cams with said two bore-point carriers, connections on the other of said two carriages for connecting the other two of said four cams with said two pad-carriers, four rollers on both sides of the machine and adapted to act upon said four cams for positioning and withdrawing said two bore-point carriers and said two pad-carriers respectively, and means for simultaneously moving said four rollers into and out of the paths of said four cams.

2. In an embroidering-machine, the combination with two carriages, one on the front and one on the rear of the fabric and each provided with two needle-bars, one above and one beneath, of two bore-point carriers mounted to turn on the two needle-bars of one of said two carriages and provided at both ends with arms, two pad-carriers mounted to turn on the two needle-bars of the other of said two carriages and provided at both ends with arms and adapted to coöperate with said two bore-point carriers, two cranked rods pivotally connecting the four arms of said two bore-point carriers and each provided with an arm, two cranked rods pivotally connecting the four arms of said two pad-carriers and each provided with an arm,

four horizontal shafts mounted to turn in both ends of said two carriages, four arms fastened on said four shafts and pivotally connected with the arms of said four cranked rods, four cams on said four shafts, four rollers on both sides of the machine and adapted to act upon said four cams for positioning and withdrawing said two bore-point carriers and said two pad-carriers respectively, and means for simultaneously moving said four rollers into and out of the paths of said four cams.

3. In an embroidering-machine, the combination with two carriages, one on the front and one on the rear of the fabric and each provided with two needle-bars, one above and one beneath, of four bore-point carriers and four pad-carriers mounted to turn independently of each other on the four needle-bars of said two carriages, the bore-point carriers of either carriage being adapted to cooperate with the pad-carriers of the other carriage, four pairs of superposed cams at both ends of said two carriages, connections between the two bore-point carriers of each of said two carriages and controlled from cams in the two pairs of superposed cams, connections between the two pad-carriers of each of said two carriages and controlled from the other cams in the two pairs of cams, rollers on both sides of the machine and adapted to alternately act upon the cams in said four pairs of cams for positioning and withdrawing the bore-point carriers of either of said two carriages and the pad-carriers of the other carriage respectively, and means for simultaneously moving said rollers selectively into and out of the paths of the respective cams in said four pairs of cams.

4. In an embroidering-machine, the combination with two carriages, one on the front and one on the rear of the fabric and each provided with two needle-bars, one above and one beneath, of four bore-point carriers and four pad-carriers mounted to turn independently of each other on the four needle-bars of said two carriages and having each at both ends two arms, the bore-point carriers of either carriage being adapted to cooperate with the pad-carriers of the other carriage, four cranked rods pivotally connecting the eight arms of said four bore-point carriers and each provided with an arm, four cranked rods pivotally connecting the eight arms of said four pad-carriers and each provided with an arm, four pairs of superposed shafts mounted to turn in the ends of said two carriages, four arms one fastened on one shaft in each of said four pairs of superposed shafts and all pivotally connected respectively with the arms of said four cranked rods controlling said four bore-point carriers, four arms one fastened on the other shaft in each of said four pairs of superposed shafts and all pivotally connected respectively with the arms of

said four cranked rods controlling said four pad-carriers, four pairs of cams fastened on said four pairs of superposed shafts, rollers on both sides of the machine and adapted to alternately act upon the cams in said four pairs of cams for positioning and withdrawing the bore-point carriers of either of said two carriages and the pad-carriers of the other carriage respectively, and means for simultaneously moving said rollers selectively into and out of the paths of the respective cams in said four pairs of cams.

5. In an embroidering-machine, the combination with a hand-lever on the pattern side of the machine, of a horizontal shaft mounted to turn in the two side parts of the machine-frame and passing from one side to the other side, two levers at both ends of said horizontal shaft, connections between said hand-lever and said horizontal shaft, two horizontal operating-shafts mounted to rock in the two side parts of the machine-frame at right angles to said horizontal shaft, means controlled from said two levers for rocking said two horizontal operating-shafts, four operating-arms fastened at the ends of said two horizontal operating-shafts, two carriages, one on the front and one on the rear of the fabric and each provided with two needle-bars, one above and one beneath, bore-point mechanisms on the one of said two carriages, pad mechanisms on the other of said two carriages, and four cams at both ends of said two carriages which control said bore-point mechanisms and said pad mechanisms respectively, said four operating-arms being adapted to act upon said four cams for positioning said bore-point mechanisms and said pad mechanisms during the motion of said two carriages toward the fabric and for withdrawing them during the return.

6. In an embroidering-machine, the combination with a hand-lever on the pattern side of the machine, of two horizontal shafts one above the other and mounted to turn in the two side parts of the machine-frame and passing from one side to the other side, four levers at both ends of said two horizontal shafts, two vertical rods connecting said four levers, connections between said hand-lever and one of said two vertical rods, two horizontal operating-shafts mounted to rock in the two side parts of the machine-frame at right angles to said two horizontal shafts, means controlled from said two vertical rods for rocking said two horizontal operating-shafts, four pairs of operating-arms fastened at the ends of said two horizontal operating-shafts, the two arms in each pair being set at an angle to each other, two carriages, one on the front and one on the rear of the fabric and each provided with two needle-bars, one above and one beneath, bore-point mechanisms and pad mechanisms on the four needle-bars of said two carriages, the bore-point

mechanisms on the one of said two carriages being adapted to coöperate with the pad mechanisms on the other carriage, and four pairs of cams at both ends of said two carriages which control said bore-point mechanisms and said pad mechanisms respectively, either arm in said four pairs of operating-arms being adapted to act upon the respective cam in said four pairs of cams for positioning the respective bore-point mechanisms or the respective pad mechanisms during the motion of said two carriages toward the fabric and for withdrawing them during the return.

7. In an embroidering-machine, the combination with two carriages, one on the front and one on the rear of the fabric and each provided with two needle-bars, one above and one beneath, of bore-point mechanisms on the one of said two carriages, pad mechanisms on the other of said two carriages, a hand-lever on the pattern side of the machine, a bow adapted to adjust the stroke of said hand-lever, a cam connected with said hand-lever and adapted to determine the extreme position of the one of said two carriages before the fabric and thereby to determine the depth to which the fabric is bored, a locking-lever adapted to stop the other of said two carriages in the extreme position before the fabric, in which the pads engage with the bore-points and a second cam connected with said hand-lever and adapted to

engage and disengage said locking-lever with and from the respective carriage.

8. In an embroidering-machine, the combination with two carriages, one on the front and one on the rear of the fabric and each provided with two needle-bars, one above and one beneath, of bore-point mechanisms and pad mechanisms on said two carriages, the bore-point mechanisms on either carriage being adapted to coöperate with the pad mechanisms on the other carriage, a hand-lever on the pattern side of the machine, a bow adapted to adjust the stroke of said hand-lever, two opposite cams connected with said hand-lever and adapted to alternately determine the extreme position of the respective carriage before the fabric and thereby to determine the depth to which the fabric is bored, two locking-levers adapted to alternately stop the other respective carriage in the extreme position before the fabric, in which the pads engage with the bore-points, and a second cam connected with said hand-lever and adapted to engage and disengage either of said two locking-levers with and from the respective carriage.

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

VICTOR KOBLER-STAUDER.

Witnesses:

CHARLES F. BRUNNER,
CARL KAUFMANN.