C. WALTHER.

EMBROIDERING MACHINE.

APPLICATION FILED JUNE 7, 1911.

1,052,194.

Patented Feb. 4, 1913.

2 SHEETS—SHEET 1.

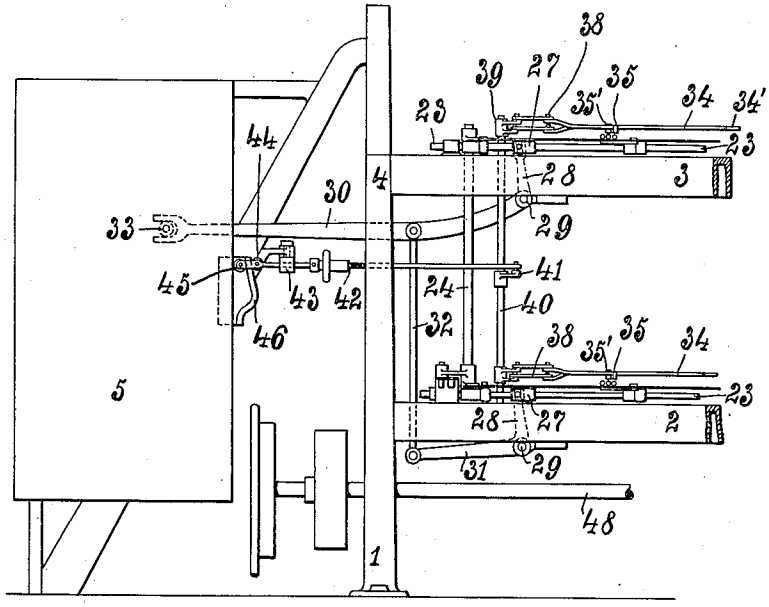

Fig. 1.

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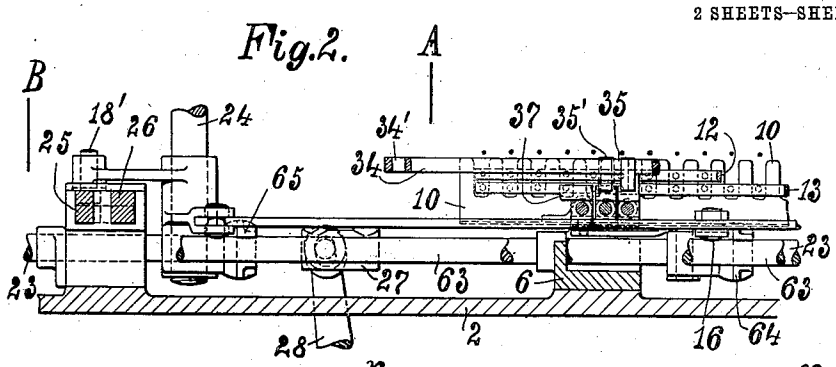
2 SHEETS—SHEET 2.

Fig. 2.



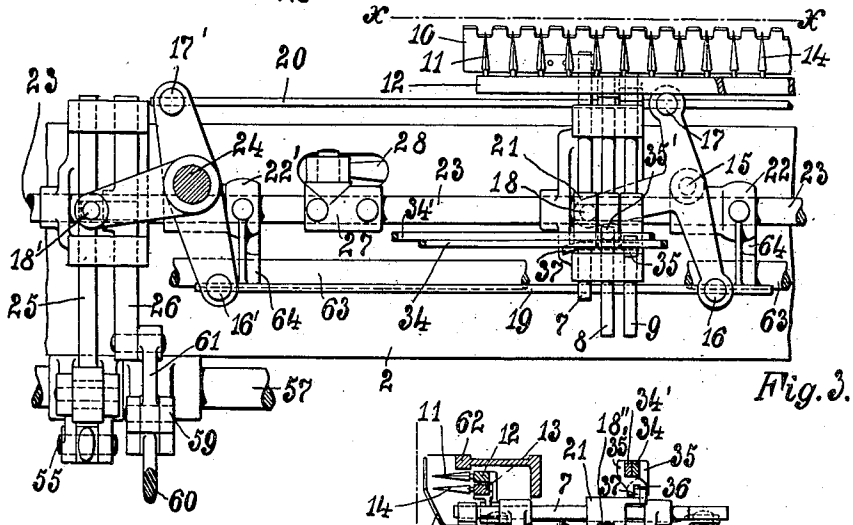


Fig. 3.

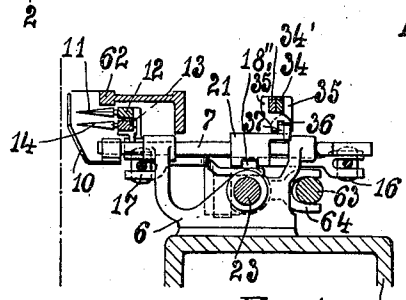


Fig. 4.

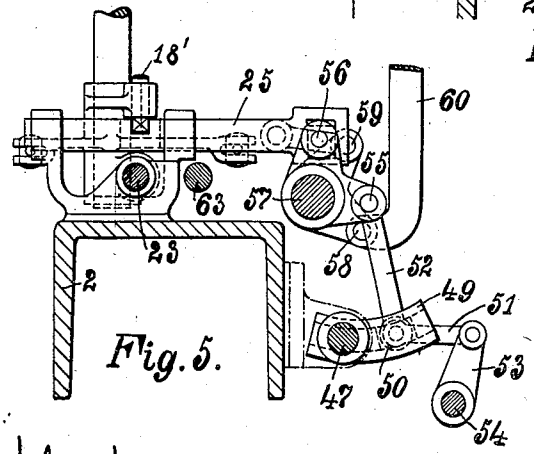


Fig. 5.

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UNITED STATES PATENT OFFICE.

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EMBROIDERING-MACHINE.

1,052,194. Specification of Letters Patent. Patented Feb. 4, 1913.

Application filed June 7, 1911. Serial No. 631,818.

To all whom it may concern:

Be it known that I, CARL WALTHER, a subject of the German Emperor, residing at Chemnitz, in the Kingdom of Saxony and Empire of Germany, have invented certain new and useful Improvements in Embroidering-Machines, of which the following is a specification.

The present invention relates to an arrangement on embroidering machines for driving cloth-pressers, perforators and piercers by a common driving mechanism.

One form of the invention is shown in the accompanying drawings, which form part of this specification.

Figure 1 is a front elevation of a small part of an embroidering machine. Fig. 2 is a vertical longitudinal section thereof. Fig. 3 is a plan view. Fig. 4 is a vertical cross-section on line A, Fig. 2 seen from the left side. Fig. 5 is a cross-section on line B, Fig. 2. Figs. 2 to 5 are upon an enlarged scale.

Reference being had to the drawings and the designating characters thereon, the numerals 1, 2, 3 and 4 indicate the frame of the embroidering machine and 5 the vertical table upon which the pattern may be supported. Standards 6 are fixed to the main holders 2 and 3. Three bars 7, 8, 9 are movably supported in the standards 6. The cloth-presser 10 is fixed to the end of the bar 7. To the end of the bar 8 is secured the bar 12, to which are secured the perforators 11, and to the bar 9 the bar 13 is secured, to which the piercers 14 are attached. The vertical bolt 15 forms the center of motion of the three-armed lever 16, 17, 18. The two arms 16 and 17 of the three-armed lever 16, 17, and 18 are connected by the rods 19, 20 with the three armed lever 16′, 17′ 18′. A block 21 is fixed to each of the three bars 7, 8, 9 and the lower side of each of these blocks 21 is provided with a groove in any of which may fit a pin 18″, which rests on the extreme point of the lever 18.

The fulcrum pin 15 is movably supported in a block 22, which is rigidly attached to rod 23. Said rod 23 is as long as the whole machine and is supported in the standards 6 in such a manner that it can shift in its longitudinal direction, but cannot turn. There are two such rods 23, one on the holder 2, the other on holder 3, Fig. 1, and they are connected to each other by a vertical shaft 24, which is movably supported in bearing blocks 22′ which are rigidly fixed on the rods 23. Two slide bars 25, 26 are movably supported on the holder 2, and are each provided with a groove, in either of which may interlock the pin 18′ of the three armed lever. If the rod 23 be shifted in its longitudinal direction, the following parts participate in this shifting motion: the three-armed lever 16, 17, 18, the three-armed lever 16′, 17′, 18′, the two connecting rods 19, 20 and the vertical shaft 24. In the position of the rod 23 shown in Figs. 2 and 3, there is a pin 18′ in contact with the slide-bar 25, and the pin 18″ is in contact with the rod 7. If the rod 23 be shifted a little to the right, then the pin 18″ comes in contact with the rod 8, and the pin 18′ comes in contact with the slide-bar 26. If the rod 23 be shifted for the second time a little to the right, the pin 18″ comes in contact with the rod 9, but the pin 18′ remains in contact with the slide-bar 26, for the groove in the slide-bar 26 is double the breadth of the groove of the slide-bar 25.

The following mechanism serves for shifting the rod 23: To the rod 23 is rigidly attached block 27, which is provided with a journal connected to which is the end of lever 28, see Figs. 1, 2, and 3, and the lever 28 is movably supported on the stationary journal 29. One of the levers 28 has a long arm 30 and the other has a short arm 31. The two arms 30 and 31 are movably connected by the rod 32, and the forked end of arm 30 receives a bolt 33, which is secured to the back of table 5, which table is vertically movable.

The rods 34 and 34′, Figs. 1 to 4, are each movably supported in its longitudinal direction and are each provided with a block 35 35′ respectively, a groove 36 formed in the lower side of said block 35, and the three blocks 21, which are secured to rods 7, 8, 9 each have a strip 37, which fits in the groove 36. The rod 34′ is connected by a link 38 with the vertical shaft 40, as seen in Fig. 1, and the blocks 35 35′ on these rods 34 and 34′, engaging with the rods 7, 8 and 9, serve to hold two of them fast so that only one will be capable of movement at a time. This described mechanism is therefore a securing arrangement for the purpose that always only one of the three rods 7, 8, 9 can be moved. The rod 34 is movably connected by a link Fig. 1 with the lever 39, secured to the vertical shaft 40 carrying the lever 41. The lever 41 is

movably connected with a rod 42 which is movably supported in a guide 43 and has two pulleys 44, 45 at its opposite end, which contact with the curved piece 46 which is secured to the table 5. If the table 5 is moved vertically, the rod 42 is shifted by the curved piece 46 and the two arms 30 and 31 of levers 28 are turned.

The following mechanism serves for driving the two slide-bars 25, 26. The shaft 47 (Fig. 5) is moved to and fro from the main shaft 48, Fig. 1, by any suitable means. To said shaft 47 is rigidly secured a lever 49, which is provided with an arcuate slot. A block 50 slides in said groove and is movably connected to two rods 51, 52. The lever 53 is secured to the shaft 54 and the rod 52 is movably connected with a cranked lever 55, 56, which loosely and movably rests on the shaft 57, and the lever 56 engages in a groove on the slide-bar 25. On the shaft 57 a second lever 58, 59 rests close by the lever 55, 56, and said lever 58, 59 is connected by the rod 60 with a special drive, which turns the shaft 57 to and fro and the lever 58, 59 is connected by the rod 61 with the slide bar 26.

The mode of operation of the mechanism above described is as follows: When the table 5 is in its lowest position, as shown in Fig. 1, the rod 34 is about in its midway position, and the block 35 is exactly in the middle between the two rods 8 and 9, so that the perforators 11 and the piercers 14 are immovably held fast. By the lever 28 the rod 23 has been shifted to the left, consequently the pin 18′ stands in contact with the slide-bar 25 and the pin 18″ in contact with the rod 7, consequently the cloth-pressers 10 are put in motion.

A rod 63 is mounted in the forked ends 64 of the blocks 22 and 22′, as seen clearly in Figs. 3 and 4.

The needle bar 62 is actuated from the shaft 57. By the construction heretofore described embodying the two connecting rods movably connecting the three-armed levers and providing for moving the whole system in the longitudinal direction of the machine, the three-armed levers alternately come in contact with the driving rods of the cloth pressers, perforators and piercers.

Having thus fully described my invention, what I claim is—

1. In an embroidering machine, cloth pressers, perforators and piercers, driving rods, therefor, a system of three-armed levers, distributed over the length of the machine, two connecting rods movably connecting them so that all three-armed levers have simultaneous and uniform oscillatory motions, and means for moving the whole system in the longitudinal direction of the machine, so that the three-armed levers may alternately come in contact with the driving-rods for the cloth-pressers, perforators and piercers.

2. In an embroidering machine, cloth pressers, perforators, piercers and driving rods therefor, a plurality of three armed levers distributed over the length of the machine, means movably connecting said levers for simultaneous oscillatory movement and means whereby said levers may alternately contact with the driving rods of the cloth-pressers, perforators and piercers.

3. In an embroidering machine, cloth pressers, perforators, piercers, driving rods therefor, a plurality of three-armed levers distributed over the length of the machine, means movably connecting said levers for simultaneous oscillatory movement, means whereby said levers may alternately contact with the driving rods of the cloth pressers, perforators and piercers, and a vertically movable pattern supporting table operatively connected to control the operation of the cloth pressers.

4. In an embroidering machine, cloth pressers, perforators, and piercers and driving rods therefor, a plurality of three-armed levers distributed over the length of the machine, means movably connecting said levers for simultaneous oscillatory movement, means whereby said levers may be alternately connected with the driving rods of the cloth pressers, perforators and piercers, a coöperating vertically movable table for supporting the pattern, means for holding the perforators and piercers immovable, and a curved shifting piece secured to said table for controlling the operation of said means for holding the perforators and piercers immovable.

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