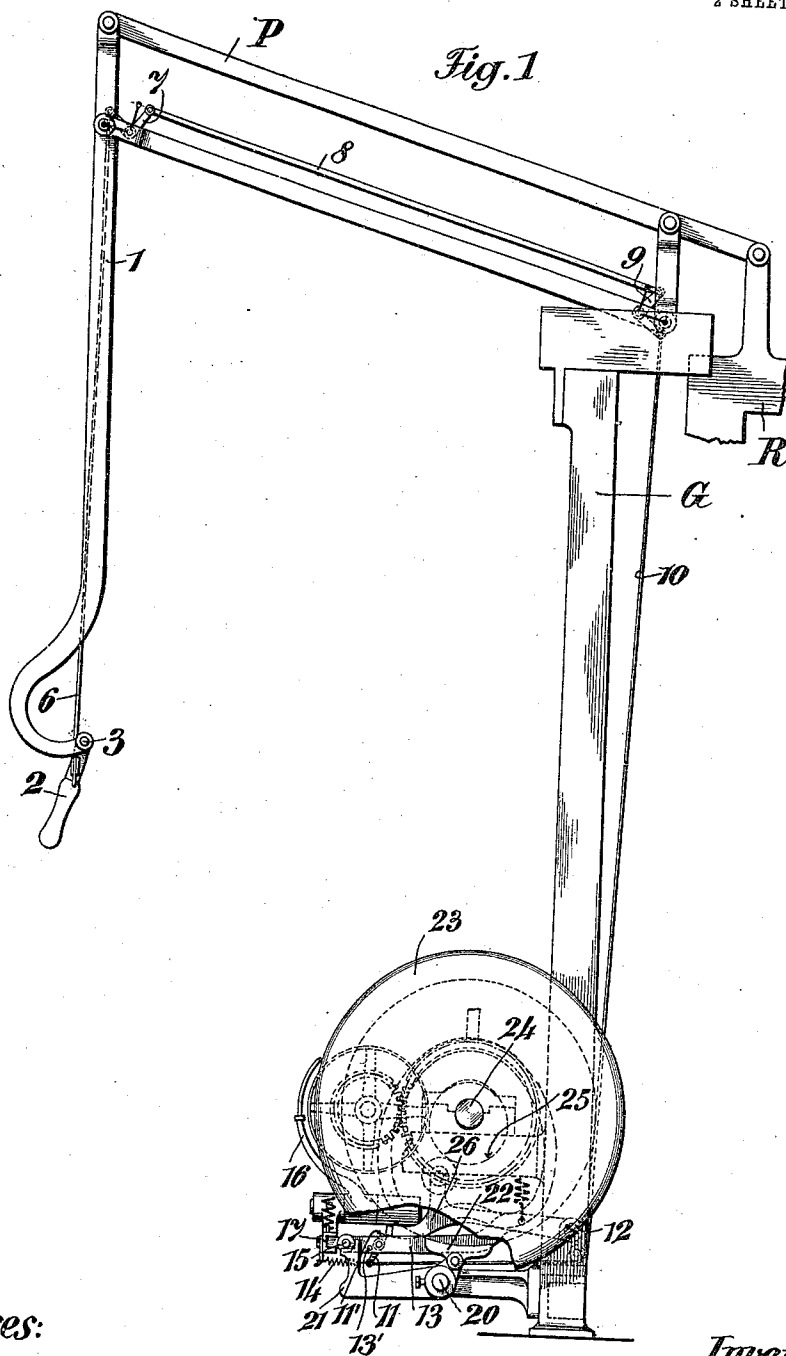


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2 SHEETS--SHEET 1.



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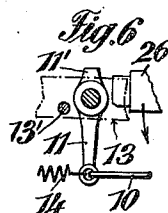
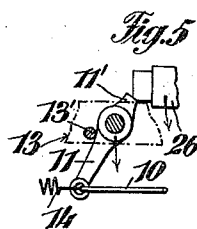
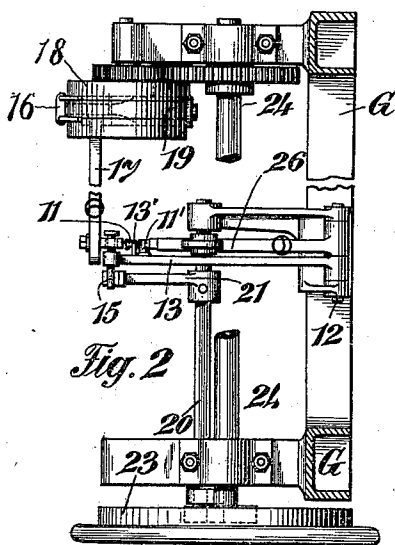
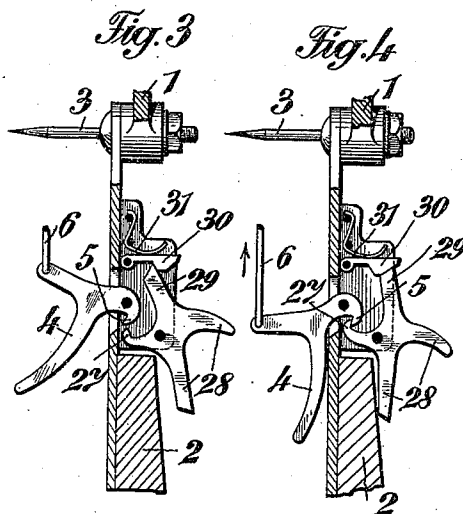
by Henry Orth

K. KELLER.
STOPPING GEAR FOR EMBROIDERING MACHINES.
APPLICATION FILED AUG. 4, 1909.

991,155.

Patented May 2, 1911.

2 SHEETS-SHEET 2.



Witnesses:

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UNITED STATES PATENT OFFICE.

KARL KELLER, OF ARBON, SWITZERLAND, ASSIGNOR TO THE FIRM OF ADOLPH SAURER, OF ARBON, SWITZERLAND.

STOPPING-GEAR FOR EMBROIDERING-MACHINES.

991,155.

Specification of Letters Patent.

Patented May 2, 1911.

Application filed August 4, 1909. Serial No. 511,147.

To all whom it may concern:

Be it known that I, KARL KELLER, a citizen of the Republic of Switzerland, residing at Romanshorne-strasse, Arbon, Switzerland, have invented certain new and useful Improvements in Stopping-Gear for Embroidering-Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters or figures of reference marked thereon, which form a part of this specification.

My invention relates to improvements in gears for stopping embroidering machines. There are at present two descriptions of such gears in use, viz: 1. Those actuated by means of a treadle. 2. Those actuated by means of a hand-lever; the treadle or hand-lever being located at the place where the operative stands, that is, adjacent to the pattern-board. Both these kinds of stopping-gear have the defect that it is not always possible for the operative to actuate the stopping-gear at once—that is, at the required moment—without changing his position. For patterns are sometimes so large that their top part, for instance, cannot be reached by the operative unless he mounts a stool, chair, or the like. In this case the stopping-treadle or hand-lever is no longer within his reach, so that an assistant is required to effect stoppage of the machine, or else the operative must descend from his position. Furthermore, a stopping-gear with treadle is troublesome to actuate, particularly when, as in the case, for instance, of large patterns, the operative has to stoop for the purpose of inserting the pantograph pin into the lower part of the pattern. According to my invention these drawbacks are overcome by the actuating device, by means of which stopping of the embroidering machine is effected, being always within reach of the operative, whatever his position at the pattern-board. This is attained by the actuating-device being arranged on the pantograph itself, so that the device partakes of all motions which the operative imparts to the latter. The actuating-device is preferably located on the handle of the pantograph, or in the neighborhood thereof, so that it can be operated, *i. e.* the machine can

be stopped, without the operative having to release his hold of the pantograph handle.

One form of construction of the invention is shown, by way of example, in the accompanying drawings.

Figure 1 is an elevation of the stopping-gear. Fig. 2 is a sectional plan of a portion of the same. Figs. 3-6 are sections showing fragments of the gear, drawn to a larger scale, in various positions.

P is the pantograph of a shuttle embroidering machine, mounted in well-known manner on the machine framing G and pivoted to the fabric-frame R.

1 is the traveler-arm of the pantograph, 2 being the handle, while 3 is the tracer.

The device to be actuated by the operative for the purpose of stopping the machine is mounted on the pantograph at 2, and consists of a lever 4, operated in similar manner to the trigger of a gun, and provided with a nose 5 in close proximity to its fulcrum. This lever 4 is connected by a rod 6 with one arm of a bent lever 7, mounted on the lower parallel arm of the pantograph, the other arm of said lever 7 being connected by a rod 8 with a second bent lever 9, which is likewise mounted on the lower parallel arm of the pantograph. The second arm of the lever 9 is connected by a strap 10, passing over a roller, with a lever 11, presenting a nose 11' and journaled to a lever 13, fulcrumed to the framing G at 12. The lever 11 is actuated by a spring 14, which tends to draw it against a stop 13' protruding from the lever 13. The lever 13 is also furnished with a pin 15, which engages a spring-actuated pivoted lever 17, connected with the pivotal belt-fork 16, whereby on downward rotation of the lever 17 by the pin 15 the belt is shifted from the fast pulley 18 onto the loose pulley 19 in which position it is shown in Fig. 2. In the path of the pin 15 there projects a lever 21, secured to a shaft 20, which lever when depressed by the pin 15 rotates this shaft and thus, simultaneously with the shifting of the belt presses the brake-shoe 22 against the rim of the cam 23, thus stopping the driving shaft 24 of the machine. This shaft 24 is connected with the pulley shaft by suitable gears.

On the shaft 24 there is mounted a cam 25, against which there bears the roller of a spring-actuated lever 26, journaled at 12.

By actuation of the lever 4 the nose 11' of the lever 11 can be brought into the path of the lever 26, by the action of the spring 14, and since this lever 26 is depressed by the cam 25 at each revolution of the shaft 24, the levers 13, 17, 21 will then also be depressed. For the purpose of locking the lever 4 in its position of rest when the machine is at work, there is pivoted to the pantograph handle 2 a hook or latch 27 presenting integral arms 28 and 29. The end of the latter arm is chamfered and engages with a chamfered pivotal detent 30 actuated by a spring 31 (Figs. 3 and 4).

The operation of the gear is as follows:— During working of the embroidering machine the lever 4, as already mentioned, is held in its position of rest by the hook 27, which grips behind the nose 5 (Fig. 4). In this position of the parts the nose 11' of the lever 11 will lie beyond the path of the lever 26, which can thus vibrate up and down without affecting any of the levers 11, 13, 17, 21. The hook 27 is locked by the detent 30 which bears down upon the top of the arm 29 (Fig. 4). When the parts occupy the above-mentioned positions the pantograph P can be operated without the lever 11 leaving its position of rest (Fig. 6), since the points of attachment of the members 6, 10 to the bent levers 7, 9 now coincide with the joints of the lower parallelogram arm, so that the members 6, 10 do not alter their position (see diagrammatically indicated position of the bent levers 7, 9 in Fig. 1). If it is desired to stop the machine, the operative, while grasping the handle 2 presses (*e. g.* with his thumb) the lever 28 of the hook 27, so that it assumes the position shown in Fig. 3. The lever 4 is thus released and the spring 14 and members 6, 10 will cause it to swing out. At the same time the lever 11 will be brought into the position shown in Fig. 5, its nose 11' now lying in the path of the lever 26, so that when the latter descends it will depress the lever 13, whose pin 15 will press down the levers 17 and 21, whereby the machine will be stopped in the manner already described (Figs. 1 and 2). On the hook 27 being turned for the purpose of releasing the lever 4, the detent 30 will grip behind the end of the arm 29, thus locking the hook 27 (Fig. 3). When the machine is to be set in operation again, it is merely necessary for the operative, without releasing the handle 2, to draw back the lever 4, with the first finger of the hand which is grasping the handle, into the position shown in Fig. 4, and by pressing the lever 28 with his thumb to cause engagement of the nose 5 with hook 27. With my improved gear the operative is thus enabled to stop the machine at once, no matter what position he occupies at the moment at the pattern-board, and without releasing the

pantograph handle at all, since as above explained, the device (lever 4) whose actuation brings about stoppage of the machine, is located at the pantograph handle itself, and thus partakes of all the motions of that instrument.

The great advantage of my invention is that the machine can be stopped stitch for stitch, *i. e.* after every stitch. This is of particular importance in the case of satin stitch, since to insure good work the machine should be stopped after each stitch, which, however, is impossible in practice when the ordinary stopping-gears are employed, the interval between two stitches being too short. The device controlling the stopping-gear of the machine might naturally be located in the lower part of the traveling arm of the pantograph, instead of just at the handle of the same.

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 an embroidery machine, mechanism for driving the machine, an embroidery frame, a pantograph connected to the frame, a hand operated device mounted on the pantograph, and a stop motion device connected to the driving means and the hand operated device.

2. In an embroidery machine, driving mechanism therefor, a fabric frame, a pantograph connected with the latter, a hand operated controlling device mounted on the pantograph, a stop motion device connected with the driving mechanism, and means connected with the handle of the controlling device to actuate the stop motion mechanism.

3. In an embroidering machine, driving mechanism therefor, a fabric frame, a pantograph connected with the latter, a stop motion device connected with the driving mechanism, a hand operated device connected with the pantograph, controlling mechanism connected with the hand operated device and the stop motion mechanism, and means on the hand operated device to lock the controlling mechanism in normal position.

4. In an embroidery machine, driving mechanism therefor, a fabric frame, a pantograph connected with the frame, a hand operated device mounted on the pantograph, a stop motion device, a vibratory member operated by the driving mechanism, means to connect the vibratory member with the stop motion device, and means on the hand operated device to actuate the connecting means.

5. In an embroidery machine, driving mechanism therefor, a fabric frame, a pantograph connected with the latter, a hand operated device mounted on the pantograph, a stop motion device, a vibratory lever operated by the driving mechanism, a rockable

lever adapted to engage the stop motion device, means on the rockable lever to connect the latter with the vibratory lever, and means connecting the hand operated device
5 with said connecting means.

6. In an embroidery machine, driving mechanism therefor, a fabric frame, a pantograph connected with the latter a hand
10 operated device mounted on the pantograph, a stop motion device, a vibratory lever operated by the driving mechanism, a rockable lever adapted to engage the stop motion device, a lever pivoted on the rockable lever,
15 and means connected with the hand operated device adapted to swing the pivoted lever into and out of the path of the vibratory lever.

7. In an embroidery machine, driving mechanism therefor, a fabric frame, a pantograph connected with the latter, a stop
20 motion device connected with the driving mechanism, a hand operated device connected with the pantograph, means for controlling the stop motion device, a lever pivoted on the hand operated device for operating
25 said controlling means and a latch on the hand operated device for locking said lever.

8. In an embroidery machine, a fabric
30 frame, a pantograph connected with the latter, a handle on the traveling arm of the pantograph, belt driven pulleys for driving the machine, a fork for shifting the belt for said driven pulleys, a spring controlled
35 lever connected with the fork, a pivoted lever, means operated by one of the driven pulleys for vibrating the pivoted lever, a rockable lever adapted to engage the spring controlled lever, a two-armed lever pivoted on
40 the rockable lever, and means on the handle connected with the two-armed lever to move the latter into the path of the pivoted lever.

9. In an embroidery machine, a fabric frame, a pantograph connected with the lat-

ter, a handle on the traveling arm of the
45 pantograph, belt driven pulleys, a driving shaft connected with one of the belt driven pulleys, a spring controlled vibratory lever, a cam on the driving shaft for vibrating
50 said vibratory lever, a brake cam on said shaft, belt shifting mechanism, a rock shaft, a brake shoe thereon to engage the brake cam, a lever on the rock shaft operable by the belt shifting mechanism, and means connected
55 with the handle for operating the belt shifting mechanism.

10. In an embroidery machine, a fabric frame, a pantograph connected with the latter, an operating handle on the traveling
60 arm of the pantograph, belt driven pulleys, a driving shaft connected with one of said pulleys, a spring controlled vibratory lever pivoted on the machine frame, a cam on the driving shaft for vibrating said vibratory
65 lever, a rockable lever pivoted on the machine frame, a two-armed lever pivoted on the rockable lever, a belt shifting fork, a spring held lever connected to the latter adapted to be actuated by the rockable lever,
70 a rock shaft, an arm on the latter adapted to be actuated by said rockable lever, a brake cam on the driving shaft, a brake shoe on the rock shaft to engage the brake cam, a strap connected to the two-armed lever, a finger lever on the controlling handle
75 connected with said strap, a latch on said handle to lock the finger lever and a spring actuated detent pivoted on the handle to lock the latch in and out of engagement with
80 the finger lever.

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

KARL KELLER.

Witnesses:

ALBERT PHILLIPS,
JOSEPH ROSCHAD.