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PATENTED DEC. 5, 1905.

L. HERZOG.
JACQUARD EMBROIDERING MACHINE.

APPLICATION FILED AUG. 4, 1903.

2 SHEETS—SHEET 1.

Fig. 1.

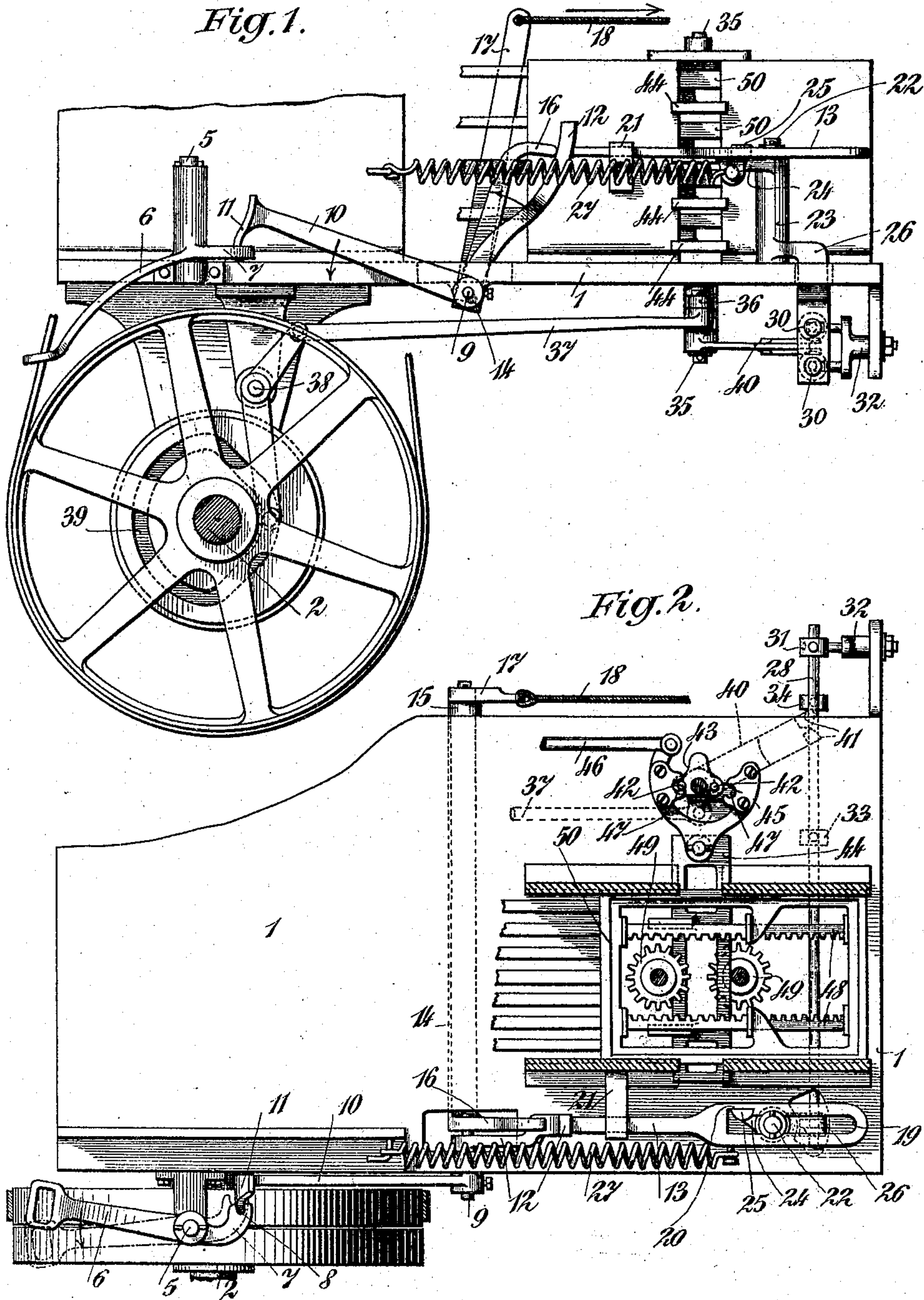
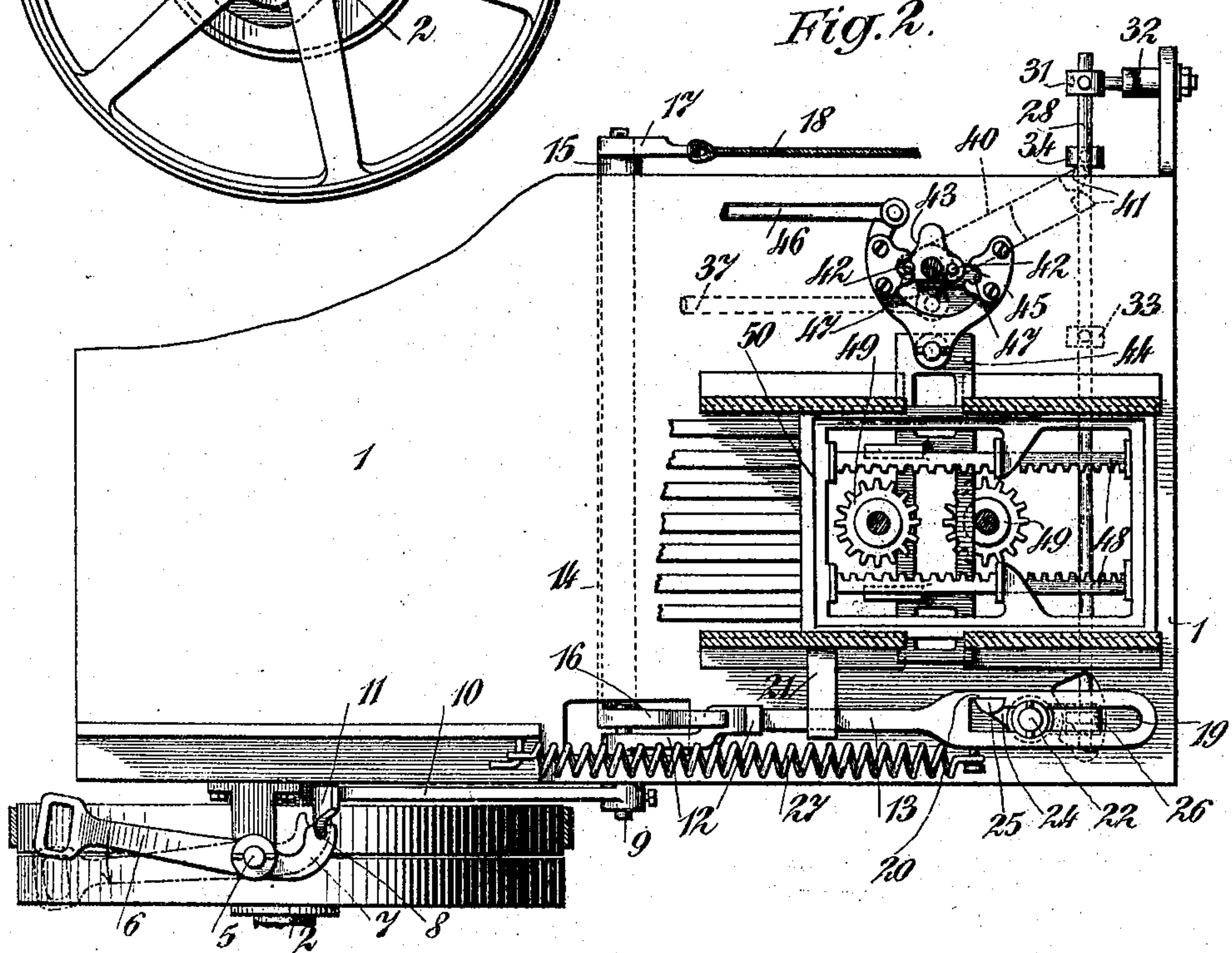


Fig. 2.



Witnesses:

Attest.

B. L. Sommers

Inventor:

Louis Herzog

by Henry Orthofer
Attys.

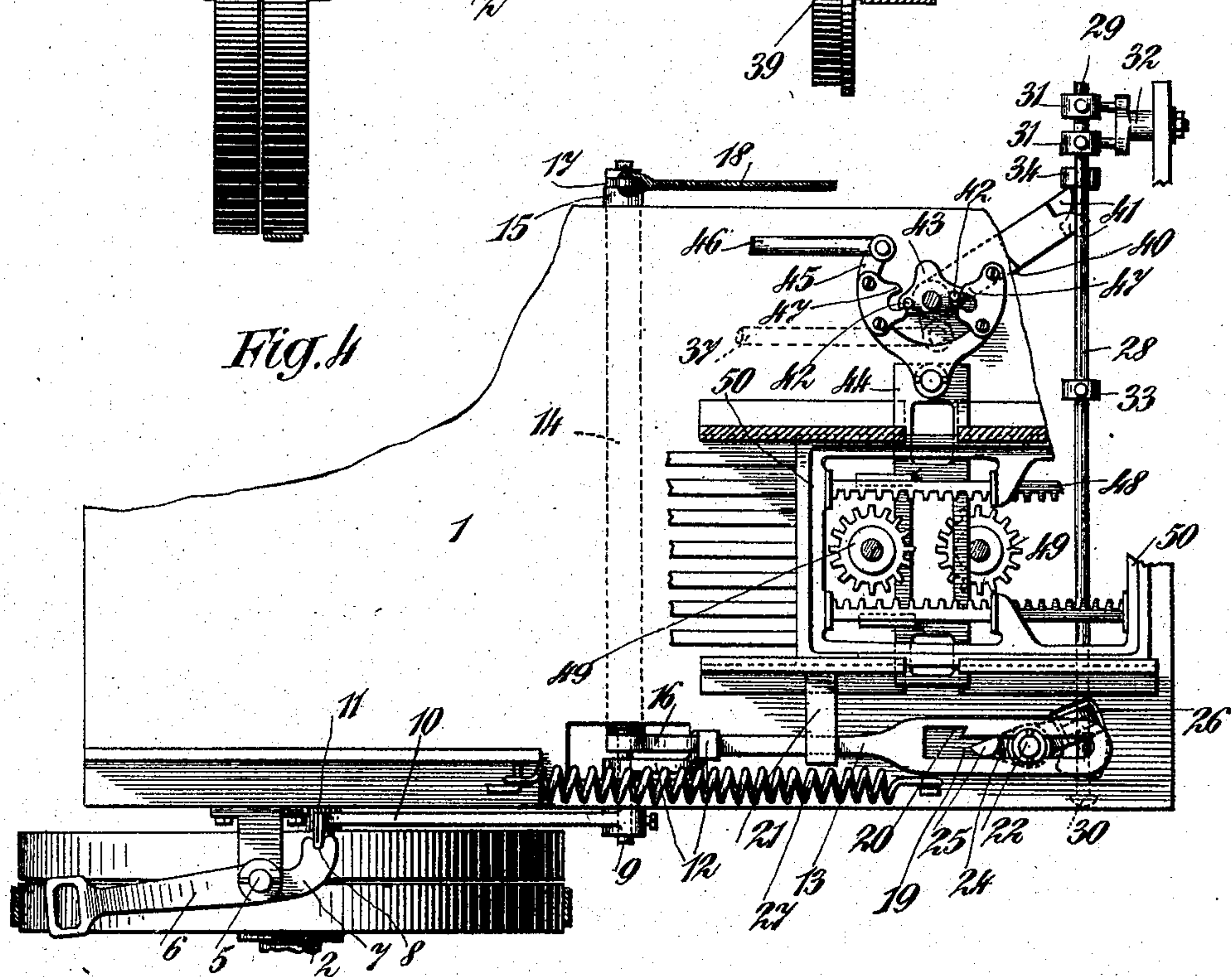
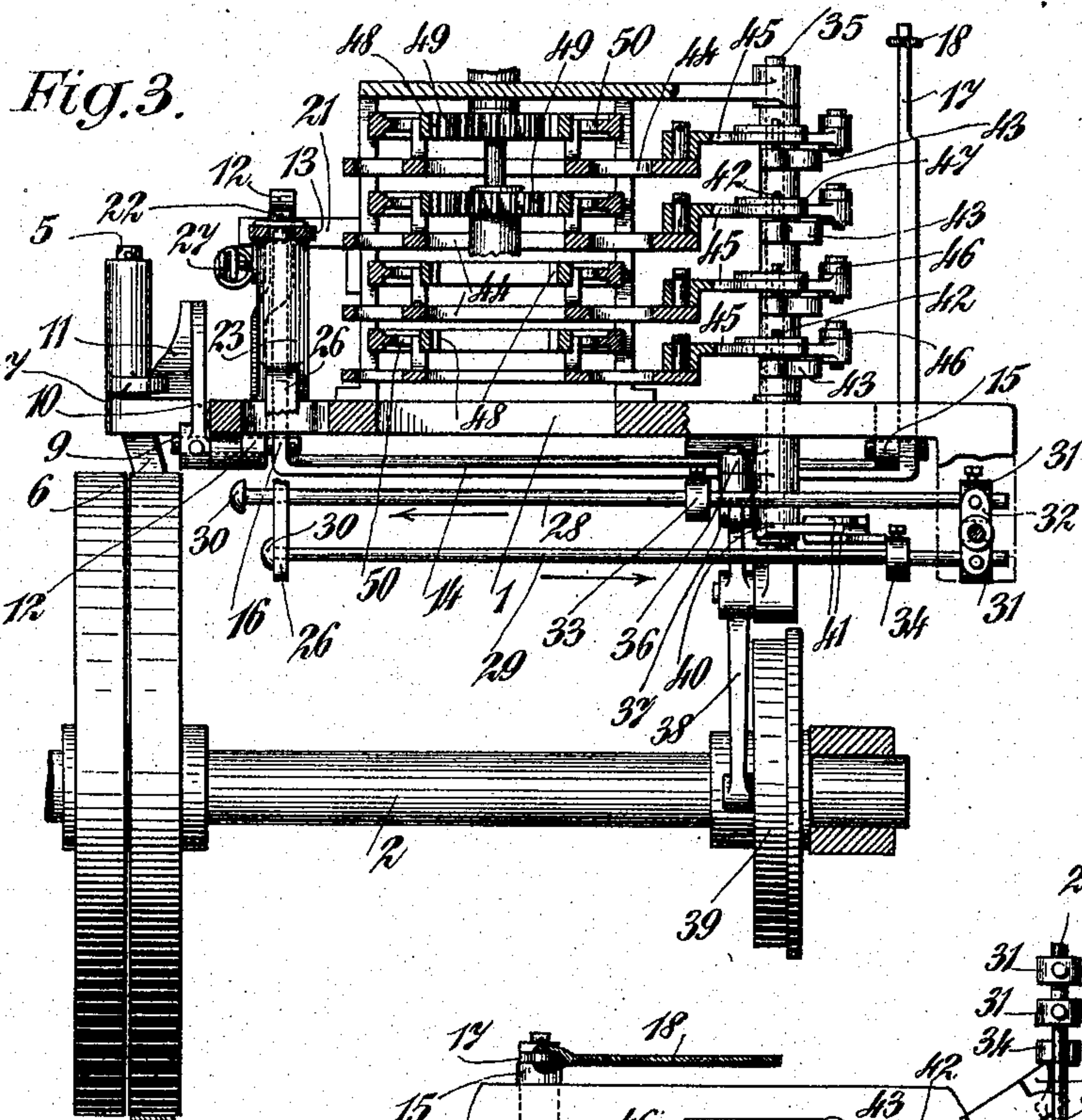
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2 SHEETS—SHEET 2.



Witnesses:

Attest.

W. L. Sommers

Inventor:

Louis Herzog.

by Henry Orth

Attys.

UNITED STATES PATENT OFFICE.

LOUIS HERZOG, OF RORSCHACH, SWITZERLAND, ASSIGNOR TO THE FIRM
OF STICKEREI FELDMÜHLE, VORMALS LOEB, SCHOENFELD & CO., OF
RORSCHACH, SWITZERLAND.

JACQUARD EMBROIDERING-MACHINE.

No. 806,254.

Specification of Letters Patent.

Patented Dec. 5, 1905.

Application filed August 4, 1903. Serial No. 168,227.

To all whom it may concern:

Be it known that I, LOUIS HERZOG, a citizen of the Republic of Switzerland, residing at Rorschach, Switzerland, have invented new and useful Improvements in Jacquard Embroidering-Machines, of which the following is a specification.

In embroidering-machines with jacquard mechanism—for instance, in such as is disclosed in British Letters Patent No. 21,361, A. D. 1894—it frequently happens that the so-called “directing-shaft,” which in conjunction with other parts of the jacquard mechanism effects the forward and rearward motion of the embroidering-frame, is by some accident or hitch brought out of its proper operative position. The result of this is that the said shaft will obstruct other working parts, so that if the machine is not at once stopped these parts will be broken or otherwise injured, whereby troublesome repairs and stoppage of the machine for a considerable time are the result.

The subject of my invention is a mechanism whereby such breakdowns may be avoided.

The essential feature of the invention consists in a lever being mounted on the said directing-shaft of the jacquard mechanism, which lever travels between two stops standing in communication with the ordinary disengaging-gear. The arrangement is such that when the directing-shaft for any reason leaves its proper position its lever strikes against one or other of the stops, thereby actuating the disengaging-gear and stopping the machine.

My invention is illustrated in the accompanying drawings, in which—

Figure 1 is an end elevation of the machine; Fig. 2, a plan, partly in section; and Fig. 3, a front elevation, partly in section. Fig. 4 is a sectional plan corresponding to Fig. 2, but having parts of the mechanism in another position.

2 is the main shaft, on which are mounted the fast and loose pulleys 3 and 4. Above the latter is a pin 5, secured to the framing 1 and forming the pivot for the belt-fork 6, in the rear arm 7 of which is a notch 8.

9 is a pin loosely mounted in the framing 1 and carrying the lever-arm 10 at one end, the cam-shaped end 11 of which lever engages in the notch 8 of the belt-fork 7. The rear end

of the pin 9 carries a second bent lever-arm 12, which butts against the rear end of the horizontal slide-plate 13, located above the framing 1.

14 is a rocking bar located below the table 1 and mounted at one end on the pin 9 and at the other end in an arm 15. The front end of the bar 14 carries a bent arm 16, which rests against the lever 12, the other end of said bar 14 projecting above the table and being secured to a second arm 17, connected to which is a cord 18.

The slide-plate 13 is slotted at 19, the slot being enlarged laterally at 20. The plate receives its guidance partly from an arm 21, through which it passes, and partly from a vertical pin 22, projecting through the slot 19, and rests upon the boss of a double-armed lever 23, turning on the said pin 22. The upper and shorter arm 24 of this lever 23 has an upturned end 25, which enters the slot 19, while the lower arm 26 is bent downwardly and is prolonged. The plate 13 is connected to the machine-framing by a spiral spring 27.

28 and 29 are superposed slide-rods located below the table 1. Their front ends have knobs 30 and are loosely mounted in the lower part of the arm 26 of lever 23, while their rear ends are secured in the movable eyes 31 of a double-armed lever 32, pivoted to the table 1 in such manner that the slide-rods are positively connected with each other by the lever 32.

33 and 34 are stops secured on the rods 28 29.

35 is the vertical directing-shaft mounted in the table 1 and receives its oscillating motion from the cam-disk 39 by means of the crank 36, to which said shaft is frictionally secured, connecting-rod 37, and cam-lever 38.

40 is a lever-arm secured to the bottom of the shaft 35 and having lugs 41 reciprocating between the stops 33 34, affixed after careful adjustment on the rods 28 29, respectively, the arrangement being such that the lever 40 in its terminal positions lightly touches the stops.

On that part of the shaft 35 projecting above the table 1 are mounted the short levers 43, having pins 42, which in conjunction with the claw-levers 45, pivoted to the frame 44, effect adjustment of the latter in well-known manner. The levers 45 receive their

oscillating motion from the rods 46, actuated by the jacquard card, the claws 47 engaging with one of the pins 42 of the lever 43, and thus reciprocating the frames 44, the racks 5 48 of which mesh with the pinions 49, which on motion of the horizontal slide 50 are thus turned in one direction or the other, so causing advance or retreat of the mechanisms actuating the embroidering-frame. In existing machines of this type, of which United States Patent No. 528,632 is an example, the directing-shaft is frictionally secured to or in its operating arm or crank 36. Now the present invention lies in mechanism to stop the machine when slip or other abnormal movement of the directing-shaft 36 shall take place. Should it occur that the directing-shaft 35 through any cause becomes displaced out of its normal position by a slip at its joint to crank 36, it is thus impossible that the claw-lever 45, actuated by the rod 46, can come into engagement with the pins 42. Thus if the machine is not stopped at this moment some portion of the mechanism will be damaged, usually the claw-lever 45, shaft 35, or frame 44 being broken. The operation of the device in such case is the following: In ordinary working of the machine the parts occupy the position shown in Figs. 1 to 3. If, however, the shaft 35 becomes rotated with regard to crank 36 for some reason, the normal travel of the lever 40, secured to its bottom end, will be lengthened in one direction or the other, depending upon the direction in which the shaft 35 has been displaced. The lever 40 will thus strike one of the stops 33 34 (in Fig. 4 the stop 34) with one of its lugs 41, and will thus push it and its rod 29 in the direction of the arrow, Fig. 3. The rod 29 with its knob 30 will thus draw the double-armed lever 23 and cause it to turn, whereby the end 25 of the shorter arm 24 will leave the recess 20 in the plate 13, so that the latter will be pulled back by the spring 27. The levers 12 10 will thus move backward in the direction of the arrow, Fig. 1, and the cam 11 of the lever 10 will turn the belt-fork 6 into the dotted-line position, Fig. 2—that is to say, the belt will be thrown onto the loose pulley 4, Fig. 4, and the machine thus stopped. The same result will ensue when the lever 40, owing to displacement of the shaft 35, exceeds its normal extent of travel in the opposite direction to that above stated—that is, so that it strikes against the stop 33. In this case the rod 28 will be pushed in the direction of the arrow in Fig. 3, whereupon by means of the double-armed lever 32 and rod 29 the end 25 of the double-armed lever 23 will again be released and the machine consequently stopped in the manner already described. By pulling the cord 18 the parts can then again be brought into their original position, as shown in Figs. 1 and 2. Having now particularly described and as-

certained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is—

1. In an embroidering-machine, a jacquard mechanism comprising a directing-shaft, means to oscillate the same comprising a cam-shaft and connections, said cam-shaft carrying a fast and a loose belt-pulley; in combination with a belt-shifter and mechanism to operate the same to shift the belt from the fast onto the loose pulley, said mechanism set in operation by abnormal movement of the directing-shaft.

2. In an embroidering-machine, a jacquard mechanism comprising a directing-shaft, means to oscillate the same comprising a cam-shaft and connections, said cam-shaft carrying a fast and a loose belt; in combination with a belt-shifter and mechanism to operate the same to shift the belt from the fast onto the loose pulley, said mechanism set in operation by abnormal movement of the directing-shaft, and hand-operated means for operating the belt-shifter to shift the belt from said loose pulley back onto said fast pulley.

3. The combination with the driving-shaft of a jacquard embroidering-machine, the fast and loose belt-pulleys on said shaft, the directing-shaft of the jacquard mechanism and connections between the two shafts to oscillate said directing-shaft, and a belt-shifting lever; of a spring-actuated lever for operating the belt-shifting lever, means to lock the former lever against the stress of its actuating-spring, and mechanism for releasing the actuating-lever operated by the directing-shaft whenever rotated beyond its normal extent.

4. In an embroidering-machine, the combination with the directing-shaft 35 of the jacquard mechanism, the radial arm 40 thereon having lugs 41, the belt-shifting lever, its actuating-lever, a radial arm on the fulcrum-pin of the last-named lever, a spring-actuated slide abutting against said radial arm and a locking device to lock the slide against movement under the stress of its spring; of mechanism operated by the lugs 41 on the arm 40 of the directing-shaft to release the slide whenever the latter shaft is rotated beyond its normal extent.

5. In a jacquard embroidering-machine, the combination with the directing-shaft 35 of the jacquard mechanism, the radial arm 40 thereon having lugs 41, the belt-shifting lever, its actuating-lever, a radial arm on the fulcrum-pin of the last-named lever, a spring-actuated slide abutting against said radial arm, a two-armed rock-lever carrying a lug on one of its arms adapted to engage a notch in the slide and lock the same against motion under the stress of its spring, two rods, 28, 29, having one end secured to the other arm of said rock-lever, a forked oscillating lever 52, to the legs of which the opposite ends of said rods are secured, abutments 33, 34, on the rods 28, 29,

the directing-shaft 35, means to oscillate the same, and the radial arm 40 thereon having lugs 41 adapted to impinge upon one or the other of the aforesaid abutments 33, 34, when
5 said shaft is oscillated in one or the other direction beyond its normal extent, substantially as and for the purposes set forth.

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

LOUIS HERZOG.

Witnesses:

MORITZ VEITH,
A. LIEBERKNECHT.