

No. 607,234.

Patented July 12, 1898.

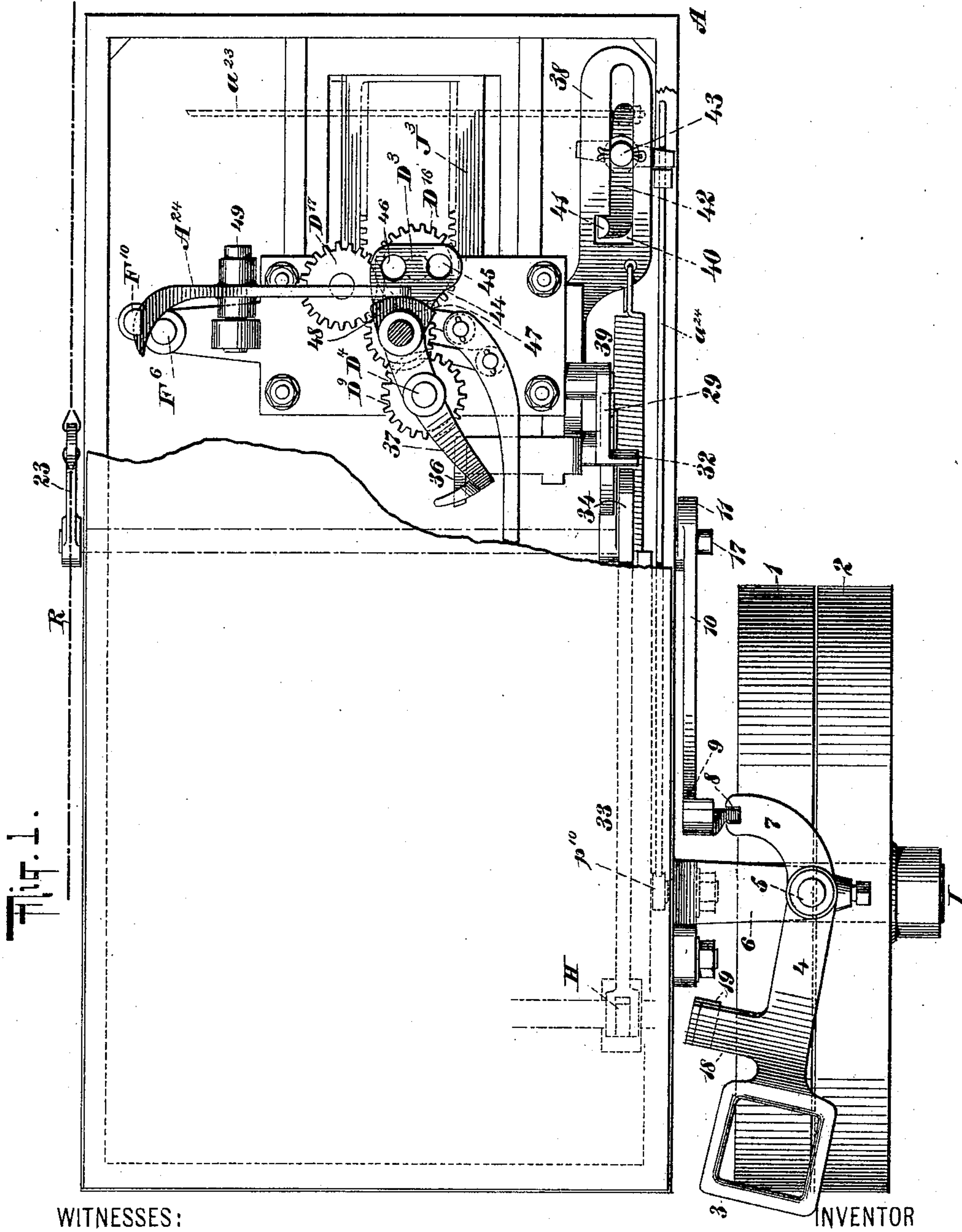
J. A. GROEBLI.

JACQUARD MECHANISM FOR EMBROIDERING MACHINES.

(Application filed July 23, 1897.)

(No Model.)

3 Sheets—Sheet 1.



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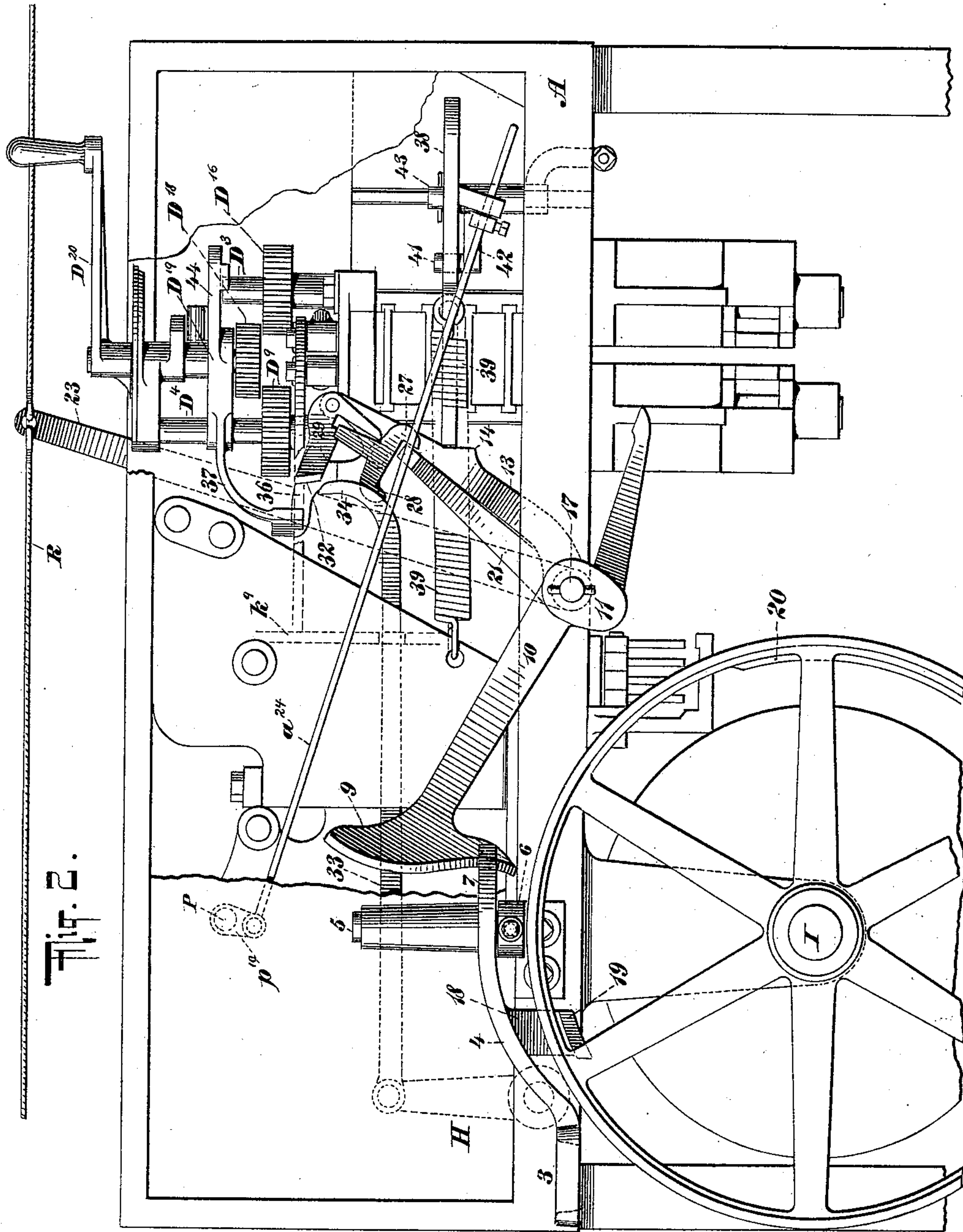
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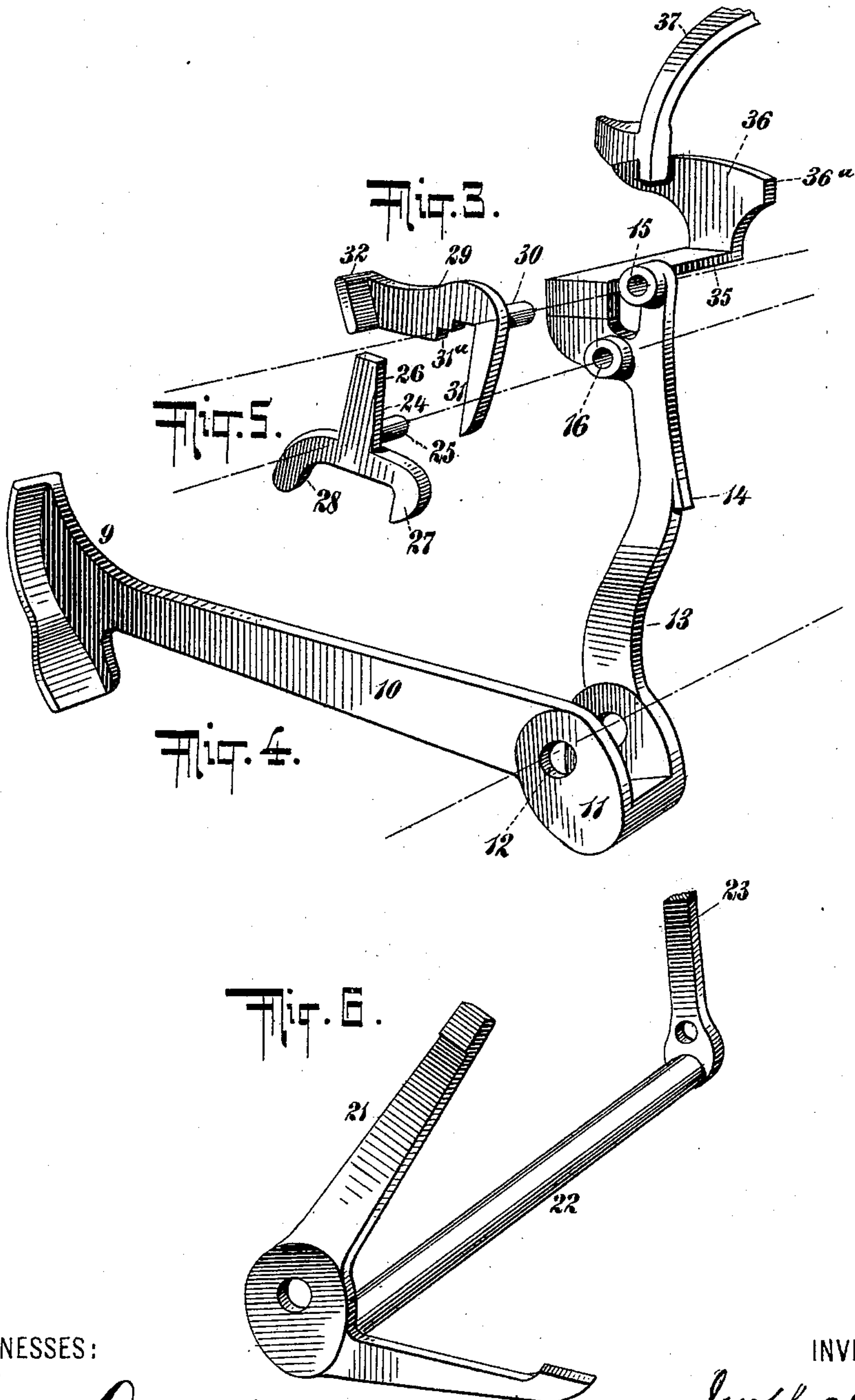
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(No Model.)

3 Sheets—Sheet 3.



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UNITED STATES PATENT OFFICE.

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JACQUARD MECHANISM FOR EMBROIDERING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 607,234, dated July 12, 1898.

Application filed July 23, 1897. Serial No. 645,674. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH A. GROEBLI, a resident of the city, county, and State of New York, have invented certain new and useful
5 Improvements in Jacquard Mechanism, of which the following is a specification.

My invention relates to jacquard mechanism for embroidering-machines and other mechanism, and has for its object to produce
10 an efficiently-operating device for stopping jacquard-operated mechanism, especially jacquard-operated embroidering-machines, which stopping mechanism may be operated by hand or automatically.

15 My invention has special reference to improvements upon the jacquard mechanism set forth in my United States Letters Patent No. 528,632, dated November 6, 1894, to which reference is hereby made for greater certainty.

20 In the machine set forth in my said Letters Patent I have shown divers devices for automatically stopping the mechanism in certain contingencies, and the structure of this my present invention is designed to more effi-
25 ciently effect the stopping operations.

To these ends my invention consists in the special matters hereinafter set forth and claimed.

30 My invention will be understood by referring to the accompanying drawings, in which—

Figure 1 is a broken-away plan view of a power-driven jacquard mechanism of the type and character of that shown in my said
35 Letters Patent No. 528,632. Fig. 2 is a broken-away side elevation of the same; and Figs. 3, 4, 5, and 6 are perspective views of some of the moving parts hereinafter more particularly identified and referred to.

40 It will be understood that the power-driven jacquard mechanism is in the present instance coupled to an embroidering-machine, (not shown,) or it may be similarly coupled so as to govern a loom or other type of pat-
45 tern-operable mechanism.

In the drawings, A is the frame of the jacquard machine; I, the driving-shaft thereof; D²⁰, the setting-handle; D¹⁹, the yoke of the hand setting mechanism; D³ D⁴, the shafts
50 carrying the spur-gear coöperating with the

moving racks J³. (See my Letters Patent heretofore referred to.)

H is the moving-arm, which by suitable mechanism is coupled with the racks to move them, and thus effect the fabric-frame move-
55 ments, and P is the shaft, operated by the failure of the shear-blades to close, in order to move the safety connection a²⁴.

By referring to Fig. 1 it will likewise be noticed that I have provided another safety
60 connection a²³, which, as in the case in the mechanism illustrated in my said patent, leads to the tracer which traces the pattern, as will be seen by referring to Fig. 40 of my
65 said patent.

R is the band or cord which runs around the machine and which upon being pulled will effect the stopping or starting of the machine.

By referring to Fig. 1 it will likewise be no-
70 ticed that adjacent to the shaft F⁶, which serves to shift the double racks J³, &c., is a rising-and-falling pin or bolt F¹⁰, which serves to disconnect some of the double racks when it is desired to set the mechanism by the handle
75 D²⁰, as fully set forth in my patent aforesaid.

All these parts which I have just referred to and designated are similar, have similar functions to and operate similarly to the parts designated by the same reference-letters in
80 my said patent, and it will be understood without further explanation that these parts have connected with them correlated mechanism for effecting the full functions set forth in the said patent.
85

The shaft I carries the usual fast and loose pulleys 1 2, which may be belted to a counter-shaft or other source of power in any usual manner. The belt passes through the loop or eye 3 of a belt-shipper 4, which is shown
90 as pivoted at 5 to a bracket 6 and provided with a rearwardly-extending arm 7, notched at 8, to receive the cam 9 of an arm or cam-lever 10. This cam-lever, as is clearly shown in Fig. 4, is double-armed and is preferably
95 made in the form shown—that is to say, is provided with a recessed hub 11, apertured at 12, from which an arm 13 projects upwardly. This arm 13 may be provided with a locking
100 lug or jog 14 and at or near its extremity with

bearings 15 16. The arm 10 may be hung loosely upon a stud 17 on the main frame A. This arm or cam-lever 10, as will be understood, by bearing against the tailpiece or arm 5 7 of the belt-shipper serves to shift the said belt-shipper to shift the belt from the fast to the loose pulley. This belt-shipper is likewise provided with a downwardly-projecting shoe 18, having its lip or edge 19 bent outward and projecting beneath the rim of the fast pulley 1, which may be provided with a raised portion 20 of such thickness as to bear against the face of the lip 19 of the projecting shaft 18, so that the said lip 19 will act as a brake to 15 bring the machine gradually to rest. A trip-arm 21 (best seen in Figs. 1 and 6) is loosely hung upon the stud 17, and is provided with a shaft 22, made rigid therewith, running across the machine and provided at its opposite end with an arm 23, with which the band 20 R of the hand stopping mechanism is connected. The arm 13 carries a trip 24. (Shown clearly in Fig. 5.) This trip 24 is provided with a stud 25, which is journaled in the bearing 16 25 of the arm 13, and is likewise provided with an arm 26 and with toes or abutments 27 28, one of which abutments 28 is rounded to allow the trip-arm 21 to slip past when it is moved to the left. The arm 13 is also provided with a coupling-piece 29, which has a stud 30 journaled in the bearing 15 of the arm 13. This coupling is provided with a step-shaped recess 31 31^a and with a lip 32. It will be understood that both the trip 24 and coupling 29 35 swing freely in the sockets or bearings 16 15. Leading from the arm II is an oscillating rod or connector 33, (referred to in the claims as a moving part of the jacquard,) shown in the present instance as provided with a hook-shaped hand 34, adapted to be engaged with the ledge or lip 32 of the coupling 29. This rod or coupling receives an oscillating movement from the arm II and is under direct control of a jacquard connection k^9 , preferably 45 of the type illustrated in my patent aforesaid and referred to by the same reference-letter. The arm 13 is likewise provided with a laterally-extending projection 35, provided with an upwardly-projecting shoe 36. This projection 35 is carried rigidly by the rod 13, and the shoe 36 extends upward into a slot in the arm 37, which is carried by the shaft of the handle D²⁰, so that when the arm 13 is in its forward position, as hereinafter referred to, 50 the hand setting mechanism cannot be lowered to engage with the pinions on the operating-shafts D³ D⁴. Located adjacent to the arm 13 is a slide 38. This slide 38 has a horizontal reciprocating motion and is actuated 60 by means of a spring 39. The slide is provided with an L-shaped slot 40, with which the toe 41 of a pivoted latch 42 engages. This latch 42 is carried upon a stud 43 and is connected at one end to the rod a^{23} , which runs to the 65 tracer, and is likewise connected to the rod a^{24} , which runs to the arm p^{10} on the shaft P. The toe 41 of the latch 42 serves to hold the

slide 38 in its retracted position, and the spring 39 serves to throw the slide forward until it strikes the abutment 14 on the arm 13. 70

The operation of the parts so far described is as follows: It will be understood that swinging the arm 10 downward will cause the belt to be shipped and the machine stopped. This shipping may be effected in several ways. 75 It may be done mechanically by moving the cord R, thereby swinging the arm 23 and its connected trip-arm 21 to the left. This trip-arm striking against the toe 28 of the trip swings the arm 26 of the trip from under the step 31^a of the coupling and allows the coupling to fall until its lip 32 is in such a position as to be engaged by the hook 34 of the oscillating connection 33. As this oscillating connection 33 moves to the right the coupling 85 will slide under the hook, which will drop behind it, and as the oscillating connection moves forward it will pull upon the said coupling and carry the said coupling with it, thereby swinging the arm 13, which is connected 90 to the coupling, to the left and swinging the arm 10 downward, thereby, as explained, shipping the belt. The stopping may also be effected from the jacquard, which, causing the connector k^9 to be lifted, raises the connection 33 high enough to engage its hook 95 34 with the lip 32 of the coupling, and by thus engaging the hook 34 of the connection 33 with the said coupling causes the said coupling to be pulled forward by the connection 33, thereby swinging the arm 13 to the left and the arm 10 downward and shifting the belt-shipper to stop the machine. The shifting may also be effected automatically by the safety devices. One of these 105 safety devices is the rod a^{23} , which, as before explained, is connected to the tracer of the embroidering-machine, so that should the tracer run off the pattern it will pull upon the rod a^{23} , thereby swinging the latch 42 on the stud 43, disengaging the toe 41 of the said latch from the slot 40 of the slide, which, being thereby released, will be pulled forward by the spring 39 and brought against the abutment 14 of the arm 13, thereby swinging 115 the arm 13 forward, and consequently depressing the arm 10 and shifting the belt, as before. As soon as the belt has been shipped the slide 38, which has followed up the arm 13, comes beneath the abutment 14 and locks 120 the said arm 13 and the belt-shipper firmly in place, so that it cannot be moved until the said slide is released from under the abutment 14, which will be done by a competent mechanic when the parts which have been 125 displaced are rearranged, or the slide 38 may likewise be released by means of the rod a^{24} , which also swings the latch 42 when actuated. This rod a^{24} is, as before explained, moved from the shaft P, which shaft P is actuated 130 only when by reason of some imperfection in the pattern too many jacquard-needles are selected. When this occurs, the shaft P is rocked, thereby swinging the arm 44, push-

ing upon the connection a^{24} and causing the same to swing the latch 42, whereupon the slide 38 will be sprung forward by the spring 39 and the parts will act as just explained.

5 Having described the stopping device, I will now proceed to more minutely describe the hand-operated mechanism for moving the racks to move the embroidering-frame. This hand-operated mechanism, as will be understood by referring to my patent aforesaid, comprises a handle D^{20} , supported on a yoke D^{19} , which carries a pinion D^{18} , which gears with pinions D^9 D^{16} , each on one of the operating-shafts D^3 D^4 of the mechanism, and at 10 times with a pinion D^{17} , which is carried upon a stud and meshes with the pinion D^{16} . The handle, yoke, and pinion D^{18} may be raised and lowered, and when lowered engages either with the pinions D^9 D^{16} or with the pinions 15 D^{17} D^9 . The shaft of the arm D^{20} also carries a plate 44, which is apertured at 45 and at 46 for the passage of the shaft D^3 when the arm, yoke, and pinion are lowered. The shaft of the arm D^{20} is likewise provided with the arm 25 37, whose lower edge is slotted for the passage of the shoe 36. The shaft D^4 of the pinion D^9 passes through this arm, which is loose thereon, and the shaft carrying the arm D^{20} and the pinion D^{18} swings on this shaft D^4 as a pivot, being supported by the arm 37, which is freely movable up and down on this shaft. The shaft carrying the arm D^{20} is likewise provided with a plate 47, located above the plate 44, a pin on the rear end of the arm A^{24} 35 projecting between the plates 44 and 47. This arm A^{24} , as explained, is pivoted at 49 and extends into a notch on the slide or bolt F^{10} .

The parts just described are all locked from operation by reason of the abutment of the 40 lower end of the arm 37 against the shoe 36. When the machine has been stopped, the arm 13 will have swung so far forward as to move the shoe 36 in the slot of the arm 37 until the tail 36^a of the shoe 36 has passed from beneath the arm 37, when the arm 37 may be swung 45 on its pivot-shaft D^4 . Now if it be desired to move the frame by hand the arm 37 may be swung on its pivot until one of the holes 45 or 46 is over the shaft D^3 when the arm 37, 50 the arm D^{20} , and the pinion carried by its shaft may be moved downward to engage the pinion D^{18} with the appropriate gear-wheels. At the same time the plate 47 will bear against the arm A^{24} , thereby swinging it on its pivot 55 and raising its outer end and lifting the bolt F^{10} , so as to disconnect a pair of the racks in order that the device may be moved by hand to move the fabric-frame. When the parts have thus been lowered, the arm 37 is in the 60 path of the return movement of the shoe 36, so that the parts which ship the belt cannot be restored to their initial positions to start the machine until the hand-operated mechanism for moving the embroidering-frame has 65 been restored to its original position. It will be observed that when the arm 37 has been

swung into position to engage the pinion D^{18} with either pair of pinions for driving the shafts D^3 D^4 a hole 45 or 46 will be over the shaft D^3 , so that as the arm 37 is lowered the 70 shaft D^3 will pass through the said hole; but when the arm 37 is in its intermediate or middle position, as shown, the arm cannot be lowered, as a solid part of the plate 44 will come against the shaft D^3 , so that the arm can only 75 be swung on its pivot-shaft D^4 and lowered when the shoe 36 is not in the slot of the arm 37.

It will thus be seen that the hand-operated mechanism for moving the embroidering-frame and the stopping mechanism for the 80 machine are so interlocked and correlated that one cannot be operated unless the other is in an inoperative position.

Having described my invention, what I claim, and desire to secure by Letters Patent, 85 is—

1. In a jacquard mechanism for embroidering-machines and the like, the combination of a hand-operated moving mechanism for the 90 embroidering-machine frame or other moving part of the jacquard-controlled machine, an automatic stopping mechanism for the jacquard, and means for maintaining the stopping mechanism inoperative while the hand-operated moving mechanism is in an 95 operative position.

2. In a jacquard-machine for controlling an embroidering-machine or other mechanism, the combination of hand-operated moving mechanism for effecting functions and op- 100 erations of the embroidering-machine or other jacquard-controlled mechanism, a stopping mechanism and a locking mechanism, part of the said locking mechanism forming part of the hand moving mechanism and part of the 105 said locking mechanism forming part of the stopping mechanism and engaging with each other to alternately maintain one mechanism or the other inoperative at determined times.

3. The combination of a jacquard embroid- 110 ering-machine having a constantly-moving part, a stopping mechanism adapted for engagement with the said constantly-moving part to stop the jacquard embroidering-machine, means for causing such engagement 115 automatically from the jacquard and means for causing such engagement by hand.

4. In a jacquard mechanism for controlling embroidering-machines or other mechanism, the combination of a hand-operated fabric- 120 frame-moving mechanism, a stopping mechanism, a constantly-moving part, means for effecting the engagement of the said constantly-moving part with the stopping mechanism and for maintaining the hand-oper- 125 ated mechanism locked until the constantly-moving part has actuated the stopping mechanism.

5. In a jacquard mechanism for controlling embroidering-machines or other mechanism, 130 the combination of a stopping mechanism with means for engaging the same with a mov-

ing part of the jacquard, the said means comprising a coupling and a trip therefor combined with means for actuating the trip.

6. In a jacquard mechanism for controlling 5
embroidering-machines or other mechanism, the combination of a stopping mechanism, a constantly-moving hook, a coupling and a trip for tripping the coupling.

7. In a jacquard mechanism for controlling 10
embroidering-machines or other mechanism, the combination of a stopping mechanism, a constantly-moving hook, a coupling, a trip for tripping the coupling and a trip-arm for actuating the trip.

8. In a jacquard mechanism, the combina- 15
tion of a stopping mechanism comprised in part by an arm 13, a pivoted coupling carried by the arm and adapted to be engaged by a moving part of the jacquard mechanism, and 20
means for operating the said coupling.

9. In a jacquard mechanism, the combina-
tion of a stopping mechanism comprised in part by an arm 13, a pivoted coupling carried by the arm and adapted to be engaged by a 25
moving part of the jacquard mechanism, and a trip for controlling the coupling.

10. In a jacquard mechanism, the combina-
tion of a stopping mechanism comprised in part by an arm 13, a pivoted coupling carried 30
by the arm and adapted to be engaged by a moving part of the jacquard mechanism, and a pivoted trip for controlling the coupling, substantially as described and for the purposes set forth.

11. In a jacquard mechanism, the combina- 35
tion of a stopping mechanism comprised in part by an arm 13, a pivoted coupling carried by the arm and adapted to be engaged by a moving part of the jacquard mechanism, and 40
a trip pivoted upon the said arm for controlling the coupling.

12. Stopping mechanism for embroidering-
machines combined with a jacquard mechan- 45
ism having a constantly-moving part, and means for effecting the movement of the stop-
ping mechanism comprising hand-operated

means for engaging the moving part of the jacquard mechanism with the stopping mechanism, and automatic means for moving the stopping mechanism independently of the 50
jacquard mechanism.

13. Embroidering-machine-stopping mech-
anism combined with a jacquard mechanism having a constantly-moving part, a hand-op- 55
erated mechanism for manually moving the fabric-frame of the embroidering-machine and movable into two different positions in each of which positions it is adapted for engage-
ment with mechanism for moving the frame of the embroidering-machine, so that when in 60
either of said two positions the hand-operated mechanism may be engaged with the mechanism for moving the embroidering-machine frame and means for locking the said hand-operated mechanism in a position intermedi- 65
ate of its said operative positions.

14. In a jacquard mechanism for controlling
embroidering-machines or other mechanism, the combination of a stopping mechanism, 70
spring-actuated means for actuating the stopping mechanism, means for releasing the said spring-actuated actuating means actuated from the jacquard, and means for locking the stopping mechanism from the actuating 75
means.

15. A jacquard embroidering-machine pro-
vided with mechanism for driving the fabric-
frame, a hand-operated mechanism movable 80
into two different positions and when in said positions adapted for engagement with the fabric-frame-moving mechanism and being effective to move the said mechanism to im-
part different movements to the fabric-frame when in the two different positions and means 85
for locking the hand-operated mechanism in a position intermediate of its two operative positions, substantially as described and for the purposes set forth.

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Witnesses:

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