

921,825.

C. GEORGES.
EMBROIDERY MACHINE.
APPLICATION FILED NOV. 21, 1907.

Patented May 18, 1909.
3 SHEETS—SHEET 1.

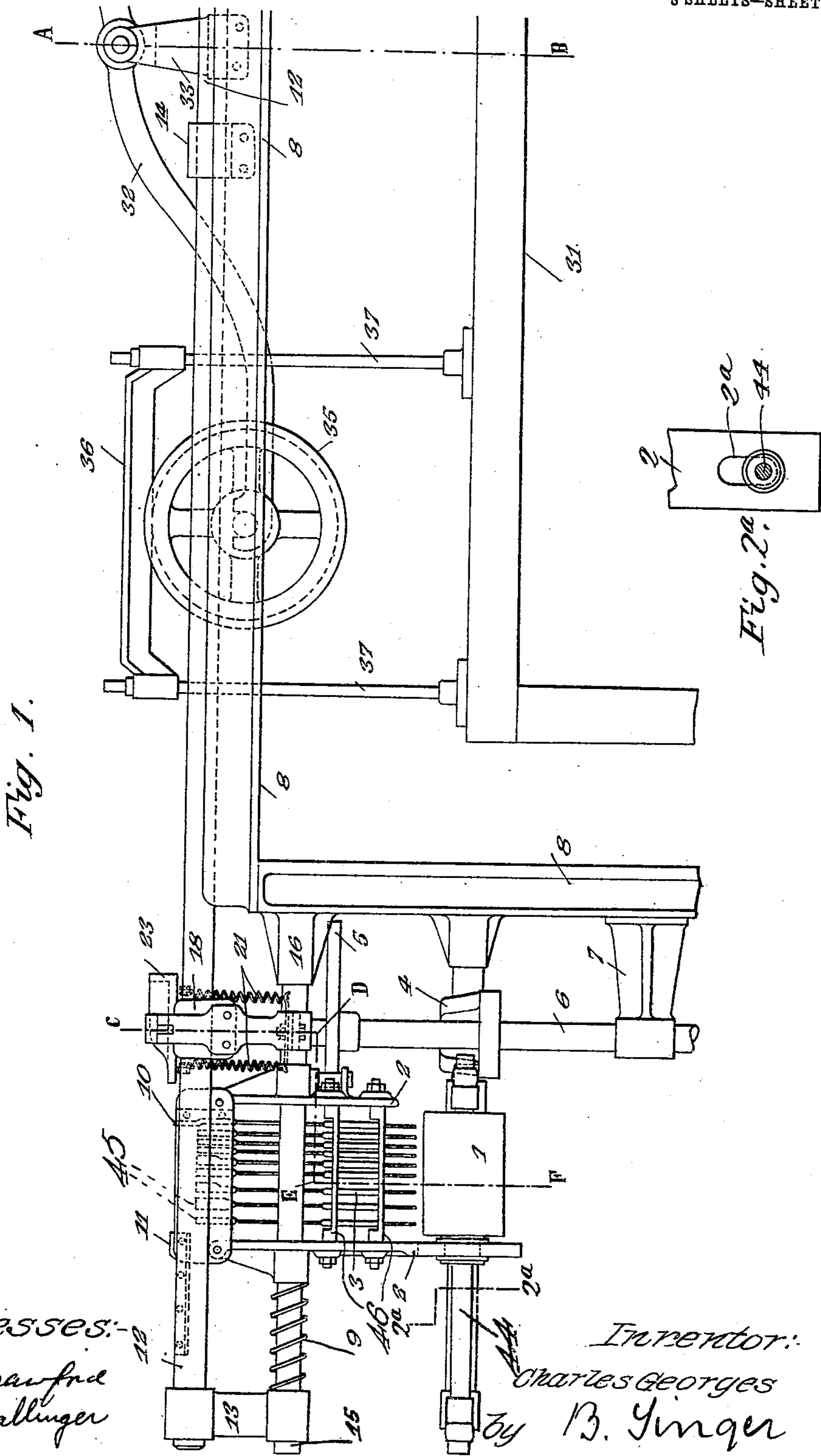


Fig. 1.

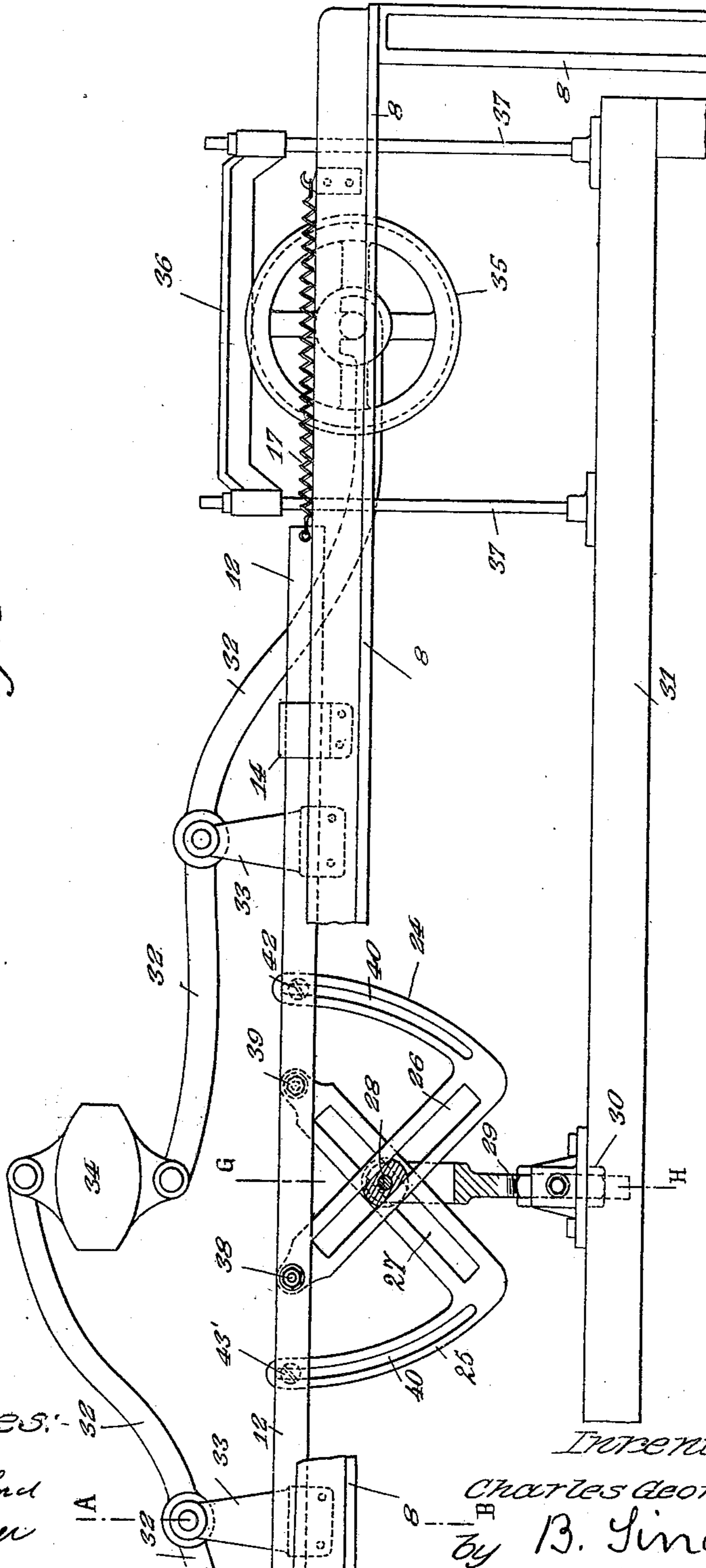
Fig. 2a.

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3 SHEETS—SHEET 2.



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3 SHEETS—SHEET 3.

Fig. 2.

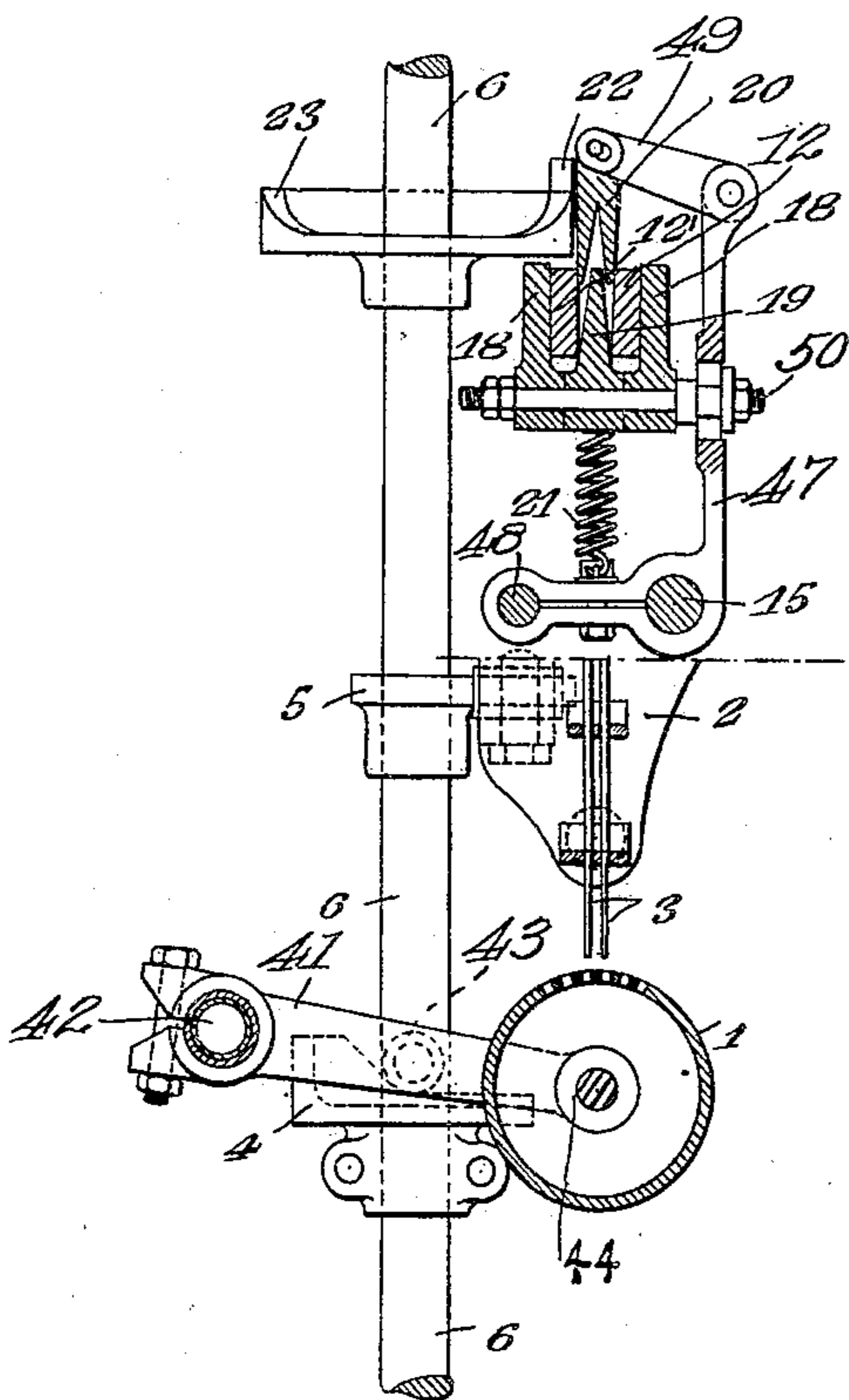
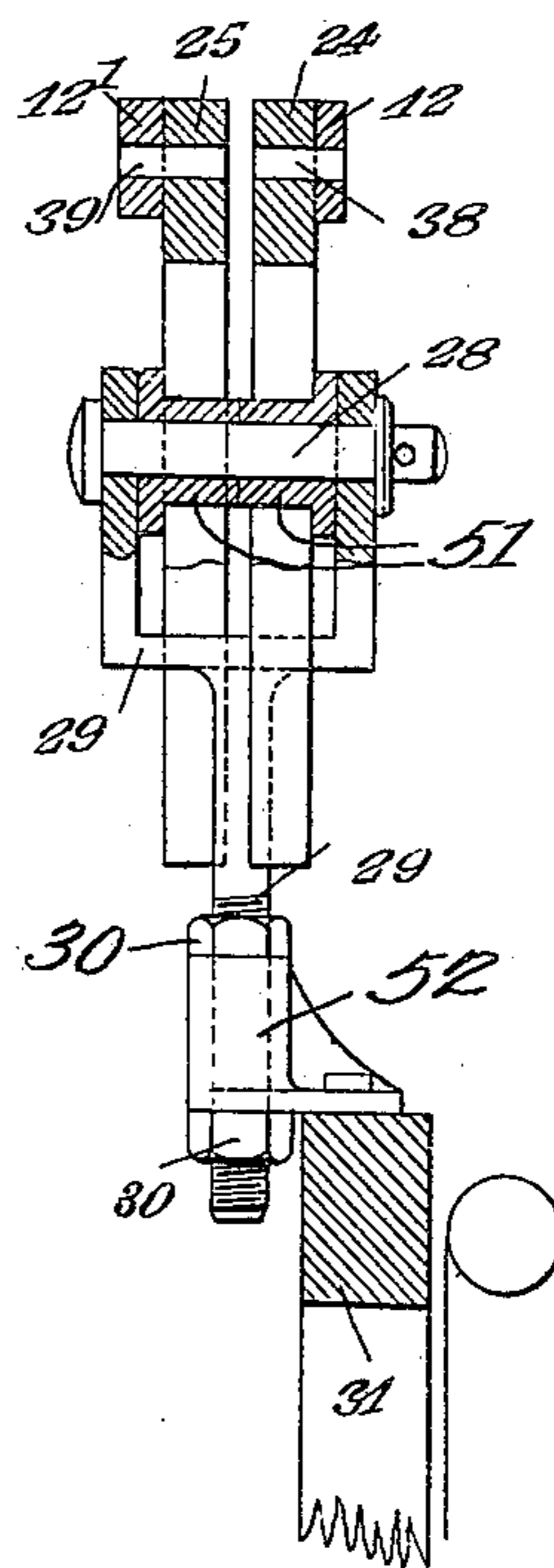


Fig. 3.



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UNITED STATES PATENT OFFICE.

CHARLES GEORGES, OF ST. CLOUD, FRANCE.

EMBROIDERY-MACHINE.

No. 921,825.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, CHARLES GEORGES, a citizen of the Republic of France, residing at St. Cloud, in France, have invented new and useful Improvements in or Relating to Embroidery-Machines, of which the following is a specification.

This invention relates to improvements in embroidering machines of that class wherein automatic movement of the fabric or embroidering frame is obtained by means of a jacquard transmission mechanism.

The invention includes a plurality of droppers, controlled by the jacquard, and one of the novel features of the invention is the provision of longitudinally movable members for controlling and effecting movement of the embroidery frame and wherein said longitudinal members are in turn controlled by the droppers operated by the jacquard cards.

A further novel feature of the invention consists in an improved form of droppers having various sizes whereby they may be combined and recombined to obtain an indefinite number of positions of the embroidering frame.

Other features of the invention will be more fully described in connection with the accompanying drawings and will be more particularly pointed out and ascertained in and by the appended claims.

A complete side elevation of a machine embodying my invention is shown in Figures 1 and 1^a.

Fig. 2 is a sectional view on lines C, D, E, F of Fig. 1. Fig. 2^a is a sectional view on line 2^a—2^a of Fig. 1. Fig. 3 is a vertical sectional view on line G—H of Fig. 1^a.

Like characters of reference designate similar parts throughout the different figures of the drawings.

The frame of the machine is designated at 8 and the embroidery frame at 31. The frame 31 is supported on the main frame 8 by means of a counter-balance mechanism which may consist of the following construction:—Yokes comprising horizontal track members 36 and vertical members 37, are provided on each end of the frame 31, and the track members 36 engage and are supported on the periphery of wheels 35. Said wheels 35 are supported on the ends of counter-balance levers 32, pivotally mounted to the frame at 33, and connected at their in-

ner ends by counter-balance weight 34. The counter-balance mechanism permits of movement of the frame 31 in any desired direction in the plane in which it lies.

1 designates a jacquard roller for the cards which is mounted on a bracket 41, pivoted at 42, and provided with an anti-friction roller 43 adapted to be operated by cam 4. The shaft 6 is rotatably mounted in a bearing 7. A rod 15 is rigidly supported on the frame at 16 and carries a dropper frame 2 which is slotted at 2^a to receive the shaft 44, so that when the shaft 44 is raised it will raise the roller 1 and the roller 1 will be movable longitudinally on the shaft 44 with the frame 2. The frame 2 is provided with guides 46 in which droppers 3 are longitudinally movable and in which said droppers are disposed in a manner to be actuated by the cards on the roller 1. In the usual construction the card is perforated and when the roller 1 is raised those droppers which do not register with the perforations in the card will be raised while those droppers which register with the perforations in the card will not be raised. The upper ends of the droppers are provided with heads 45 of different sizes, the purpose of which novel construction will hereinafter more fully appear. Movement of the frame 2 to the left is effected by a cam 5, mounted on shaft 6, and the frame 2 is retained in engagement with the cam 5 and is restored to the right by spring 9 mounted on shaft 15 and interposed between the frame 2 and a guiding support 13. As shown in Fig. 2, two rows of stoppers 3 are provided and the frame 2 is provided with stops 10 adapted for engagement with those stoppers which have been raised by the jacquard card. On the upper end of the shaft 6, a cam 23 is mounted, the purpose of which will hereinafter more fully appear.

The frame 8 is provided with guiding supports 14, which serve with the guiding supports 13, to support a plurality of longitudinally movable bars. The bars are indicated at 12 and in the construction shown two bars are used. Each bar 12 is provided with a stop 11 between which and the stops 10 the selected and elevated droppers are disposed for the purpose of controlling movement of the bars 12.

A locking device is provided for automatically locking the bars 12 in whatever position they may have been displaced and

holding said bars in a locked position for a predetermined time and subsequently releasing them. Preferably the improved locking device acts frictionally in the performance of its function.

As shown a bracket 47 is mounted on parts 15 and 14 and supports at its upper end a pivotally connected arm 49 provided with a roller 22 adapted to be actuated by the cam 23. The arm 49 is adapted to be raised by the cam 23 and lowered by springs 21, secured to said arm and the bracket 47. The arm 49 carries a locking member 20 which preferably terminates in a wedge-shaped fork, as clearly shown in Fig. 2. The cooperating member of the locking device comprises an intermediate wedge-shaped member 19 and outer retaining members 18, between which the bars extend and which members may conveniently be adjustably mounted on the bracket 47 by means of a rod 50 as clearly shown in Fig. 2. It will be obvious that as the member 20 is depressed it will engage the arms 12 and force the same frictionally into engagement with the retainers, which latter serve effectively to prevent spreading of the bars 12. Springs 17, connected with the bars 12 and the frame 8, serve to normally shift the bars 12 to the right when the same are released by the locking device.

The bars 12 are provided with means by which they are connected with the frame 31 and as shown said means consists of levers 24 and 25, pivotally mounted to the bars at 38 and 39 respectively, and provided with slots 26 and 27. Said levers are provided with sector-shaped extensions having slots 40 adapted to be guided by screws 42 and 43' disposed on the bars 12. The frame 31 is provided with yoke 29 having a pin 28 which extends through the slots 26 and 27, of said levers 24 and 25, and bearing members or bushings having diametrically opposite flattened sides are rotatably mounted on said pin 28 to provide suitable bearings for the slots 26 and 27. Said bearing members or bushings are clearly shown in Fig. 3 and are designated at 51.

The yoke 29 is adjustably mounted on a bracket 52, by means of nuts 30 and said bracket 52 is secured to the frame 31.

The operation is as follows:—When the card cylinder 1 is lifted it will raise one or more droppers 3, which do not register with the openings in the card, to bring the heads 45 between the stops 10 and 11. When the frame 2 is shifted to the left, the raised heads 45 will be engaged between the stops 10 and 11 and if a considerable number of droppers 3 have been raised the bars 12 will be shifted a considerable distance to the left whereas if a relatively few droppers 3 have been raised the bars 12 will be shifted to the left a correspondingly less distance. The shifting

movement imparted to the frame 2 is always the same but it will be readily understood that the different formation or shape of the heads 45 will render it possible to combine and recombine said heads 45 in such a manner as to shift the bars to the left to any distance or amount which may be varied almost indefinitely. If the droppers of one row only are raised only one of the bars will be shifted and if a less number of one row of droppers is raised than is raised in the other row the corresponding bars 12 will be shifted a greater distance than its companion bar. If only the droppers of the first row have been raised only one of the bars will be shifted and the other bar will remain in a position of rest. The cam 23 is so timed with respect to the cams 4 and 5 that it will immediately release the arm 49 so that the wedge-lock 20 will be drawn into locking relation with the bars 12 as soon as they have been shifted to the desired point and said spring will hold the wedge-member 20 in locking relation with the bars 12 to retain the same in their shifted position. The cam 23 is so timed with respect to the cams 4 and 5 that it will permit the cams 4 and 5 to return to a starting position before the cam 23 raises the wedge-lock 20 to free the bars 12 and permit them to be shifted to the right by the spring 17. In the interval in which the bars 12 are locked the embroidering needle enters the fabric and completes a stitch. As soon as the stitch is completed and the cams 4 and 5 have been returned to a starting position, the cam 23 will raise the arm 49 and free the bars 12 and the spring 9 in the meantime will have returned the frame 2 to a starting position. The displacement of both bars 12 and 12' to the left will carry the pin 28 to the left in a horizontal line of movement providing the displacement of the bars 12 and 12' is equal. Such lateral movement of the pin 28 will cause a corresponding shifting movement of the frame 31 to the left. If the bar 12' is displaced to the left, thereby carrying the member 25 with it, the pin 28 will be moved obliquely upwardly to the left a distance corresponding to the movement imparted to the bar 12'. If the bar 12 is displaced, leaving the bar 12' in a position of rest, the member 26 will cause an oblique downward displacement of the pin 28 from right to left and a corresponding movement of the embroidering frame 31. If both of the bars 12 and 12' have been displaced an unequal distance from right to left the pin 28 will be moved obliquely upwardly or downwardly depending upon which of the bars has been shifted a greater distance. It will thus be seen that an almost indefinite number or variety of movement can be imparted to the frame 31 through the members 25 and 26 and it will also be obvious that by reason of the novel construction of the dropper head 45 an al-

most infinite number of combinations thereof can be effected to obtain any desired displacement of the bars 12 and 12'.

I claim:—

5 1. An embroidering machine comprising in combination, a jacquard mechanism including a frame and droppers, two longitudinally movable bars, means acting through said mechanism for raising selected droppers, 10 means for shifting said frame to effect displacement of said bars through actuated droppers, a fabric frame provided with a supporting pin, and crossed slotted members engaging said pin at their intersection and 15 each pivotally connected with its respective bar at one point and adjustably connected to the same bar at another point for transmitting movement of the bars to the frame.

20 2. An embroidering machine comprising in combination, a jacquard mechanism including a frame and droppers, two longitudinally movable bars, means acting through said mechanism to raise selected droppers, means for shifting said frame to effect displacement of said bars through actuated 25 droppers, a fabric frame provided with a supporting pin, and crossed slotted members engaging said pin at their intersection and pivotally connected with said bars for transmitting movement of the same to said 30 embroidering frame, said members having segmental slotted extensions adjustably connected with said bars.

3. An embroidering machine comprising 35 in combination, a fabric frame, a jacquard mechanism including a plurality of rigid droppers having heads of different sizes, the opposite ends of said droppers being selectively engaged by said jacquard, means acting through the jacquard to raise selected 40 droppers, a dropper frame provided with stops adapted for engagement with selected droppers, longitudinally movable bars provided with stops between which and said 45 first mentioned stops the selected droppers are engaged, means for actuating said dropper frame, means connecting said bars with said embroidering frame to transmit the movement of the bars thereto, and means 50 for locking said bars in their shifted positions.

4. An embroidering machine comprising in combination, longitudinally movable bars,

a jacquard mechanism, means associated with the jacquard mechanism for shifting 55 said bars, an embroidering frame, means connecting the embroidering frame with said bars to transmit movement thereof to said frame, a wedging locking device for said bars, and means for locking and unlocking said de- 60 vice operating in timed relation with respect to said jacquard mechanism.

5. An embroidering machine comprising in combination, longitudinally movable bars, a jacquard mechanism, means associated 65 with the jacquard mechanism for shifting said bars, an embroidering frame, means connecting the embroidering frame with said bars to transmit movement thereof to said frame, a friction locking device for said bars, 70 and means for locking and unlocking said device operating in timed relation with respect to said jacquard mechanism.

6. An embroidering machine comprising in combination, longitudinally movable bars, 75 a jacquard mechanism, means associated with the jacquard mechanism for shifting the bars, an embroidering frame, means connecting the embroidering frame with said bars to transmit movement thereof to said 80 frame, a locking device for said bars comprising an intermediate wedge shaped member and retaining members, a movable wedge shaped member cooperating with said bars and intermediate member, and means for 85 locking and unlocking said device and operating in timed relation with respect to said jacquard mechanism.

7. An embroidering machine comprising in combination, longitudinally movable bars, 90 jacquard mechanism and means for imparting variable shifting movement to said bars, crossed slotted members each pivotally connected with its respective bar at one point and adjustably connected to the same bar at 95 another point, and an embroidering frame provided with a supporting pin engaging the slotted member at the point of intersection thereof whereby variable movement of said bars is imparted to said frame. 100

In testimony whereof I have affixed my signature in presence of two witnesses.

CHARLES GEORGES.

Witnesses:

DEAN B. MASON,
M. B. KINS.