

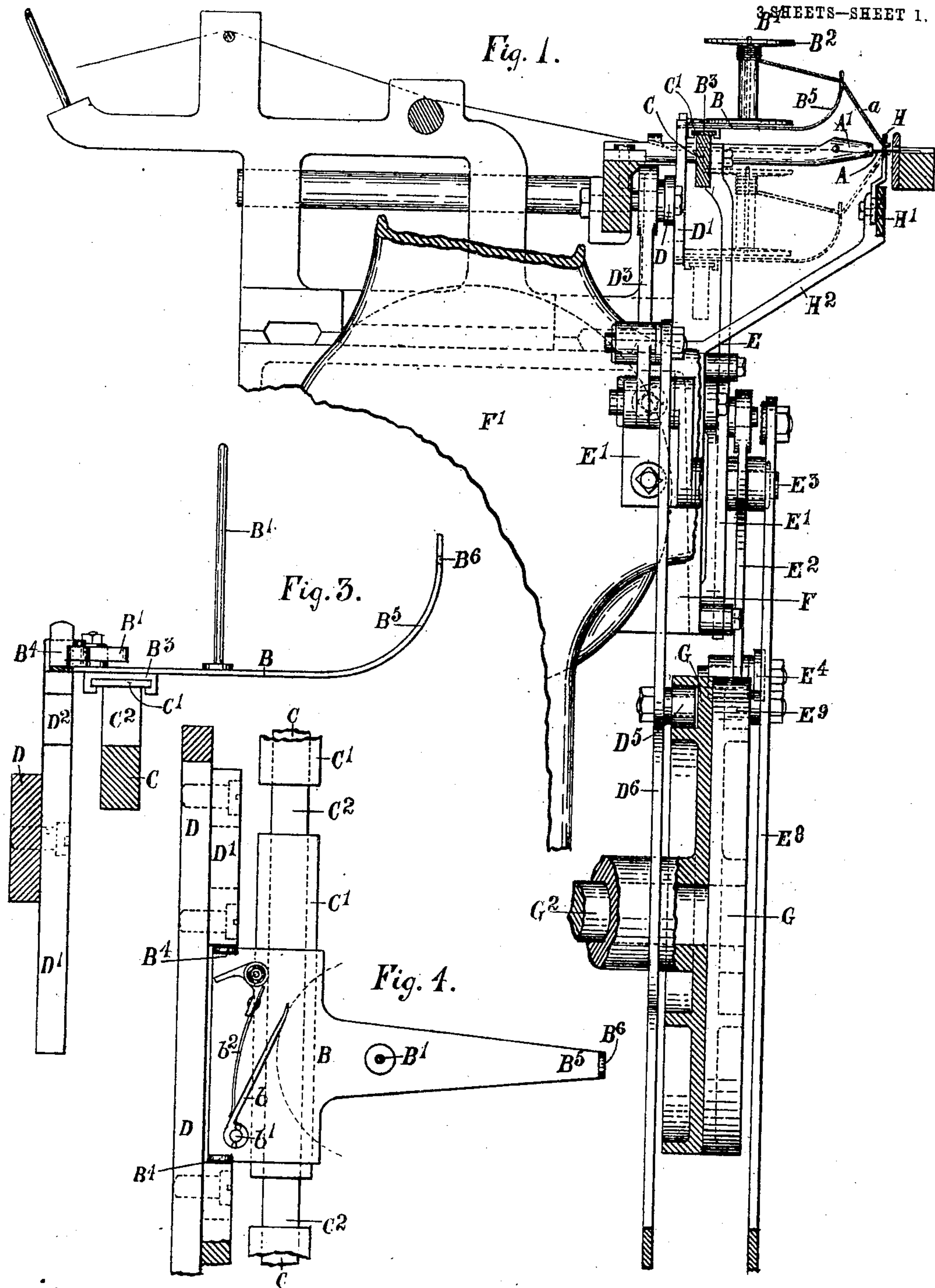
No. 795,415.

PATENTED JULY 25, 1905.

F. J. PERRY.
MULTIPLE EMBROIDERING MACHINE.

APPLICATION FILED DEC. 18, 1903.

3 SHEETS—SHEET 1.



Witnesses
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Thomas Durant

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Frederick J. Perry.
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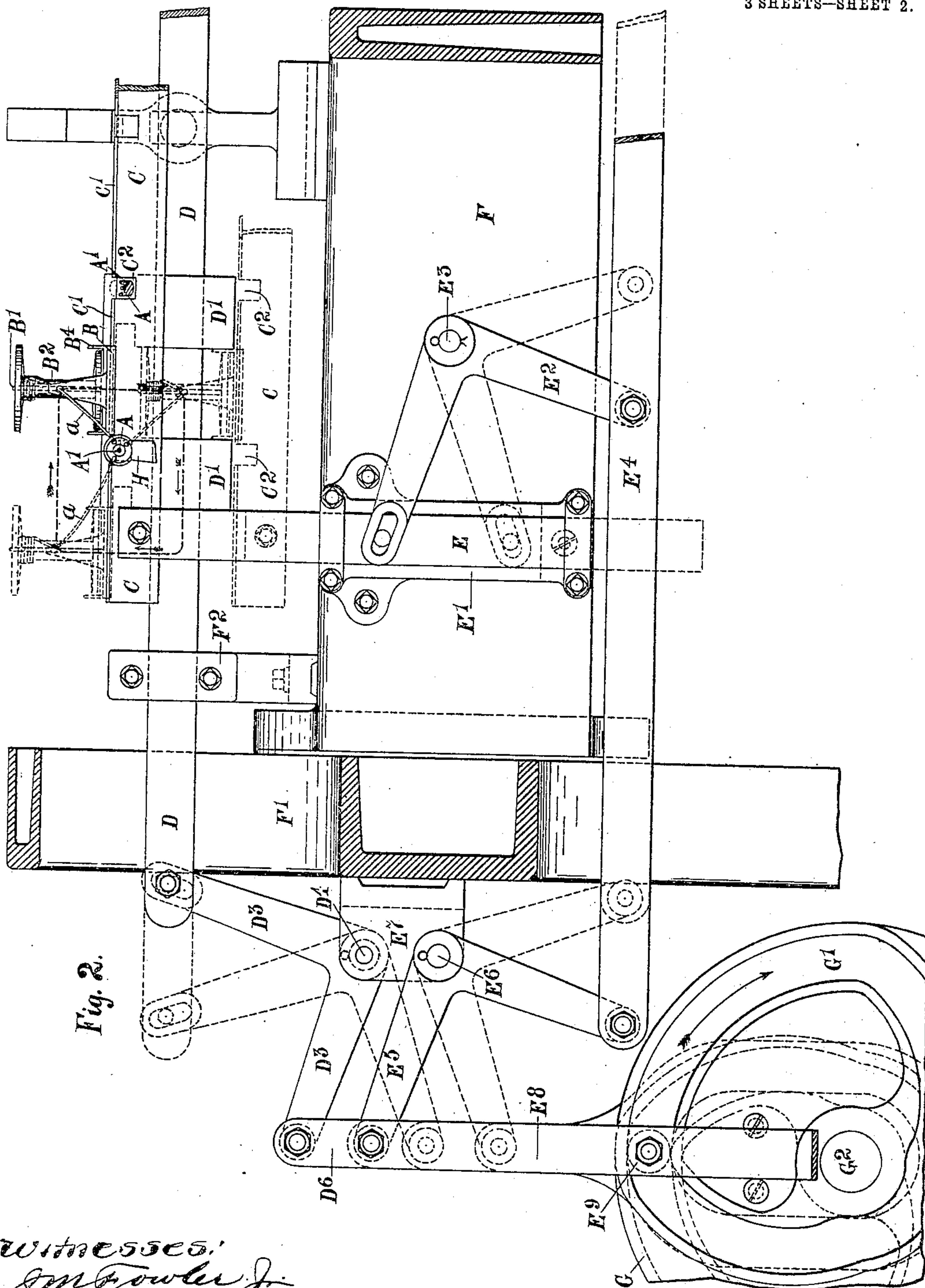


Fig. 2.

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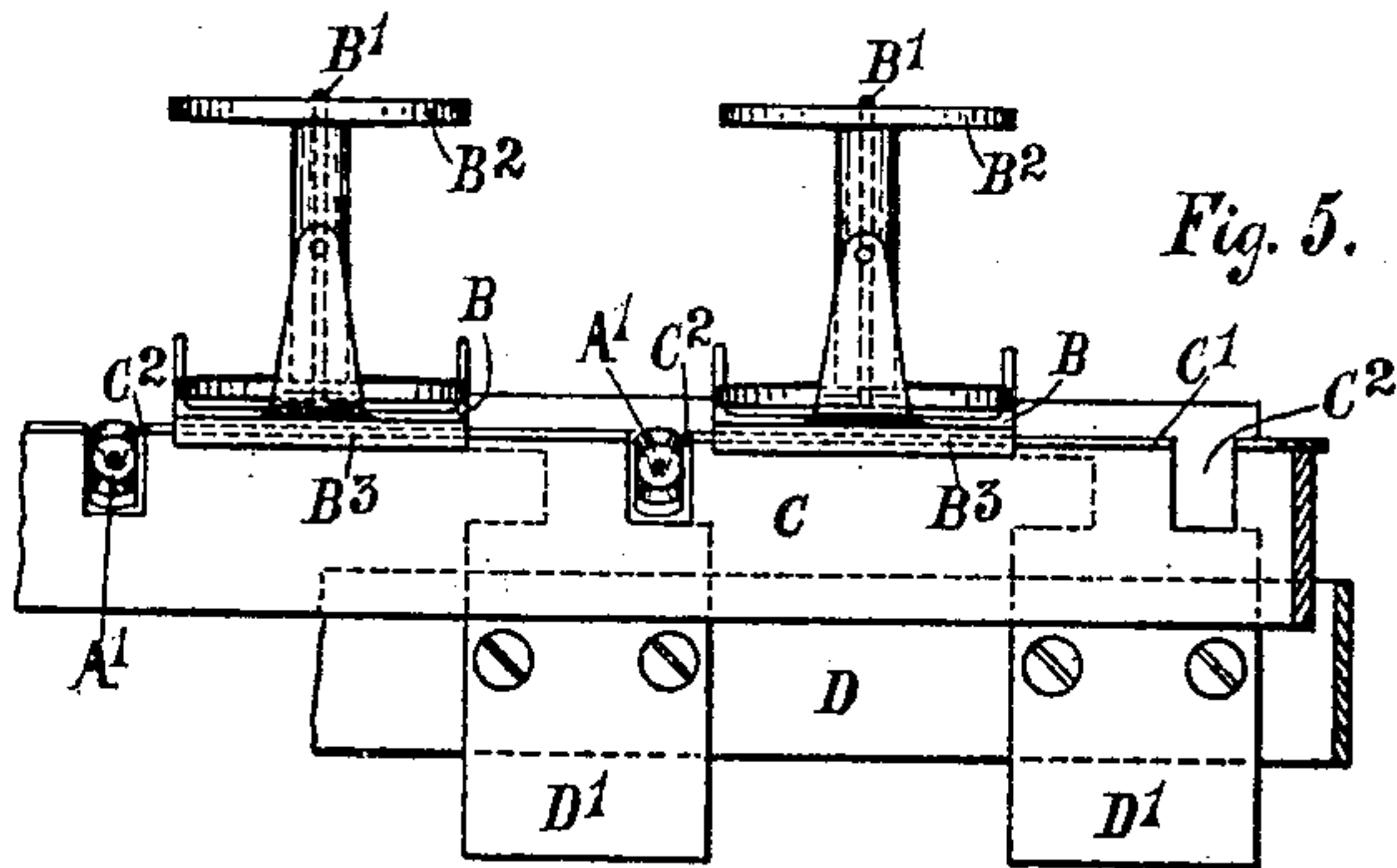


Fig. 5.

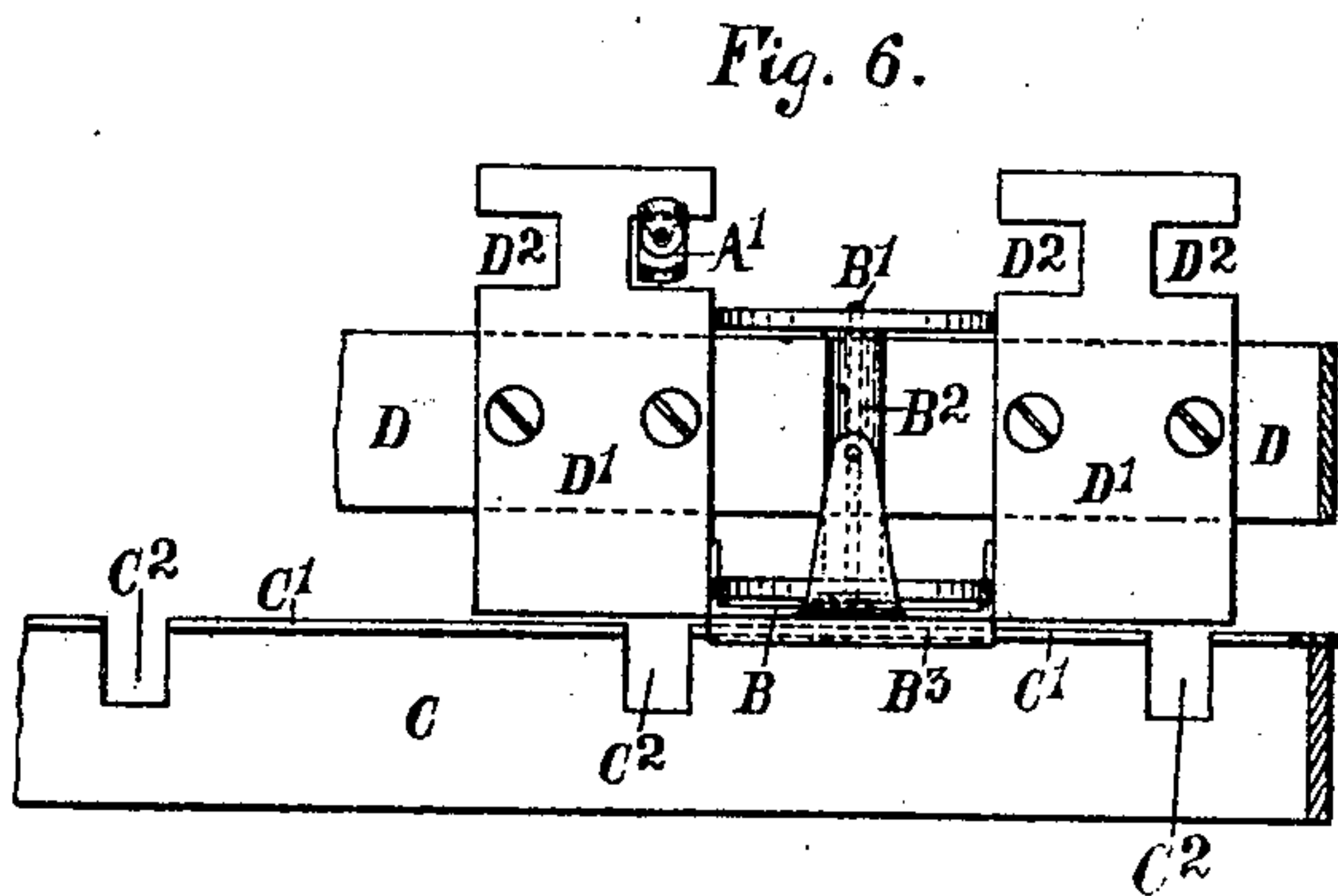


Fig. 6.

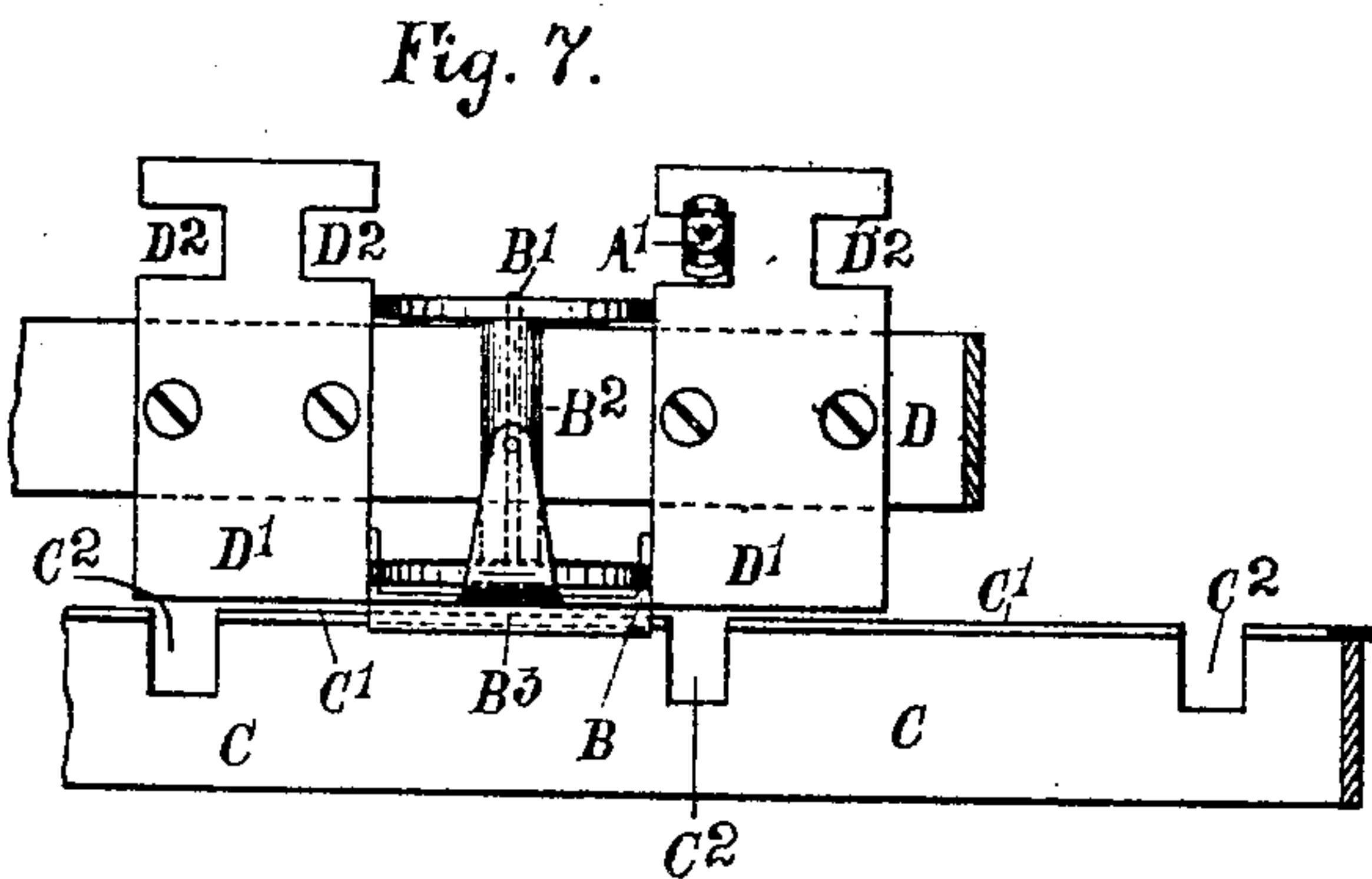


Fig. 7.

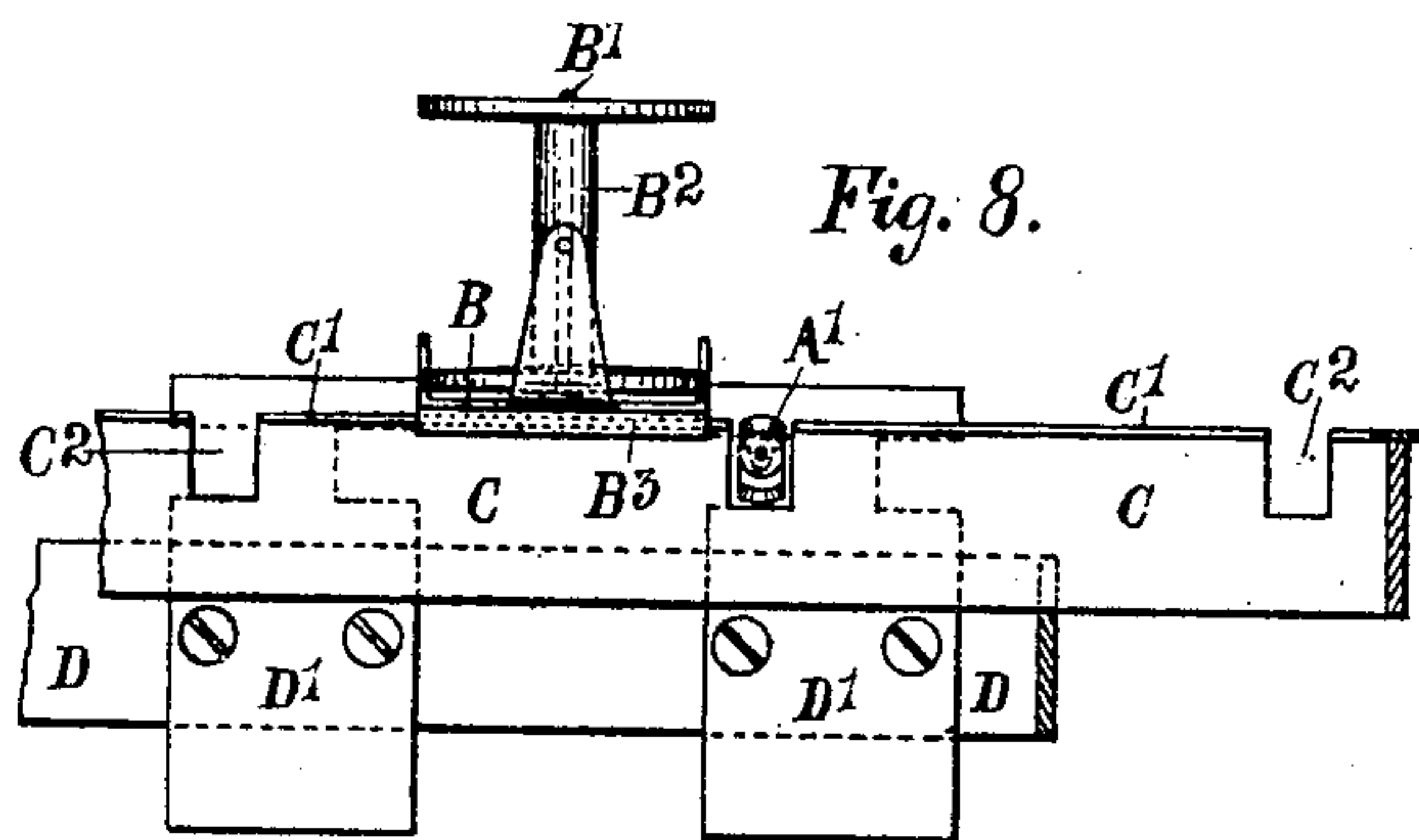


Fig. 8.

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UNITED STATES PATENT OFFICE.

FREDERICK JAMES PERRY, OF NOTTINGHAM, ENGLAND.

MULTIPLE EMBROIDERING-MACHINE.

No. 795,415.

Specification of Letters Patent.

Patented July 25, 1905.

Application filed December 18, 1903. Serial No. 185,728.

To all whom it may concern:

Be it known that I, FREDERICK JAMES PERRY, a subject of the King of Great Britain, and a resident of Nottingham, England, have invented certain new and useful Improvements in Multiple Embroidering-Machines, of which the following is a specification.

This invention relates to multiple embroidering-machines, and refers more particularly to improvements in the cording apparatus employed in such machines for the purpose of laying an additional cord or ornamental thread round each needle-thread, which cords are thus secured by the needle-threads to the fabric in the process of embroidering.

The object of the present invention is to provide improved means for moving the spools on which the additional cords or threads are carried, together with the guides for laying such threads in the required position round the respective needles without rotating said spools about their own axes, so that the cords carried thereby are not twisted. The improved means employed for this purpose also obviate the use of gear-wheels which are ordinarily used.

Referring to the drawings, Figure 1 is a sectional side elevation, and Fig. 2 an elevation looking from the rear of the machine, showing reel-carrier and guide-operating mechanism constructed according to my invention. Fig. 3 is an elevation, and Fig. 4 a plan, of a reel-carrier and cord-guide and the mechanism directly connected therewith. Figs. 5 to 8, inclusive, are elevations showing a reel-carrier and its operating mechanism in different positions. Figs. 3 to 8, inclusive, are drawn to a larger scale than the remaining views.

Like letters indicate like parts throughout the drawings.

According to this invention in connection with each needle A and its attendant mechanism (see Figs. 1 and 2) is a reel-carrier B, provided with a vertical pin B¹, on which the reel B² for carrying the additional cord or thread *a* is mounted.

The whole of the reel-carriers B are carried on a common longitudinal bar C, situated on the under side of the needle-bars A'. This bar C has a vertical reciprocating motion and is provided with gaps C² (see Figs. 2 to 8) in its upper edge to admit the needle-bars A' when it is raised into its upper position. (Shown in Fig. 2.) Between the gaps C² the bar C is provided with members C', which form lon-

gitudinal guideways on its upper edge, and each reel-carrier B is provided with a clip B³ on its under side (more clearly shown in Fig. 3) to fit on said members C'. The reel-carriers B may be moved along the said members C' and also past the gaps C² from one member to another both when the bar C is in its upper position (shown in Fig. 5) and also when in its lower position. (Shown in Fig. 6.) In the former cases the reel-carriers B pass above their respective needle-bars A' and in the latter case they pass below them. On the inner side of the bar C is a second longitudinal bar D, (see Figs. 1 and 2,) which is provided with a series of vertical members D'—that is, one between each of the reel-carriers B, and the rear ends of each of the latter work between two of said members D'. These members D' form vertical guides for the reel-carriers B, and the latter are provided with parts B⁴, (see Figs. 3 and 4,) which form surfaces to work on said guides, said parts B⁴ being of sufficient length to bridge the gaps D², (shown more clearly in Figs. 6 and 7,) which are formed in the sides of the members D' to admit of their vertical guiding-surfaces being moved past the needle-bars A', carrying the reel-carriers B with them.

The bar C in moving vertically up and down takes the whole of the reel-carriers B with it, while the bar D, together with its members D', is reciprocated longitudinally, so as to move the reel-carriers B alternately from one side of their respective needle-bars to the other, and by the combined action of these two rectilinear movements the reel-carriers B are each moved round its corresponding needle-bar A'. The angle of the reels relatively to a fixed plane remains constant. For example, the reel-carriers B, as shown in Fig. 5, has just been moved by the action of the bar D and members D' from left to right and has passed above the needle-bar A'. It is now lowered into the position shown in Fig. 6 by lowering the bar C, and the latter remains in this position while the bar D moves the reel-carriers B along said bar C to the left of the needle-bar A' into the position shown in Fig. 7, passing below the latter this time. The bar C now rises and returns the reel-carriers to a position above and on the left of the needle-bar A', and the cycle of operation described is again repeated.

The bar C is carried by vertical bars E, (see Figs. 1 and 2,) working in guideways E', attached to the rail F of the machine, while the

bar D is carried in guideways formed in brackets F^2 , (see Fig. 2,) secured on said rail.

The bar C is actuated by the following mechanism: The vertical bars E, (only one of which is shown,) which carry the bar C, are each connected by a bell-crank lever E^2 to a common longitudinal bar E^1 , said levers E^2 being pivoted at E^3 to the rail F of the machine. The end of the bar E^1 is connected to a link E^4 (shown more clearly in Fig. 2) by a bell-crank lever E^5 , pivoted at E^6 to a bracket E^7 , secured to the end standard F' of the machine. The link E^4 is provided with an antifriction-roller E^9 , engaging in a cam-race G' , formed in one side of a box-cam G, which latter is carried on a shaft G^2 , situated at the end of the machine. The link E^4 is continued past the cam G, and its lower end is connected to a bell-crank lever for operating a bar corresponding to C in connection with the lower tier of needles. The end of the bar D is connected to a second link D^6 by a bell-crank lever D^3 , pivoted at D^4 to the beforementioned bracket E^7 . The link D^6 is provided with an antifriction-roller D^5 , (see Fig. 1,) engaging in a cam-race G^3 on the reverse side of the box-cam G. This link D^6 may also be continued past the cam G and its lower end connected to a bell-crank lever for operating a bar corresponding to D in connection with the lower tier of needles.

The guide for the additional cord or thread is formed by an extension B^5 of the reel-carrier B, (see Figs. 1, 3, and 4,) having an eye B^6 for the passage of the additional cord α . In this case the guide is not carried close up to the fabric; but a fixed device H (see Fig. 1) is provided in connection with each guide, and said device is situated close to the fabric and is provided with a concentric opening through which the cord α is carried and round which it can move.

The whole of the devices H may be secured to a bar H' , carried by brackets H^2 , secured to the rail F.

A tension device is provided for each reel-carrier B, comprising a finger or arm b , (see Figs. 3 and 4,) pivoted to the reel-carrier at b' , and a spring b^2 to hold the free end of the arm b on the lower flange of the reel B^2 .

What I claim as my invention, and desire to secure by Letters Patent, is—

1. In an embroidering-machine, the combination of a series of reel-carriers, two sets of members to engage said carriers, two bars to which the sets of members are attached, and means for alternately actuating said bars so as to move the reel-carriers round their respective needle-bars through the intermediary of the members on said bars, substantially as described.

2. In an embroidering-machine, the combination of a series of reel-carriers, a longitudinal bar, members on said bar forming guideways for the reel-carriers, a second longitu-

dinal bar, members on said bar forming guideways for the reel-carriers at right angles to the other set, and means for reciprocating the two bars alternately one at right angles to the other so as to move the reel-carriers round their respective needle-bars through the intermediary of the members on said bars, substantially as described.

3. In an embroidering-machine, the combination of a series of reel-carriers, a longitudinal bar with gaps, members on said bar forming horizontal guideways for the reel-carriers clips on said reel-carriers to engage said members, a second longitudinal bar, members on said bar with gaps forming vertical guideways for the reel-carriers, parts on the latter to engage said vertical guideways, means for carrying the longitudinal bars, and means for reciprocating the first bar vertically and the second bar longitudinally so as to move the reel-carriers round their respective needle-bars through the intermediary of the members on said bars, substantially as described.

4. In an embroidering-machine, the combination of a series of reel-carriers, a guide on each reel-carrier, a longitudinal bar with gaps, members on said bar forming horizontal guideways for the reel-carriers, clips on the reel-carriers to engage said guideways, a second longitudinal bar, members on said bar with gaps forming vertical guideways for the reel-carriers, parts on the latter to engage the vertical guideways, vertical bars working in guideways for carrying the first longitudinal bar, guide-brackets for supporting the second longitudinal bar, and means for reciprocating the first bar vertically and the second bar longitudinally so as to move the reel-carriers round their respective needle-bars through the intermediary of the members on said bars, substantially as described.

5. In an embroidering-machine, the combination of a series of reel-carriers, a guide for each reel-carrier, a longitudinal bar with gaps, members on said bar forming horizontal guideways for the reel-carriers, clips on the reel-carriers to engage said guideways, a second longitudinal bar, members on said bar with gaps forming vertical guideways for the reel-carriers, parts on the latter to engage the vertical guideways, vertical bars working in guideways for carrying the first longitudinal bar, bell-crank levers connected to said vertical bars, a link for connecting said levers together, a cam for actuating said link so as to reciprocate the bar vertically, guide-brackets for supporting the second longitudinal bar, and a cam for reciprocating it longitudinally substantially as described.

6. In an embroidering-machine, the combination of a needle-bar, a reel-carrier, and two distinct reel-carrier-actuating devices, one for raising and lowering it and the other for moving it at right angles to the former said de-

vices acting alternately so as to move the reel-carrier round the needle-bar and at the same time retaining it in the same position relatively to a fixed plane; substantially as described.

7. In an embroidering-machine, the combination of a series of needle-bars, a series of reel-carriers, two distinct sets of reel-carrier-actuating devices, one for raising and lowering them and the other to move them at right angles to the former said devices acting alternately so as to move the reel-carriers round the needle-bars and at the same time retain them in the same position relatively to a fixed plane; substantially as described.

8. In an embroidering-machine, the combination with a series of reel-carriers, two bars one movable vertically and the other longitudinally, connections between said bars and reel-carriers, mechanism for moving said bars, whereby the reel-carriers will be lowered on

one side and elevated on the other side of their respective needle-bars; substantially as described.

9. In an embroidering-machine, the combination with a series of needle-bars, of a series of reel-carriers, the reels mounted vertically thereon, two distinct sets of reel-carrier-actuating devices, one for raising and lowering them and the other to move them at right angles to the former, said devices acting alternately so as to move the reel-carriers round the needle-bars and at the same time retain them in the same position relatively to a fixed plane; substantially as described.

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

FREDERICK JAMES PERRY.

Witnesses:

F. CECIL SHELDON,
J. B. JAMSON.