

No. 657,545.

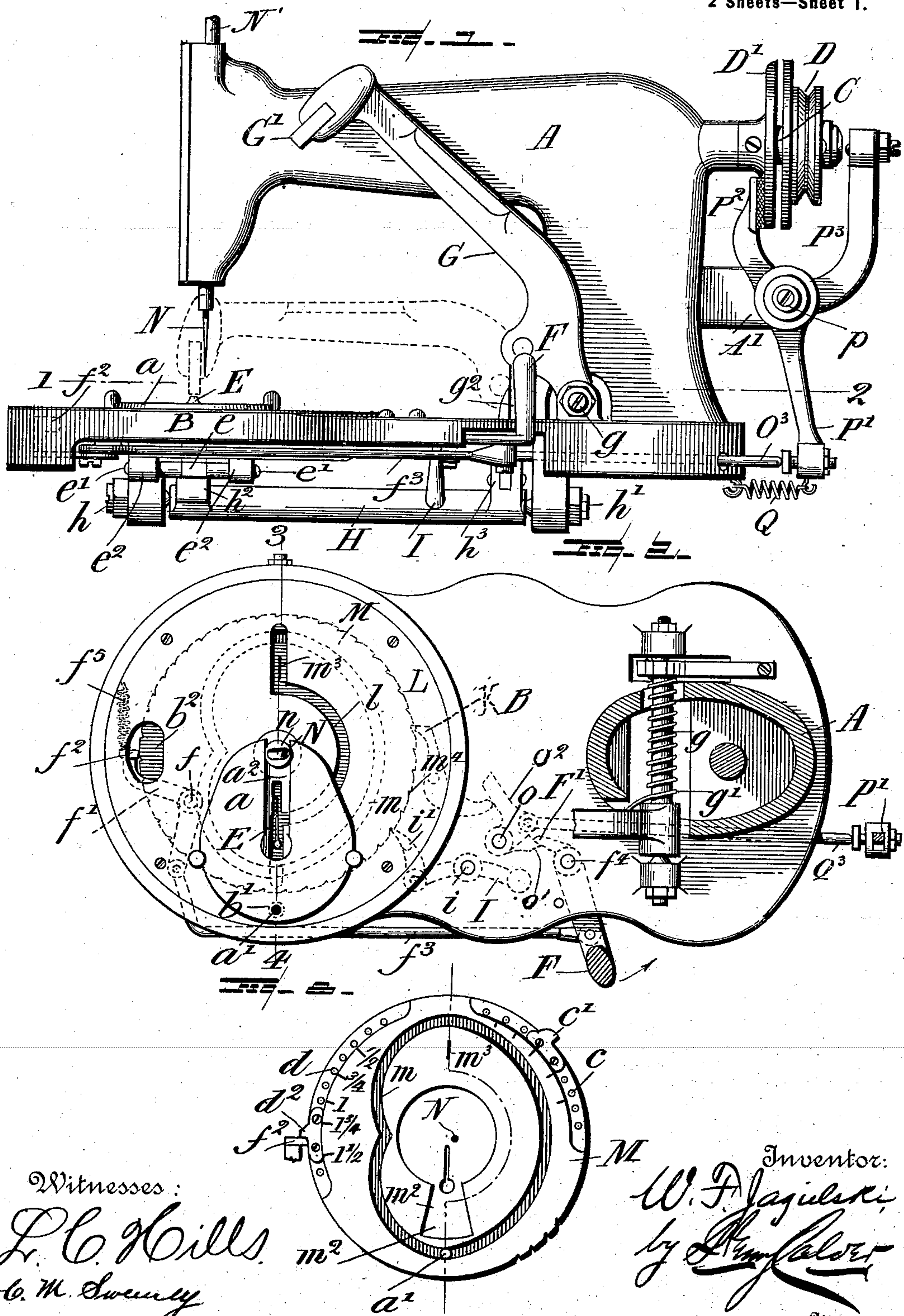
Patented Sept. 11, 1900.

W. F. JAGIELSKI.
BUTTONHOLE SEWING MACHINE.

(Application filed Dec. 23, 1899.)

(No, Model.)

2 Sheets—Sheet 1.



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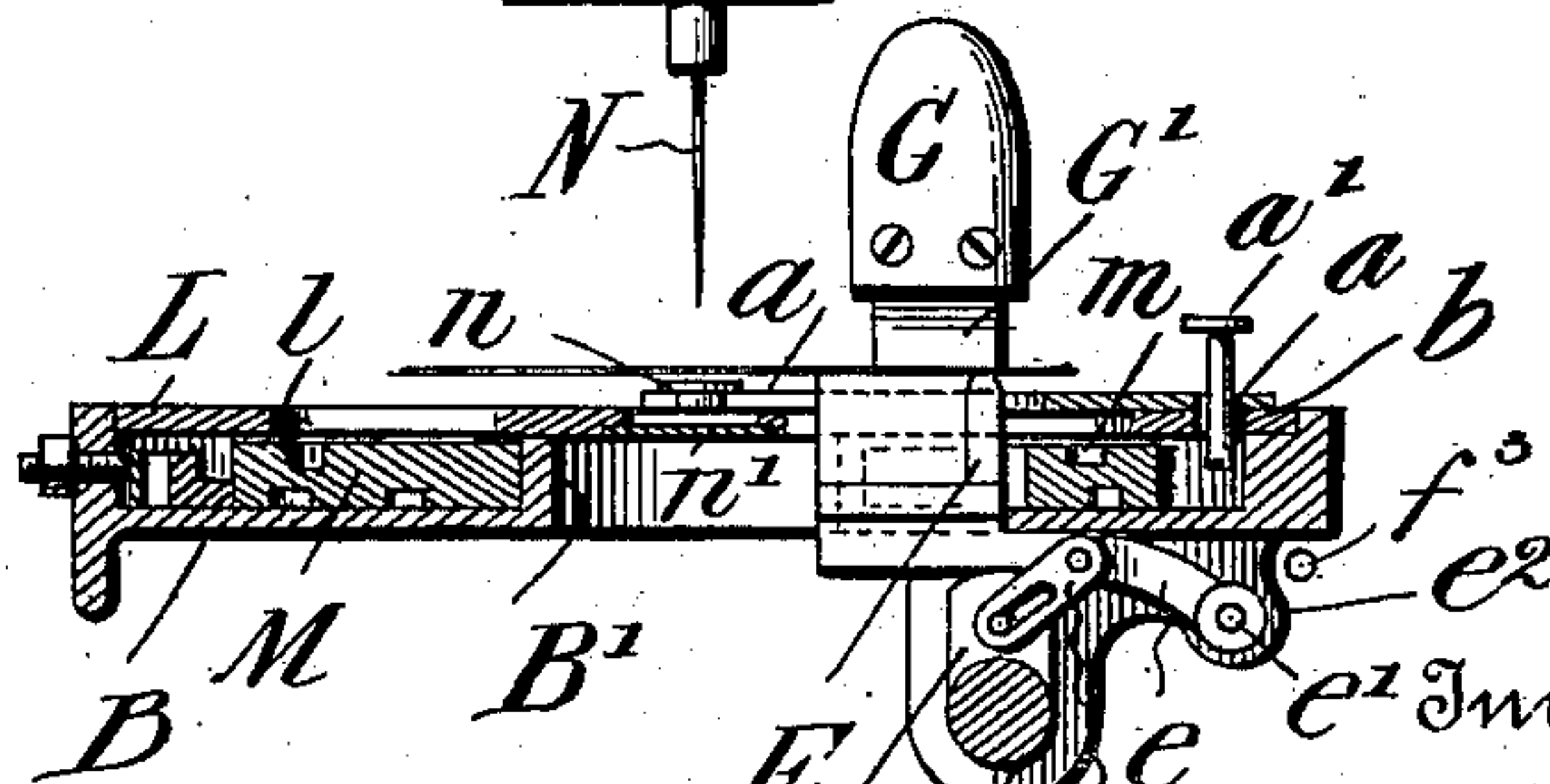
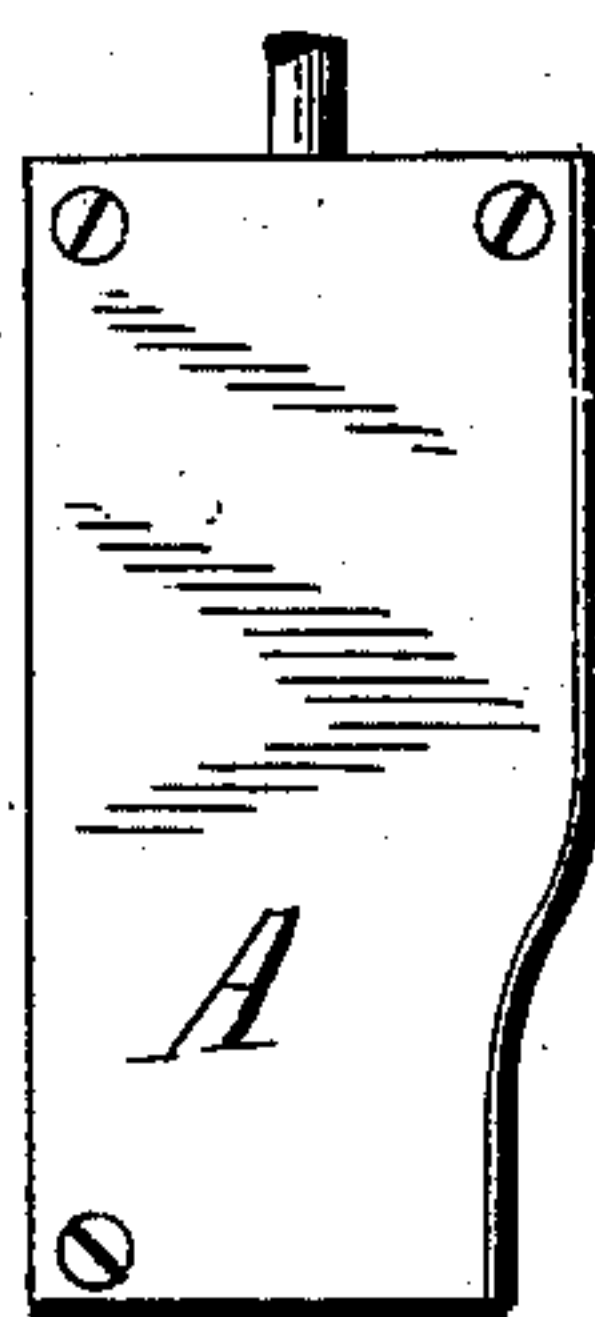
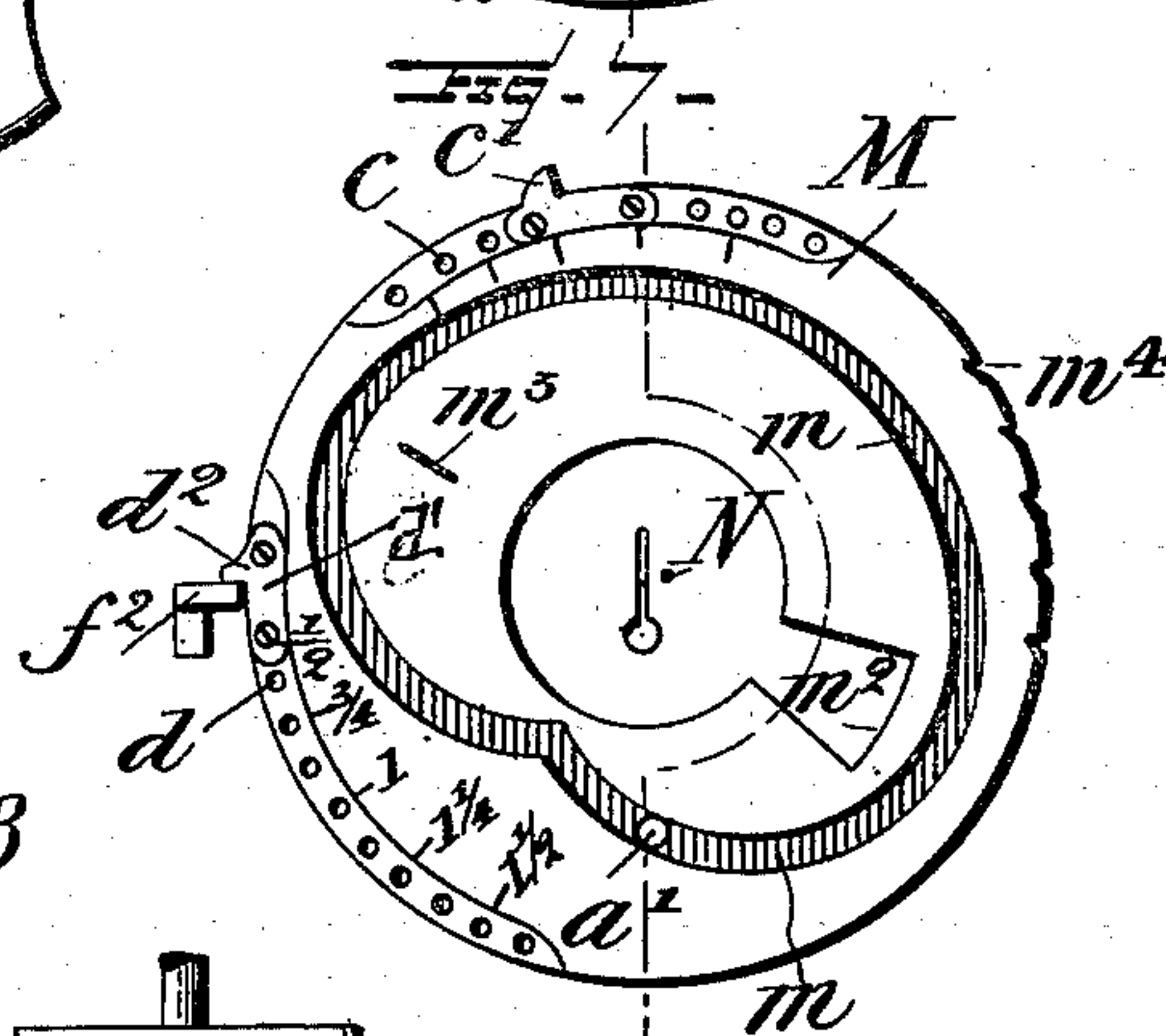
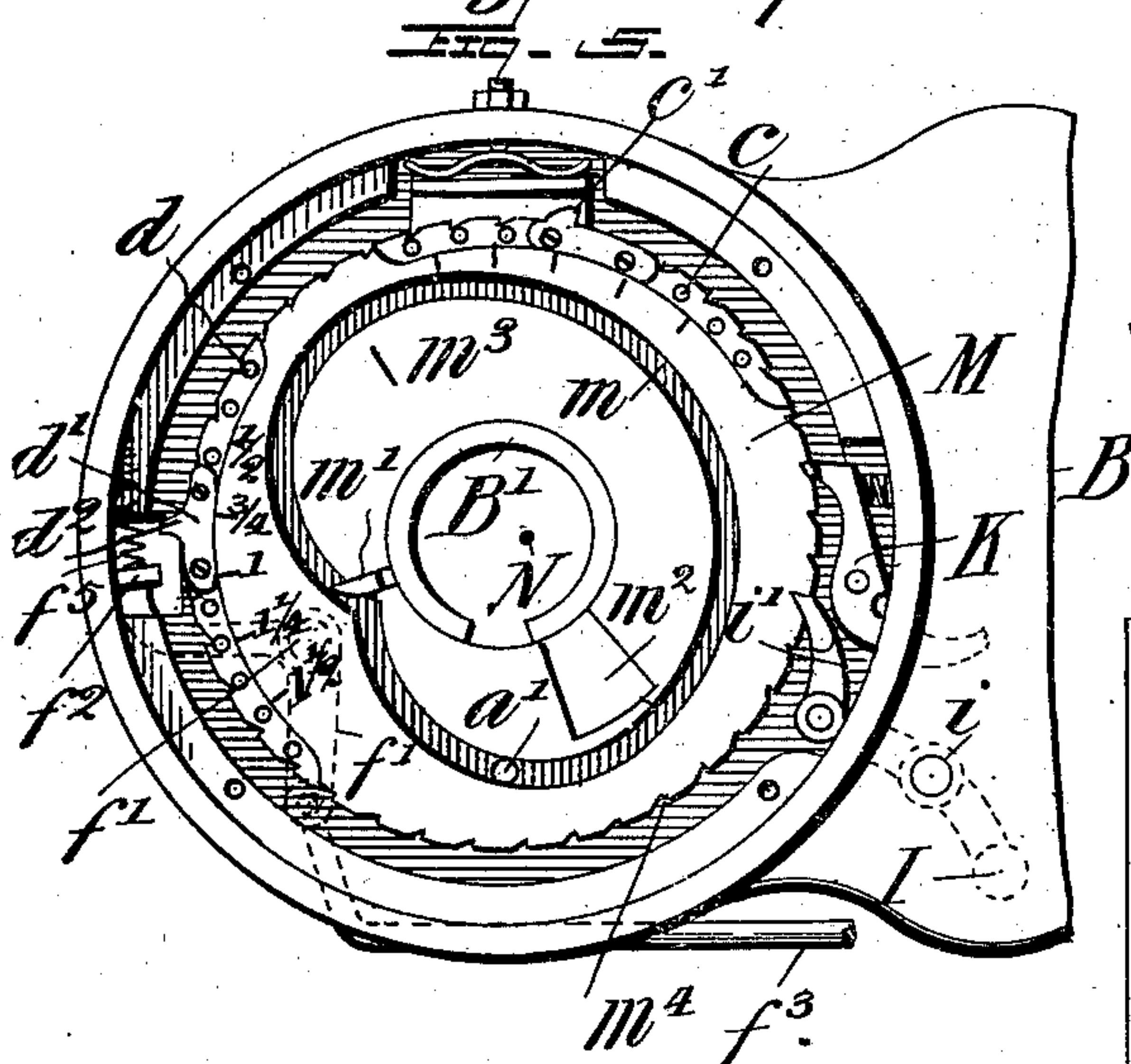
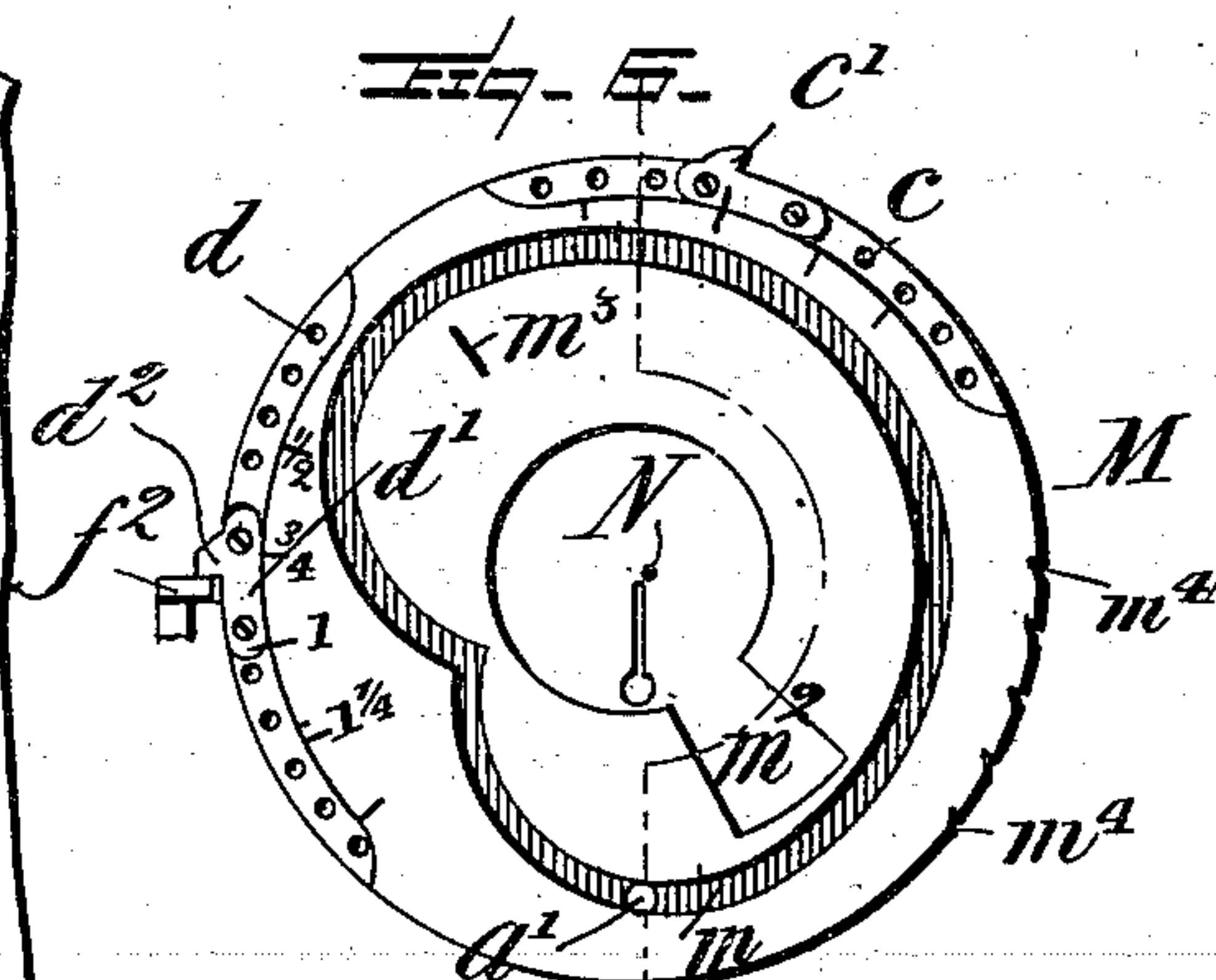
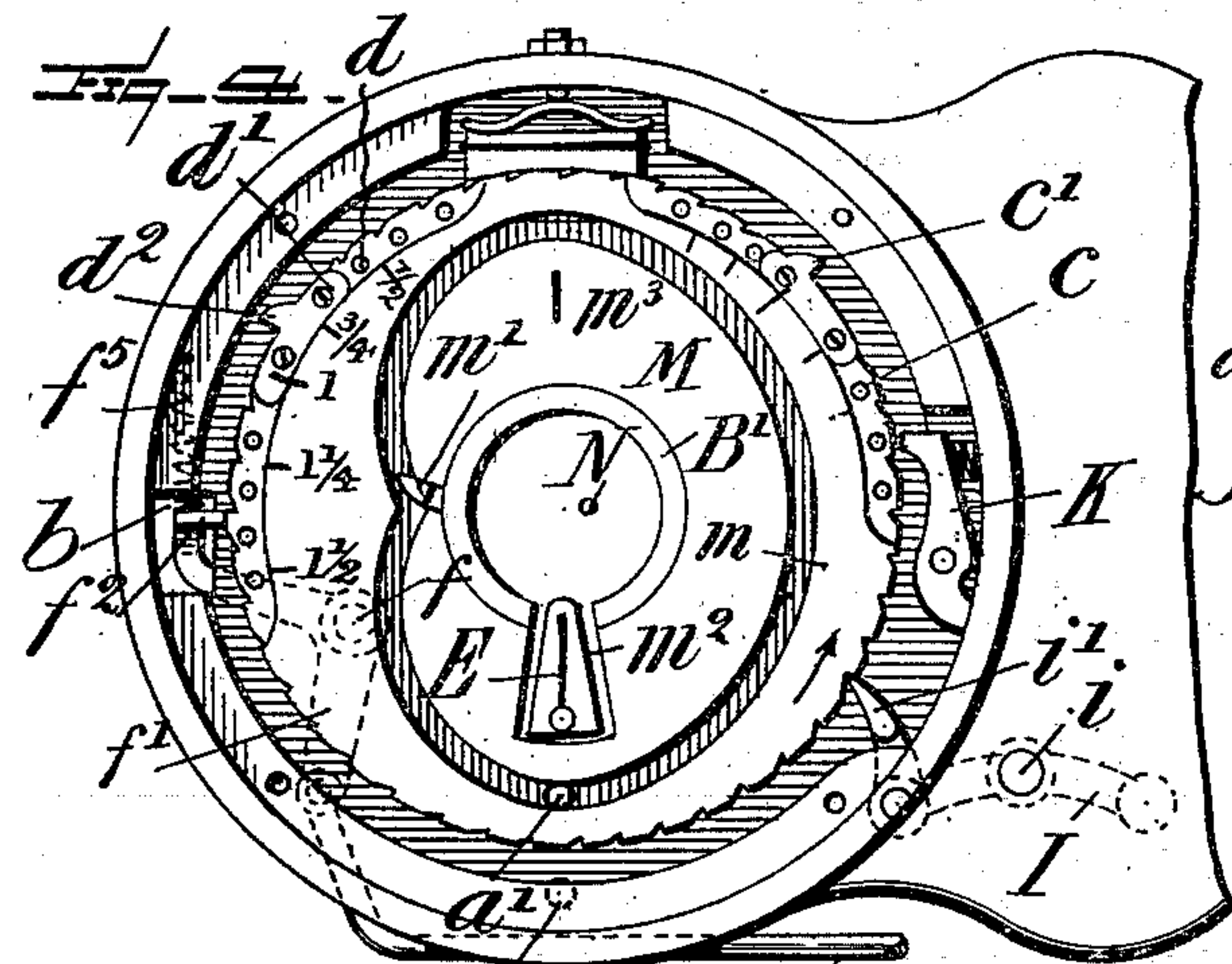
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BUTTONHOLE SEWING MACHINE.

(Application filed Dec. 23, 1899.)

(No Model.)

2 Sheets—Sheet 2.



Witnesses.

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Inventor:

W. F. Jagielski

by Henry Calver,
Attorney.

UNITED STATES PATENT OFFICE.

WLADISLAW FRANCISCUS JAGIELSKI, OF HANOVER, GERMANY, ASSIGNOR
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JERSEY.

BUTTONHOLE-SEWING MACHINE.

SPECIFICATION forming part of Letters Patent No. 657,545, dated September 11, 1900.

Application filed December 23, 1899. Serial No. 741,409. (No model.)

To all whom it may concern:

Be it known that I, WLADISLAW FRANCISCUS JAGIELSKI, a subject of the King of Prussia, German Emperor, and a resident of No. 2 Seilwinderstrasse, in the city of Hanover, German Empire, have invented certain new and useful Improvements in Buttonhole-Sewing Machines, of which the following is a specification.

This invention relates to a well-known type of buttonhole-sewing machine, and has for its object to provide means for stopping the feed-wheel of the machine at any desired point (according to the lengths of the buttonholes to be made) when the said feed-wheel is actuated by the attendant, prior to the commencement of a new buttonhole, to bring the clamp into proper sewing position.

In the accompanying drawings, Figure 1 is a side elevation of a well-known "Singer" buttonhole-sewing machine provided with my improvements. Fig. 2 is a plan view of the same with certain parts in horizontal section on line 1 2 of Fig. 1. Fig. 3 is a sectional front end view of the machine, the section being taken on line 3 4 of Fig. 2. Figs. 4 and 5 are partial plan views of the bed-plate of the machine with the cloth-plate and work-clamp removed to show some of the underlying mechanism. Fig. 6 is a plan view of the feed-wheel with the stopping device therefor properly adjusted for the length of buttonhole being made. Fig. 7 is a view similar to Fig. 6, but with the stopping device improperly adjusted, so that the sewing would commence about the middle of the straight part of the buttonhole; and Fig. 8 is a view similar to Fig. 6, but also showing the stopping device improperly adjusted, so that the sewing would commence before the buttonhole-slit arrived opposite the needle.

Referring to the drawings, A denotes the arm, and B the work-plate, of the machine, which is provided, in the upper portion of the arm, with the driving-shaft C, on which is loosely mounted a driving-pulley D, adjacent to a friction-disk and fly-wheel D', fixed to said shaft. The needle N is carried by the needle-bar N', which is reciprocated vertically and horizontally from the said driving-shaft in the usual manner, so that the needle can,

in coöperation with the loopers, (not shown,) form an overedge or buttonhole seam, comprising overedge and depth stitches.

The feed-wheel M is mounted within the bed-plate B upon a hollow stud or axle B', within which latter are arranged the loopers, (omitted from the drawings for simplicity of illustration.) The feed-wheel is provided with the usual groove *m* and dog-piece *m'* for actuating the pin *a'* of the clamp-plate *a*, and which pin *a'* projects from the lower surface of the clamp-plate, passes through the guide-slot *l* in the cloth-plate L, and enters the said driving-groove *m*. The feed-wheel is also provided upon its upper surface, near the rim, with a series of holes *c* and *d*. The holes *c* serve to fix upon the feed-wheel M a cam-piece *c'*, which operates at the proper time a spring-actuated lever K in order to uncouple, by means of a suitable coupling or stop-motion device operated by the said lever K, the loose driving-pulley D from the fly-wheel D', fixed to the main shaft C, and thus stop the machine. This coupling and uncoupling or stop and start motion device will be described later on. The other series of holes *d* serve for attaching a stop-plate *d'*, having a shoulder or nose *d²*. In the path of this nose *d²* is an upwardly-projecting arm *f²*, passing through a suitable slot *b* in the bed-plate B and carried by or formed integral with one arm of a bell-crank lever *f'*, pivoted to the bed-plate at *f*. The other arm of the lever *f'* is connected, by means of a rod *f³*, to a hand-lever F, pivoted to the bed-plate at *f⁴*. By turning this lever F in the direction of the arrow shown in Fig. 2 the bent lever F' may be oscillated against the tension of a suitable spring *f⁵* and the arm *f²* be thus brought out of the path of the nose *d²* of the stop-plate *d'*, so that the feed-wheel M will now be free to be rotated by the usual driving-gear.

Upon the bed-plate B is pivoted by a shaft *g* a hand-lever G, the free end of which carries an exchangeable cutting-block G', serving as a counter piece or resistance for the cutter E. The said cutter E is carried by an arm *e* of a rock-shaft *e'*, supported by lugs *e²*. The lever G is normally held lifted, as denoted by full lines in Fig. 1, by a torsional spring *g'*, mounted on the shaft *g*. Beneath the bed-

plate between suitable pivot-screws h h' is mounted a rock-shaft H, having two arms h^2 and h^3 . The arm h^3 is connected with the hand-lever G by a link g^2 , while the arm h^2 projects underneath the cutter-carrying arm e and may be connected with the latter by a suitable slotted link e^3 . When the cutting device just described is at rest, the several parts are in the position shown in full lines in Fig. 1; but when the hand-lever G is depressed against the stress of its spring g' into the position shown by dotted lines in Fig. 1 the rock-shaft H will be oscillated and will, by means of its arm h^2 , lift the arm e and the cutter-blade E, respectively, until the latter and the cutting-block G' strike upon or against each other, as denoted in Fig. 3 and by dotted lines in Fig. 1. To permit the cutter-blade E to be lifted as described, the feed-wheel M is provided with a suitable recess or slot m^2 , while the clamp-plate a has a slot a^2 . Any cloth or fabric spread over the clamp-plate and clamped thereon will therefore be cut by the coöperation of the cutter E and block G' when the hand-lever G is forcibly swung down, provided the feed-wheel, cloth-plate, and clamp-plate are in such position that the recess m^2 , the straight portion of slot l , and the slot a^2 register or coincide.

The clamp-plate a is guided and secured to the cloth-plate L in the usual manner by the button n , slotted for the passage of the needle N and received in the slot a^2 of the clamp-plate. The said button n is carried or supported by the throat-plate n' , removably mounted in a suitable recess of the cloth-plate, so that a flush lower or bottom surface of the latter is secured.

For making and stitching a buttonhole, first the cam-piece c' and the stop-plate $d' d^2$ must be adjusted and fixed upon the feed-wheel M at the proper places corresponding to the desired length of the buttonholes to be made. In the example shown the cam c' and stop-plate $d' d^2$ are adjusted for buttonholes having a length of one inch. Then the cloth-plate L is to be attached to the bed-plate B and the feed-wheel M turned upon its axle by means of a hand-operated ratchet device until a mark m^3 of the feed-wheel M is visible in the straight portion of the slot l . (See Fig. 2.) The ratchet device may consist of a hand-lever I, pivoted to the bed-plate at i and carrying at one end a pawl i' , engaging suitable teeth m^4 , with which the rim of the feed-wheel is provided. As soon as the mark m^3 is visible in the straight portion of the slot l the recess m^2 of the feed-wheel is right under the other straight portion of the slot l and also right above the cutter-blade E. After the adjustment of the feed-wheel M the clamp-plate a is placed upon the cloth-plate by putting the said clamp with its slot a^2 upon the button n and by inserting the pin a' in the hole b' . This position of parts is shown in Fig. 2. The cloth or fabric to be provided with a buttonhole is then inserted into the

clamp and clamped therein in the usual manner, whereupon the required buttonhole is cut in the said fabric by forcibly swinging down the hand-lever G, so as to strike a cutting blow. After the buttonhole has been cut and the cutting device has returned into its position of rest the pin a' of the clamp-plate a is lifted out of the hole b' of the bed-plate B and inserted through the slot l into the groove m of the feed-wheel M, as indicated in Fig. 4. The feed-wheel M is then rotated in the direction of the arrow, Fig. 4, by means of the hand-operated lever and ratchet device I $i' m^4$. By this rotation of the feed-wheel M while the sewing-machine proper remains at rest the clamp and the fabric confined therein are moved toward the center of the feed-wheel in order to present the previously-cut button-hole slit in the proper position relative to the needle. This proper position for commencing the stitching is attained as soon as the stop-plate $d' d^2$ strikes against the stop-lever f^2 , which latter prevents the feed-wheel M from any further rotation by the hand-operated ratchet device. This position of the parts of the stopping device is shown in Fig. 6, and they may be inspected through a hole b^2 in the cloth-plate. For, commencing the stitching, first the stop-lever arm f^2 is to be brought out of the path of the stop-plate $d' d^2$ and then the sewing-machine to be set in motion by coupling the pulley d with the driving-shaft C. The former operation is effected by moving the lever F in the direction of the arrow shown in Fig. 2, and the latter operation may be effected by actuating any suitable coupling device. In the example shown I have combined these two devices, so that when the lever F is moved to bring the stop-lever arm f^2 in its non-operative position—i. e., out of the path of the stop-plate $d' d^2$, as in Fig. 5—this movement of the said lever F will also operate the coupling or stop and start motion device of the sewing-machine. For this purpose the lever F is provided with an arm F' , which acts upon the arm o' of a bent lever o^2 , pivoted to the bed-plate at o . Attached to the lever e^2 is a sliding rod o^3 , mounted in a suitable bearing of the bed-plate and acting against the lower arm P' of the forked coupling-lever pivoted at p to a support A' of the arm A. The coupling-lever is under the influence of a spring Q, which tends, by turning the said lever on its pivot p , to press the friction or brake arm P^2 of the said lever against the fly-wheel D', and thus arrest the motion of the latter and of the shaft C, to which the said fly-wheel is firmly fixed. When the lever F is moved in the direction denoted by the arrow in Fig. 2, the bent lever o^2 will be moved, and will in its turn push the sliding rod o^3 outward against the coupling-lever, and will move said lever on its pivot p against the stress of the spring Q. By this movement of said lever the brake-arm P^2 is released from the fly-wheel D', while the arm P^3 forces the loose pulley D

against the said fly-wheel D' in order to couple the said pulley with the shaft C. This coupling or uncoupling mechanism is well known and needs, therefore, no detailed description.

5 When the stitching of the buttonhole is completed and the buttonhole has been barred, the cam c' acts upon the lever K, suitably connected with the lever o^2 , which latter has till then prevented the coupling device above
10 described, as well as the stop-lever $f' f^2$, from returning to their respective original positions; but as soon as the lever K has been operated by the cam c' the lever o^2 will be operated, thus moving the rod o^2 , and thereby
15 uncoupling the loose driving-pulley D from the fly-wheel D' to stop the machine, while the movement of the lever F F' by the lever o^2 permits the stop-lever f' , by the action of the spring f^5 , to be returned from the position shown in Fig. 5 to the position shown in
20 Fig. 2. After the work has been removed from or shifted in the clamp the above-described operations may be repeated in the same order when it is desired to cut and stitch
25 another buttonhole.

It will thus be understood that by the use of my adjustable device for stopping the feed-wheel M when the same is being rotated by the lever and ratchet device I $i' m^4$ the said
30 feed-wheel can be brought to any desired position for starting the stitching operation required for any particular length of buttonhole without special care on the part of the attendant, the stop-plate $d' d^2$, which is to engage the stop-arm f^2 , being set in place on the
35 feed-wheel M for any desired length of buttonhole. It will also be understood that the adjustable cam or projection c' will be so placed on the feed-wheel as to stop the machine at the proper time, according to the
40 length of the buttonhole being stitched.

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

45 1. In a buttonhole-sewing machine, the combination with the work-clamp and the feed-wheel for moving said clamp, of a hand-operated device for rotating said wheel, a stopping device for arresting the movement
50 imparted to said wheel by said hand-operated device, one part of said stopping device rotating with said wheel and being adjustable thereon, and the other part of said stopping device being movable out of the way of said
55 rotating part.

2. In a buttonhole-sewing machine, the combination with the work-clamp and the feed-wheel for moving said clamp, of a hand-operated device for rotating said feed-wheel,
60 a stopping device for arresting the movement imparted to the said wheel by the said hand-operated device, and a machine stop and start motion device connected with the said stopping device for said feed-wheel, so that when
65 the machine is started the stopping device will be thrown out of action to permit the said feed-wheel to rotate.

3. In a buttonhole-sewing machine, the combination with the work-clamp and the feed-wheel for moving said clamp, of a hand-
70 operated device for rotating said feed-wheel, a stopping device for arresting the movement imparted to said wheel by the said hand-operated device, and a machine stop and start motion device connected with the said stop-
75 ping device for said feed-wheel, so that when the machine is started the stopping device will be thrown out of action to permit the said feed-wheel to rotate, one part of said feed-wheel stopping device being carried by said
80 feed-wheel and being adjustable thereon to accommodate different-sized buttonholes.

4. In a buttonhole-sewing machine, the combination with the work-clamp, and the feed-wheel for moving said clamp, of a hand-
85 operated device for rotating said feed-wheel, a stopping device for arresting the movement imparted to the said feed-wheel by the said hand-operated device, and a machine stop and start motion device operated from said
90 feed-wheel, to stop the machine, and connected with said stopping device for the said feed-wheel; whereby when the stitching of a buttonhole has been completed the machine will
95 be stopped, and whereby also when the machine is started the stopping device for said feed-wheel will be thrown out of action to permit the said feed-wheel to rotate.

5. In a buttonhole-sewing machine, the combination with the work-clamp a , of the
100 feed-wheel M provided with the plate d' having a nose or projection d^2 , the lever f' having the arm f^2 movable into the path of the said nose or projection d^2 , a hand-operated device, as lever I, provided with a pawl i' ,
105 for rotating said feed-wheel, and means, as lever F and rod f^3 , for operating the said lever f' to remove the said arm f^2 from the path of the said nose or projection d^2 when it is desired that the feed-wheel should rotate to carry
110 the said nose or projection d^2 past the said arm f^2 .

6. In a buttonhole-sewing machine, the combination with the work-clamp, of the feed-
115 wheel M provided with the plate d' having a nose or projection d^2 , the lever f' having the arm f^2 movable into the path of the said nose or projection d^2 , a hand-operated device, as lever I provided with a pawl i' , for rotating
120 said feed-wheel, and means, as lever F and rod f^3 , for operating the said lever f' to remove the said arm f^2 from the path of the said nose or projection d^2 when it is desired that the feed-wheel should rotate to carry the said
125 nose or projection d^2 past the said arm f^2 , and a machine stop and start motion device actuated from said feed-wheel, said stop and start motion device being connected with said lever F.

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Witnesses:

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