

No. 752,794.

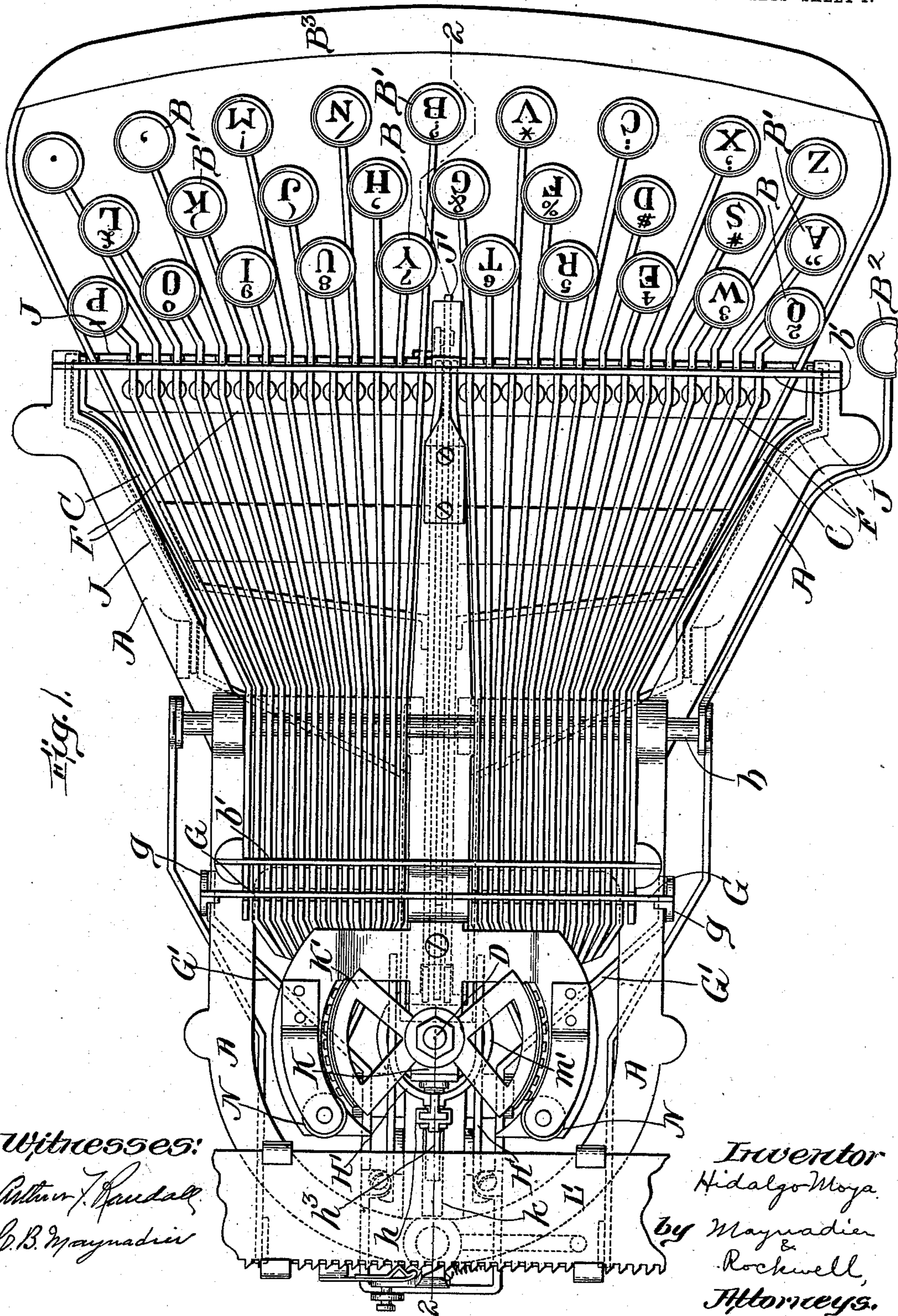
PATENTED FEB. 23, 1904.

H. MOYA.
TYPE WRITER.

APPLICATION FILED SEPT. 27, 1902.

NO MODEL.

6 SHEETS—SHEET 1.



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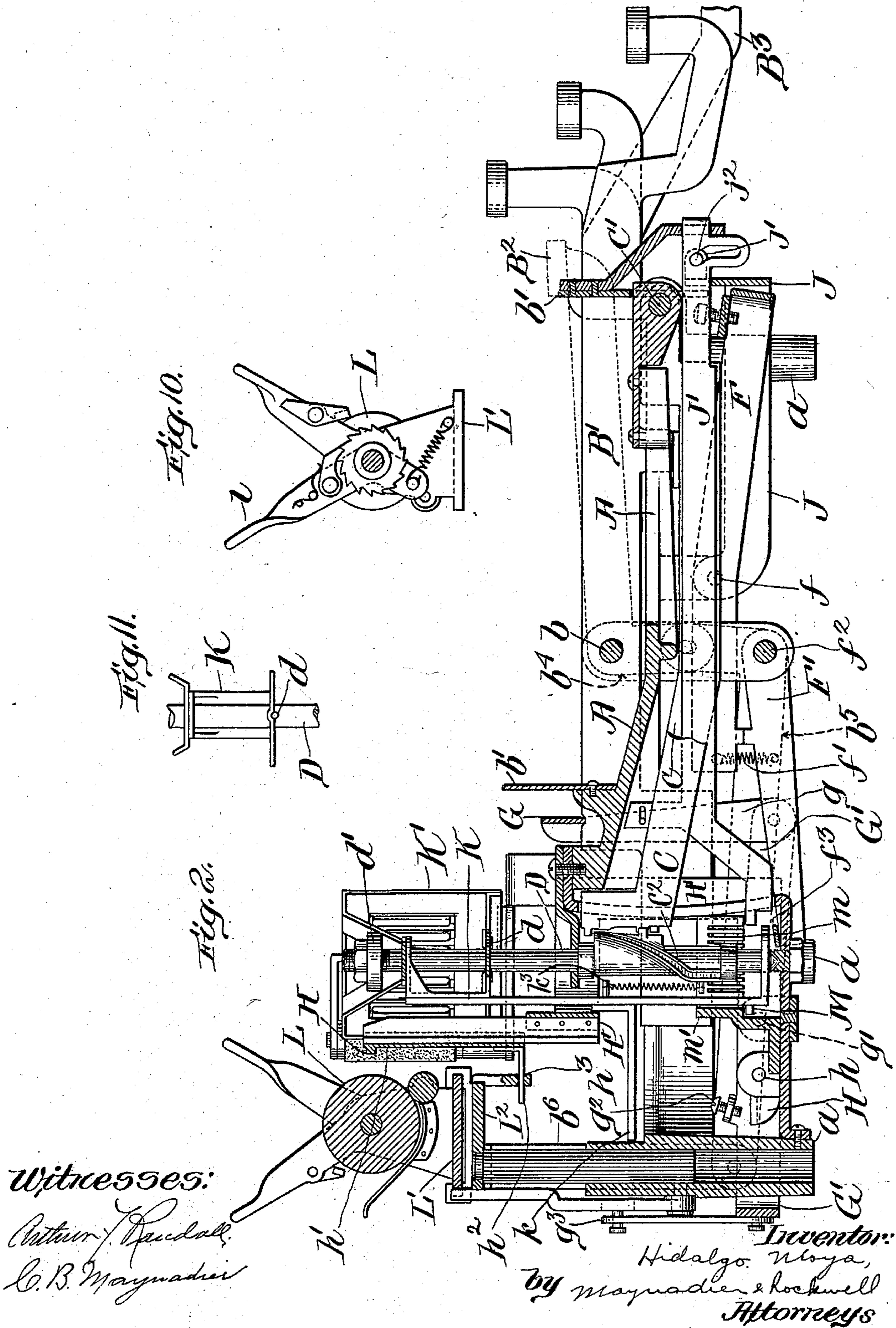
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6 SHEETS—SHEET 2.



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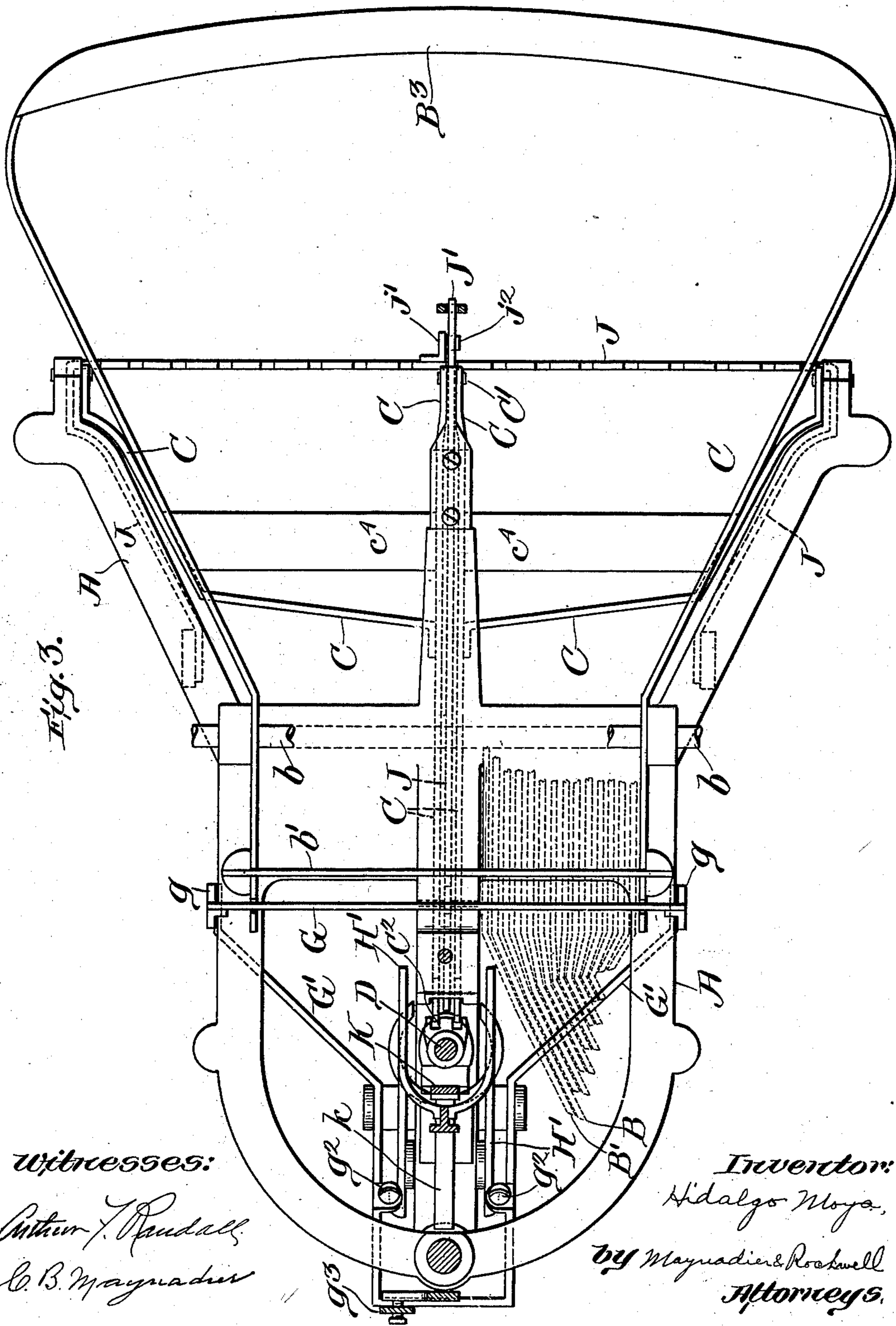
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6 SHEETS—SHEET 3.



Witnesses:

Arthur J. Randall
C. B. Maynard

Inventor:
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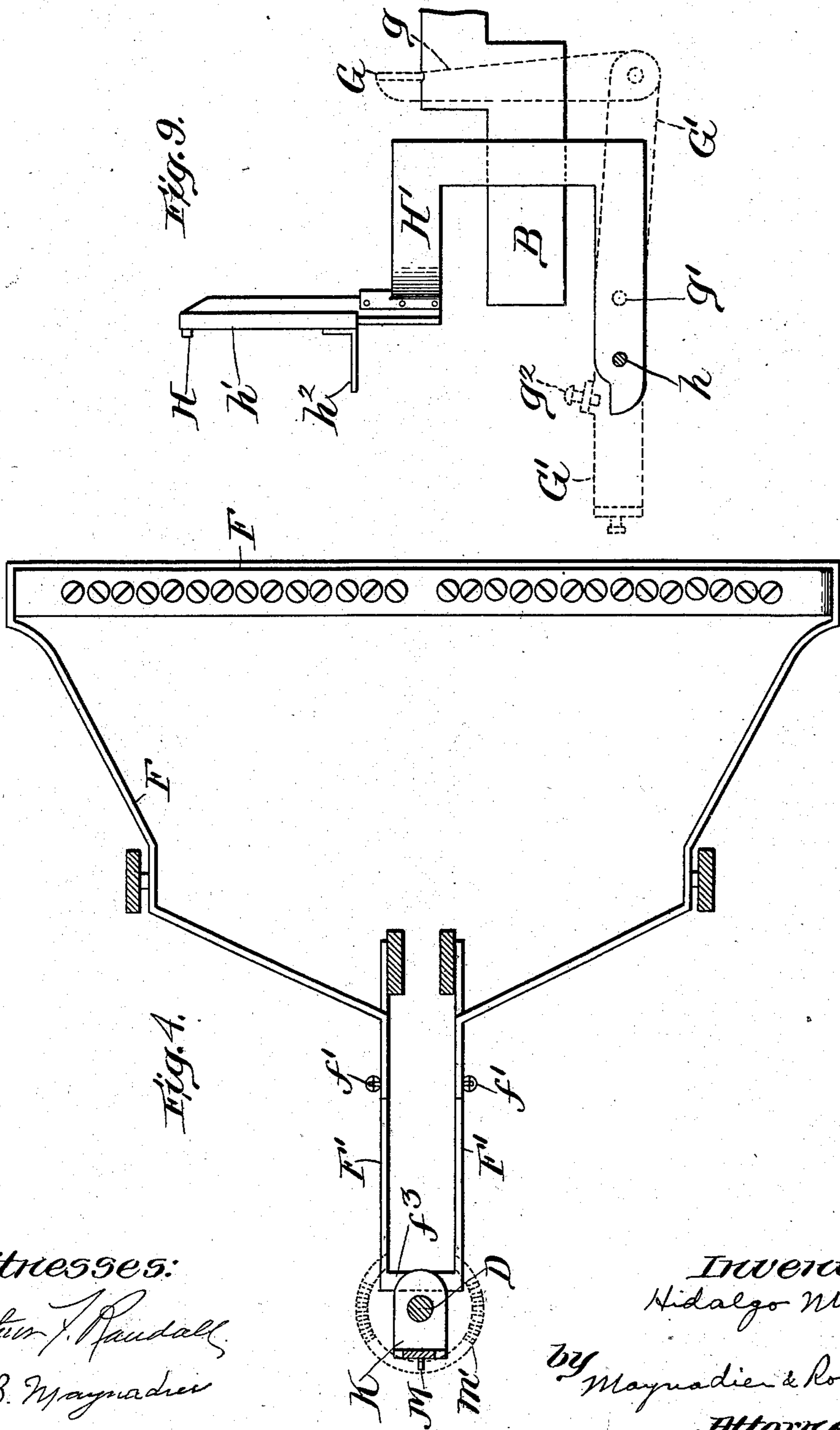
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6 SHEETS—SHEET 6.

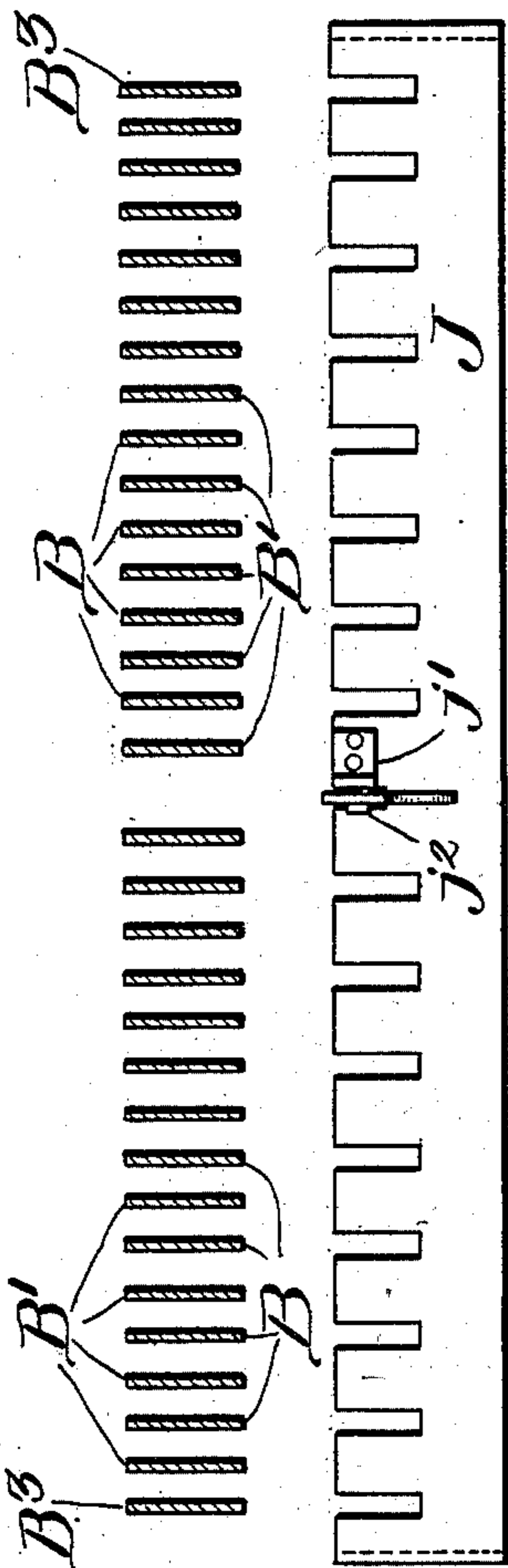


Fig. 8.

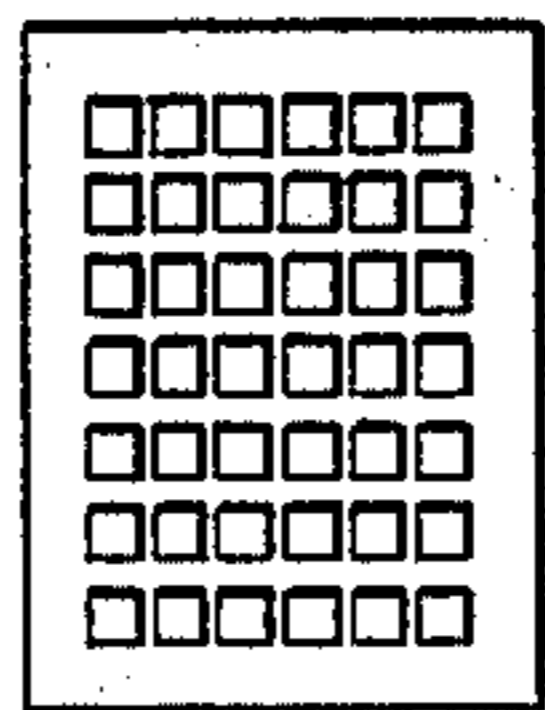


Fig. 14.

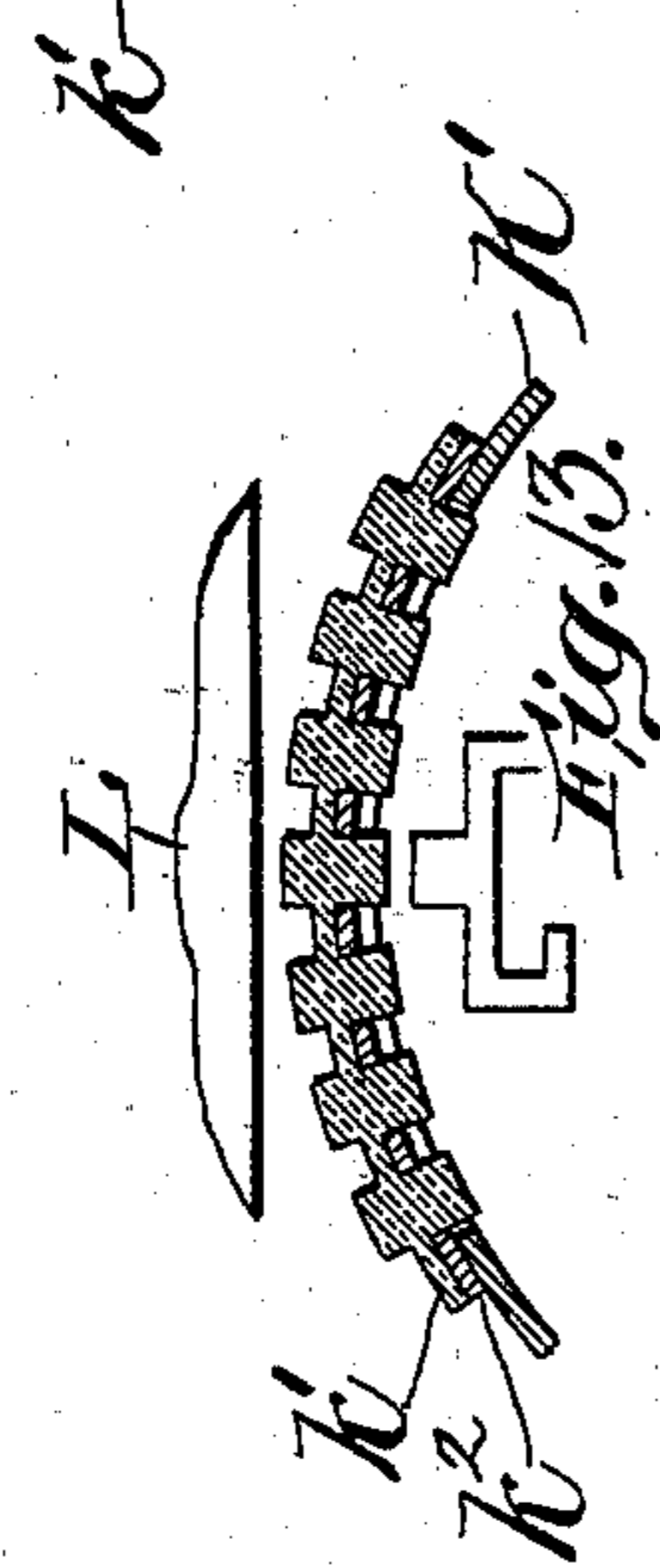


Fig. 13.

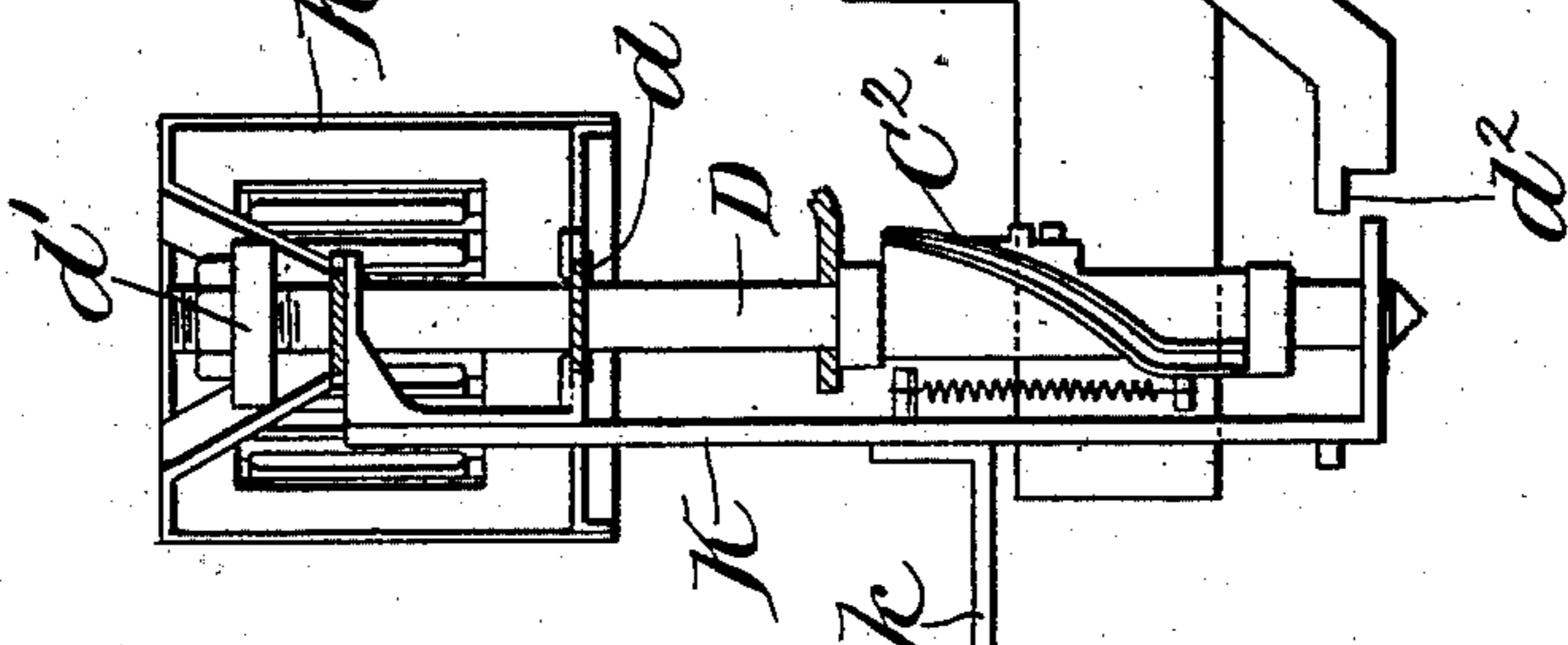


Fig. 7.

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UNITED STATES PATENT OFFICE.

HIDALGO MOYA, OF LEICESTER, ENGLAND.

TYPE-WRITER.

SPECIFICATION forming part of Letters Patent No. 752,794, dated February 23, 1904.

Application filed September 27, 1902. Serial No. 125,037. (No model.)

To all whom it may concern:

Be it known that I, HIDALGO MOYA, a citizen of the United States, and a resident of Leicester, in the county of Leicester, England, have invented an Improved Type-Writer, of which the following is a specification.

My invention relates to type-writers, and is an improvement on the type-writer described in my application, Serial No. 89,168, filed January 10, 1902. In that application I have described a type-writer in which the characters are each brought into a position ready to make an impression at the proper place on the paper by movements of the type-carrier combined with movements of the paper-roll; and my present invention consists in a type-writer of that class whose type-carrier is cylindrical and whose paper-roll is movable side-wise in direction parallel with the surface of the type-carrier. While this is the distinguishing characteristic of my invention, yet a second feature of that invention consists in one or more double rows of characters on the cylindrical type-carrier, so that when the type-carrier is properly swung on its axis two characters are brought each near to the printing-point, whereupon one of those two characters is brought into exact printing position by moving the type-carrier endwise against one of two stops. This double row of characters extending about the periphery of a cylindrical type-carrier requires, of course, two stops for regulating the endwise motion of the carrier and two sets of character-keys so contrived that when a character-key of one set is used one stop is brought into action and when a character-key of the other set is used the other stop is brought into action.

The other features of my invention are fully explained below, and all the features are defined in the claims.

In the drawings, Figure 1 is a plan, and Fig. 2 a section on line 2 2 of Fig. 1, showing the best form of my invention. Fig. 3 is a partial plan view of certain of the parts shown in Fig. 1. Figs. 4 and 5 show the mechanism for moving the type-carrier endwise. Fig. 6 shows the mechanism for rotating the type-carrier. Figs. 7 and 8 are details of the stop-

actuating mechanism. Fig. 9 is a detail of the hammer for forcing the type against the paper. Fig. 10 is an end view of the paper-carriage detached. Figs. 11, 12, 13, and 14 are details hereinafter described.

The frame A is supported on legs *a*. The keys B are fulcrumed on cross-bar *b*, but are free to turn on cross-bar *b*, which is journaled in lugs on frame A and is also a rock-shaft, as below explained. The keys B are levers, and each extends through guide-slots in plates *b'*, which are fast to frame A, and each is held down by a spring *b²* to keep its front end elevated. These keys B are arranged at their inner ends, as shown dotted in Fig. 3, and they serve as stops to limit the angular movement of the type-carrier K when the inner end of either lever or key B is elevated. Each key B when its outer end is depressed also moves one of the two levers C, fulcrumed at *C'*, for key B engages one of the cross-bars *c⁴*, each part of one of the levers C, and when one of the levers is thus moved, its inner end engages its cam *C²*, thus rotating the axle D of carrier K. Each key B when depressed also moves a bail-shaped lever F, fulcrumed at *f*, and thereby raises the inner end of lever F and also raises through spring *f'* the inner end of a second bail-shaped lever F', fulcrumed at *f²*, the raising of the cross-bar *f³* of bail-shaped lever F' moving the type-carrier K endwise on axle D against the force of spring *k³*, for a purpose explained below. Each key B when depressed also raises cross-bar G, which is connected by arms *g* to bail-shaped lever G', fulcrumed at *g'*, and this motion of lever G' carries screw *g²* against the hammer-lever H', as below explained, and also through link *g³* swings the feed-pawl of the paper-carriage against the force of its spring, as usual.

Fig. 8 shows the relative arrangement of character-keys B and B' and also their relation to bail-shaped lever J, fulcrumed at *j*, (see Fig. 7;) but only levers B' move lever J, the keys B entering slots in the cross-bar of lever J, while the keys B' not only do all that the keys B do, but also depress lever J. Lever J carries a bracket *j'*, from which a stud *j²* projects through a cam-slot in stop-bar J',

whose inner end d^2 serves as a stop, as explained below.

Each depression of the front end of key B and also key B' first raises the inner end of the key into the path of arm k of carrier K, so that the inner end of the key stands across the path of arm k and next rotates axle D, so that the carrier K is stopped as soon as its angular motion is sufficient to bring a line of characters lengthwise of the type-cylinder K' into the desired plane. To thus rotate axle D, each key B and also B' acts through one of the levers C and its cam C^2 , so that the angular motion of axle D is always abundant whichever one of the keys B or B' is depressed; but if a key B or B' on one side of section-line 2 2 of Fig. 1 be depressed the axle D and carrier K are rotated in one direction, while if a key B or B' on the other side of that line 2 2 be depressed axle D and carrier K are rotated in the opposite direction, for the type-carrier K always moves with axle D until arm k is stopped by the raised inner end of key B or B', whose outer end has been depressed. In order to allow carrier K to be thus stopped, it must be disconnected from axle D, and this is done by key B and also by key B' through levers F and F', which move carrier K endwise on axle D against spring k^3 , and thus carries carrier K free of a pin d , projecting from axle D and engaging a notch in carrier K. (See Fig. 11, which is a detail showing this connection between axle D and carrier K.) The further depression of any key B moves carrier K still farther endwise and until the upper end of carrier K brings up against stop d' and thereby presents the character which corresponds to the key B, which is depressed in proper relation to the paper-roll L and hammer H, so that the blow of hammer H will cause that character to press against the paper on roll L. This hammer H is actuated by any key B (or B') through cross-bar G, arms g , lever G', and adjusting-screws g^2 , these screws g^2 being brought into contact by the depression of the outer end of any key B (or B') with the short arm of hammer-lever H', fulcrumed at h . (See Fig. 9.)

It will now be clear that in my improved type-writer, as so far described, the type-carrier K, with its type-cylinder K', is rotated until the arm k of carrier K brings up against the inner end of that key-lever B or B' whose depression causes it to rotate and that this rotation of type-carrier K' brings a line of characters across the axis of the type-cylinder into the proper plane, while the endwise motion of type-cylinder K', controlled by stop d' , determines the position in that plane of each character in that line, so that the position of the paper-roll L, crossing that plane, determines which of the characters in that plane shall occupy the printing position—that is, which one of the characters shall be between

the striking-face of the hammer H and the spot on the paper carried by the paper-roll L at which that character is to make its impression.

The paper-roll L is shifted to bring the printing-line into proper relation with the type-cylinder K' by the shift-key B², which moves the paper-carriage L' sidewise, acting through rock-shaft b , its arms b^4 , and lever b^5 and arms b^6 , fast at their upper ends to the bed-plate L², on which carriage L' slides. Bed-plate L² is guided by its stud, which telescopes in a socket in frame A. (See Fig. 2.)

The hammer H is on a slide h' , mounted on hammer-lever H', and this slide is moved on hammer-lever H' with carriage L' by a finger h^2 , engaging a lug h^3 , depending from bed-plate L². This connection maintains the hammer H in proper relation with paper-roll L.

When a character-key B or B' is depressed, the carrier is rotated, as above described, and after its angular motion has been completed it is raised by lever F' against one or the other of the two stops d' and d^2 . The raising of carrier K disconnects it from axle D by the disengagement of pin d from its socket; but coincident with the raising of carrier K a stud M on carrier K enters one of a series of slots m in a ring m' , fast to the frame of the machine. This locks the carrier in the position to which it was moved by the character-key depressed until carrier K descends, when stud M is disengaged from ring m' . Lugs on the inner ends of the levers C lie normally in the path of lugs c^2 c^3 , one lug, c^2 , being outside of its lever C, so that that lever normally prevents movement of axle D in one direction, and the other lug, c^3 , being outside of its lever C, so that that lever normally prevents movement of axle D in the opposite direction. When, however, one of the levers C is depressed, its inner end is moved out of the path of its lugs c^2 or c^3 , and that lug is free to pass its lever. The return motion of axle D is limited by the other lug engaging the end of the other lever. These two lugs c^2 c^3 are staggered with relation to each other, one being in a lower plane than the other, as shown in Fig. 12, which is a detail of the cam portion of axle D, and the inner ends of the levers C are so shaped that the lugs c^2 or c^3 of one lever C has a clear path past the other lever C.

The type-cylinder K' is given an angular motion by the depression of each key B; but the angular motion given by one key B is different from that given by any other key B, and any lengthwise row of characters on cylinder K' will be brought to one plane coincident with the axis of the type-cylinder and the paper-roll by the depression of a key B corresponding to that lengthwise row of type, and as the cylinder K' is also moved endwise against stop d' by the depression of any key B any endwise row of characters may be brought

into a definite relation with two planes, one coincident with the axis of the cylinder K' and normal to the paper-roll, the other coincident with the axis of the paper-roll and normal to cylinder K' . I am the first to do this, for the combination of a type-cylinder with a plurality of type-keys each of which not only gives that cylinder an angular movement determined by its individual stop, in this case the end of the key, but also an endwise movement determined by a common stop is wholly new with me and, as above stated, is the distinguishing characteristic of my invention. This is a feature of controlling importance in this class of type-writers; but its main practical value is that it may be used with two sets of keys, one set each of which determines the angular movement of the type-carrier and moves the type-cylinder endwise against a stop d' , while each key of the second set moves the type-carrier endwise against a second stop d'' —that is, each key B of the first set brings one character of a row of characters around the cylinder into a plane which is coincident with the axis of the cylinder and normal to the paper-roll and also brings that character into a plane coincident with the axis of the paper-roll (in its then position) and normal to the type-cylinder—while each key B' of the second set brings one character of a second row of characters around the cylinder into a plane coincident with the axis of the cylinder and normal to the paper-roll and also into a plane coincident with the axis of the paper-roll (in its then position) and normal to the type-cylinder, so that any character of either of these two rows of characters around the cylinder will be brought to its position between hammer H and paper-roll L by its character-key B or B' without moving paper-roll L sidewise, or, more briefly, if the axis of type-cylinder K' be vertical and the axis of paper-roll L horizontal, as is the case in practice, either key B or B' of any pair of character-keys brings both of a pair of characters on cylinder K' into a certain vertical plane, but one key B of that pair brings one of the characters of that pair into a horizontal plane determined by stop d' , while the other key B' of that pair brings the other character of that pair into the same horizontal plane determined by the stop d'' .

I have shown the cylinder K' with six circumferential rows of characters arranged in three groups in pairs (see Fig. 14) and also arranged in rows lengthwise of the cylinder, in this case fourteen, corresponding to the fourteen pairs of keys $B B'$. These characters are arranged on a rubber sheet k' , cemented at its edges to the grating k^2 , which is fast to type-cylinder K' , as shown in Fig. 13, which is a detail in section illustrating this construction and also showing the relation between the hammer H , the type-cylinder K' , and the paper-roll L .

Fig. 14 is a detail showing in plan the rubber sheet k' .

The spacing-lever B^3 when depressed lifts the cross-bar G , and thereby actuates the feed-pawl of the paper-carriage and spaces between words. The line-spacing is accomplished by moving the paper-roll L on its axis through the finger-lever l , much as usual.

As the type-cylinder K' is swung on its axis the type-sheet k' is carried past its inking-roll N . These rolls are absorbent and moistened with ink, and distribute ink to the type on type-sheets k' as they swing each past its roll.

What I claim as my invention is—

1. A type-writer comprising a paper-roll; means for moving it endwise, sidewise and about its axis; a type-cylinder, whose axis is parallel with the plane in which the axis of the paper-roll moves; and means for moving the type-cylinder about its axis, combined to bring any character on the cylinder into printing relation with the paper-roll by the combined movements of the paper-roll and the type-cylinder.

2. A type-writer comprising a paper-roll; means for moving it endwise, sidewise and about its axis; a type-cylinder whose axis is parallel with the plane in which the axis of the paper-roll moves; and means for moving the type-cylinder about its axis and endwise, combined to bring any character on the cylinder into printing relation with the paper-roll by the combined movements of the paper-roll and the type-cylinder.

3. A type-writer comprising a set of character-keys; a type-cylinder; means whereby each character-key gives an angular movement to the type-cylinder; stops each controlled by its character-key to limit the angular movement of the type-cylinder; means whereby each character-key gives an endwise movement to the type-cylinder; and a stop to limit the endwise movement of the type-cylinder.

4. A type-writer comprising two sets of character-keys; a type-carrier; a type-cylinder on that carrier; means whereby each character-key gives an angular movement to the type-carrier; stops each controlled by its character-key to limit the angular movement of the type-cylinder; means whereby each character-key gives an endwise movement to the type-cylinder; a stop to limit the endwise movement of the type-cylinder when moved endwise by any key of one set; and a second stop to still further limit the endwise movement of the type-cylinder when moved endwise by any key of the second set.

5. A type-writer comprising a type-carrier; its axle; a yielding connection between the type-carrier and its axle; means for moving the axle on its axis; means for moving the type-carrier endwise on its axle; a stud projecting from the type-carrier; and a series of slots for engaging the stud to lock the

carrier in its position after it has been moved endwise on its axle and while the axle completes its rotary movement.

6. A type-writer comprising a type-carrier; its axle; a separable connection between the carrier and its axle; means for swinging the axle on its axis; and means controlled by the character-keys for locking the axle in its normal position and for freeing the axle when the character-keys are operated.

7. A type-writer comprising a type-carrier; its axle; a yielding connection between the carrier and its axle; means for swinging the axle on its axis in one direction; means for

swinging the axle on its axis in the other direction; two stops which normally prevent the axle from swinging in either direction; and means controlled by the character-keys to free the axle from one of those stops to allow the swing of the axle on its axis in one direction, but to leave the other stop in position to limit the return swing of the axle on its axis.

HIDALGO MOYA.

In presence of—

HARRY E. CARPENTER,
MARIE L. CLARK.