

No. 686,158.

Patented Nov. 5, 1901.

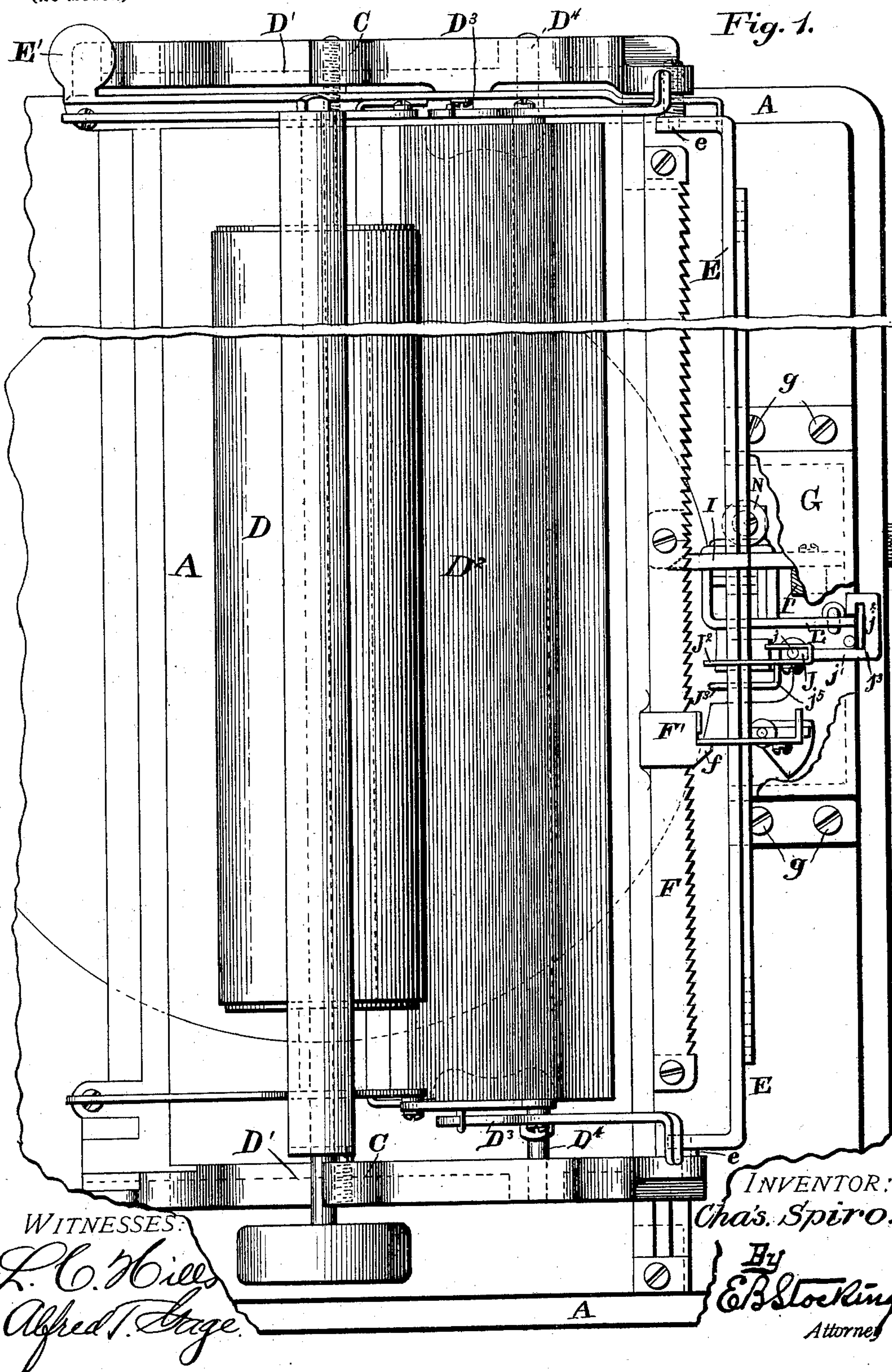
C. SPIRO.
TYPE WRITER.

(Application filed July 27, 1900.)

(No Model.)

4 Sheets—Sheet 1.

Fig. 1.



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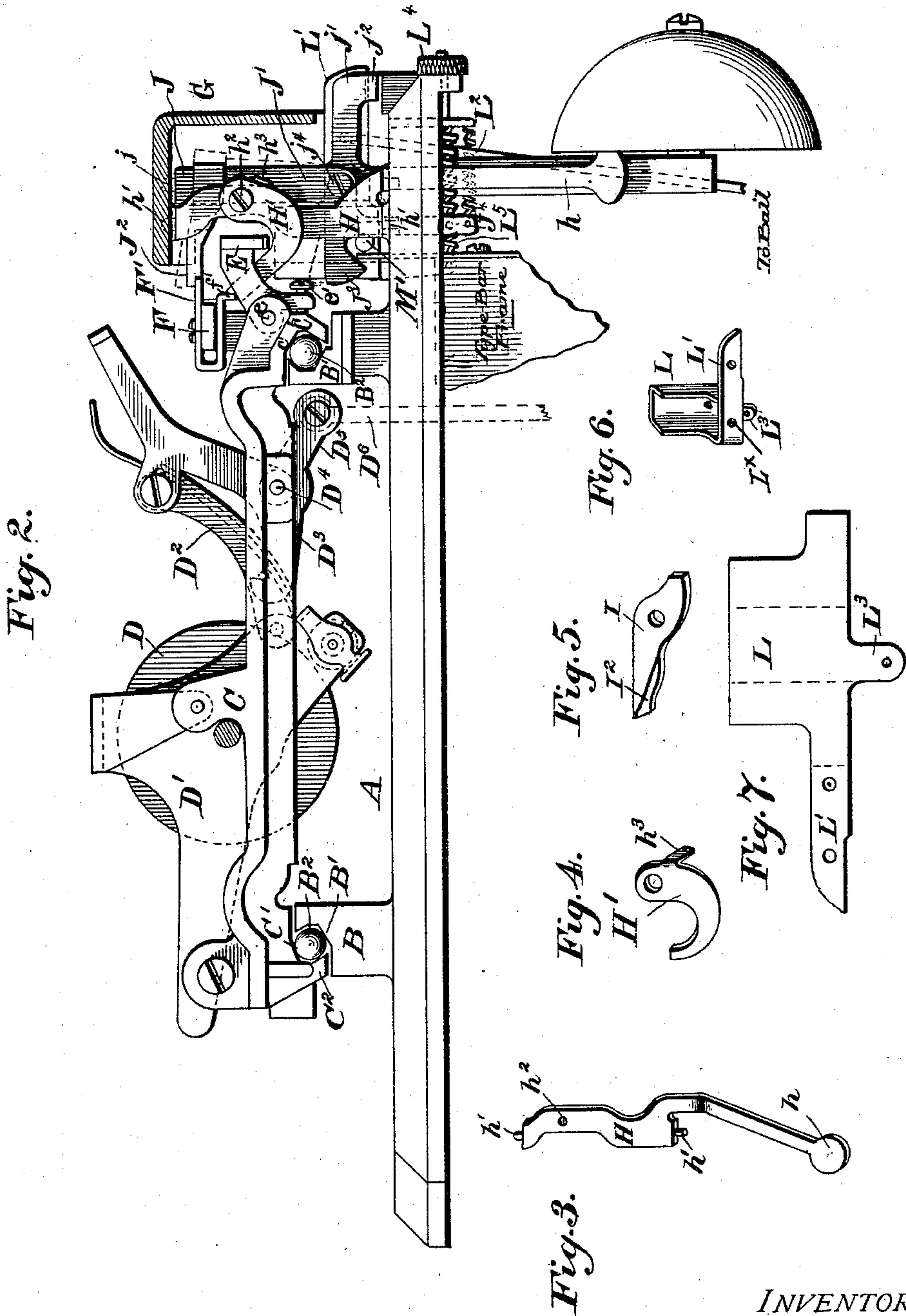
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TYPE WRITER.

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4 Sheets—Sheet 2.



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Fig. 8.

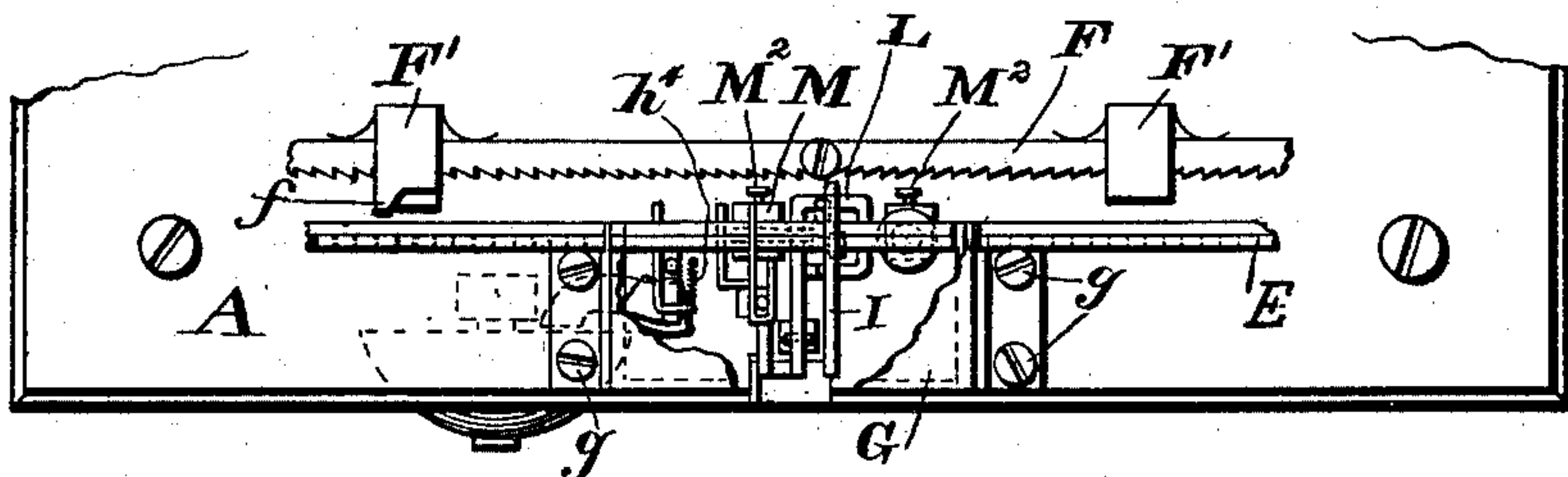


Fig. 9.

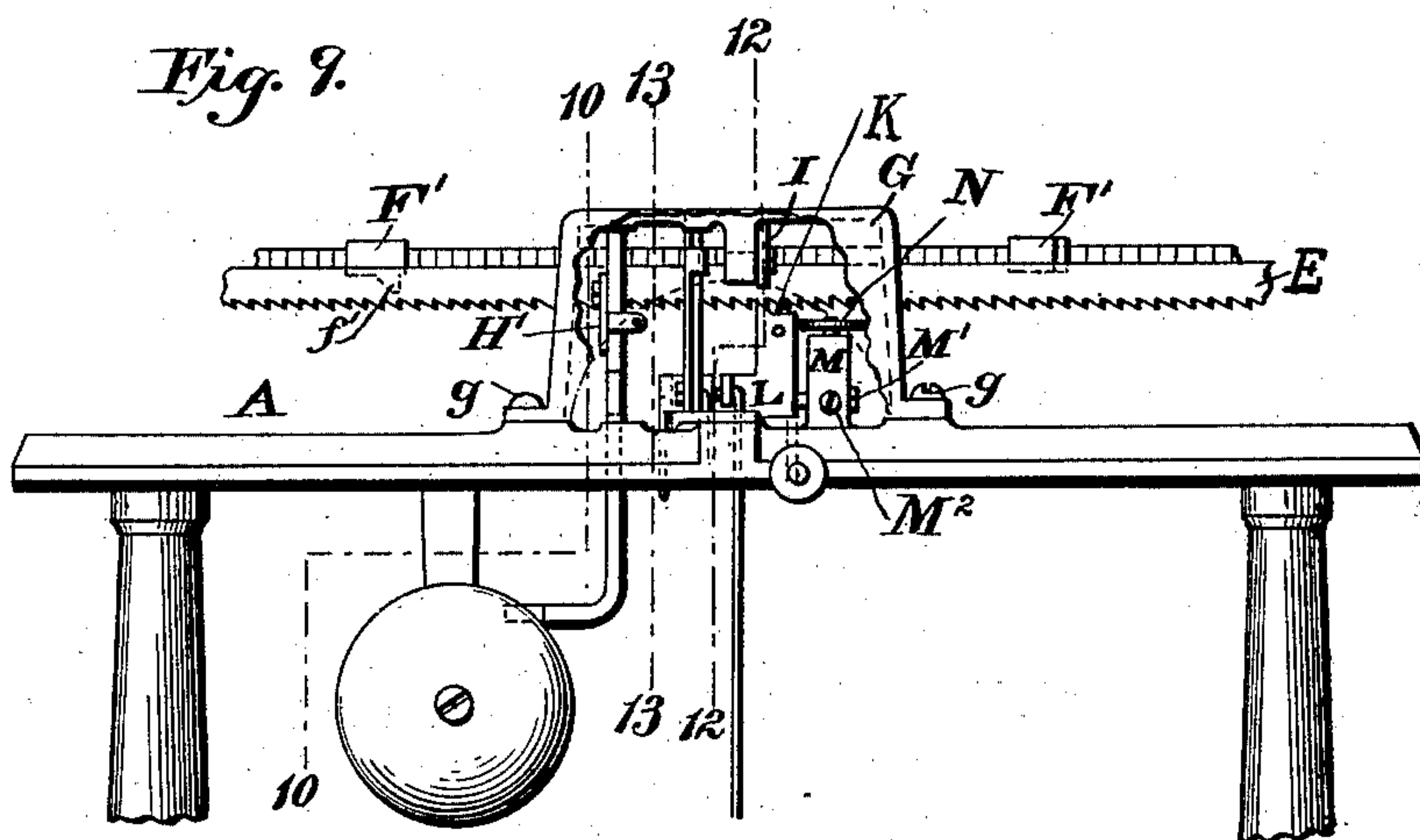


Fig. 10.

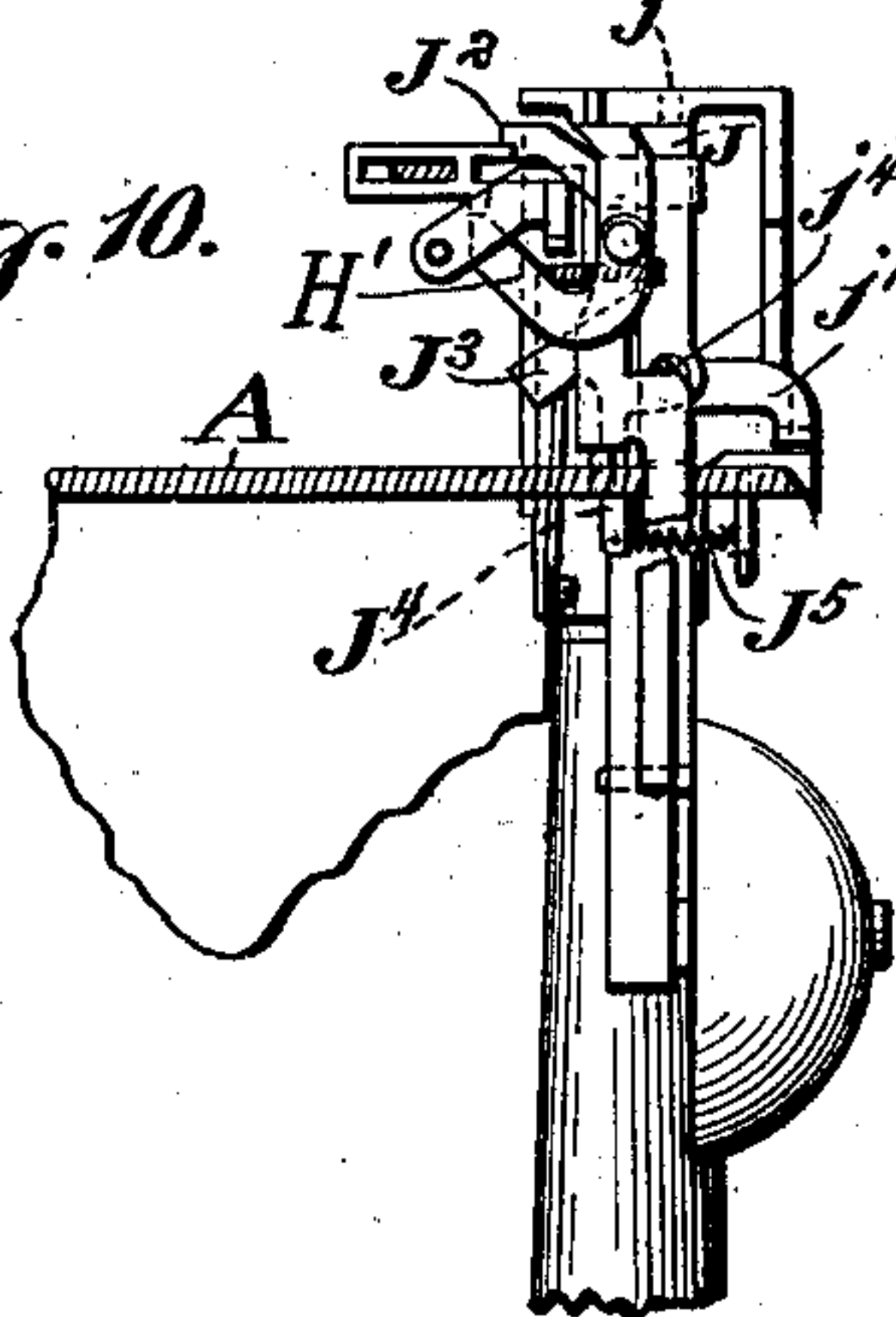


Fig. 11.

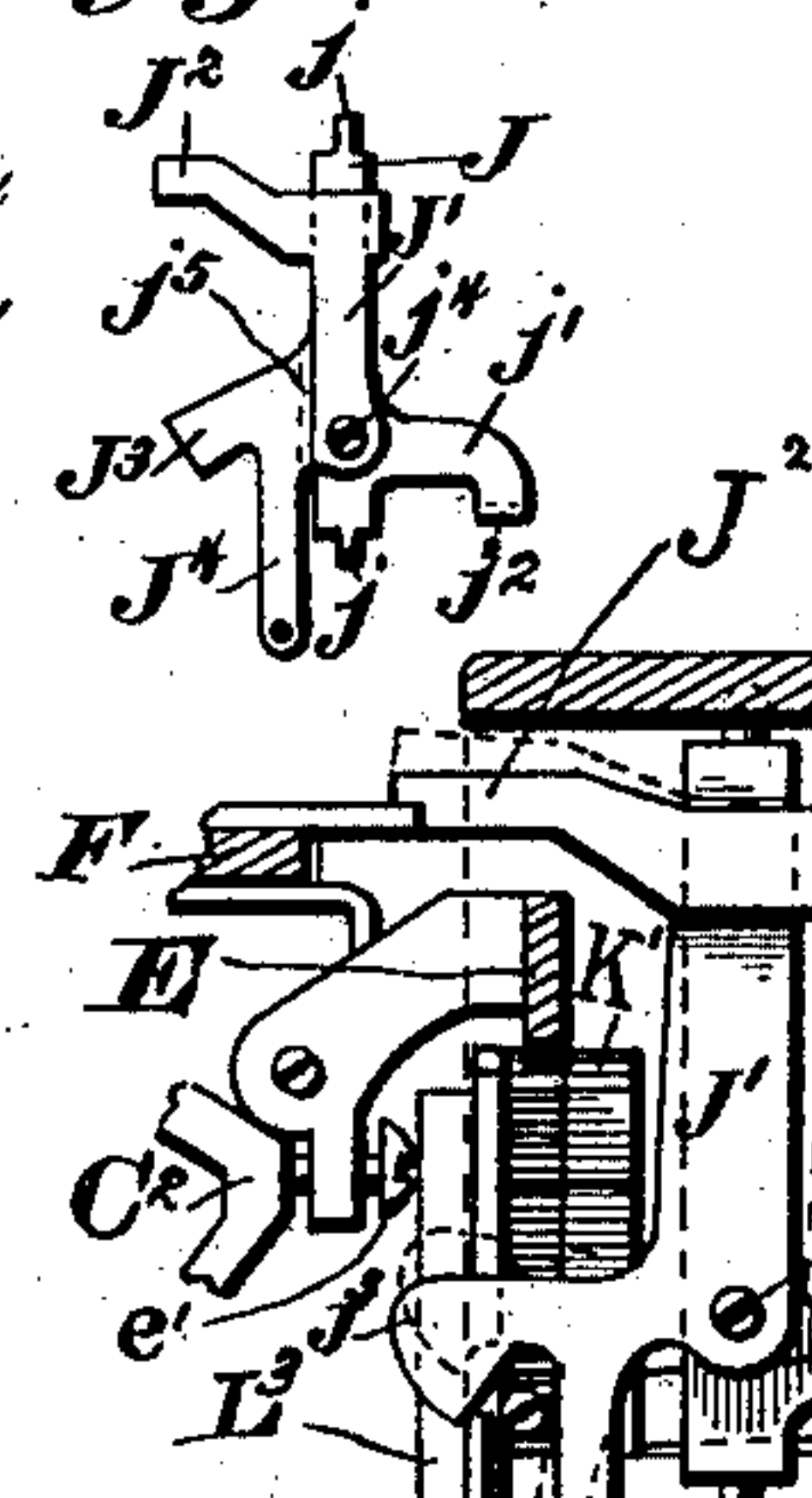


Fig. 12.

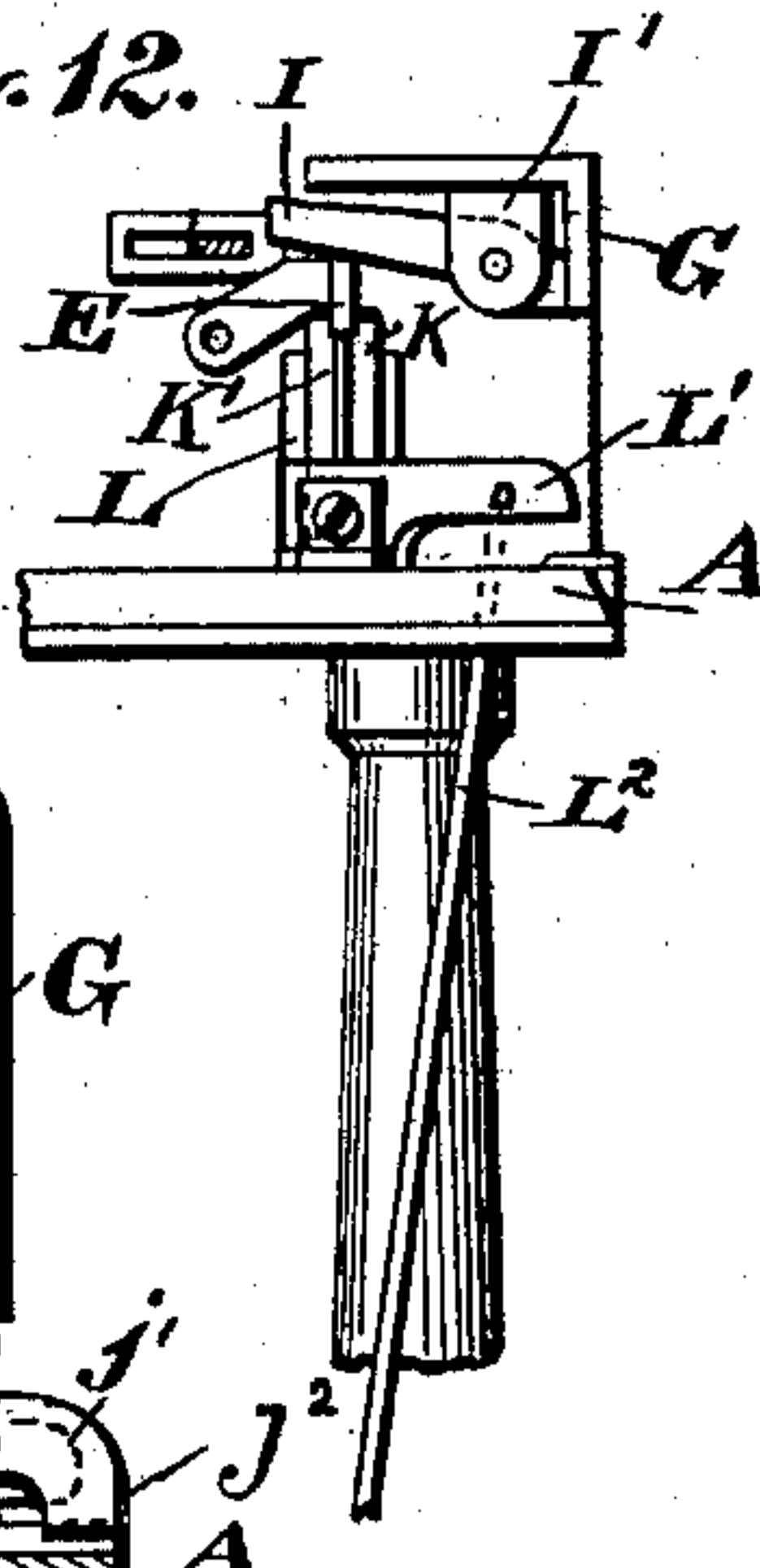
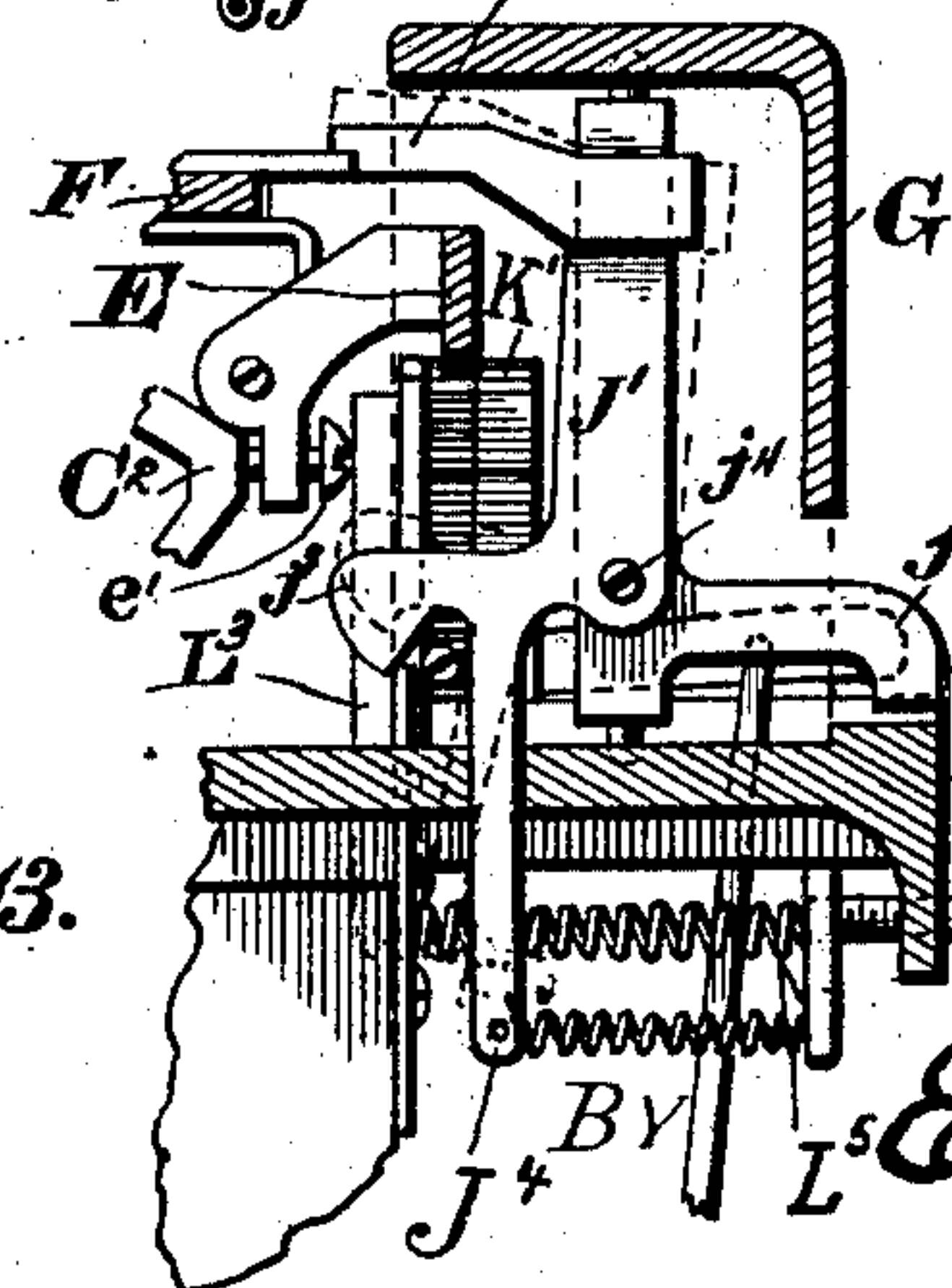


Fig. 13.



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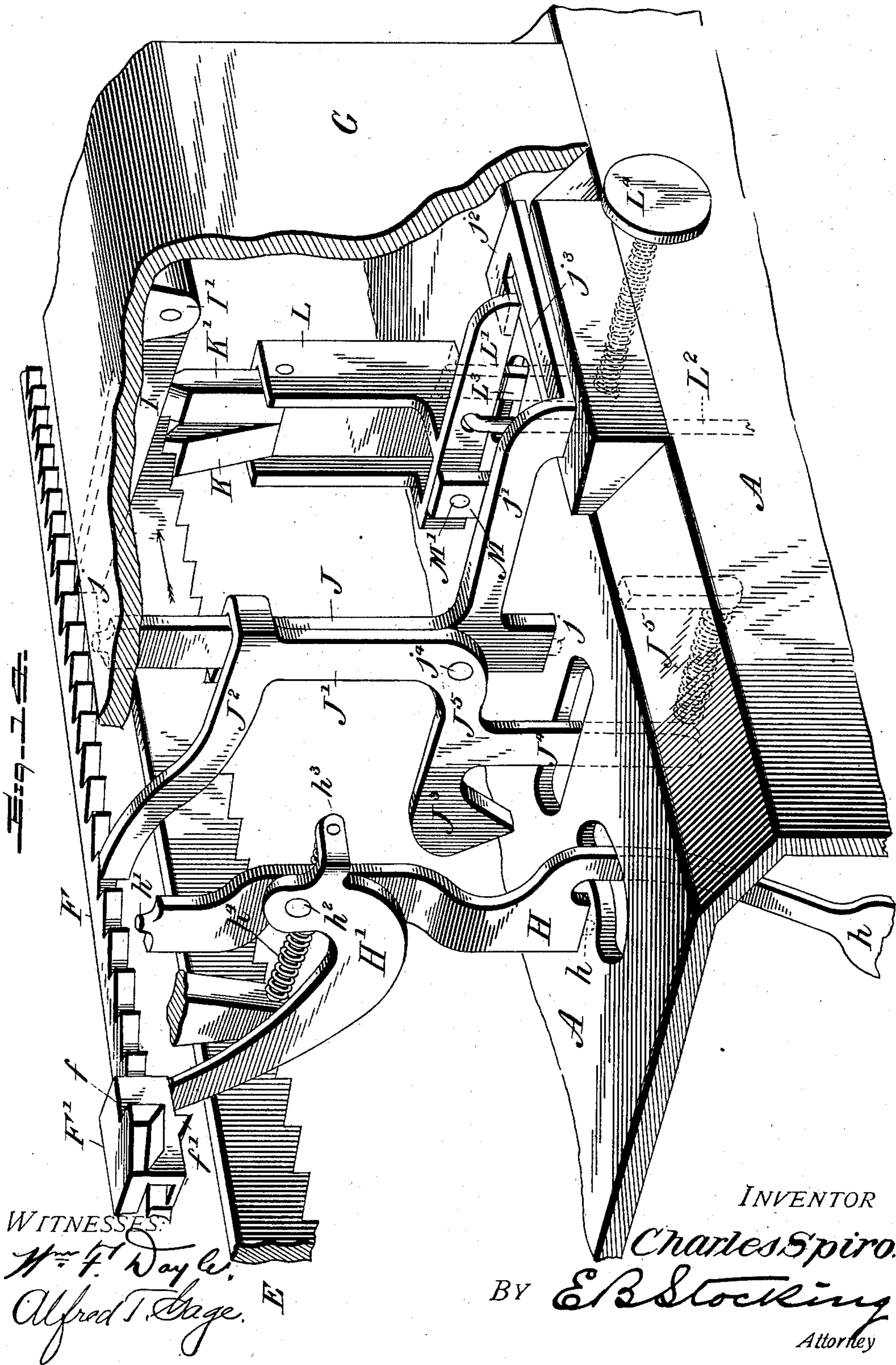
Patented Nov. 5, 1901.

C. SPIRO.
TYPE WRITER.

(Application filed July 27, 1900.)

(No Model.)

4 Sheets—Sheet 4.



UNITED STATES PATENT OFFICE.

CHARLES SPIRO, OF NEW YORK, N. Y.

TYPE-WRITER.

SPECIFICATION forming part of Letters Patent No. 686,158, dated November 5, 1901.

Application filed July 27, 1900. Serial No. 25,030. (No model.)

To all whom it may concern:

Be it known that I, CHARLES SPIRO, a citizen of the United States, residing at New York, in the county of New York, State of New York, have invented certain new and useful Improvements in Type-Writers, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention has relation to type-writers; and among the objects in view are the provision of simply-constructed, accurately-operating, and compactly-arranged escapement, keyboard-locking, and bell-ringing mechanisms.

Other objects and advantages of the invention will hereinafter appear in the following description, and the novel features thereof will be particularly pointed out in the appended claims.

In the drawings, Figure 1 is a plan, with portions removed, of a type-writer provided with my improvements. Fig. 2 is a side elevation, with parts in section, of the same machine. Fig. 3 is a perspective of the bell-hammer. Fig. 4 is a perspective of the bell-hammer trip. Fig. 5 is a similar view of a stop-pawl hereinafter described. Fig. 6 is a perspective of the housing for the escapement-dogs. Fig. 7 is a plan of the blank from which the housing illustrated in Fig. 6 is made. Fig. 8 is a plan, on a scale of about one-half full size, of the escapement and adjacent devices with the top of their inclosing case broken away. Fig. 9 is a rear elevation of the parts shown in Fig. 8. Fig. 10 is a section on the line 10 10 of Fig. 9, showing in side elevation the bell-trip and its adjacent connections. Fig. 11 is a side elevation of the key-bar-locking device detached. Fig. 12 is a vertical section on the line 12 12 of Fig. 9, and Fig. 13 is a vertical section on line 13 13 of Fig. 9. Fig. 14 is a perspective, on an enlarged scale, of the feed and margin racks, bell-ringing, keyboard-locking, escapement, and line-stop mechanisms arranged in operative relation.

Like letters of reference indicate like parts throughout the several figures of the drawings.

A is the frame of the machine, and upon its top are the fixed transverse rails B, Fig. 2, having the track B' for the reception and op-

eration of balls B², on which the carriage C is supported by bearing-surfaces C' C². The platen D, with its cradle D', and the paper-table D², with its locking-lever D³ projecting beyond the pivot D⁴ in the form of an arm D⁵, which is connected by a rod D⁶ to a key at the keyboard of the machine are alike in construction and operation with that shown, described, and claimed in my Patent No. 595,838 of December 21, 1897, and therefore require no further particular description herein.

At the rear ends of the side pieces of the carriage is supported the carriage-feed rack-bar E by pivots *e* and adjusted by screws *e'*, and upon the top of the carriage-frame C is supported in any desired manner a margin-gage rack-bar F, the teeth of which project at each side of its mid-length inwardly toward said point of the rack, and upon said rack F are adjustably mounted marginal gage-blocks F', each having a stop projection *f* and a depending projection *f'*, (see Fig. 9,) the latter being for the operation of the bell-trip hereinafter described and the former co-acting with a stop-lever. One wall of these projections of the block F' is inclined to permit of the passage of the carriage in one direction, while it will be stopped in its passage in the opposite direction by the contact of the projection *f* with other parts hereinafter described.

Referring to Fig. 1, E' is the release-key, which is extended beneath the rack E beyond its pivot *e* for the purpose of lifting the rack from contact with the escapement-dogs in the manner and for the purpose well known in the art.

G represents a casing or cover secured upon the top of the frame A by means of screws *g*, and within this casing and confined to the middle portion of the frame A and at the rear thereof are located the escapement, keyboard-locking, and bell-ringing mechanisms of the machine, suitable openings being formed through the top of the frame for connection with the operative devices below said top, while the front of the casing G is also open for the projection of parts which coact with the feed and marginal racks of the machine.

Referring to Fig. 2, which shows the bell-ringing mechanism in elevation, H represents the body portion of the bell-trip, which por-

tion is extended downwardly in the form of a hammer h and has at each extremity a pivot h' , the upper one resting in a socket formed in the under surface of the top of the case G, while the lower pivot rests in a socket formed in the top of the frame A. The hammer h is formed on an extension of the body portion, which is at one side of the pivots, so that when the body portion is swung upon its pivots the hammer proper is carried away from the bell, so as to strike the bell when returned to its normal position. At h^2 there is pivoted a trip-pawl H' , shown detached in Fig. 4 as having a projecting arm h^3 , to which a spring h^4 , Fig. 14, is connected at one end, while the opposite end is connected to a fixed part of the housing. The pawl H' is curved so that its free end extends upwardly into the path of a margin-block F' and of the projection f' thereof. Now it will be noted that as the margin-block advances into contact with the pawl H' it will carry said pawl with it, turn the body portion of the bell-trip as it moves in contact with the vertical face of the depending projection f , and during this movement the pawl H' will move on its pivot, putting the spring h^4 under tension, and finally as the block F' completes its passage by or beyond the bell-trip the pawl H' will escape therefrom and the spring will cause the hammer to strike the bell. It will also be noted that in an opposite movement of the gage-block the inclined wall of the depending projection f' will simply depress pawl H' and pass without ringing the bell. The spring h^4 is arranged to draw both the hammer and the pawl H' back to a normal position of rest after a passage of block F' .

From the above it will be seen that the bell-trip mechanism consists of two simple devices which can be readily manufactured by the use of dies in striking the same out of sheet metal and subsequently shaping the same. Furthermore, this form of construction facilitates a compact arrangement of not only the bell-striking mechanism, but of the remaining elements which are housed in the casing G.

I represents a line-stop lever which is pivoted in a bracket I' , formed as a part of or secured to the case G, as clearly shown in the various figures. This stop-pawl projects into the path of the margin-block and over the rack E, whereby when the latter is lifted the pawl I is also lifted out of the path of the block, as is evident from the manner of its support and its location. The position of the free end of pawl I is such that a margin-block F' will abut against the same at a predetermined end of a line, and by means of the release-key E' the step-by-step feed-rack E may be raised into contact with and so as to lift the pawl I above the margin-block to permit a movement of the carriage beyond said pawl.

The next mechanism, Figs. 11 and 13, within the case G to be considered is the keyboard-

locking device. This mechanism comprises a body portion J, having an upper and lower pivot j and projection j' , having an angular extension j^2 , which extension is recessed on one side, as shown at j^3 , Figs. 1 and 14. At j^4 there is pivoted upon the body portion J a double pawl J' , which is formed to embrace the body J, as clearly shown in Fig. 14, and to project into the path of the margin-blocks F' by means of the upper pawl J^2 . This upper pawl and the lower pawl J^3 comprise an integral double pawl adapted to operate in relation to independent movable parts. Near the pivot j^4 the double pawl J' is offset, as at j^5 , Fig. 14, parallel with its arm j^2 to form a lower pawl J^3 , having a function hereinafter described, and between said lower pawl and the pivotal point is a depending arm J^4 , to which is secured a spring J^5 , the other end of which spring is secured to a pin projecting from the bed of the machine. The operation of these devices will be the better understood after describing the escapement mechanism proper, with which it coöperates.

A reference to Figs. 12 and 14 will show the general arrangement of the escapement devices, wherein immediately below the rack E are two dogs K K' of the usual construction and arrangement for coöperation with the rack to give a step-by-step movement to the carriage. These dogs are secured operatively in a housing L, which has a rearwardly-extending pawl-arm L' , to which a rod L^2 is secured at one end, while the opposite end of the rod is connected in any desired manner with the universal bail of the machine. The housing L is made from a single piece of sheet metal cut to substantially the outline illustrated in Fig. 7 and comprises a projection L^3 . This blank when folded upon the dotted lines shown constitutes the housing illustrated in Fig. 6. The housing is mounted pivotally on the point pins, screws, or bolts M' , passing through standards M, (see Fig. 14,) and set-screws M^2 , Fig. 9, serve to maintain the pins M' in an adjusted position, whereby the housing is pivotally supported with firmness and with a minimum of friction on its bearings. Upon one of the posts M is mounted a wheel N, which bears against one wall of the housing and serves to receive or reinforce the housing against the shock of the step-by-step movement of the carriage.

Now it will be noted that at each depression of the universal bail the rod L^2 draws down the arm L' of the housing and causes the fixed and movable pawls to oscillate across the teeth of the rack E, and thus produce the desired step-by-step feed of the carriage. It is apparent that if an obstruction is interposed between the under surface of the arm L' and the upper surface of the top of the frame A the oscillation of the dogs beneath the rack will be prevented, and consequently no feed of the carriage would then take place. Such an obstacle is provided in the angular extension j^2 of the body portion J, hereinbe-

fore described. The interposition of this extension, as described, is accomplished in the following manner: When in the advancement of the carriage a margin-block F' comes into
 5 contact with the arm or upper extension J², it causes the body portion J to swing upon its pivots, so as to bring that portion of the extension beyond its recess j², Fig. 14, between the arm L' and the top of the machine-
 10 frame. The spring J⁵ brings the parts to their normal condition after the passage of the margin-block. The lower pawl J⁸, with its arm J⁴, is intended for use in connection with other mechanism. Generally speaking, how-
 15 ever, the pawl J⁸ may serve to retain in the desired position the type-bar frame and to release the same in conjunction with the operation of the key-bar-locking mechanism just described. Such a type-bar frame may
 20 be any movable or tiltable frame—for example, such as is described in my copending application, Serial No. 34,047, filed October 23, 1900.

Referring to Fig. 14, there will be seen a
 25 screw L⁴, seated in the depending flange of the frame A and connected with a spring L⁵, the other end of which spring is connected to the depending lug or projection L³ of the escapement-dog housing. By means of this
 30 screw and spring the reciprocation of the housing and the dogs in the direction opposite to that caused by the rod or ligament L² is produced and regulated.

As thus far described it will be seen that
 35 the step-feed escapement mechanism, the marginal regulating devices, the bell-ringing mechanism, and the keyboard-locking mechanism are all produced from sheet material in a form which can be manufactured at a
 40 minimum expense and which occupy in an operatively-assembled condition a comparatively restricted area, and yet are each provided with ample space for their individual and collective operations in conjunction with
 45 the main elements of the machine and involved in its practical use; furthermore, that all of these mechanisms are housed by a comparatively small casing, which protects them from injury by contact of extraneous objects
 50 and from the accumulation of dust and other impedimenta.

It is apparent that many of the details of construction herein shown and described may be varied to a great extent by the exercise of
 55 such mere mechanical skill as is possessed by persons conversant in the construction and operation of machines of this character. For example, the manner of attaching the spring to the bell-ringing, keyboard-locking, or other
 60 spring retracted or operated parts may be varied, and in all other respects the invention apprehends such and similar changes of minor details.

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

1. In a type-writer and in combination with

the top of the frame thereof, a casing having bearings, coacting bearings in the top of the frame, and keyboard-locking and bell-ring-
 70 ing devices mounted in said bearings; substantially as specified.

2. In a type-writer and in combination with the top of the frame thereof, a casing mounted on said top, and a bell-ringing mechanism
 75 mounted on the top and having opposite bearings in the casing and said top; substantially as specified.

3. In a type-writer and in combination with the top frame thereof, a casing mounted there-
 80 on and having a bearing, the top also having a bearing, and a keyboard-locking mechanism mounted in said bearings; substantially as specified.

4. In a type-writer, a carriage-feed escape-
 85 ment, bell-ringing mechanism and keyboard-locking mechanism arranged upon the top of the frame and within a case located thereon; substantially as specified.

5. In a type-writer and in combination with
 90 the carriage thereof, a feed-rack, a marginal gage carried by the carriage and having an adjustable margin-block provided with projections located in different planes, of a feed-
 95 escapement cooperating with said rack, bell-ringing and keyboard-locking mechanisms pivoted in parallel vertical planes at one side of said rack and projecting into the different
 100 planes of the projections upon the margin-block; substantially as specified.

6. In a type-writer, the location and arrangement of the escapement, carriage-stop,
 105 bell-ringing and keyboard-locking mechanisms at a central rear point of the machine, in combination with a case for inclosing the same; substantially as specified.

7. In a type-writer, a casing secured to the top of the frame thereof and having a stop-
 110 pawl pivoted thereto and projecting over the feed-rack of the machine; substantially as specified.

8. A housing for escapement-dogs formed from sheet material and comprising four in-
 115 closing walls, a depending extension below one of said walls, and a projecting arm extending laterally from an opposite wall thereof; substantially as specified.

9. In a type-writer, the combination with a traveling carriage having an abutment car-
 120 ried thereby, of a bell-ringing mechanism comprising a body portion having pivots at opposite ends, a laterally-arranged hammer, and a horizontally and pivotally connected body-turning trip; substantially as specified.

10. In a type-writer, the combination with
 125 a traveling carriage having an abutment carried thereby, of a bell-ringing mechanism comprising a vertically-pivoted body portion, a laterally-arranged hammer, and a horizontally-pivoted trip having an arm for the con-
 130 nection of a spring; substantially as specified.

11. In a type-writer, the combination with a traveling carriage having an abutment car-
 135 ried thereby, of a bell-ringing mechanism

comprising a body portion having vertical pivots and a laterally-arranged hammer, a curved horizontally-pivoted trip having an arm, and a spring extending from said arm to a fixed part; substantially as specified.

12. In a type-writer and in combination with the carriage having an abutment, of bell-ringing mechanism comprising a body portion having terminal pivots and mounted for oscillation in one plane and having a trip mounted on the body between its pivots for oscillation in a different plane and extending into the path of the abutment on the carriage; substantially as specified.

13. In a type-writer and in combination with a carriage having an abutment, bell-ringing mechanism comprising a vertically-pivoted body having a laterally-located hammer, a relatively horizontally pivoted trip projecting from said body at a point between its pivots into the path of the said abutment, and means for returning the ringing mechanism to its normal position after the operation thereof by said abutment; substantially as specified.

14. The combination with a carriage having an abutment carried thereby, of a bell-ringing mechanism comprising a body pivoted at its ends and a depending oscillating hammer projecting from the body at one side of the pivots, and a hammer-operating device pivoted to said body at one side of its pivots and adapted to oscillate in two directions at an angle to the oscillations of the hammer; substantially as specified.

15. In a type-writer and in combination with a carriage carrying an abutment, of the feed-rack and cooperating escapement mechanism, a keyboard-locking mechanism involving a vertically-pivoted member having a part movable into and out of direct contact with an arm carried by the escapement mechanism and having means projecting into the path of the carriage-abutment, whereby when the abutment is reached, the escapement mechanism is directly prevented from operating to feed the carriage; substantially as specified.

16. In a type-writer, a carriage, feed-rack and cooperating escapement mechanism having an arm combined with keyboard-locking mechanism comprising a body portion having pivots and an extension provided with a lateral projection adapted to contact directly with an arm carried by said escapement mechanism, and means for rotating the body portion on its pivots; substantially as specified.

17. In a type-writer and in combination with a carriage, feed-rack and cooperating escapement mechanism thereof, an arm projecting from said mechanism, an oscillating member having a projection and lateral extension, and means for throwing the extension beneath and to contact directly with the arm of the escapement mechanism; substantially as specified.

18. In a type-writer and in combination

with the top of the frame thereof, a carriage-feed rack and cooperating escapement mechanism having a projection or arm movable toward and from the top of the frame, a keyboard-locking mechanism involving a device pivoted vertically on the top of the frame for horizontal oscillation and having a lateral extension, and means for bringing the extension between and in contact with the arm and the frame of the machine to prevent operation of the escapement mechanism; substantially as specified.

19. In a type-writer, the combination with a carriage and abutment carried thereby, of a keyboard-locking mechanism comprising an escapement having a movable arm, a vertically-pivoted member having a part for contact with said escapement-arm, a pawl pivoted on said pivoted member at a right angle to the pivot thereof and having a projection extending into the path of the abutment on the carriage of the machine, whereby the movement of the carriage and its abutment operates the keyboard-locking device; substantially as specified.

20. A keyboard-locking device comprising a member having pivots and a lateral extension, and a pawl mounted upon and embracing the device between said pivots for oscillation with and at an angle to that of the locking device; substantially as specified.

21. A keyboard-locking device comprising a vertically-pivoted member have a part arranged to contact directly with an arm on an escapement and a pawl mounted on said member for oscillation in a plane different from that of the pivoted member, an upward extension of the pawl projecting into the path of a carriage, a lower extension thereof, and a spring for holding the pawl yieldingly in one position; substantially as specified.

22. In a type-writer, the combination with a carriage, a feed-rack, a cooperating escapement mechanism, of a keyboard-locking mechanism, an escapement-locking device mounted for horizontal oscillation into and out of direct contact with an arm on the escapement, a pawl carried by said locking device and mounted for oscillation in a different plane from that of the locking device, an extension from the pawl projecting into the path of the carriage, and means for returning the parts to their normal position after operation by the carriage; substantially as specified.

23. In a keyboard-locking mechanism, a vertically-pivoted member having an escapement-locking extension, and a pivotally-mounted member thereon comprising an integral double pawl for oscillation in a plane different from that of the escapement-locking device, a depending extension from said pawl, and a spring connected to said extension whereby the said pawl is adapted to confine and release two independent movable parts of the machine; substantially as specified.

24. In a type-writer, an escapement-lock-

ing mechanism comprising a vertically-pivoted locking member carrying a horizontally-pivoted member provided with a part to contact at one point with the said vertically-pivoted member to limit the movement of the horizontally-pivoted member; substantially as specified.

25. A locking device for a type-writer-escapement mechanism comprising a vertically-pivoted member, an arm projecting at one side of its pivots and having a lateral extension with an enlarged end portion; substantially as specified.

26. In a type-writer, a member comprising a body portion having vertical pivots one at

each extremity, and an arm carrying a device for coöperating with the elements of the machine, in combination with the top of the frame having a bearing for one of the pivots and with a case mounted upon the frame and having bearings for the other of said pivots, said case having an opening for the passage of the projecting arm of the device; substantially as specified.

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

CHARLES SPIRO.

Witnesses:

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MICHAEL P. CORRIGAN.