

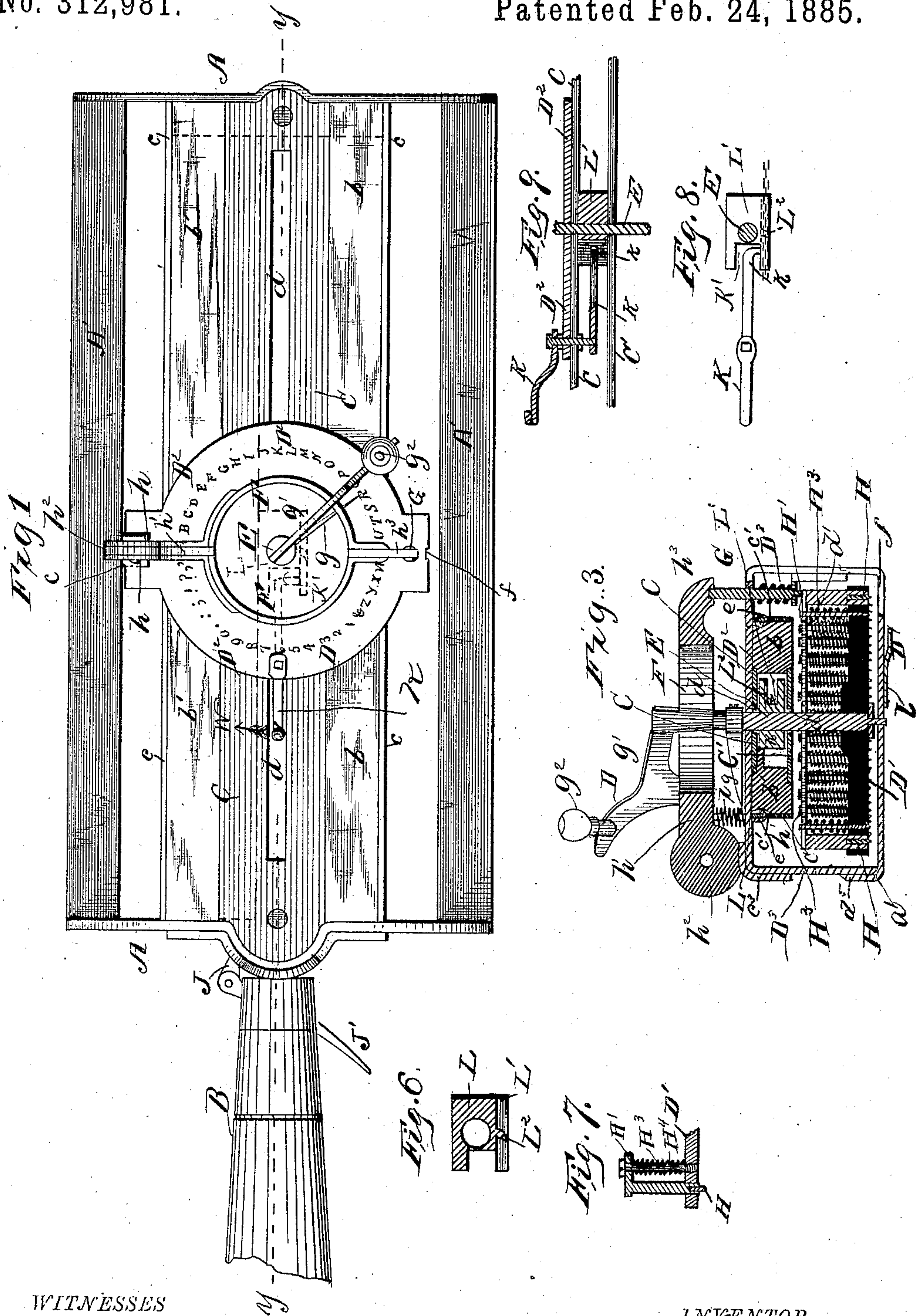
(Model.)

3 Sheets—Sheet 1.

M. C. DODGE.  
TYPE WRITING MACHINE.

No. 312,981.

Patented Feb. 24, 1885.



WITNESSES

W. E. Bowen.  
Wm. M. Rheem.

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(Model.)

3 Sheets—Sheet 2.

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Fig. 2

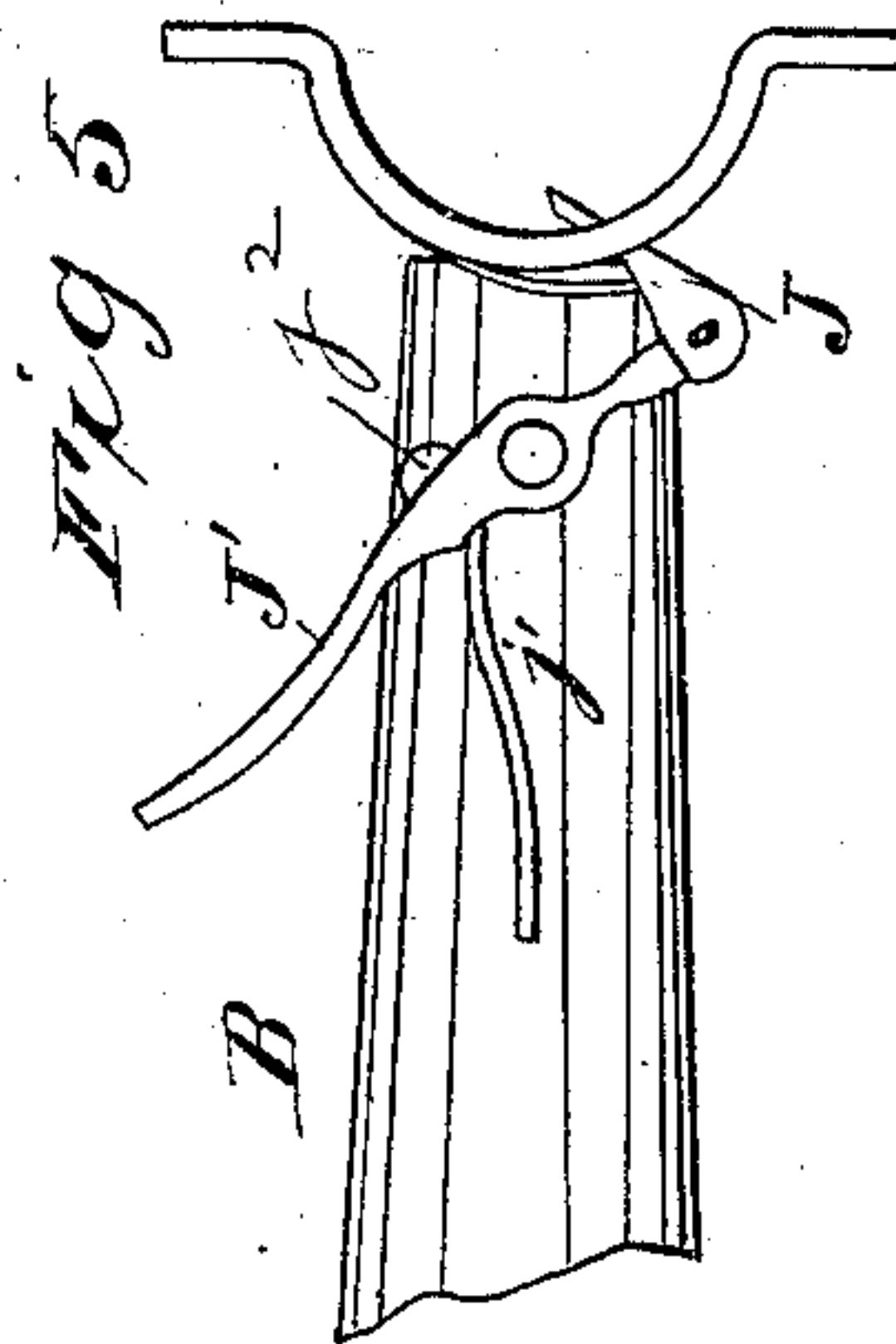
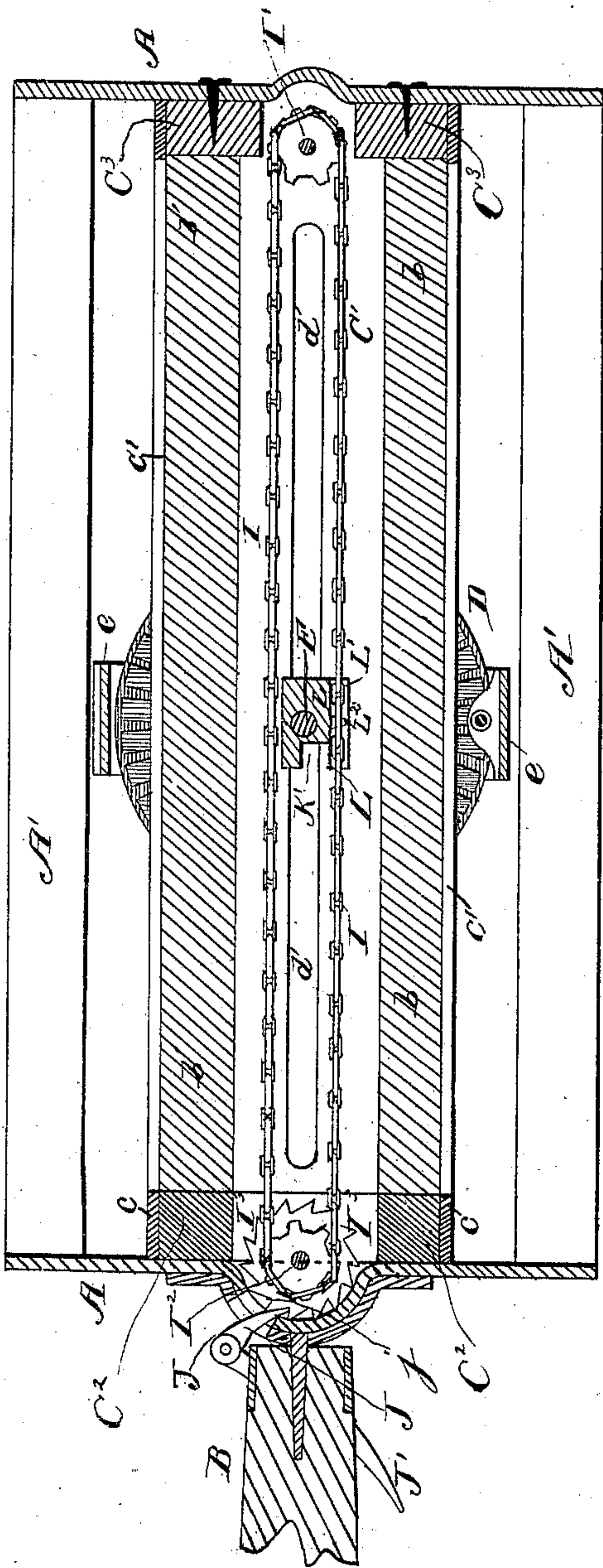
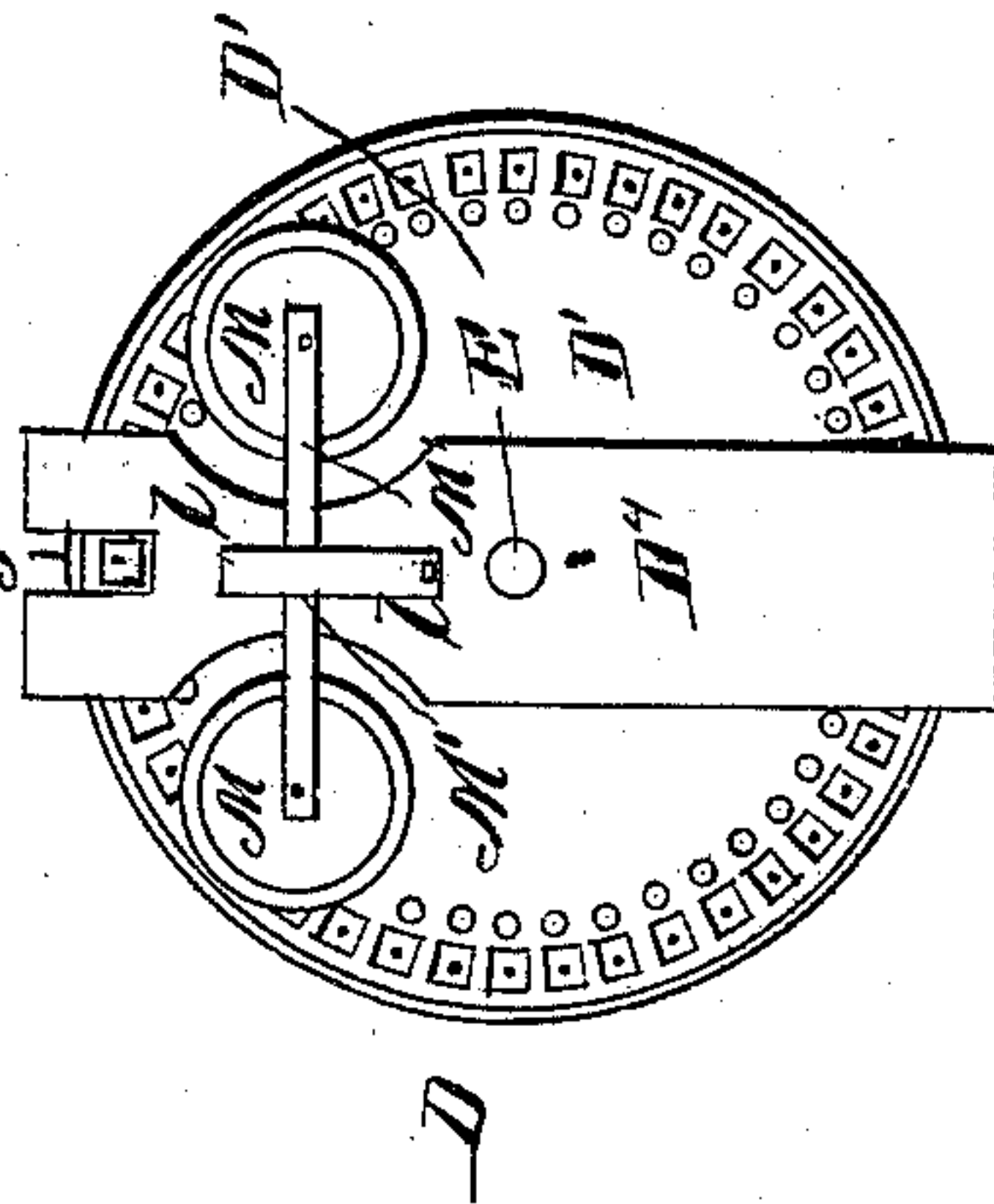


Fig. 4



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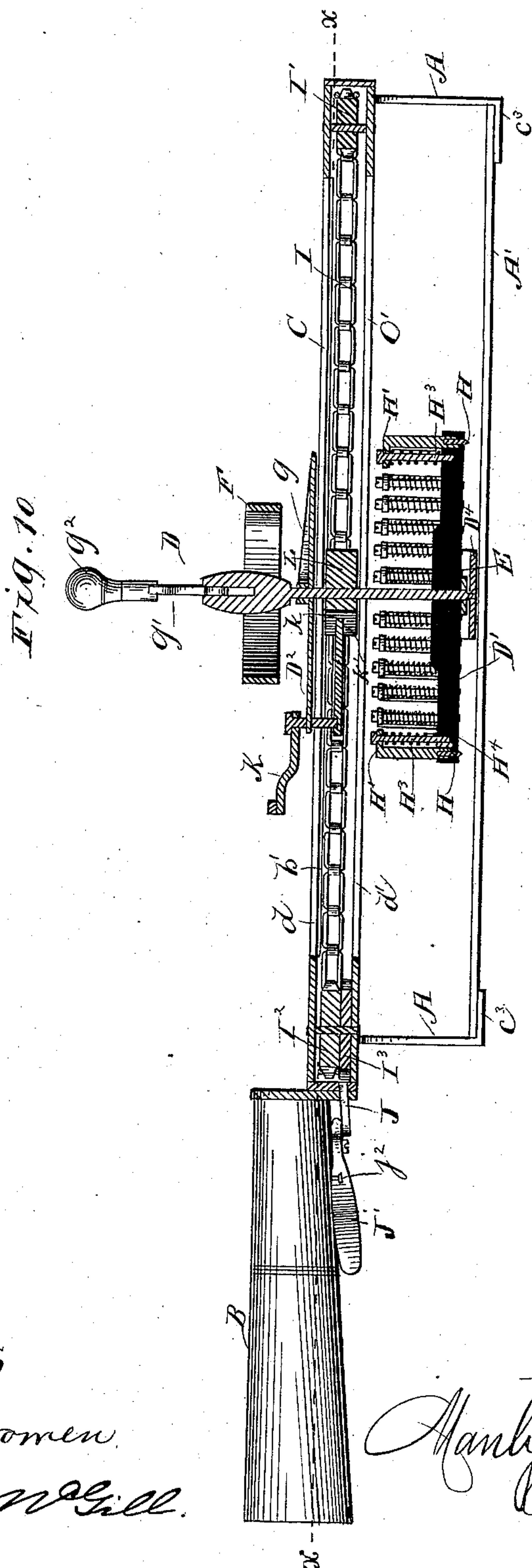
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3 Sheets—Sheet 3..

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Witnesses

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John McGill.

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# UNITED STATES PATENT OFFICE.

MANLY C. DODGE, OF CHARLOTTE, MICHIGAN.

## TYPE-WRITING MACHINE.

SPECIFICATION forming part of Letters Patent No. 312,981, dated February 24, 1885.

Application filed December 26, 1883. (Model.)

*To all whom it may concern:*

Be it known that I, MANLY C. DODGE, a citizen of the United States of America, residing at Charlotte, in the county of Eaton and State of Michigan, have invented certain new and useful Improvements in Type-Writing Machines, of which the following is a specification, reference being had therein to the accompanying drawings.

10 This invention pertains to improvements in type-writing machines, having for its object to effect the operation of writing or printing with facility and without the tapping of keys, while it is adapted also for writing or printing in blank-books, for which type-writers, as usually constructed, are not available; and the invention consists of the combination and arrangement of parts, substantially as herein-  
after fully set forth and claimed.

20 In the accompanying drawings, Figure 1 is a plan view of my type-writer. Fig. 2 is a horizontal section on line *x x*. Fig. 3 is a vertical section of the type-wheel carriage. Fig. 4 is a bottom plan view of the same. Fig. 5 is a view of the handle inverted. Fig. 6 is a longitudinal section of one of the parts detached. Fig. 7 is a vertical sectional view of one of the types and its adjunctive parts. Fig. 8 is a detail view. Fig. 9 is a vertical sectional view with parts broken away. Fig. 10 is a longitudinal sectional view of my invention on the line *y y*.

In the organization of my invention I construct a frame composed, preferably, of two end bars, A A, with downwardly bent or extended ends fastened to longitudinal base-bars A', secured horizontally upon inwardly-projecting horizontal plate-extensions *c*<sup>3</sup> *c*<sup>3</sup> of said end bars, A A, thereby allowing the suspension of the printing or type carriage between said side or base bars. To the front end of this frame is suitably connected the handle B, and to and between the two end pieces, C<sup>2</sup> and C<sup>3</sup>, of said frame are screwed or otherwise fastened two spaced-apart bars, *b b'*, to the upper and lower sides of which are screwed metal plates C C', having slots *d d'*, and which are rounded at one end and partly so at the other, and fit into coincident recesses formed in the end bars.

At one end of the two spaced-apart bars *b b'* is an end piece C<sup>3</sup> to which is secured one

of the end bars, A A. Said end piece C<sup>3</sup> has an opening in its center wherein the wheel I' is held in position.

Screwed or otherwise fastened to the sides of the bars *b b'* are metallic plates *c c*, having slots *c' c'* extending nearly from end to end thereof.

D is the type-wheel carriage, composed, preferably, (although capable of variation in structure,) of a disk or dial, D<sup>2</sup>, having lateral and downwardly bent or flanged extension D<sup>3</sup>, fully clearing the two spaced-apart bars *b b'*. One of the downwardly-bent or flanged extensions D<sup>3</sup> is passed in under the type-wheel carriage D, and rigidly connected to the other downwardly-bent or flanged extension D<sup>3</sup> at *a'*, thus forming the lower bar or plate, D<sup>4</sup>.

To the under side of the top plate, D<sup>2</sup>, of the carriage D, one being arranged on each side of and closely to the two spaced-apart bars *b b'*, are bolted or otherwise secured downwardly-projecting right-angled plates or brackets *e*, the inner face ends of which project into the slots *c' c'* to effect the proper guiding of the carriage upon the bed-bars.

In one arm D<sup>3</sup>, and extending a short distance inward and through the transverse bottom-connecting-plate, D<sup>4</sup>, is also a slot, *f*, through which the required or depressed type is caused to project and impart its impression to the surface of the paper designed to receive such impression in effecting the printing or writing operation.

Through the longitudinal slots *d d'* of the plates C C' passes the shaft E, bearing at its lower end centrally in the type-wheel D' of the carriage D, while above said type-wheel D' it passes through the disk or dial D<sup>2</sup>, and is provided above the dial with a pointer, *g*, and at its upper end with a lever, *g'*, having a knob, *g*<sup>2</sup>, at its outer end. The knobbed lever is capable of being moved upwardly and returned to its original position to permit the adjustment of other hereinafter-described parts in position.

Articulated to an arm or between two disks, *h*, of a bracket, *c*<sup>3</sup>, suitably secured to extension D<sup>3</sup> of the carriage D is a ring-lever, F, said connection being effected by an arm, *h'*, fixed thereto, said latter arm having a perforated disk, *h*<sup>2</sup>, at its outer end sandwiched be-



tween the two disks  $h$ . Although this may be the preferable way of connecting the ring-lever F, any other convenient means for the purpose may be adopted. Diametrically opposite the arm  $h'$  said ring-lever F is provided with a second arm,  $h^3$ , which, (while the arm  $h$  rests on a spring,  $i$ , secured to the dial  $D^2$ ,) rests on a spring plunger or pin, G, recessed or notched to more effectually hold said arm  $h^3$  thereon, and adapted to have movement in an aperture in the disk or dial  $D^2$ , and to come into contact with a coincident type head or extension, presently referred to, when force is applied to the ring-lever. The plunger is elevated by its spring when pressure is removed.

Disposed in a circle near the outer edge or margin of the type-wheel  $D'$ , and so as to occupy a coincident series of apertures or holes in said type-wheel, are a series of types, H, composed of the letters of the alphabet, punctuation-marks, figures, or other characters which are designed to effect the printing or writing.

Secured to the type-wheel  $D'$  and arranged in a circle adjacent to the types H, are a series of vertical rods or studs,  $H^3$ , encircled by spiral springs  $H^4$ , which act from the type-wheel  $D'$  against perforated rectangular extensions  $H'$  at the upper ends of the type-stems, through which projections the studs  $H^3$  extend, as shown in Figs. 3 and 7. The upper ends of the studs  $H^3$  are provided with heads or enlargements which engage with the upper sides of the rectangular extensions  $H'$  of the types H, and arrest their upward movement caused by the action of the spiral springs surrounding the studs  $H^3$ , for the purpose of effecting the retraction of the type after the downward motion necessary to be given them for producing contact of the same with the material to be printed. The studs  $H^3$ , by reason of passing through the rectangular extensions  $H'$  at the upper ends of the type-stems, operate to hold them in correct perpendicular positions and thereby bring the type-faces squarely against the paper to be printed, thus securing full impressions of the same.

Between the slotted plates  $C$   $C'$  is arranged an endless chain belt, I, passing over wheels  $I^1$   $I^2$ , the wheel  $I^1$  being disposed in one end between the two plates  $C$   $C'$ , with its periphery contiguous to the curvature in said end, and the wheel  $I^2$  located in the opening in the end piece  $C^3$ , with its periphery adjacent to the curvature in that end, before described. The chain is thus guided and retained in position on the pulleys or wheels. The shaft E passes through an oblong square block or sleeve, L, within the box or case formed by the slotted plates  $C$   $C'$ , side bars,  $b$   $b'$ , and end bars,  $C^2$   $C^3$ . The sleeve L is provided at one side with a groove,  $L'$ , having a tooth,  $L^2$ , which projects through the contiguous link of the chain I, as shown in Fig. 2. The tooth  $L^2$  is so formed that it will be engaged by the chain I when it moves in one direction, and be cleared of the chain I by means of a lever, K, when it moves

in an opposite direction, as will be hereinafter more fully described. When the chain moves and engages with the tooth  $L^2$ , the type-carriage is moved in a forward direction. The side bar,  $b'$ , is sufficiently extended inwardly, as indicated by the dotted lines in Fig. 1, to engage with the side of the oblong sleeve or block L, and thus hold it in line with the chain I, the inner edge or side of the bar  $b'$  being rabbeted to allow the chain I to pass freely, all which is fully shown in Fig. 3.

Upon the wheel  $I^2$ , at the handle end of the machine, is formed or connected a ratchet,  $I^3$ , with which engages a dog or pawl, J, projecting through a slot,  $j$ , in that end of the box or case formed by end pieces,  $C^2$   $C^3$ , and plates C  $C'$ , and pivoted to a thumb-lever,  $J'$ , pivoted upon the lower side of the handle B, and capable of convenient manipulation by the thumb of the left-hand, while the type-wheel is being operated by the right-hand. This pawl or dog is held in its proper position by a spring,  $j'$ , in contact with the thumb-lever  $J'$ , (see Fig. 5,) secured to the inclosing-case, so as to partly cover the slot  $j$ , and bear on the dog or pawl when under pressure. The thumb-lever  $J'$  is also held in position as against too great a rearward movement by means of a stop,  $j^2$ , and is moved to manipulate the dog or pawl, which acts to propel one of the chain-belt wheels, when the chain-belt wheel will be driven and the carriage be moved longitudinally along its support, intermediate mechanism, presently described, assisting to accomplish this end.

K is a lever, pivoted to the upper side of the dial  $D^2$ , next to the handle end of the machine, and arranged between the dial and box and parallel with the slot in the plate C, the forward end of said lever having a small upright handle, while its opposite end is bent downward through said slot and thence to one side where it terminates in a tooth,  $k$ . By pressing said tooth  $k$  of the lever K against said chain, it will throw the chain I out of engagement with the tooth  $L^2$  of the block L, and allow the type-wheel carriage to be returned to any desired point over which it has already been passed.

The block L is arranged to slide in ways formed between the plates C and  $C'$  and the two spaced-apart bars  $b$  and  $b'$ , and to permit the type-wheel shaft to pass through it and through itself. In the center of one side is a groove for the carriage-operating chain to pass through, thus admitting it to slide with the carriage. In the forward end of this block is a recess,  $k'$ , within which the inner toothed end of the lever K works or is capable of having movement as it is projected into or against and retracted from the carriage-operating chain. Upon the lower side of the carriage are supported two inking pads or disks, M, one being journaled upon each end of a steel or spring-metal bar,  $M'$ , centrally inserted between the bottom bar of the carriage, and a spring,  $l$ , fastened to said bar, so as to have sufficient



contact with the passing type of the type-wheel to cause the rotation of the pads, and the proper application of the ink to the types. The bottom bar of the carriage may be semi-circularly recessed on each side to allow the closer arrangement to each other of the inking pads or disks, while the latter, together with their connecting-bar, are readily removable by means of the above arrangement, to enable the re-inking or re-supplying with ink of the pads. With this construction of devices, it will be seen that with the tooth  $L^2$  engaging the chain I, the type-wheel carriage will, when subjected to the action of the parts, as above described, be moved along its support at intervals occurring, as may be regulated by the action of the thumb on the lever  $J'$ , while by the turning of the type-wheel shaft E, by the action of the right hand upon its handle, and the depression of the handle, the process of writing or printing will take place.

Preparatory to the writing or printing operation, the carriage is moved to the left or handle end of the supporting case of frame by slightly moving the lever K in the direction of the arrow W, thus causing the disengagement of the chain I with the tooth  $L^2$  of the block L, which allows the carriage to be moved toward the handle end of the machine without operating the chain and its wheels, which are prevented from having a reverse movement by means of the pawl J. The handle of the type-wheel shaft is now grasped and turned (the chain having again been brought into engagement with the tooth  $L^2$  of the block L) until the pointer on said shaft points to the desired specific letter or type on the dial  $D^2$ , (which is designed to be correspondingly lettered or marked with the type in the wheel,) when, by pressing downward upon the handle, the plunger will be forced upon and depress the corresponding letter or mark of the wheel-type, so as to make its impression on the surface of the paper upon which it is designed to print or write. The thumb-lever  $J'$  is now operated so as to cause its pawl or dog to actuate the ratchet-wheel of one of the chain or belt operating wheels, which will drive said chain and effect the movement of the carriage the required distance or interval of making the next type-impression, which operation of moving the type-wheel and depressing the type, effecting the printing operation, and moving the wheel-carriage at intervals throughout the operation, will be continued until the required amount of printing or writing has been accomplished.

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

1. In a type-writing machine, the combination of the type-wheel, and the type-wheel

carriage D, having disk or dial  $D^2$ , said disk or dial having lateral and downwardly-bent or flanged extensions  $D^3$ , one forming the lower bar,  $D^4$ , having slot  $f$  for passage of the type when depressed, with the central vertical rotating shaft, E, having pointer  $g$  and lever  $g'$ , constructed substantially as described, and arranged to operate as specified, and for the purpose set forth.

2. In a type-writing machine, the combination of the type-wheel  $D'$ , carriage D, having central vertical shaft, E, block L, having recesses  $L'$  and  $L''$ , and tooth  $L^2$ , the longitudinally-slotted centrally-recessed type-wheel carriage-support, composed of the plates  $C$  and  $C'$ , side bar,  $b$ , rabbeted side bar,  $b'$ , and slotted end pieces,  $C^2$  and  $C^3$ , chain belt I, sprocket-wheels  $I^1$  and  $I^2$ , ratchet-wheel  $I^3$ , pawl J, thumb-lever  $J'$ , and spring  $j'$ , all constructed and arranged to operate substantially as specified, for the purpose set forth.

3. In a type-writing machine, the combination of the type-wheel carriage, the actuating-chain, and the lever K, pivoted to the dial  $D^2$ , and having a tooth,  $k$ , designed to either place the chain I in or out of engagement with the tooth  $L^2$  of the block L, substantially as specified, and for the purpose set forth.

4. In combination with the type-wheel carriage, the type-wheel  $D'$ , having types H, studs  $H^3$ , springs  $H^4$ , extensions  $H'$ , and the ring-lever F, having arm  $h'$  and perforated disk  $h^2$ , sandwiched between two disks,  $h$ , of the bracket  $c^3$ , spring  $i$ , and spring-plunger G, arranged to operate substantially as specified, and for the purpose set forth.

5. The studs  $H^3$ , having springs  $H^4$ , and types H, having perforated right-angled extensions  $H'$ , in combination with the type-wheel  $D'$ , and the type-wheel carriage, all constructed and arranged to operate as specified, and for the purpose set forth.

6. In a type-writing machine, the combination of the handle B, provided with thumb-lever  $J'$ , having spring  $j'$ , and stop  $j^2$ , and pawl J, ratchet-wheel  $I^3$ , chain belt I, grooved and toothed block L, shaft E, and the type-wheel carriage D, substantially as specified, and for the purpose set forth.

7. In a type-writing machine, the combination of the type-wheel carriage, having the lower bar or plate,  $D^4$ , spring L, supporting-bar  $M'$ , and the two inking pads or disks M, journaled thereto for supplying ink to the type H, all constructed and arranged to operate substantially as shown and described.

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

MANLY C. DODGE.

Witnesses:

JAS. G. POLLARD,  
F. S. BELCHER.