(No Model.) 6 Sheets—Sheet 1.

E. I. BLOUNT, D. E. KEMPSTER, J. H. CURRIER & B. DORE.

TYPE WRITING MACHINE.

No. 410,266. Patented Sept. 3, 1889.

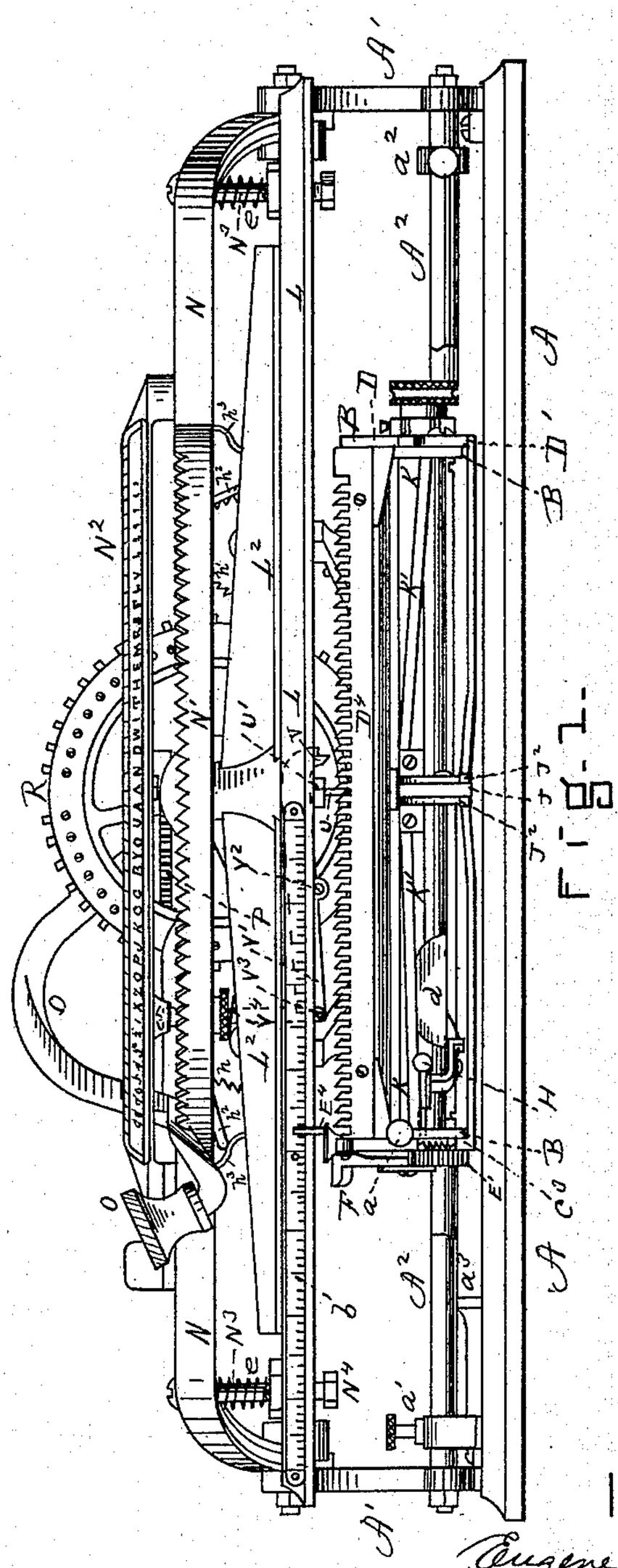

FIG. 1.

WITNESSES.

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(No Model.) 6 Sheets—Sheet 2.

E. I. BLOUNT, D. E. KEMPSTER, J. H. CURRIER & B. DORE.

TYPE WRITING MACHINE.

No. 410,266. Patented Sept. 3, 1889.

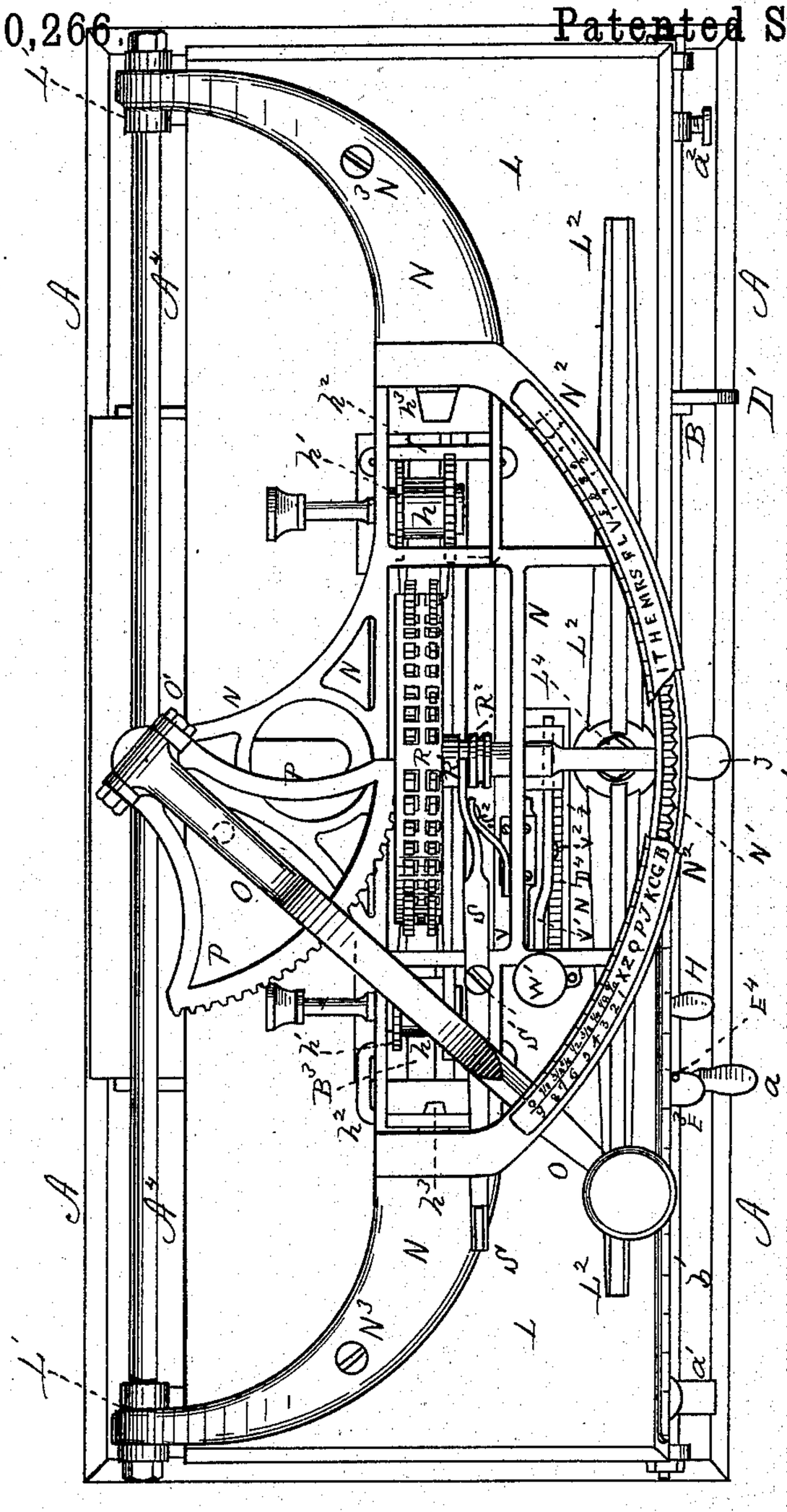

FIG. 2.

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(No Model.) 6 Sheets—Sheet 3.

E. I. BLOUNT, D. E. KEMPSTER, J. H. CURRIER & B. DORE.

TYPE WRITING MACHINE.

No. 410,266. Patented Sept. 3, 1889.

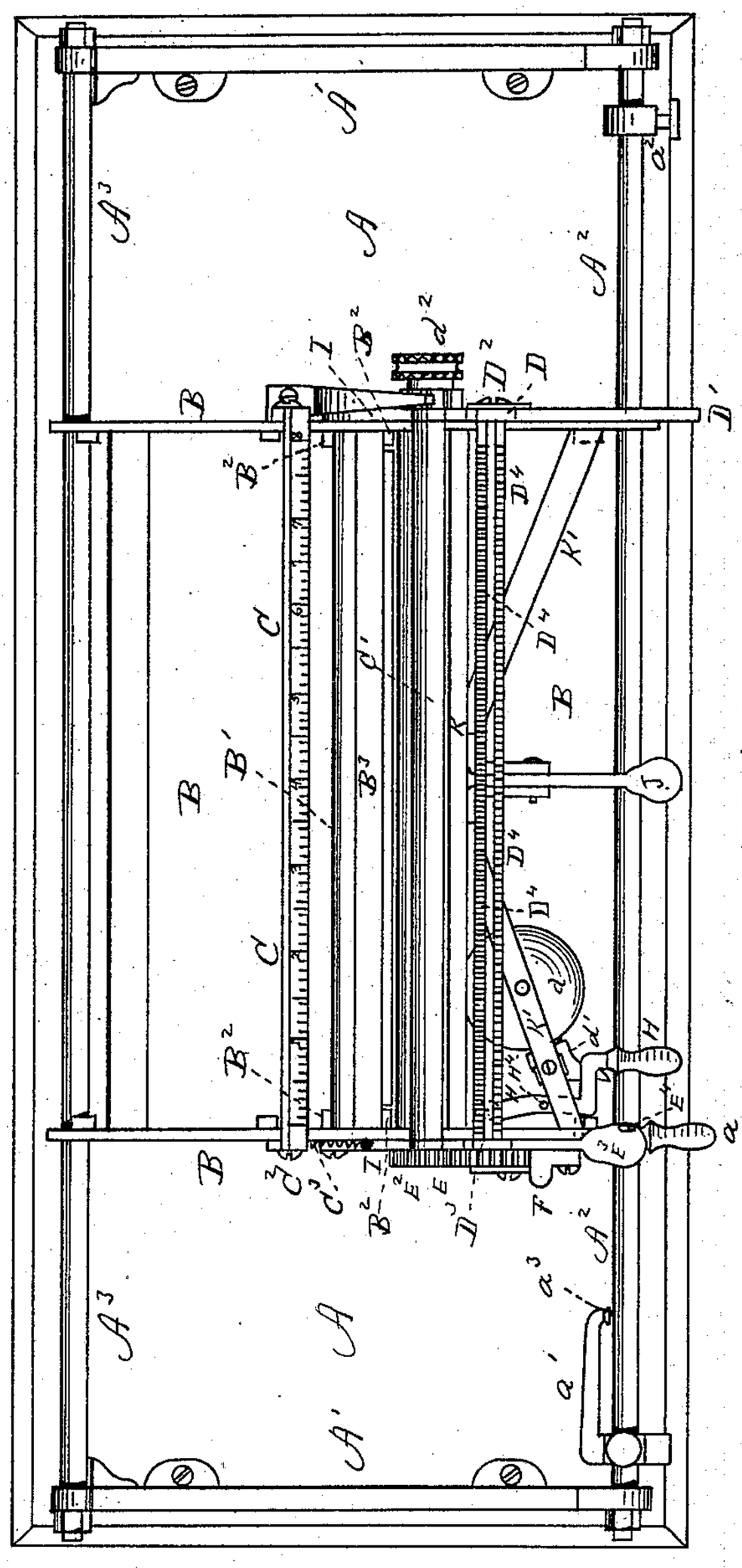

FIG. 5.

WITNESSES.
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TYPE WRITING MACHINE.

No. 410,266. Patented Sept. 3, 1889.

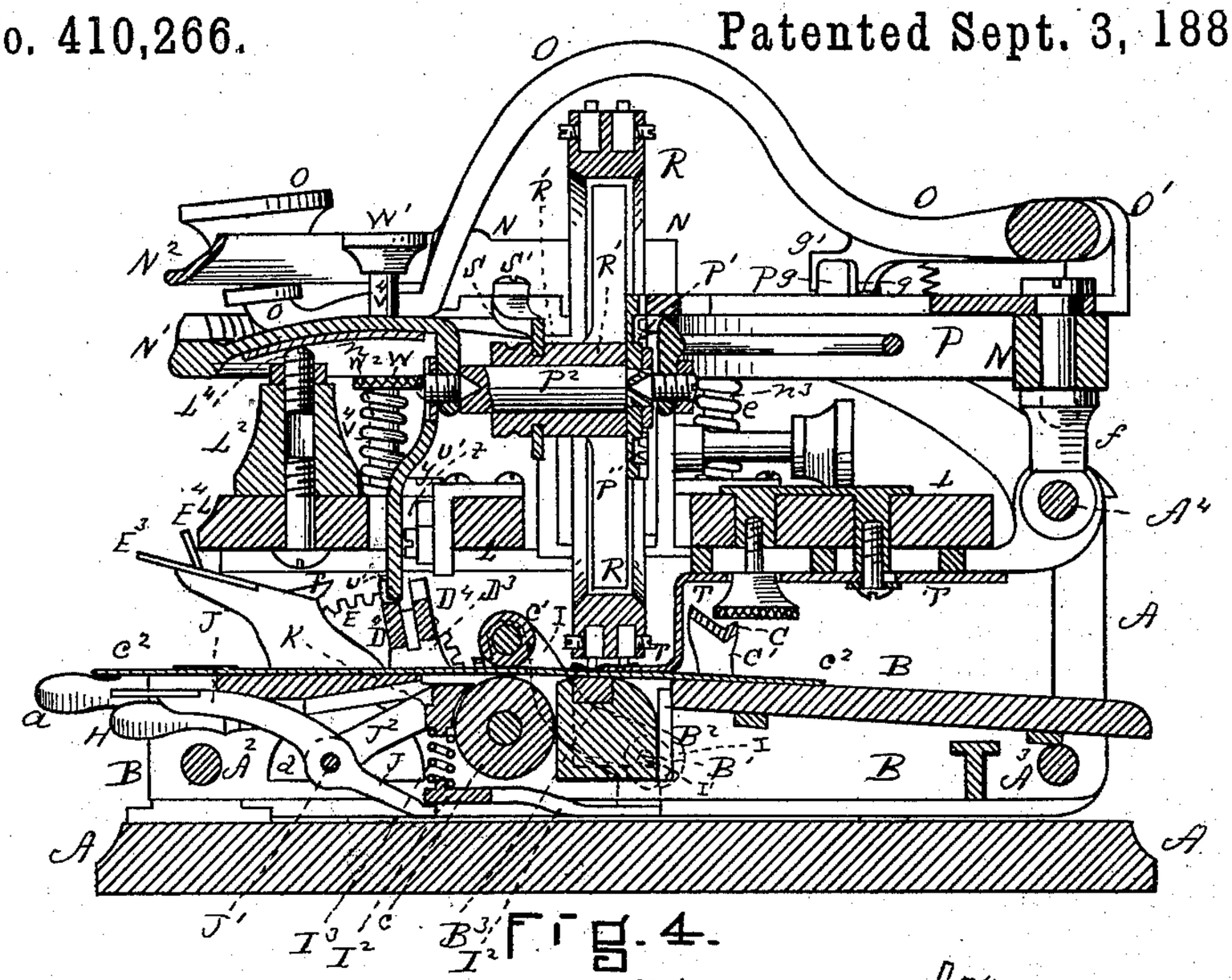

Fig. 4.

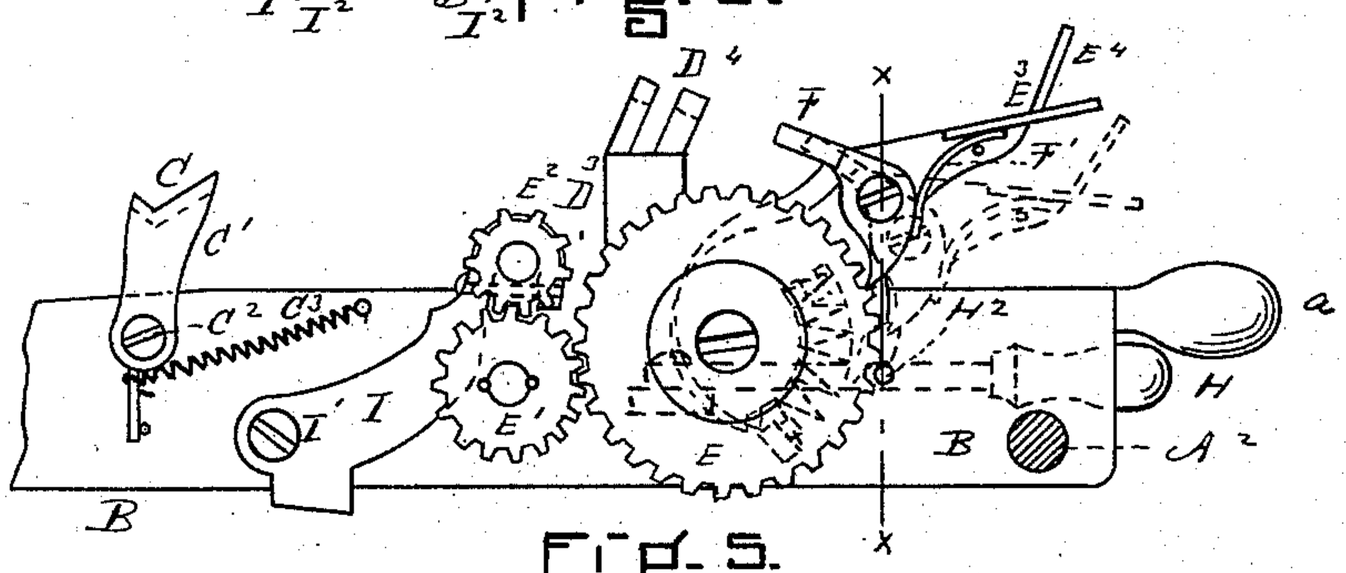

Fig. 5.

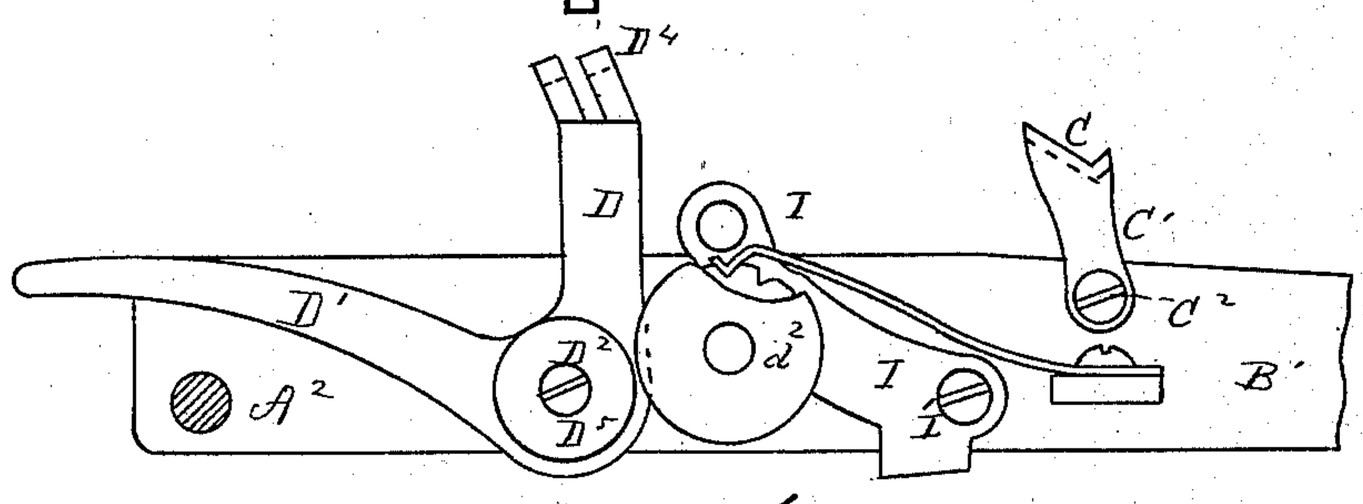

Fig. 6.

WITNESSES.
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E. I. BLOUNT, D. E. KEMPSTER, J. H. CURRIER & B. DORE.

TYPE WRITING MACHINE.

No. 410,266. Patented Sept. 3, 1889.

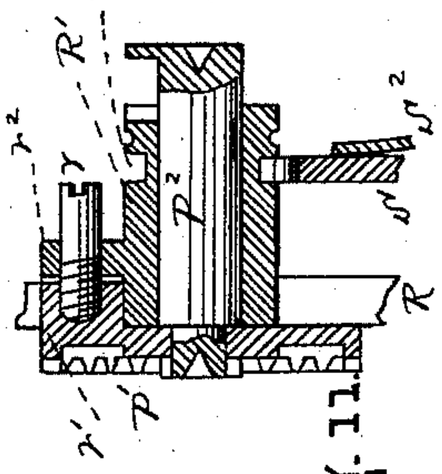

Fig. 11.

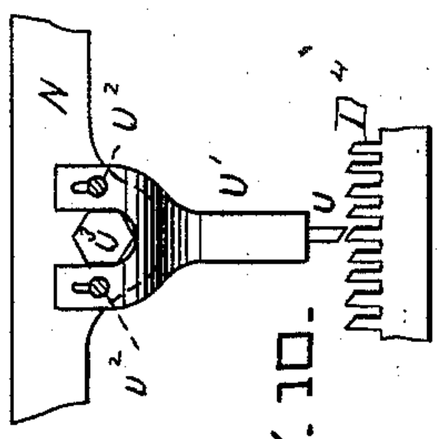

Fig. 10.

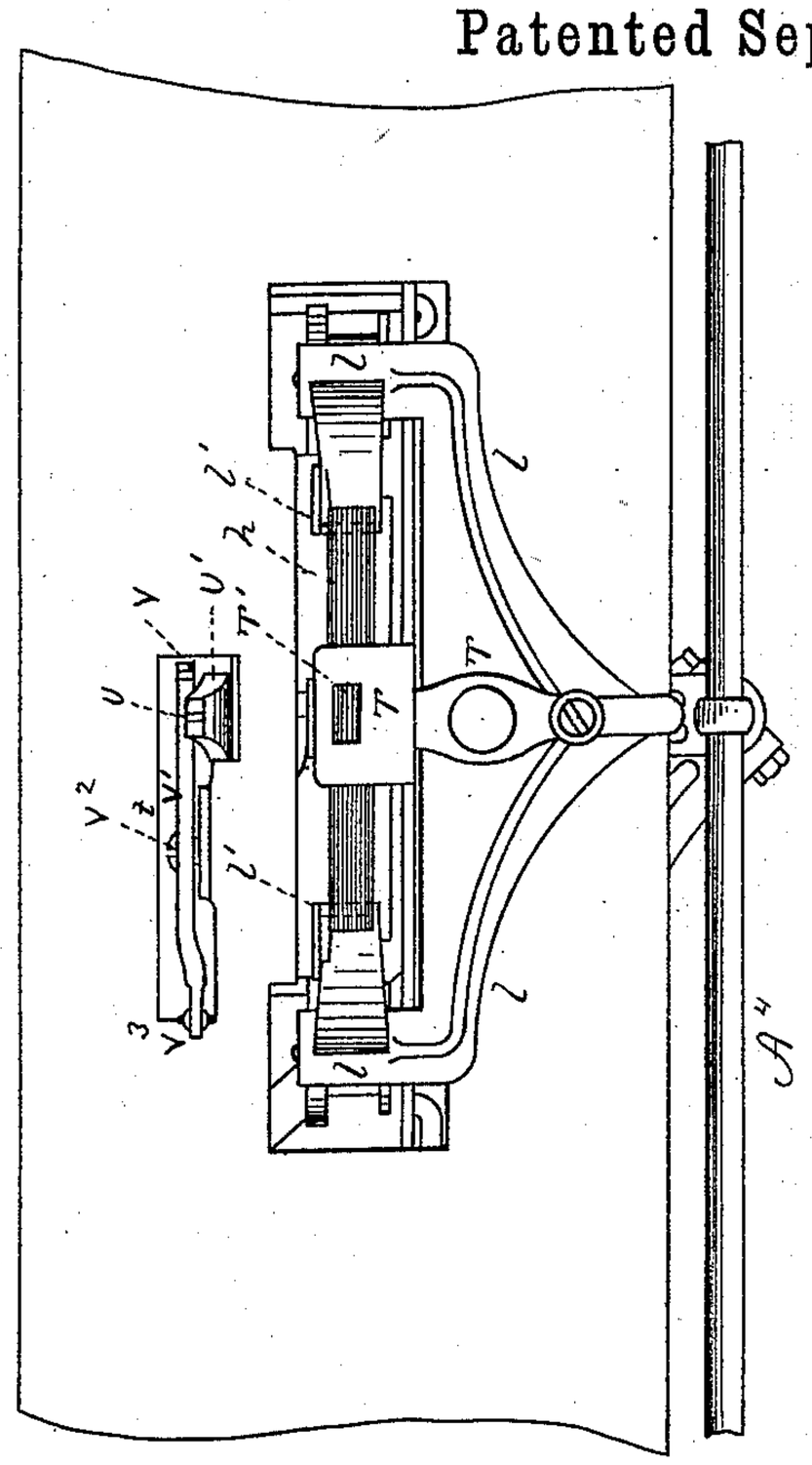

Fig. 7.

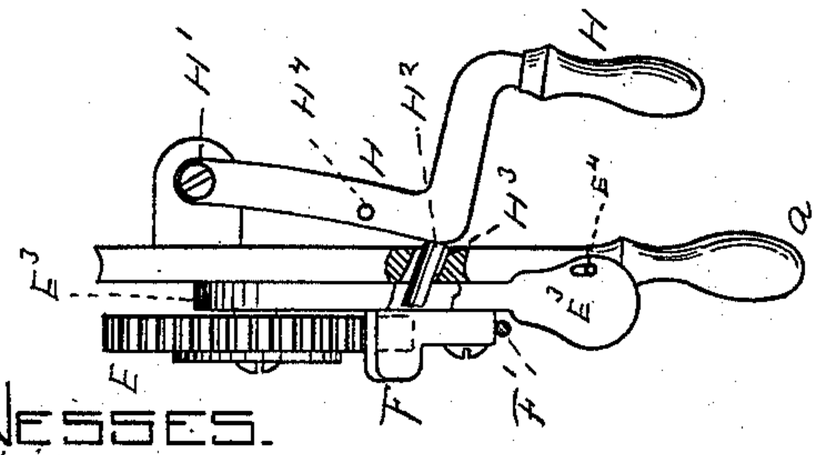

Fig. 9.

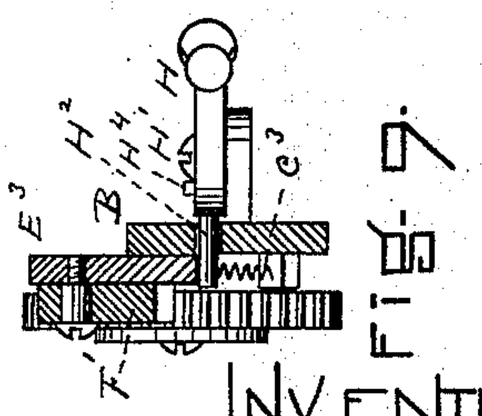

Fig. 8.

WITNESSES.

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(No Model.) 6 Sheets—Sheet 6.

E. I. BLOUNT, D. E. KEMPSTER, J. H. CURRIER & B. DORE.

TYPE WRITING MACHINE.

No. 410,266. Patented Sept. 3, 1889.

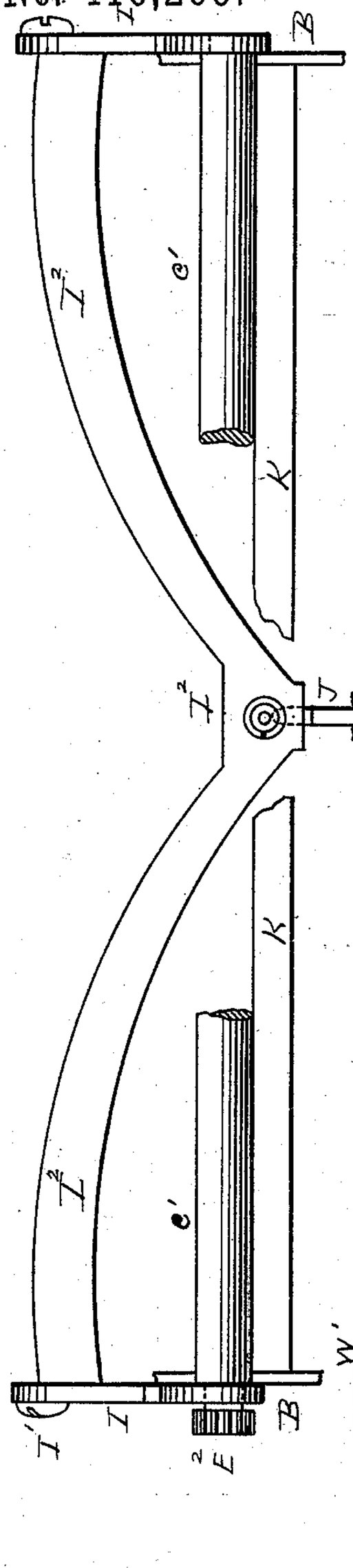

Fig-12.

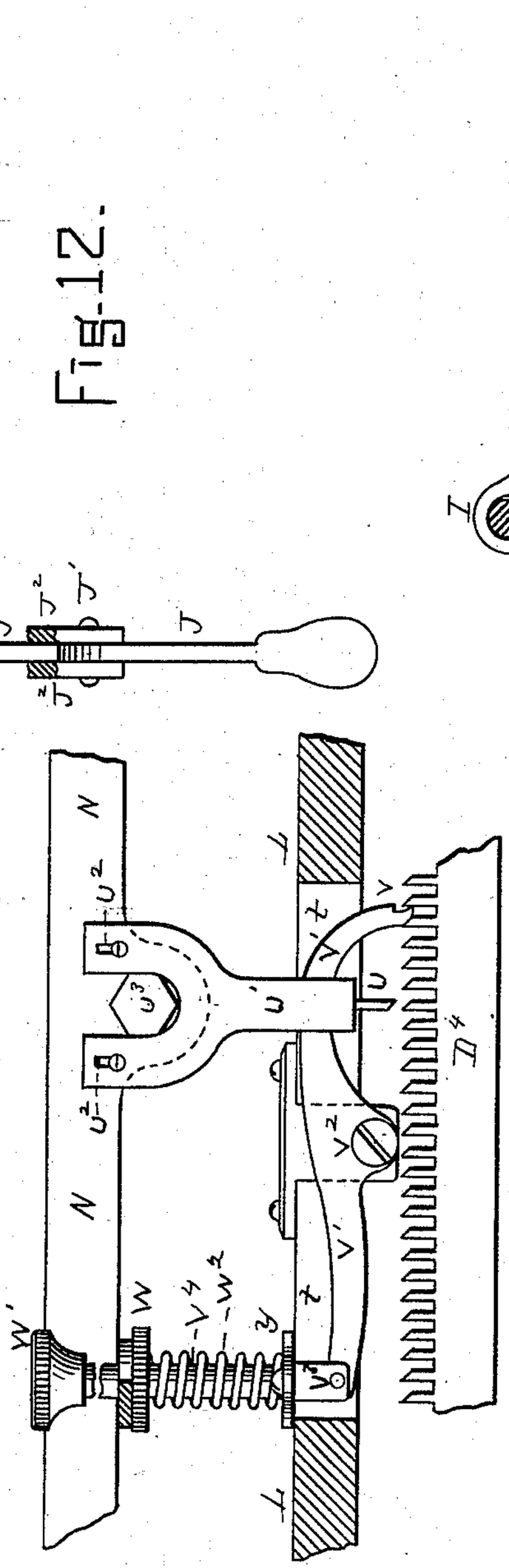

Fig-14.

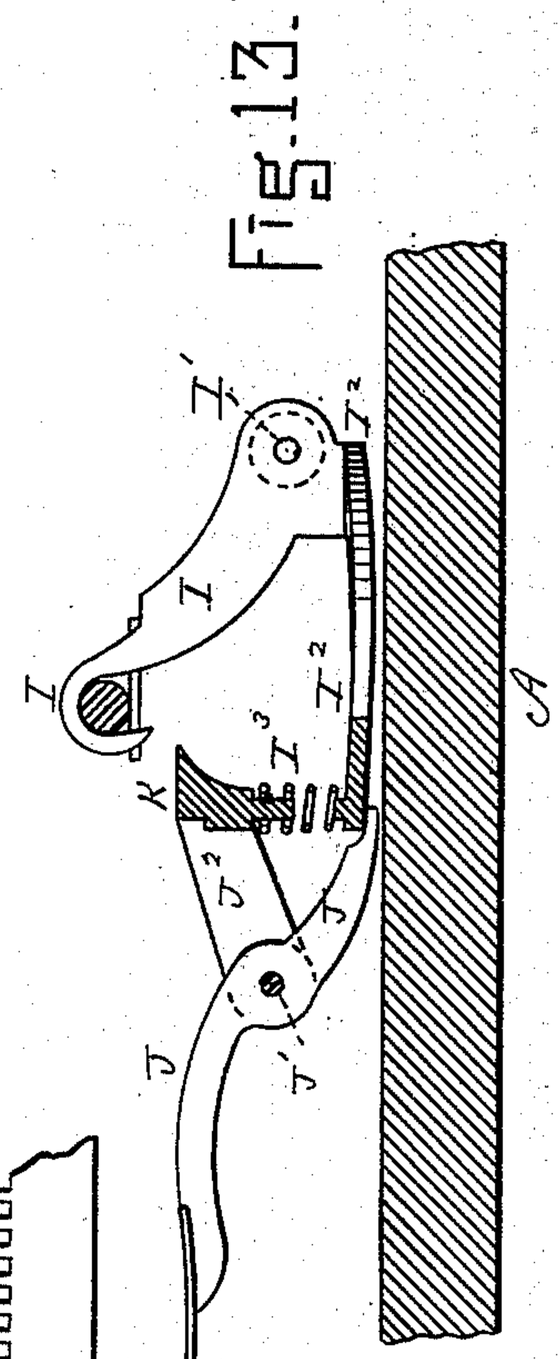

Fig-13.

WITNESSES.

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UNITED STATES PATENT OFFICE.

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TYPE-WRITING MACHINE.

SPECIFICATION forming part of Letters Patent No. 410,266, dated September 3, 1889.

Application filed February 26, 1887. Serial No. 228,934. (No model.) Patented in England March 5, 1887, No. 3,417.

To all whom it may concern:

Be it known that we, EUGENE I. BLOUNT, of Somerville, in the county of Middlesex, DANIEL E. KEMPSTER, of Boston, in the county of Suffolk, JAMES H. CURRIER, of Somerville, in the county of Middlesex, and BENJAMIN DORE, of Lynn, in the county of Essex, all in the State of Massachusetts, have invented new and useful Improvements in Type-Writing Machines, (for which British Letters Patent No. 3,417 were granted March 5, 1887,) of which the following is a specification.

This invention is an improvement on the type-writing machine described in Letters Patent of the United States granted May 18, 1886, and numbered 342,302, to which reference is made.

The general operation of the machine is similar to that of the machine described in said Letters Patent, the improvements being matters more or less of detail, described below, and pointed out in the claims at the end of this specification.

In the accompanying drawings, in which similar letters of reference indicate like parts, Figure 1 is a front elevation of a type-writer embodying our improvements. Fig. 2 is a plan view of the same. Fig. 3 is a plan view of the lower part of the machine—*i. e.*, the machine with the cover and the mechanism connected therewith removed. Fig. 4 is an enlarged transverse vertical central section of the machine. Fig. 5 is a detail in elevation of one end of the carriage. Fig. 6 is a similar detail of the opposite end of the carriage. Fig. 7 is a plan view of the under side of the cover. Fig. 8 is a detail in elevation of the variable feed mechanism. Fig. 9 is a section on line *x*, Fig. 5. Fig. 10 is a detail of the feed-pawl. Fig. 11 is a sectional detail showing the connection between the type-wheel and crown-gear below described. Fig. 12 is a detail plan showing the frame I^2 and adjacent parts. Fig. 13 is a detail, part in elevation and part in cross-section, showing a portion of the frame I^2 and adjacent parts. Fig. 14 is an enlarged detail in front elevation, showing the pawls U V and adjacent parts.

A is the base, provided with the end brackets A′, which form bearings for the rods A^2, A^3, and A^4, the rods A^2 and A^3 serving as the guides for the paper carrier or carriage B, which is perforated to receive and slide on the same, the handle *a* being provided for the purpose of sliding said carriage. B′ is the printing-bar, supported in said carriage at its ends by means of brackets or hangers B^2, attached to the inner sides of the end bars of said carriage, said printing-bar being longitudinally grooved on its upper side for the purpose of receiving a strip B^3, of rubber, leather, or other flexible material to receive the blow from the type. This flexible strip adds to the quality of the impression and saves wear of the type.

a′ and a^2 are stops adjustable upon the rod A^2 for regulating the extent of the travel of the carriage, and are not new in this invention.

C is a guide-plate secured to the carriage and corresponding with the guide-plate *b* on the front edge of the cover. The principle of these guide-plates is not new in this invention, and hence they need no further explanation; but in my improvement the guide-plate *b* is placed upon the front edge of the cover, where it is readily seen, instead of at the rear portion of the machine, and the guide-plate C is movable, being supported by arms C′, pivoted at C^2 to the carriage B and held normally in a vertical position by the spring C^3, (see Fig. 5,) so that when the operator desires to use the guide-plate he presses it down against the paper which lies on the carriage and then releases it, so that it assumes the vertical position shown in the drawings, out of the way.

D D′ is an elbow-lever pivoted at D^2 to one end of the carriage, and D^3 is an arm pivotally secured to the opposite end of the carriage, said lever and arm supporting a double rack, said double rack consisting of two parallel racks D^4, the spaces between the teeth on one of which are smaller than the spaces between the teeth on the other. This is for

the purpose of allowing more or less open type-writing, according to the rack used by the feed-pawl. The rack is held in either of the two positions desired by means of the friction-washer D^5. (See Fig. 6.)

E is a gear-wheel supported by the carriage, meshing into an intermediate gear-wheel E′, which is fast to the bearing of the lower feed-roll *c*, supported in the carriage, and said gear E′ engages the small gear-wheel E^2, fast on the bearing of the upper feed-roll *c′*, supported by the arms I, pivoted at I′ to the opposite ends of the carriage, (see Figs. 5, 6, 12, and 13,) said arms being integral with the frame I^2, described below. The paper to be operated upon c^2 (see Fig. 4) passes between said feed-rolls.

E^3 is a lever pivotally secured to the carriage and held in a vertical position by the spring c^3. (See Figs. 5, 8, and 9 for the lever and Fig. 9 for the spring.) Extending upward from said lever is the pointer E^4, forming an index to the guide-plate *b*. Pivotally secured to this lever is a pawl F, held upon the gear-wheel E by the spring F′, and when the operator has finished one line by depressing the lever E^3 the pawl F rotates the gear-wheel E to the extent of three teeth, causing the rolls *c c′* to carry the paper up sufficiently to allow a certain space between the lines.

H is an arm pivotally secured at H′ to the inner side of one end piece of the carriage and swinging horizontally therein, said arm being provided with a horizontal stop-pin H^2, which lies in a perforation H^3 in the carriage. By swinging this arm so that the pin H^2 is brought under the lever E^3 the downward movement of said lever is limited, so that it can only swing down far enough to allow the pawl F to rotate the gear-wheel E to the extent of two teeth, thus making the space between two lines only two-thirds of what it otherwise would be. The movement of the arm H is limited by the pin H^4, which strikes against a portion of the frame of the carriage. The arms I, which are pivotally secured to the carriage and support the bearings of the upper roll, are integral with a swinging auxiliary frame I^2, (see Figs. 12 and 13,) held normally down by a spiral spring I^3, (see Figs. 4 and 13,) and adapted to be lifted by a lever J, which underlaps the same, said lever being pivoted at J′ between the parallel arms J^2, extending from the horizontal bar K. Thus it will be seen that by pressing upon the lever J the frame I^2 and the arms I are lifted, raising the upper roll *c′*, so that paper may be placed beneath it over the under roll.

K′ K′ are braces extending diagonally forward from the central portion of the bar K to the end pieces of the carriage. Secured to the under side of one of these braces is a gong-bell *d*, (not new in this invention,) which, by means of ordinary intermediate trip mechanism *d′*, strikes a lip a^3 on the stop *a′*, for the purpose of warning the operator when the end of a line is approached. The rolls can be reversed, if desired, by lifting the pawl F and turning the hand-wheel d^2.

L is the cover, hinged at L′ on the rod A^4. Rigidity is imparted to this cover by means of the long metallic brace L^2, near the front edge thereof, and extending the greater portion of its length.

N is a frame provided with the curved ledge N′ and curved index-plate N^2, (not new in this invention,) said frame being pivoted on the rod A^4 and attached to the cover by means of bolts or screws N^3, passing from its outer portions through said cover, and provided with nuts N^4 on the under side thereof. Spiral springs *e* encircle said bolts, and the frame is adapted to be pressed down upon said springs until the cross-piece *n* strikes the screw L^4, projecting upward from the center of the brace L^2, by means of which the type is prevented from making too hard an impression on the paper.

O is the operating-lever, pivoted at O′ to the rear end of the sector P, which swings horizontally on the rear portion of the frame N, which is supported by a post *f*, pivoted upon the rod A^4.

The general operation of the frame N, with its ledge N′ and curved index-plate N^2, the operating-lever O, and sector P, is substantially the same as described in the Letters Patent above referred to. The sector engages the crown-gear P′ (see Figs. 4 and 11) on the axle P^2. On this same axle is loosely placed the type-wheel R. This type-wheel is provided on its periphery with two rows of type, the front row consisting of small letters and the rear row consisting of capitals and other characters. A guide-pin *r* extends from the block *r′*, integral with the crown-gear P′, into the block r^2, integral with the hub R′ of the type-wheel, (see Fig. 11,) and a lever S, pivoted at S′ to the frame N, extends into an annular groove R^2 on the hub R′, and holds the type-wheel normally back against the crown-gear by means of a spring S^2. (See Figs. 11 and 2.) By operating this lever the type-wheel may be moved forward, sliding on said pin so that the rear row of type may be used, and by releasing it the type-wheel slides back again, bringing the front row into position for use.

g g are two parallel upright ears extending from the frame of the sector, between which plays a tongue *g′*, extending downward from the operating-lever O. The object of this is to prevent backlash or play and to insure accuracy of movement. The inking-ribbon *h* is stretched from spools *h′*, constructed in the ordinary manner and supported in a frame *l*, extending down through and secured to the under side of the cover, (see Fig. 7,) and said ribbon passes through loops *l′* and under the front row of type on the type-wheel. We secure adjustably to this frame a guard T, provided with a small opening T′, by means of which all the inking-ribbon is kept off the paper to be operated upon except that at the

exact point of the type. The spools h', containing the inking-ribbon, are provided with serrated rims, so that they may be operated by the hangers h^2, capable of being held up when not in use by the springs h^3, such operation, however, not being new in this invention. U is a pawl beveled to correspond with the bevels on the teeth of the rack D^4, and extending downward from the bifurcated holder U', slotted at U^2, so as to be adjustable, said pawl extending up through the slot t in the cover L, and straddling the bolt U^3 on the frame N. (See Figs. 7, 10, and 14.)

V is a pawl suitably beveled, placed by the side of the pawl U and secured to the end of the curved lever V', pivoted at V^2 in the slot t, the opposite end of said lever being pivotally secured at V^3 to the lower end of the post V^4. This post passes through the frame N and a plate y on the table, and is provided with a nut W and a head or thumb piece W', also with a spiral spring W^2, which lies between said nut W and said plate y.

In operation, when the frame N is pressed down by the operator pressing upon the operating-lever O to print a letter on the paper, the pawl U, which is rigidly connected with said frame, strikes one of the beveled teeth in the rack D^4 and moves it along. When the operating-lever is released and the frame rises through the action of the springs e, the pawl V, which rose relatively when the other pawl dropped by the action of the lever V', drops, and striking a beveled tooth in the rack D^4 completes the movement of said rack. Thus, it will be seen, the pawls work upon the rack alternately. The effect of this mechanism operating two feed-pawls is to prevent blurring and produce even spacing. The extent of the throw of the pawl V may be regulated by means of the nut W.

The objects of the improvements above detailed are in general to prevent blurring, produce even spacing between letters and variable spacing between lines, add to the number of characters to be used, render the different parts of the machine adjustable, and facilitate the production of good work at as low a cost as possible.

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

1. In a type-writer, a guide-plate held normally in a raised position from the carriage by means of supporting-arms pivotally secured to said carriage, said guide-plate being adapted to be swung down upon the paper to be operated upon near the printing-bar, substantially as and for the purpose described.

2. The combination of the movable feed-roll c', provided with the gear-wheel E^2, the vertically-stationary feed-roll c, provided with the gear-wheel E', the carriage B, the gear-wheel E, the lever E^3, pivoted to the carriage, spring c^3, pawl F, spring F', and the arm H, provided with the stop-pin H^2, said arm being pivotally secured to the carriage and adapted to swing horizontally, whereby said stop-pin may be swung into and out from a corresponding perforation H^3 in the carriage for varying the spacing between the lines, substantially as set forth.

3. In a type-writer, the combination, with the carriage B, of the frame I^2, provided with the spring I^3, said frame being further provided with the arms I, supporting the roll c' and pivotally secured to the carriage, and with the lever J, pivotally secured to the frame of said carriage, substantially as and for the purpose described.

4. In a type-writer, the combination, with the beveled toothed rack D^4 on the carriage, of beveled pawls U V, for actuating said rack, substantially as and for the purpose set forth.

5. In a type-writer, the combination of the beveled toothed rack on the carriage, the pawl U, adjustably supported by the frame N, the pawl V, lever V', and adjustable spring-bolt V^4, substantially as and for the purpose hereinbefore described.

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