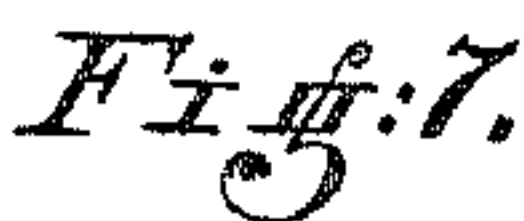
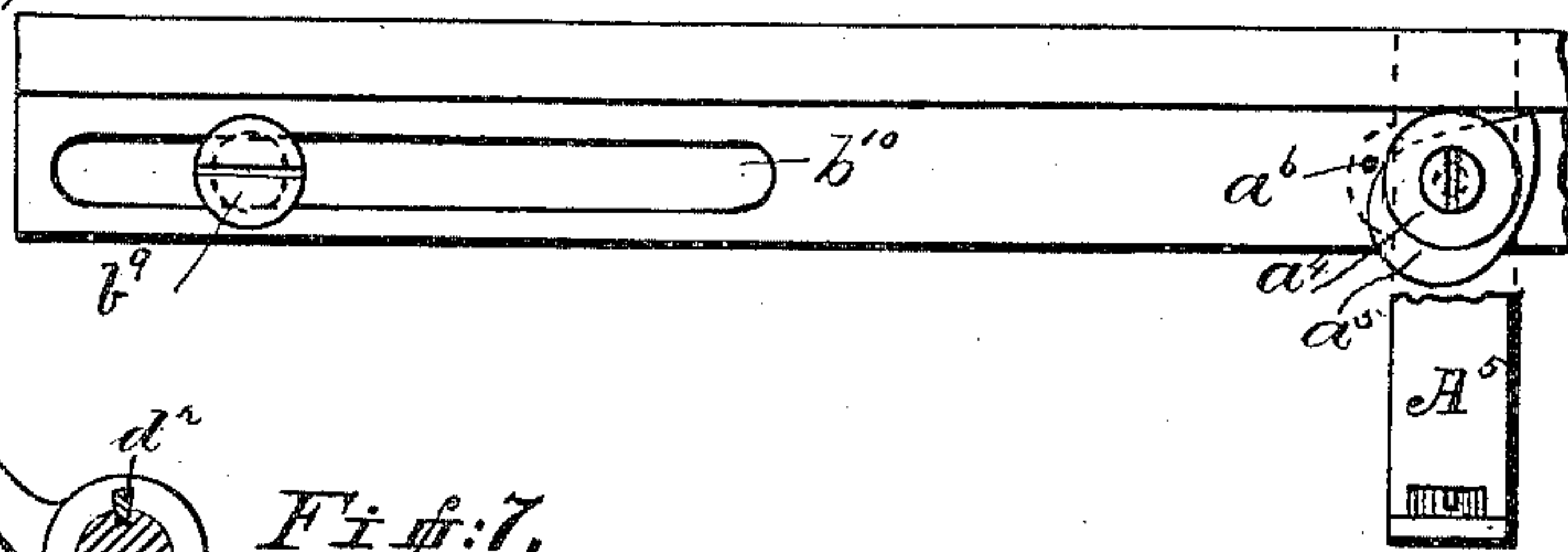
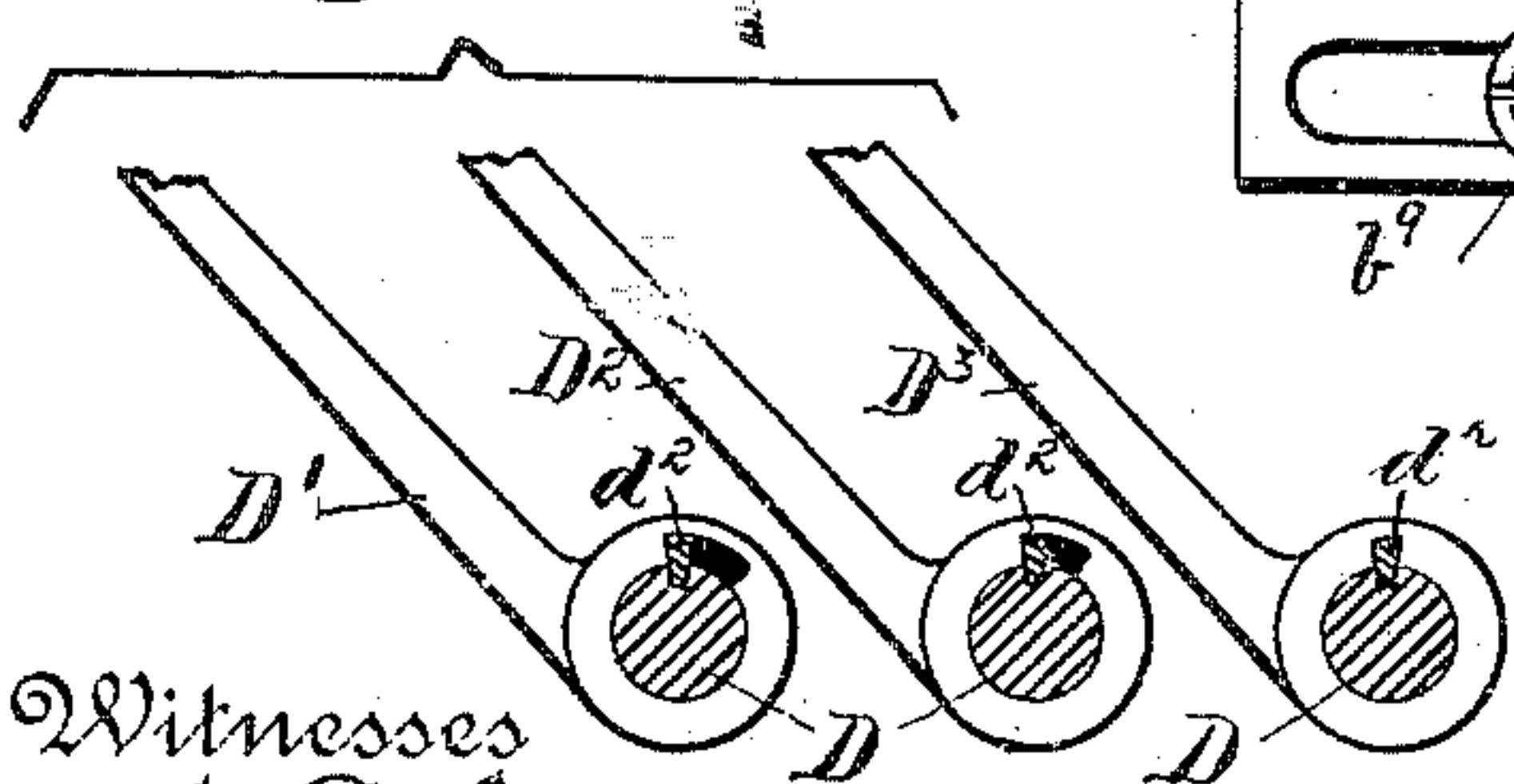
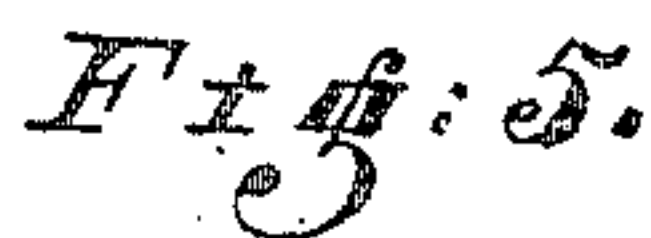


3 Sheets—Sheet 1.

No. 411,339.

Patented Sept. 17, 1889.



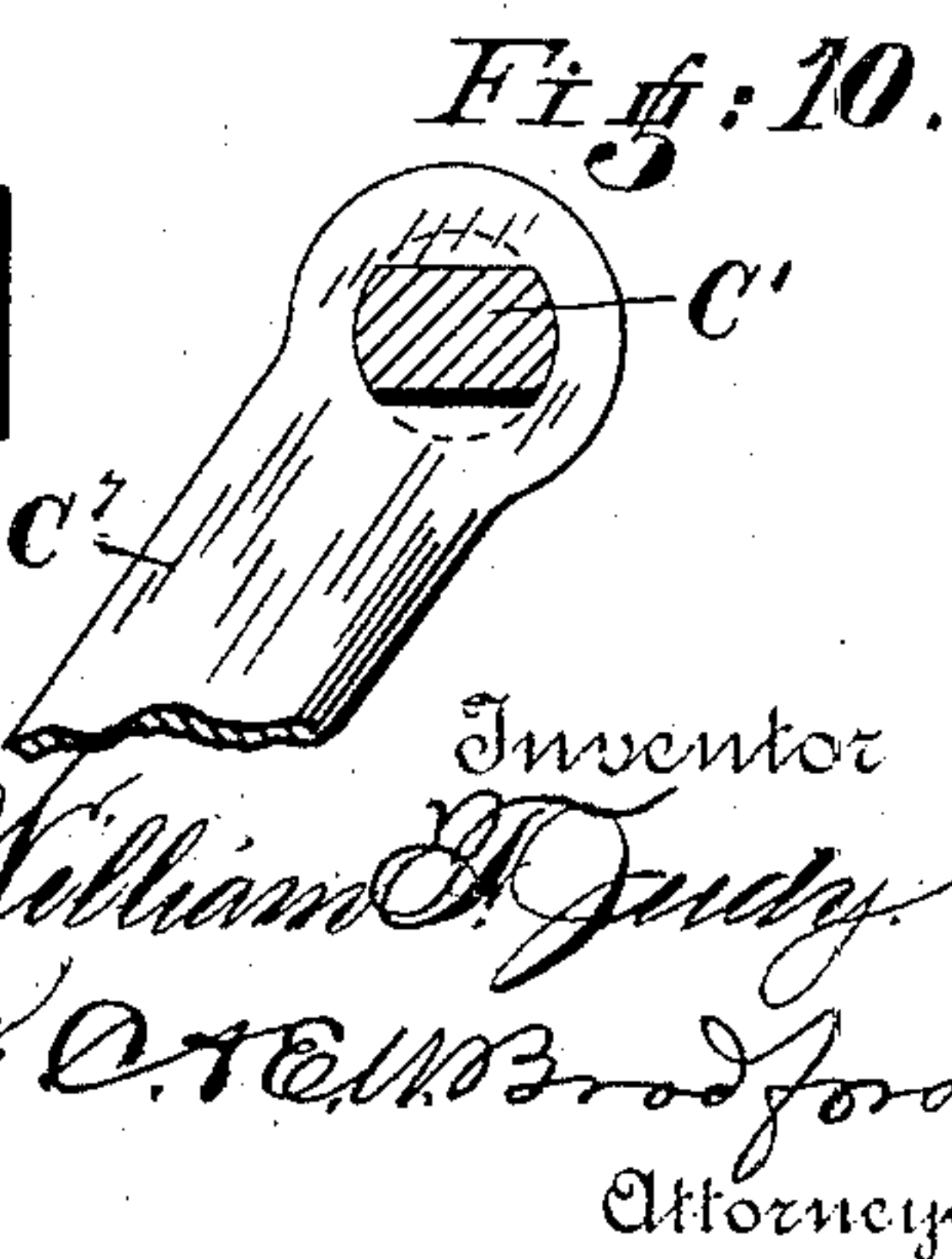
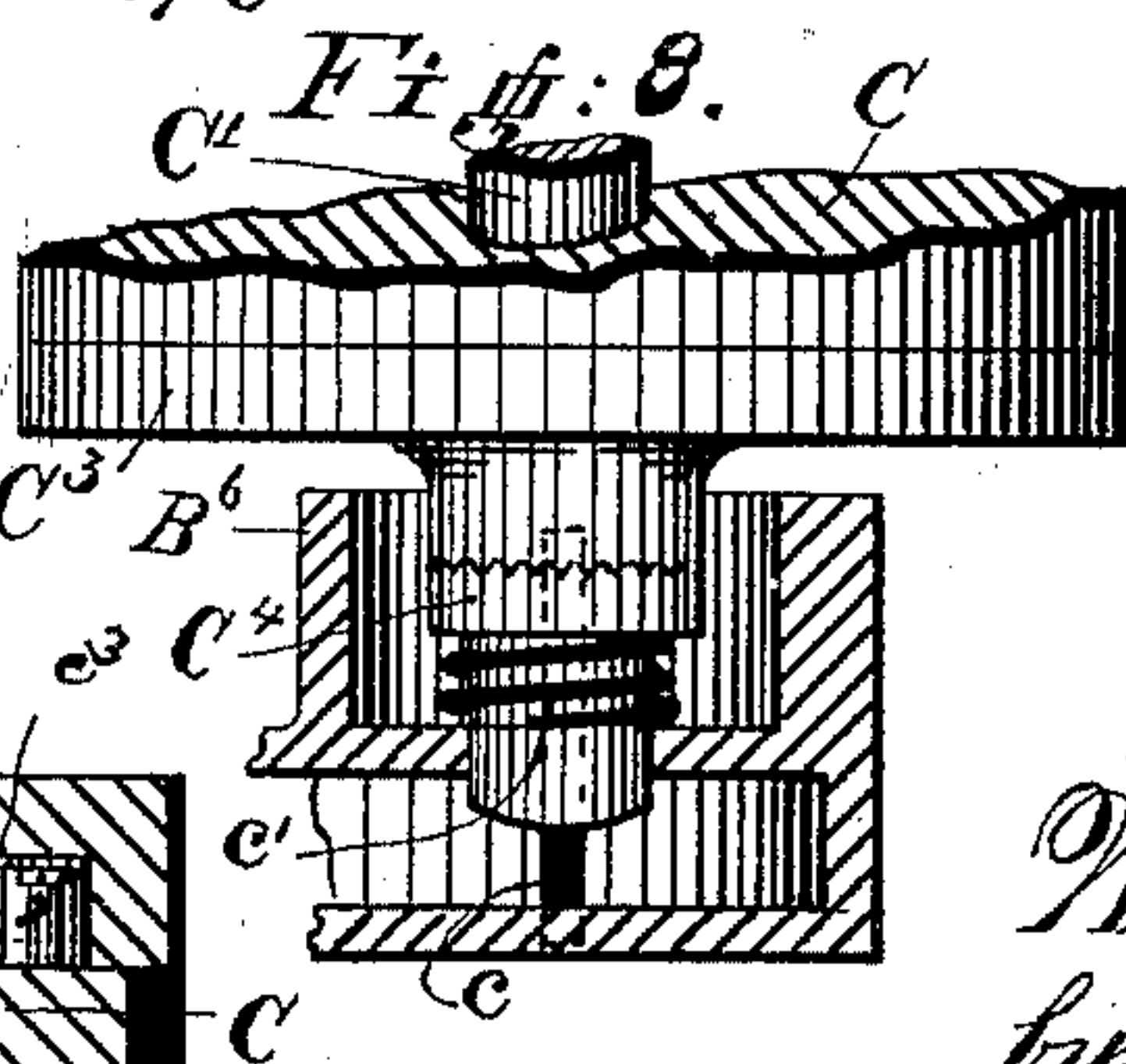
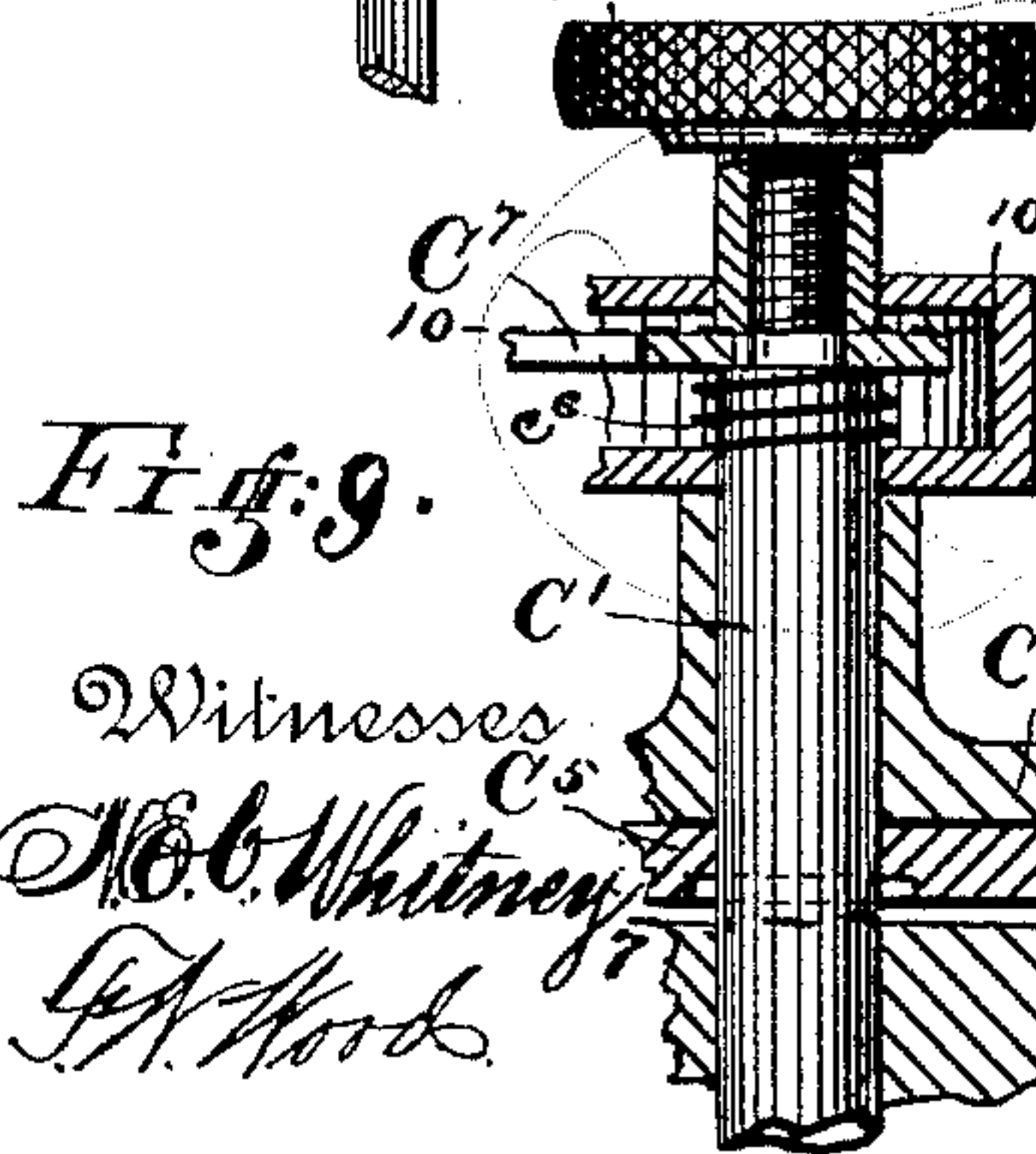
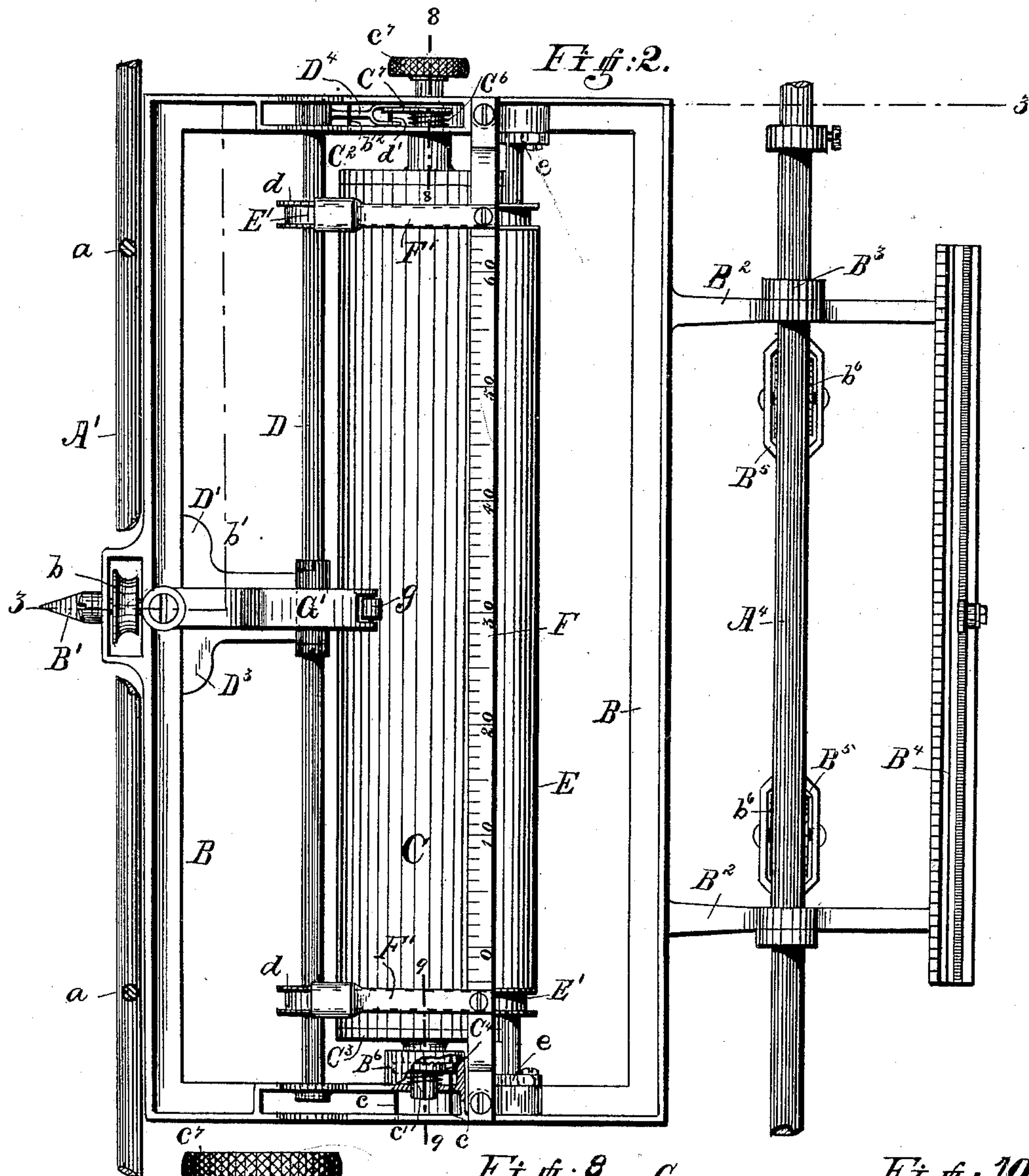
Witnesses
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Attorneys

W. F. JUDY.
TYPE WRITING MACHINE.

No. 411,339.

Patented Sept. 17, 1889.



Witnesses
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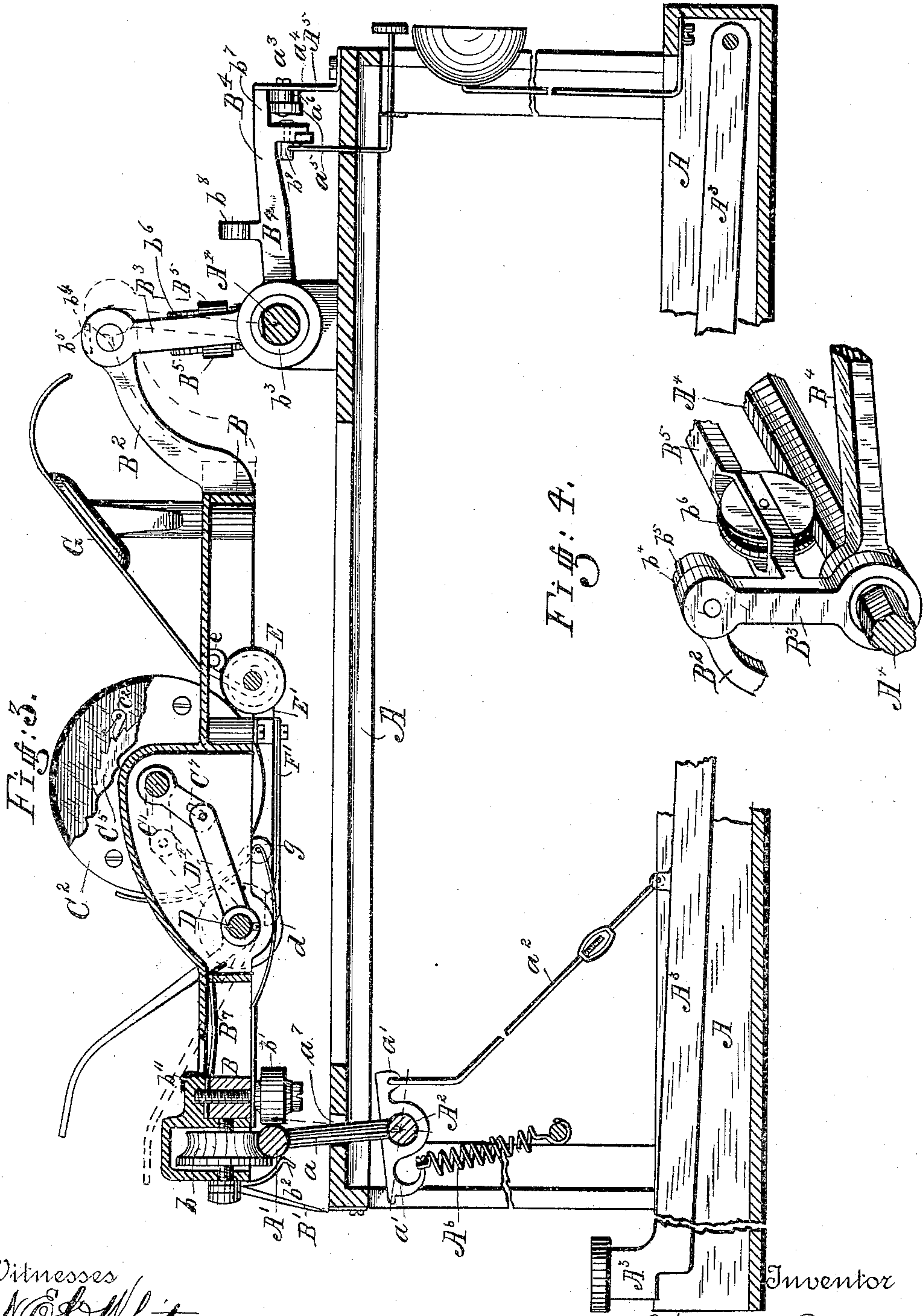
(No Model.)

3 Sheets—Sheet 3.


W. F. JUDY.
TYPE WRITING MACHINE.

No. 411,339.

Patented Sept. 17, 1889.



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UNITED STATES PATENT OFFICE.

WILLIAM F. JUDY, OF INDIANAPOLIS, INDIANA.

TYPE-WRITING MACHINE.

SPECIFICATION forming part of Letters Patent No. 411,339, dated September 17, 1889.

Application filed February 23, 1888. Serial No. 265,086. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM F. JUDY, a citizen of the United States, residing at Indianapolis, in the county of Marion and State of Indiana, have invented certain new and useful Improvements in Type-Writing Machines, of which the following is a specification.

The object of my said invention is to provide various improvements in the construction of the carriage of type-writers, said improvements relating particularly to the machine commonly known as the "Remington," as will be hereinafter more particularly described.

Referring to the accompanying drawings, which are made a part hereof, and on which similar letters of reference indicate similar parts, Figure 1 is a top or plan view of a carriage embodying my said invention, certain portions being broken away to show the operating parts more clearly; Fig. 2, an under side plan of the same; Fig. 3, a longitudinal vertical section through said carriage and the frame of the machine on the dotted line 3 3 in Figs. 1 and 2, a portion of the platen-head being broken away to show the ratchet; Fig. 4, a detail perspective view of that portion of the carriage-frame containing the joints; Fig. 5, a detail view showing the spacing-levers in section on the dotted line 5 5 in Fig. 1; Fig. 6, a detail view looking toward the left from the dotted line 6 6 in Fig. 1; Fig. 7, a detail section looking up from the dotted line 7 7 in Fig. 8; Fig. 8, a detail vertical section on the dotted line 8 8 in Fig. 2; Fig. 9, a similar section on the dotted line 9 9 in Fig. 2, and Fig. 10 a detail section looking downwardly from the dotted line 10 10 in Fig. 8.

In said drawings, the portions marked A represent the frame of the machine; B, the frame of the carriage; C, the platen; D, a rock-shaft carrying the spacing-levers and connected with the spacing mechanism; E, the feed-roller; F, the scale, and G the paper-table.

The machine-frame A is of the Remington construction, and is shown only to illustrate the position and manner of operating my improved carriage. Portions are broken out for the purpose of allowing the invention to be

shown on a large scale, the principal views being nearly full size.

The carriage-frame B is the usual rectangular frame of a suitable size and proportion, and is provided with the bearings in which the shafts and rods carrying the mechanism are journaled. On its front is mounted the mechanism by which it is connected to the shifting-rod A', which mechanism consists of a concave-faced vertical roller *b* and a horizontal roller *b'*, arranged to bear on the top and side of said rod A', on which the front of the carriage rests and travels, these rollers obviating all friction between the parts. It also has the indicator B', secured to its front side at this point, which consists principally of a double piece of metal, the rear portion *b²* of which extends down to a position that brings its point below the rod A', and is formed with a forwardly-inclined face, which when the carriage is dropped down strikes the rod A' and serves to direct it into position on said rod.

The shifting mechanism by which the carriage is operated back and forth consists of the rod A', connected to the rock-shaft A² by means of the arms *a*, said rock-shaft being operated by means of the lever A³, connected to one end of a double-ended laterally-projecting arm *a'*, which is rigidly secured to said rock-shaft and projects out from each side thereof by means of a connecting-rod *a²*, a spring A⁶ being connected to the opposite end of said arm *a'* at one end, and to the frame at the other, for the purpose of returning said rock-shaft and through the connecting parts the carriage, as in the Remington machine.

On the rear side of the main portion of the frame B are formed two upwardly and rearwardly projecting arms B², to the outer ends of which are pivoted short downwardly-projecting arms B³, in the lower ends of which are formed journal-bearings, preferably being provided with journal-boxes *b³*, in which the carriage-rod A⁴ is mounted, said carriage-rod being pivoted in the usual manner to the frame of the machine. The journal-boxes *b³* extend through said arms B³ a sufficient distance to form a journal-bearing on their inner ends for the pivoted rack B⁴. The joints between the arms B² and B³ are formed with a

stop to limit their motion, which consists in forming a notch b^4 in the top of one part and mounting a pin b^5 , arranged to rest in said notch, in the other part. (See especially Figs. 3 and 4.) The two short arms B^3 are connected by a bar B^5 , preferably cast in one piece therewith, in which is formed suitable bearings for the trucks b^6 , arranged to run on the top of the rod A^4 and support the carriage. (See Figs. 1 and 4.) The rack B^4 is in main of the usual construction, but has a rearwardly-projecting flange b^7 , a portion of the under face of which is formed smooth and a portion notched. Secured to the frame of the machine and extending up at the rear of this flange is a standard A^5 , at the top of which is mounted a pivot-bolt a^3 , on which is mounted a roller a^4 and a cam a^5 , said roller being arranged to bear on the smooth portion of said flange and the said cam being arranged beneath the notched portion. Said cam is formed with a heavy portion behind the pivot, which operates to hold its point against the notched portion of said flange. Thus as the rack travels forward its rear portion rests upon the roller a^4 ; but when it is started back the point of the cam engages with the notched portion of the flange which operates to turn said cam up and lift said rack free from engagement with the dog and support it in this position during its travel backward, a stop-pin a^6 being inserted in the standard A^5 in position to stop said cam in the required position. When the carriage starts forward again, the cam drops back and permits said rack to fall upon the roller a^4 and again into engagement with the dog, as will be readily understood. On the top of the rack B^4 is formed a handle b^8 , by which said rack may be lifted out of engagement with the dog when it is desired to slide it forward any considerable distance without taking the time to do it one space at a time. That portion of the ends of the frame B in which are formed the journals and where the spacing mechanism is connected to the platen-shaft is preferably formed hollow, or consisting of a double-flanged bar, the flanges extending down on the inside a sufficient distance to cover all this mechanism. (See Figs. 2 and 3.) A trip b^9 , for operating the alarm-bell, is adjustably secured to the front side of the rack B^4 by means of a screw inserted therein through an elongated slot b^{10} , extending through said rack horizontally. (See Fig. 6.) By loosening the screw said trip can be adjusted to the desired position and there secured by tightening said screw, as will be readily understood.

The platen C is in itself of the usual construction, my improvements relating particularly to the mechanism by which it is revolved to make the spaces. It is journaled in the usual position on the shaft C' and provided with the right platen-head C^2 and a left platen-head C^3 . The hub on the left platen-head C^3 is notched around the edge

of its face, and a correspondingly-notched collar C^4 is mounted around the shaft and arranged to engage with said hub, it being provided with perforated ears on its sides and mounted to slide on pins c , projecting out from the frame, a coiled spring c' being interposed between the collar and the frame, by which said collar is at all times held against the hub, and the platen thus secured from rotating, except when force is applied. As will be understood, the notches in this hub and collar are formed to correspond with the number of notches in the ratchet-wheel by which the platen is rotated. This mechanism at the left end of the platen is preferably inclosed in a cylindrical shell B^6 , formed on this end of the frame, whereby it is not only kept out of sight, but out of the way of dust and dirt. The right platen-head C^2 is secured to the platen in the usual way. The ratchet-wheel C^5 is mounted on the shaft C' on the inside of said head C^2 , to which it is secured when rotating in one direction by means of a spring-pawl c^2 , and is held in position against said head by means of brackets c^3 , secured to said head and extending down over the edge of said ratchet-wheel. Around the perforation in the center of said ratchet-wheel is found a series of notches c^4 , with which pins or lugs c^5 on the shaft engage and secure said ratchet-wheel thereto. The shaft C' is mounted to slide in its bearings, being held toward the right, so that the pins are in engagement with the notches in said ratchet-wheel at all times by means of the spring C^6 , mounted between the inner flange of the frame B , through which it passes, and an arm secured rigidly to said shaft toward its outer end. Thus when it is desired to disengage the platen from the shaft for the purpose of turning it back, said shaft can be pushed in by means of a push-button c^7 on its outer end until the pins are disengaged from the ratchet-wheel, which permits said platen to be revolved freely. A short arm C^7 is rigidly secured to the outer end of said shaft in a position between the two flanges of the frame, it being preferably secured in position by flattening a portion of the shaft at this position for a sufficient distance to receive said arm, which is formed with the corresponding hole, and secured thereon by means of a nut screwed against it, which nut is preferably the push-button c^7 . (See especially Figs. 8 and 10.)

The rock-shaft D is journaled in suitable bearings at each end of the frame, just in front of the platen, and in addition to the spacing mechanism carries idler-pulleys d for the feed-roller bands, as will be presently described. At the right-hand end of this shaft it is provided with a rearwardly-projecting arm D^4 , formed with a bifurcated end, between the forks of which is mounted a bearing-pin d' , which is arranged in a slot formed in the end of the arm C^7 , mounted on the shaft C' of the platen. (See Fig. 3.) At its center it is provided with a series of levers D' , D^2 ,

and D^3 , arranged to rest against the flat spring B^7 , which projects rearwardly from the front bar of the frame B, to which it is secured. The levers are so adjusted upon the rod that when forced down against the top of the frame, (a rubber cushion b^{11} being preferably arranged in position beneath said levers, so that they will strike it when forced down, thus deadening the sound and relieving the frame from the force of the stroke,) they will travel a distance necessary to revolve the platen three spaces. They are secured to the rock-shaft by means of a spline or pins d^2 , the lever D' being formed with a notch in its bearing of a length equal to two-thirds of its full motion, and thus when it is forced down it does not commence to rotate the rock-shaft until it has traveled two-thirds of the stroke, thus rotating the platen only one space. The lever D^2 is mounted in a similar manner, except that the notch is equal to one-third of the motion instead of two-thirds, and thus operates to rotate the platen two spaces. The lever D^3 is rigidly secured to said rock-shaft, and thus rotates it the entire distance and operates to rotate the platen three spaces. By this arrangement I provide a very convenient means, by which I am able to space either one, two, or three spaces, as may be desired, without shifting or changing any mechanism. A stop-pin b^{12} is provided in the frame to extend out under the arm D^4 , in position to limit its downward motion and stop it in exactly the position desired.

The feed-roller E is journaled in swinging bearings e , pivoted to the frame, as is usual on the Remington machine. It is connected at each end to the idler-pulleys d on the shaft D by means of the rubber bands E' , which pass under and bear against the under side of the platen and hold the feed-roller in contact with said platen in the usual manner.

The scale-bar F extends from one end of the frame to the other, to which it is rigidly secured in the usual position. The guards F' are secured thereto and extend forward over the bands E' , which they protect from contact with the ribbon, as usual. They are also formed with flanges on their forward ends which project up each side of the idler-pulleys d , and thus steady said pulleys and the bands in position.

The paper-table G is mounted on the frame B in the usual position and well-known manner. A paper-guide G' is supported from the front bar of the frame, extending rearward to the desired position beneath the platen, where it is provided with a roller g , and then extended up in front of the platen.

The operation of my said invention is as follows: When it is desired to shift the carriage from the position it occupies when using the lower-case to that which it occupies when using the upper-case, letters, the shifting-lever A^3 is forced down, which operates through the connecting-rod a^2 , arm a' , rock-shaft A^2 , and arms a to throw back the rod A' , on which

the front of the carriage rests, which operation throws back the entire carriage on the carriage-rod A^4 from the position shown in the whole lines in Fig. 3 to that shown in dotted lines, the backward motion being continued until the arms a strike the rear side of the notch a^7 in the frame A, through which they extend. The carriage is held in this position in the same manner that the sliding frame in the old construction of the machine is held until it is desired to bring it forward, when the lever is released and the carriage returned by the spring A^6 until the arms a strike against the front of the notch a^7 , which notch is formed to thus properly limit the motion of the carriage. By this arrangement the entire carriage is operated back and forth instead of a separate sliding frame, and many of the parts of the old machine are thus done away with. When the carriage is lifted up, it tilts back on the rod A^4 , the arm B^3 being prevented from falling into a horizontal position in relation to the arm B^2 by means of the notch b^4 and pin b^5 , which serve to limit the motion of the joint between the parts B^2 and B^3 , as before described, said notch being of a length only sufficient to permit the carriage to be shifted freely. When it is desired to rotate the roller for the purpose of spacing between the lines, one of the levers D' , D^2 , or D^3 , according to whether one, two, or three spaces is desired, is forced down. In practical use the lever D^2 , which operates to rotate the platen two spaces, will be most used, and by giving a detailed description of its operation the operation of the others will be readily understood. In forcing it down, as before stated, the first one-third of the movement does not move the rock-shaft, but at this point the shoulder of the notch in the bearing comes in contact with the spline or pin on the shaft, which operates to rotate said shaft, which throws the arm D^4 on its end upward, carrying with it the arm C^7 , secured on the end of the shaft C' , which operates to rotate said shaft, and through said shaft the ratchet-wheel C^5 , mounted thereon, which ratchet-wheel, being secured to the platen-head C^2 , operates to rotate said platen the desired distance. The lever being released, the spring B^7 operates to throw it back until the arm D^4 strikes the stop-pin b^{12} , which is mounted in the frame under its outer end, which operation returns the shaft C' to its former position, carrying with it the ratchet-wheel C^5 , which is allowed to slip under the spring-pawl c^2 when turning in this direction, the platen being held in position by means of the notched hub on its opposite end and the notched collar C^4 , which is arranged to engage therewith, as before described. When it is desired to turn the platen in the opposite direction, the shaft on which it is mounted is pushed in until the pins c^5 are disengaged from the ratchet-wheel C^5 , as before described, when said platen can be freely revolved the desired distance, and the shaft, being then

released, is returned by means of the spring C⁶ to bring the pins again into engagement with the notches c⁴ in said ratchet-wheel and secure the ratchet-wheel thereto. When the carriage has traveled forward the full length of the line, it is returned by taking hold of the frame and pushing it back, the cam a⁵ operating, as before described, to lift the rack B⁴ free from engagement with the dog and permit it to travel in this direction.

I do not claim, broadly, the combination, in a type-writing machine, of a paper-holder, an actuating-shaft therefor on which it is mounted, said shaft being constructed to move endwise, and feeding mechanism engaged with and disengaged from said shaft by the endwise movement of the latter.

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

1. The combination, in a writing-machine, of a carriage pivoted on said machine at its rear side, the frame of said carriage being formed with a joint of limited motion between the pivot and its main portion, said carriage being arranged to slide on said machine, and mechanism, substantially as described, connected with the front of said carriage for operating it back and forth, substantially as set forth.

2. In a writing-machine, the combination of the frame thereof, the carriage-rod, the carriage arranged to slide on said frame, arms B², extending out from the rear side of the main portion of said carriage, the arms B³, pivoted to the outer end of said arms B², the joint between said two parts being formed with a stop to limit their movement and said arms B³ being mounted on said carriage-rod, which is pivoted to the frame of the machine, and means, substantially as described, for operating said carriage back and forth, substantially as set forth.

3. In the carriage of a writing-machine, the combination of the platen, the shaft on which it is mounted, a rock-shaft journaled in front of said platen, said rock-shaft and said platen-shaft being connected at one end, and a series of levers mounted on said rock-shaft and arranged to rotate it different distances, substantially as set forth.

4. In a writing-machine, the combination of the platen C, provided with the head C² and mounted loosely on the shaft C', the ratchet-wheel C⁵, also mounted on said shaft, said head being provided with a pawl which engages with said ratchet-wheel, the arm C⁷, secured on said shaft C', the rock-shaft D, the arm D⁴, secured to one end thereof and connected to said arm C⁷, and a series of levers D', D², and D³, secured on said rock-shaft to operate it different distances, substantially as set forth.

5. In the carriage of a writing-machine, the combination, with a pivoted rack on its rear side formed with an extended flange, of a standard mounted on the top of the frame of

the machine and provided with a pivot-bolt and a roller, and a cam mounted on said pivot-bolt and arranged beneath said flange, substantially as described, and for the purposes specified.

6. In a writing-machine, the combination of the carriage with the rack B⁴ pivoted thereto and having a flange b⁷ formed thereon, a portion of the under surface of which is notched, the standard A³, carrying a pivot-bolt, and the roller a' and cam a², mounted on said pivot-bolt beneath said flange, said roller a' being adapted to support said rack as it travels forward, and said cam being formed with a point arranged to engage with the notches on the under side of said flange when the carriage travels back, whereby said cam is turned up and operates to lift said rack out of engagement with the dog and support it in this position during said backward travel, substantially as set forth.

7. The combination, in a writing-machine, of the machine-frame, the carriage mounted to slide thereon, the various mechanisms mounted on said carriage, the rock-shaft, a shifting-rod connected to the rock-shaft, and means, substantially as described, for operating said rock-shaft, said carriage being provided with bearing parts on the front of its frame which are arranged to rest on and engage with said shifting-rod, whereby said carriage may be shifted and a support and slide is provided for its front portion, substantially as set forth.

8. The combination, in a writing-machine, with the carriage thereof, of a platen mounted on a suitable shaft, a rock-shaft mounted in front of said platen, the mechanism connecting said rock-shaft and platen-shaft, a series of levers secured on said rock-shaft to engage with and operate it at different periods of their downward strokes, and a spring arranged to bear against said levers, whereby they are returned to an operative position after having been operated, substantially as set forth.

9. In a writing-machine, the combination of the machine-frame, the carriage-rod A⁴, on which the carriage slides and tilts, journaled in bearings on said frame, the carriage provided with the arms B² and B³, hinged together, said hinge being located between said carriage-rod and the main part of the carriage, said arms B³ being formed with bearings on their lower ends and mounted on said carriage-rod, and the bar B⁵, connecting said arms B³ and provided with the trucks b⁶, arranged to run on said carriage-rod, all arranged and operating substantially as described, and for the purpose specified.

In witness whereof I have hereunto set my hand and seal, at Indianapolis, Indiana, this 10th day of February, A. D. 1888.

WILLIAM F. JUDY. [L. s.]

Witnesses:

F. W. WOOD,

E. W. BRADFORD.