(No Model.) 3 Sheets—Sheet 1.

E. S. SHIMER.

TYPE WRITING MACHINE.

No. 461,988. Patented Oct. 27, 1891.

Fig. 1.

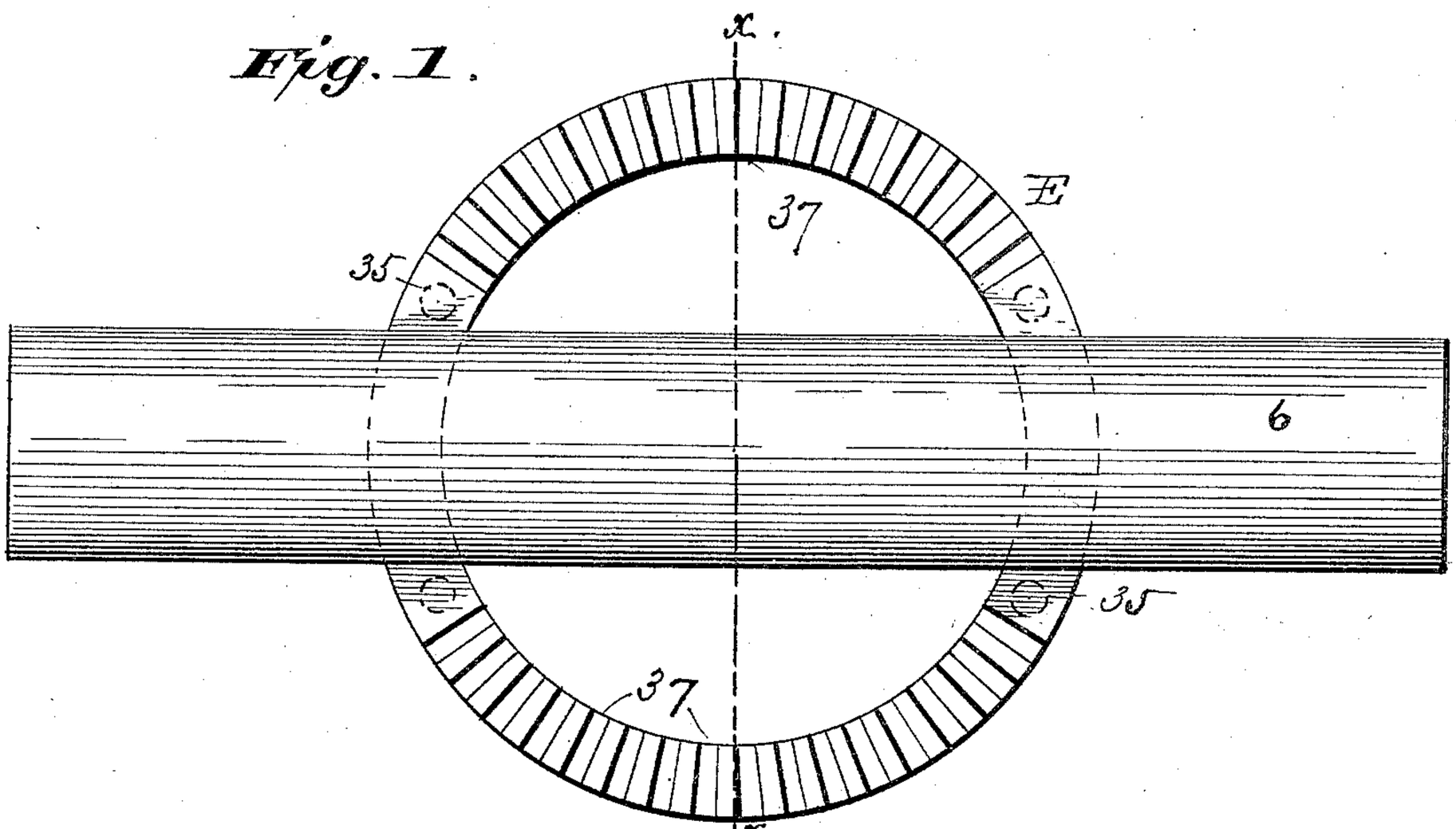


Fig. 2.

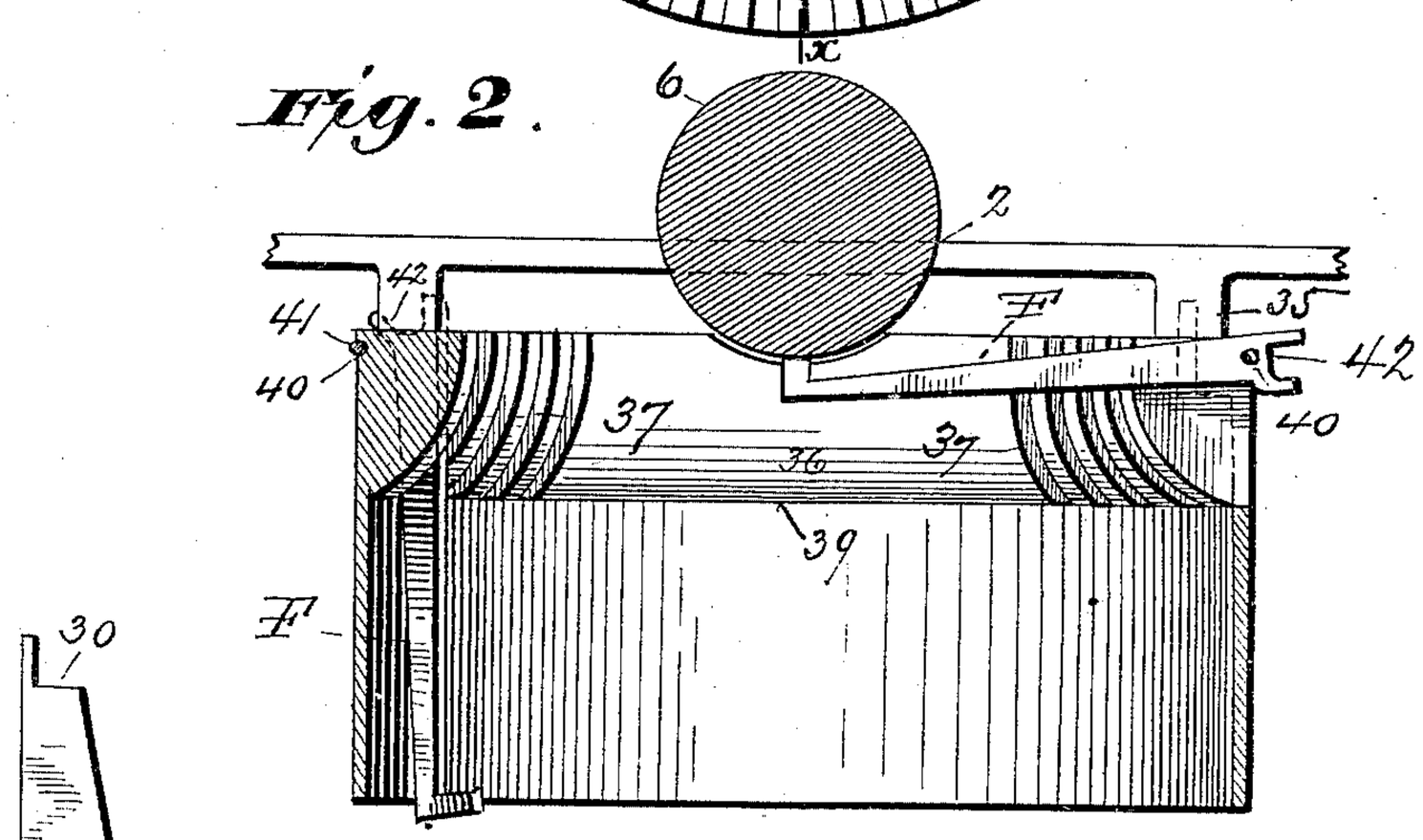
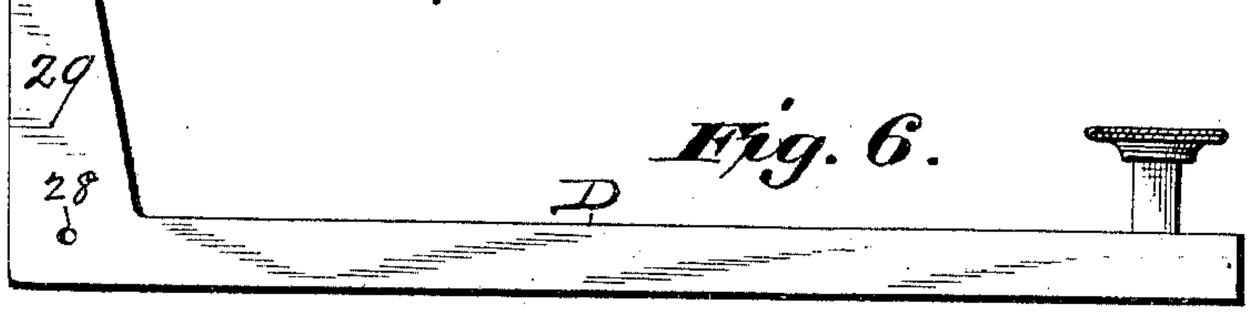


Fig. 6.



WITNESSES

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(No Model.) 3 Sheets—Sheet 2.

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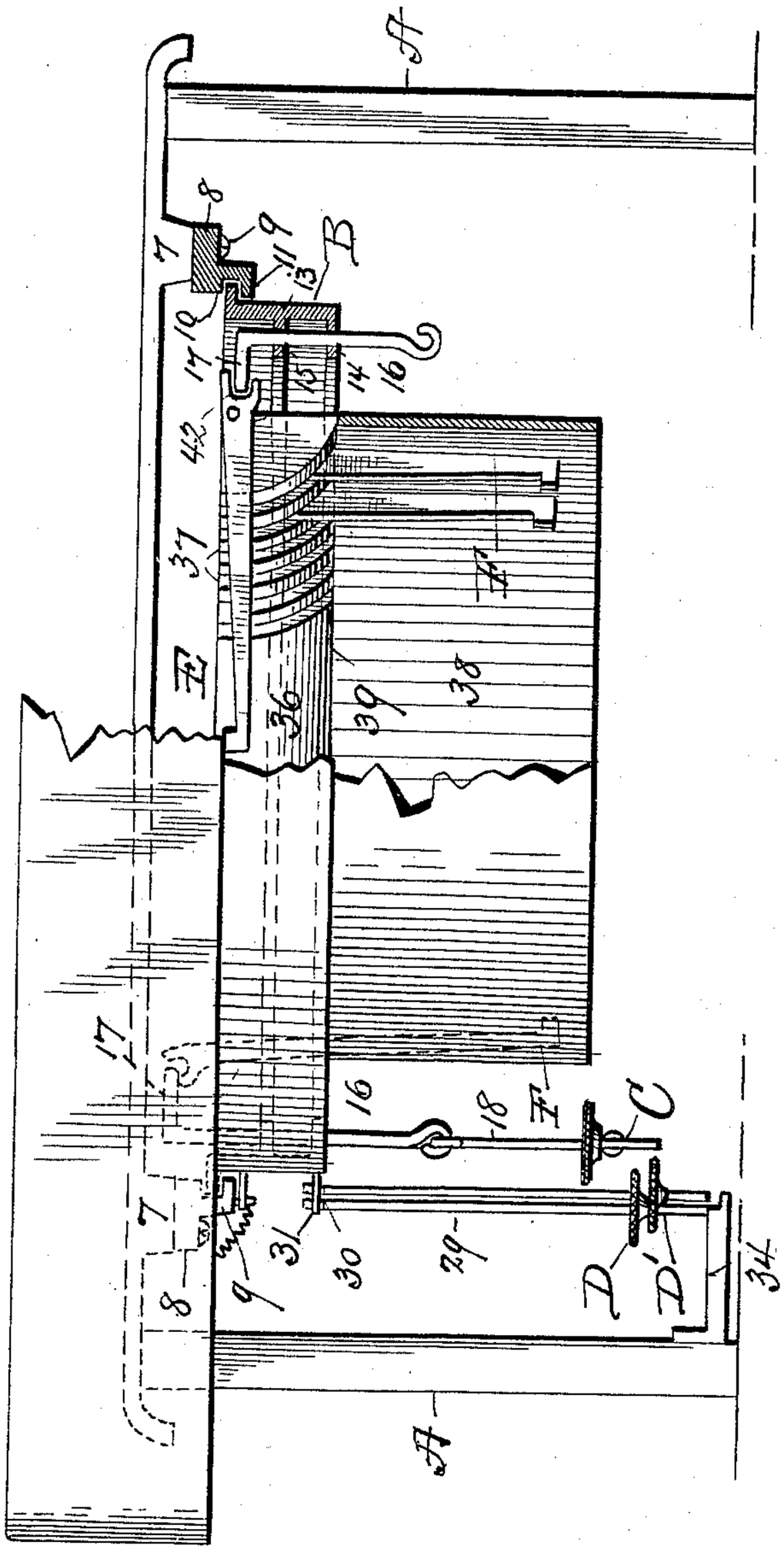

Fig. 3.

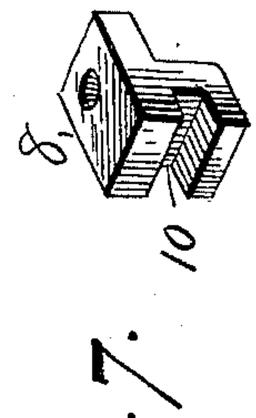

Fig. 7.

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E. S. SHIMER.

TYPE WRITING MACHINE.

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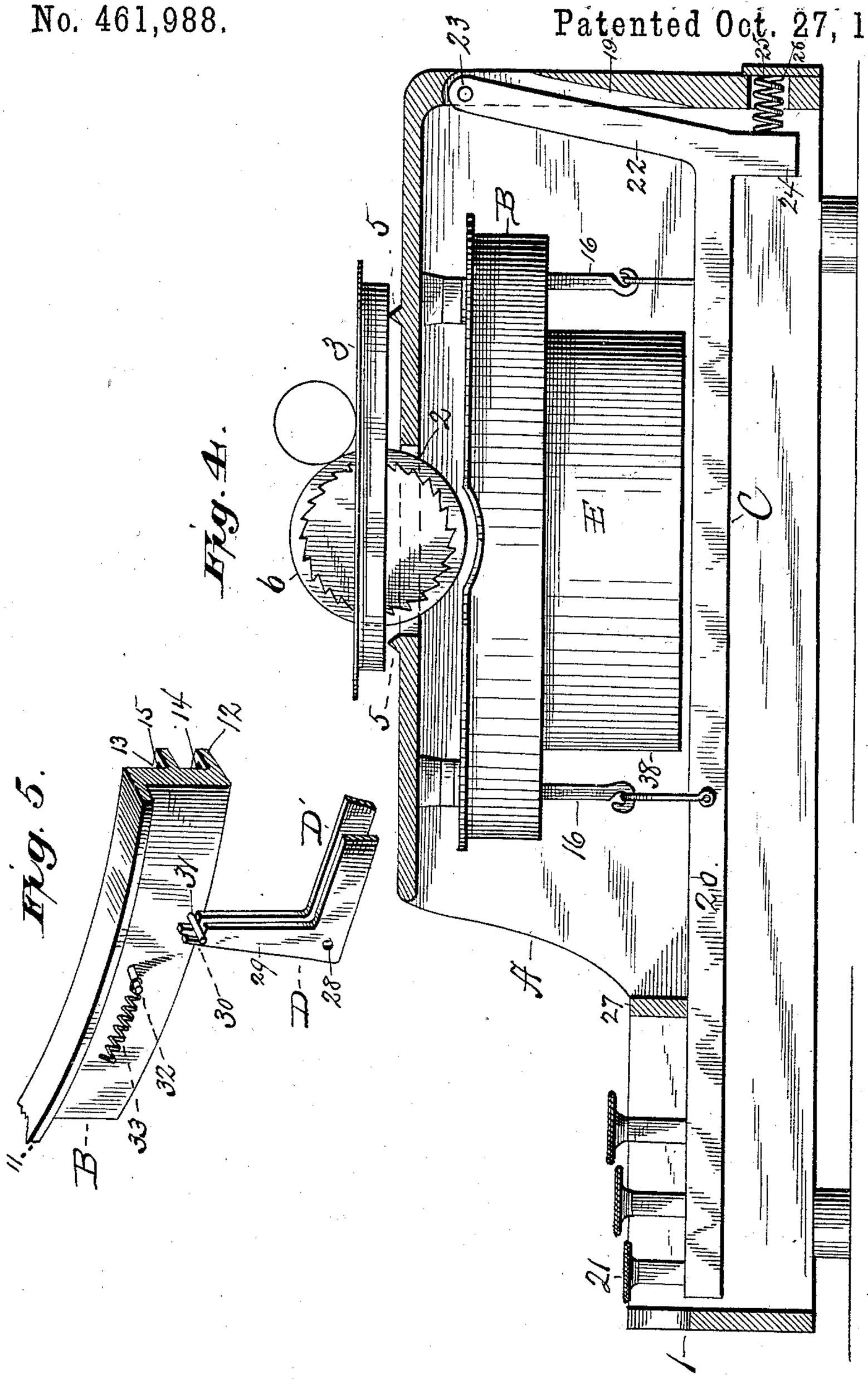

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UNITED STATES PATENT OFFICE.

ELMER S. SHIMER, OF MILTON, PENNSYLVANIA.

TYPE-WRITING MACHINE.

SPECIFICATION forming part of Letters Patent No. 461,988, dated October 27, 1891.

Application filed September 8, 1890. Serial No. 364,249. (No model.)

To all whom it may concern:

Be it known that I, ELMER S. SHIMER, a citizen of the United States of America, residing at Milton, in the county of Northumberland and State of Pennsylvania, have invented new and useful Improvements in Type-Writing Machines, of which the following is a specification.

My invention has relation to type-writing machines of that class carrying a number of type-bars pivotally mounted and arranged to strike at a common center against a platen moved across the machine in the direction of the printed line; and the object is to simplify the construction and improve the efficiency of machines now in the art; and to this end my invention consists in the mechanism hereinafter described for operating a certain number of type-bars through the agency of a single type-bar lever.

It also consists in the novel construction and combination of parts, as will be hereinafter specified, and particularly pointed out in the claims.

I accomplish the purposes and objects of my invention by the mechanism illustrated in the accompanying drawings, wherein—

Figure 1 is a plan view of the platen-roll and type-bar frame. Fig. 2 is a cross-section of the same on the line *x x* of Fig. 1, wherein one of the type-bars is shown in normal position and one raised in striking position. Fig. 3 is a front view, partially in section, showing the shifting-levers, the type-bar pawls, and one of the key-levers. Fig. 4 is a transverse section through the machine. Fig. 5 is a detail perspective of the pawl-ring, showing also the engagement of the shifting-levers therewith. Fig. 6 is a detail view of one of the shifting-levers. Fig. 7 is a detail perspective of one of the hangers for supporting the pawl-ring.

In the drawings I have illustrated the machine (see Fig. 4) as having mounted thereon an ordinary carriage carrying a roller-platen. To this part of the machine the present invention does not extend, except as associated in combination therewith. Any proper carriage with its adjuncts adapted to move across the machine with intermitting movement can be used, and for this reason the illustration and the description given hereinafter have not been made more specific.

Referring to the drawings, A designates the metallic frame, consisting of a shell or box of such dimensions as to receive the various levers and operating mechanism essential to the manipulation and operation of the parts. This frame is extended, as usual, in front to afford space for the key-board, as at 1, and the top is partially covered and provided with an elongated opening 2, in which the lower portion of the platen-roller is arranged, substantially as shown in Fig. 4 of the drawings. The carriage 3 is provided with sheaves traveling on guide-rails 5, as usual, and in the carriage is mounted the roller 6. On the under side of the top plate of the frame may be formed lugs 7 at such position and of such number as may be deemed essential, usually four, which are provided with threaded sockets to take the screws which hold the brackets in place. To these lugs are secured brackets 8 by means of screws 9, as shown in Fig. 3 of the drawings. The brackets 8 are curved concentric with the pawl-ring and formed with a groove 10 in their inner face to receive an exterior annular flange of the pawl-ring.

B designates the pawl-ring, having an annular outer flange 11 to engage the groove 10 of the brackets, in which it rests and shifts. On the inner face of the pawl-ring may be formed two inwardly-extending annular flanges 12 and 13, provided with aligning holes 14 and 15, in which the stems of the pawls 16 are disposed and arranged therein to have a limited vertical reciprocating movement. The pawls, levers, or pull-rods 16 consist of small metal rods having their upper ends 17 struck at right angles to the stems and formed at their lower ends to connect with the upper end of connecting-rods 18, jointed to the proper type-lever. The back plate of the frame is formed with a series of vertically-arranged slots 19, corresponding to the number of key-levers required or used, and in the upper end of these slots the key-levers are pivotally supported. The key-levers C consist of a metal bar 20, provided with a push or finger piece 21 at the key-board, and are formed with a vertically-extending arm 22, the upper end of which is

pivotally supported in the slot in the rear plate or wall of the frame, as at 23, and are also formed with a downward-extending heel part 24. To return the key-levers C to their normal position after depression to strike the type, I arrange a spring 25 in seats 26, one end of the spring being arranged in the seat and the other abutting against the heel portion of the key-lever, as seen in Fig. 4. To prevent the key-levers from moving upward beyond the required distance, a cross-piece 27 is arranged across the front of the machine and to the rear of the key-board. It is also apparent if the stem of the pawls is lengthened so as to be immediately connected to the key-levers that the pawl-ring may have but one inner annular flange instead of two. The lower end of the pawl being connected directly to the key-lever will afford sufficient guide and stay to insure the vertical reciprocations of the pawls without sticking or undue friction.

D D′ designate the shifting-levers, pivotally supported at their inner ends, as at 28, and formed with a vertical arm 29, having a notch or shoulder 30 in the end, in which notch or shoulder the pin 31 on the outer face of the pawl-ring sets or rests, as seen in Fig. 5. By depressing one of the shifting-levers the pawl-ring is drawn or shifted accordingly and in position such that the pawl will engage a type-bar brought opposite to it. The other shifting-lever produces a similar movement of the pawl-ring, but will draw the ring so as to present a different type-bar for engagement with the pawl. To return the pawl-ring to its normal position in the machine, a pin 32 may be fixed in it, and to this pin one end of a retracting spring 33 is fastened, while the other end of the spring is anchored to some part of the machine-frame. The depression of the shifting-levers is limited by a stop 34, of any suitable kind, placed to intercept them.

E designates a stationary basket or type-bar ring secured in place in the machine-frame by means of screws 35 let into lugs on the top plate of the frame. This type-ring consists of a cylinder having a thickened portion 36 around its upper end, as shown in the drawings, and in this portion are formed the requisite number of vertically-arranged and radially-directed type-bar slots 37. The cylinder is extended downward below the type-bar slots, as at 38, constituting a skirting and serving as a support for the stems of the type-bars. The type-bar slots extend only partly around the type-bar ring at the front and rear of the ring, there being vacant spaces 39 between the slotted sections of the ring carrying the type-bar. In the outer face of the type-bar ring is formed an annular groove 40, in which a bearing-rod 41 is secured, and on which the type-bars are pivotally supported. This bearing or pivotal support is directly in line with a point in the face of the platen-roller indicated by the lower termination of the vertical radius of the platen-roller, so that the face of the type, the lowest portion of the platen-roller, and the pivot of the type-bars are on a horizontal line. This disposition of the parts gives a square and true contact with the type on the paper and results in a clean impression.

F designates the type-bars, consisting of small bars carrying a character on the type end and flattened at their upper end to fit in the type-bar slots of the type-ring. Each one is provided with an aperture in the flattened part, through which the bearing-rod 41 is passed, and when all are arranged on the rod, the rod is clamped in the groove 40 and they are in position. The type-bar slots are radially arranged in the type-bar ring, so that all the type-bars strike in the direction of the center and to a common point. The heel or upper end of the type-bars is formed with a recess or notch 42, which is engaged by the projecting part of the pawl. The type-bars are guided in their stroke and retained in alignment by means of the walls of the type-bar slots in the ring, which, being thickened at this point, is specially adapted to prevent uncertainty in the point struck by any type-bar.

By the arrangement of the parts a machine may be made smaller than those of similar styles on the market. The type-bars are materially shortened, and thus given a shorter sweep or stroke without losing any effectiveness, and the key-levers really reduced in number. Additional sweep to the shift of the pawl-ring would further reduce the number of levers necessary.

The machine normally is adjusted to print lower-case characters, the change to capitals and special characters being accomplished by means of the shifting-levers moving the pawl-ring to present the heel of the proper type to be struck. This change is made by depressing one of the shifting-levers, which is arranged to pull the pawl-ring a determined distance to present the type-bars carrying capitals for engagement with the pawls. The push-bar of the proper type is then struck and the impression made. On release of the pressure on the push-bar the type-bar lever returns to its normal position, and on the release of the shifting-lever the spring returns the pawl-ring to primary position. If a special character is required to be made, the other shifting-lever is depressed and the pawl-ring moved to its position, the type struck, and the return made, he only difference being that the pawl-ring is shifted to different positions in the different movements.

By reference to Fig. 3 of the drawings it will be perceived that the outer projection of the heel of the type-bar when at rest and depending is on a line just below the under face of the pawls, so that the pawls when shifted will not strike the heels of the type-bars. The other projection of the heel lodges on the top of the pawl when the bar is lifted

to contact the platen, and thus the blow is softer and the type made to last longer. The top of this projection on the pawl also aids to quickly return the type-bar to normal position.

Having thus described my invention, stated its principles, and so specified it as to distinguish it from other inventions in the art, I now particularly point out and distinctly state the parts and combinations which I claim, as follows:

1. In a type-writing machine, the combination, with the type-carrying cylinder and the type-bars therein, of a horizontal shifting ring supported exterior of the cylinder, pawls in said ring adapted to detachably engage and lift the type-bars in the cylinder, levers to shift the ring, whereby different type-bars are lifted by the pawls, and levers to draw down the pawls, as specified.

2. In a type-writing machine, the combination, with pivotally-supported type-bars, of a key-lever having an upward-extending arm having its upper end pivotally supported in the frame of the machine, and a spring arranged behind the end of the arm, substantially as and for the purpose specified.

3. In a type-writing machine, the combination of the machine-frame formed with vertically-arranged slots in its rear wall, key-levers having upwardly-extended arms pivoted in the slots, a type-bar cylinder having an upper portion provided with radial slots, type-bars pivoted in the said slots, a shifting ring, pawls in the shifting ring, having connection to the key-levers, and levers to shift the ring, all substantially as described.

4. In a type-writing machine, the combination of the frame provided with brackets having grooves in their inner faces, a pawl-ring having an exterior annular flange to engage the groove of the brackets and formed with an interior annular flange having apertures, pawls in the apertures, levers for moving the pawls, and levers for shifting the ring, substantially as described.

In witness whereof I have hereunto set my hand in the presence of two attesting witnesses.

ELMER S. SHIMER.

Witnesses:
A. G. HEYLMUN,
J. S. BARKER.