No. 606,678. Patented July 5, 1898.

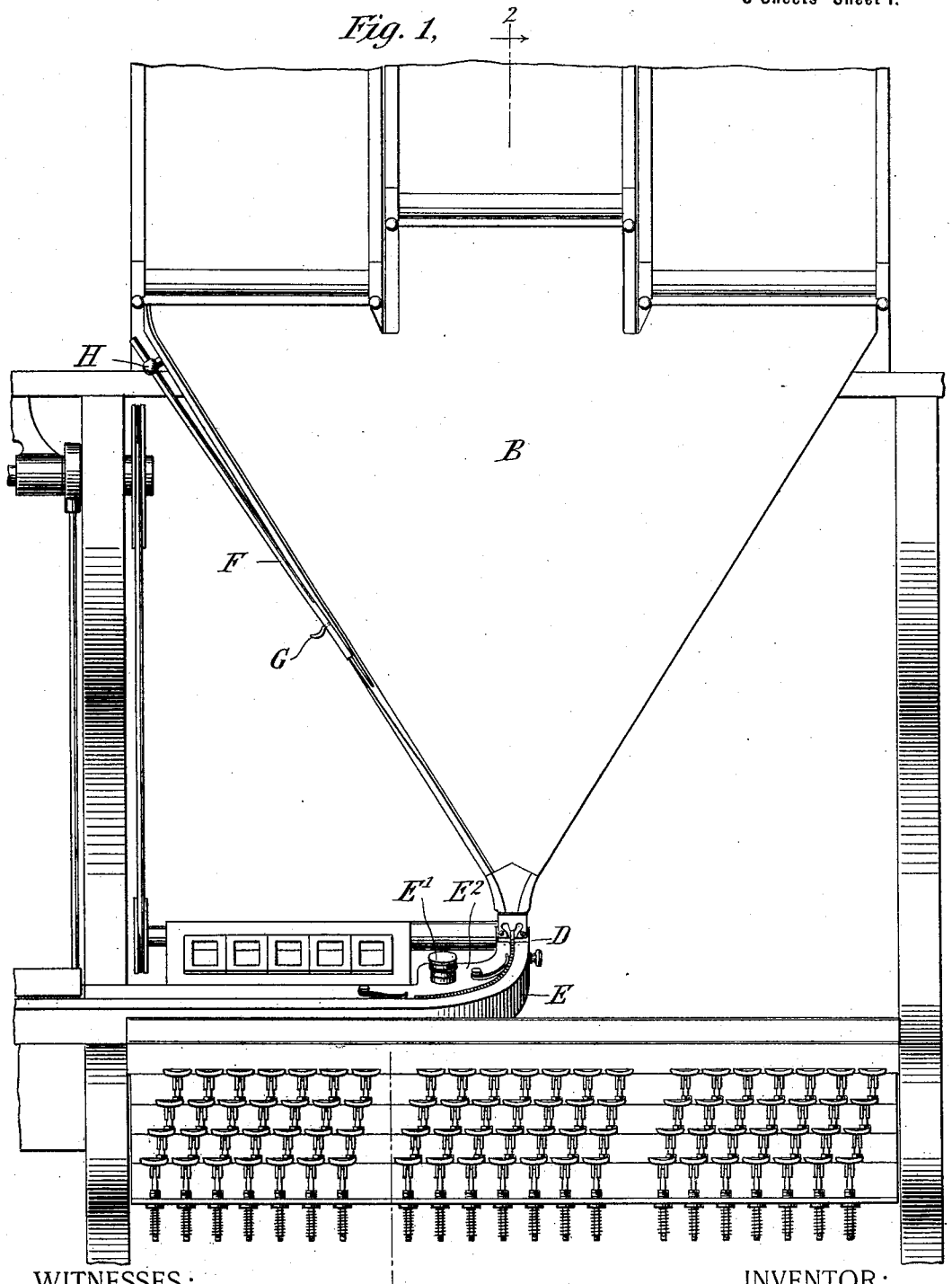
R. J. MOXLEY.

TYPE SETTING MACHINE.

(Application filed Nov. 23, 1895. Renewed May 26, 1898.)

(No Model.) 3 Sheets—Sheet 1.

Fig. 1,



WITNESSES:

C. E. Ashley

H. W. Lloyd.

INVENTOR:

Richard J. Moxley

By his Attorney

Willard Parker Bartlett

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

No. 606,678.

Patented July 5, 1898.

R. J. MOXLEY.

TYPE SETTING MACHINE.

(Application filed Nov. 23, 1895. Renewed May 26, 1898.)

(No Model.)

3 Sheets—Sheet 2.

Fig. 3,

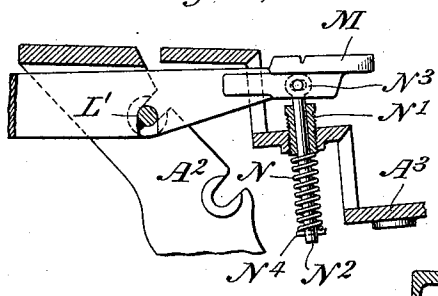


Fig. 2,

Fig. 4,

WITNESSES:

C. E. Ashley

H. W. Lloyd.

INVENTOR:

Richard J. Moxley

By his Attorney

Willard Parker Butler.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

No. 606,678. Patented July 5, 1898.

R. J. MOXLEY.

TYPE SETTING MACHINE.

(Application filed Nov. 23, 1895. Renewed May 26, 1898.)

(No Model.) 3 Sheets—Sheet 3.

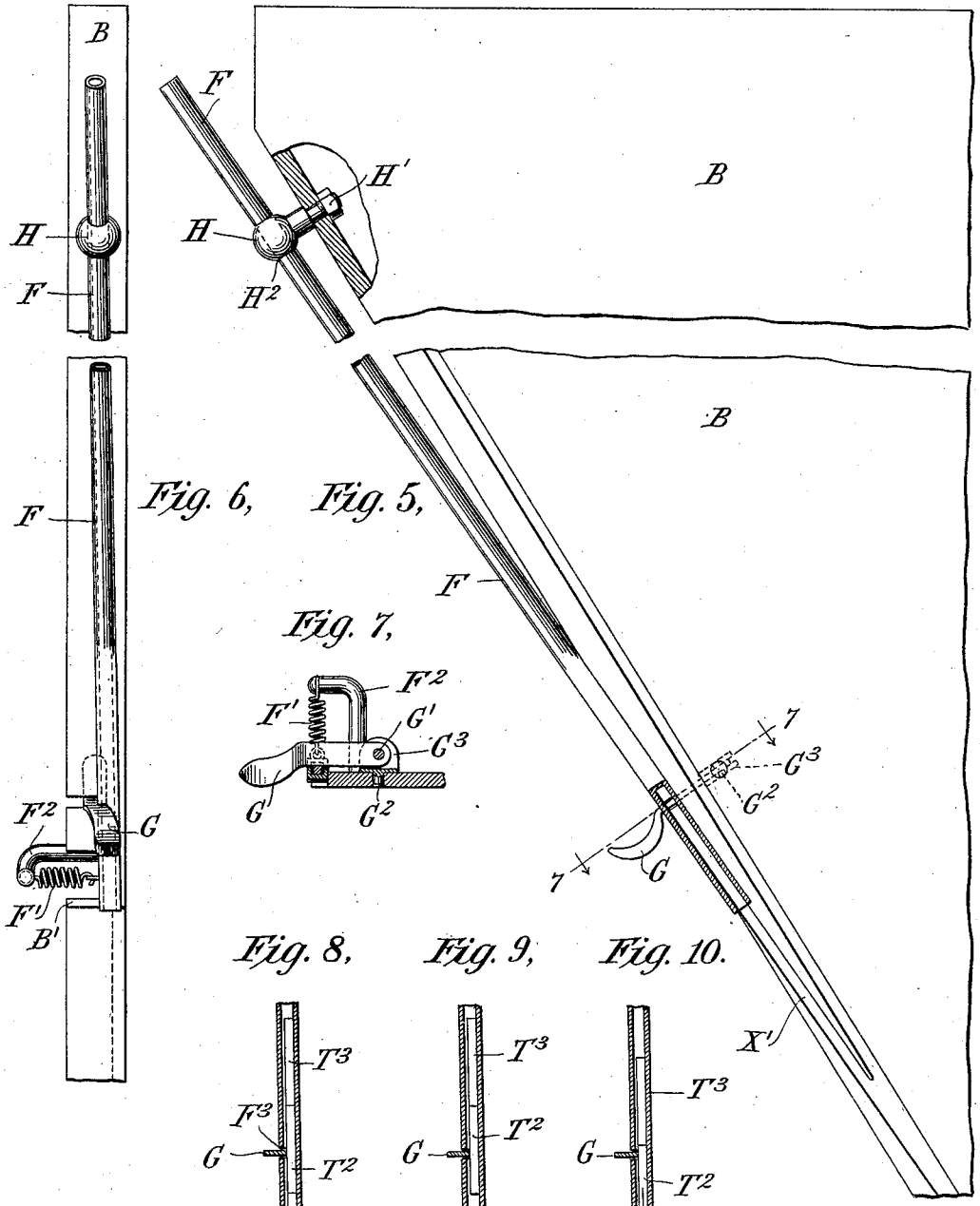


Fig. 6, Fig. 5, Fig. 7, Fig. 8, Fig. 9, Fig. 10.

WITNESSES:

C. E. Ashley

H. W. Lloyd.

INVENTOR:

Richard J. Moxley

By his Attorney

Willard Parker Butler

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

RICHARD J. MOXLEY, OF NEW YORK, N. Y., ASSIGNOR TO THE EMPIRE TYPESETTING MACHINE COMPANY, OF SAME PLACE.

TYPE-SETTING MACHINE.

SPECIFICATION forming part of Letters Patent No. 606,678, dated July 5, 1898.

Application filed November 23, 1895. Renewed May 26, 1898. Serial No. 681,848. (No model.)

To all whom it may concern:

Be it known that I, RICHARD J. MOXLEY, a citizen of the United States of America, and a resident of the city, county, and State of New York, have invented certain new and useful Improvements in Type-Setting Machines, of which the following is a specification.

My invention relates to improvements in type-setting machines, and particularly to improvements applicable to that class of type-setting machines in which a vertical case is used resting upon a cradle, standing upon a supporting-bar, and containing the type in channels and from which the type is removed by means of the insertion of a type-plunger actuated by a lever operated by the depression of a key, which type-plunger forces the last letter in each channel of the case forward, whereupon it is allowed to drop by gravity through grooves in the back plate of the machine into a raceway, where the types are assembled and along which they are driven by suitable mechanism.

The special objects of the improvements are, first, to render the action of the levers actuating the plungers more delicate and capable of adaptation to the peculiar touch of any particular operator, and, second, to provide a means for automatically inserting paragraph-marks into the line of type as it is set.

The invention will be best understood by reference to the accompanying three sheets of drawings, forming a part of this specification, in which—

Figure 1 is a front-elevation view of that part of a type-setting machine to which the invention is applicable, showing the improvements attached. Fig. 2 is a vertical cross-section of the apparatus on the lines 2 2 of Fig. 1. Fig. 3 is a detail view showing the improved construction of the operating-lever. Fig. 4 is a sectional view of the outlet of the type-grooves on the line 4 4 of Fig. 2. Fig. 5 is a front view of the paragraph-inserting device, showing the manner of its attachment to the side of the grooved back plate of the machine. Fig. 6 is a side view of the same. Fig. 7 is a plan view of the same device on the lines 7 7 of Fig. 5. Figs. 8, 9, and 10 are diagrammatic views showing the method of inserting a paragraph-mark.

Similar letters refer to similar parts throughout.

In the drawings, A represents the bed or framework of a type-setting machine; A′, the upright framework of the machine, attached to the bed-frame A; B, the back plate containing the type-grooves, attached to the upright framework A′ at its upper and lower ends; C, a glass plate fitting over the front of the back plate and inclosing the grooves therein, against or on which the types slide; P, the type-plunger, of which there are any desired number, each actuated by the bell-crank S through the rod J and lever L.

T represents the line of type in the raceway after being set; D, the improved throat into which the types first fall from the grooves in the back plate; E, the raceway along which the line of type travels after composition; E′, the pusher, operated by any convenient cam, which moves the types along this raceway.

A^2 is an arm attached to the bed-frame A, extending downward, and to which the levers L, which actuate the plungers, are pivoted.

A^3 is a plate attached to the front of the bed-plate A, provided with proper vertical openings to permit the free action of the levers L up and down.

Having now described the main parts of type-setting machines of the general class to which the invention is applicable, the improvements will be described separately.

The plunger-operating devices.—These operate the plungers P, which expel the types from the type-cases and of which there are any desired number. Their object is to secure greater delicateness of touch and to provide means for regulating the action of each plunger to suit the touch of the operator. The devices are all similar, and each consists in the bell-crank S, pivoted to the frame A′ at the point S^2, which operates the plunger. The spring S′ serves to withdraw the plunger after it has ejected a type. The bell-crank S is actuated by a rod J, pivoted at one end to the crank at S^3 and at the other end supported in a groove in the end of the lever L, as shown in Fig. 2. The levers L are supported on the

pivots L′ on the arm A^2, and to their opposite ends are pivoted the finger pieces or keys M. In the various machines in present use the pivots L′, which form the fulcrum-point of the levers L, are placed at the center of the lever, and in order to drive the plunger P a sufficient distance into the bottom of the type-cases to eject a type therefrom the operating end of the lever has to be forced down by the finger of the operator on the key M a distance of nearly an inch. In the present invention the fulcrum-point of the levers is brought into proximity to the point of power, as shown in Fig. 2, and at the same time means are provided for compensating for the additional power required by this change to operate the lever. No definite point need be fixed upon as a fulcrum-point; but it is obvious that it can be brought as near the point of power as desired, and the nearer it is brought to the power the less distance will the key M, or point of power, have to be depressed in order to actuate the plunger sufficiently to expel a type from the type-case. It will be evident that the closer the proximity of these two points—the fulcrum-point and point of power—the greater will be the force required at the point of power. To provide for this and at the same time to render the action of the levers as delicate as any particular operator may desire, the construction shown in Fig. 3 is employed. As shown in this view, the key M is provided with the downwardly-extending pin N^2, hinged loosely to the key at the point N^3 and sliding freely up and down in the hollow sleeve N′. This sleeve N′ screws vertically into the front plate or frame A^3 of the machine and can be easily adjusted so as to give any tension desired to the spring N. A spring N is provided, surrounding the pin N^2 and supported by the cross-pin N^4, passing through the extremity of the pin N^2. It will be obvious that the effect of the tension of the spring N^2 is to draw down the lever L and thus assist the work of the operator. The tension upon the spring is increased by screwing down the sleeve N′ in the frame A^3, and in proportion as the spring is compressed the amount of force necessary to be exerted to move the lever will be correspondingly diminished and the greater will be the delicateness of action of the levers. It is obvious that the action may be rendered as delicate as may be required to suit the particular touch of any operator or any particular key or plunger, and by careful adjustment each key-lever may be so set that only a very little force exerted by the tip of the finger is necessary to move the plunger.

The paragraph-inserting device.—This is shown in Figs. 1, 5, 6, 7, 8, 9, and 10 and is intended to provide a means of inserting paragraph-marks automatically. In the machines in present use whenever the operator desires to insert a paragraph-mark he is obliged to take one from a box and insert it in a groove-opening on the side of the groove-channels in the back plate B, about half-way up the same. In the present device a hollow rod or type F is employed, made of brass or any suitable metal, attached to the side of the back plate B above the open groove x', through which the paragraph-marks are inserted. The plate B, containing the type-grooves, is cut away directly back of the opening x', as shown at B′, Fig. 6, and the lower end of the paragraph-rod rests on the ledge thus made in such a manner that when in normal position the outlet of the rod is closed by this ledge B′, and when the rod F is drawn forward its outlet rests directly over the channel for paragraph-marks x'. The upper part of the rod F is held in place by the bracket H, secured to the side of the back plate B by the nut H′ and provided with the opening H^2, through which the rod slides freely up and down. The bracket is capable of a slight movement forward and backward to permit the movement of the rod F, as described. In order that the paragraph-marks may be easily inserted in the rod F, this rod is made cylindrical at the upper part, gradually becoming rectangular at the bottom, so as to exactly fit over the opening into the groove v'. When not in use, the rod F is held back away from the groove-opening x' and resting on the shelf B′ of the plate B by the spring F′, made fast to the rod F at one end and at the other end attached to the curved arm F^2, screwed into the back of the plate B where the plate is cut away. In order to draw the rod forward over the groove-opening, so that a paragraph-mark may fall into the groove, the handle G is provided, loosely pivoted by the pivot G′ to the bracket G^3, which in turn is fastened to the under side of the plate B by the screw G^2. The rod F is cut away at the point F^3, Figs. 8, 9, and 10, to permit the handle G when drawn forward to rest against the paragraph-marks, and the handle is attached to the frame at such a distance from the bottom of the rod that when the handle is drawn forward it will impinge upon the second paragraph-mark T^2, holding it firmly in the tube, and leave the first mark T′ free to drop into the groove. This is clearly shown in Figs. 8, 9, and 10, which show the actual movement.

The operation of the paragraph-inserting part of the machine is as follows: The cylindrical rod or tube is placed in its position, as described, and is filled with paragraph-marks from above. Whenever the operator desires to insert a paragraph-mark, he draws the handle G toward him. This handle will at first enter the opening in the rod and impinge upon the second paragraph-mark T^2 and hold it firmly in place. As the handle G is drawn forward farther the rod F is advanced until its opening rests directly over the opening x' in the type-grooves. The first paragraph-mark will thereupon drop into this opening, as shown in Fig. 9, and as the handle G is released by the operator the spring F′ will immediately withdraw the rod F to its

original position, and the second paragraph-mark T^2, being freed from the handle G, will drop to the ledge B' ready for the next insertion.

I claim as my invention—

1. In a machine for setting type, the combination with plunger mechanism for ejecting type from type-cases, of finger-levers for actuating said plunger mechanism, provided with fulcrum-points in proximity to the point of power, and springs, capable of regulation, for assisting the power to any desired amount.

2. In a machine for setting type operated by finger-levers, the combination of such levers so pivoted as to bring the fulcrum-point in proximity to the source of power, of springs so placed as to assist such power to any desired amount, and a screw for regulating the tension of said spring, as described.

3. In a machine for setting type operated by finger-levers, the combination with the levers of a finger-key attached thereto, a pin pivoted to the bottom of said key, a sleeve screwing into a screw-bearing on the frame-plate, into which said pin slides vertically, and a spring connected with the pin of the finger-key for assisting the power of the operator, the tension of which is regulated by screwing the sleeve up or down in its bearing.

4. In a machine for setting type, the combination with a back plate having grooves through which type fall into a raceway, of a hollow rod or tube, open at both ends, attached to the side of the back plate above an open groove leading to the raceway, a spring whereby the rod is normally held away from said open groove, and held on a ledge of said back plate, and means for drawing said rod forward over said open groove, so that a single paragraph-mark can fall into said groove at each movement of the rod.

In testimony that I claim the foregoing as my invention I have signed my name, in presence of two witnesses, this 22d day of November, 1895.

RICHARD J. MOXLEY.

Witnesses:
C. A. FOWLER,
JOHN FRENCH.