

No. 644,516.

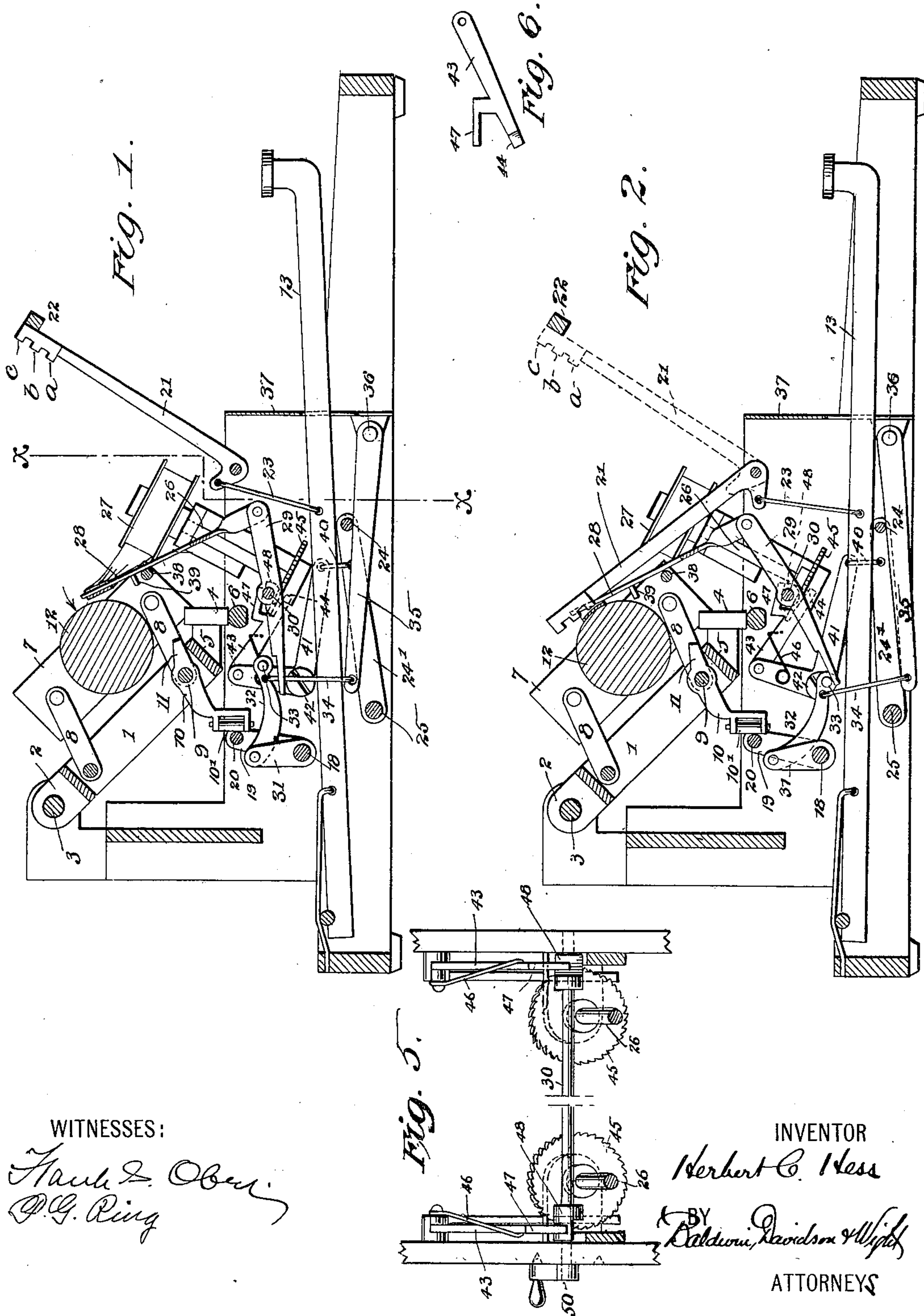
Patented Feb. 27, 1900.

H. C. HESS.
WRITING MACHINE.

(Application filed Oct. 23, 1899.)

(No Model.)

2 Sheets—Sheet 1.



WITNESSES:

Frank Z. Ober
P. G. Ring

INVENTOR

Herbert C. Hess

BY *Baldwin, Davidson & Wright*

ATTORNEYS

No. 644,516.

Patented Feb. 27, 1900.

H. C. HESS.
WRITING MACHINE.

(Application filed Oct. 23, 1899.)

(No Model.)

2 Sheets—Sheet 2.

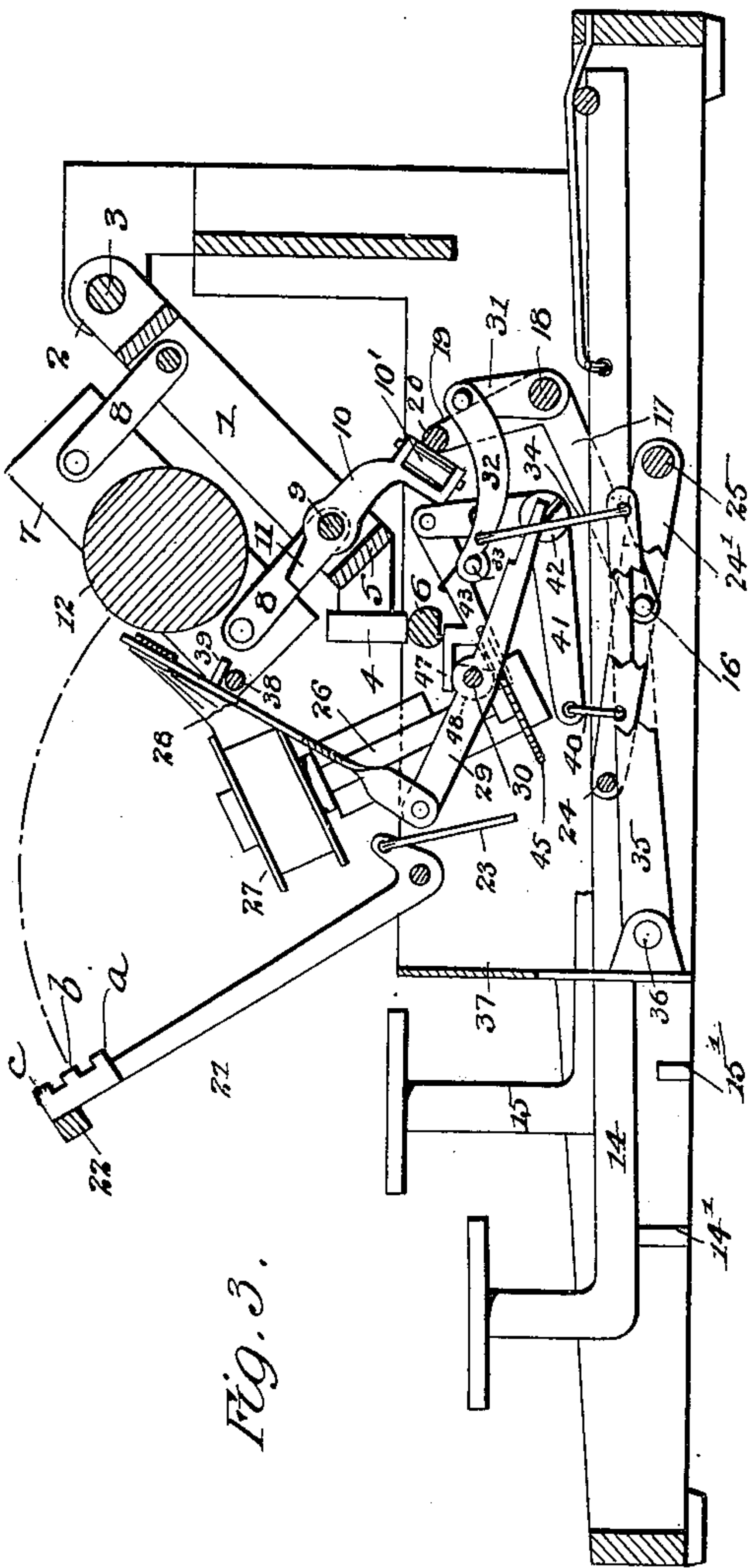


Fig. 3.

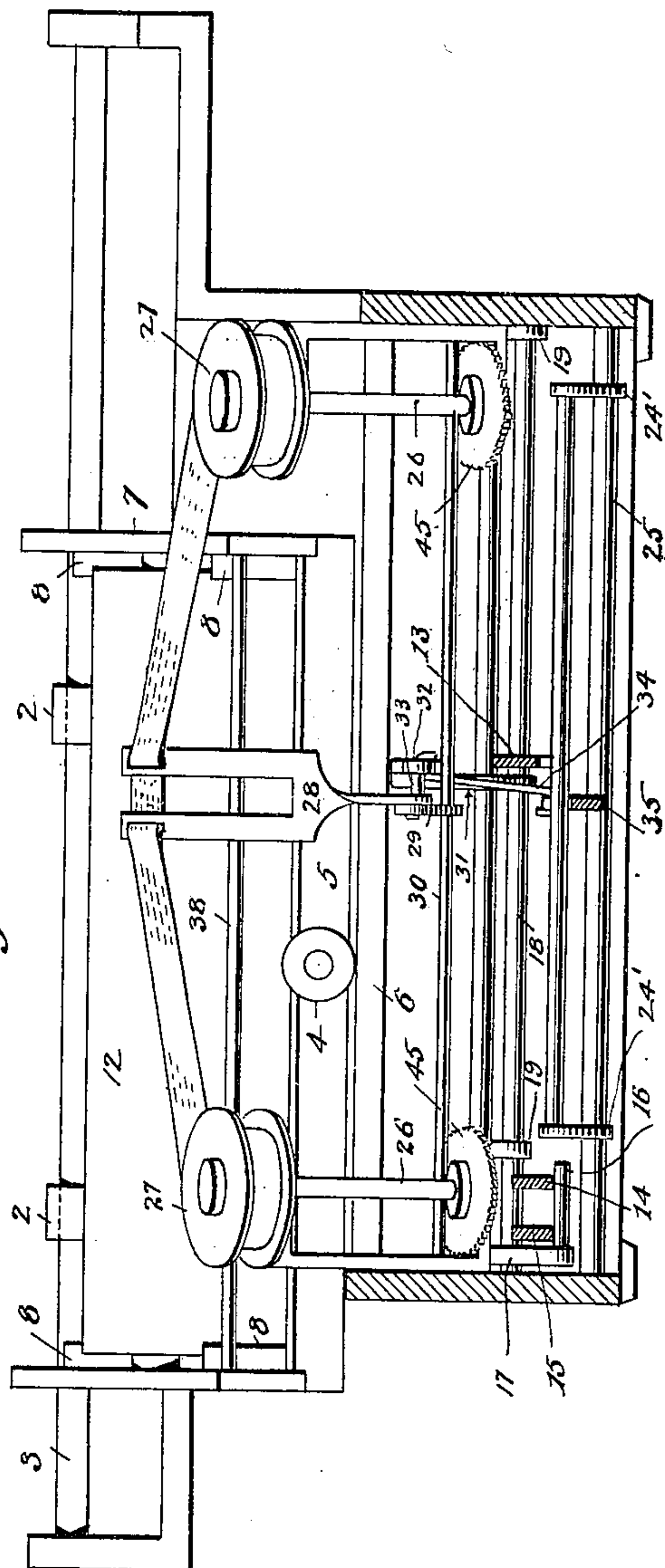


Fig. 4.

WITNESSES:

Mark S. Ober
F. G. Ring

INVENTOR

Herbert C. Hess

BY

Baldwin, Davidson & Wright
ATTORNEYS

UNITED STATES PATENT OFFICE.

HERBERT C. HESS, OF NEW YORK, N. Y.

WRITING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 644,516, dated February 27, 1900.

Application filed October 23, 1899. Serial No. 734,495. (No model.)

To all whom it may concern:

Be it known that I, HERBERT C. HESS, a citizen of the United States, residing at New York city, (Flatbush,) borough of Brooklyn, State of New York, have invented certain new and useful Improvements in Writing-Machines, of which the following is a specification.

This invention relates more particularly to that class of type-writing machines in which the platen has a movement at right angles to its axis, so that it may occupy two, three, or more positions to receive the impact of either two, three, or more characters upon the type-bar; and it comprises a new ribbon mechanism so organized and associated with such a movable platen that in either position of the platen upon the depression of a key-lever the ribbon is advanced over the printing-point or point of impact upon the platen to effect the proper printing of the character upon the paper and is then withdrawn to expose the printing to the view of the operator.

Considered more specifically the invention comprises the combination of a ribbon mechanism having these characteristics with a platen which is shifted obliquely to the horizontal plane of the machine, all as hereinafter more fully set forth. A machine having such an obliquely-movable platen is disclosed in my pending application, Serial No. 734,494, filed October 23, 1899. It is, so far as the machine described in that application and the principle of the invention herein set forth are concerned, quite immaterial whether the platen is shifted to successive positions in the same direction from normal position or in opposite directions from a normal central position.

In the accompanying drawings, Figure 1 is a longitudinal sectional view; Fig. 2, a similar view showing a key-lever depressed and a type-bar and the ribbon mechanism in operation; Fig. 3, a similar section taken at the left-hand side of the machine and showing two shifting-keys by which the platen may be moved from the normal position transversely to its axis into either of two other positions. Fig. 4 shows a transverse section on the line $x-x$ of Fig. 1; Fig. 5, a detail plan view indicating the manner in which the ribbon is drawn from one bobbin to the other;

Fig. 6, a detail view showing the shape of the pawls that actuate the ribbon-bobbins.

In the machine herein disclosed the carriage 1 is provided at its rear with two or more lugs 2, apertured to receive and travel upon a cross-bar 3, located across the rear of the machine. The carriage extends downwardly and forwardly, and a roll 4, having its bearings in a lug or projection projecting centrally from the front cross-piece 5 of the carriage, runs upon a transverse bar 6. As shown in the drawings, the carriage is disposed at an angle of about forty-five degrees to the horizontal plane of the machine. A platen-frame 7 is supported upon the carriage by means of four parallel links 8, two at each end of the frame. The two front links 8 are fast to a rock-shaft 9, from at or about the center of which projects an arm 10, provided with a roller 10'. This arm also has an extension 11 projecting from the opposite side of the rock-shaft, which bears when the platen-frame is in its normal or lowest position upon the cross-piece 5 of the carriage and acts as a stop to limit the movement of the platen-frame in this direction. The platen 12 is suitably mounted in the end plates of its frame and is to be equipped with the usual devices. Similarly the carriage is to be provided with the usual or any suitable feed devices to advance it step by step on the actuation of the key-levers 13. At the left-hand side of the machine are two horizontal levers 14 15, pivoted at or near the rear end of the machine and extending forward, so that their forward ends are located at the left of the keyboard. These two keys have, respectively, different depths of movement determined by their stops 14' 15', and both act upon a pin 16, projecting from an arm 17, located adjacent to the side plate of the machine and attached to a rock-shaft 18, turning in the opposite side plates and having at or near each end projecting arms 19, which are connected by a cross-bar 20, normally in contact with roll 10' on the arm 10 of the rock-shaft 9. When the shift-key 14 is depressed, the cross-bar 20 carries the arm 10 forward and moves the platen rearwardly and upwardly in its oblique line of travel a determined distance. When the shifting-key 15 is depressed, it advances the cross-bar 20

a greater distance and correspondingly moves the platen upwardly and rearwardly a greater distance than it was moved when the key 14 was depressed. The platen and the printing-point thereon has, therefore, three positions—namely, the normal position, (shown in Figs. 1 and 2,) when it receives at the printing-point the impact of the character “a” nearest the pivot of the type-bar 21, a second position, to which it is moved by the depression of the shift-key 14, (shown in Fig. 3,) when the printing-point is in position to receive the impact of the character “b” on the type-bar, and a third position, when the shift-key 15 is depressed, in which the printing-point on the platen is in a position to receive the impact of the character “c” on the type-bar.

The several type-bars are pivoted at or near their lower ends in a group in front of the platen and carriage and normally lie at rest against the back-stop bar 22 at about an angle of forty-five degrees to the horizontal plane of the machine, and consequently at an angle of about ninety degrees to the oblique plane in which the carriage and platen are arranged. The key-levers 13 are arranged horizontally beneath the type-bars, and may be pivoted, as shown or otherwise, at or near their rear ends and are connected by links 23 with their respective type-bars. It will be observed that the printing-point on the platen lies in a plane which is at an angle of forty-five degrees, or thereabout, to the horizontal plane of the machine or to a transverse vertical plane through the machine and that it is directly in line with the usual downward gaze of the operator, and the writing will therefore always be in plain view.

24 is the universal bar, and 25 the center about which it rocks.

The ribbon mechanism is as follows: At each side of the machine there is a ribbon-bobbin shaft 26, which is shown as inclined toward the front of the machine. 27 are the ribbon-bobbins, and the ribbon passes from one to the other through slots in the ends of a bifurcated ribbon-carrier 28, pivoted at its lower end in the end of a lever 29, turning loosely on a rock-shaft 30, extending across the machine, which from the opposite end of the lever extends normally in substantially a horizontal position. From the rock-shaft 18 an arm 31 projects, in which is pivoted an arm 32, having at its end a pin or projection 33, overlying the rear end of the lever 29, and which arm 32 is connected by a link 34 with a centrally-arranged horizontal arm 35, pivoted at its forward end 36 in a lug or projection from the inner face of the comb or slotted guide-plate 37, in which the key-levers work. Normally the ribbon-carrier is in the retracted position, and the printing point or line on the platen (indicated by the arrow-head, Fig. 1) is exposed to view. When a key-lever is depressed, as in Fig. 2, and during the forward motion of the type-bar, the universal

bar 24 presses down the pivoted arm 35, the arm 32 is drawn downwardly, and the pin or projection thereon depresses the rear end of the lever 29, which movement advances the ribbon-carrier so that the ribbon lies over the printing-point, all as illustrated in Fig. 2. When the key-lever is released and the type-bar recedes, the ribbon-carrier falls back to normal position and the impression just made is exposed to view. This operation occurs when the platen is in either of the three positions—namely, the normal position, or the second position, due to the depression of shifting-key 14, or the third position, due to the depression of shifting-key 15. It will be observed that when a shift-key is depressed the shaft 18 is rocked and the end of the arm 32 advances toward the axis 30, about which the lever 29 rocks. In whatever position the arm 32 stands it receives substantially the same extent of movement downwardly when a key-lever is depressed. Hence if the platen is in the normal position and the pin 33 in the arm 32 is in its farthest position from the axis 30 a motion will be imparted to the ribbon-carrier sufficient to carry the ribbon over the printing-point. When the platen has been shifted to its second position, the pin on the arm 32 will have approached the axis 30, and consequently may impart to the ribbon-carrier a greater extent of movement sufficient to carry it from its normal position over the printing-point on the platen. Similarly when the platen is in its third position a still greater extent of motion may be imparted to the ribbon-carrier sufficient to carry it over the printing-point on the platen by reason of the still closer proximity of the pin on the arm 32 to the axis 30. Of course I would, as shown in the drawings or otherwise, give such shape to the upper edge of the lever 29, upon which the pin acts, as to cause these movements of the carrier to properly occur in the different relative positions of the arm 32 and lever 29. In order, however, to relieve the key-levers of the additional work of imparting to the ribbon-carrier the increased extent of movement when the platen occupies a position other than the normal one, I may cause the platen as it is shifted to carry the ribbon-carrier along with it, so that the normal position of the ribbon-carrier relatively to the printing-point in any position of the platen is maintained and a uniform extent of movement be imparted to the ribbon-carrier on the depression of a key-lever. To accomplish this, I provide a loose connection between the obliquely-shifting platen-frame and the ribbon-carrier, which may consist of the cross-bar 38 of the platen-frame and a projection 39 on the under or rear face of the ribbon-carrier. So far as I am aware I am the first to provide a ribbon-carrier to which a variable extent of movement is imparted on the depression of the key-lever according to the position occupied by the platen, and also so

far as I am aware it is new to accomplish this by providing a variable leverage operating substantially in the manner described.

The ribbon is wound from one bobbin to the other as follows: At each side of the machine the arm 24', carrying the universal bar, is connected by a link 40 with a right-angle lever 41, pivoted at 42 to the side plate of the machine. To the upper end of this lever is pivoted a pawl 43, (shown in detail in Fig. 6,) having an edge or tooth 44, adapted to engage the ratchet-wheel 45 on the lower end of the bobbin-shaft. A spring 46 tends constantly to draw the pawl downwardly, so that its edge or tooth shall engage the teeth of the ratchet. On the pawl above this tooth projects an arm 47, between which and the tooth is a cam-piece 48, one at each side of the machine and both carried by a transverse shaft 30, turning in the side plates of the machine and having outside the left-hand side plate of the machine an arm 50, adapted to be set and retained in either of two positions. In one position the rise of one of the cams comes between the tooth and arm of one of the actuating-pawls and maintains the pawl in an elevated position against the strain of the spring, so that when vibrated its tooth engages its ratchet-wheel and moves it step by step. The fall of the other cam is then under the projecting arm of its pawl and the pawl is drawn down by its spring, so that its tooth misses the ratchet-wheel. The ribbon may be thus drawn from one bobbin to the other and the direction of travel of the ribbon reversed at will.

Ordinary springs will be provided for returning the parts to normal position after their actuation, as is obvious and well understood.

I claim as my invention—

1. The combination of an endwise-movable platen, means for shifting it transversely at the will of the operator, type-bars having multiple characters thereon, key-levers, a ribbon-carrier and mechanism interposed between the ribbon-carrier and key-levers to impart to the carrier a variable extent of movement from its normal position according to the position occupied by the platen.

2. The combination of a platen movable transversely to its axis at will, type-bars having multiple characters, key-levers, a ribbon-carrier and variable-leverage ribbon-carrier-actuating mechanism interposed between the key-levers and the ribbon-carrier whereby a variable extent of movement may be imparted to the ribbon-carrier according to the position occupied by the platen.

3. The combination of a platen, a ribbon-carrier normally holding the ribbon away from the printing-point on the platen, type-bars, key-levers, ribbon-carrier-actuating mechanism interposed between the ribbon-carrier and key-levers to project the ribbon over the printing-point when an impression is to be taken, mechanism for at will shifting

the platen transversely, and means whereby when the platen is so shifted the ribbon-carrier-actuating mechanism is adjusted to impart to the ribbon-carrier such extent of movement as to carry the ribbon over the printing-point in any position to which the platen may be shifted.

4. The combination of the platen movable transversely to its axis, a ribbon-carrier mounted to be moved correspondingly with the transverse movement of the platen, a lever or support in which the ribbon-carrier is mounted, type-bars, key-levers, ribbon-carrier-actuating mechanism interposed between the key-levers and the ribbon-carrier support to advance the ribbon over the printing-point when an impression is to be taken, mechanism for shifting the platen transversely and changing or adjusting the relation of the ribbon-carrier support and the ribbon-carrier-actuating mechanism whereby such extent of movement may be imparted to the ribbon-carrier to project the ribbon over the printing-point of the platen when shifted.

5. The combination with a transversely-movable platen, type-bars and key-levers, of a ribbon-carrier that normally holds the ribbon away from the printing-point on the platen, and mechanism interposed between the key-levers and ribbon-carrier for imparting to the ribbon-carrier a variable extent of movement corresponding with the positions of the platen whereby the ribbon-carrier may be moved from its normal position to project the ribbon over the printing-point in any position of the platen.

6. The combination with a transversely-movable platen, type-bars and key-levers, of a ribbon-carrier that normally holds the ribbon away from the printing-point on the platen, mechanism interposed between the key-levers and ribbon-carrier for imparting to the ribbon-carrier different extents of movement corresponding with the position of the platen, and a loose connection between the transversely-movable platen and the ribbon-carrier by which the ribbon-carrier is moved with and in its normal relation to the platen and the key-levers thereby relieved of part of the work of moving the ribbon-carrier when the platen is shifted.

7. The combination with a transversely-movable platen, type-bars and key-levers, of a ribbon-carrier having a variable extent of movement corresponding with the position of the platen, a lever in which it is pivoted, an arm engaging said lever and operated by the key-levers and mechanism for shifting the platen and varying the relation of said arm to the axis of the lever carrying the ribbon-carrier, thereby varying the leverage and correspondingly the extent of movement of the carrier.

8. The combination of a platen movable transversely to its axis and obliquely to the horizontal plane of the machine, a ribbon-carrier movable in substantially the same

oblique plane, type-bars, key-levers and mechanism interposed between the key-levers and carrier for moving the ribbon-carrier variable distances to project the ribbon over the printing-point in any position of the platen.

9. The combination of an endwise-movable carriage, a platen-frame carried thereby and movable transversely to the line of travel of the carriage obliquely to the horizontal plane of the machine, a correspondingly-movable ribbon-carrier normally holding the ribbon away from the printing-point, type-bars, key-levers, mechanism for shifting the platen-frame obliquely and mechanism interposed between the carrier and key-levers and operated by said levers for imparting to the ribbon-carrier a variable extent of movement from its normal position to project the ribbon over the printing-point in any position of the platen.

10. The combination of an endwise-traveling carriage, a platen carried thereby and movable transversely to its axis in a plane oblique to the horizontal plane of the machine, a series of type-bars pivoted at or near their lower ends in front of the carriage below the platen and normally inclining away from the platen toward the front of the machine, one or more shift-keys for moving the platen transverse to its axis in said oblique plane, key-levers respectively connected to the type-bars, carriage-feed mechanism interposed between the carriage and key-levers, a ribbon-carrier that holds the ribbon normally away from the printing-point, variable-leverage ribbon-carrier-actuating mechanism interposed

between the key-levers and carrier, and means for varying the leverage of the carrier-actuating mechanism when the platen is shifted, whereby when a key-lever is depressed such excursion of movement of the ribbon-carrier from the normal position is effected as to carry the ribbon over the printing-point in either position of the platen.

11. The combination of the carriage, a platen-frame mounted thereon, the platen carried thereby, the rock-shaft 9 and arm 10, the arm 17, rock-shaft 18, arm 19, transverse bar 20, shift-keys, the arms 31 and 32, link 34 and arm 35, the universal bar, type-bars and key-levers, the ribbon-carrier and the lever in which it is pivoted.

12. The combination with a carriage and transversely-shifting platen, one or more shift-keys for shifting the platen, type-bars and key-levers, of a ribbon-carrier mounted in a support rocking about a fixed pivot, and operating connections actuated by the several key-levers and engaging said rocking support at different distances from its pivot according to the position of the platen to project the ribbon over the printing-point in any position of the platen.

In testimony whereof I have hereunto subscribed my name.

HERBERT C. HESS.

Witnesses:

C. D. LADLEY,
F. G. RING.