

W. H. BENNINGTON.
TYPE WRITING MACHINE.
APPLICATION FILED OCT. 22, 1901.

NO MODEL.

2 SHEETS—SHEET 1.

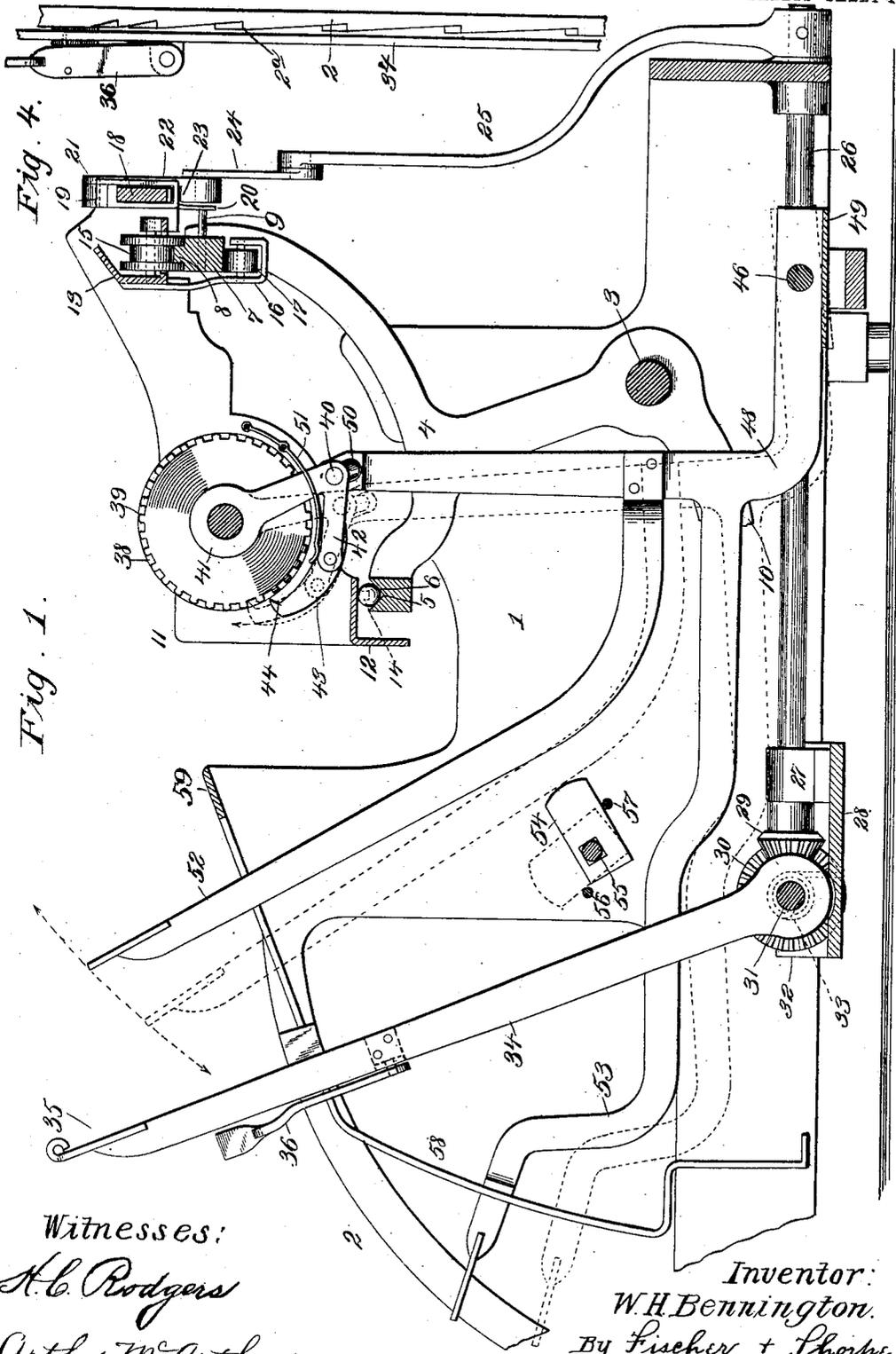


Fig. 4.

Fig. 1.

Witnesses:

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UNITED STATES PATENT OFFICE.

WESLEY H. BENNINGTON, OF KANSAS CITY, KANSAS.

TYPE-WRITING MACHINE.

SPECIFICATION forming part of Letters Patent No. 762,272, dated June 14, 1904.

Application filed October 22, 1901. Serial No. 79,559. (No model.)

To all whom it may concern:

Be it known that I, WESLEY H. BENNINGTON, a citizen of the United States, residing at Kansas City, in the county of Wyandotte and State of Kansas, have invented certain new and useful Improvements in Type-Writing Machines, of which the following is a specification.

My invention relates to type-writing machines; and it consists in certain novel and peculiar features of construction and organization, as hereinafter described and claimed; and my objects are to produce, first, lever-operated means for effecting forward or backward rotation of the platen while the carriage is at rest; secondly, key-operated means to effect the return of the carriage to its original or any intermediate position; thirdly, lever-operated means for synchronously returning the carriage to its original position and causing forward movement of the platen, and, fourthly, means for regulating the distance covered by the platen in its rotatable movement.

Other objects and advantages of the invention will hereinafter appear, and in order that it may be fully understood reference is to be had to the accompanying drawings, in which—

Figure 1 is a vertical section taken on line I I of Fig. 2. Fig. 2 is a rear view of the same, partly broken away. Fig. 3 is a detail section showing the spacing-wheel of the platen and the double-toothed pawl for rotating the same. Fig. 4 is a front view of part of the side wall of the frame and also shows the lever for returning the carriage to its starting-point and the catch for checking said return movement at the desired intermediate point.

Referring to the drawings, wherein like reference-numerals identify corresponding parts, 1 designates the frame of the machine, the same being of any suitable form, but provided with a quadrant-shaped portion 2 at the front end of one side, having a series of ratchet-teeth 2^a at its inner side, for a purpose which hereinafter appears. In the rear portion of the frame is secured a transverse shaft 3,

whereon is journaled the carriage shift-frame, the same consisting of a pair of approximately Y-shaped levers 4, having their front arms connected by a cross-bar or track 5, on which are mounted balls or rollers 6, and their rear arms connected by a cross-bar or track 7, having an upwardly-projecting rib 8 and a rearwardly-projecting pin 9 at a suitable point, and said shift-frame is oscillated for the usual purpose by means of a key-lever 10. (Shown only in Fig. 1.)

11 designates the carriage, provided with a cross-bar 12 at its front and lower corner, resting on balls 6, and a cross-bar 13 near its rear end. Cross-bar 12 has depending pins 14 (shown only in dotted lines) to prevent dislocation of the balls or rollers 6, and cross-bar 13 carries grooved rollers 15, engaging rib 8 on track 7. It is also provided with hangers 16, carrying rollers 17, engaging the lower side of said track, and with a transverse rack-bar 18 rearward of said rollers.

19 is a sliding sleeve mounted on rack-bar 18 and provided with a depending lug 20 to engage stop-pin 9, and thus put a positive limit to the advance movement of the sleeve. The sleeve is slotted at its rear and under sides, as at 21, to receive the swinging dog 22, said dog being pivoted at its upper end to the sleeve and provided at its lower end with a tooth 23, underlying the rack-bar and adapted to engage the same. Said dog is pivotally connected by a link 24 with the upper end of a crank-arm 25 on a shaft 26, journaled in the rear wall of the frame and in a bearing 27 on the cross-bar 28 rigid with the frame. At its front end is mounted rigidly a bevel-gear 29, meshing with a larger bevel-gear 30 on a transverse shaft 31, journaled at its opposite ends in the frame and a bearing 32 on bar 28.

33 designates a spring spirally encircling shaft 31 and secured at its opposite ends to said shaft and to cross-bar 28, (see Figs. 1 and 2,) and mounted rigidly on said shaft is a lever 34, terminating at its upper end in a comparatively wide plate 35, formed with a rounded enlargement or roll at its upper end

in order that one without possibility of bruising the skin may in a single movement drop the hand upon and swing said lever downwardly and forwardly. The spring 33 normally holds lever 34, sleeve 19, and the connected parts in the position shown in full lines, Fig. 2, so that the carriage rack-bar may advance in the usual manner through said sleeve without affecting the position of the same or said connected parts. Now when it is desired to return the carriage the operator by swinging lever 34 forward overcomes the resistance of spring 33 and initially swings dog 22, as shown by the arrow in Fig. 2, until its tooth 23 engages a tooth of rack-bar 18, this action in practice being instantaneous and immediately followed by the return of the carriage to the position shown by dotted lines, Fig. 2. As the operator's hand is removed from the lever the compressed spring 33 initially disengages the dog from the rack-bar and returns the connected parts to their original position, the sleeve sliding in such return on the rack-bar until arrested by stop-pin 9, as will be readily understood.

Pivoted at its lower end to lever 34, so as to swing therewith and at right angles thereto, is a catch or stop 36, the same being adapted to be pressed into engagement with the ratchet-teeth 2^a, these teeth being suitably spaced at any desired intervals. As shown, the first or uppermost tooth is adapted for engagement by the catch to arrest the same and the lever when the operator desires to return the carriage one step—viz., the distance it traverses in letter-spacing—the next tooth for engagement with the catch 36 when the carriage is to be returned five steps, and so on, it being understood that to effect this return of the carriage either one or any number of steps it is necessary to swing lever 34 forward a proportionate distance and at the same time press the catch into engagement with the proper notch. The mechanism (not shown) for advancing the carriage intermittently with each depression of a key holds the carriage in the position to which it has been adjusted by lever 34 and catch 36, said catch of course springing out of the notch immediately the operator's hand is removed under the pressure of spring 37, secured at its opposite ends to the lever and catch, as shown clearly in Fig. 2. It is to be understood, of course, that the carriage may be returned by hand in the usual manner without affecting the position of lever 34 or any of the parts connected thereto.

38 designates the platen, journaled in the carriage-frame in the usual manner and provided at one end with a toothed spacing-wheel 39, the walls of the teeth extending approximately parallel.

A swinging frame pivotally suspended from the shaft consists of the cylindrical

cross-bar 40 and the upwardly-projecting arms 41, respectively, closely underlying and occupying positions at opposite ends of the platen, the arm 41 contiguous to the spacing-wheel being provided with a forwardly-projecting arm 42, having an oscillatory pawl 43, provided with a tooth 44 at its front end and tooth 45 at its rear end.

46 designates a shaft having a cone-bearing in one side wall of the frame and in an extension or arm 47 thereof, and secured rigidly on said shaft is a lever 48, maintained normally in the position shown in full lines, Fig. 1, by a spring 49, secured to the frame at one end, the spring being sufficiently wide to press upwardly against the lever at both sides of and equal distances from its pivot, as shown clearly in Fig. 1. At its upper end lever 48 is provided with a perforation or slot 50, through which the cross-rod of the swinging pawl-carrying frame slidingly and rotatably extends, and as a consequence spring 49 by normally holding said swinging frame in the position shown in full lines, Fig. 1, incidentally holds both teeth of the oscillatory pawl out of engagement with the spacing-wheel, a stationary spring 51, secured to the contiguous end of the carriage-frame and having an arm 51^a pressing down upon the center of the pawl, (see Fig. 3,) cooperating with spring 49 to hold the pawl away from the wheel, said coacting spring being instrumental as lever-arm 52 or 53 is swung downwardly or upwardly from the position shown in full lines, Fig. 1, in throwing the front or rear tooth, respectively, in engagement with said wheel. This object is effected, because as the frame swings forwardly with the lever the spring transfers its pressure to a point rearward of the axis of the pawl. On the other hand, when the lever swings rearward of the position shown in full lines, carrying the frame with it, the spring applies its pressure forward of the axis of the pawl, and thereby throws its rear tooth in engagement with the wheel. It will thus be seen that the depression of side arm 52 or center arm 53 results in the forward rotation of the platen, the number of steps the latter takes being regulated by the adjustable stop 54 in the path of arm 52, secured on the inner end of a short crank-shaft 55, journaled in the wall of the frame contiguous to said side arm, pins 56 and 57, projecting from said wall, holding the stop in position to permit the platen to double or single space, respectively, as will be readily understood by reference to Fig. 1. To turn the platen backward, and thus reverse the movement of the paper, which is desirable for making corrections and doing interlineation work, the operator will find it most convenient to manipulate the lever through the instrumentality of arm 53, and as it is desirable to guard against lateral

vibration or movement of said arm I provide a slotted guide 58 for the same, secured at its opposite ends to cross-bars 59 (one only of which appears) of the frame or otherwise.

5 In the practical operation of the machine the carriage is returned to its starting-point whenever desired by dropping the hand slidingly upon the upper end of lever 52 and lever 34. This action synchronously rotates
10 the platen forwardly to space for a new line and returns the carriage to its starting-point, it being obvious, of course, that the rotation of the platen terminates before the return of the carriage is ended, this being desired in
15 order that the platen shall be absolutely quiet when the first type for a new line strikes the paper. The action above described with little practice becomes purely mechanical and practically consists in nothing more than letting
20 the weight of the hand fall simultaneously on said levers and remain upon lever 34 until its limit of downward movement terminates. Should it be desired to return the carriage to an intermediate point and space for a new
25 line, the manipulation is the same except that the operator's thumb is employed to press the catch 36 outward in the manner previously described, so that it shall lodge on the proper tooth and arrest the movement of the lever.
30 The manipulation of lever-arm 53 becomes purely mechanical, it being lightly touched in the upward movement of the hand to rotate the platen rearwardly.

From the above description it will be apparent that I have produced a machine embodying the features of advantage enumerated as desirable in the statement of invention and of such character structurally that great speed can be attained in its manipulation, for the
40 reason that the operation of the levers is more convenient and less laborious than to grasp the carriage and return it by hand or to turn the platen in the usual manner in making corrections and for interlineation work.

45 The preferred construction of the invention is embodied in this application; but I am aware that the same may be varied in many particulars without departing from its spirit and scope or sacrificing any of its advantages.

50 Having thus described the invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a type-writing machine, the carriage provided with a rack-bar, a dog having a sliding relation with the rack-bar when the carriage advances, a lever, suitable connections
55 between the same and the dog whereby the depression of the lever shall cause the dog to engage the rack-bar and effect the return of the carriage, and means to reelevate the lever, substantially as described.

2. In a type-writing machine, the carriage provided with a rack-bar, a dog having a sliding relation with the rack-bar when the car-

riage advances, a lever, suitable connections
65 between the same and the dog whereby the depression of the lever shall cause the dog to engage the rack-bar and effect the return of the carriage, means to reelevate the lever, and a stop-pin for limiting the return movement
70 of the dog on the rack-bar, substantially as described.

3. In a type-writing machine, the carriage provided with a rack-bar, a dog having a sliding relation with the rack-bar, when the carriage
75 advances, a lever, suitable connections between the same and the dog whereby the depression of the lever shall cause the dog to engage the rack-bar and effect the return of the carriage, a spring to reelevate the lever,
80 and a stop-pin for limiting the return movement of the dog on the rack-bar, substantially as described.

4. In a type-writing machine, the shift-frame, a stop-pin projecting from the same, a
85 carriage having a rack-bar, a slotted sleeve slidingly mounted on the rack-bar, a dog pivoted to said sleeve within said slot, a lever, connections between the same and the dog whereby the latter is caused to engage or re-
90 lease the rack-bar, and means to return the lever and the sleeve to their original positions after each depression of the former, substantially as described.

5. In a type-writing machine, the frame provided with teeth, the carriage provided with
95 a rack-bar, a dog having a pivotal and sliding relation with the rack-bar to permit the carriage to advance or to return the same, a crank-shaft pivotally linked to the dog to
100 cause its engagement or disengagement with the rack-bar, a lever to rotate said shaft in one direction, a spring to reverse such rotation when the lever is released, substantially
105 as described, and lever-carried means for engagement with the desired tooth to arrest the lever movement prior to such reverse action.

6. In a type-writing machine, the frame provided with teeth, the carriage provided with
110 a rack-bar, a dog having a pivotal and sliding relation with the rack-bar to permit the carriage to advance or to return the same, a crank-shaft pivotally linked to the dog to cause its engagement or disengagement with
115 the rack-bar, a lever to rotate said shaft in one direction, a spring to reverse such rotation when the lever is released, and a catch carried by said lever and adapted to engage one of said teeth to arrest the lever movement prior to such reverse action, substan-
120 tially as described.

7. In a type-writing machine, the frame provided with notches, the carriage provided with
125 a rack-bar, a dog having a pivotal and sliding relation with the rack-bar to permit the carriage to advance or to return the same, a crank-shaft pivotally linked to the dog to cause its engagement or disengagement with

the rack-bar, a lever to rotate said shaft in one direction, a spring to reverse such rotation when the lever is released, a catch pivoted to said lever for engagement with one of said
5 notches, and a spring holding said catch out of the path of the notches, substantially as described.

In testimony whereof I affix my signature in the presence of two witnesses.

WESLEY H. BENNINGTON.

Witnesses:

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C. Y. THORPE.