

(No Model.)

2 Sheets—Sheet 1.

C. H. SHEPARD.
TYPE WRITING MACHINE.

No. 480,289.

Patented Aug. 9, 1892.

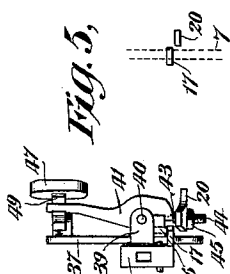


Fig. 5,

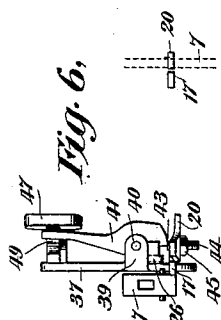


Fig. 6,

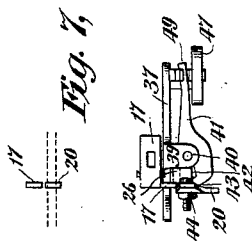


Fig. 7,

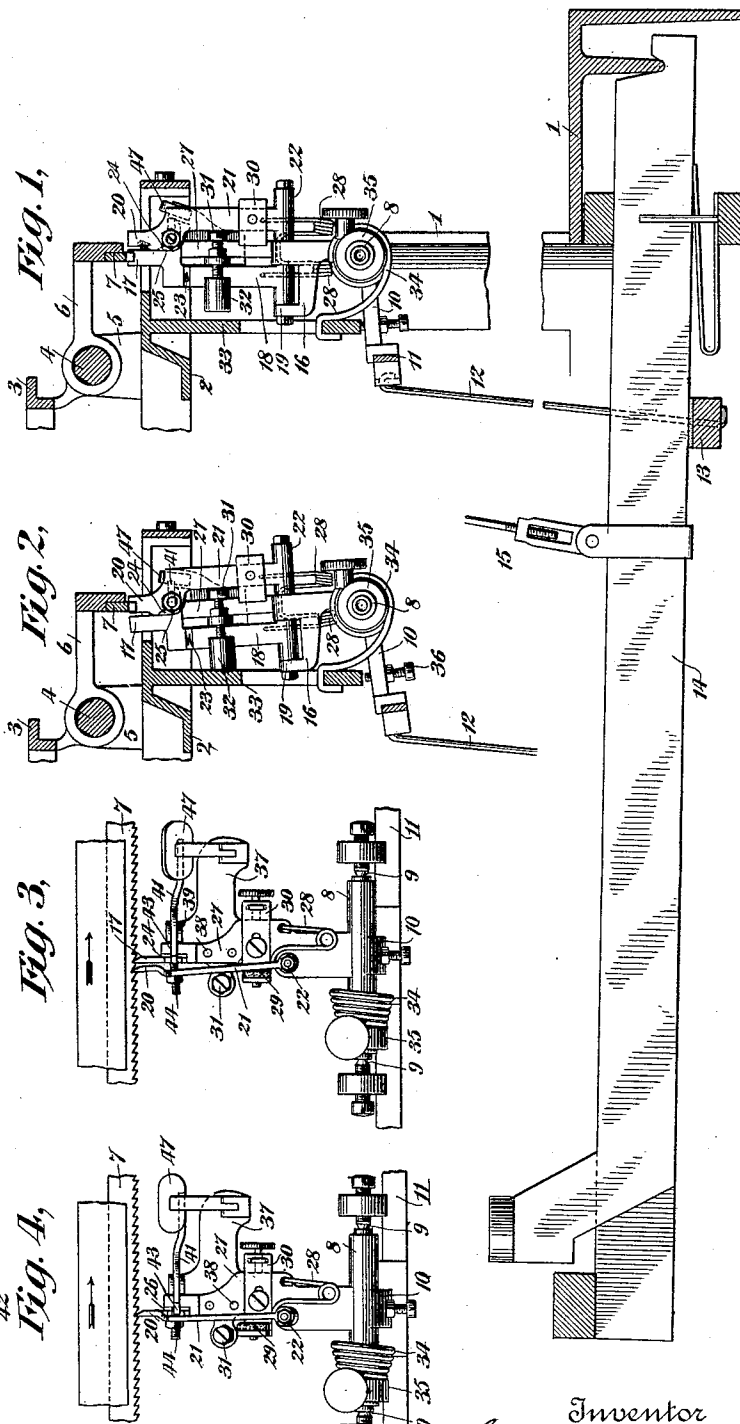


Fig. 1,

Fig. 2,

Fig. 3,

Fig. 4,

Witnesses
C. E. Ashley
J. W. Lloyd.

Inventor
Charles H. Shepard
By his Attorney
H. D. Donnelly

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Fig. 12,

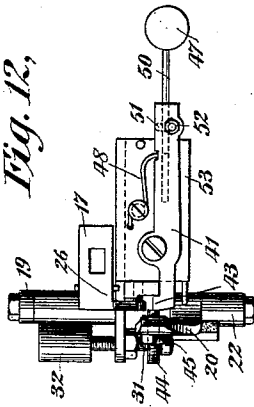


Fig. 13,

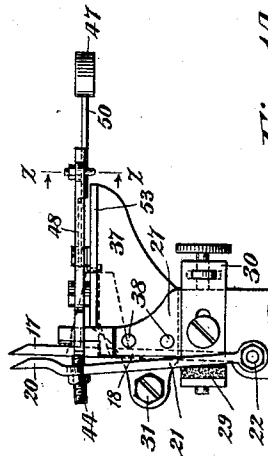


Fig. 14,

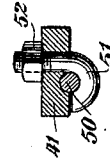


Fig. 10,

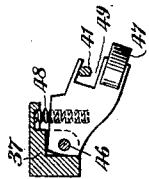


Fig. 11,

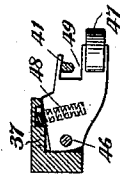


Fig. 8,

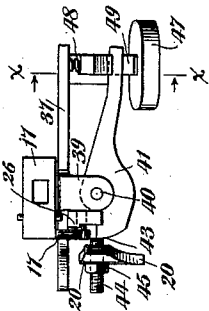
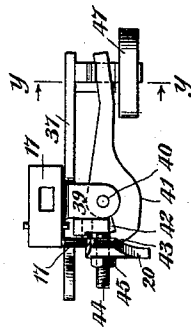


Fig. 9,



Witnesses
C. E. Ashley
H. W. Lloyd.

Inventor
Charles H. Shepard
By his Attorney
H. D. Donnelly

UNITED STATES PATENT OFFICE.

CHARLES H. SHEPARD, OF BROOKLYN, ASSIGNOR TO THE REMINGTON
STANDARD TYPE WRITER MANUFACTURING COMPANY, OF NEW
YORK, N. Y.

TYPE-WRITING MACHINE.

SPECIFICATION forming part of Letters Patent No. 480,289, dated August 9, 1892.

Application filed January 28, 1892. Serial No. 419,551. (No model.)

To all whom it may concern:

Be it known that I, CHARLES H. SHEPARD, a citizen of the United States, and a resident of Brooklyn, in the county of Kings and State
5 of New York, have invented certain new and useful Improvements in Type-Writing Machines, of which the following is a specification.

My invention has for its main object to provide a letter-spacing mechanism adapted for rapid as well as slow operators; and to this end it consists in the various features of construction and the combinations of devices hereinafter more fully described, and particularly
15 pointed out in the appended claims.

In the accompanying drawings, Figure 1 is a central vertical section of so much of a type-writing machine as is necessary to illustrate my improvements, the letter-spacing devices being in their normal positions. Fig. 2 is a similar section, omitting the lower portion of the machine and showing the spacing devices in their normal or shifted positions and previous to the feed. Fig. 3 is a rear elevation with the parts in the positions represented at Fig. 1. Fig. 4 is a similar view with the parts in the positions represented at Fig. 2. Fig. 5 is a top plan view of the letter-spacing dogs with my improvements
30 added, and showing, also, at the right a diagrammatic view of the positions of the dogs at this time, both said views corresponding to Fig. 1. Fig. 6 is a view similar to Fig. 5, and including, also, a diagrammatic view illustrating the positions of the dogs at this time, both said views corresponding to Fig. 2. Fig. 7 is a similar view to Fig. 6, but showing the tripping lever out of position and the feed as having been made, this figure also including a diagrammatic view showing the relative positions of the dogs and rack after the making of the feed. Fig. 8 is a plan view, enlarged, with the parts in the positions represented at Fig. 5. Fig. 9 is a similar enlarged view, the parts being in the positions represented at Fig. 7. Fig. 10 is a vertical cross-section taken at line *xx* of Fig. 8. Fig. 11 is a vertical cross-section taken at the line *yy* of Fig. 9. Fig. 12 is an enlarged plan view of a modified construction. Fig. 13 is a side elevation
50 of the same, and Fig. 14 is an enlarged cross-section taken at the line *zz* of Fig. 13.

In the several views the same part will be found designated by the same numeral of reference.

1 designates the framework; 2, the top plate or type-ring, around which the type bars or levers (not shown) are hung or pivoted in the usual manner; 3, the paper-carriage, (shown only in part); 4, the guide-rail of said paper-carriage, which, as usual, is supported at its ends in standards 5; 6, a hinged rack-bar frame, and 7 a vertically-arranged feed-rack.

8 designates a spacing-rocker pivoted at its ends by conically-pointed screws 9 and provided with a forwardly-extending arm 10, to which is attached a cross-bar 11, over which at each end is hooked the upper end of a connecting-rod 12, whose lower end is attached to one end of a universal bar 13, which extends transversely of the machine under all of the key-levers.

The key-levers 14 are each connected to the type-bars in the usual way through a connecting-rod 15. (Shown only in part.) 16 designates a dog-holder, which is made integral with the spacing-rocker.

17 represents the front or foremost dog, the shank 18 of which is pivoted at 19 to the dog-holder.

20 represents the rear dog, the shank 21 of which is pivoted at 22 to said dog-holder.

The dog 17 is preferably pivoted to its shank 18 and provided with an intervening spring 23, as customary heretofore, in order to enable the carriage to be returned easily and noiselessly; but said dog may be made integral or of a piece with its shank, as is the case with the dog 20.

The dog 17 is formed or provided with an offset or projection 24, and the dog 20 is provided with a similar projection 25 to overlap the projection 24 on its right, so that when the dog 20 is vibrated to the left about its pivot 22 under the pull of the power-driven paper-carriage it may carry along with it the dog 17, which at said time vibrates about its pivot 19. On the left of both said dogs is a stop 26, preferably formed at the upper end

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of an arm 27, formed integral with the spacing-rocker, said stop serving to limit the vibratory motion of both the dogs 17 and 20 in their movements toward the left under the action of the carriage-driving spring. (Not shown, but which may be of the usual construction and arrangement.) As illustrated, the dog 17 when carried to the left comes into direct contact with said stop, while the dog 20 is arrested indirectly by said stop on account of the overlapping of the projections 24 and 25.

The shank 18 of the dog 17 is provided with a spring 28, adapted to throw the said dog toward the right, and the shank 21 of the dog 20 is provided with a similar spring adapted to throw said dog 20 in the same direction.

The movement of the dog 20 toward the right when disengaged from the feed-rack is limited by a stop 29 on an adjustable plate 30, attached to the arm 27 in about the usual manner of the Remington machine, while the movement of the dog 17 toward the right when freed from engagement with the feed-rack is limited by the overlapping projection 25 on the dog 20.

31 is a forwardly-projecting screw provided at its front end with a soft or yielding stop 32, adapted to contact with the depending portion of framework 33, and thus limit the forward vibration of the spacing-rocker and the dogs carried thereby. The rearward movement of the spacing-rocker and its appendages is effected by a coiled spring 34, surrounding the axis of the spacing-rocker and connected at one end to an adjustable collar 35 thereon and at its other end to the piece of framework 33, as in the Remington machine. The rearward movement of the spacing-rocker is limited by a screw-stop 36, which strikes against the under side of the framework 33.

I have thus far described what is known as the "Webb" modification of the Remington escapement mechanism, with which I have preferably combined my improvements.

37 designates a bracket or support, which is preferably attached by screws 38 to the arm 27 between the said arm and the shank 18 of dog 17. The screw 31, having the stop 32, is preferably supported in the end of said bracket, though it may be supported by the arm 27, as heretofore. The inner end of said bracket extends up to about a level with the top of the arm 27 and is there provided with a pair of rearwardly-projecting lugs 39, in which is pivoted at 40 a lever 41, which at its inner end is cut away at 42 to enable it to embrace the rearmost edge of the upper portion of the arm 27. The extreme inner end of said lever is arranged or adapted to form a stop 43 for the dog 20, which latter is preferably provided with a transverse screw 44 and a locking-nut 45, the point of said screw being adapted to contact with said stop 43 of the lever 41 in lieu of the said dog itself.

To the outer end of the bracket 37 is pivoted at 46 a weight or hammer 47, provided with a returning-spring 48, which is con-

nected to the outer end or arm of the lever 41, preferably loosely, by means of a slot or fork 49, of greater width than that of the outer portion of the arm of the lever which it embraces, in order that said pivoted weight or hammer may have a slight amount of motion before acting upon said lever.

In the normal condition of the machine the dog 17 stands in engagement with the rack and against its front stop, due to the pull of the driving-spring of the paper-carriage, and at this time the rear dog 20 stands out of the rack against its back-stop 29 and a distance to the right corresponding to that between two adjacent teeth on the rack. At this time, also, the stop 43, formed on the lever 41, stands in front of and in line with the contact pin or screw 44, carried by the dog 20, and the free outer end of the lever rests at the front end of the slot or fork 49. Now if the type-actuating key be operated the letter-spacing action of the carriage will take place. The operations of the parts will be different, according as to whether the depression of the actuating-key be a quick or slow one. I shall therefore describe what occurs when the stroke employed is a quick or staccato one, and then what occurs when the stroke is a slow or sluggish one. If the key be struck smartly or quickly, the spacing-rocker will be vibrated and the dog 17 carried out of engagement with the feed-rack and the dog 20 moved into engagement therewith and the stop 32 swung over into contact with the framework or abutment 33. The sudden stoppage of the spacing-rocker after the quick movement of the actuating-key results in the vibration of the lever 41 and the movement of its stop from in front of the dog 20 and hence in the immediate feed of the paper-carriage. This vibration of said lever is effected by the weight or hammer 47, which after the stoppage of the spacing-rocker moves forward by inertia and carries with it the outer end or arm of said lever and throws rearwardly its inner end containing the stop. As soon as this takes place, all obstruction to the driving-spring having been removed, said spring will operate to pull the carriage toward the left, with the dog 20 in engagement with the rack. At or about the cessation of the forward movement of the spacing-rocker the type makes its impression, and, the finger having been removed from the actuating-key, the spacing-rocker and its appendages are returned to normal position by means of the spring 34, the dog 17 moving back into the rack again and engaging the same tooth which the dog 20 moves out of contact with. Immediately the dog 20 recedes from the rack its spring 28 operates to vibrate it one notch to the right, and simultaneously the spring 48 operates to throw the weight or hammer rearwardly and cause it to vibrate the lever 41 back to normal position. The feed of the carriage thus takes place before the return of the spacing-rocker, and hence at an earlier period

than it does in the ordinary Remington machines or than it does when this machine is operated slowly. If the finger-key be depressed slowly, the front dog 17 will move forward out of the rack and the rear dog into the rack and into the space behind the one previously occupied by the front dog. At this time there will be no feed of the carriage, because the momentum of the weight or hammer is not sufficient to vibrate or trip the stop-carrying lever, and the rear dog is prevented from moving or vibrating to the left under the pull of the carriage by reason of the stop standing in front of said dog. The type having made its impression, the spacing-rocker and the dogs are returned to their first positions, the front dog 17 passing into the notch which the rear dog moves out of, the front dog having been vibrated to the right by its spring after leaving the rack on the forward movement of the spacing-rocker. As soon as the front dog returns thus into engagement with the rack the carriage-driving spring pulls the carriage toward the left with the front dog till the latter comes to a bearing against the stop 26. This feed, it will be observed, is substantially the old Remington feed, and the type gets back about one-half of the way before the carriage moves.

It will be observed that in rapid work the carriage moves while the rearmost dog 20 is in engagement with the rack, and that in slow work it moves while the foremost dog 17 is in engagement with the rack, and for this reason either one of the two dogs is a spacing or feeding dog, according as to whether the work be slow or rapid. In previous machines one dog is always the spacing or feeding dog and the other the detaining-dog.

In working quickly the type is arranged to strike the paper about simultaneously with the stoppage of the spacing-rocker in its forward movement, and the carriage thus starts feeding at about the moment the impression is made; but this start of the carriage will be delayed slightly by reason of the small amount of motion which the weight or hammer is allowed before striking against or moving the stop-lever. This previous movement or lost motion provided for the hammer is desirable in that it allows the hammer or weight to require some momentum before actuating the stop-lever, thus enabling said lever to be moved more easily than if the weight and lever were obliged to move simultaneously. This insures a more certain action in case of excessive carriage tension, for with a heavy tension the rear dog might press so hard upon the lever-stop that it might be impossible for the hammer to throw it off during the forward vibration of the spacing-rocker. By having the lost motion the hammer is sure to have a certain amount of swing or movement before acting upon the stop-lever, and the momentum thus acquired is better adapted to actuate the stop-lever where there is excessive tension; but so far as the main feature of my

invention is concerned the lost motion referred to may be omitted and the weight or hammer rigidly connected to the stop-lever. 70

Referring to Figs. 12, 13, and 14, it will be observed that the weight or hammer is fixed upon a rod 50, which by a hooked bolt 51 and nut 52 is secured adjustably to the outer arm of the stop-lever 41, which is preferably grooved on its under side to partially surround said rod. The returning-spring 48 is connected to a plate or support 53, upon which the lever is pivoted, and bears at its free end against said lever. The operation of the construction shown at the last-mentioned figures is substantially the same as that hereinbefore described, and it would seem to be sufficient to say that in rapid work when the spacing-rocker is stopped in its forward vibration the weight or hammer 47 will move forward slightly farther by its inertia and act to remove the stop 43 from in front of the rear dog 20 and that in slow work the inertia will be lacking, or at least insufficient to vibrate the lever 41 far enough to retract the stop 43. 85 90

While in practice I have thus far arranged the feed devices so that in rapid work the carriage starts to feed at about the instant the impression is made, it will be understood that the mechanism may be so adjusted that the stop 43 is removed just before the type makes its impression, and the carriage thus freed for movement to obtain what is known as the "reverse feed." 95 100

Numerous changes in detail, construction, and arrangement may be made without departing from the spirit of my invention.

What I claim as new, and desire to secure by Letters Patent, is— 105

1. In a type-writing machine, the combination, with a power-driven paper-carriage, a feed-rack, and a pair of spacing-dogs, of a stop for one of said dogs and a weight adapted to automatically remove said stop. 110

2. In a type-writing machine, the combination, with a power-driven paper-carriage, a feed-rack, and a pair of spacing-dogs, of a stop for one of said dogs, a lever carrying said stop, and a weight for vibrating said lever automatically by inertia. 115

3. In a type-writing machine, the combination, with a power-driven paper-carriage, a feed-rack, and a pair of spacing-dogs, of a stop for one of said dogs, a lever carrying said stop, and a pivoted weight. 120

4. In a type-writing machine, the combination, with a power-driven paper-carriage, a feed-rack, and a pair of spacing-dogs, of a stop for one of said dogs, a lever carrying said stop, a weight, and a returning-spring. 125

5. In a type-writing machine, the combination, with a power-driven paper-carriage, a feed-rack, and a pair of spacing-dogs, of a stop for one of said dogs, a lever carrying said stop, and a pivoted weight loosely connected to said lever. 130

6. In a type-writing machine, the combina-

tion, with a power-driven paper-carriage, a feed-rack, and a pair of spacing-dogs, of a stop for one of said dogs, a lever carrying said stop, and a pivoted slotted weight embracing
5 one arm of said lever.

7. In a type-writing machine, the combination of a power-driven paper-carriage, a feed-rack, a spring-actuated spacing-rocker having a limited forward motion, a dog-holder,
10 a pair of pivoted spring-actuated spacing-

dogs, a vibratory stop for one of said dogs, and a weight for automatically moving said stop out of the path of vibration of said dog.

Signed at New York city, in the county of New York and State of New York, this 25th 15 day of January, A. D. 1892.

CHARLES H. SHEPARD.

Witnesses:

JACOB FELBEL,
IDA MACDONALD.