No. 789,407. PATENTED MAY 9, 1905.

A. T. BROWN.

TYPE WRITING MACHINE.

APPLICATION FILED OCT. 16, 1903.

2 SHEETS—SHEET 1.

FIG. 9.

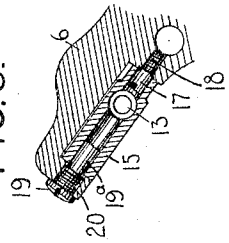


FIG. 10.

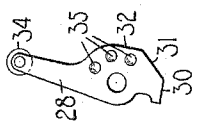


FIG. 11.

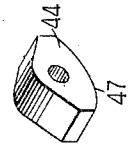


FIG. 1.

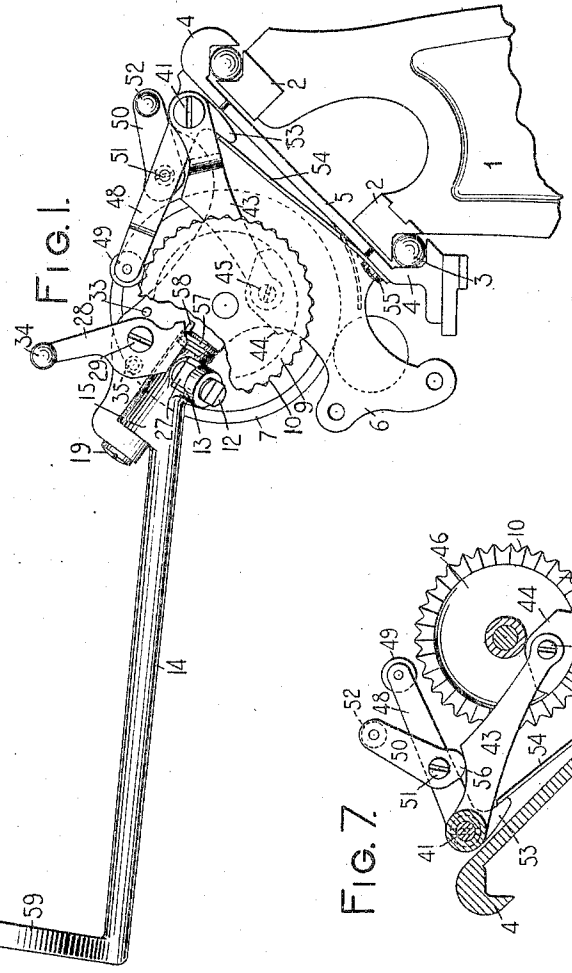


FIG. 8.

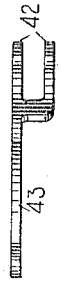


FIG. 7.

WITNESSES:

K. V. Donovan.

Walter G. Smith

INVENTOR:

Alexander T. Brown

by Jacob Feldt

HIS ATTORNEY

No. 789,407. PATENTED MAY 9, 1905.

A. T. BROWN.

TYPE WRITING MACHINE.

APPLICATION FILED OCT. 16, 1902.

2 SHEETS—SHEET 2.

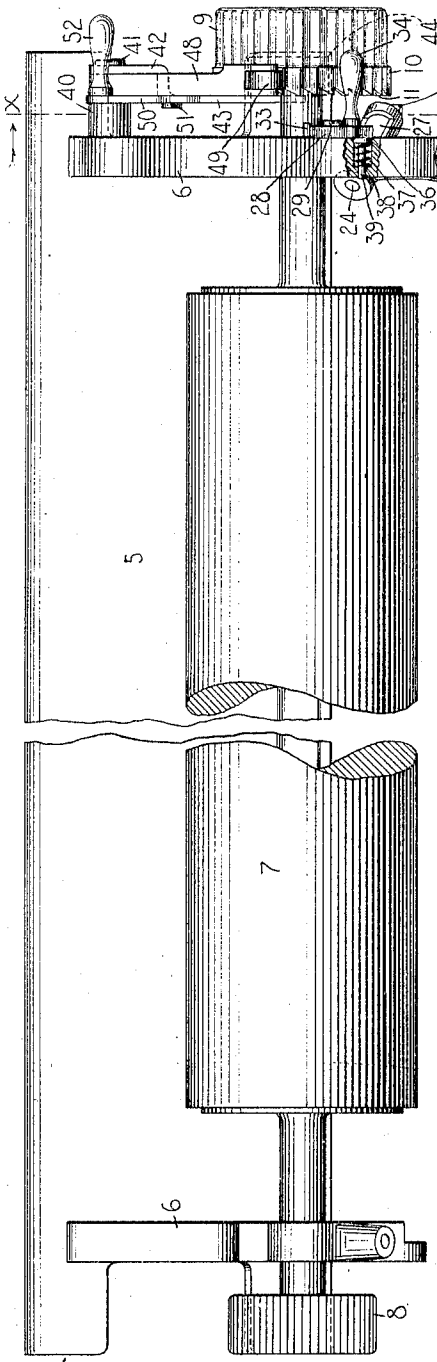


FIG. 2.

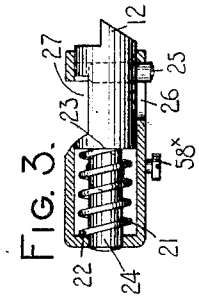


FIG. 3.

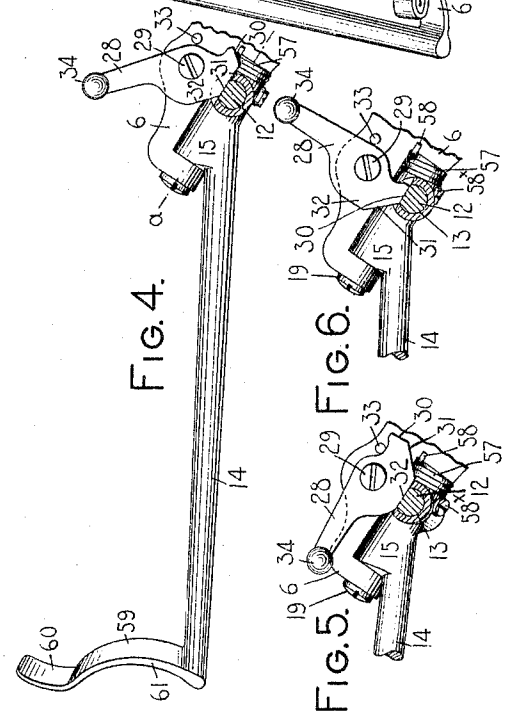


FIG. 4.

FIG. 6.

FIG. 5.

WITNESSES:

K. V. Donovan.

Charles A. Smith

INVENTOR:

Alexander T. Brown

by Jacob Tebbe

HIS ATTORNEY

No. 789,407. Patented May 9, 1905.

UNITED STATES PATENT OFFICE.

ALEXANDER T. BROWN, OF SYRACUSE, NEW YORK.

TYPE-WRITING MACHINE.

SPECIFICATION forming part of Letters Patent No. 789,407, dated May 9, 1905.

Application filed October 16, 1902. Serial No. 127,539.

To all whom it may concern:

Be it known that I, ALEXANDER T. BROWN, a citizen of the United States, and a resident of Syracuse, in the county of Onondaga and State of New York, have invented certain new and useful Improvements in Type-Writing Machines, of which the following is a specification.

My invention relates to line-spacing mechanism for type-writing machines, the object of the invention being to provide simple and efficient mechanism of the character specified.

To the above and other ends, which will hereinafter appear, my invention consists in the novel features of construction, arrangements of parts, and combinations of elements to be hereinafter described, and particularly pointed out in the appended claims.

In the accompanying drawings, wherein sufficient number of parts of a front-strike type-writing machine are shown to illustrate my invention in its application thereto, Figure 1 is an end view of a carriage with the features of my invention shown applied thereto. Fig. 2 is a plan view of the same. Fig. 3 is an enlarged detail sectional view of a portion of the line-spacing lever and pawl or puppet-dog. Fig. 4 is a side view, partly in section, of a line-spacing lever and dog, together with the coöperating stop. Figs. 5 and 6 are like views of the same with parts broken away, the views illustrating different dispositions of the parts from that shown in Fig. 4. Fig. 7 is a vertical sectional view on the line x x of Fig. 2 and looking in the direction of the arrow at said line. Fig. 8 is a detail top view of the brake-shoe-carrying lever. Fig. 9 is a transverse sectional view taken through the pivots of the line-spacing lever. Fig. 10 is a detail side view of the adjustable stop. Fig. 11 is a detail perspective view of the brake-shoe.

Like reference characters designate corresponding parts in the various views.

The main frame 1 of the machine is provided with grooved traverse-rails 2, that extend from side to side of the machine and receive antifriction-balls 3, that likewise coöperate with the grooved rails 4 of the carriage 5, which is provided with end plates 6, in which the platen 7 is mounted to revolve. The shaft of the platen is provided at the left-hand end thereof with the usual hand-wheel 8, whereas the opposite end of said shaft has a hand-wheel 9 secured thereto. This hand-wheel 9 is preferably made of metal and has a detent-ratchet 10 formed on the periphery thereof, whereas the inner face or rim of the hand-wheel has line-spacing ratchet-teeth 11 formed thereon that are adapted for coöperation with a line-spacing puppet-dog or pawl 12, that is contained and reciprocates within a bearing 13, which extends at right angles to the pivotal axis of the line-spacing lever 14 in which the bearing is formed. The line-spacing lever has a general horizontal disposition, whereas the pivotal center thereof (represented by the dotted line a in Fig. 4) is inclined. The inner end of the line-spacing lever is provided with a barrel-like portion 15, having an opening extending therethrough, which intersects the opening or bearing 13, in which the puppet-dog or line-spacing pawl reciprocates. The cylindrical head 17 of a screw is adapted to be received within the lower end of the barrel-like portion 15 of the line-spacing lever, whereas the stem 18 of said screw is threaded into an opening in the right-hand end plate 6 of the carriage. Seated in the upper end of the barrel-like portion 15 is the cylindrical end 19^a of a headed screw 19, which is threaded at 20 for coöperation with a threaded opening in the end plate. These screws 17, 18, and 19 constitute pivots upon which the line-spacing lever 14 is adapted to turn. In order to connect the line-spacing lever to the end plate, it is merely necessary to aline the opening in the barrel 15 with the threaded openings in the end plate. The screw 17 18 may then be inserted through the upper threaded opening in the end plate and through the opening in the barrel 15 of the lever and screwed into position, as represented in Fig. 9. The screw 19 may then be screwed into place, as shown in said figure, and the lever is mounted in place. The puppet-dog or line-spacing pawl 12 is normally maintained in the projected position (shown in Fig. 3) by a coiled spring 21, which bears at one end 22 against an in-

ternal wall of the bearing and at its opposite end 23 against the body of the dog. The dog has a contracted stem 24, which is surrounded by the coiled spring and is guided in an opening in the bearing. The dog is likewise provided with a removable pin 25, that extends laterally therefrom and projects through an elongated slot 26 in the bearing, so as to permit a longitudinal movement of the dog, but to prevent it from turning within the bearing. The bearing 13 is cut away at 27, so as to expose the dog to contact with an adjustable stop or abutment 28, as represented in Figs. 4, 5, and 6. This stop 28 is mounted on the outer side of the right-hand end plate of the carriage by a screw-pivot 29 and is provided with three contact-faces 30, 31, and 32, respectively, and coöperates with a stop-pin 33 to limit the movement thereof in two directions, as indicated in Figs. 5 and 6. This stop has a laterally-projecting finger-piece or handle 34, by means of which it may be turned on its pivot 29 to bring any of the three contact-faces 30, 31, or 32 into a position to limit the movement of the line-spacing lever around its pivotal center in one direction. These three contact-faces are at varying distances from the pivotal center, so as to permit variation in the throw of the lever, and the extent of feed movement of the pawl 12 will therefore be varied in accordance with the particular contact-face of the stop which is in position to coöperate with the lever. It will be observed that when the full limit of movement of the line-spacing lever in one direction is reached, as represented in Figs. 4, 5, and 6, a side of the dog 12 will be brought into contact with the stop 28 through the apertured portion 27 in the bearing 13, and this contact between the dog and stop will exert a lateral pressure on the dog and tend to prevent an overthrow of the line-spacing wheel and platen. In order that the stop 28 may be properly maintained in any of the three positions to which it may be moved, I have provided three recesses or depressions 35 on the inner face of the stop, and these depressions are adapted to receive the rounded head 36 of a plunger which is contained within an aperture 37 in the right-hand end plate of the carriage. A coiled spring 38 surrounds the stem 39 of the plunger and bears at one end against the inner end wall of the recess or aperture and at its opposite end against the head of the plunger, thus tending to force the head of the plunger into an aperture or depression 35 when the same is brought opposite the plunger, thus maintaining the stop 28 against accidental displacement, the plunger being guided in its movement by the head 36 and the stem 39.

A boss 40 projects outwardly from the right-hand end plate and constitutes a bearing for a screw-pivot 41, which passes through openings in the yoke-like end 42 of a brake-shoe-carrying lever 43, which has a brake-shoe 44 pivoted thereto at 45, said shoe being received within a recess 46 on the inner face of the hand-wheel 9. The lower edge 47 of the shoe conforms substantially to the curve of the rim of the hand-wheel 9, which forms a wall of the recess 46. Between the yoke-like arms of the shoe-carrying lever 43 is contained a detent-lever 48, which is apertured and received at its apertured portion on the screw-pivot 41. This lever 48 has a detent-roller 49 pivoted to the free end thereof and likewise carries a hand-operated lever 50, which is pivoted at 51 thereto and has a handle or finger-piece 52, by which it may be moved from the position shown in Fig. 1 to that represented in Fig. 7. The lever 48 is in the form of a bell-crank lever, the lower arm 53 of which constitutes a bearing for the free end of a spring 54, that is secured by a screw 55 to the carriage 5. The pressure of this spring is exerted to normally maintain the detent-roller 49 in contact with its detent-ratchet 10, as represented in Fig. 1. When, however, the hand-operated lever 50 is moved from the position shown in Fig. 1 to that indicated in Fig. 7, it causes the cam-like end 56 of said lever to bear upon the brake-shoe lever 43. The same movement of the lever 50 is effective to raise the detent-roller out of engagement with its coöperating detent-ratchet, as shown in Fig. 7, and the pressure of the spring 54 will at this time be exerted on the lever 43 and on the brake-shoe 44 in order that the hand-wheel 9 and platen, which are at this time freed from the detent, may be rotated to any desired extent in either direction through either of the hand-wheels 8 or 9, and the parts will be maintained by the brake-shoe in the position to which they are moved. When the lever 50 is moved back to the position shown in Fig. 1, the cam-like end 56 of said lever will be moved out of contact with the brake-shoe lever 43, thereby releasing the brake-shoe from pressure of the spring 54. The same movement of the lever 50 permits the detent-roller 49 to be forced in contact with its coöperating detent-ratchet and to be maintained in such engagement under the tension of the spring 54. A coiled spring 57 is secured at one end 58 to the end plate 6 at the right-hand side of the carriage, whereas the opposite end of this spring is secured to a screw $58^{\times}$, that takes in a threaded opening in the bearing 15 of the line-spacing lever 14, the tension of this spring being exerted to restore the hand-lever to the left or to its normal position.

Extending at substantially right angles to the length of the lever 14 is a finger-piece 59, which is in the form of an ogee curve. The purpose of this curvature of the finger-piece 59 will be hereinafter explained.

From the foregoing description it will be understood that the function of the lever 14 is twofold, in that it is used not only as a line-

spacing lever, but as a hand-lever, for restoring the carriage to the right to begin a line of writing. The inclined arrangement of the pivotal center of the lever 14 and the disposition of the lever relatively thereto afford a swinging movement of the lever in an arc the chord of which extends in the general direction of the travel of the carriage. The tension of the spring 57 is such that a movement of the lever 14 toward the right will first produce a line-spacing movement of the platen for a distance of one, two, or three line-spacing ratchet-teeth 11 in accordance with the adjustment of the stop 28. The continued pressure upon the hand-lever 14 after the line-spacing movement has been effected will cause the carriage to be moved toward the right. Obviously, however, the tension of the spring 57 may be varied to afford a change in the result—that is to say, the tension of the spring 57 may be greater than that of the carriage-spring, (not shown,) in which event the carriage would be restored to the right through the hand-lever 14 before the line-spacing movement took place. In order that the operator may effect a line-spacing movement of the platen through a hand-lever 14 without disturbing the position of the carriage wherever it might be, it is merely necessary for the operator to seat the index-finger of the right hand in the curved portion 60 of the finger-piece and to move the hand-lever around its pivotal center by a pressure exerted by the thumb of the operator on the portion 61 of the finger-piece. This results in swinging the hand-lever around its pivotal center to afford a line-spacing movement of the platen without the pressure applied tending to force the carriage toward the right and without disturbing the position thereof. In order that the line-spacing movement and reciprocation of the carriage to the right may be effected by a single continuous movement of the hand-lever, it is merely necessary to place the thumb or index-finger in the curved portion 61 of the finger-piece 59 and move it toward the right.

When I refer herein to a "puppet-dog," I mean a sliding dog of the general character shown as distinguished from a mere pivoted dog.

It will be seen that I have provided a simple and efficient line-spacing mechanism which can be operated merely to line-space or to line-space and restore the carriage at a single operation at will.

Certain of the features shown and described herein constitute no part of the present invention, but are claimed in a separate application filed by me October 16, 1902, Serial No. 127,540.

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

1. In a type-writing machine, the combination of a platen, a hand-wheel therefor, a braking device that is adapted to contact with said hand-wheel, line-spacing mechanism, and means for throwing said braking mechanism into and out of operation.

2. In a type-writing machine, the combination of a platen, a hand-wheel therefor, a detent-ratchet, a detent coöperating therewith, a brake-shoe that is adapted to contact with said hand-wheel, and means for throwing said brake-shoe into operation when the detent is thrown out of operation.

3. In a type-writing machine, the combination of a platen, a hand-wheel therefor, a line-spacing ratchet-wheel formed on said hand-wheel, a line-spacing pawl coöperating with said ratchet-wheel, a detent-ratchet which is likewise formed on said hand-wheel, a detent that coöperates therewith, a brake that is adapted to bear on said hand-wheel, and means for throwing the brake into operation when the detent is thrown out of operation.

4. In a type-writing machine, the combination of a platen, a hand-wheel connected thereto, a peripheral detent-wheel formed on said hand-wheel, a detent coöperating therewith, a brake-shoe contained within said hand-wheel and adapted to work against the inner face thereof, a spring for maintaining said detent against the detent-wheel, and a lever for applying the force of said spring to the brake-shoe when the pressure of the detent is removed from the detent-wheel.

5. In a type-writing machine, the combination of a platen, a recessed hand-wheel connected thereto, a friction-surface formed within the recessed portion of said hand-wheel, a brake-shoe working within said recessed portion, a lever to which said brake-shoe is connected, and means for applying force to said lever to apply the brake-shoe.

6. In a type-writing machine, the combination of a platen, a recessed hand-wheel connected thereto, a friction-surface formed within the recessed portion of said hand-wheel, a brake-shoe working within said recessed portion, a lever to which said brake-shoe is connected, a detent-surface on said hand-wheel, a spring-pressed detent device coöperating therewith, and a hand-operated lever connected to said detent device to release the detent device and to apply the pressure to the brake-shoe.

7. In a type-writing machine, the combination of a platen, a recessed hand-wheel connected thereto, a friction-surface formed within the recessed portion of said hand-wheel, a brake-shoe working within said recessed portion, a lever to which said brake-shoe is pivoted, a detent-ratchet on the periphery of said hand-wheel, a detent-roller coöperating therewith, a detent-lever which carries said roller, a spring that tends to normally maintain the detent-roller in contact with the detent-ratchet, and a hand-operated lever pivoted to the detent-lever and which is adapted to ap-

ply the force of said spring to the brake-shoe when the detent is moved out of contact with its ratchet.

8. In a type-writing machine, the combination of a platen, a recessed hand-wheel connected thereto, a friction-surface formed within the recessed portion of said hand-wheel, a brake-shoe working within said recessed portion, a lever to which said brake-shoe is pivoted, a detent-ratchet on the periphery of said hand-wheel, a detent-roller coöperating therewith, a detent bell-crank lever which carries said roller, a spring that bears against one arm of said bell-crank lever and tends to normally maintain the detent-roller in contact with the detent-ratchet, and a hand-operated lever pivoted to the detent-lever and which is adapted to bear upon the brake-shoe lever and to apply the force of said spring to the brake-shoe through its lever when the detent is moved out of contact with its ratchet.

Signed at Syracuse, in the county of Onondaga and State of New York, this 2d day of October, A. D. 1902.

ALEXANDER T. BROWN.

Witnesses:

CHARLES J. TONER,

F. G. BODELL.