

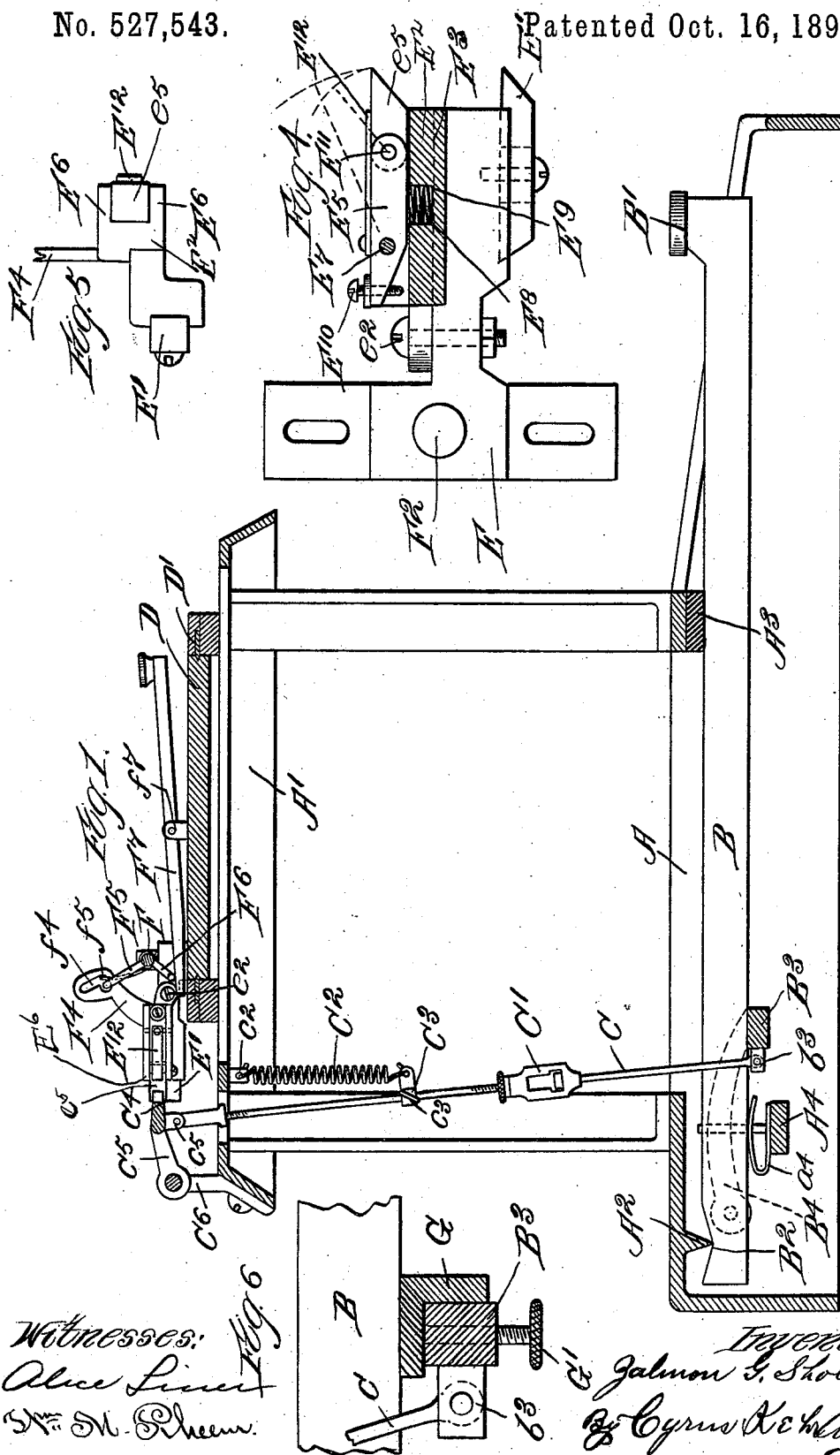
(No Model.)

2 Sheets—Sheet 1.

Z. G. SHOLES.
TYPE WRITING MACHINE.

No. 527,543.

Patented Oct. 16, 1894.



Witnesses:
Alice Limer
S^{rs} M. Queen.

Inventor:
J. Salmon S. Sholes
Cyrus K. Smith.

(No Model.)

2 Sheets—Sheet 2.

Z. G. SHOLES.
TYPE WRITING MACHINE.

No. 527,543.

Patented Oct. 16, 1894.

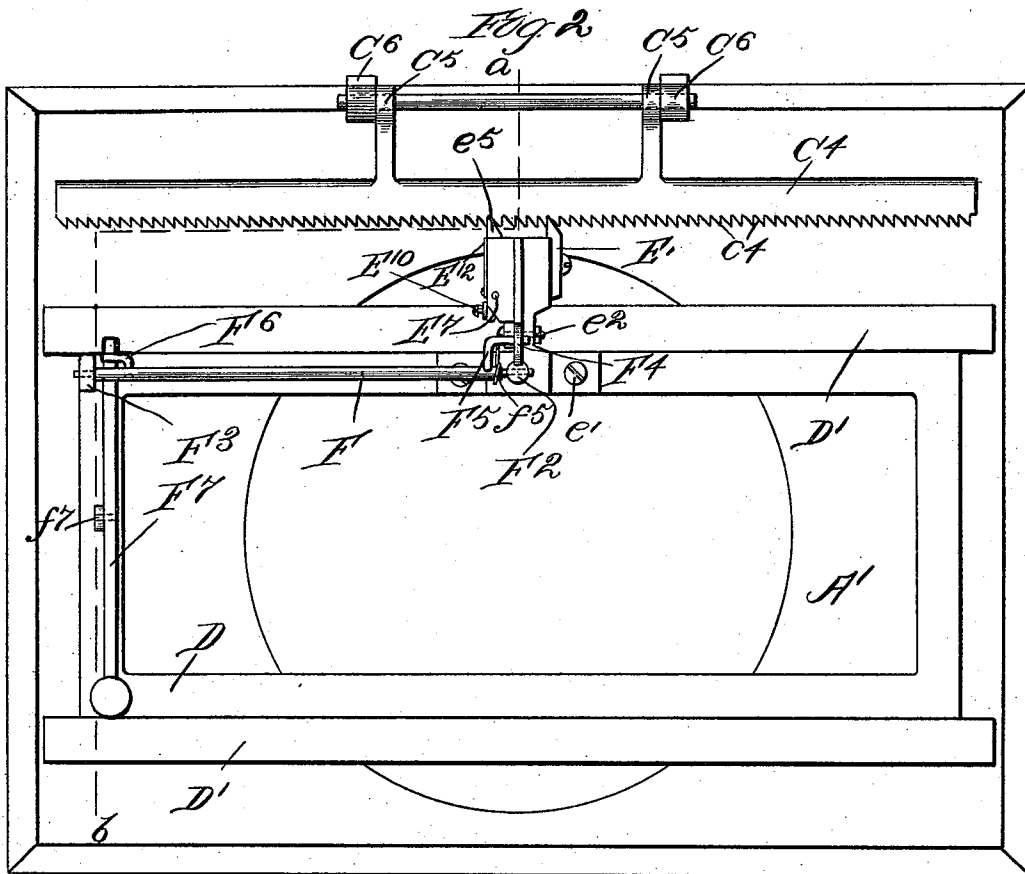
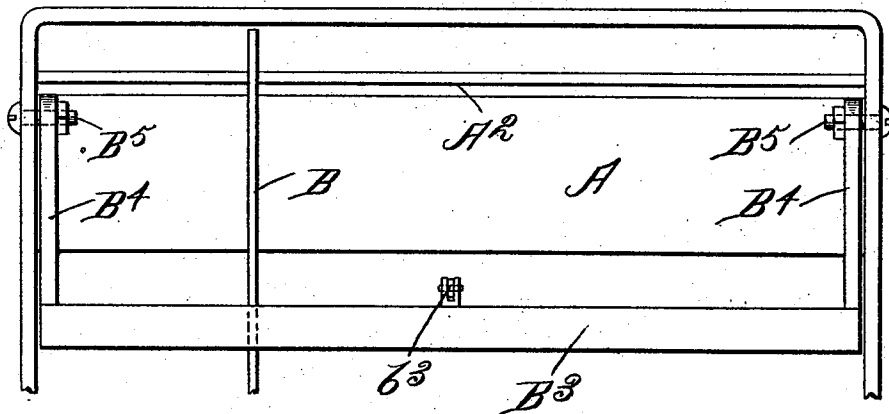


Fig 3



Witnesses:
Alice Linn
Wm. M. Rhems

Inventor:
Galmon G. Sholes
By Cyrus K. W. Allen

UNITED STATES PATENT OFFICE.

ZALMON G. SHOLES, OF CHICAGO, ILLINOIS, ASSIGNOR TO THE REMINGTON-SHOLES TYPEWRITER COMPANY, OF ILLINOIS.

TYPE-WRITING MACHINE.

SPECIFICATION forming part of Letters Patent No. 527,543, dated October 16, 1894.

Application filed March 5, 1894. Serial No. 502,369. (No model.)

To all whom it may concern:

Be it known that I, ZALMON G. SHOLES, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Type-Writing Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

My improvement relates particularly to escapement mechanism for the platen carriage of type-writers, one of the objects of the invention being to attach as little mechanism to the carriage as may be, and another object being to make a simple and effective connection between the key levers and the escapement mechanism.

In the accompanying drawings: Figure 1 is a vertical section on the line *a-b* of Fig. 2. Fig. 2 is a plan. Fig. 3 is a bottom view of the rear portion of the machine. Fig. 4 is an enlarged detail plan of the escapement pawls and their support. Fig. 5 is a rear elevation of the escapement pawls and their support. Fig. 6 is a detail of the rear space bar.

A is the frame of the machine. This may be of any suitable construction.

A' is the top plate.

A² is a downward directed rib extending transversely across the rear of the lower portion of the machine.

A³ is a stop rail extending transversely across the front of the lower portion of the machine at substantially the level of the rib, A².

Ordinary key levers, B, each having a finger piece, B', at one end and a notch, B², at the other end are located in a horizontal plane beneath the rib, A², and the stop rail, A³, said rib entering said notch and forming hinges in a line at right angles to the key-levers and the top of the key lever resting against the stop rail.

A cross rail, A⁴, extends horizontally beneath the keys, B, at right angles to the length of the latter, and a spring, a⁴, is interposed between said cross rail and each of the key

levers, B, to hold the latter in the elevated position against the rib, A², and the stop rail, A³. This construction is not new.

B³ is a bar extending horizontally beneath and at right angles to the key levers, B. From each end of said bar an arm, B⁴, is extended, at right angles to said bar and horizontally along the adjacent side of the frame, A, and hinged to the latter as by a bolt, B⁵. This construction allows the bar, B³, to be moved up and down, but it cannot be changed from its horizontal position. In other words, said bar must remain parallel to the series of keys, B. If any portion of said bar is depressed or made to rise, every portion of it must descend or rise correspondingly.

A ratchet bar, C⁴, is located above the rear portion of the plate, A', and parallel to the rear side of the machine, and the front edge of said bar is provided with oblique ratchet teeth, c⁴, the oblique faces of the teeth being toward the left hand side of the machine. Arms, C⁵, extend rearward and are hinged to standards, C⁶, rising from the top plate in a plane parallel to the bar, C⁴. This construction adapts the rock shaft to oscillate bodily in a vertical path in the same manner as the bar, B³, may be oscillated.

A link, C, extends from the middle of the bar, B³, through the top plate, A', to the middle of the bar, C⁴, and is secured to the latter by a hinge, c, and to the former by a hinge, b³. A turn buckle, C', or equivalent mechanism is applied to the link, C, for the purpose of varying the distance between the bars, B³, and C⁴. A contracting spring, C², is attached by its upper end to the top plate, A', as at c², and at its lower end to the sliding block, C³, surrounding the link, C, and adapted to be secured in the desired position on said link by a set screw, c³. By its tendency to contract said spring, C², holds the link, C, normally in the elevated position. The elevation of the bar, B³, links, C, and ratchet bar, C⁴, is, of course limited by the elevation of the key levers, B. Tension of the springs, C², is varied by moving the block, C³, up or down.

D is the platen carriage. As said carriages are well known and the application of the platen thereto is well understood, I deem it

unnecessary to illustrate these in detail. The carriage moves on suitable horizontal ways, D'. At about the middle of the carriage, a bracket, E, is secured rigidly by screws, e', or otherwise and extends rearward from the rear portion of said carriage almost to the ratchet bar, C⁴. Immediately below the normal level of said bar, C⁴, and at the right hand side of said bracket a dog, E', is attached rigidly to said bracket far enough rearward to extend into the notches between the teeth, c⁴, when the bar, C⁴, is depressed. A plate, E², is applied flatwise to the left hand side of the bracket, E, and hinged thereto by the horizontal bolt, e², so that said plate may oscillate in a vertical plane with said bolt as a center. At the top said plate has a shoulder, E³, extending over and resting normally upon the upper face of said bracket. At the left hand side of said plate, E², and at the normal level of the bar, C⁴, there is a dog, E⁵, extending normally between two of the teeth of the bar, C⁴. Above and below said dog is a horizontal flange, E⁶, each supported by the plate, E². The dog, E⁵, is hinged near its forward end upon its vertical axis by means of a shaft, E⁷, extending vertically through said dog and said flanges. At the rear of said hinge an expanding spring, E⁸, is located in a cavity, E⁹ in the block E², and presses against said dog E⁵ and tends to turn the latter on its hinge toward the left of the machine. An adjusting screw, E¹⁰, extends horizontally through the dog, E⁵, forward of the hinge, E⁷, and serves as an adjustable stop for limiting the movement of said dog upon its hinge, the point of the screw being adapted to bear against the plate, E², when said dog has been turned the desired distance toward the left.

In operation, the depression of one of the key levers, B, will cause the bar, C⁴, to descend below the level of and out of engagement with the dog, E⁵. As soon as released, the dog moves forward in response to the pressure of the spring, E⁸, the adjustment of the screw, E¹⁰, being such as to allow said forward movement to be equal to the space between two teeth, c⁴. On so descending, the bar, C⁴, brings a tooth, c⁴, into engagement with the dog, E', simultaneously with the release of the dog, E⁵. On rising, said bar again releases itself from the dog, E', and engages with the dog, E⁵, by a tooth, c⁴, in advance of the one which was last in engagement. The strain of the carriage toward the left (through the usual spring not shown herein) draws the dog, E⁵, against the tooth with which it is in engagement and turns said dog upon its hinge against the pressure of the spring, E⁸, until said dog again rests against the plate, E². Thus the carriage is allowed to move toward the left one letter space without breaking the engagement of said dog. When another key lever is depressed, the operation is repeated.

In order to permit the carriage to be turned to the right without changing the level of the

bar, C⁴, or the level of said dogs, I provide the dog, E⁵, with a vertical hinge joint, E¹¹, whereby the front portion, e⁵, of said dog may turn to the left independently of the rear portion of said dog, and is held by the plate, E², against independent movement to the right. A spring, E¹², is secured by one end to the rear portion of said dog and presses by the other end against the front portion, e⁵, and keeps the latter normally in line with the rear portion of said dog.

In drawing the carriage to the right while the dog, E⁵, is at the same level as the bar, C⁴, the portion, e⁵, of the dog, E⁵, yields to the resistance of each tooth, c⁴, and bends to the left, thus passing the tooth. The radius between the hinge, E¹¹, and the point of the dog is so short that said point readily swings toward the front of the machine a distance equal to the length of the teeth, c⁴. I have also made provision for elevating the dog, E⁵, above the normal level of the bar, C⁴, whereby said dog is supported entirely out of engagement with said bar and the carriage may be moved freely in either direction. For this purpose a rock shaft, F, is located in the horizontal position over the rear portion of the carriage and resting in a bearing, F², at the middle of said carriage and in a bearing, F³, at one end of said carriage. From the plate, E², an arm, F⁴, rises to a point above said rock shaft. In said arm is a slot, f⁴, extending at its lower end toward said plate and having its upper portion extending at a right angle away from said lower portion and radially away from said rock shaft. An arm, F⁵, rises from said rock shaft and extends laterally into said slot and rests normally in the lower portion of said slot. A spring, f⁵, is secured to said carriage and arranged to press said arm, F⁵, rearward so as to hold it normally in the lower portion of said slot, f⁴. At the end of the rock shaft, F, which extends to the end of the carriage, an arm, F⁶, extends downward and rearward. A key lever, F⁷, is located above the adjacent end of the carriage and extends at the rear beneath the arm, F⁶, and has its other end extended forward where it may be conveniently reached by the hand of the operator. At its middle it is hinged on a horizontal axis as upon the support, f⁷.

Normally the arm, F⁴, cannot be depressed and the plate, E², raised on the hinge, e², for the arm, F⁶, rests in the lower portion of the slot, f⁴, and the upper wall of this portion of the slot rests against said arm and prevents downward or rearward movement of the latter; but by depressing the forward end of the key lever, F⁷, the arm, F⁶, is pressed upward and rearward and the rock shaft, F, so rotated as to throw the arm, F⁵, rearward out of its engagement in the lower portion of the slot, f⁴. The arm, F⁴, and the plate, E², may now turn upon the axis, e², and the arm, F⁵, may change position in the portion of the slot, f⁴, which is radial to the rock shaft. On

depressing the key lever, F^7 , further the arm, F^5 , is pressed against the front wall of the slot, f^4 , and the arm, F^4 , drawn forward and downward, the front wall of said slot sliding on said arm. This locking mechanism practically prevents the elevation of the dog, E^5 , by all means excepting the depression of the front end of the key lever, F^7 .

A plate, G , may be interposed between the bar, B^3 , and the keys, B , and screws, G' , extended upward through the bar, B^3 , against the plate, G . The time at which the escapement operates with reference to the depression of the keys, B , may be varied; but the chief object of said adjustable plate is to effect a uniform engagement of the key-levers, B , across the entire key board. If from any cause the bar, B^3 , should be depressed at one side, the screw, G , at that side may be moved upward so as to bring the plate, G , at that side of the machine into proper engagement with the key levers, B .

I claim as my invention—

1. In a type writer, the combination with the frame, A , of the key levers, B , suitably pivoted by their upper ends and provided with a stop at the front end and spring mechanism to normally hold said key levers in the elevated position, of a bar, B^3 , provided with arms, B^4 , hinged to the frame, A , a plate, G , located above said bar, B^3 , and screws, G' , supported by said bar, B^3 , and adapted to raise and lower the plate, G , substantially as shown and described.

2. In a type writer, the combination with the frame, A , of a vibratory ratchet bar, C^4 , supported by said frame, a rigid dog extending from said carriage out of the range of the normal position of said ratchet bar, a second dog extending from said carriage between the teeth of said ratchet bar and being provided with a vertical hinge independently of the rigid dog to allow movement to the left, and being provided with a horizontal hinge to allow movement in a vertical plane out of

the range of the teeth of said ratchet bar, and mechanism for manually turning said dog on said horizontal hinge, substantially as shown and described.

3. In a type writer, the combination with the frame, A , of the vibratory ratchet bar, C^4 , bracket, E , dog, E' , plate, E^2 , hinged to the bracket E dog, E' , supported by said plate rock shaft, F , key lever, F^7 , and suitable connection between said rock shaft and plate, E^2 , and between said key lever and said rock shaft, substantially as shown and described.

4. In a type writer, the combination with the frame, A , of the vibratory ratchet bar, C^4 , supported by said frame, the platen carriage, D , bracket, E , supported by said carriage, the dog, E' , shiftable plate, E^2 , supported by said bracket, the dog, E' , attached to said plate, a key lever, F , supported by said carriage and suitable connection between said key lever and said plate for automatically locking and manually unlocking and shifting said plate, E^2 , to bring the dog, E' , out of the range of said ratchet bar, substantially as shown and described.

5. In a type writer, the combination with the frame, A , of the platen carriage, D , bracket, E , a dog, E' , secured to said bracket, a plate, E^2 , secured to said bracket on a hinge parallel to the path of said carriage, an arm, F^4 , applied to said plate, E^2 , and having a right angled slot, f^4 , an arm, F^5 , extending into said slot, a spring for pressing said arm toward said plate, a key lever and suitable connections for manually pressing said arm rearward against the rear wall of said slot, substantially as shown and described.

In testimony whereof I affix my signature, in presence of two witnesses, this 26th day of February, 1894.

ZALMON G. SHOLES.

Witnesses:

ALICE LINN,
CYRUS KEHR.