J. H. JACKSON.

TYPE WRITING MACHINE.

APPLICATION FILED APR. 24, 1907. RENEWED APR. 1, 1908.

900,931. **Patented Oct. 13, 1908.**

2 SHEETS—SHEET 1.

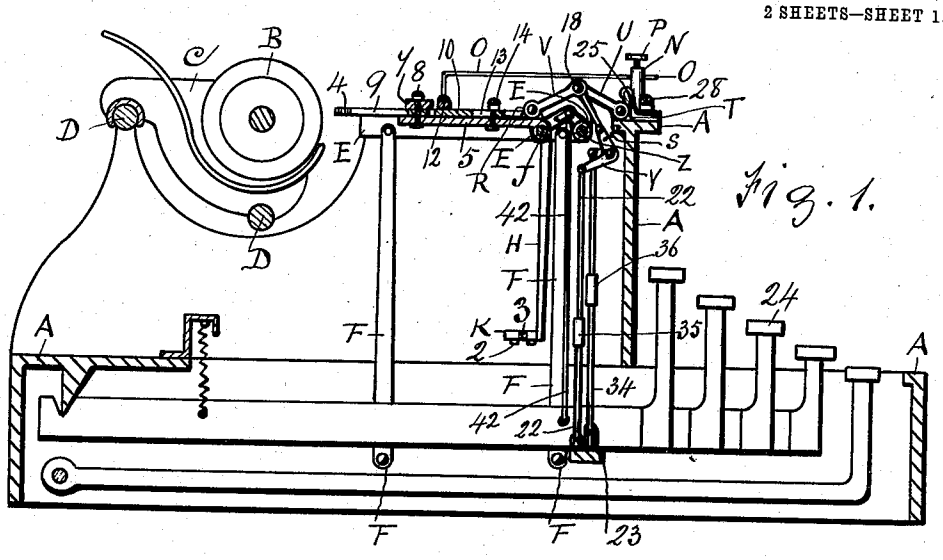


Fig. 1.

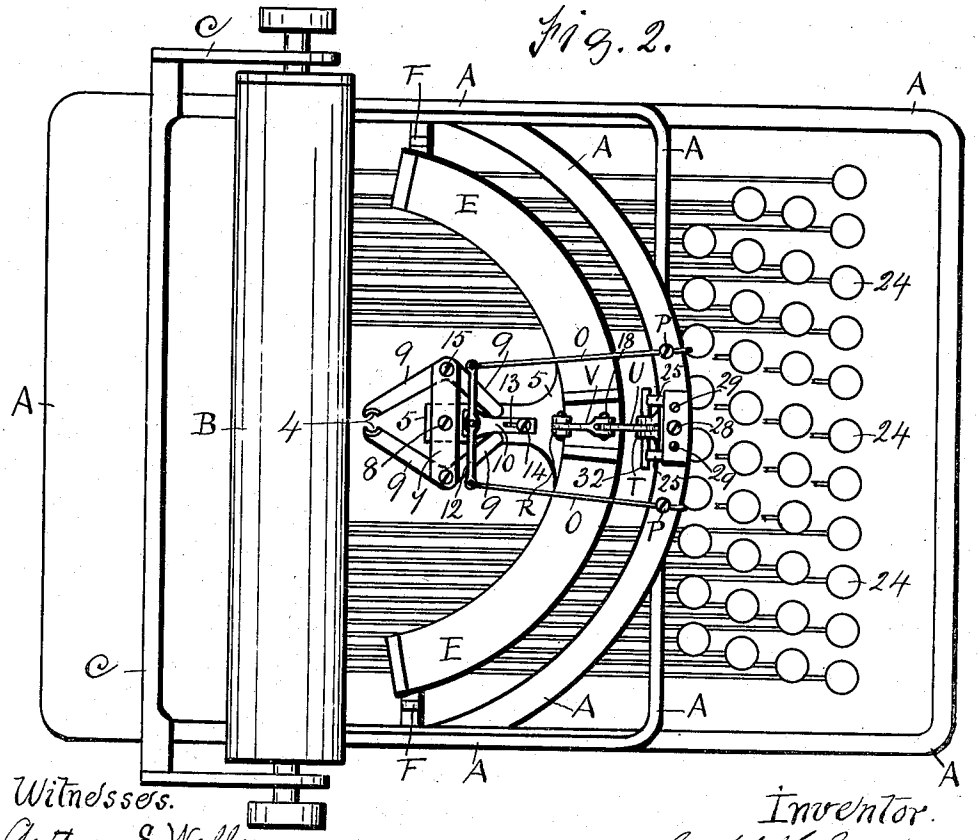


Fig. 2.

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2 SHEETS—SHEET 2.

Fig. 3.

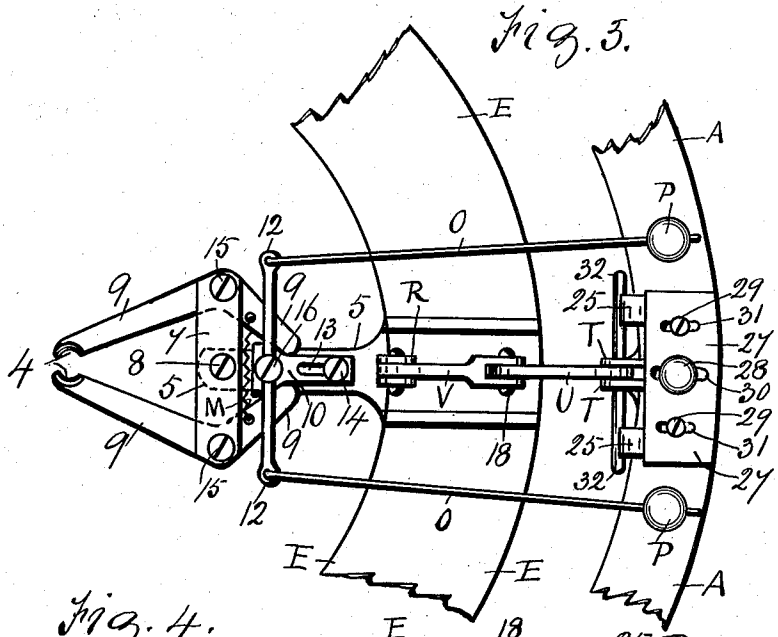


Fig. 4.

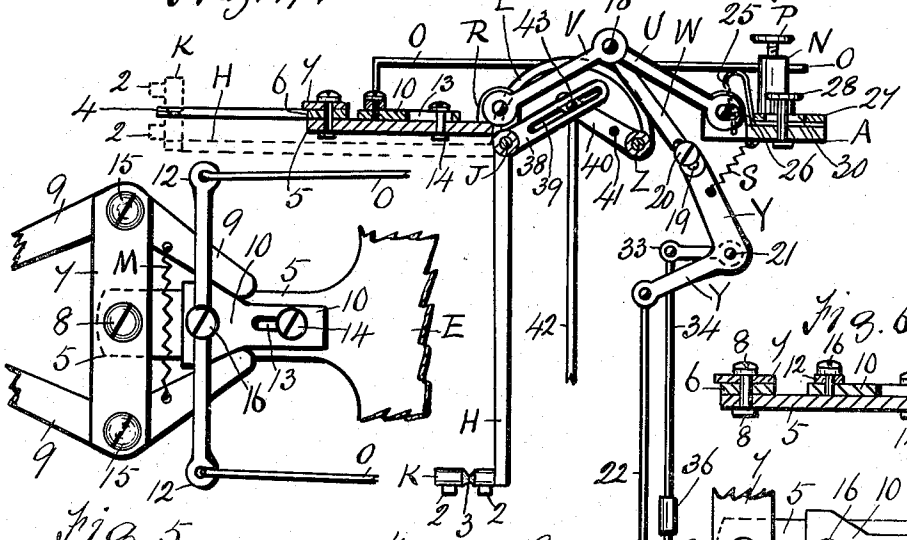


Fig. 5.

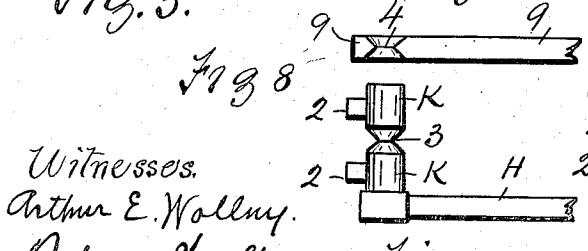
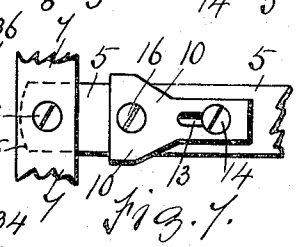


Fig. 8

Fig. 9.

Fig. 6.

Fig. 7.



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UNITED STATES PATENT OFFICE.

JOSEPH H. JACKSON, OF HAMILTON, ONTARIO, CANADA.

TYPE-WRITING MACHINE.

No. 900,931. Specification of Letters Patent. Patented Oct. 13, 1908.

Application filed April 24, 1907, Serial No. 369,915. Renewed April 1, 1908. Serial No. 424,540.

To all whom it may concern:

Be it known that I, JOSEPH H. JACKSON, a citizen of the United States, and resident of Hamilton, in the county of Wentworth and Province of Ontario, Canada, have invented new and useful Improvements in Type-Writing Machines, of which the following is a specification.

My invention relates to improvements in type writing machines, in which a stationary frame having a type arm carrier loosely connected thereto and adapted to move horizontally and to predetermined position to and in relation to the platen, by the depression of a key, and by said depression, to adjust the type arm, to locate the same to one defined writing position and common center and to retain the same in said position for writing purposes, and to provide means to allow a certain spring tension to the type arm carrier hence to the type arms while writing.

The objects of my invention are, first, in a type-writing machine, to provide a type-arm carrier adapted to horizontal movement, second, to provide means to allow adjustable and semiautomatic spring tension to said carrier, third, to bring the type arms to defined position and one common center, fourth, to provide means for adjusting and locating the type holder, and retaining the same in writing position, by the depression of a key; fifth, to provide means to effectually overcome the constant noise of a type-writing machine, thereby producing a comparative noiseless machine. I attain these objects by the mechanism illustrated in the accompanying drawing, in which:—

Figure 1 is a sectional side elevation of a type-writing machine, at rest, showing the features of my invention. Fig. 2 is a plan of the same. Fig. 3 is an enlarged plan showing very fully important mechanism comprised in my invention. Fig. 4 is a sectional side elevation of Fig. 3 of the drawing showing adjustable mechanism connected to a depression key and to the typewriting mechanism for semiautomatically operating the same. Fig. 5 is an enlarged detail plan of a part of the mechanism for locating and retaining the type holder, showing very fully the cam mechanism of the same, adjustably placed on the forward part of the movable type-arm carrier, a part only of which is shown. Fig. 6 is an enlarged detail sectional side elevation of the forward end part of the movable type arm carrier and the adjustable cam and section of a cam holder transverse arm, on said carrier, and secured to said cam. Fig. 7 is a plan of Fig. 6 of the drawing. Fig. 8 is an enlarged detail side elevation of the inner edge of one of the side levers or type locating and locking arms, showing the beveled jaw wherewith said levers grip and locate the type holder, and which are fulcrumed to the underpart of the ends of the transverse plate which is secured on the forward end part of the type arm carrier. Fig. 9 is an enlarged detail side elevation of a type arm, showing the type holder having type, and a centrally located beveled recess or slot to conform with the beveled jaws of the side grip levers which are adapted to grip and temporarily hold the type holder.

Similar letters refer to similar parts throughout the several views.

In the drawing the stationary and rigid framework of the machine is indicated by A, and B is the transverse platen or type impression roller journaled on the carriage C which is adapted to slide on the transverse stationary bars D of the frame.

E is the horizontal type arm carrier which is supported by two side arms and a centrally located arm which are indicated by F. The upper ends of the arms F are pivotally connected to the movable carrier E, and the lower ends of said arms are pivotally connected to the frame A, and at convenient places. The ends of the type arms H are loosely connected to a steel fulcrum wire rod J, secured in the carrier E, and which follows the segmental shape of the inner segment line of the carrier. The opposite ends of the type-arms H, are provided with type-holders K, supplied with type 2, and the holder K, has a beveled groove 3, similar to the one shown in Fig. 9 of the drawing, and its purpose hereinafter mentioned.

The movable type arm carrier E has a forward central extension, which may be termed a bracket 5, and on the outer end part of the bracket is a transverse plate 7, and underneath said plate and on the top of the bracket is a small thickness of material or washer 6 to raise the underside of said plate higher than the top of the bracket. The plate 7 together with the washer 6 are secured to the bracket 5 by means of the central screw 8. The plate 7 is raised above the bracket 5, to allow the bent grip-locating

arms 9 to be flush, that is, on the same plane, with the cam 10. The ends of the bent grip levers 9 converge toward each other and are fulcrumed at 15, to the underside of the end parts of the plate 7, and the arms 9 are adapted to adjustment to the carrier E by means of the screw 8.

The cam 10 is secured to the central part of the transverse arm 12 at 16. The cam 10 together with the arm 12 allow the bracket 5, of the carrier E, to slide underneath the same. The cam 10 has a horizontal slot 13 which allows the screw 14, to slide therein, the screw 14 is rigid to the bracket 5 and moves with the bracket and the carrier E, and thereby retains the cam in proper relation with the carrier. The rear ends of the arms 9 are rounded, or suitably shaped, to engage with the partial beveled sides of the cam, the shape, or form, of which is in evidence in Fig. 7 of the drawing. The forward ends of the arms 9, and on their inner edges, or sides, have beveled recesses 4, to conform with the beveled grooves 3 in the type holder K, in order that the arms 9 may grip and temporarily hold the type-holders K, when the same are brought to locating position. It will be noticed that the beveled shape of said recess 4 in the arms 9, and the said beveled groove in the holder K, as shown in Figs. 8, and 9 of the drawing, when the holder K is brought to position, or nearly so, by mechanism hereinafter described, the arms 9 being always on the same plane will adjust and locate the holders K to one defined center and to one defined and predetermined vertical point, or position.

M is a tension spring, the ends of which are secured to convenient places on the rear parts of the arms 9 to bring said rear parts always in contact with the edges of the cam 10, in order that the opposite ends of the arms may always be sufficiently open, or apart, to receive the holders K.

The rigid upper part A, of the frame as shown very clearly in Figs. 2 and 3 of the drawings, have certain raised hubs, or bosses N, through which the ends of the rods O, pass through, and said rods are secured to said hubs N, by means of set screws, or knurls P, which allow said rods O to be adjusted to definite position. The opposite ends of the rods O, are suitably and firmly connected to the end parts of the arm 12, the rods O hold the arm 12, together with the cam 10 in adjusted rigid position with and to the stationary frame A.

R are lugs on the movable carrier E, and T are similar lugs on the stationary frame A, and the links V and U are pivotally connected together by the central pin 18, and the opposite ends of said links V and U are respectively pivotally connected to said lugs. W, is a link, or rod, also pivotally connected to the pin 18, and the opposite and lower end of the rod W, is pivotally connected to the upper end of the bell crank Y. The said lower end of the rod W has a slot 19, and the screw 20 which passes through said slot operates therein and thereby allows the same to be adjusted in order to give the carrier E more or less movement as is deemed necessary.

The bell crank Y, is loosely mounted on the universal transverse shaft, or rod 21, which is journaled in the frame A, and the lower end of the bell crank is loosely connected to the upper end of the vertical rod 22, the lower end of said rod is connected to the universal transverse bar 23. At the depression of a key, or button 24 of the key board, the bar 23 is brought downward together with the rod 22 and the lower end of the bell crank Y; also the rod W together with the connecting parts of the links V and U, consequently the type-arm carrier.

S, is a tension pull spring connected to the bell crank Y, and the opposite end is connected to the frame A.

33, are arms secured to the universal rod 21 previously referred to, and the upper end of the vertical rod 34 is loosely connected to said arm, and the lower end of said rod is loosely connected to the universal bar 23. At convenient places on the rods 22 and 34 are similar sockets 35 and 36 respectively, and are for the purpose of adjusting, that is, lengthening or shortening said rods 22 and 34.

The arm 33 is secured to the universal rod 21, and the rod 34 is pivotally connected to the arm 33, and the lower end of said rod is pivotally connected to the universal bar 23, therefore when the rod 34 is brought downward by any key, the rod 22 is also brought downward thereby moving the carrier E.

The springs 25 exert more or less pressure on the pivotal center pin 32, thereby very materially acting as an equalizer on the type arm carrier E and therefore to the arms 9 thence to the type, thereby equalizing the pressure of the type against the receiving surface B. The lugs on the carrier E may be adjustable to allow manifold writing. E, is pushed to predetermined position toward the platen or impression surface B.

The pivotal center pin 32 of the lugs T and the link U, referred to, extends a distance beyond said lugs T, and the spring 25 is adapted to exert pressure or tension on the rear side of the pin 32, the lugs T have horizontal slots 26 shown in Fig. 4, of the drawing, and which allow the pin 32 to have certain freedom of action in said slots, thereby affording inherent resiliency to and soft horizontal movement to the type-carrier when in operative motion toward and from the receiving surface B.

The lower part of the spring or springs 25, extend on the upper part of the frame A, and a plate 27 covers said lower extensions of the

springs and is adapted to press on and secure the springs to the frame A by means of a screw, or knurl 28, which is adapted together with the screws 29 to fasten said spring and plate 27 to the frame A. The plate 27 has a horizontal slot 30, for the screw 28, and a slot 31 on each side of the slot 30 to allow adjustment of the spring or springs 25 to suit the purposes of said springs. When the plate 27 is adjusted to a forward position, the forward part of said plate exerts a greater pressure on the springs and when the plate is brought away therefrom a contrary effect is thereby produced.

The movable carrier E is provided with an outer segmental or semi-circular steel fulcrum wire Z, similar to the steel fulcrum wire J, to which the type arms H are loosely connected. The upper end parts of the type arms H have oblique extension links or arms 38, having oblong slots 39, and the segmental fulcrum wire Z has arms 40 mounted thereon which operate the type arms H by means of a pin or roller 43, extending from the arm and which slides in said slot when the rod 42 is brought downward.

The lower end of the rod 42 is connected to a key 24, and the upper end of the rod is loosely connected to the link or arm 40, as shown in Fig. 4 of the drawing, or may be connected to the same arm at a point nearer to its fulcrum center Z, as for instance at 41, in order to allow more or less throw to the type arm H, by the more or less depression of a key.

The operation of the machine is as follows:—Upon the depression of a key 24 of the key board, the rod 42 is brought downward together with the arm 40 and the extension link 38 which forms a part of the type arm H and loosely journaled on the segmental steel wire fulcrum J of the movable type arm carrier E. Consequent of above action the type arm at once responds to position as shown in broken lines in Fig. 4 of the drawing, and immediately the above function is performed, or nearly so, the said key of the key board engages with the lower universal bar 23, and the adjustable rod 22 is thereby brought downward, the bell-crank Y, fulcrumed on the universal bar 21, operated, the lever W together with the links V and U are brought downward, the type-arm carrier E is pushed to defined position toward the receiving surface B. At this time the pivotal bent arms 9 move with the carrier E, and the rear parts of said arms contact with the stationary cam 10, which widens said rear parts of the pivotal bent arms and thereby closes the forward ends of the arms upon the type-holder K, and retains the same temporarily in definite horizontal and vertical position until the type 2 has written, or printed. The tension spring M on the rear parts of said arms 9 bring the rear parts of said arms always in contact with the cam 10. The springs 25 on the frame A are always in contact with the center pin 32 of the lugs T and the link U, and the slotted holes 26 in said lugs T, forms an adjustable spring cushion for the links V and U, consequently to the type arm carrier E, together with the arms 9, and also to the type holder K and type 2, while writing. The spring cushion afforded to the type 2 while the same is performing its function is important, and contributes very materially, and in fact very forcibly to the requirements of a noiseless or silent typewriting machine.

It will be obvious that on account of the beveled slot 3, of the type holder K, and the beveled recesses 4 in the fulcrumed grip arms 9, fitting and conforming to each other, the type holder will always enter and find definite location. Should the type-holder K, at any time fail to come slightly short of, or to pass slightly upward beyond its predetermined position, then by the beveled construction of the slot 3 of the type holder and the beveled recess in the jaws of the fulcrumed arms 9 will naturally and automatically temporarily position the one with the other.

Claims.

1. In a typewriting machine a stationary frame, a type arm carrier adapted to horizontal movement on the frame, a transverse plate adjustably connected to the carrier, bent lever arms converging towards each other and fulcrumed to the plate; a stationary cam adapted to adjustment on the frame, beveled recesses in the forward ends of the lever arms and opposite to each other, and the opposite ends of said arms adapted to engage said cam to bring the recessed ends of the arms toward each other.

2. In a typewriting machine, a stationary frame, a type arm carrier adapted to horizontal movement on the frame, lugs on the frame and on the carrier, link motion loosely connected to the lugs, a fulcrum pin extending through and beyond said lugs on the frame, and adapted to horizontal movement in said lugs, equalizing springs on the frame, and in contact with the pin, and adapted to horizontal adjustment on the frame.

3. In a typewriting machine, a stationary frame, a type arm carrier on the frame and adapted to horizontal movement, a stationary cam on the frame, a transverse lever arm adjustably connected to the cam, rods extending from the ends of said lever to the frame and adjustably connected thereto, and means in the cam to allow the movement of the carrier.

4. In a typewriting machine, a stationary frame, a type arm carrier adapted to horizontal movement on the frame, bent levers fulcrumed to the carrier, the ends of said levers converging toward each other, a stationary

cam on the frame, a transverse arm adjustably connected to the cam, rods extending from the end parts of the arm and adjustably connected to the frame, means in the cam to allow the movement of the carrier and to retain the cam in definite position with the carrier.

5. In a type writing machine, a stationary frame, a type arm carrier adapted to horizontal movement on the frame, bent lever arms fulcrumed to the carrier, and converging toward each other, the forward inner parts of said arms, having beveled recesses opposite to each other, a cam adapted to adjustment on the frame, means in the cam to allow movement of the carrier, means on the carrier to operate in said means in the cam.

6. In a typewriting machine, a stationary frame, a type-arm carrier adapted to movement on the frame, bent lever arms fulcrumed to the carrier and converging toward each other, and having beveled recesses in the forward parts of the arms and opposite to each other, a cam having a slot on the frame, means to adjust the cam and means on the carrier to operate in said slot.

7. In a typewriting machine, a stationary frame, a type arm carrier adapted to horizontal movement on the frame, link motion connecting the frame and the carrier, a key board on the frame, adjustable means connected to said link motion and to the frame to propel the carrier upon the depression of a key.

8. In a typewriting machine, a stationary frame, a type arm carrier adapted to horizontal movement on the frame, lever arms fulcrumed to the carrier and converging toward each other, beveled recesses in the forwarded parts of said arms and opposite to each other, a cam on the frame, the opposite ends of said arms adapted to contact with said cam upon the movement of the carrier, type arms fulcrumed to the carrier, a type holder on the arms, a beveled slot in the holder to conform with said recess and enter the same.

9. In a typewriting machine, a stationary frame, a type arm carrier adapted to movement on the frame, bent lever arms fulcrumed to the carrier, beveled recesses in said arms and opposite to each other, means on the frame to contact with the opposite ends of the arms, a type arm having a type holder fulcrumed to the carrier, a beveled slot in the holder to conform to said recesses, means to bring the type holder to position in said recesses and means to operate the arms and to temporarily locate and hold said type holder to printing position.

10. In a typewriting machine, a stationary frame, a movable type arm carrier on the frame, bent lever arms having beveled recesses opposite to each other fulcrumed on the carrier, type arms fulcrumed to the carrier, type holders having beveled slots, on the type arms, and adapted to fit into and between said recesses, to locate the type.

11. In a typewriting machine, a stationary frame, a movable type arm carrier on the frame, link arms connecting the frame and the carrier and adapted to move the carrier, adjustable means on the frame to allow equalizing spring motion or resilient nature, to said links, thereby to said carrier, and consequently a silent impression of the type on a receiving surface.

12. In a typewriting machine, a universal rod, a bell crank loosely connected on the rod, arms secured to the rod, adjustable rods secured to the arms and the lower ends of said rods pivotally connected to a lower universal bar, and the upper part of the bell-crank adjustably connected to a compound link motion.

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