April 6, 1954 B. E. RICHARDSON 2,674,508

TYPEWRITER CARRIER

Filed Jan. 10, 1951

3 Sheets-Sheet 1

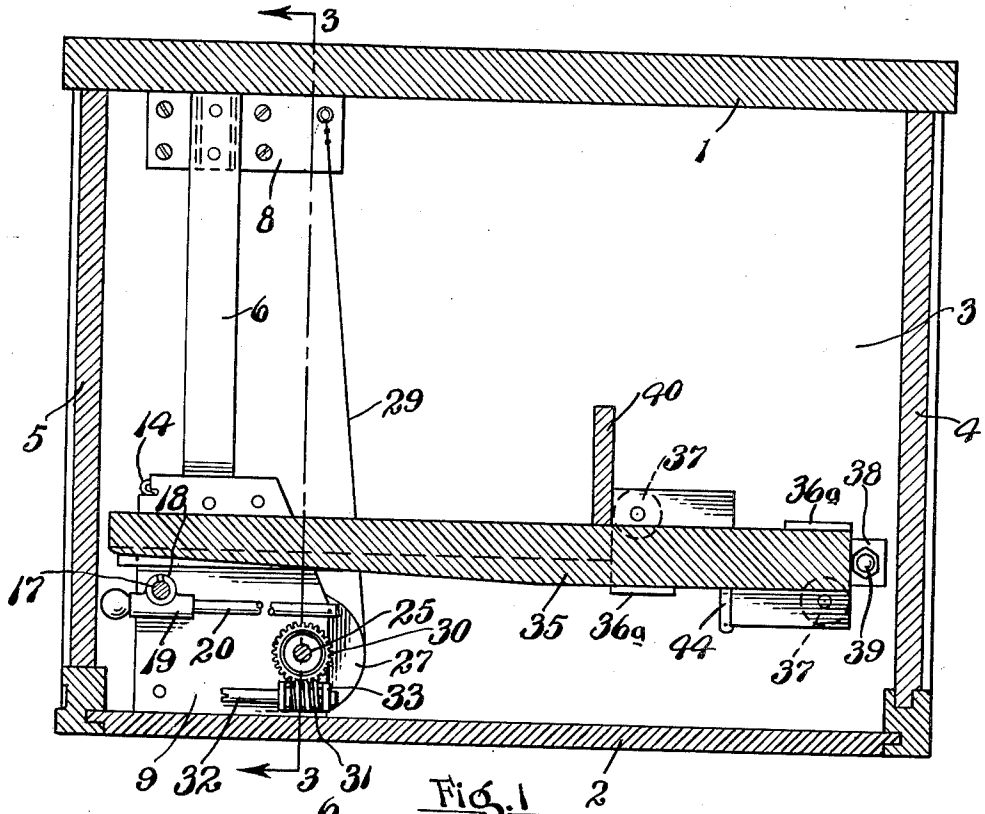


Fig. 1

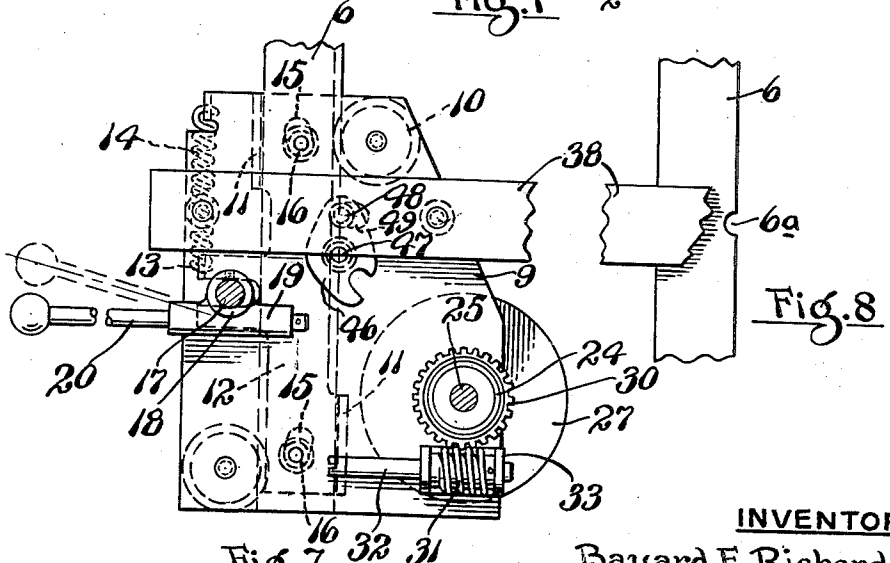


Fig. 8

Fig. 7

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TYPEWRITER CARRIER

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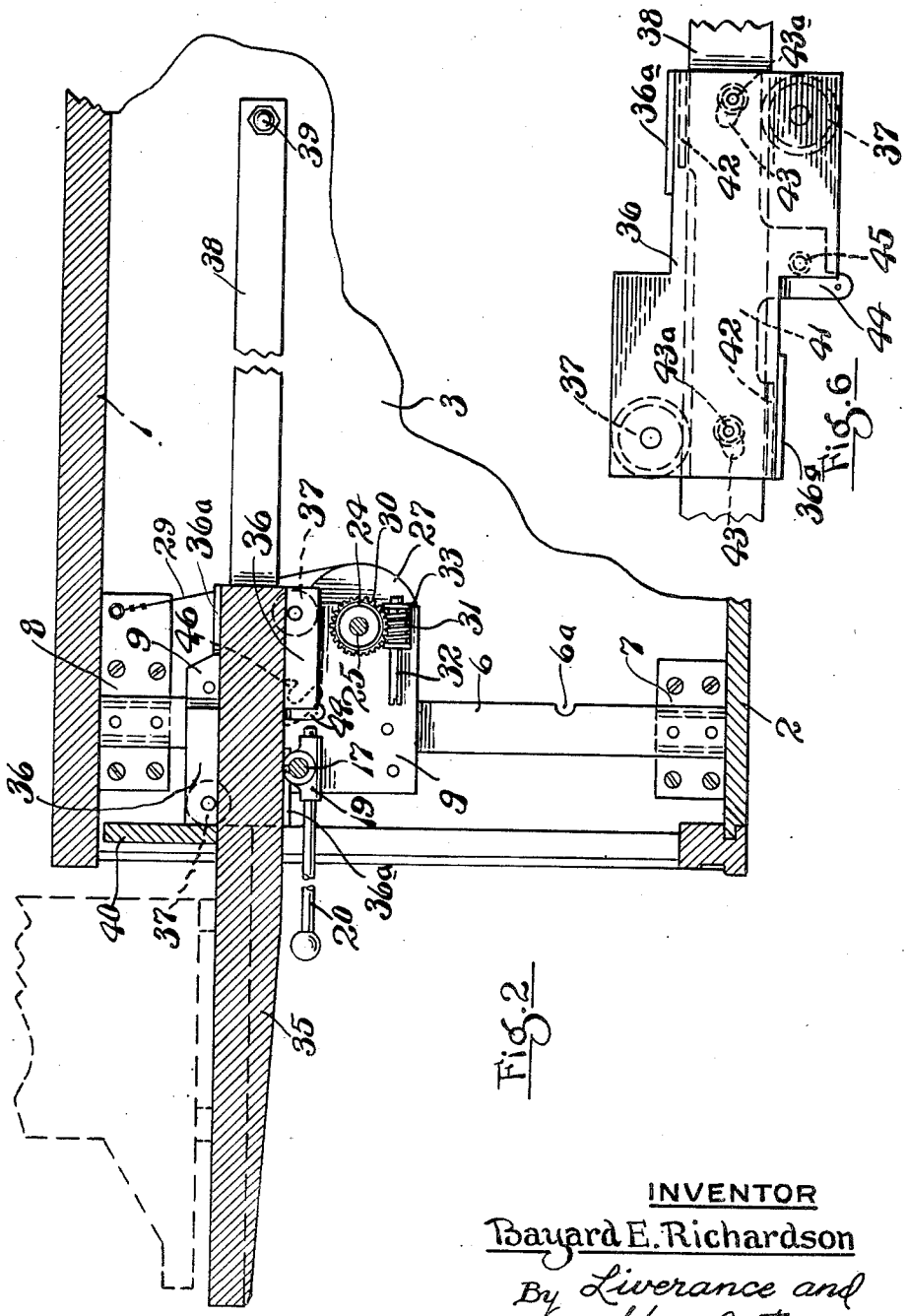


Fig. 2

Fig. 6

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TYPEWRITER CARRIER

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3 Sheets-Sheet 3

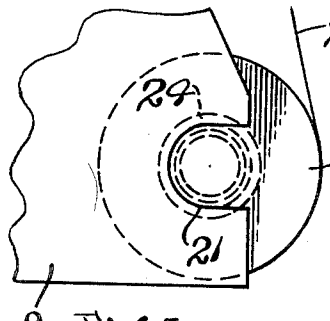


Fig.5

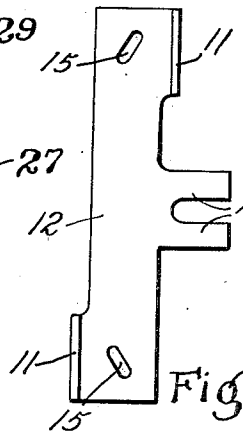


Fig.9

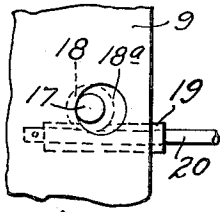
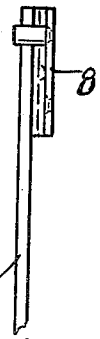


Fig.11



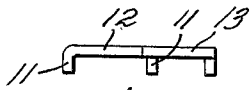


Fig.10.

Fig.3

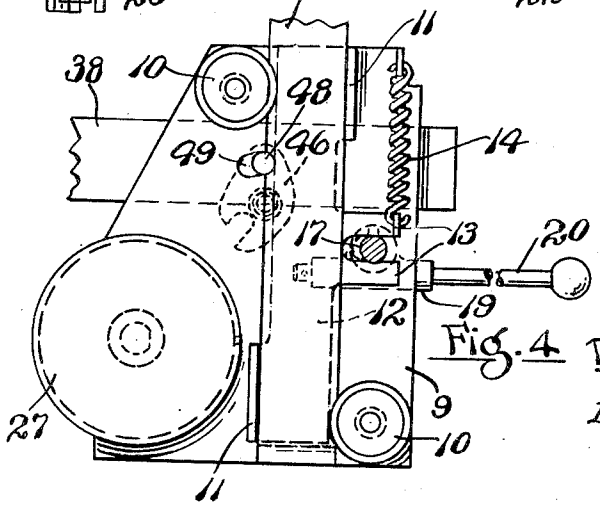


Fig.4

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2,674,508

UNITED STATES PATENT OFFICE

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TYPEWRITER CARRIER

Bayard E. Richardson, Largo, Fla.

Application January 10, 1951, Serial No. 205,305

4 Claims. (Cl. 312—29)

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The present invention relates to typewriter carriers of the kind which are used in stenographers' desks, for supporting a typewriter in operative position outside of the desk and in which the typewriter, when not in use, may be lowered and moved to a concealed position within the desk.

I have heretofore obtained a Patent No. 1,933,933, for a typewriter carrier which achieves such general purposes and which has been commercially produced for many years. The present invention has for its objects and purposes many improvements thereover and the attainment of many advantages, among which is control of the vertical travel of the typewriter and its support; novel means for locking the typewriter at an indefinite number of positions to which it is vertically movable, such releasable locking in any of such positions being easily accomplished and without wear of the locking or holding parts of the mechanism; greatly simplifying the mechanism and rendering it much more economical to produce and assemble; producing a device of the character stated which is readily and easily installed and serviced after it is in use, and a universality of installation in desks of varying width and height dimensions, and also its easy application to many special conditions of desks and the like without the necessity of using additional and special parts for such applications; elimination of close machine tolerances of the parts used in my prior invention; a ready adaptation which permits changes in desk design and construction which my prior invention was not possible; a packing for shipment much more easily obtained and in much smaller bulk, reducing shipping costs; thus not only making a better more flexible and greatly improved typewriter carrier, but one in which the cost of manufacture is greatly reduced over what the typewriter carrier of my earlier invention costs. Therefore, with greatly increased material and labor costs of the present time, the typewriter carrier of this invention can be economically produced and sold, while the construction shown in my Patent No. 1,933,933, because of its high labor costs is rapidly approaching, if it has not reached, a place where it is no longer competitive in its field.

For the attainment of the objects and purposes enumerated, as well as others not stated but which will be apparent upon understanding of the invention, I have produced, as an embodiment of my invention, the structure described in

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the following description, taken in connection with the accompanying drawings, in which:

Fig. 1 is a vertical section from front to rear through a desk having my typewriter carrier housed therewithin.

Fig. 2 is a similar, enlarged, fragmentary section showing the typewriter carrier elevated to an upper position and extended outwardly at the front of the desk, as when it is used.

Fig. 3 is a fragmentary vertical section, substantially on the plane of line 3—3 of Fig. 1, said section being transverse of the typewriter carrier.

Fig. 4 is a fragmentary side elevation, enlarged, of the lower front portion of the carrier in its lowermost position.

Fig. 5 is a fragmentary side elevation of the inner portion of the carrier showing the mounting of the spring actuated drums connected with the carrier for elevating it when free to do so.

Fig. 6 is a fragmentary enlarged side elevation of the rear end of the outwardly and inwardly movable carriage upon which the typewriter is supported.

Fig. 7 is an inner side elevation of the lower end portion at one side of the carrier, the immediate typewriter carriage being removed, with some parts in section, the view being taken substantially at the plane of line 7—7 of Fig. 3 looking in the direction indicated,

Fig. 8 is a fragmentary elevation illustrating a detail of structure of the front posts of the carrier and upon which the typewriter carriage is mounted for vertical movements, used in locking the typewriter carrier against upward movement when housed within the desk, and

Fig. 9 is an elevation of a locking plate or bar used for locking the typewriter carrier in vertical position.

Fig. 10 is an end view thereof, and

Fig. 11 is a fragmentary end elevation of one of the typewriter carriage plates which are vertically movable showing the eccentric mounting of a shaft which actuates the locking plates or bars.

Like reference characters refer to like parts in the different figures of the drawings.

The desk or desk pedestal in which the typewriter carrier is mounted, may have a top 1, bottom 2, vertical sides 3, and back 4, and be closed at its front by a door 5, preferably of the disappearing type, that is, swung outwardly and upwardly at its lower edge to a horizontal position and then pushed to the rear underneath the top 1.

Within the compartment of the desk made by such top, bottom ends and back, and adjacent to

but spaced a short distance from each vertical side 3, a vertical post 6 in the form of a flat bar is permanently secured a short distance back of the open front. Each post is permanently welded, riveted or otherwise connected to lower and upper attaching brackets 7 and 8 of flat metal which may be screw connected at the inner sides of the adjacent ends 3 of the desk. The posts or bars 6 are rectangular in cross section.

On each of the posts 6 a flat plate 9 of metal is mounted for vertical movements. Grooved rollers 10, one at the lower outer corner and the other at the upper inner corner of each plate 9 (Fig. 7) bear against opposite edges of the posts 6. Such plates 9, forming a part of the movable typewriter carrier, are thus vertically movable on the post 6. Opposite each of the rollers 10 the edges of the posts 6 may be engaged by flanges 11, formed one at each side and at the opposite end portions of vertical locking bars or members 12, which are made from flat metal. Such bars 12, in addition to the flanges 11 extending at right angles therefrom, intermediate their ends are each provided with two spaced forwardly extending fingers 13 (Figs. 4 and 7), the uppermost of each of which terminates in a laterally turned ear to which the lower end of a coiled tension spring 14 is connected, the upper end of each spring having connection to a similar ear at the upper end of its associated plate 9. The springs when free to act tend to move the locking bars 12 upwardly.

Each of the members 12 is formed adjacent each end with short inclined slots 15, closed at both ends into which pins 16 having collars or rollers thereon on the plates 9 extend. When the locking members 12 are moved upwardly until stopped by the rollers on pins 16 coming against the lower closed ends of the slots 15, the flanges 11 are brought snugly against the adjacent edges of the posts 6, and, with the opposed rollers 10, releasably binding the flanges 11 against such posts. On downward movement of the locking members 12, slots 15 traverse the rollers on pins 16 and the flanges 11 separate from the adjacent edges of the posts 6, freeing the plates for movements along the posts 6.

A shaft 17 extends horizontally between the plates 9 and at its ends is eccentrically mounted for rocking movements. Such shaft passes through the slots between the spaced fingers 13, the shaft bearing at diametrically opposite upper and lower sides against adjacent fingers. Such eccentric mounting is by securing the ends of the shafts into collars 18*a*, one at each end, eccentrically with respect thereto, such collars passing through and being rotatably mounted in the plates 9 as shown in Fig. 11. A sleeve 18 is secured to the shaft 17 and at its under side has an integral guide sleeve 19 at right angles thereto in which a rod 20 is slidably mounted. Rod 20 at its front end is provided with a ball for hand engagement so that when said rod is pulled outwardly (Fig. 7) the shaft may be rocked by handle movement between the full line position shown in Fig. 7, and the dash line position.

In the full line position of the rod 20, shown in Fig. 7, the locking members 12 will be moved downwardly to bring the flanges 11 into binding holding engagement with the adjacent edges of the post 6, so as to clamp the posts 6 at two spaced apart positions, in the length thereof, between the rollers 10 and the flanges 11.

On movement to the upper dash line position of the handle shown in Fig. 7, the springs 14 move the locking members 12 upwardly, the rotation of the shaft 17 by reason of its eccentric mounting and engagement with the fingers 13 lifting it bodily and the plates 9 are released. When the typewriter carrier is housed within the desk (Fig. 1) rod 20 is pushed to the rear.

At the rear lower edge portions of each of the plates 9 a wide slot or recess 21 is made, open at its rear end. A covering cylinder 22 of thin sheet metal at its ends is connected with bearing sleeves 23 and 24, each of which has a pair of spaced annular ribs thereon. Such sleeves are received in the recesses 21 and are located and held by the annular ribs coming one at each side of the plates 9 at the front or closed ends of said recesses. A horizontal shaft 25 extends lengthwise of and through cylinder 22 and the sleeves 23 and 24, being mounted for rotation in said sleeves on anti-friction bearings 26. At each end of the shaft 25, at the outer side of each plate 9, a drum 27 is located and has a central hub, such hubs being keyed or otherwise permanently secured to the ends of the shaft 25. A spiral spring 28 is within each of the drums 27. The outer end of each spring is anchored to a drum 27 and the inner end to its associated sleeve 23 or 24. A connecting cable in the form of a flat tape 29 winds around the outer peripheral portions of each drum 27, being connected thereto at one end, leading upwardly and having connection at opposite ends to the upper brackets 8.

The sleeve 24, longer than sleeve 23, has thereon, at the inner side of its adjacent plate 9, a worm wheel 30, operatively engaging with which is a worm 31 on a short horizontal shaft 32, which is mounted for rotation on a bracket 33 fastened to the inner side of the adjacent plate 9. The free forward end of the shaft 32 may be turned by an appropriate hand tool to adjust the tension of the springs 28.

The springs 28 having a desired tension and force when free to do so turn the drums 27 clockwise (Figs. 1 and 3) to wind the connecting tapes 29 thereon, and lift the plates 9 and the parts mounted thereon from the lower to an upper position. If at the lower position as in Fig. 1, the door 5 is moved to open the front of the desk, rod 20 pulled outwardly and tilted upwardly at its outer end, the plates 9 are released which thereupon will move upwardly until stopped by a downward push upon the outer end of the rod 20. It will be apparent that such stopping may take place at any selected position of said plates 9 and parts carried thereby between the lowermost and the uppermost position which such plates may take on posts 6. It is also evident that the upward movement may be readily controlled by a braking action obtained through pressing downwardly with controlled pressure upon the outer end of the rod 20 during such upward movement, so as to cause greater or less friction of the flanges 11 against the edges of the posts 6, thereby readily and easily controlling such upward movement until a desired upper position is reached, whereupon the handle rod 20 is forced downwardly to make a locking binding engagement of the flanges 11 against the edges of the posts 6, one at each edge of each post, the rollers 10, one opposite each flange 11, being forced snugly against associated edges of the posts.

A horizontally movable carriage upon which

the typewriter is mounted is located between the spaced plates 9. Such carriage comprises an intermediate horizontal platform 34 (Fig. 3), with heavier longitudinal side rails 35, one at each longitudinal edge, connected to which, at the rear portions of the rails 5 and at the outer sides thereof, are metal plates 36 having inwardly turned upper and lower flanges 36a extending under and over the rear portions of the side rails 35 and permanently secured thereto. Each plate 36 is preferably of the form best shown in Fig. 6, being widened upwardly at its front end portion and downwardly at its rear end portion as shown, and having rollers 37 mounted at the front upper portion of each plate and at the lower rear portion thereof, such rollers being at the outer sides of the metal plates 36. The rollers 37 are grooved and ride upon the upper and lower edges of horizontal tracks 38 which are permanently connected at and spaced from the inner sides of the plates 9, extending therefrom rearwardly into the desk compartment. The two spaced track bars 38 are preferably connected by a cross rod 39 at their rear ends. A vertical, transverse panel 40 is secured at the upper side of the carriage substantially at the front ends of the plates 36 to substantially close the front opening of the desk above the horizontal carriage when such carriage is moved to its outer position with the typewriter, as shown in Fig. 2 in dash lines, in front of and at the upper position at which it is used.

Associated with each of the carriage side plates 36 is a locking plate or member 41 similar to the locking members 12 previously described. The locking members 41 have each a front flange 42 at the lower edge and front end portion thereof, and a similar flange 42 at the upper edge and at the rear end portion. Said flanges being extended at right angles to the planes of the members 41, the front flange underneath its associated track bar 38 and the rear flange over the upper edge thereof (Fig. 6). Such horizontal locking bars 41 have short slots 43 with closed ends inclined to the horizontal as shown, into which pins 43a mounted upon the adjacent plates 36 extend for the locking and releasing of the horizontally movable typewriter carriage with respect to the rails 38. From the middle portion and at the lower edge of each of the locking members 41 a projection 44 extends downwardly and carries a laterally extending pin 45 which extends from the projecting portion 44 underneath the adjacent track bar 38.

A latching dog 46 (Fig. 7) is pivotally mounted between its upper and lower end portions at 47, one on each of the plates 9, the upper portion of each dog being between its plate 9 and the adjacent track 38. From the upper end of each latching dog 46 a horizontal pin 48 passes outwardly through a short slot 49 in the associated plate 9. The pins 48 will enter semi-circular recesses 6a in the rear edges of the posts 6 and latch the typewriter carrier in its lowermost position to hold it in such position when the typewriter carrier is at its lowermost position.

Such latches 46 must be released in order that the typewriter may be elevated to the position where the typewriter is operated. Release occurs when, on outward movement of the horizontal carriage upon which the typewriter is mounted on the tracks 39, pins 45 strike against the downwardly projecting lower end portions of the latch members 46 thereby swinging them clockwise (Fig. 7) and moving the pins 48 out of the recesses 6a of posts 6. Therefore, with the carrier in its lowermost position as in Fig. 1, and locked in such position against any vertical movement, such vertical movement can take place only after the horizontal carriage has been moved outwardly over the tracks 38 and the pins 48 moved out of the keeper recesses 6a therefor. This frees the carrier for upward movement upon the posts 6. Such upward movement will take place because of the winding force of the springs 28 which will automatically wind the tapes 29 on the drums 27 as soon as the handle rod 20 has been pulled to outer position and lifted at its outer end to release the clamping engagement of the flanges 11 and the rollers 10 for freeing the carrier for such upward movement.

When the carriage is moved outwardly on the tracks 38, upon reaching outermost position the members 41 are automatically moved relative to the carriage horizontally to the rear, elevating each at its front end and lowering them at their rear ends when pins 45 are stopped on full engagement with latches 46, the carriage continued in its forward outward movement, to bring the flanges 42 into a binding engagement against the opposite edges of the tracks 38 and, in conjunction with the opposed rollers 37, locking the horizontally movable carriage against movement upon the tracks 38 until released. Substantially simultaneously pin 45 strikes the latch 46, turning it clockwise (Fig. 7), to release pins 48 from the recesses 6a. The pin 45 is received in the recess at the lower portion of the latch 46 and is held by the upper prong of said latch over said recess until the latch returns to its initial position. Such return can take place only when the typewriter is at its lowest position on the posts 6, that is, when the pins 48 come opposite the recesses 6a and enter them. Pins 48 are thereupon released and the carriage is freed to move to the rear into the desk compartment.

In the operation with the carriage housed within the desk compartment, as in Fig. 1, after the door 5 is open and pushed back underneath the top 1, the horizontally moving carriage must be pulled forward on the tracks 38 to its outermost position, to turn the latch members 46 to get the pins 48 out of the recesses 6a. Springs 28 thereupon tend to move the plates 9 and tracks 38 upwardly together with the typewriter and its carriage, winding the tapes 29 upon the drums 27. The upward movement will take place as soon as the handle rod 20 has been pulled outwardly and lifted upon at its outer end to release the binding or locking engagement of the flanges 11 against the edges of the posts 6. The pins 48 being held against the edges of the posts 6 above the recesses 6a, latches 46 retain the pins 45 so that the horizontal carriage is locked against return movement which, if it occurred with the carriage lifted to an upper position, would cause the typewriter, shown in dash lines in Fig. 2, to come against the desk top. When the carrier for the typewriter has reached an upper position it is locked therein by pushing downwardly upon the handle rod 20 thus insuring that the typewriter shall be maintained in a stable condition.

When the typewriter is to be returned and moved into the desk compartment, its carrier first must be lowered, lifting upwardly at the outer end of the handle rod 20 to release it for lowering on the posts 6 and pressing downwardly upon the carrier so as to move it until, at lowermost position, the pins 45 are released when the pins 48 are brought to and enter the recesses at 6a. At such lowermost position the carrier is releas-

ably locked against upward movement by pushing the handle rod 20 downwardly at its outer end. The handle rod 20 is then moved to inner position, as in Fig. 1, and the horizontal carriage with the typewriter thereon moved to the rear on the tracks 38.

The structure described attains all of the objects and purposes first stated in a particularly simple and practical manner. Different widths of desk or desk pedestals merely require that the shafts 17 and 25 and the cylinder cover 22 shall be cut to different standard lengths for the widths of the pedestals. The posts 6 may also be cut to length to conform to different heights of the desk or desk pedestal compartments. Otherwise all of the remainder of this structure is the same except the platforms 34 will be of varying widths in accordance with different horizontal widths of the desk or desk pedestal compartments. The machine tolerances required in the fabrication of the parts are greater than in the structure shown in my prior patent, thus lessening costs. Installation and also repair are much more easily accomplished.

The invention is defined in the appended claims and is to be considered comprehensive of all forms of structure coming within their scope.

I claim:

1. A device as described comprising, two spaced vertical posts, each at its lower end having a recess therein at an edge thereof, an elevating structure mounted for vertical movement on said posts, a carriage mounted for horizontal movements on said elevating structure, latches movably mounted on said elevating structure one adjacent each post, each of said latches having an element thereof adapted to enter the recess in its associated post when such structure is in lower position, means on said carriage adapted to engage said latches when the said carriage is moved in one direction of its movement to an extreme position to automatically move said elements out of said recesses and release the elevating structure for vertical movement, and spring actuated means for elevating said elevating structure and the carriage carried thereby upon release of said latch elements from said recesses.

2. A structure as defined in claim 1, said means engaging said latches to move them comprising pins on said carriage engageable with the latches, said latches having spaced fingers one engaged by each of said pins to move the latches to release the elevating structure for upward movement, and the other automatically moved into the reverse path of movement of said pins to hold the carriage against reverse horizontal movement until the elevating structure is returned to its lowermost position.

3. In a structure as described, two spaced vertical side posts, generally rectangular in cross section, an elevating structure mounted on said posts including rollers engaging opposite edges of the posts, a carriage mounted for horizontal movement on the elevating structure, a braking and holding member associated with each post mounted on said elevating structure at the ends thereof, each including a vertical member located alongside its adjacent post and each having a flange at each end thereof located across edges of the post with which associated, opposite the rollers carrying said elevating structure, manually operable means extending between said vertical members for raising and lowering said members, and means mounting the members on said elevating structure for bodily moving said members toward or away from bearing engagement with said posts, for frictional or holding engagement with said posts and for release thereof.

4. In a structure as described, two vertical spaced side posts generally rectangular in cross section, an elevating structure mounted on said posts, including rollers engaging on opposite edges of the posts, a carriage mounted for horizontal movement on the elevating structure, a braking and holding member associated with each post mounted on said elevating structure at the ends thereof, each including a vertical member located alongside its adjacent post and each having a flange at each end thereof and located across the edges of the post with which associated, opposite the rollers carrying said elevating structure, each of said braking and holding members having at an edge thereof a pair of spaced holding fingers, a horizontal shaft eccentrically mounted at its ends on said elevating structure extending from one post to the other, said shaft passing through the spaces between the fingers on both of said braking and holding members, and a handle connected with said shaft for manually rocking the same to raise or lower said braking and holding members and simultaneously shift said members to engage or release said flanges of the braking members relative to said posts in accordance with the direction in which said shaft is rocked.

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