Jan. 8, 1935. C. W. H'DOUBLER ET AL 1,987,230

TYPEWRITING MACHINE OR THE LIKE

Filed March 19, 1934

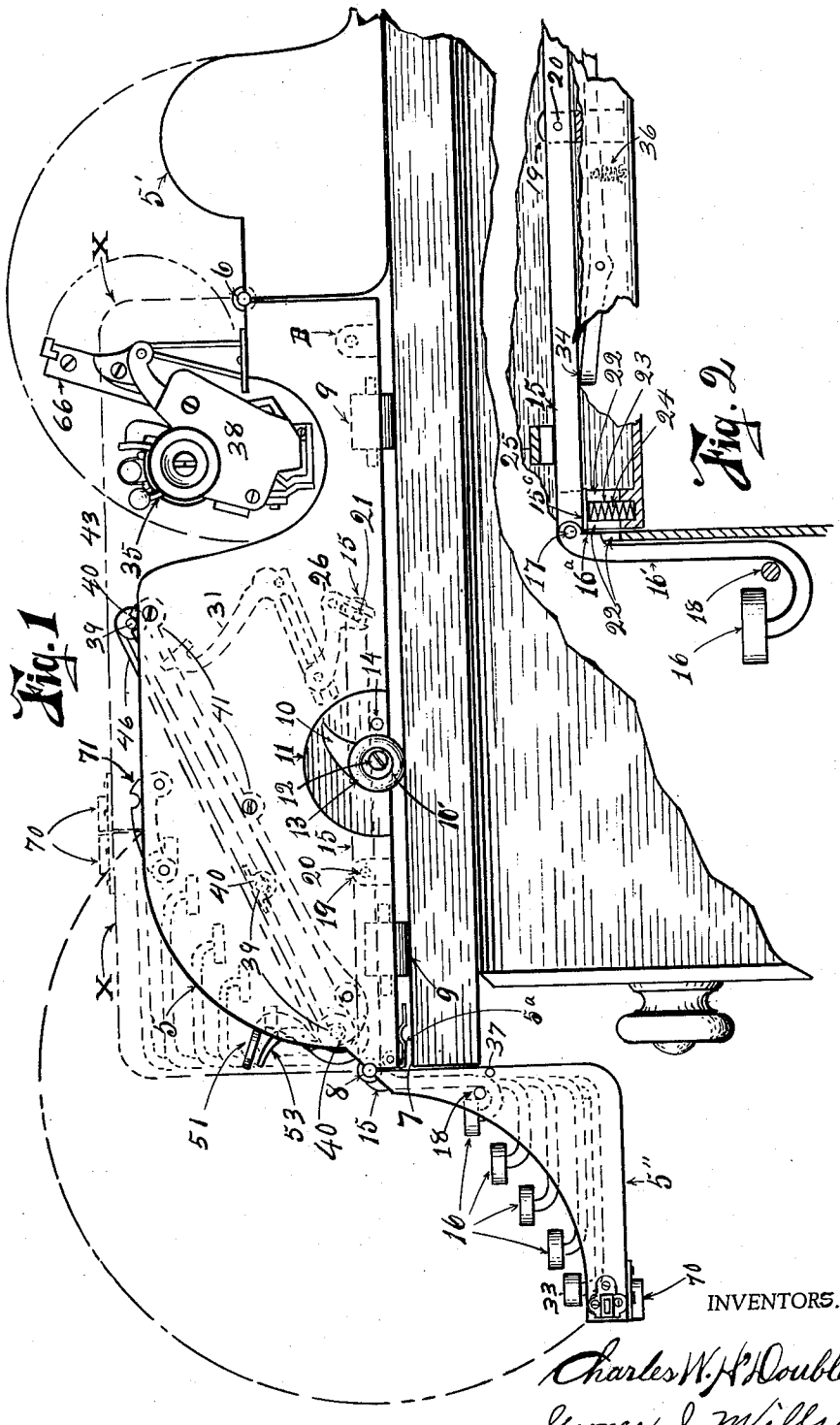


Fig. 1

Fig. 2

INVENTORS.

Charles W. H'Doubler

George I. Wills

Patented Jan. 8, 1935 1,987,230

UNITED STATES PATENT OFFICE

1,987,230

TYPEWRITING MACHINE OR THE LIKE

Charles W. H'Doubler and George I. Mills, Springfield, Mo.

Application March 19, 1934, Serial No. 716,280

5 Claims. (Cl. 197—186)

This invention relates to new and useful improvements in typewriting machines or the like and more specifically to a folding typewriting machine adapted to rest for use upon the top of an office desk of standard height and is closely related to a copending application, Serial No. 680,760, filed July 17, 1933.

While well-known typewriting machines of various makes now on the market are quite efficient in performance, they are not all that could be desired for general office use for, owing to the elevated position of the keyboard, they cannot conveniently be operated when the machine is supported upon the top of an office desk of standard height and must, therefore, be provided with a special desk, cabinet, table, or the like of suitable height to accommodate the operator, and a special desk of that sort occupies space in an office that is ofttimes very desirable for other purposes.

Another objectionable feature of prior typewriting machines, and more especially those of the folding type, is that the leverage between the key supporting ends of the key-bars and the supporting fulcrum is so short that the operative keys mounted thereon must, in action, travel a line coincident with the arc of a circle of comparatively short radius and the contact or "touch" surfaces of said keys are therefore tipped to a decided slant from the horizontal at the finish of the stroke and thus do not provide stable or desirable surfaces for the operators' fingers.

Another and serious objection to said prior folding typewriting machines is that having a common fulcrum for all the key-bars in connection with the shortness of lever action, above noted, the upper or rear tier of operative keys rests very closely to said fulcrum while the lower or front tier of keys are approximately three times as far removed, and the central tier twice as far, from said fulcrum, no two tiers can have the same action, the same ultimate slant of the keys in action, nor can an even "touch" be expected from an arrangement of this sort; and, furthermore, besides being an uncomfortable keyboard to operate, evenness in the typing is not likely to result from the use of it.

Another objectionable feature of the prior typewriter is the fact that hoods or covers to protect the mechanism when not in use are of separate structure, more or less troublesome to remove and replace and, therefore, the machine is often needlessly left uncovered and thereby unduly exposed to dust and accidental injury.

It is, therefore, the object of the present invention to overcome the objectionable features related in prior typewriting machines and provide a typewriting machine adapted to rest for use upon the top of a standard office desk and having keys extending outwardly and downwardly over the edge of said desk in an operable position that is lower than the top of the supporting desk.

Another object of the invention is to provide a typewriting machine adapted to rest for use upon a chosen portion of a desk top or the like, and upon another portion of said desk top when not in use and having means for easily shifting the machine from one portion on the desk top to said other portion.

A still further object of the invention is to provide a typewriting machine adapted to rest for use centrally located upon the top of an office desk or the like, and that may be easily shifted to rest on an unused portion of said desk top during periods of non-usage; and having means for stabilizing the machine in either position of rest.

And still another object of the invention is to provide a typewriting machine having exceptionally long space for leverage action to facilitate the installation of a quick acting movement that will readily respond to a short, light touch on the operating key.

And yet another object of the invention is to provide a folding typewriting machine, which, when folded, will entirely encompass the mechanism and may be locked to prevent injury by meddling fingers.

With the above and other objects in view, which will appear as the description proceeds, the invention resides in the novel construction, combination of parts substantially as hereinafter described and, more specifically, as defined in the appended claims; it being understood that such changes as come within the scope of the claims may be made.

In the accompanying drawing in which the reference characters indicate the same parts in all the views:

Fig. 1 is a side elevation of the improved typewriting machine positioned for use upon the top of a fragmentary portion of a standard office desk and having the extreme end of the rear closure member of the frame cut away but the contour thereof shown by dotted lines indicating the machine as closed;

Fig. 2 is an enlarged side view in section of fragmentary portions of the base and key-housing members of the frame disclosing one of the operative keys and the major portion of the key-

operated lever supporting it in a normal position for use.

Referring to the drawing the numeral 5 indicates the supporting base member of the improved typewriting machine carrying typing means incidental to typewriting machines in general and the unique features of the present invention.

A closure member 5' is swingably associated with the rear end of the base member 5 by pivotal hinges 6 in such manner that said closure member will lie flatly upon the top 7 of the supporting desk when the machine is in use. As the closure member carries no mechanism, the end portion thereof is deleted in the drawing but is indicated by dotted line *x* in its closed position.

The key-housing member 5'' is adaptably supported at the front end of the base 5 by pivotal hinges 8 to allow said member 5'' to hang over the edge of the supporting desk top 7 and have a bearing against the lower portion of the base members and also against the edge of the said desk top when the machine is properly positioned for use and thus lower the operative keys supported therein to a conveniently operable position below the plane of the supporting desk top.

By this arrangement the space occupied by the key board in prior typewriting machines is left vacant in the present invention, and thus affords space for ideally positioning a copy-holding table, as set forth in the before identified copending application, and anticipating the installment of such a device in connection with the present invention U-shaped bearings 40 are provided as integral portions of the base member 5, said bearings being suitable for rotatably mounting shafts 39 adapted for supporting a copy table as indicated in the drawing.

To provide a workable machine of the nature described, we have provided a plurality of specially formed operative keys 16 which, in connection with the spacing bar 33, constitutes a standard key-board that is incidental to all typewriting machines.

The operative keys 16 are formed with substantially J-shaped projecting arms 16' of various lengths to adapt each key to function in its allotted position in one of the tiers of the key-board; this also applying to the spacing bar 33 which is mounted and operated in the same manner as the keys. The key arms 16' are adaptably formed at the free ends thereof to be pivotally attached to the front ends of the key-operated, type actuating levers 15 by shouldered pintles 17 in such manner that when said levers are supported in their normal positions for use said pintles 17 will be substantially in coaxillary alignment with the pintles 8 on which the housing member 5'' swings, and, furthermore, the end of the upper elbow of each of said key-arms is circular and of a radius equivalent to the radii of the clasp portions of the hinges 8 so that when the machine is folded to a closed position, the hinges 8 of the frame and those of the key-arms will have the appearance of one continuous hinge extending across the front of the frame.

The key-operated levers 15 are pivotally mounted in slots provided in a support 19, formed in the bottom portion of the base member 5, by a common wire fulcrum 20. The front ends of the levers 15 project barely through the front walls of the base and housing members, when positioned for use, through corresponding slots 22 provided in said members, said slots being just deep enough and just wide enough to provide working clearances and also guiding support for the pivoted ends of the key-arms 16' and levers 15 during typing operations.

The keys 16 and the key-operated levers 15 are supported in their normal positions for use with said levers yieldingly abutting a common padded stop bar 25, rigidly supported by the base members, by means of small coil springs 24 seated in well-like pockets 23 provided directly under each lever in the base member 5 and as each key-operated lever has its individual spring support, the universal spacing member 34 may be retained in its normal working position, in yielding contact with the under edges of said levers, by means of very slight resistance spring 36 and by this arrangement the key action is responsive to a very light touch.

As almost the entire weight of the operative keys 16 with their extending arms lie to the front of the supporting pintles 17, said keys would naturally swing rearwardly, if unrestrained, and the arm portions thereof would rest against the inside wall of the housing member 5'' and against which they would rub during typing operations. To overcome this objectionable feature, the key arms 16' are provided with straight shoulders 16*a*, adjacent the pintles 17, which abut outwardly turned lip-like projections 15*c* provided on the supporting levers 15 adjacent the front ends thereof, and by a proper adjustment of said shoulders and projections the key-arms operate in a substantially vertical line and are not allowed to touch the walls of the housing member during typing operations.

As the shoulders 16*a* and projections 15*c* have no function other than to retain said key-arms in a substantially vertical working position, as related, they may be dispensed with by substituting a common round stop bar 37 positioned adjacent the rear edges of the key-arms and having the two ends thereof anchored in the two side walls of the housing member 5'', or, if desired, a bar having spaced slots for each key-arm in lieu of said bar 37.

To support the keys further in their normal position for use, and more particularly while the machine is in its closed position, and during the opening and closing operations, a common stop-bar 18, extending laterally across the housing-member 5'', is positioned workably close to the front edges of the upwardly extending portions of the key-arms 16' and anchored in the two side walls of said housing member.

By the two arrangements just above noted substantially vertical key action is assured and the keyboard, in its entity, will remain in its normal position relative to the housing member whether the machine is open for use or closed and also during opening and closing operations.

In the drawing the key-operated lever 15 is indicated as adapted for operating a type bearing lever 31 through the medium of an intermediary lever 26 and showing all three said levers operating as levers of the first class, but as the typing movement is no part of the present invention, it is not deemed necessary further to describe it. However, it is here pertinent to proclaim that while said key-operated lever is shown as a lever of the first class, we do not confine ourselves to that arrangement alone for it is obvious that the available space is preeminently adapted for the installation of key-actuated levers of the second class which may be fulcrumed at any desired distance from the point of applied power up to the indicated fulcrum support B adjacent the rear inside wall of the base member 5 and the

invention is, therefore, adapted for use with typing movements requiring operative leverage action of the second class as well as those demanding leverage impulse of the first class.

As it is one of the prime objects of this invention to provide a typewriting machine adapted for use resting upon the top of an ordinary office desk, or the like, and thereby dispense with the usual low topped desk or table required for prior typewriting machines, it is requisite that means be provided for easily shifting the machine on the table or desk top to and from an operable position that the central portion of the desk may be utilized for other purposes incidental to office routine when the typewriting machine is not in use; also to provide means for stabilizing the machine in any chosen position on said desk and, likewise, have said stabilizing means reversible so that the machine may again be freely moved.

To meet these requirements we have provided four rubber-cushioned rollers 9 in lieu of the rubber feet, also utilized as sound insulators, provided in prior typewriting machines. These rollers are journaled in the base member 5 adjacent the bottom edge of the outside walls of said base, two on each side of the machine, and in alignment with said outside walls to insure a straight line of travel during shifting operations.

To stabilize the machine in any predetermined position upon the desk top a scotching device is provided comprising a formed lever 10 pivoted within a sunken recess 11, formed in the side wall of the frame 5, by a shouldered screw 12. The lever 10 is formed with a small drum 10′ having an annular groove provided in the center of its periphery. The drum is eccentrically positioned relative to the pivotal screw 12 and has a small tire-like rubber ring securely mounted in the said annular groove.

By this arrangement it is obvious that when the arm of the lever 10 is drawn upwardly, the rubber ring will be forced into wedging engagement between the desk top and, virtually, the base member through the medium of the pivotal screw 12 supporting said lever, and thus scotch the machine against accidental movement. And it is further obvious that when the said lever arm is thrown down to rest upon the stop pin 14 the wedging ring will be withdrawn from its engagement and the scotching restraint on the machine be removed.

When the machine is to be closed, the platen carriage 38 is first centrally positioned within the frame and the paper support 66 at the rear of the machine depressed as shown by dotted lines. The rear closure member 5′ is then folded forwardly, the housing member 5″ raised and swung into the closed position indicated and, finally, a formed flap 5a, pivotally supported by the base member adjacent the hinge 8 is raised and pressed into a position completely covering the slots 22 and the key arm hinges fully to encompass the typing mechanism.

It is here pertinent to state that as the pintles 17 hinging the key-arms 16′ to the levers 15 are in coaxillary alignment with the pintles 8, hinging the housing member to the base member, the said key-arms will coordinately fold with said housing member and rest in the inverted positions indicated by dotted lines adjacent the top portion of the machine.

The machine may now be locked, if desired, by means of catch locks 70 provided on the two folding members of the frame.

Having set forth the novel features of our invention what we claim is:

1. A typewriting machine comprising a supporting frame adapted to rest for use upon a desk top or the like, complemental typing means supported by said frame and a plurality of operative keys for operating said typing means operably supported by said frame in a position lower than the level of said desk top.

2. In a typewriting machine, in combination, a foldable frame comprising a plurality of hinged members including a housing member pivotally supported by a base member, typing means supported by said base member including a plurality of key-operated levers pivotally mounted on a common fulcrum within said base member and a plurality of operative keys pivoted on the key-operated levers adjacent the ends of those portions of said levers projecting outwardly from said fulcrum in a suitable manner to support said operative keys within said housing member in an operable position below the lowest portion of said base member.

3. In a typewriting machine, in combination, a foldable frame including a supporting base member, type bearing levers supported by said base member, a plurality of key-operated levers adapted for actuating said type bearing levers pivotally mounted in the base member and a plurality of operative keys pivotally carried by said key-operated levers in an operable position that is lower than the plane of the base member.

4. In a typewriting machine, in combination, complemental typing mechanism including a plurality of operative keys carried by a supporting base member adapted to rest for use upon a desk top or the like adjacent a chosen edge thereof and a housing member suitable for housing said operative keys hinged to said supporting base member in a manner adapting it to be swung outwardly and downwardly over the edge of said desk top to support the operative keys housed therein in an operable position below the level of said desk top.

5. In a typewriting machine, in combination, a frame comprising a plurality of hinged members including a base adapted to rest for use upon a desk or table top and having an operative-key housing member suitably hinged thereto for swinging outwardly and downwardly over the edge of said desk top, a plurality of operative keys supported within said housing member in a workable position lower than the level of said desk top and means for guiding said operative keys in a substantially vertical line of operative action.

CHARLES W. H'DOUBLER.
GEORGE I. MILLS.