I. G. HILL.

TYPE WRITER KEY.

APPLICATION FILED JAN. 31, 1918.

1,324,964.

Patented Dec. 16, 1919.

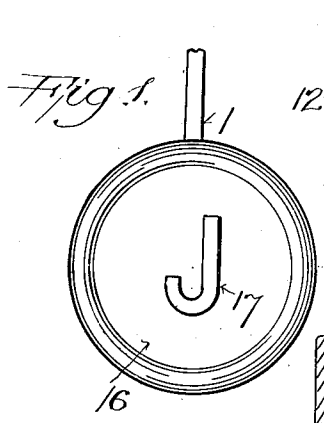


Fig. 1.

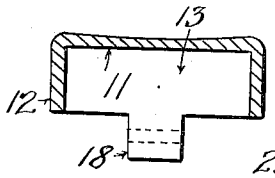
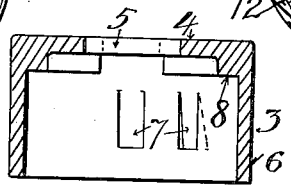


Fig. 9.



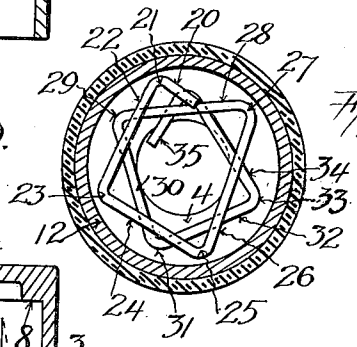


Fig. 3.

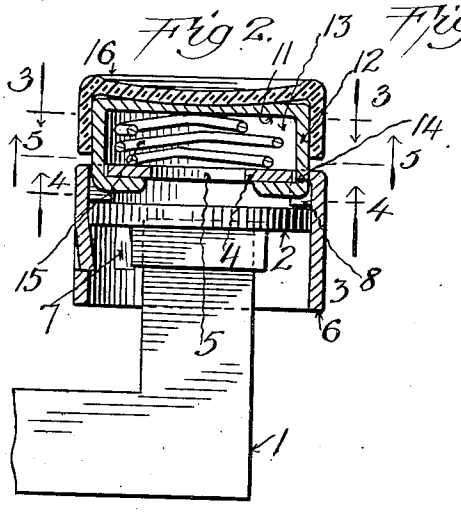


Fig 2.

Fig 10

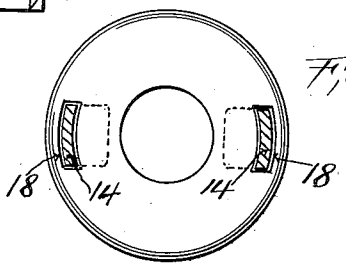


Fig. 5.

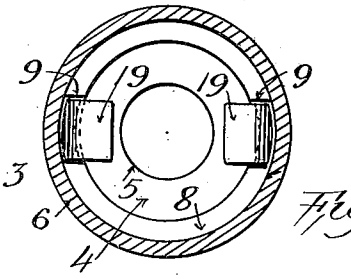


Fig. 4.

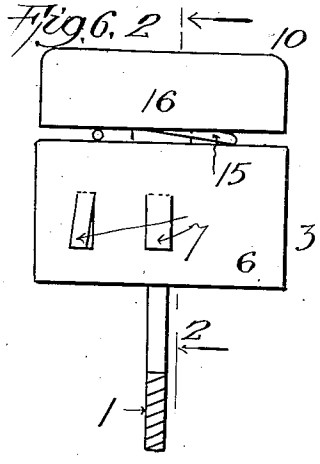


Fig. 6.

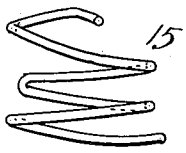


Fig. 8.

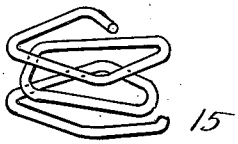


Fig. 7.

Inventor.

Ivor G. Hill

by his Atty Charles G. Hensley

UNITED STATES PATENT OFFICE.

IVER G. HILL, OF BROOKLYN, NEW YORK, ASSIGNOR TO SPEED KEY MFG COMPANY, INC., OF NEW YORK, N. Y., A CORPORATION OF NEW YORK.

TYPE-WRITER KEY.

1,324,964. Specification of Letters Patent. Patented Dec. 16, 1919.

Application filed January 31, 1918. Serial No. 214,790.

To all whom it may concern:

Be it known that I, IVER G. HILL, a citizen of the United States, and a resident of the borough of Brooklyn, city and State of New York, have invented certain new and useful Improvements in Type-Writer Keys, of which the following is a specification.

The present invention relates to cushioned keys for typewriters. The object of my invention is to provide a very simple, economical and compact spring key adapted to be attached to the key lever of a typewriter. Devices of this character are applied to the key levers so that the typist strikes upon their top faces to depress the key levers for making the impression and the general purpose of the spring type of key is to relieve the typewriter of wear and tear and to relieve the typist of the shocks on the finger tips and to facilitate an increase in the speed of writing. In the present device I employ a form of spring which will not render the key inoperative if it should be broken but which if broken while in use will be so disposed as to avoid tilting of the cap so that the particular key will still be operative though deprived partly or wholly of the spring action. Thus, if a spring should be broken at a time when there is no opportunity to replace it immediately the key is not rendered entirely inoperative.

The spring is arranged within the cap, the latter being hollow or recessed to receive the spring, in order that the top face of the cap will be but slightly higher than would the ordinary key if my device were not used. This arrangement also makes the device less cumbersome, and more steady when applied to the key levers. The construction is such that the body of the key may be stamped or drawn and the parts may be secured together by machinery, and without the use of screws.

Without screws to hold the parts together the device is more serviceable and less apt to come apart while in use. Other features will be set forth in the detailed description hereinafter.

In the drawing forming part of this application,

Figure 1 is a plan view of my device attached to a typewriter key lever,

Fig. 2 is a vertical sectional view thereof, taken on the line 2—2 of Fig. 6,

Fig. 3 is a sectional view, taken on the line 3—3 of Fig. 2,

Fig. 4 is a sectional view taken on the line 4—4 of Fig. 2,

Fig. 5 is a sectional view taken on the line 5—5 of Fig. 2.

Fig. 6 is a side elevation of the device attached to the key lever,

Fig. 7 is a perspective view of the spring,

Fig. 8 is a side elevation thereof,

Fig. 9 is a sectional view of the cap covering, and

Fig. 10 is a sectional view of the cap shell.

In the drawing I have shown one end of an ordinary key lever 1, having the ordinary key member 2 thereon. The present device consists primarily of relatively movable members inclosing the spring, and means for securing these members so that they may have a slight relative movement. The flange member 3 consists of a top portion 4 having the central opening 5 and of the depending member or flange 6, the latter being adapted to be passed down over the key 2 and to coöperate therewith in holding the device in place. The flange 6 is shown as provided with tongues 7 stamped inwardly to form holding means to engage under the edge of the key 2 for the purpose of holding the device against accidental displacement. There is a shoulder 8 formed inside the flange 6, either from the same metal as the member 3 or by adding a separate piece therein, and this shoulder has recesses 9 within which certain lugs may move, as will be pointed out. The shoulder 8 forms an abutment for the key 2 so that the top 4 will always be spaced slightly from the key 2.

The cap member 10, consists of a top 11 and a depending flange 12 forming a hollow socket 13. Lugs 14 are formed preferably at opposite points and at the bottom edges of the flange 12, the lugs extending down straight from the flange before the parts are assembled. The spring 15 is inclosed

in the socket 13 formed by the cap member 10, so that it is compressed between the top 4 of the flange member 3 and the top 11 of the cap. The cap 10 may be used without a covering but I prefer to provide a celluloid covering 16 which may or may not have the type letter 17 designated thereon.

The flange member 3 may be stamped or drawn up from sheet metal in a stamping press, so that the cost of this part of the device will be comparatively low. Similarly, the cap member 10 may be stamped or drawn from sheet metal in a stamping press, the lugs 14 being formed integral with the flange 12. In assembling the parts a spring is placed within the cap 10 and the cap and flange member are assembled by inserting the lugs 14 through corresponding apertures 18 in the top 4 of the flange member. The ends 19 of the lugs are then bent under the top 4 as shown in the drawing, but they are so bent that when the lugs rest against the under surface of the top 4 the bottom edge of the flange 12 will lie slightly above the top 4 of the flange member 3. The bending of the lugs may be done by hand, but this operation may also be performed on a stamping press to reduce the expense and to make the product more uniform. The assembled parts may now be handled as a unit and they are shipped, sold and applied as such.

To attach the device to a key lever it is only necessary to place the flange 6 over the top of the key 2 and press the device downwardly until the tongues 7 engage under the lower edge of the key 2 and the device will then be ready for use. When the tongues 14 are turned over at 19 in the assembling operation the spring 15 is placed under more or less compression so that it is under compression at all times. When the typist strikes the top of the cap to depress the key lever the cap is driven down slightly in relation to the member 3, thus further compressing the spring, which latter resists the downward action of the cap in relation to the flange member and transmits the force to the parts below it. When the cap is driven down in relation to the member 3 the turned over ends of the lugs 14 move down and away from the top 4, the space between the key 2 and the top 4 maintained by the shoulder 8 allowing for the slight downward movement of the lugs. The lugs 14 are free to move in the recesses 9 in the shoulder 8 but they are prevented from turning. Upon the release of the pressure of the finger from the cap the latter is forced upwardly again by its spring 15 until the lugs 14 strike the underside of the top 4.

It will be obvious that by making the cap itself hollow and by arranging the spring therein that the position of the top of the cap above the ordinary key is much lower than in devices having a solid top with the spring entirely below it. The lugs 14 provide a wide bearing in limiting the upward thrust of the cap, so that the latter is not wabbly but it lies in horizontal position.

The spring 15 shown herein is coiled in such shape that if it should be broken the coils will pile one on another and the cap will not twist entirely out of position but it may still be operative, though deprived of the spring action. The spring is a coiled one but instead of the convolutions lying directly one over the other they lie in non-parallel or crossing planes. The spring is shown in the drawings as composed of three complete convolutions, though any desired number may be used. Looking at the spring from the top as in Fig. 3, and commencing at the free top end 20 it will be noted that the spring bends at 21 at a slightly acute angle and then it extends in a straight portion 22 to a second bend 23. Here it makes another turn at a slightly acute angle and extends straight at 24 to the bend 25, and then it extends straight again at 26 to the bend 27, where it bends at an acute angle. From the bend 27 it extends straight at 28 to the bend 29. The straight portion 28 extends under the portion 22, due to the fact that there is a pitch in the spring the same as in the ordinary coiled spring. The part 28 lies in a vertical plane which intersects the vertical plane in which the part 22 lies, the bend 29 being further from the axis of the spring than the portion 22. From the bend 29 the spring extends straight at 30 to the bend 31, crossing under the two portions 22, 24. From the bend 31 it extends straight at 32 crossing under both portions 24, 26 to the bend 33. Another straight portion 34 extends across and under the portions 26, 28 and there is another bend near the end 35. If the spring should break at any point two or more of the convolutions will rest crosswise one on top of the other and form a support for the cap 10 which will permit of the further use of the device, though some or all of the spring action is destroyed by the break. The piling action of the spring will result from the fact that the several convolutions are composed of portions which lie crosswise of those of the convolutions which lie over or under it. It is not necessary that the several convolutions be shaped just as shown herein to accomplish this result.

Having described my invention, what I claim is:

A key for typewriter levers comprising an attaching member having a top, and depending means for engaging the ordinary type key, an abutment member for holding said ordinary key spaced from the top of said attaching member, a cap forming the

key proper and comprising a top and a depending flange forming a spring socket, lugs on said cap passing through apertures in said attaching member, the ends of said lugs being bent under and moving between the top of the attaching member and said ordinary key, and a spring in said socket and compressible between the top of the cap and the top of said attaching member.

Signed at the city of New York, county of and State of New York, this 5th day of January, 1918.

IVER G. HILL.