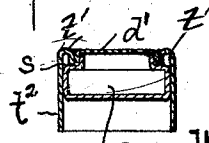
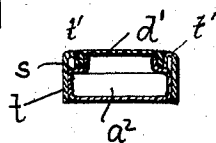
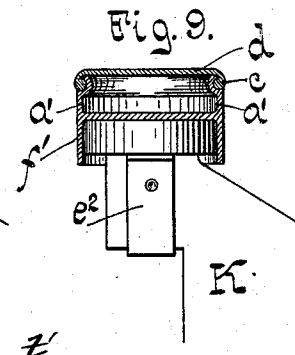
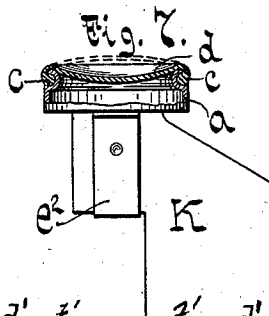
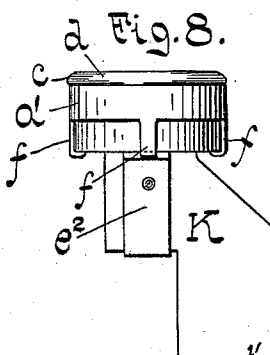
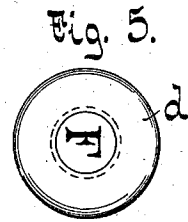
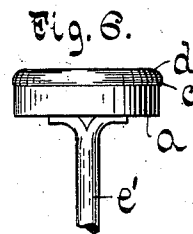
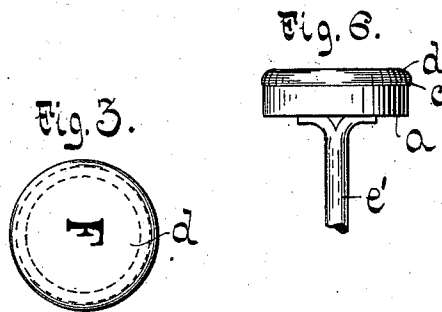
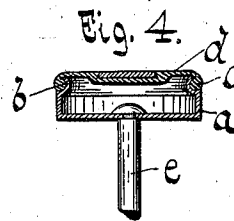
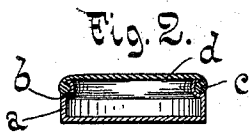
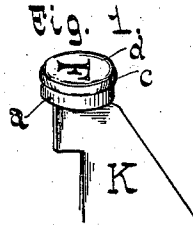


(No Model.)

W. P. DEVINE.
TYPE WRITING MACHINE CUSHION KEY.

No. 558,872.

Patented Apr. 21, 1896.



WITNESSES:
Chas. W. Thomas
Eugene A. Perides

Fig. 10.

Fig. 11.

INVENTOR
William P. Devine
BY *Atkins & Co.*
ATTORNEY

UNITED STATES PATENT OFFICE.

WILLIAM P. DEVINE, OF NEWARK, NEW JERSEY.

TYPE-WRITING-MACHINE CUSHION-KEY.

SPECIFICATION forming part of Letters Patent No. 558,872, dated April 21, 1896.

Application filed September 10, 1895. Serial No. 562,059. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM P. DEVINE, a citizen of the United States of America, residing at Newark, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Cushion-Keys for Type-Writing Machines, of which the following is a specification.

My invention has reference to cushion-keys for type-writing machines, constructed for the purpose of relieving the fingers of the operator of soreness caused by striking the hard surface of ordinary keys; and it has for its objects to provide a cushion which can be secured directly to the key-bar or other device to which the ordinary keys are usually secured, and which has a self-contained and permanent air-cushion. With the devices heretofore employed the air-cushion was formed between the upper face of the auxiliary key and the top of the key proper, the air-cushion consequently being formed by the act of applying the auxiliary key to the key proper.

My invention consists, essentially, in a cushion-key for type-writing machines, consisting of a shell closed by an elastic diaphragm, the two forming a hermetically-closed chamber, combined with means for attaching the shell to the key-bar.

The nature of my invention will best be understood when described in connection with the accompanying drawings, in which—

Figure 1 represents a perspective view of a cushion-key embodying my invention applied to the key-bar. Fig. 2 is a vertical section of the cushion-key drawn on an enlarged scale. Fig. 3 is a top view of the same. Figs. 4, 5, 6, 7, 8, 9, 10, and 11 illustrate modified forms.

Similar letters of reference designate corresponding parts throughout the several views of the drawings.

Referring at present to Figs. 1, 2, and 3 of the drawings, the letter *a* designates a cup-shaped shell, preferably made cylindrical in form and of sheet metal by stamping up in a usual manner. The upper edge or rim of the shell is provided with a concaved neck *b* of less diameter than the body of the shell and adapted for the reception of a circular bead or flange *c*, formed on the periphery of the closing-diaphragm *d*. This diaphragm is made of rubber or other suitable elastic material,

and is secured to the shell *a* by compressing the bead *c* thereof firmly between the opposing parts of the neck *b* of the shell. The diaphragm may be stretched more or less on its application to the shell. The interior of the shell being filled with air, which may be under pressure if desired, a hermetically-closed elastic cushion is obtained.

This cushion-key may be secured to the key-bar *K* either by soldering the same directly to the latter, when the key-bar is made of metal, or it may be secured in any other suitable manner. In Fig. 4 I have shown a shank *e* riveted to the shell, while in Fig. 6 I have shown a shank *e'* split and soldered to the shell. These shanks may represent the key-bar, or may be attached to the same. In Figs. 7, 8, and 9 I have shown the usual yoke-shaped clip *e*², which is soldered to the shell and embraces a horizontal portion of the key-bar.

The letters of the alphabet and other characters may be applied, either by painting or otherwise, directly to the surface of the diaphragm, as shown in Figs. 1, 2, and 3, or the letters may be made of rubber and vulcanized in the diaphragm or dovetailed therein, as shown in Figs. 4 and 5.

Instead of being stretched straight across the shell the diaphragm may be concaved, as shown in full lines in Fig. 7, or convexed, as shown by dotted lines in the same figure.

In Figs. 1 to 7, inclusive, I have shown the cushion-key applied directly to the key-bar, as would be the case when the cushion-keys are applied to type-writing machines during their manufacture for the market. When the cushion-keys are to be applied to machines already in use, I provide the cushion-keys with means for applying the same directly to the keys of the machine. Such constructions I have shown in Figs. 8 and 9. In Fig. 8 I have shown the shell *a'* provided with a series of prongs *f*, adapted to extend over and embrace the key and having their ends clenched over the bottom of the key. In Fig. 9 I have shown the cushion-key provided with a tubular extension *f'*, which is forced over the key and held by friction. If desired, its edge may be closed slightly inward around the bottom of the key.

In Fig. 10 I have shown the cushion-key composed of a shell *a*², formed with a shoul-

der *s*, a sleeve *t*, formed with a contracted head *t'*, and a diaphragm *d'*, wedged between the shell and sleeve. This cushion-key is adapted to be secured directly to the key-bar, while in the construction shown in Fig. 11 the sleeve *t* is carried down to enable it to be clamped about the key proper.

It is evident that the manner of securing the diaphragm to the shell may be varied. Therefore I do not wish to restrict myself to the particular manner shown. However, I have found that the concaved neck and the peripheral bead *c* form a very tight union.

I do not herein broadly claim a key-cushion for type-writing machines, but the improvement whereby the air-cushion is self-contained and not dependent on the key.

I do not herein claim a key-cushion containing an internal air-space beneath substantially the middle of the surface receiving the touch of the finger and provided with an exterior projection adapted to interlock with an inward projection.

What I claim as new is—

1. As a new article of manufacture a cushion-key for type-writing machines, consisting of a shell and a diaphragm hermetically closing said shell and forming with the same a self-contained air-cushion, substantially as described.

2. A cushion-key for type-writing machines, consisting of a cup-shaped shell provided with a contracted neck, and a diaphragm provided with an enlarged peripheral bead fitted into and secured in said neck, substantially as described.

3. A cushion-key for type-writing machines, consisting of a shell, a diaphragm hermetically closing said shell and forming with the same a self-contained air-cushion, and an attaching device, substantially as described.

In testimony that I claim the foregoing as my invention I have signed my name in presence of two witnesses.

WM. P. DEVINE.

Witnesses:

JAS. T. SHERIDAN,

FRED S. SAYRE.