No. 818,569. PATENTED APR. 24, 1906.

A. W. SMITH.

TYPE WRITING MACHINE.

APPLICATION FILED MAY 10, 1902.

FIG. 1.

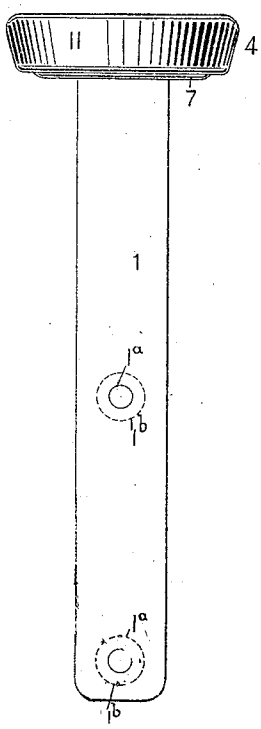


FIG. 2.

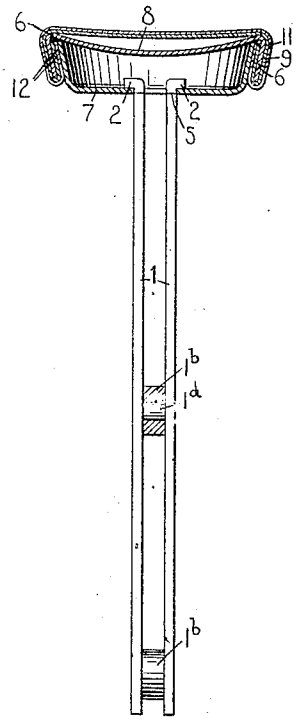


FIG. 3.

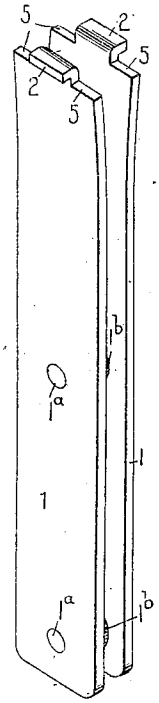


FIG. 4.

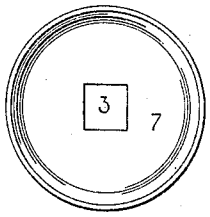


FIG. 5.

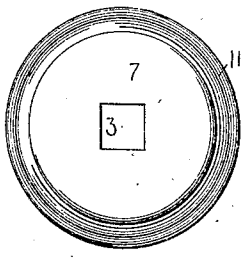
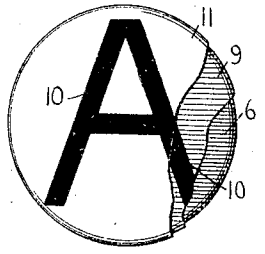


FIG. 6.



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ARTHUR W. SMITH, OF JERSEY CITY, NEW JERSEY, ASSIGNOR TO YOST WRITING MACHINE COMPANY, OF ILION, NEW YORK, A CORPORATION OF NEW YORK.

TYPE-WRITING MACHINE.

No. 818,569. Specification of Letters Patent. Patented April 24, 1906.

Original application filed December 11, 1901, Serial No. 85,451. Divided and this application filed May 10, 1902. Serial No. 106,693.

To all whom it may concern:

Be it known that I, ARTHUR W. SMITH, a citizen of the United States, and a resident of Jersey City, in the county of Hudson and State of New Jersey, have invented certain new and useful Improvements in Type-Writing Machines, of which the following is a specification.

My present application is a division of my application, Serial No. 85,451, filed December 11, 1901, and relates to key heads and stems more especially for type-writing machines.

One object of my invention is to provide simple, cheap, and efficient means whereby the key-heads may be readily attached to and detached from their stems or carriers and wherein there is little liability of the key-head being accidentally turned, displaced, or detached in use.

A further object of my invention is to provide a simple, cheap, and efficient key-head structure wherein a smooth and resilient touch is afforded and a strong and reliable head is provided and one in which there is no liability of the characters on the head being worn or rubbed off.

To the above and other ends which will hereinafter appear my invention consists in the construction, arrangement, and combination of parts to be hereinafter described and claimed.

In the accompanying drawings, which illustrate one form of key head and stem embodying my invention, Figure 1 is a detail side view of the key stem and head. Fig. 2 is a front view of the same, partly in section, this view being taken at right angles to the positions indicated in Fig. 1. Fig. 3 is a perspective view of the stem with the head detached. Fig. 4 is a detail top view of the bottom cup of the key-head. Fig. 5 is a detail bottom view of the key-head entire. Fig. 6 is a top view of the same with parts broken away.

In the accompanying drawings like reference characters indicate corresponding parts in the various views.

Each of the plates 1 of the key-stem is preferably made of spring metal and is resilient at its upper end, the plates being connected by rivets 1^a, and they may be maintained spaced apart by washers 1^b, and each plate 1 is bent laterally at 2, so as to provide an outwardly-extending lug or clip section. The said lugs are passed through an angular opening 3 in the base of the key-head 4 and form an interlocking connection therewith, as shown in Fig. 2. From an inspection of Figs. 3 and 5 it will be observed that the angular lugs 40 on the key-stem are of less breadth than the plates 1, so as to provide bearing-shoulders 5 on the plates against which the head is adapted to rest and on which it is supported. The upper free ends of the connected plates 1 have a normal spring tension away from each other, and in order to attach the head to its stem it is merely necessary to compress the upper ends of the spring-plates 1 and slip the head over the lugs 2 by inserting them within the opening 3 in the base, as shown in Fig. 2. The pressure on the plates may then be removed, thereby permitting a resiliency of the plates to bring about an interlocking of the lugs 2 with the head to unite the key stem and head. By this construction the attachment and detachment of the key buttons or heads may be readily and quickly effected, and when the parts are connected together it is impossible for a head to become accidentally detached or lost or even to turn axially or to become displaced on its stem, and thereby throw the character in or on the head out of alinement with adjacent characters.

Each key-head 4 is preferably formed of two oppositely-disposed metallic cup-like sections 6 and 7, fitting one within the other and the former constituting the head and the latter the bottom of the key-head. The top cup-like section 6 is concaved, as indicated at 8, and is first covered with a fabric 9, such as paper, on which is printed the letter or other type indicating character 10. The paper is then covered with a layer or sheet of transparent celluloid 11, which acts as a protective covering for the printed character and enables the keys to be cleaned at will without liability of spoiling the character.

The various parts of the key-head may be secured together by turning in the edges 12 of the paper and celluloid covering within the inverted top cup 6 and then inserting the bottom cup so that the turned-in portion 12 will lie between the walls or sides and the two cups. The parts thus assembled are

preferably submitted to the action of dies, which squeeze or compress the sides and thereby secure the paper and celluloid to the head and firmly unite the two cup-like sections together. The finishing-dies preferably cause the side wall or flange of the outer cup to taper downwardly and inwardly, so as to effect a more tenacious and permanent union of the parts.

From an inspection of Fig. 2 it will be understood that by reason of the concavity in the top of the head the tightly-stretched coverings bridge the head and contact therewith on its upper side only at the rim or perimeter, thus providing the desideratum of a resilient or cushioned key-head for the finger to strike.

From the foregoing description it will likewise be understood that the celluloid covers the entire top and sides of the hollow key-head and that a smooth seamless surface devoid of rims or ridges is presented to the touch of the operator and that none of the metallic parts are exposed for contact with the fingers. Furthermore, it will be seen that there are no joints presented at the sides or top of the key-head and that a cheap, durable, smooth, and resilient key-head is provided which can be readily connected to or disconnected from the key-stem, key-lever, or other part which carries it.

It will be perceived that the lugs 2 constitute, in effect, spring-actuated latches and that these latches positively lock the head in position on the stem, so that it cannot be pulled off without first bending the spring-plates 1 together.

Having described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a type-writing machine, the combination of a hollow key-head having an opening in the base thereof, and a key-stem comprising resilient members having engaging means that are adapted to be removably inserted in the said opening in the key-head and to engage the key-head and the walls of said opening to positively lock the key-head to the stem and to prevent the head from turning on the stem.

2. In a type-writing machine, the combination of a hollow key-head having an opening in the base thereof, and a key-stem comprising resilient members having bearing-shoulders against which the base of the head bears to support the head in place and having engaging means that are adapted to be removably inserted in the said opening in the key-head and to engage the key-head and the walls of said opening to positively lock the key-head to the stem and to prevent the head from turning on the stem.

3. In a type-writing machine, the combination of a hollow removable key-head, having an opening formed therein and a key-stem comprising a pair of independent resilient plates secured together, each having an outwardly-projecting lug, which lugs project into the opening in the head and engage and positively interlock therein to secure the head to the key-stem and positively prevent the head from turning on the stem, said lugs being maintained in engagement by the resiliency of the plates and affording a removal of the head by a movement of said plates toward each other.

4. In a type-writing machine, the combination of a removable hollow key-head, a rigid engaging portion forming part of said head, resilient supports having lateral clip members, which positively interlock with the engaging portion of the key-head and positively prevent it from turning thereon and which enable the head to be removed.

5. In a type-writing machine, the combination of a removable hollow key-head having an engaging member formed as a part thereof, and a key-stem comprising separate suitably-united resilient plates, each having a projecting lug that is adapted to enter the hollow key-head and engage the engaging member of said head and to be maintained in positive engagement by the resiliency of the plates so as to positively prevent the key-head from turning on the stem and to afford the removal of the head by a relative movement of said plates.

6. In a type-writing machine, the combination of a hollow key-head having an angular engaging opening in the base thereof, a key-stem to which said head is removably connected, said stem comprising resilient plates, engaging means on said plates that cooperate with the walls of the angular opening in the base of the key-head and which positively lock the head to the stem.

7. The combination of a key-head for type-writing machines, comprising a two-part metallic body portion, the upper section of which is concaved, and a resilient cover which extends over the concaved portion and over the entire upper surface and edges of the head and is secured in place between the two metallic parts that constitute the body of the head, and a key-stem to which said head is detachably secured.

8. The combination of a key-head for type-writing machines, comprising two oppositely-disposed metallic cup-like sections, the uppermost section being concaved on top, a paper disk having a type character thereon and a celluloid cover, the disk and the cover being arranged to bridge said concavity and being secured in place between said metallic cup-like sections, and a key-stem to which said head is detachably secured.

9. The combination of a key-head comprising two metallic cup-like sections, one of which is entirely covered with a sheet of celluloid so as to present a key-head having a seamless covering of celluloid at its top and

sides which celluloid sheet is secured between the two metallic sections and held in place by the pressure which unites the said sections, and a key-stem to which said head is detachably secured.

10. The combination of a key-head comprising two oppositely-disposed metallic cup-like sections, the top one of which is concaved and is entirely covered with a sheet of celluloid so as to present a key-head having a seamless covering of celluloid at its top and sides, which celluloid sheet is secured between the two metallic sections and held in place by the pressure which unites the said sections, so that the celluloid is stretched across the concaved portion of the head to form a resilient contact portion for the finger and a fabric having a character thereon located beneath said celluloid sheet, and a key-stem to which said head is detachably secured.

11. In a type-writing machine, the combination of a hollow key-head comprising a two-part metallic body portion, the upper part or section of which is concaved, and a resilient covering which extends over the concaved portion and over the entire surface and edges of the head and is secured between the two metallic parts that constitute the body of the head, said head having an opening in the base thereof, and a key-stem comprising resilient members having engaging means that are adapted to be inserted in the said opening in the key-head and positively engage the key-head and the walls of said opening, to removably secure the key-head to the stem and to prevent the head from turning on the stem.

12. In a type-writing machine, the combination of a hollow key-head comprising two oppositely-disposed metallic cup-like sections, the uppermost section being concaved on top, a paper disk having a type character thereon and a celluloid cover, the disk and the cover being arranged to bridge said concavity and being secured in place between said metallic cup-like sections, said key-head having an opening in the base thereof and a key-stem comprising resilient members having engaging means that are adapted to be inserted in said opening in the key-head and positively engage the key-head and the walls of said opening to removably secure the key-head to the stem and to prevent the head from turning on the stem.

13. The combination of a key-head comprising two cup-like sheet-metal parts, and a key-stem to which said key-head is directly and detachably secured.

14. The combination of a hollow key-head comprising two oppositely-disposed cup-like sheet-metal parts secured together; and a key-stem to which said key-head is directly and detachably secured.

15. The combination of a key-head comprising two oppositely-disposed sheet-metal cup-like parts secured together; an opening in the lower one of said parts; and a key-stem having a resilient portion sprung into said opening whereby said key-head is detachably secured to said stem.

16. The combination of a key-stem and a key-head detachably secured to said stem, said key-head being positively and directly locked in position on said stem.

17. The combination of a key-head comprising a sheet-metal part; and a key-stem, a portion of which detachably interlocks with said sheet-metal part to positively lock said key-head in position on said stem.

18. The combination of a key-stem having a spring portion, and a key-head having a part which detachably interlocks with said spring portion to positively lock said key-head in position on said stem.

19. The combination of a key-stem and a key-head detachably mounted on said stem, said head being positively locked in position directly on said stem by a spring-actuated latch.

Signed at the borough of Manhattan, city of New York, in the county of New York and State of New York, this 8th day of May, A. D. 1902.

ARTHUR W. SMITH.

Witnesses:
K. V. DONOVAN,
E. M. WELLS.