March 30, 1965 HAJIME ISHIDA 3,175,261

CLIP MOUNTING DEVICE FOR WRITING TOOLS

Filed April 20, 1964

FIG. 1

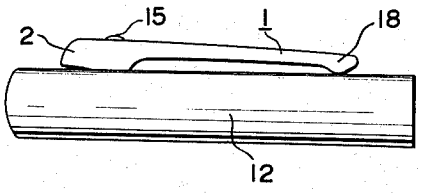


FIG. 2

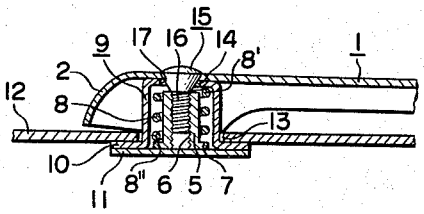


FIG. 3

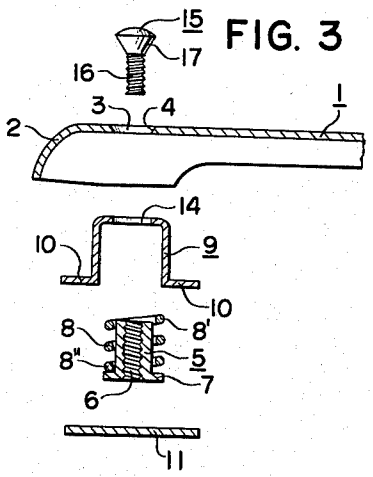


FIG. 4(a)

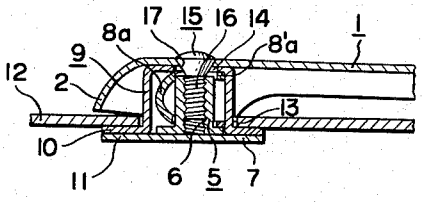


FIG. 4(b)

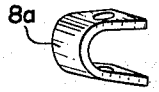


FIG. 5(b)

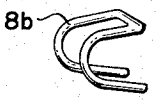


FIG. 5(a)

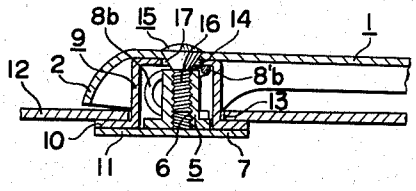
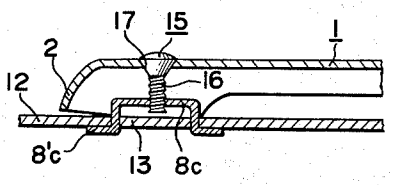


FIG. 6



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CLIP MOUNTING DEVICE FOR WRITING TOOLS

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5 Claims. (Cl. 24—11)

This invention relates to a new and improved device for mounting clips on the caps or holder cylinders of writing instruments.

Heretofore, in order to mount clips on the caps or holder cylinders of writing instruments, it has been a common practice to use members such as plate springs to engage and hold the box-shaped or hook-shaped engagement parts constituting the root or base parts of the clips. In most of such cases, however, the construction has been such that mounting parts such as the engagement parts of the clips or plate springs protrude into the interiors of the caps or holder cylinders. Accordingly, these inwardly protruding parts have been an obstacle in the design of such writing instruments in cases where various parts are to be accommodated within the spaces in these caps and holder cylinders.

For example, in the case of a plunger type ball pen, if the mounting part of the clip protrudes into the interior of the holder cylinder, the plunger actuating mechanism coupled to the ink reservoir cylinder would collide with the inwardly protruding mounting part of the clip within the holder cylinder when the writing point of the ink reservoir cylinder is to be thrust outwardly unless the construction of the writing instrument is designed with special attention to preventing the clip mounting part from interfering with the action of the plunger mechanism. Such a construction has been extremely troublesome to design.

In the case of a fountain pen with a clip attached to the cap in the vicinity of the open end of the cap, an inwardly protruding clip mounting part tends to interfere with the entrance of the pen writing point. An inwardly protruding clip mounting part is disadvantageous also in the case when the clip mounting is not near the open end of the cap, particularly in the case where a large part of the pen holder body is to be inserted into the cap, since there is still the possibility of the writing point striking the clip mounting part.

It is an object of the present invention to provide a clip mounting device for writing tools which does not have the above described disadvantage and is suitable particularly for use in writing instruments of the above described character, but which can be used for a wide range of writing instruments of this general type regardless of the nature of their internal construction.

It is another object to provide a clip mounting device of the above stated character having a relatively simple construction, high mechanical strength, and ample clamping force.

The foregoing objects and other objects and advantages which will presently become apparent have been achieved by the present invention which resides in the arrangement and combination of parts and in the construction thereof whereby the greater part of the clip mounting device is disposed on the outside of the writing instrument, as hereinafter more fully described with respect to preferred embodiments of the invention, reference being made to the accompanying drawings in which like parts are designated by like reference characters, and in which:

FIG. 1 is a side elevational view showing the exterior of the cap of a writing instrument provided with a clip mounting device according to the invention;

FIG. 2 is an enlarged, fragmentary, side elevational view, in vertical section, showing a preferred embodiment of the clip mounting device of the invention in the assembled state;

FIG. 3 is an exploded, enlarged, fragmentary, sectional view showing the device of FIG. 2 in the disassembled state;

FIG. 4*a* is a view similar to FIG. 2 of a modified form of the device of FIG. 2;

FIG. 4*b* is a perspective view of the spring means of the device of FIG. 4*a*;

FIG. 5*a* is a view similar to FIG. 1 of a further modified form of the device of FIG. 1;

FIG. 5*b* is a perspective view of the spring means of the device of FIG. 5*a*; and

FIG. 6 is a view similar to FIG. 1 of a still further modified form of the device of FIG. 1.

Referring first to FIGS. 1, 2, and 3 showing a preferred embodiment of the invention, the root or base part **2** of a clip **1**, is provided on its outer surface (upper surface as viewed in the drawing) with a hole **3** extending through the clip **1** and having a countersunk surface **4**. This surface **4** is adapted to receive the lower conical surface **17** of a screw **15** which holds the entire assembly together, simultaneously fastening the clip **1** to the clip mounting device and the clip mounting device to the writing instrument structure **12** (herein assumed to be a cap for the writing instrument).

The screw **15** is adapted to threadedly engage with an inner nut member **5** of cylindrical form having a threaded bore **6** and a flange **7** at its lower or inner end. In the assembled state, the nut member **5** is disposed within a hat-shaped frame **9** having a hole **14** in its upper bridge part and flanges **10** at its lower part, a coil spring **8** being disposed in a partially precompressed state about the nut member **5** and retained between the flange **7** of the nut member **5** and upper bridge part of the frame **9**. A plate **11** spans the open lower part of the frame **9** and is fixed by a lap joint to the two flanges **10**.

In the assembled state, the frame **9** is thrust outwardly through an opening **13** in the wall of the cap **12**, its flanges **10** being in flat contact with the interior surface of the cap **12**. On one hand, the base part of the clip **1** covers the frame **9** from the outside and rests on the outer surface of the cap **12**, being held in position by the screw **15** which is passed through the hole **3** of the clip **1** and the hole **14** of the frame **9** and is threadedly engaged at its threaded part **16** with the threaded bore **6** of the nut member **5**, the conical lower surface **17** of the head of the screw **15** being seated in the countersunk surface **4** of the hole **3**. Thus, the clip **1** is mounted on the cap **12**, and, at the same time, the frame **9** is held firmly against the cap **12** by an outward force imparted thereto by the coil spring **8**, which is retained at its inner end by the flange **7** of the nut member **5**.

The clip mounting device having the above described construction according to the invention operates in the following manner. When the free end **18** of the clip **1** is forced away from the cap **12** when it is clipped onto an object, for example, the edge of a pocket, the screw **15** and the nut member **5** are together forced outwardly against the compressive force of the coil spring **8**, which is thereby further compressed by the outward displacement of the flange **7** of the nut member **5** acting on the inner end **8''** of the spring **8**, the other end **8'** thereof being retained by the upper bridge part of the frame **9**. The reaction force of the spring **8** acts inversely to impart a firm closing force to the clip **1**, whereby the clip **1** and the cap **12** are securely clipped to the edge of the pocket.

It will be immediately apparent to those skilled in the art that various modifications of the clip mounting device of this invention can be made. As one example, the frame

9 in the above described device may, instead of being thrust outwardly through an opening 13 in the cap 12, be secured at its flanges 10 by a suitable method such as brazing to the outer surface of the cap 12. In other modifications of the clip mounting device of this invention, different forms of spring members to provide elastic reaction force for clipping are used as illustrated in FIGS. 4*a* through 6.

In the modifications shown in FIGS. 4*a* and 4*b* and 5*a* and 5*b*, C-shaped springs 8_a and 8_b, respectively, are used in place of the spring 8 used in the device shown in FIGS. 1, 2, and 3. The spring 8_a is made from a piece of flat spring material and has two holes therein, one each in its upper and lower flanges to permit free insertion therethrough of the nut member 5. The spring 8_b is made from a wire spring material. The other parts of the two clip mounting devices shown in FIGS. 4*a*, 4*b*, 5*a* and 5*b* are substantially the same as their corresponding parts in the device shown in FIGS. 1, 2 and 3.

In the modification shown in FIG. 6, the clip 1 is held onto the cap 12 by the head of a screw 15 which is inserted through the clip 1 and screwed directly into and thereby fixed to a spring member 8_c provided with flanges $8'_c$. The spring member 8_c protrudes outwardly through an opening 13 in the cap 12 with its flanges $8'_c$ held against the inner surface of the cap 12 by the outward force exerted by the screw 15 on the spring member 8_c.

Thus, by the above described construction, the clip mounting device of the present invention is disposed in a position entirely, or almost entirely, outside of the interior of a cap or holder cylinder of a writing instrument. Accordingly, the clip mounting device according to the invention cannot interfere with or be in the way of parts within the writing instrument irrespective of the nature of these parts. Therefore, the clip mounting device of this invention has the advantage of being usable on the cap or holder cylinder of any writing instrument regardless of the construction, arrangement, or action of the parts within the cap or holder cylinder. Moreover, the clip mounting device of the invention has a construction affording ample spring action for its clip holding function.

It should be understood, of course, that the foregoing disclosure relates to a preferred embodiment of the invention and a few illustrative modifications and that it is intended to cover all other changes and modifications of the examples of the invention herein chosen for the purposes of the disclosure, which do not constitute departures from the spirit and scope of the invention as set forth in the appended claims.

What is claimed is:

1. A mounting device for securing a clip having an apertured hollow base part to a writing instrument, comprising a hat shaped frame member having a top provided with an aperture aligned with the clip aperture and adapted to be fixed to the writing instrument so as to be disposed substantially on the outer surface thereof and having dimensions permitting it to be fully covered by said hollow base part of said clip, a cylindrical nut member having a flange at its inner end slidably mounted within the frame member, a headed screw passed inwardly through said aligned

apertures and screwed into said nut member, the head of said screw seating against and normally holding said base part of the clip against said frame member, and a resilient spring positioned within said frame member encompassing said nut member and retained in partially precompressed state between said flange of said nut member and said top of said frame member so as to resiliently retain the base part of said clip against said frame member to normally maintain the free end of said clip in pressure engagement with the writing instrument.

2. A clip mounting device as claimed in claim 1 in which said resilient spring is a bent plate spring.

3. A clip mounting device as claimed in claim 1 in which said resilient spring is a U-shaped wire spring bent transversely to its length.

4. A clip mounting device as claimed in claim 1 in which said resilient spring is a coil spring.

5. A mounting device for securing a clip having an apertured hollow base part to a writing instrument, comprising a resilient hat shaped spring member having a top provided with a screw threaded aperture aligned with the clip aperture and adapted to be secured to the writing instrument so as to be disposed substantially on the outer surface thereof and having dimensions permitting it to be fully covered by said hollow base part of said clip, said spring member having legs provided with flanges and being adapted to be secured to the writing instrument by insertion of the top thereof outwardly through an aperture provided in the writing instrument, said flanges normally being in abutting contact with the inner rim part around said aperture in said writing instrument, and a headed screw extending inwardly through said aligned aperture and being threadedly fastened at its inner end to the apertured top of said spring member, the head of said screw seating against and normally holding longitudinally extending edge portions of said base part of the clip against the writing instrument, said edge portions having portions thereof normally spaced outwardly away from the writing instrument and providing cam surfaces to facilitate outward pivotal movement of the free end of the clip away from normal abutting contact with the writing instrument against the bias of said spring member.

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