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2,403,083

DESK SET MOUNTING

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Fig. 1.

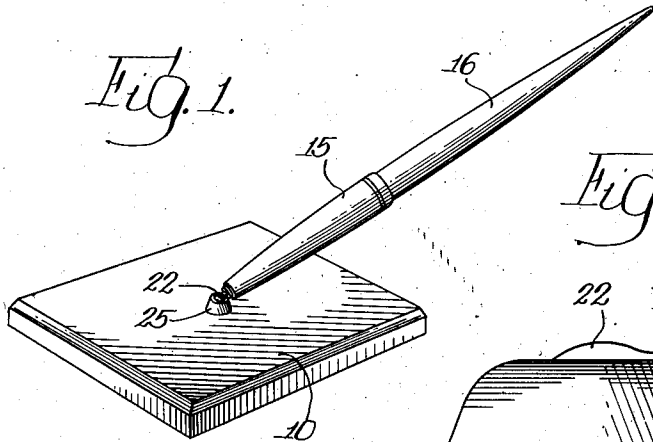


Fig. 2.

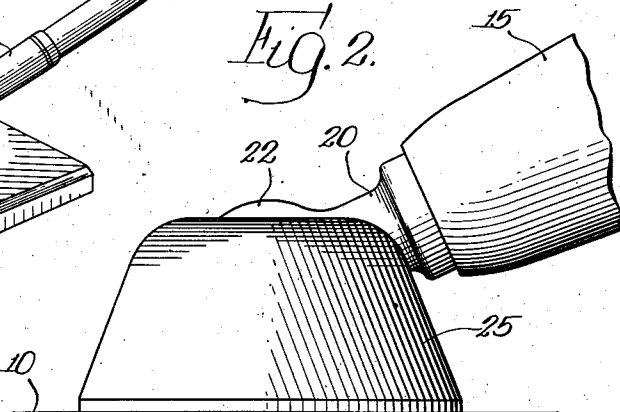


Fig. 4.

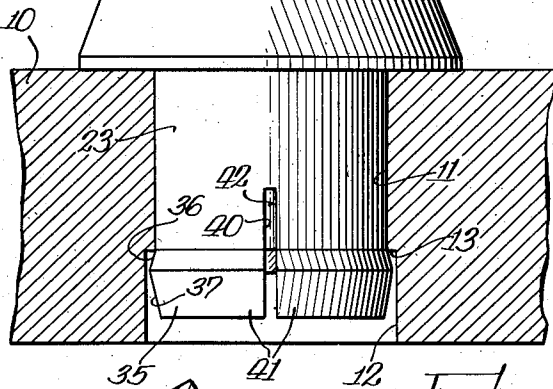
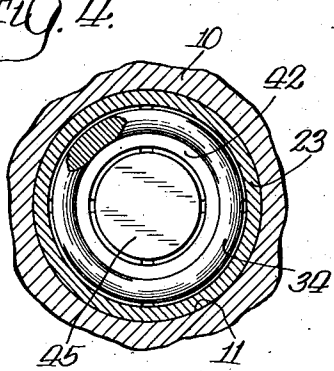


Fig. 3.

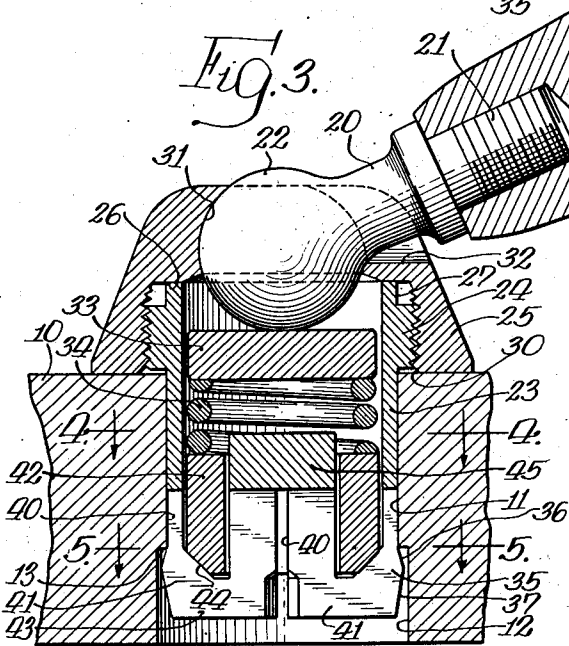
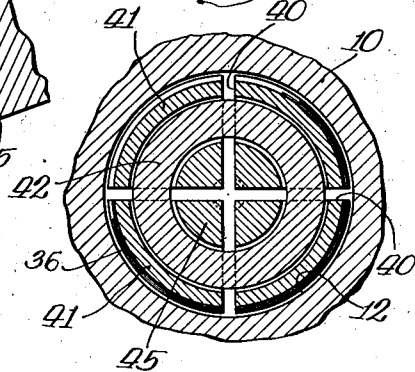


Fig. 5.



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DESK SET MOUNTING

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The invention relates generally to so-called desk sets for writing instruments, and more particularly to a mounting for securing a writing instrument receptacle to a base.

The general object of the invention is to provide a novel desk set mounting for removably securing a writing instrument receptacle to a base, most of the parts of which mounting are made of plastic material and are of relatively simple form so that they may be readily molded and machined.

Another object is to provide a novel desk set mounting for removably securing a writing instrument receptacle to a base, which mounting comprises a socket member made of plastic material and adapted to be frictionally retained in the base by an expansive force provided by a spring carried by the socket member.

A further object is to provide a novel desk set mounting for removably securing a writing instrument receptacle to a base, which mounting comprises a plastic socket member provided with a spring functioning to provide both a frictional force to hold the receptacle in any position to which it may be moved and an expansive force to frictionally retain the socket member in the base.

Still another object is to provide a novel desk set mounting for removably securing a writing instrument receptacle to a base, which mounting comprises a plastic socket member enclosing a spring for expanding the socket member to frictionally retain it in the base, the socket member being constructed to provide sufficient strength to withstand the forces exerted upon it without being cumbersome in section.

It is also an object to provide a novel desk set mounting for removably securing a writing instrument receptacle to a base, which mounting comprises a plastic socket member and a spring-operated means to expand the socket member to frictionally retain it in the base, the socket member being so constructed as to limit the expansion effected by said means.

A still further object is to provide a novel desk set mounting for securing a writing instrument receptacle to a base, which mounting is of inexpensive construction and firmly but removably holds the receptacle on the base.

Other objects and advantages will become apparent from the following description taken in connection with the accompanying drawing, in which:

Figure 1 is a perspective view, on a reduced

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scale, of a desk set provided with a mounting embodying the features of the invention;

Fig. 2 is a vertical sectional view, on an enlarged scale, through the base of the desk set and showing the desk set mounting in elevation;

Fig. 3 is a view similar to Fig. 2 but showing a vertical section through the mounting;

Fig. 4 is a fragmentary sectional view taken on the line 4—4 of Fig. 3; and

Fig. 5 is a fragmentary sectional view taken on the line 5—5 of Fig. 3.

Desk sets for supporting writing instruments, such as pencils or pens, in a convenient position on a desk commonly comprise a base to which is attached a receptacle to receive the writing instrument. The base is made in some decorative form of a suitable material, such as wood, plastic or marble, and is provided with one or more apertures to receive a mounting for supporting the writing instrument receptacle. The base may be provided with one or more such mountings, as desired, and such mountings are adapted to be removably secured to the base so that they may be interchanged as desired.

As shown herein, the base, indicated at 10, is provided with a single aperture to receive a mounting, the aperture preferably comprising a bore 11 extending vertically through the base and counterbored at its lower end, as at 12, to provide a downwardly facing shoulder 13. The receptacle for supporting the writing instrument preferably comprises a tubular member 15 of tapering external form conforming generally to the writing instrument, which is here indicated at 16; the front end of the writing instrument 16 being adapted to be inserted in the receptacle 15 to hold the writing instrument in place.

The receptacle 15 is so supported by the mounting that it may be moved into any desired angular relationship to the base and may be turned in any direction so that the writing instrument 16 may be supported in the most convenient position. To this end, the receptacle 15 has a swivel member 20 secured into its lower end as by a threaded portion 21 and is provided with a ball-shaped end 22 secured in the mounting for turning movement in all directions and frictionally retained therein so that the receptacle will remain in any position to which it may be adjusted.

The mounting, as mentioned above, is adapted to be secured in the aperture 11 in the base so that the receptacle 15 will be firmly supported but yet in such a manner that the mounting may be readily removed from the base. Preferably,

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the mounting is frictionally retained within the base in cooperation with the shoulder 13 formed by the counterbore 12, so that the mounting may be inserted into and removed from the base without the use of tools.

Mountings of the character herein disclosed have heretofore usually been made chiefly of metal parts, one of which is in the form of a socket member. Such a socket member has been formed so that the resilience of the metal provides a retaining force frictionally holding the socket within the bore 11. The present construction is made chiefly of plastic parts to eliminate the necessity, to a great extent, of using metal. As shown herein, the mounting comprises a socket member 23 made of plastic material and having an annular form. The socket member 23 is adapted to be inserted for a major portion of its length within the aperture 11 in the base, with the upper end of the socket member extending above the base to receive the ball-shaped end 22 of the swivel member 20 therein. To retain the ball-shaped end 22 within the socket, the latter is provided with an enlarged portion 24 located above the base and threaded to receive a cap 25. The cap 25 is internally threaded onto the enlarged portion 24 and is adapted to abut internally, as at 26, against the upper end of the socket member 23. The upper end of the socket member is preferably cut away, as at 27, to provide clearance so that the cap 25 will seat firmly against the end of the socket member. The threaded portion of the cap 25 preferably is of sufficient length to extend slightly below the enlarged portion 24 of the socket, as shown at 30, so that the cap will seat flatly against the base and provide a neat appearance.

The cap 25 serves to hold the ball-shaped end 22 of the swivel member within the socket member, and to this end the cap is provided with a spherically shaped central opening 31 snugly fitting on the ball-shaped end 22. Thus the ball-shaped end 22 may be rocked in any direction while being retained under the cap. In order that the receptacle 15 may be turned to an angle where it lies flat along the upper surface of the base, the cap is provided with a radial notch 32 extending from the spherical opening 31 to receive the shank portion of the swivel member 20 and permit the receptacle to be turned downwardly to lie along the base.

As mentioned above, the ball-shaped end 22 is frictionally held in place so that the receptacle will be retained in any position to which it may be adjusted. For this purpose, a washer or plug 33 is mounted within the socket member 23 and is forced against the ball-shaped end 22 by a coiled spring 34 within the socket member. The spring 34 thus forces the ball-shaped end 22 in frictional engagement with the cap 25 in the spherical opening thereof, and sufficient force is applied by the spring to hold the ball-shaped end against turning except when the receptacle is moved by the user.

The socket member 23 is frictionally held within the aperture 11 in the base against removal except when desired. To firmly hold the socket therein, it is provided at its lower end with a peripheral enlargement 35 formed by a pair of surfaces 36 and 37 angularly related to each other and to the periphery of the socket. The enlargement 35 is adapted to be positioned under the shoulder 13 in the aperture in the base to retain the socket firmly therein. However, the angularly related surfaces 36 and 37, when the socket

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member is moved endwise in the aperture, provide a camming action which compresses the lower end of the socket member, as hereinafter described, to permit insertion and withdrawal of the socket member.

The socket member in the present instance is made of plastic material which lacks the resilience and strength of metal, which has heretofore been the material of which such socket members have been made. The present socket member is so constructed that sufficient strength is provided without causing it to be cumbersome in size, and the resilience desired to hold the socket member within the aperture is provided by spring means. Preferably, the spring pressure utilized for this purpose is derived from the spring 34 which frictionally holds the ball-shaped end 22 in its adjusted position, the spring 34 bearing at one end against the washer or plug 33 and at its other end against a means tending to cause expansion of the lower end of the socket. To permit of such expansion of the socket, its lower end is radially slitted to provide a plurality of radially expandible segments. Preferably, two diametrical slots 40 are cut in the lower end of the socket member to provide four segments, indicated at 41. Thus, the segments 41, which are connected to each other through the main body of the socket member 23, are capable of relative flexing movement to contract and expand when being inserted or withdrawn from the aperture 11.

The plastic material of which the socket member 11 is made does not have sufficient resilience to firmly retain the mounting within the aperture 11, and to this end the supplemental force of the spring 34 is utilized. Since the force of the spring 34 is exerted longitudinally of the socket member, and the expansion of the segments 41 is radial, means in the form of a cam member 42 is provided to utilize the longitudinal force of the spring for this purpose. In the present construction, the socket is closed at its lower end by a bottom wall 43, and an angularly positioned internal cam surface 44 is provided which connects the side wall of the socket with the bottom wall 43. The cam member 42, at its lower end, is provided with a similar angular surface to coact with the surface 44. Thus, downward pressure of the spring 34 on the cam member 42 tends to cause the latter to force the segments 41 radially outward by the coaction of the cam surfaces. The cam member 42 has an external diameter slightly less than the internal diameter of the socket and has a slight clearance above the bottom wall 43 so that the segments are free to expand under the influence of the spring 34 and to contract if pressure decreases.

In order to strengthen the socket member, a central post 45 is integrally formed therein, the post 45 extending upwardly from the bottom wall 43 and being of substantially smaller diameter than the inner diameter of the socket member. Thus, an annular space is provided about the post 45 and the cam member 42 is made in the form of a ring and is located within said annular space. The post 45 is of sufficient length so that it extends above the slits 40, the latter, however, extending through the lower part of the post 45. The post 45 thus integrally connects the segments which, as mentioned above, are also integrally connected by the side wall of the socket, so that sufficient strength is provided for the segments to permit the use of a spring exerting a relatively large force. Thus, the socket mem-

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ber is firmly held within the aperture 11 and is of sufficient strength without being cumbersome or large in form.

Since the spring 34 exerts a relatively large force and the plastic material of which the socket member is formed yields rather easily, means is provided to restrict the expansion of the segments 41 to a point sufficient, when the socket member is inserted in the base, to hold it therein but to prevent excessive expansion when the socket is removed from the base. To this end, the post 45 is made sufficiently smaller in diameter than the internal diameter of ring 42 to permit the segmental lower portions of the post to flex the desired extent, but the expansion of such portions will be limited by contacting the ring 42. Thus the segments 41 will be limited in their outward movement. The same result may be attained by limiting the downward movement of the ring 42 by contact with the bottom wall 43.

In inserting the socket member in the aperture 11, the angular surface 37 causes the segments 41 to be compressed when the mounting is pressed downwardly into the aperture, and the spring 34 through the cam 42 is thereby compressed. As soon as the socket member has been pushed downwardly to the point where the cap 25 seats against the upper surface of the base, the peripheral enlargement 35 on the lower end of the socket member has reached the counterbored portion 12 of the aperture so that the expansive force exerted by the spring 34 through the cam member 42 causes the segments 41 to spring outwardly into engaging relation under the shoulder 13. This holds the mounting firmly on the base. For removal, the mounting is pulled upwardly and the peripheral cam surface 36 forces the segments 41 inwardly against the pressure of the spring 34. Thus, the peripheral enlargement 35 is compressed sufficiently to pass through the aperture 11.

From the foregoing description, it will be evident that I have provided a novel desk set mounting adapted to be removably secured in a base, with most of the parts of the mounting made of plastic material and of relatively simple form so that they may be readily molded and machined. The lack of resilience in the plastic material is compensated for by the use of the spring to frictionally retain the mounting in the base, the construction being simplified by utilization of the same spring both for such frictional retention of the device within the base and for frictionally holding the writing instrument receptacle in any position to which it may be adjusted.

I claim:

1. A desk set mounting adapted to be removably secured to a base comprising a writing instrument receptacle, a socket swingably receiving one end of said receptacle, a washer within said socket frictionally engaging said end of the receptacle, said socket being slitted in its lower end to provide a plurality of radially expandible segments for frictionally retaining the socket in an aperture in the base, a cam member within said socket for expanding said segments, and a spring interposed between said washer and said cam member to cause said washer to frictionally bear against said end of the receptacle and tending to cause said cam member to expand said segments.

2. A desk set mounting adapted to be removably secured to a base comprising a socket, a writing instrument receptacle secured for swiveling movement in the upper end of said socket, 75

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the lower end of said socket being radially expandible to frictionally retain the socket within an aperture in the base, and cam means including a single spring for exerting a force tending to hold said receptacle against swiveling movement and tending to expand said socket.

3. A desk set mounting adapted to be removably secured to a base comprising a socket, a writing instrument receptacle mounted for swiveling movement in said socket, the lower end of said socket being slitted to provide radially expandible segments, said segments having internal cam surfaces extending at an angle to axis of the socket, a cam member mounted within said socket for axial movement and having a cam surface coacting with the cam surfaces of said segments, and a spring tending to move said cam member axially in a direction to expand said segments.

4. A desk set mounting adapted to be removably secured to a base comprising a socket having an expandible lower end for frictionally securing said end in an aperture in the base, a writing instrument receptacle mounted for swiveling movement in the upper end of said socket, and spring-pressed cam means for expanding the lower end of said socket.

5. A desk set mounting adapted to be removably secured to a base comprising a socket made of plastic material and slitted in its lower end to provide a plurality of radially expandible segments for frictionally securing said end in an aperture in the base, a writing instrument receptacle mounted for swiveling movement in the upper end of said socket, and spring means for expanding said segments radially to provide sufficient resilience to firmly secure the socket in the base.

6. A desk set mounting adapted to be removably secured to a base comprising a socket made of plastic material and slitted in its lower end to provide a plurality of radially expandible segments for frictionally securing said end in an aperture in the base, a writing instrument receptacle mounted for swiveling movement in the upper end of said socket, said segments having internal cam surfaces, a plastic cam member mounted within said socket and bearing against said cam surfaces to expand said segments, and a spring within said socket bearing against said cam member and tending to move said cam member in a direction to expand said segments, said spring thereby providing sufficient resilience for said segments to firmly secure the socket in the base.

7. A desk set mounting adapted to be removably secured to a base comprising a writing instrument receptacle, an annular thin-walled socket member made of plastic material, means at the upper end of said socket member for securing said receptacle therein for swiveling movement, the lower end of said socket member being radially slitted to provide a plurality of radially expandible segments, a spring within said socket for frictionally holding said receptacle in adjusted position, and means to compensate for the lack of sufficient resilience in the plastic segments to firmly secure said socket in the base comprising a member within said socket utilizing the pressure of said spring for expanding the segments radially.

8. A desk set mounting adapted to be removably secured to a base comprising a writing instrument receptacle, a plastic socket comprising an annular side wall having an open upper end and a closed lower end, means for securing said

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receptacle in said upper end, a post integral with the closed lower end and extending upwardly within the socket, the closed lower end and portions of said side wall and said post being radially slitted to provide a plurality of radially expandible segments connected by said side wall and the upper end of said post, an annular expanding member within said socket and surrounding said post, and a spring bearing against said member and tending to cause expansion of said segments, said post by its integral connection with said segments providing reinforcement therefor to prevent excessive expansion of said segments by said spring.

9. A desk set mounting adapted to be removably secured to a base comprising a writing instrument receptacle, an annular socket made of plastic material, said socket comprising a side wall having an open upper end and a bottom wall closing the lower end, means for securing said receptacle in said open upper end, said socket having an internal cam surface connecting the side wall and the bottom wall, and the latter having a centrally positioned post integral therewith and extending axially within the socket, said socket being diametrically slitted at its lower end to a height less than the height of said post to provide a plurality of radially expandible segments integrally connected by said side wall and the upper end of said post, an annular member surrounding said post and having a cam surface at its lower end coacting with said internal cam surface to expand said segments radially, and a spring within said socket and bearing against the upper end of said annular member.

10. A desk set mounting adapted to be removably secured in an aperture in a base with the aperture enlarged in its lower portion to provide a downwardly facing shoulder, said mounting comprising a writing instrument receptacle, an annular socket made of plastic material, means to retain said receptacle in the upper end of said socket, said socket being slitted in its lower end to provide a plurality of radially expandible segments, said socket having adjacent its lower end a peripheral enlargement formed by a pair of surfaces angularly related to each other and to the periphery of the socket, said enlargement being adapted to engage under said shoulder to

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hold the socket in the base with said pair of surfaces serving to cam the segments inwardly in inserting the socket into the base and withdrawing it therefrom, and spring-pressed means positioned within said socket tending to cause radial expansion of said segments.

11. A desk set mounting adapted to be removably secured in a base comprising an annular plastic socket adapted to be inserted in an aperture in said base, spring-pressed means for yieldingly holding the lower end of said socket in said aperture, a writing instrument receptacle having a ball-shaped end, said socket having an enlarged threaded portion at its upper end, and a cap for securing said ball-shaped end in the upper end of said socket and having internal threads engaging the threads on said enlarged portion, said cap when secured to said socket abutting the end of said socket and extending slightly below said enlarged portion to set firmly on said base.

12. A desk set mounting adapted to be removably secured to a base comprising a writing instrument receptacle, a plastic socket for said receptacle comprising an annular side wall, a bottom wall, and a centrally located post providing within said socket an annular space, said bottom wall and the lower portions of said side wall and said post being radially slitted to provide a plurality of radially expandible segments, an annular cam member mounted in said annular space and having a camming engagement with said side wall to effect expansion of said segments, the segmental portions of said post being adapted to expand into engagement with said cam member to limit the expansive movement of said segments.

13. A desk set mounting adapted to be removably secured to a base comprising a plastic socket slitted in its lower end to provide a plurality of radially expandible segments for frictionally securing said end in an aperture in the base, a writing instrument receptacle mounted for swiveling movement in said socket, a longitudinally movable spring-operated cam member for expanding said segments radially, and means to limit the longitudinal movement of said cam member to restrict the expansion of said segments.

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