July 24, 1951 E. B. HARMON 2,561,923

FOUNTAIN PEN DESK SET

Filed Nov. 5, 1945

Fig. 1

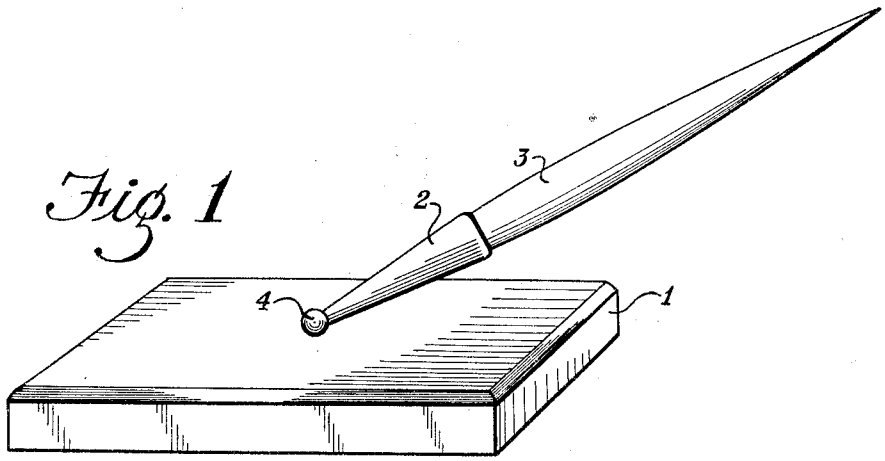
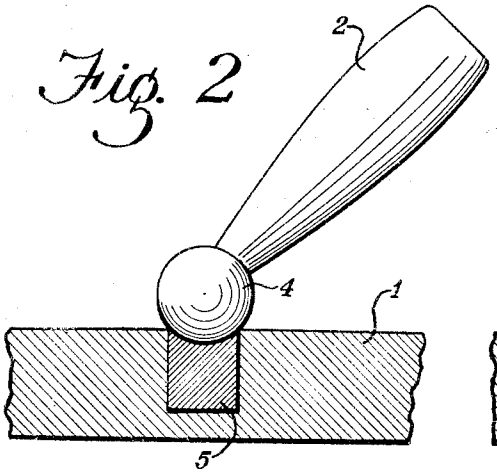


Fig. 2



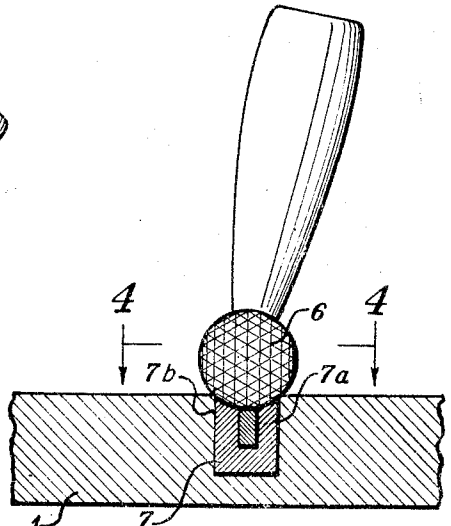


Fig. 3

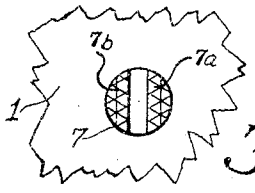


Fig. 4

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FOUNTAIN PEN DESK SET

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2 Claims. (Cl. 120—108)

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This invention relates to pen desk sets of the type wherein a pen-receiving receptacle is pivotally mounted on a base through the medium of a ball-and-socket joint which enables the receptacle to be adjusted angularly to any desired position with respect to the base.

Heretofore, the ball-and-socket joints employed for the above purpose have comprised, in one form or another, spring-actuated braking means which were either quite complicated, and therefore somewhat costly to manufacture, or, alternatively, were incapable of continuing to function properly after some wear of the inter-engaging ball-and-socket surfaces had taken place.

My principal object is to provide for use in desk sets a ball-and-socket joint which is wholly adequate for that purpose and yet is devoid of spring-actuated braking means.

Another object is to provide for use in desk sets a dependable and durable ball-and-socket joint which can be manufactured economically and at the same time is well adapted to the accomplishment of artistic desk set designs.

A further object is to provide a desk set of the ball-and-socket type wherein the pen receptacle and ball can easily be detached from the base.

My invention is characterized in that the ball or other swivel-like member which serves as a pivot for the pen receptacle and is integral with or fixedly attached to the pen receptacle is held seated in a socket-like cavity in the base by magnetic attraction induced by a permanent magnet—which magnetic attraction produces enough braking pressure between the ball and its seat to counteract the leverage of the pen and pen receptacle, thereby preventing rotation of the ball, except when it is intentionally rotated as a result of manually shifting the position of the pen receptacle. This makes it unnecessary for the socket to extend beyond the equator of the ball and renders it possible easily to detach the pen receptacle and ball from the base.

An additional feature of my invention is, that by making the ball fairly large and the socket relatively shallow and of considerably less diameter than the ball, it is possible to create the illusion that the ball is standing on a flat surface—which effect contributes materially to the unique appearance of the set.

It is within the purview of my invention to provide inter-engaging ball-and-socket surfaces which are smooth, but usually I find it preferable to roughen said surfaces whereby to increase the coefficient of friction. This can be done by etching or knurling or by applying a suitable crystalline substance; or the ball-and-socket surfaces may be faceted as hereinafter described. Whether or not the surfaces need be roughened depends in part upon the weight and length of the pen, in part upon the size of the ball-and-socket, and in part upon the magnetic force available to oppose rotation of the ball.

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In the drawing which accompanies this specification.

Fig. 1 is a perspective view of a desk set according to one of the preferred embodiments of the invention;

Fig. 2 is an enlarged sectional view showing details of the magnetic socket construction;

Fig. 3 is an enlarged sectional view illustrating a modified form of the invention; and

Fig. 4 is a fragmentary view taken along line 4—4 of Fig. 3, with the pen-receiving receptacle removed.

The assembly of Fig. 1 comprises a rectangular base 1 of any suitable material such, for example, as onyx, marble or one of the solid plastics, and on which is detachably mounted a pen receptacle 2 designed to receive a pen 3. Fixedly attached to the lower end of receptacle 2 is a ball-like member 4 of para-magnetic material such as iron, steel or nickel.

As depicted in Fig. 2, ball 4 is seated in a spherical recess or socket formed in the upper end of a bar magnet 5 which is permanently magnetized so that its upper and lower ends constitute opposite magnetic poles. Magnet 5 is preferably made of an alloy such as "Alnico" having high magnetic retentivity, but it can, if desired, be made of any permanently magnetizable steel.

If the leverage exerted by the pen and pen receptacle and tending to rotate ball 4 is not too great, or if the ball and magnet are made large enough, it may be practicable to employ a ball having a smooth surface; and likewise the ball contacting surface of the magnet may be smooth. By increasing the diameter of magnet 5 and thus increasing the area of contact between the magnet and the ball, it may still be feasible to employ smooth surfaces even though the pen is heavy enough otherwise to overcome the anti-rotational friction induced by the magnetic pull. But I have found that in many instances it is preferable to roughen the surface of the ball and the contacting socket surface either by etching, knurling or applying thereto some suitable coating as, for example, a thin layer of fine silicon carbide or other abrasive powder.

In Figs. 3 and 4 there is depicted a preferred construction wherein the surface of ball 6 is

faceted in the manner of a cut jewel while the complementary surface of the socket is similarly faceted. Instead of being a true sphere, ball 6 is what may be termed a spheroidal polyhedron. The magnet 7 may be a straight bar magnet, as in Fig. 2, but I prefer to make it of horseshoe form, as shown, the two tips 7*a* and 7*b* constituting north and south poles, respectively. By so doing, the magnetic circuit is completed by ball 6, and said path includes no air gap. Thus the full available force of the magnet is brought to bear on the ball and there is no stray flux which might otherwise adversely affect adjacent objects.

A characteristic of the faceted ball-and-socket embodiment of Fig. 3 is that the pen receptacle may be moved into and tends to remain in any selected one of a number of definite predetermined angular positions due to the proclivity of the ball to come to rest in the socket in such manner that the ball-and-socket facets are in fully nested engagement.

In either example, if the socket is made of small enough diameter relatively to that of the ball, the latter will appear, upon casual observation, to be standing on the flat top surface of the base—the effect being artistically unique and agreeable.

Since the pen receptacle and ball are held to the socket only by magnetic attraction, they can quite easily be detached from the socket. This is an advantage where one may wish to put the pen away without leaving the pen nib exposed, and especially where the base is too cumbersome for convenient removal.

I claim:

1. A mounting for a pen desk set of the type wherein a pen-receiving receptacle formed with an elongated socket open at one end and closed at the other end for receiving and enclosing the writing end of a pen is magnetically supported on a base, which mounting comprises a ball-like element of paramagnetic material rigidly secured to the closed end of the receptacle and having a faceted exposed surface and a permanent magnet secured in said base and having an exposed pole face in the form of a single socket-like element shaped and faceted complementally to the shape of said ball-like element for face-to-face contact and minimum magnetic flux path between facets of said ball-like element and the facets of said pole face when said ball is seated on said pole face, whereby said ball-like element and the receptacle supported thereby are magnetically held in any one of a number of angular positions to which adjusted on the base.

2. A mounting for a pen desk set of the type wherein a pen-receiving receptacle formed with an elongated socket open at one end and closed at the other end for receiving and enclosing the writing end of a pen is magnetically supported on a base, which mounting comprises a ball-like element of paramagnetic material rigidly secured to the closed end of the receptacle and having a faceted exposed surface and a permanent magnet structure secured in the base and including a pair of spaced pole elements of opposite polarity and having exposed end faces together forming a single socket-like element shaped and faceted complementally to the shape of said ball-like element for face-to-face contact and minimum magnetic flux path between facets of said ball-like element and the facets of said pole faces when said ball is seated on said pole faces, whereby said ball-like element and the receptacle supported thereby are magnetically held in any one of a number of angular positions to which adjusted on the base.

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