A novel pen holder and integral pad support is provided comprising a socket mounted in a base member to which a spring clip is loosely attached for receiving a small pad of paper. A ball having a tubular stem integral therewith for receiving a pen or the like is snapped into the socket. A novel mold is disclosed for forming the ball and the tubular extension thereof.

The aforementioned abstract is neither intended to define the invention of the application, which, of course, is measured by the claims, nor is it intended to be limiting as to the scope of the invention in any way.

7 Claims, 12 Drawing Figures
BALL, SOCKET AND CLIP DEVICE

BACKGROUND OF THE INVENTION

This invention relates generally to a novel pen holder and more particular to an improved ball and socket pen holder having integral paper retaining means as well as mold means for manufacturing one of the components thereof.

SUMMARY OF THE INVENTION

In its broadest aspect the present invention provides a novel, low cost ball and socket pen holder having integral clip means for releasably retaining a pad of paper. Several of the components comprising the present invention may be individually molded and either adhesively secured to each other or snapped together as the case may be. The socket member includes a circumferential lip that rotatably retains a ball member slightly above the centerline thereof.

It is conventional to mold plastic ball members by forming a pair of mating shells. This construction has been employed as a solid ball is difficult to mold as the non-uniform cooling of a large mass produces sink holes. The ball of this invention consists of a cylindrical tube with thin radially extending chord-like fins. The fins cool uniformly and do not shrink.

A novel mold member for fabricating the ball comprises a two part female mold having, in both halves thereof, a plurality of radially extending ribs defining radially extending recesses therebetween. A removable plug having a tubular bottom end and a plurality of radially oriented, axially extending slots at the bottom end is placed in the assembled mold halves such that the radially extending ribs of the mold halves are spaced from a peripheral surface of the plug. A thermoplastic material is then inserted into the mold and, after proper curing that depends upon the characteristics of the thermoplastic material, fills the spaces between the radially extending ribs and the radially oriented slots in the plug member. After the thermoplastic material is secured, the plug member, which may be coated before insertion with a mold release agent, is removed and the mold halves are separated. The resulting article is a ball shaped member having tubular extension and a plurality of ribs extending radially therefrom.

Accordingly it is an object of the present invention to provide an improved, low cost molded article having a member rotatably contained therein.

Another object of the present invention is to provide an improved molded article, as described above, that is adapted to receive a pen or the like.

Still another object of the present invention is to provide an improved molded article that may readily be assembled with a minimum of skill and special tools.

A further object of the present invention is to provide an improved, molded article as described above, having integral means for retaining a pad of papers.

A further object of the present invention is to provide an improved mold for fabricating one of the components of the article described hereinabove.

These and other objects, features and advantages of the invention will, in part, be pointed out with particularity, and will, in part, become obvious from the following more detailed description of the invention, taken in conjunction with the accompanying drawings, which forms an integral part thereof.

BRIEF DESCRIPTION OF THE DRAWING

In the various figures of the drawing, like reference characters designate like parts. In the drawing:

FIG. 1 is a sectional elevational view illustrating the present invention;

FIG. 2 is a plan view of one half of the mold comprising the present invention shown in FIG. 1 and taken along line 2—2 of FIG. 1;

FIG. 3 is a plan view of the finished article comprising the present invention;

FIG. 4 is a longitudinal sectional view taken along line 4—4 of FIG. 3;

FIG. 5 is a bottom plan view of the molded article shown in FIG. 3;

FIG. 6 is a plan view of the socket member comprising the present invention and which is shown in FIG. 3;

FIG. 6A is a fragmentary sectional view, on an enlarged scale, taken along line 6a—6a of FIG. 6;

FIG. 7 is an elevational view of the socket member shown in FIG. 6;

FIG. 8 is a fragmentary sectional elevational view schematically illustrating the method of assembling two of the components comprising the present invention;

FIG. 9 is an exploded view, illustrating the components comprising this invention;

FIG. 10 is a bottom plan view of the alternative embodiment of the molded article; and

FIG. 11 is a longitudinal view of the device shown in FIG. 10 with a paper pad clipped thereby.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring now to the drawing the novel mold means for producing the article comprising the present invention is shown in FIGS. 1 and 2. The mold means comprises upper and lower mold halves 12 and 14. Each mold half 12 and 14 is provided with opposed semicircular recesses 16 and 18, respectively. A plurality of radially extending ribs 20 and 22 are formed in the upper and lower recesses 16 and 18, respectively. It will be noted, for example in FIG. 2, that the radially extending ribs 22 (as well as the ribs 20 in FIG. 1) terminate short of the center of the circle defined by the radially outermost portion of the ribs 22.

Before the molding process is begun, a plug member 24 that may be coated with a mold release agent having a plurality of radially oriented, longitudinal or axially slots 26 extending from the lower end thereof is inserted in a counterbored hole 28 formed in the upper mold half 12. An opening 30 is provided in the upper mold half 12 for the insertion of the thermoplastic material in the direction of the arrow A shown in FIG. 1. The product resulting from the molding process and molding apparatus discussed hereinabove will be described in detail subsequently.

Reference may now be had to FIGS. 3, 4 and 5 for a description of the article that may be made utilizing the molding process and apparatus described hereinabove.

For purposes of this description, the ball member that is used in the article shown in FIGS. 3, 4 and 5 has been purposely omitted from these figures for purposes of clarity and will be described in connection with FIG. 9. The article shown in FIGS. 3, 4 and 5 is a ball and
socket pen holder that also includes means for retaining a pad of papers. The article 40 is comprised of a molded plastic base member 42 comprising a substantially circular portion 44 and a substantially rectangular portion 46 that are interconnected along a common edge 48. The top surface of the rectangular portion 46 may be used for an advertising message while, at the bottom surface thereof may have a double coated adhesive member secured thereto so that the article 40 may be mounted on a flat surface. The partially circular portion 44 is cup-shaped and includes an arcuate sidewall 50 and an integral base wall 52. A flange 54, extending peripherally about the sidewall 50, is contiguous with the rectangular portion 46. A plurality of L-shaped slots 56 (4 in number) are formed in the peripheral sidewall 50 and the base wall 52 at the junction thereof. The slots 56, as shown in FIG. 8 consist of a first leg 58 and a second leg 60. A cup-shaped molded member 62 comprised of a peripheral sidewall 64 and a base wall 66 is integrally attached to the interior surface of the base wall 52 in order to define an annular channel 68. It should be noted at this time that the cup-shaped member 62 may be formed integrally during the molding of the body member 40 while still retaining the annular channel 68.

For purposes to be described hereinafter a bowed leaf spring 70 is loosely placed in the cup-shaped member 62 with the arcuate portion of the spring member 70 extending outwardly. It is not necessary to secure the spring member to the cup-shaped member 63 since the side wall 64 thereof accurately locates the spring 70. The rectangular portion 46 is further provided with a downwardly extending wall 72 and therein there is formed a slot 74 for receiving one end of a resilient spring 76. As shown best in FIG. 4 the spring 76 is comprised of a first leg 78 that is loosely received in slot 74, a second leg 80 that is positioned at an angle to the plane of the rectangular portion 46 and a third leg 82 that is contiguous with the leg 80. The junction of the legs 80 and 82 and a portion of the leg 82 bear against the underside 46a of the flange 46. A pad of paper P may be inserted and be removably retained between the spring leg 82 and the underside surface 46a of the rectangular portion 46 as shown in FIG. 9.

A tubular socket member, generally designated by the reference character 90 is shown in FIGS. 6, 6a and 7. The socket member 90 is comprised of a sidewall 92 having a radially inward circumferentially extending lip formed integrally therewith at one end. The outer surface of the socket 90, at the end thereof opposite the lip 94, is provided with four equally spaced projections or lugs 96 that are adapted to be received in the grooves 56 formed in the article 40. When the socket member 90 is assembled the lugs 96 follow the path indicated by the arrows B in FIG. 8 in order to releasably assemble the two components 40 and 90. A cut out 98 is formed in the wall 92 of the socket 90 in order to provide a measure of resiliency thereto for purposes to be described hereinafter.

Referring to FIG. 9, the construction of the ball member comprising the present invention as well as the assembly thereof will now be described. The ball member 100 is comprised of a spherical section 102 and a tubular section 104 extending from one end thereof. The spherical section 102 includes a plurality of ribs 106 extending radially outward of the tubular member 104, (which is comprised of an annular wall 108 and a base wall 110 that is recessed within the spherical section.) With the cup-shaped member 62, the spring 70 and the socket 92 assembled to the body member 40 as described hereinabove, all that is necessary to complete the assembly is to force the diametrical plane of the spherical section 102 past the lip 94 of the socket 92. The diameter of the lip 94 is somewhat smaller than the maximum diameter of the spherical section 102 but has a measure of inherent resiliency so that once passed the lip 94, the socket 100 will not be readily removable unless pulled outwardly with come force. Necessarily there must be some axial play provided for assembly of the ball member 100 and to take up this play, the spring 70 provides an axial force bearing against the bottom surface 112 of the ball member 100.

In FIGS. 10 and 11 an alternative embodiment is disclosed. Extending from rim 54 integrally formed bosses 114 which are provided with slots 115. Right angle legs 116 of spring molding means 120 are inserted in slots 115. A pad of paper P inserted into holding means 120 is secured by leg portion 118 which is at an angle to intermediate portion 117 of means 120. Integrally formed step means 119 permits the seating of the pad in a firm position.

The device may be readily attached to a supporting surface by means of adhesive means 110. Adhesive means 110 includes a peel off protective membrane 111 which is removed to expose the actual adhesive layer 112.

From the foregoing it will be appreciated that a low cost article that is made up almost entirely of molded plastic members except for the two springs has been provided. The components described hereinabove may be assembled with a minimum of skills and in the absence of complex tools. The pen holding ball is freely rotatable in its socket so that it may be positioned at any convenient angle.

What I claim as new and desire to secure by Letters Patent is:

1. A ball and socket holder for pens or the like, said holder comprising:
   a. a cup-shaped member defined by a base wall on which said holder is adapted to rest, a side wall extending upwardly from said base wall and a flange extending about and radially outward from said side wall at the end thereof opposite said base wall and substantially parallel to said base wall;
   b. a ring integral with said base wall and positioned inwardly of said side wall for defining an annular space therebetween;
   c. an elongated, tubular socket mounted in said annular space, said socket having an inwardly directed lip at the end thereof remote from said annular space;
   d. a spherical member rotatably journaled in said socket, said spherical member having a diameter slightly larger than the dimension across said lip so as to be retained thereby, said spherical member having a bore at least partially therethrough;
   e. biasing means positioned in said ring for urging said spherical member into abutment with said lip; and
   f. a spring coupled to said base and extending substantially parallel and into engagement with a portion of said flange for retaining a pad of paper therebetween.
2. The holder in accordance with claim 1 wherein there is further included bayonet means for removably mounting said socket in said annular space.

3. The holder in accordance with claim 2 wherein said bayonet means comprises at least one lug formed integrally with said socket means and at least one L-shaped opening in said base for receiving said lug.

4. The holder in accordance with claim 1 wherein said spherical member is defined by a plurality of angularly spaced apart ribs radiating outwardly from said tubular extension at one end thereof, the outermost ends of said ribs defining a spherical envelope.

5. The holder in accordance with claim 1 wherein said biasing means is a bowed leaf spring.

6. The holder in accordance with claim 1 wherein said spherical member includes a tubular extension coaxial with the bore therein.

7. The holder in accordance with claim 1 wherein said spring is generally L-shaped with one leg thereof being retained at said base, at least a portion of said other leg of said spring bearing against the bottom surface of said flange for retaining a pad of paper therebetween.

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