The present invention provides an ornament with a rotating display that has an outer frame assembly that includes two integrally formed pivot supports and a display assembly disposed within the frame assembly having two opposing pivot members integrally formed on the display assembly that pivotably engage the pivot supports. The integrally formed pivot supports include a central ring and two connecting arms, each connected to the central ring at two points on the diameter of the ring on one end and the frame member on the other. The central ring and connecting arms are formed integrally with the frame member by stamping or photochemically blanking the shape and rotating the ring into its final position by twisting the connecting arms. By forming the pivot supports in this manner, the opening in the central ring is maintained substantially in alignment with the plane of the frame member. This allows the rotational axis of the display assembly to remain in alignment with the plane of the frame member when the display assembly is mounted in the pivot supports.
SPINNER ORNAMENT ASSEMBLY

CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] This application is related to and claims priority from earlier filed provisional patent application No. 60/325,674, filed Sep. 28, 2001.

BACKGROUND OF THE INVENTION

[0002] The present invention relates to an ornament that includes a pivotable display assembly. More specifically, this invention relates to a display ornament and a method of manufacturing an ornament that provides an improved completed appearance while also providing a simplified manufacturing process and requiring less components for assembly.

[0003] In the prior art, there have been several spinning ornaments that include a rotatable display mounted within an outer support frame. There are several types of assemblies that are used for mounting the rotatable display into the support frame. The first type of ornament maintains the pivotable display in the same plane as the frame but requires the use of an additional cylindrical pivot lug to engage the frame and pivot member on the pivotable display. The drawback with this type of ornament is the addition of several small parts that must be handled and assembled. For example, U.S. Pat. No. 4,970,878 discloses a piece of jewelry that includes a rotating assembly having a planar outer frame and an inner carrier structure received within the outer frame. The inner carrier is mounted using pins that are mounted to the carrier frame. The pins are received into holes that are provided in the outer frame thereby allowing the inner carrier to rotate about an axis defined by the pins for displaying opposing surfaces of coins, gems or other ornamental objects received within the carrier frame. Because the carrier frame includes pins that must be received into holes provided in the rigidly cast outer frame, however, this configuration makes assembly difficult and time consuming.

[0004] U.S. Pat. No. 3,217,514 also discloses an article of jewelry that includes a rotatable face. This device also includes an outer frame and a pivotable display. The frame has recesses at the top and bottom that receive springs and pivot members mounted to the rotatable display. However, this device discloses the need for a spring member in conjunction with the frame to retain the pivotable display, further adding to the complexity of the device and difficulty of assembly. U.S. Pat. No. 5,950,456 discloses another pin style device in conjunction with an article of jewelry having two tabs on a carrier with a frame having pivot holes therein. A gemstone is mounted in a yoke having two wires extending theretofrom is mounted between the tabs of the carrier with the wires being received in the pivot holes. The wires are then attached to counter weights to keep the gemstone facing upwardly relative to gravity.

[0005] U.S. Pat. No. 6,209,247 discloses another pin mounted ornament with a rotatable display that has a frame, a pivotable display and two pivot lugs that engage pivot members on both the frame and the display to retain the display within the display yet allow it to rotate. A key element to this patent is the use of the pivot lugs as part of the overall assembly. However, all of these assemblies require some form of small lug or mounting components other than the frame and display that make assembly difficult by requiring the handling of two small parts. Further, they all include rigid frames making it difficult to install the rotating frame into the carrier.

[0006] Another type of assembly used for creating a planar spinning type ornament provides a rotating display with a bore wherein an axle is installed which is then received within the outer frame. U.S. Pat. No. 2,515,053 discloses a rotatable display mounted within a stationary outer frame. This disclosure provides for a pin running from the top of the frame to the bottom of the frame that is mounted in stationary relationship to the frame. The display is formed in two halves and is placed over the pin and allowed to rotate about the pin. U.S. Pat. No. 6,167,726 discloses a ring having a pivotable gemstone. The gemstone has a central bore through which is inserted an axle that is mounted to the frame of the ring. The gemstone is allowed to freely rotate around the axle. In both of these cases as was described above, the ends of the axle must be received into rigid inner frame and the central display must have a bore in which to receive the axle. These devices also require additional assembly components such as axles thereby increasing the complexity of the assembly.

[0007] Another type of assembly utilizes an outer frame with a pivot support that is integrally formed with the frame during the stamping process. The pivot support consists of a circular ring at the end of an arm that is bent into a position perpendicular to the frame so the opening in the ring can receive the pivot member on the display piece. Traditionally, however, this has created an ornament where the pivotable display is in a plane that is displaced from the plane of the frame.

[0008] There is therefore a need for an assembly for a spinning type ornament that is simple to manufacture and assemble. Further, there is a need for a spinning type ornament that can be easily assembled without additional parts where the axis of the rotatable assembly is maintained in the plane of the outer frame.

BRIEF SUMMARY OF THE INVENTION

[0009] In this regard, the present invention is directed to an ornament with a rotating display that has an outer frame assembly that includes two integrally formed pivot supports and a display assembly disposed within the frame assembly having two opposing pivot members integrally formed on the display assembly that pivotally engage the pivot supports. In this manner, the display assembly is installed into the frame assembly and retained in a pivotable manner around an axis that is in the plane of the frame assembly. This is an improvement over the prior art where the rotating display has an axis of rotation in the plane of the frame without the requirement of additional components thereby streamlining manufacture and assembly of the ornament.

[0010] The principal improvement in the present invention is the integrally formed pivot supports that include a central ring and two connecting arms, each connected to the central ring at two points on the diameter of the ring on one end and the frame member on the other. The central ring is disposed in a plane that is perpendicular to the plane of the frame, presenting the opening of the ring to receive the pivot members that are provided on the rotating display. The
central ring and connecting arms are formed integrally with the frame member by stamping the shape and rotating the ring into its final position by twisting the connecting arms. The display assembly is formed to include integral pivot members on opposing edges of the display assembly defining an axis of rotation that engage the opening in the central ring of the pivot supports. By forming the pivot supports in this manner, the opening in the central ring is maintained substantially in alignment with the plane of the frame member. This allows the rotational axis of the display assembly to remain in alignment with the plane of the frame member when the display assembly is mounted in the pivot supports.

[0011] The present invention is also directed to a method of manufacturing and assembling an ornament including providing a frame assembly that includes integrally stamped pivot supports comprising a central ring and connecting arms. Rotating the central rings into a plane that is perpendicular to the frame assembly by twisting the connecting arms ¼ turn. Providing a display assembly having integral pivot members formed thereon at opposite points defining a rotational axis, inserting the display assembly into the frame assembly in such a manner as the pivot members engage the openings in the central rings thereby retaining the rotational axis of the display assembly in substantial alignment with the plane of the frame assembly.

[0012] Accordingly, one of the objects of the present invention is the provision of an ornament having a rotatable display wherein the display rotates around an axis in the plane of the outer frame. Another object of the present invention is the provision of an ornament having a rotatable display that is mounted into an outer frame that includes integrally formed pivot supports that retain the pivot axis of the display in the plane of the outer frame. A further object of the present invention is the provision of a method of manufacturing an ornament with a rotatable display that does not require additional components other than the frame and display during the assembly process thereby reducing the cost and complexity involved in assembling the ornament.

[0013] Other objects, features and advantages of the invention shall become apparent as the description thereof proceeds when considered in connection with the accompanying illustrative drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

[0014] In the drawings which illustrate the best mode presently contemplated for carrying out the present invention:

[0015] FIG. 1 is a perspective view of the rotatable display ornament of the present invention;

[0016] FIG. 2 is a front view thereof;

[0017] FIG. 3 is an enlarged front view of the pivot support member of the present invention after stamping and prior to rotating;

[0018] FIG. 4 is an enlarged front view of the pivot support member of the present invention after rotating;

[0019] FIG. 5 is an enlarged perspective view of the pivot support member with the rotatable display installed.

DETAILED DESCRIPTION OF THE INVENTION

[0020] Referring now to the drawings, the ornament with a rotatable display of the present invention is illustrated and generally indicated at 10 in FIGS. 1-5. The ornament 10 includes an outer frame assembly 12 and a display assembly 14 pivotally mounted therein. The present invention 10 is directed to a new assembly and method of manufacture where unique pivot members are integrally formed with the frame assembly 12 to receive the display assembly 14 and rotatably retain it in a position where its axis of rotation is within the plane of the frame assembly 12. The present invention 10 therefore provides a novel and economical rotatable ornament 10 having an improved appearance and function that has not been previously available in the prior art.

[0021] Turning to FIGS. 1 and 2, it can be seen that the rotatable ornament 10 includes an outer frame assembly 12. The frame assembly 12 is formed from a flat planar piece of metal. The preferred methods for forming the desired shape of the frame assembly 12 include stamping or photochemical blanking. The flat metal blank is placed into a press that has a cutting die installed therein that cuts the metal blank into the desired shape or is formed through a photochemical etching process, thereby forming the desired voids and creating ornamental embossing. An opening 16 is provided on the interior of the frame assembly 12 where the display 14 described below is installed. After the blank is formed, the frame assembly 12 can be finished in a variety of manners including plating or painting to create an appealing display or to provide the desired indicia. At the top of the frame 12, an eyelet 18 or a similar structure is provided through which an attachment device 20 such as a hook or ribbon can be attached to hang the ornament 10 in the desired display location.

[0022] Installed within the opening 16 in the outer frame assembly 12 is a rotatable display 14. The display 14 can take any form such as a picture frame, a three-dimensional object or as shown in the preferred embodiment a flat stamped panel having indicia or artwork displayed thereon. Although the display 14 is shown here as circular in shape, this is not meant to be limiting, as the display 14 could be shaped in any fashion that would allow it to rotate freely within the opening 16 provided in the frame assembly 12. For example, the display 14 may be shaped like a bird or a picture frame capable of receiving a picture. The display 14 has pivot elements 22 that are integrally formed with the display 14. The pivot elements 22 are preferably located opposite one another along a central portion of the display 14. The pivot elements 22 are simply pins that are stamped with the display 14 and protrude from the edge thereof. The pivot elements 22 are the supports that are used to retain the display 14 within the frame 12 and the points around which the display 14 rotates. A line “A” extending between the pivot elements 22 defines an axis of rotation around which the display 14 turns.

[0023] Turning now to FIG. 3, a close up view of the pivot member structure is shown immediately after stamping of the outer frame assembly 12. As stated above, the pivot members are formed integrally with the frame assembly 12 at the time the frame assembly 12 is stamped. Initially as shown in FIG. 3, the pivot members are formed flat, lying
in the plane of the frame assembly 12. The pivot members include a central pivot support 24. Here the pivot support 24 is shown as a circular disk having a hole 26 in the center thereof, however, any variety of shapes and sizes may be used and remain within the scope of the invention. The central pivot support 24 is connected to the frame member 12 with to connecting arms 28. The connecting arms 28 are attached at one end to two opposing points on the diameter of the central pivot support 24 and are attached on the other ends to the frame assembly 12. While two connecting arms 28 are shown here, it can be appreciated that the present invention could also be arrived at by eliminating one of the arms 28. The hole 26 in the center of the pivot support 24 is configured to receive the pivot pins 22 on the display assembly 14 while allowing it to rotate freely.

Turning to FIGS. 5 and 6, an enlarged view of the pivot assembly is shown after the central pivot support 24 has been rotated 90°. The pivot support 24 is rotated thereby twisting the connecting arms 28. By rotating the pivot support 24 in this manner, the plane of the pivot support 24 becomes perpendicular to the plane of the frame assembly 12. It is, however, a particularly important feature of the present invention that by rotating the pivot support 24 in this manner, the hole 26 in the pivot support 24 remains aligned in the plane of the frame assembly 12. A second line drawn between the two holes 26 in the pivot supports 24 defines an axis of rotation where the display assembly 14 is received that lies within the plane of the frame assembly 12 and corresponds to the axis of rotation “A” of the display 14. This defines an improvement over the prior art where traditionally the pivot support is formed so that the axis of rotation is slightly behind the plane of the frame assembly. In the prior art assemblies that provide an axis of rotation within the plane of the frame assembly additional components or mounting lugs are required to mount the frame to the display.

The method of the present invention provides a manner by which an ornamental 10 having a rotatable display 14 can be manufactured having pivot assemblies 24 that are formed with the frame assembly 12 in an integrated single piece. A blank piece of sheet stock is provided and fed into a forming process. The blank is stamped or etched to form an outer frame assembly 12 that includes two opposing pivot assemblies lying within the plane of the frame assembly 12. The pivot assemblies include a central pivot support 24 with a hole 26 provided therein and connecting arms 28 connecting the pivot support 24 to the frame assembly 12. The pivot support 24 is then rotated 90° by twisting the connecting arms 28. Finally, the rotatable display 14 is installed into the frame 12 by inserting the pivot pins 22 into the holes 26 in the pivot supports 24.

It can therefore be seen that the present invention provides an economical and easy to fabricate ornament with a rotatable display 10. Further, the present invention represents a desirable improvement over the prior art by creating an ornament wherein the axis of rotation of the display is maintained in the plane of the frame assembly without requiring additional components for assembly. For these reasons, the instant invention is believed to represent a significant advancement in the art, which has substantial commercial merit.

While there is shown and described herein certain specific structure embodying the invention, it will be manifest to those skilled in the art that various modifications and rearrangements of the parts may be made without departing from the spirit and scope of the underlying inventive concept and that the same is not limited to the particular forms herein shown and described except as indicated by the scope of the appended claims.

What is claimed:
1. An ornament with a rotatable display, comprising:
   a substantially planar frame assembly;
   two opposing pivot members connected to said frame assembly, said pivot members each including a planar pivot support, said pivot supports having a hole in the center thereof, the plane of said pivot supports oriented substantially perpendicular to the plane of said frame assembly and parallel to one another; and
   a display assembly disposed within the frame assembly, said display assembly including two opposed pivot pins adapted to be slideably received in said holes in said pivot supports wherein the display assembly is adapted to pivot within the frame assembly.
2. The ornament of claim 1, wherein said holes in said pivot supports are aligned with one another and disposed on an axis that lies within the plane of the frame assembly.
3. The ornament of claim 1, further comprising:
   an axis of rotation of said display assembly, defined by a line between said two opposed pivot pins, wherein said axis of rotation lies within the plane of said frame assembly.
4. The ornament of claim 1, said pivot members further comprising:
   at least two connecting arms, each of said connecting arms residing between said pivot supports and said frame assembly connecting said pivot supports to said frame assembly.
5. The ornament of claim 4, said at least two connecting arms further comprising:
   a first pair of two connecting arms connecting one pivot support to said frame assembly; and
   a second pair of two connecting arms connecting the other pivot support to said frame assembly.
6. The ornament of claim 5, wherein said frame assembly, said pivot supports and said connecting arms are all integrally formed from a flat sheet of material as single piece.
7. An ornament with a rotatable display, comprising:
   a substantially planar frame assembly;
   two opposing pivot members connected to said frame assembly, said pivot members each including a planar pivot support, said pivot supports having a hole in the center thereof, the plane of said pivot supports oriented substantially perpendicular to the plane of said frame assembly and parallel to one another, said holes in said pivot supports defining an axis therewithin that lies within the plane of the frame assembly; and
   a display assembly disposed within the frame assembly, said display assembly including two opposed pivot pins adapted to be slideably received in the holes in said pivot supports wherein the display assembly is adapted to pivot within the frame assembly.
8. The ornament of claim 7, further comprising:

an axis of rotation of said display assembly, defined by a line between said two opposed pivot pins, wherein said axis of rotation substantially corresponds to said axis between said holes in said pivot supports and lies within the plane of said frame assembly.

9. The ornament of claim 7, further comprising:

a first pair of two connecting arms connecting one pivot support to said frame assembly; and

a second pair of two connecting arms connecting the other pivot support to said frame assembly.

10. The ornament of claim 9, wherein said frame assembly, said pivot supports and said connecting arms are all integrally formed from a flat sheet of material as single piece.

11. A method of manufacturing an ornament with a rotatable display, comprising:

providing a flat sheet of material;

forming said flat sheet to integrally form a substantially planar frame assembly, said frame assembly including an outer perimeter and two opposing pivot members, said pivot members including two opposing planar pivot supports, said pivot supports having a hole in the center thereof;

rotating said pivot members substantially 90° around an axis defined within the plane of said frame assembly so that the plane of said pivot supports is oriented substantially perpendicular to the plane of said frame assembly and parallel to one another; and

installing a display assembly having two opposed pivot pins, into said frame assembly, said two opposed pivot pins being slideably received in said holes in said pivot supports.

12. The method of manufacturing an ornament of claim 11, wherein said holes in said pivot supports are aligned with one another and disposed on an axis that lies within the plane of the frame assembly.

13. The method of manufacturing an ornament of claim 12, wherein said display assembly further includes an axis of rotation of said display assembly, defined by a line between said two opposed pivot pins, wherein said axis of rotation substantially corresponds to said axis between said holes in said pivot supports and lies within the plane of said frame assembly.

14. The method of manufacturing an ornament of claim 11, wherein said step of stamping further comprises:

forming a first pair of two connecting arms connecting one pivot support to said frame assembly; and

forming a second pair of two connecting arms connecting the other pivot support to said frame assembly.

15. The method of manufacturing an ornament of claim 14, wherein said frame assembly, said pivot supports and said connecting arms are all integrally formed from a flat sheet of material as single piece.