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(71) Applicant: **THOSE CHARACTERS FROM CLEVELAND, INC.**
8800 East Pleasant Valley Road
Independence Ohio 44131(US)

(72) Inventor: **Chanter, Edward G.**
14412 Delaware
Lakewood Ohio 44107(US)
Inventor: **Randleman, Randy J.**
10507 Lake Avenue Apt.311
Cleveland Ohio 44102(US)
Inventor: **Hammeren, Kim C.**
7752 Brookside Drive
Olmsted Falls Ohio 44138(US)

(74) Representative: **Türk, Gille, Hrabal**
Bruckner Strasse 20
D-4000 Düsseldorf 13(DE)

(54) Finger ring assembly.

(57) A finger ring assembly (10) with a toy or other article (14) connected with a finger ring (12) in such a way that the article can be disposed in various orientations while the finger ring is being worn, and the article (14) can be manipulated relative to the finger ring (12) so that the finger ring forms a base which can support the article from a surface (44) when the ring is not being worn.

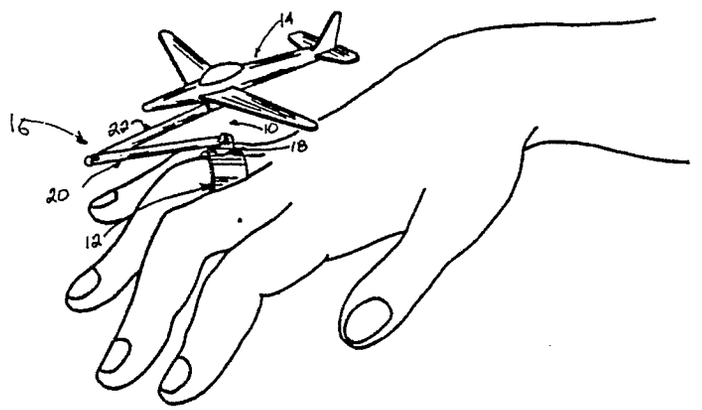

FIG. 1

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FINGER RING ASSEMBLY

Technical Field

The present invention relates to a new and useful finger ring assembly with a toy or other article supported thereon. The finger ring supports the article in various orientations while the finger ring is being worn, and the finger ring is also adapted to form a base for supporting the article from a surface when the finger ring is not being worn.

Background

Finger rings with decorative objects secured to them are known. Examples of such finger rings are found in U.S. Patents 1,060,631; 3,081,997; 3,805,549; and Des. 182,773.

Finger rings with useful object secured to them are also known. For example, U.S. Patent 3,930,510 discloses a finger ring with a cigarette holder pivotally mounted to the ring and adapted to pivot to a position in which it can hold a cigarette while the ring is being worn.

In the foregoing patents, the mechanism connecting the article to the finger ring is designed to support the object in a predetermined orientation when the ring is being worn. None of the patents relate to a mechanism which also enables the ring to act as a base for supporting the article from a surface when the ring is not being worn.

Summary of the Present Invention

The present invention provides a finger ring assembly with a toy or other article connected with a finger ring in such a way that the article can be disposed in various orientations while the finger ring is being worn, and the article can be manipulated relative to the finger ring so that the finger ring forms a base which can support the article from a surface when the ring is not being worn.

More specifically, the present invention provides a finger ring with a connecting means, preferably a linkage, connecting the article with the ring. The linkage is designed so that the article can be adjusted to various positions on the ring when the ring is being worn. The linkage is also designed to enable the article to be adjusted relative to the ring to locate the center of mass of the ring assembly within a cylinder which includes and extends away from the ring. While the center of mass of the ring assembly is within the cylinder of the ring, the finger ring can rest on a surface and act as a base to support the article from the surface with the article extending away from the ring.

Further, the linkage enables the article to be adjusted to a number of orientations while maintaining the center of mass of the ring assembly within the cylinder. Thus, the article can be disposed in varios stable orientations while the finger ring is resting on a surface.

According to the preferred embodiment, the linkage can be selectively detached from the ring, to detach the article from the ring, and to enable the ring to function as a conventional finger ring.

The further objects and advantages of the present invention will become apparent from the following detailed description and the accompanying drawings.

Brief Description of the Drawings

Figure 1 is a schematic three dimensional illustration of a finger ring assembly according to the present invention, with the finger ring supported on a wearer's finger;

Figure 2 is a three dimensional perspective illustration of a finger ring assembly according to the present invention, with the finger ring resting on a flat surface;

Figure 3 is a schematic side elevational view of a finger ring assembly with an article in one of its orientations when the finger ring is supported from a wearer's finger;

Figure 4 is a schematic side elevational view assembly, from the same direction as of the finger ring of Figure 3, with the article in an adjusted position;

Figure 5 is a side elevational view of a finger ring assembly, when the finger ring is resting on a flat surface;

Figure 6 is a front elevational view of the finger ring assembly of Figure 5, taken from the direction 6-6;

Figure 7 is a perspective view of an attachment member for attaching an article to the finger ring;

Figure 8 is a side view of the attachment member, with a part of the ring shown in phantom; and

Figure 9 is a bottom view of the attachment member of Figure 7, taken from the direction 7-7.

Detailed Description of the Preferred Embodiment

As discussed above, the present invention relates to a new and useful finger ring assembly which supports a toy or other article while the finger ring is being worn and which enables the finger ring to function as a base for supporting the article from a surface when the ring is not being worn. In the following description, the principles of the invention are described in connection with a finger ring which supports a toy airplane. However, it will be clear to those of ordinary skill in the art how the principles of this invention can be used to form finger ring assemblies with numerous other types of articles.

Referring specifically to the figures, Figure 1 illustrates a finger ring assembly 10 being worn. The finger ring assembly 10 includes a finger ring 12, a toy or other article 14, and a linkage 16, described more fully below, extending between the toy plane 14 and the finger ring 12. An attachment member 18, described more fully below, secures the linkage 16 to the finger ring 12.

The linkage 16 preferably comprises a pair of longitudinally extending joint members 20, 22. The joint member 20 is pivotally secured to the attachment member 18, as described more fully hereinafter. The joint member 22 is pivotally connected to the joint member 20 and also to the toy plane 14, in a manner described more fully hereinafter.

The finger ring 12 comprises an annular member with an annular inner periphery 12A and an annular outer periphery 12B (see Figure 2). The finger ring includes a special radial bore 12C (Figure 7) for purposes that will become apparent below.

The attachment member 18 is shown in detail Figures 7-9. It includes a shaft 24 extending into the radial bore 12C formed in the finger ring 12, a split pin 28 at the inner end of the shaft 24, and a bracket 30 at the outer end of the shaft. The bracket 30 is located outside the annular outer periphery 12B of the finger ring 12 (see Figure 2).

The bracket 30 is pivotally connected with a first end of the joint member 20. Preferably, a shaft 34 is fixed between a pair of spaced walls 36 of the bracket 30, and the joint member includes an annular journal bearing which surrounds and has a relatively tight frictional engagement with the shaft 34 so that the joint 20 can be pivoted manually on the shaft 34 but is frictionally retained in an adjusted position.

A similar type of pivotal connection is provided between the other end of the joint member 20 and one end of the joint member 22. Specifically, a pivot pin 38 extends through aligned journal bearings in both joint members and the journal bearings are dimensioned for tight frictional engagement with the pivot pin 38 and enable both joint members to be manually pivoted about the pin 38 and to be frictionally retained in adjusted positions relative to each other.

The toy plane 14 includes an integral bracket part 40 pivotally connected to the other end of joint member 22 in a similar manner. Specifically, a pivot pin 42 extends through aligned journal bearings formed in the bracket part 40 and the end of the joint member 22. The journal bearings enable the toy plane 14 and the joint member 22 to be manually pivoted relative to each other about the pivot pin 42 and to be frictionally retained in adjusted pivotal positions relative to each other.

The foregoing pivotal structure enables the toy plane 14 to pivot relative to the joint member 22, the joint members 20, 22 to pivot relative to each other, and the joint member 20 to pivot relative to the ring 12. While the structure preferably provides pivotal connections which are fixed between such members, it is also contemplated that parts of the pivotal connections could be integrally formed with the various members, and designed so that the members can be readily snapped together to form the pivotal connections and readily detached from each other.

The manner in which the ring assembly 10 supports the toy plane 14 when the ring is being worn can be seen by reference to Figures 1, 3 and 4. Specifically, when the finger ring 12 is being worn, the pivotal connections described above enable the toy plane 14 to be selectively adjusted to various positions relative to the ring, as shown in Figures 1, 3 and 4. The range of adjustments is extensive, since the toy plane 14 can pivot relative to joint member 22, the joint members 20, 22 can pivot relative to each other, and the joint member 20 can also pivot about the ring.

The foregoing structure of the ring assembly is also designed to enable the finger ring 12 to function as a stand for the toy plane 14 when the finger ring is not being worn. Specifically, the linkage is designed to enable the toy plane 14, and the joint members 20, 22 to be adjusted relative to the finger ring 12 so as to bring the center of mass (CM) of the ring assembly 10 within a cylinder that includes and extends from the finger ring 12. More specifically, Figures 2, 5 and 6 illustrate the ring assembly with the ring 12 resting on a surface 44. Figure 2 also illustrates in dashed lines a cylinder 46 which extends from and incorporates the ring 12. If the center of mass (CM) of the ring assembly is within that cylinder 46 (see e.g., Figure 2), the toy plane 14 will be supported in a stable orientation when the ring 12 is resting on surface 44.

The pivotal connections between the toy plane

14, the joint members 20, 22 and the ring 12 enable the toy plane to be placed in numerous stable orientations while the ring is resting on the surface 44. The location of the center of mass (CM) of the ring assembly is determined as a function of the mass of the ring 12, the mass of the toy plane 14, the mass of the joint members 20, 22 and the particular nature of the pivotal joints between those members. With the elements shown in the figures, the ring assembly can be designed so that numerous adjustments of the toy plane can be made which will retain the center of mass (CM) of the ring assembly within the cylinder of the ring.

It is preferred that the joint members and the toy plane be relatively light members to enable the ring assembly to be comfortably worn. However, the lighter the weight of those members, particularly the ring, the more critical the particular orientation of each of the members is in locating the center of mass of the ring assembly within the cylinder of the ring. The joint members are preferably made of a polycarbonate plastic, such as the polycarbonate plastic sold by General Electric Plastics under the trademark Lexan.

Additionally, while a pair of pivotal joint members are preferred, it is also contemplated that a single joint member can be used so long as that single member has the capability to be disposed in adjusted positions and to be retained in the adjusted positions. For example, a single plastically deformable joint member can be used in place of the linkage shown.

The attachment member 18 is preferably detachably secured to the ring 12. The bore 12C in the ring includes a widened inner part, and the widened inner portion 28 of the shaft 24 is structured as a "split finger" configuration, comprising a pair of resiliently deflectable segments 28A, 28B (see Figure 9). As the shaft 24 is inserted into the ring bore 12C, the bore deflects the shaft segments 28A, 28B toward each other until they clear the widened opening of the bore 12C. Thereafter, the shaft segments 28A, 28B can resiliently deform outwardly to secure the attachment member 18 to the ring 12. The inner profile of the bore 12C, and the inner profile of the shaft segments 28A, 28B are further designed so that the shaft segments can also be deflected inwardly to enable the shaft to be removed from the ring.

Preferably, the attachment member 18 is constructed of a plastic material with relatively little creep in order to enable the split fingers to perform their intended functions. Plastics, such as an acetal plastic sold by E. I. DuPont de Nemours and Company under the trademark Delrin 500, are preferred.

Thus, according to the present invention, applicant has provided a new and useful finger ring assembly which enables the ring to be supported on a surface with the object extending therefrom.

Claims

1. A ring assembly (10) comprising a finger ring (12), an article (14) for attachment to the finger ring (12) and means (16) for attaching the article (14) to the finger ring; the means (16) for attaching the article (14) to the finger ring (12) enabling the orientation of the article (14) relative to the ring (12) to be selectively adjusted to locate the center of mass of the ring assembly (10) within a cylinder (46) incorporating and extending from the ring (12) to thereby enable the ring (12) to rest on a surface (44) with the article (14) extending therefrom.

2. A ring assembly (10) as set forth in claim 1 wherein the means (16) for attaching the article (14) to the finger ring (12) being adjustable to locate the article (14) outside said cylinder (14) when the finger ring (12) is being worn.

3. A ring assembly (10) as set forth in claim 2 wherein the means (16) for attaching the article (14) to the ring (12) comprises first (20) and second joint (22) longitudinally extending members, said first joint (20) member pivotally connected with said ring (12) and said second joint (22) member connected with said article (14), said first (20) and second joint (22) members being pivotally connected to each other, to enable the article (14) to be adjusted relative to the ring (12) by pivoting the first joint (20) member relative to the ring (12) and by pivoting the second joint (22) member relative to the first joint (20) member.

4. A ring assembly (10) as set forth in claim 3 wherein said article (14) is pivotally connected with said second joint (22) member.

5. A ring assembly (10) as set forth in any of claims 1-4 wherein said means (16) for attaching the article (14) with the ring (12) is also adapted to be detached from said ring (12), thereby to detach the article (14) from the ring (12).

6. A ring assembly (10) as set forth in claim 5 wherein said ring (12) has an annular outer periphery, and said means (16) for attaching the article (14) with the ring (12) attaches the first joint (20) member with the ring (12) in such a manner that the first joint (20) member extends away from the annular outer periphery of the ring (12).

7. A ring assembly (10) as set forth in claim 6 wherein the first joint (20) member is pivotally connected with the ring (12) in such a manner that the first joint (20) member can be adjustably retained in selected adjusted positions relative to the ring (12).

8. A ring assembly (10) as set forth in claim 7 wherein the first (20) and second joint (22) mem-

bers are pivotally connected with each other in such a manner that the first (20) and second joint (22) members can be adjustably retained in selected angular orientations relative to each other.

9. A ring assembly (10) as set forth in claim 8 including an attachment member (18) for connecting said first joint (20) member with said ring (12), said attachment member (18) being detachable from said ring (12) to detach said article (14) from said ring (12).

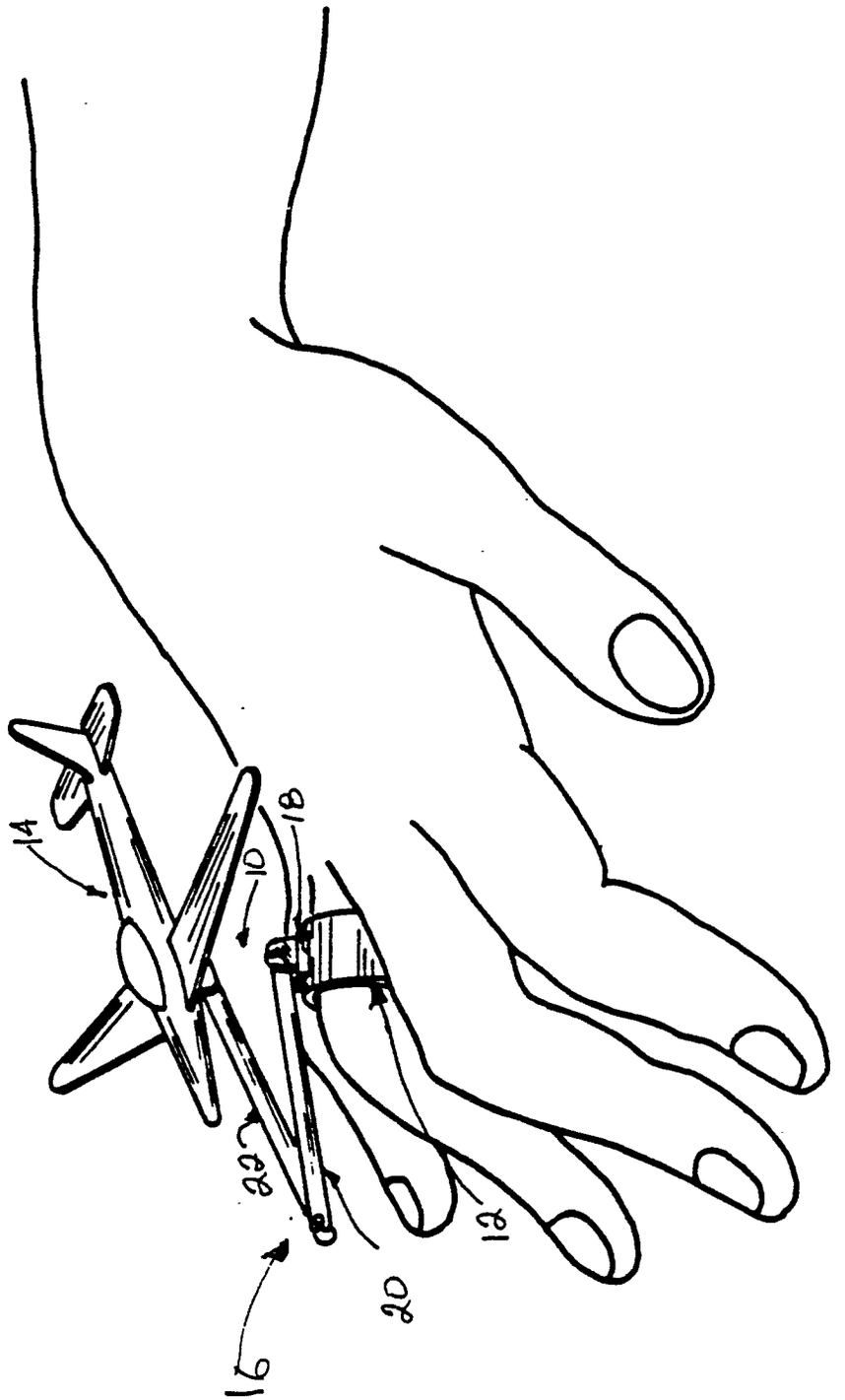

FIG. 1

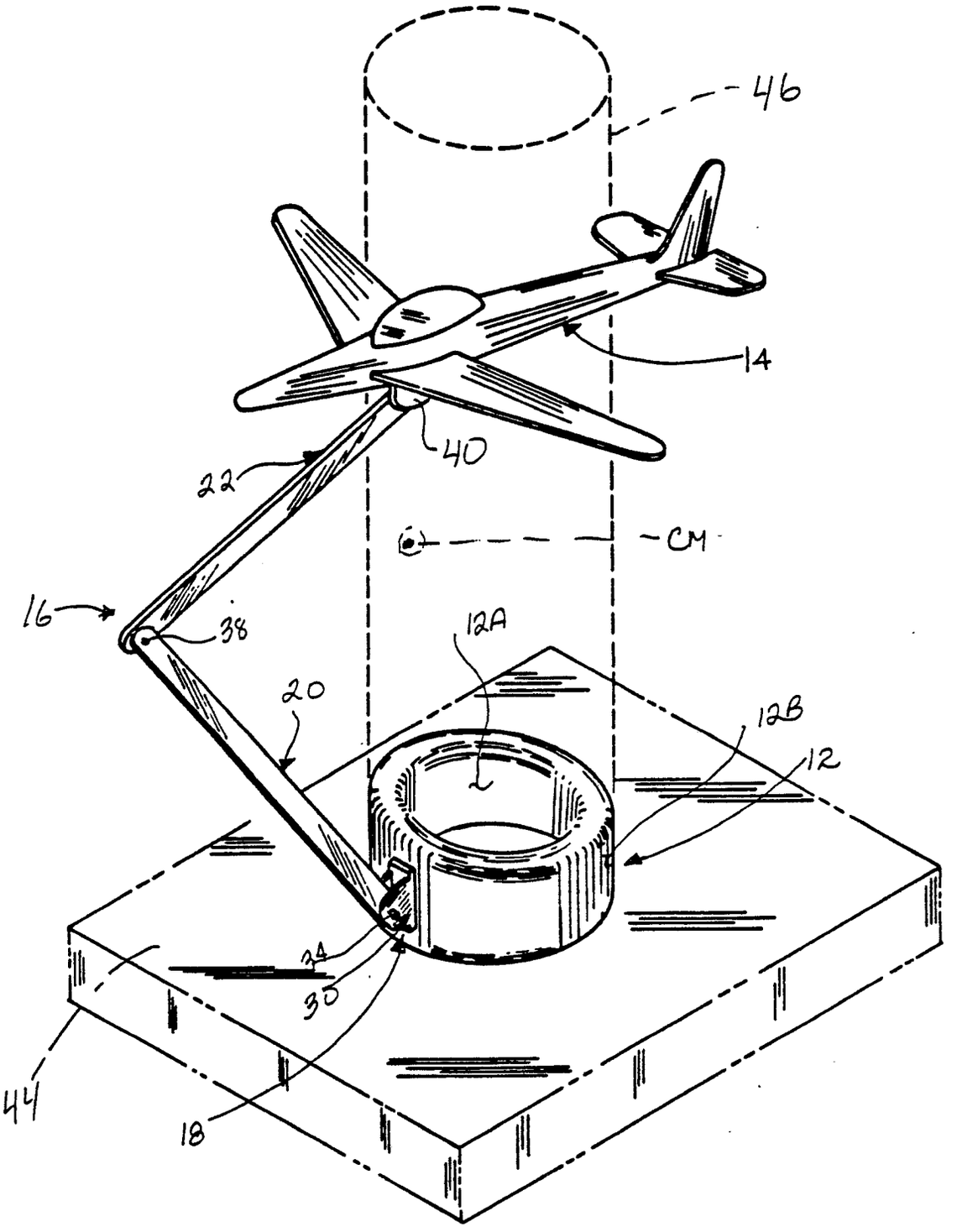

FIG. 2

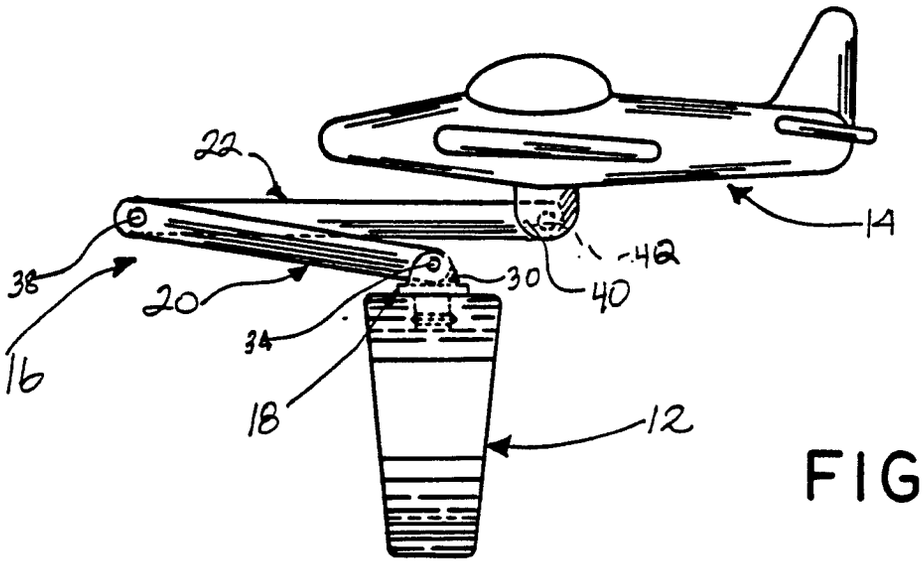

FIG. 3

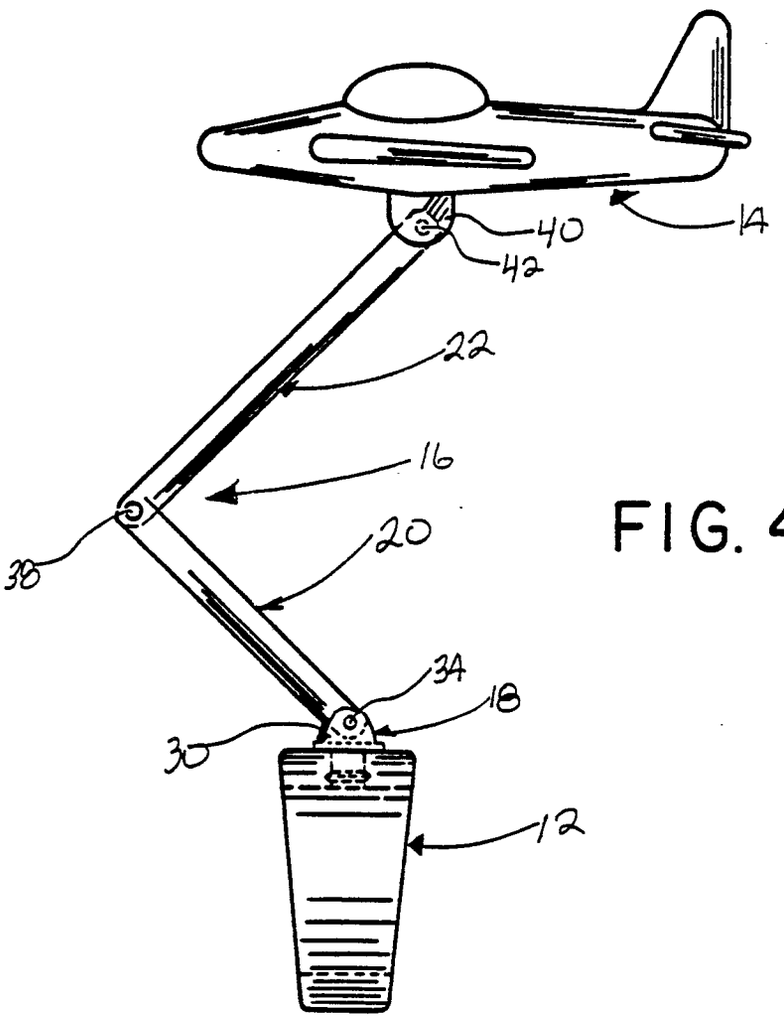

FIG. 4

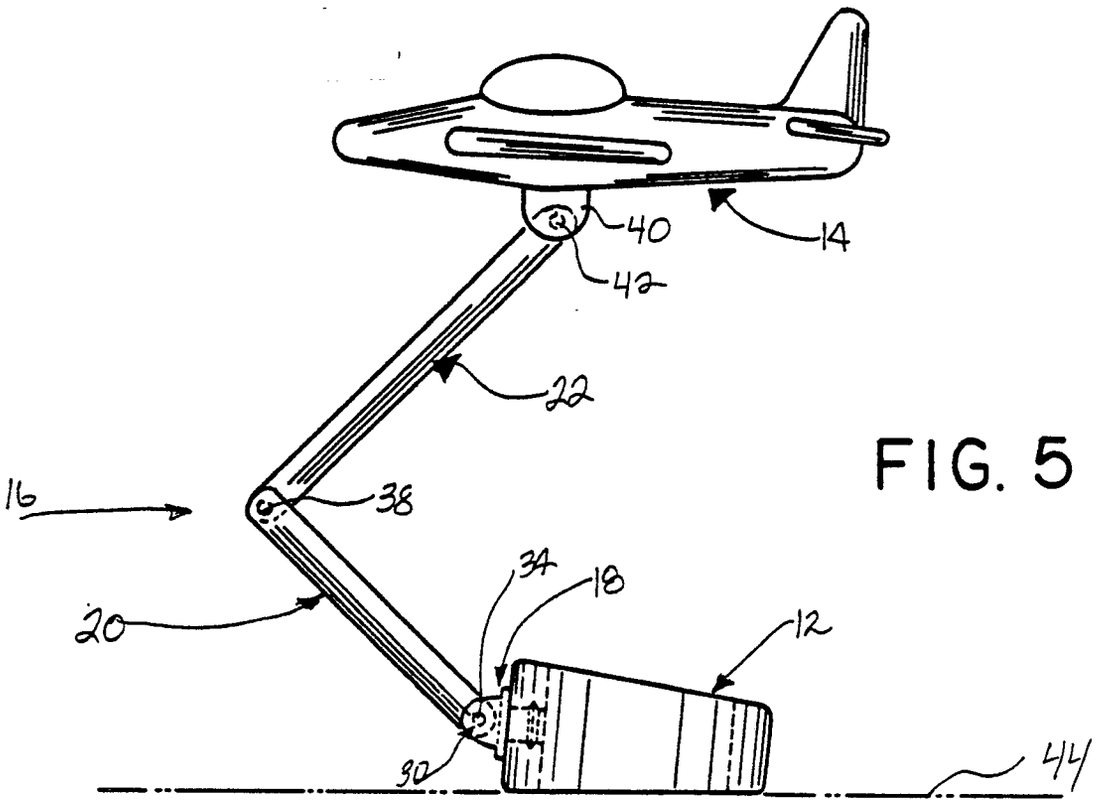
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FIG. 5

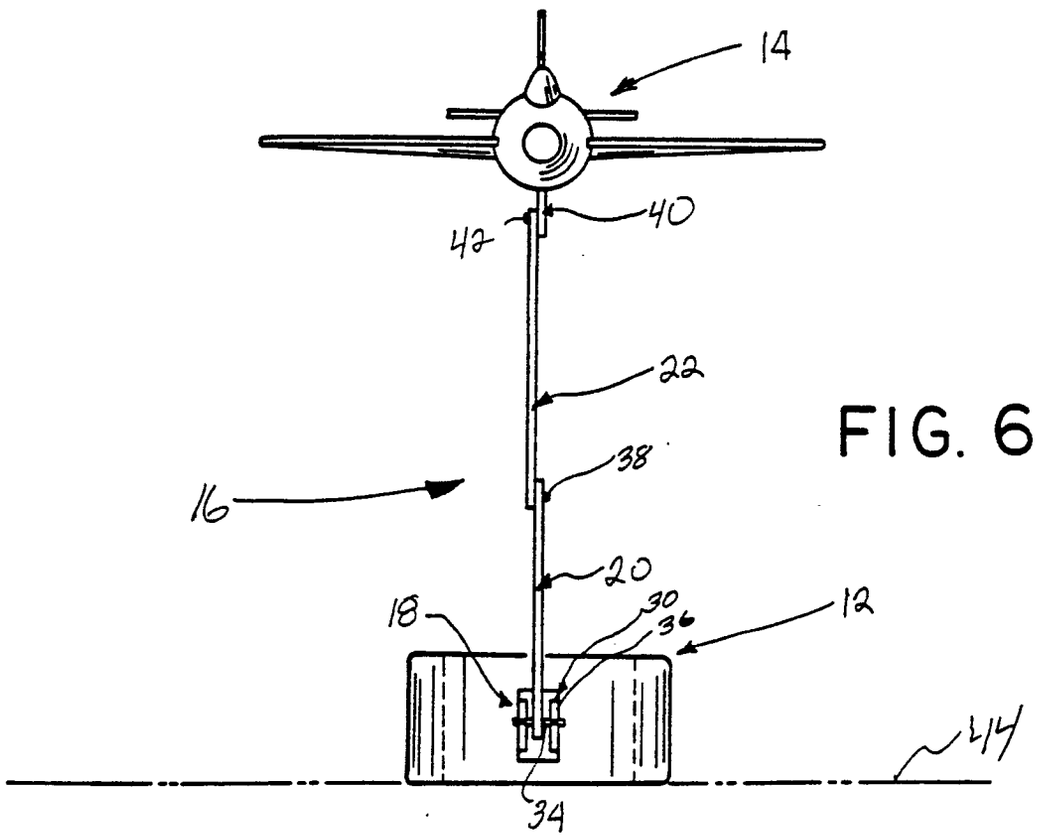
14
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FIG. 6

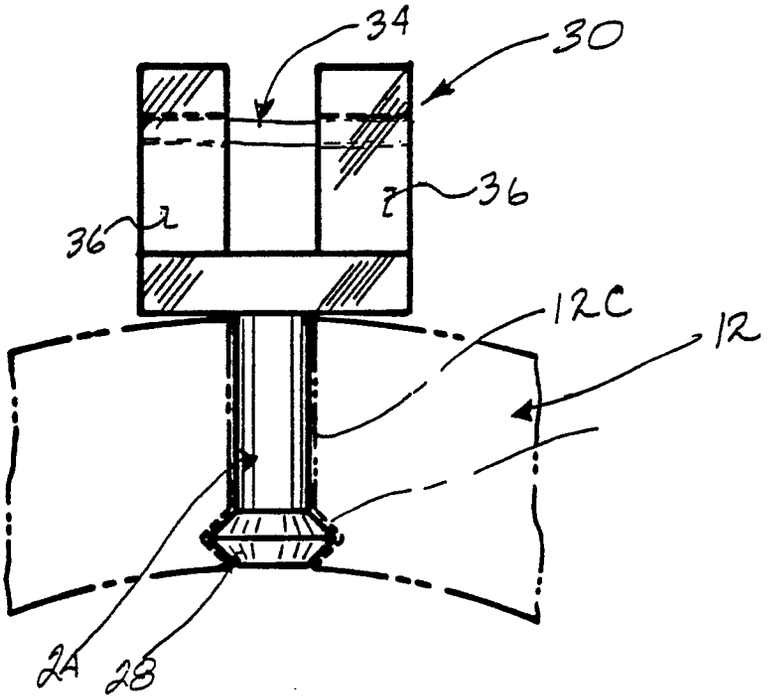

FIG. 7

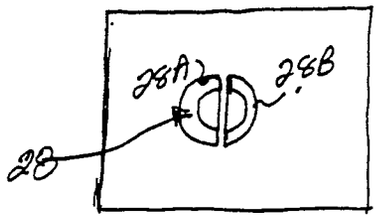

FIG.9

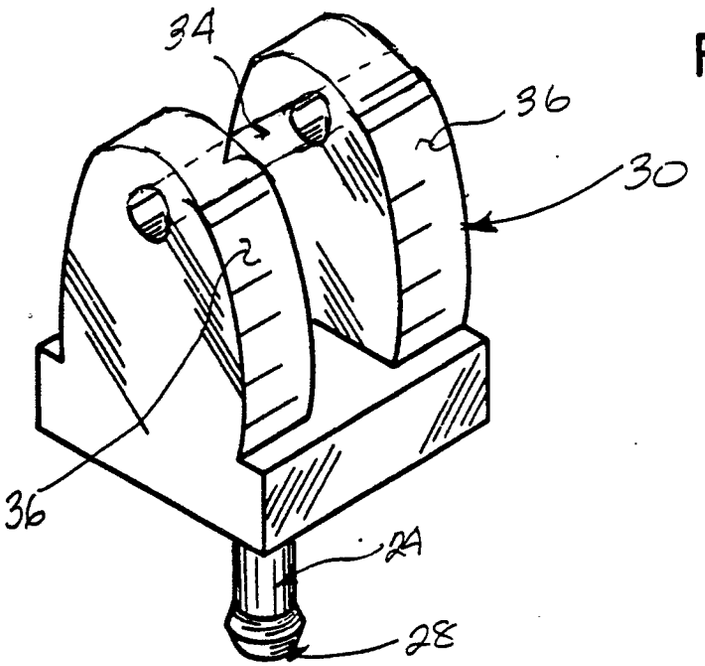

FIG. 8

European Patent Office

EUROPEAN SEARCH REPORT

Application Number

EP 88 11 3936

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl.5)
A	US-A-4413443 (R. J. KULESZA)		A44C9/00 A63H33/00
A	US-A-4581904 (R. W. LEHMANN)		
A	DE-A-3309309 (H. ROTTENANGER)		
A	CH-A-105757 (S. LOEB)		

TECHNICAL FIELDS SEARCHED (Int. Cl.5)
A44C A63H

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	20 SEPTEMBER 1989	GARNIER F.M.A.C.

CATEGORY OF CITED DOCUMENTS

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