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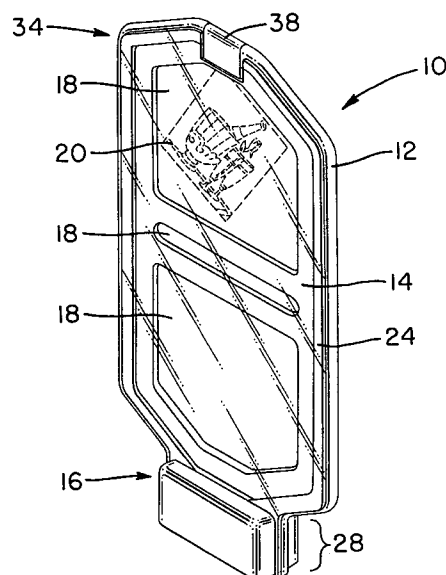
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(54) **Antenna pedestal.**

(57) A pedestal for use in an article surveillance system comprises an antenna assembly, an antenna casing for enclosing and supporting the antenna assembly and a frame extending substantially along the perimeter of the antenna casing for holding the antenna casing and including a bottom portion for supporting the antenna casing.

**FIG. 1****EP 0 668 626 A1**

Background of the Invention

This invention relates to antenna pedestals, and, in particular, to an antenna pedestal comprising an antenna casing housing an antenna assembly for use in Electronic Article Surveillance ("EAS") systems.

Typically, an EAS system employs antenna pedestals which are placed and spaced opposite each other at a store entry or exit to allow pedestrian traffic to pass therebetween. Each pedestal may contain an antenna assembly consisting of transmitter and receiver antenna arrays. The antenna arrays of the pedestals generate a magnetic field in the region between the pedestals and allow for detection of a disturbance in the generated magnetic field when an activated theft-deterrent device is passed through the region.

An example of an antenna pedestal of the above type is the pedestal described in U.S. Patent No. 4,859,991 to Watkins, et al. ("Watkins, et al."). More particularly, Watkins, et al. disclose a pedestal having a complex housing structure for housing an antenna assembly. In the Watkins, et al. pedestal, clam shell members are joined together to form a cavity and foam is used to fill the cavity, thereby immobilizing the antenna assembly and providing rigidity to the pedestal. The pedestal also employs a bumper which is secured around hook-shaped adjacent edges of the clam shell members to help secure the members together.

Another example of an antenna pedestal for an EAS system is the pedestal disclosed in U.S. Patent No. 4,872,018 to Feltz, et al. ("Feltz, et al."). The Feltz, et al. pedestal merely consists of an antenna array mounted within an antenna casing, formed as a pair of mated hollow support housings.

While the aforesaid pedestals have proved satisfactory, efforts are still underway to realize antenna pedestals which provide a stronger overall structural support, are less expensive to produce and have the ability to easily permit changing of an antenna assembly within the pedestal without damaging or rebuilding of the pedestal structure. Accordingly, new pedestals having the aforesaid attributes are still being sought.

It is, therefore, an object of the present invention to provide an antenna pedestal which has greater structural support and integrity.

It is a further object of the present invention to provide an antenna pedestal which has a simple structure.

It is an additional object of the present invention to provide an antenna pedestal which allows for easy insertion and removal of an antenna assembly.

Summary of the Invention

In accordance with the principles of the present invention, the above and other objectives are realized in an antenna pedestal for an EAS system in which the antenna pedestal comprises an antenna casing for enclosing and supporting an antenna assembly and framing means which extends substantially around the perimeter of the antenna casing for holding the antenna casing and including a bottom portion for supporting the antenna casing.

In a modified form of the antenna pedestal of the invention, first and second plates are disposed on either side of the antenna casing so that the antenna casing is positioned therebetween. These plates are secured to the framing means and provide additional support to the antenna pedestal.

In a further modification of the antenna pedestal of the invention, the framing means and first and second plates together form joined members which define a pocket having an open top for receiving an antenna casing to be housed within the pocket. The antenna casing is then secured within the pocket by removable cover means which provides a closure for closing the open top of the pocket. The removable cover means may comprise a one-piece or multiple-piece assembly housing a warning device.

Brief Description of the Drawings

The above and other features and aspects of the present invention will become more apparent upon reading the following detailed description in conjunction with the accompanying drawings, in which:

FIG. 1 shows a frontal view of an antenna pedestal in accordance with the principles of the present invention;

FIG. 2 shows an exploded view of the antenna pedestal of FIG. 1 without the base or lamp assembly;

FIG. 3 shows a view of the antenna pedestal of FIG. 1 with an exploded view of the base and the lamp assembly; and

FIGS. 4 and 5 show exploded views partially cut away of a modified embodiment of the antenna pedestal of the invention with first and second types of removable cover means, respectively.

Detailed Description

FIGS. 1-3 show an antenna pedestal 10 for use in an EAS system in accordance with the principles of present invention. As shown in FIGS. 1 and 2, the antenna pedestal 10 comprises framing means or a frame 12 which extends substantially along or around the perimeter of an antenna casing 14 to

hold and support the casing. The frame 12 tapers inward and down to form a bottom portion 16, which provides structural support for the antenna casing 14.

As shown in FIG. 2, the frame 12 extends all around the casing 14 except for small segments of the perimeter at the top and bottom of the frame. The frame 12 thus substantially surrounds the perimeter of the casing 14, i.e., surrounds the casing 14 sufficiently to prevent the casing 14 from being extracted upwardly, downwardly or sideways through the walls of the frame 12. As also can be seen in FIG. 2, the thickness and width of the frame 12 are sufficient to provide structural support for the antenna casing 14, while also improving and reinforcing the structural integrity of the pedestal 10.

The antenna casing 14 can be held in place by the structure of the frame 12 itself or may be further secured within the frame 12 by an adhesive. In addition, a lip or channel may be formed in the surface of the frame 12 abutting the antenna casing 14 to allow the antenna casing 14 to be better held in and to the frame. Pins, bolts, screws or nails may also be positioned to extend through the frame 12 to engage the antenna casing 14 and to provide further support for the pedestal 10 against shearing forces which might occur when the pedestal 10 is moved.

The antenna casing 14 also has openings 18 within its structure so that advertisements, printed promotional materials or any type of insert 20 may be placed therein to display various specials, store promotions, etc. Further, the antenna casing 14 encloses and supports an antenna assembly 22, for generating fields used in an EAS system to detect articles having theft deterrent devices or tags attached or secured thereto.

As can be appreciated, use of the frame 12 to hold and support the antenna casing 14 allows the casing 14 to be easily inserted and secured within the frame. This permits easier servicing and replacement of the antenna casing 14 and lessens the amount of materials needed for its construction. Additionally, the frame 12 provides greater strength and structural integrity for the overall pedestal 10 both during use and shipment.

In a modified form of the pedestal 10, first and second sheets or plates 24, 26, as best shown in FIG. 2, are also positioned on either side of the antenna casing 14 and are secured to the frame 12. The plates 24, 26 are preferably, a transparent plastic material, which cover the length and width of the frame 12 and extend to the edges thereof, and can be adhesively secured to the frame 12. This can be accomplished by using a liquid solvent which is first placed on the outer surfaces of the frame 12 in relation to the position of the plates 24,

26. The plates 24, 26 and the frame 12 are then clamped together by applying vacuum pressure to the plates and frame. This pressure and the influence of the solvent results in the plates 24, 26 and frame 12 becoming adhesively secured in a sandwich-like construction.

The use of the plates 24, 26 provides greater structural support and integrity to the frame 12. The plates 24, 26 also prevent direct access to the antenna casing 14, thereby better protecting it from breakage or damage.

As shown in FIG. 1, the bottom portions of the frame 12 and the plates 24, 26 extend downward and are inserted into a base 28 which provides foundation and stability for the overall structure of the pedestal 10. The base 28 is smaller in width than the antenna casing 14 and frame 12, which are made relatively wide in order to produce a large zone of coverage of the monitored area.

FIG. 3 shows in greater detail the assembly of the base 28 of the pedestal 10 without the plates being shown. The base 28 includes a cover 30 and a T-section 32a and a clamping bracket 32b. The T-section 32a and the clamping bracket 32b help to brace and stabilize the frame 12 and/or plates 24, 26 while also anchoring the pedestal 10 to the floor. The cover 30 houses an alarm system (not shown), which is responsive to a disturbance in the magnetic field sensed by the antenna assembly 22. The alarm system may comprise an alarm module and driver mounted on a PC board. Further, the alarm system may incorporate a beeping mechanism, which can indicate that an activated tag has passed by the pedestal or a mechanism which provides a voice alert.

The top portion 34 of the frame 12, as shown in FIGS. 2 and 3, also has a gap 36 therein for positioning of a lamp assembly 38. The antenna casing 14 and first and second plates 24, 26 also have corresponding notches 40, 42, 44 respectively, for positioning of the lamp assembly 38. The lamp assembly 38 extends along a portion of the perimeter of the antenna casing 14 when positioned in the corresponding gap 36 and notches 40, 42, 44 of the frame 12 and plates 24, 26, respectively. The lamp assembly 38 acts as a warning device so that when triggered, the lamp assembly 38 flashes, acting as a visual indicator to notify an employee or security personnel that an article with a theft deterrent tag or device attached thereto is being removed from the store or retail establishment.

FIGS. 4 and 5 illustrate a further modification of the antenna pedestal 10 of the invention. In this modification, the frame 12 and the first and second plates 24, 26 are configured so as to form members which when joined together define a pocket having an open top. The open top permits the

antenna casing 14 to be received and removed from the pocket so that different casings can be used, as well as to permit removal of a casing for repairs, improvements or modifications.

In this case, the frame 12 is provided with a removable cover means or cover 46 which can be joined to or removed from the sides of the frame 12 to close or open the pocket. The cover 46 can be joined to the sides of the frame 12 in any suitable manner.

As shown in FIG. 4, the cover 46 is formed as a one-piece assembly 48 with the lamp assembly 38 securely or removably positioned thereon. As shown in FIG. 5, the cover 46 is formed of multiple pieces or sections 50. The multiple sections 50 are located on either side of lamp assembly 38, which is a separate section which is removable from the multiple sections 50.

The antenna pedestal 10 of the present invention is not limited to the illustrated embodiments but may be any length, width or thickness depending upon the structural requirements of the antenna casing or casings to be supported. Thus, for example, the pedestal may take on oval, rectangular or polygonal configurations to accommodate the antenna casings of a particular EAS system.

The frame 12 and the plates 24, 26 of the antenna pedestal 10 are preferably made of plastic being a clear, translucent or frosted material and are rigid or semi-rigid in strength to provide adequate structural support for the antenna pedestal 10. The use of a clear translucent or frosted material provides for greater visibility through the antenna pedestal 10 in order to observe those activating the alarm while enhancing the overall appearance of the pedestal. The base 28 and the lamp assembly 38 may also be plastic, either clear or frosted, but bare preferably a dark colored plastic, in order to conceal the internal workings of the pedestal for security reasons and aesthetics.

The antenna casing 14 may be composed of a pressed wood or wood paneling structure but may also be formed of a plastic or other rigid or semi-rigid material to support the antenna assembly 22. The first and second plates 24, 26, the base 28, the lamp assembly 38 and the frame 12 of the antenna pedestal 10 may also be made of wood or a like rigid material. Semi-flexible materials might also be used as long as the material provides enough structural support to maintain the integrity and shape of the pedestal 10.

The frame 12, plates 24, 26 and antenna casing 14 of the pedestal 10 may also be assembled and held together by pins, grooves, adhesive or any other retaining means which helps to maintain the structural integrity of the pedestal 10 while also providing further structural support and stability. An additional crossmember may also be provided to

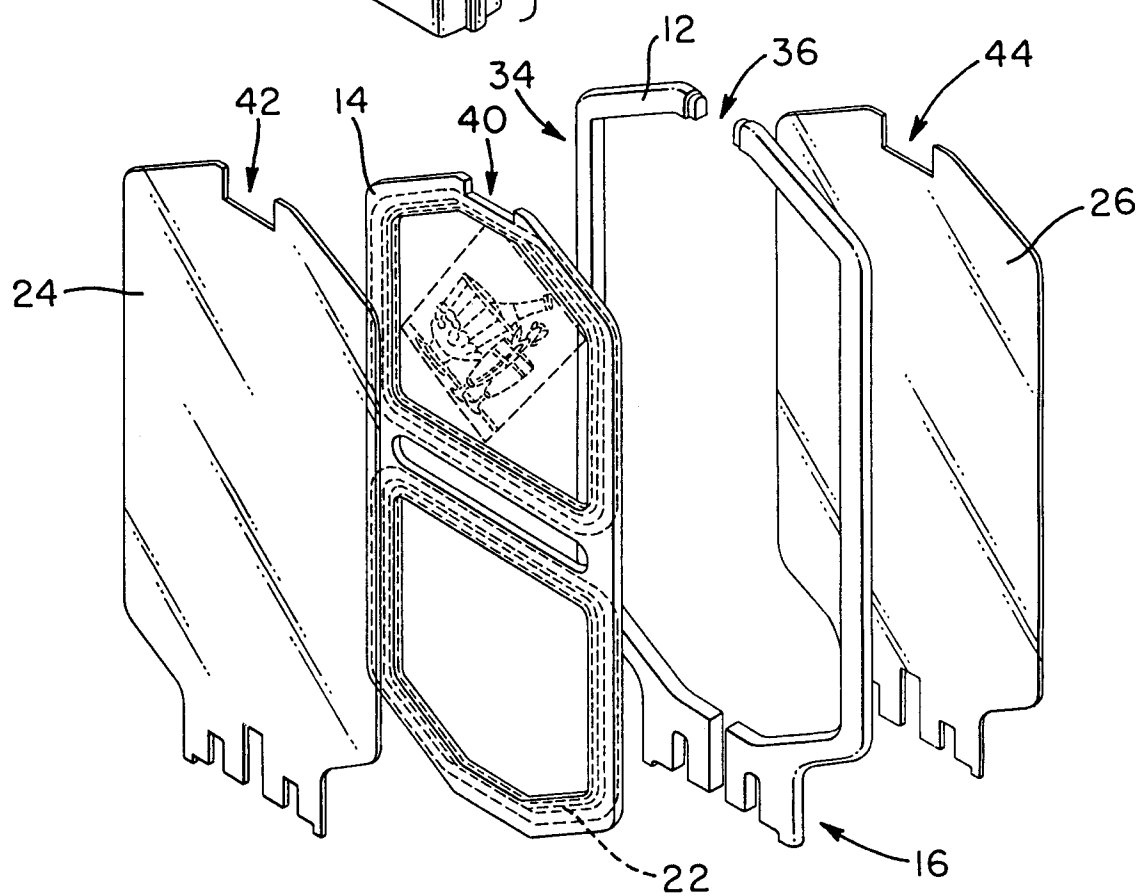
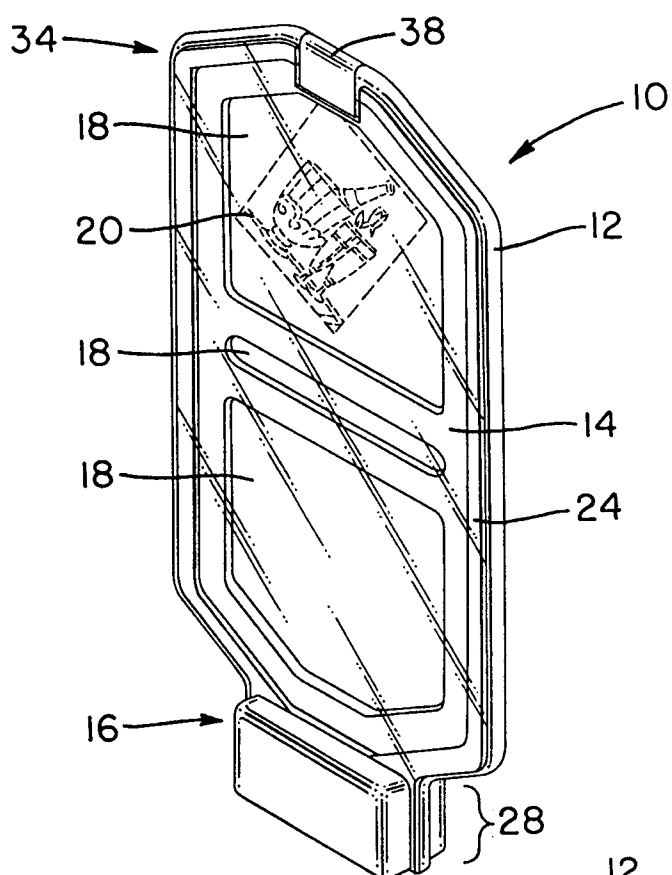
join the sides of the frame 12 to provide further support for the antenna casing 14 within the frame 12.

In all cases it is understood that the above-described configurations are merely illustrative of the many possible specific embodiments which represent applications of the present invention. Numerous and varied other configurations, can be readily devised in accordance with the principles of the present invention without departing from the spirit and scope of the invention.

Claims

1. A pedestal for use in an article surveillance system, comprising:
 - an antenna assembly;
 - an antenna casing for enclosing and supporting said antenna assembly; and
 - framing means extending substantially along the perimeter of said antenna casing for holding said antenna casing, said framing means including a bottom portion for supporting said antenna casing.
2. A pedestal in accordance with claim 1, further comprising first and second plates, said first and second plates facing each other with said antenna casing positioned therebetween, said first and second plates secured to said framing means.
3. A pedestal in accordance with claim 2, wherein said first and second plates are adhesively secured to said framing means.
4. A pedestal in accordance with claim 3, further comprising a base for supporting the bottom portion of said framing means.
5. A pedestal in accordance with claim 4, wherein said framing means includes a top portion, said top portion having a gap therein.
6. A pedestal in accordance with claim 5, further comprising a lamp assembly positioned in said gap and extending along a portion of the perimeter of said antenna casing.
7. A pedestal in accordance with claim 2, wherein said first and second plates are plastic.
8. A pedestal in accordance with claim 1, wherein said framing means are plastic.
9. A pedestal in accordance with claim 1, wherein said antenna casing includes means for holding advertising material.

10. A pedestal for use in an article surveillance system, comprising:
 first and second members; and
 means for securing together said first and second members to define a pocket having an open top and adapted to receive an antenna casing to be housed within said pocket. 5
11. A pedestal in accordance with claim 10, wherein said pocket is further adapted to allow said antenna casing to be removed from said pocket. 10
12. A pedestal in accordance with claim 11, wherein said securing means includes a frame, said frame extending along the perimeter of said antenna casing for holding said antenna casing and including a bottom portion for supporting said antenna casing. 15
 20
13. A pedestal in accordance with claim 12, wherein said securing means further comprises an adhesive for securing said first and second members to said frame. 25
14. A pedestal in accordance with claim 13, further comprising removable cover means, said removable cover means abutting the ends of said frame for closing said open top of said pocket. 30
15. A pedestal in accordance with claim 14, wherein said removable cover means includes a lamp assembly. 35
16. A pedestal in accordance with claim 15, wherein said removable cover means comprises multiple sections located on either side of said lamp assembly and positionable in said frame. 40
17. A pedestal in accordance with claim 16, further comprising a base for supporting said bottom portion of said frame. 45
18. A pedestal in accordance with claim 12, wherein said first and second members and said frame each comprise plastic.
19. A pedestal in accordance with claim 10, wherein said antenna casing includes means for supporting advertising material. 50
20. A pedestal in accordance with claim 10, further comprising:
 a removable cover, said removable cover being adapted to close said open top of said pocket. 55
21. A pedestal in accordance with claim 10, wherein said pocket is formed with a bottom portion and said pedestal further comprises a base for supporting said bottom portion.



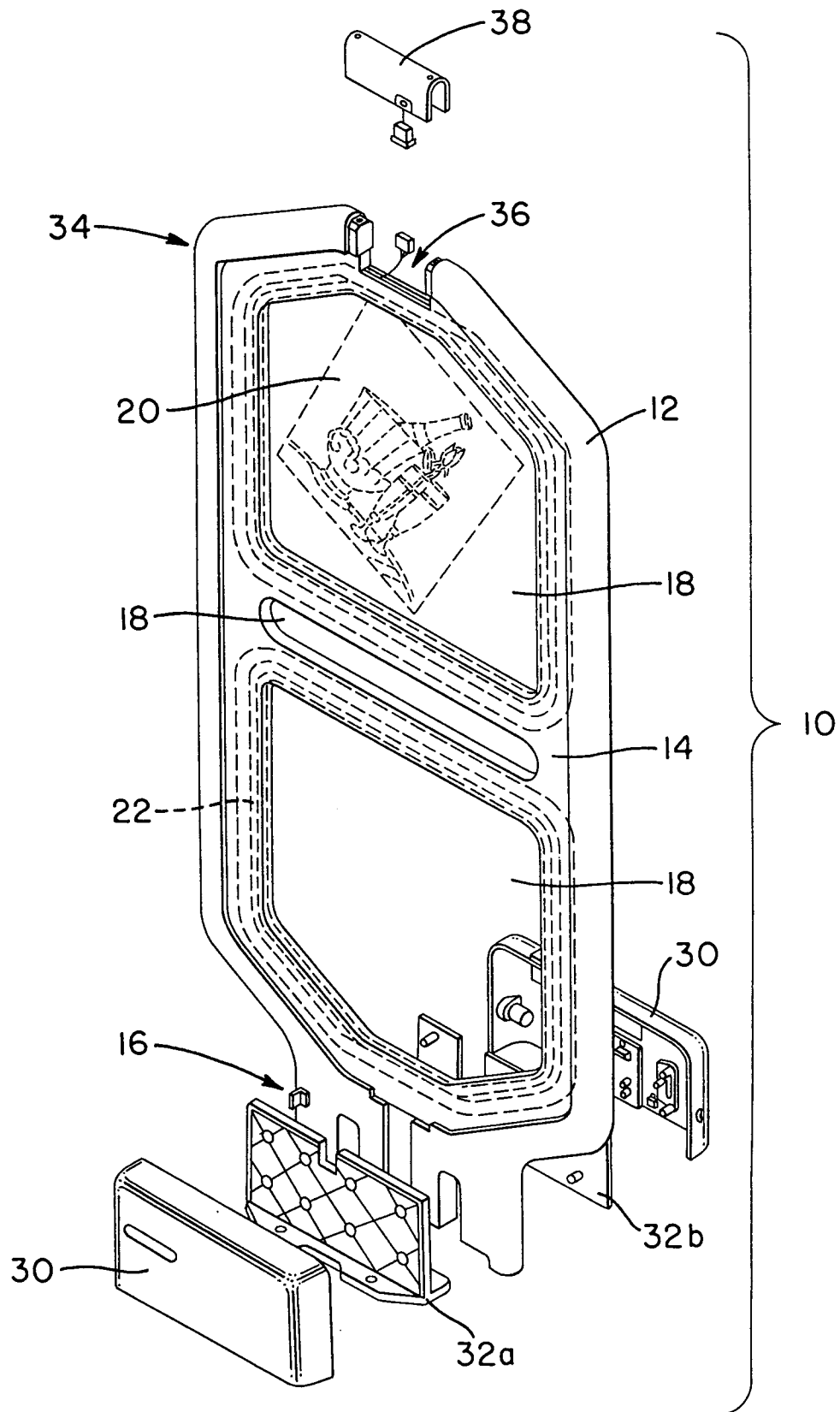


FIG. 3

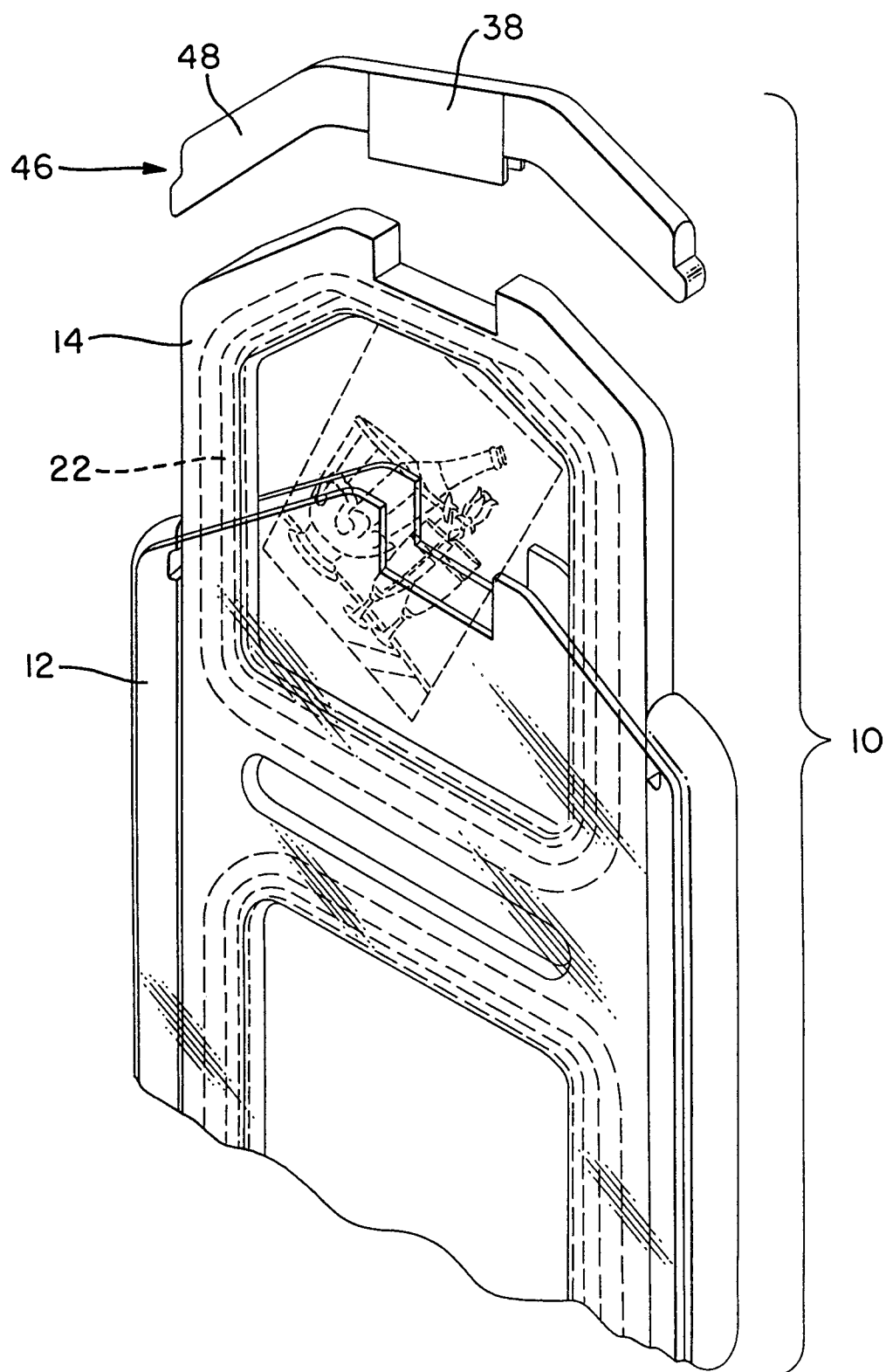
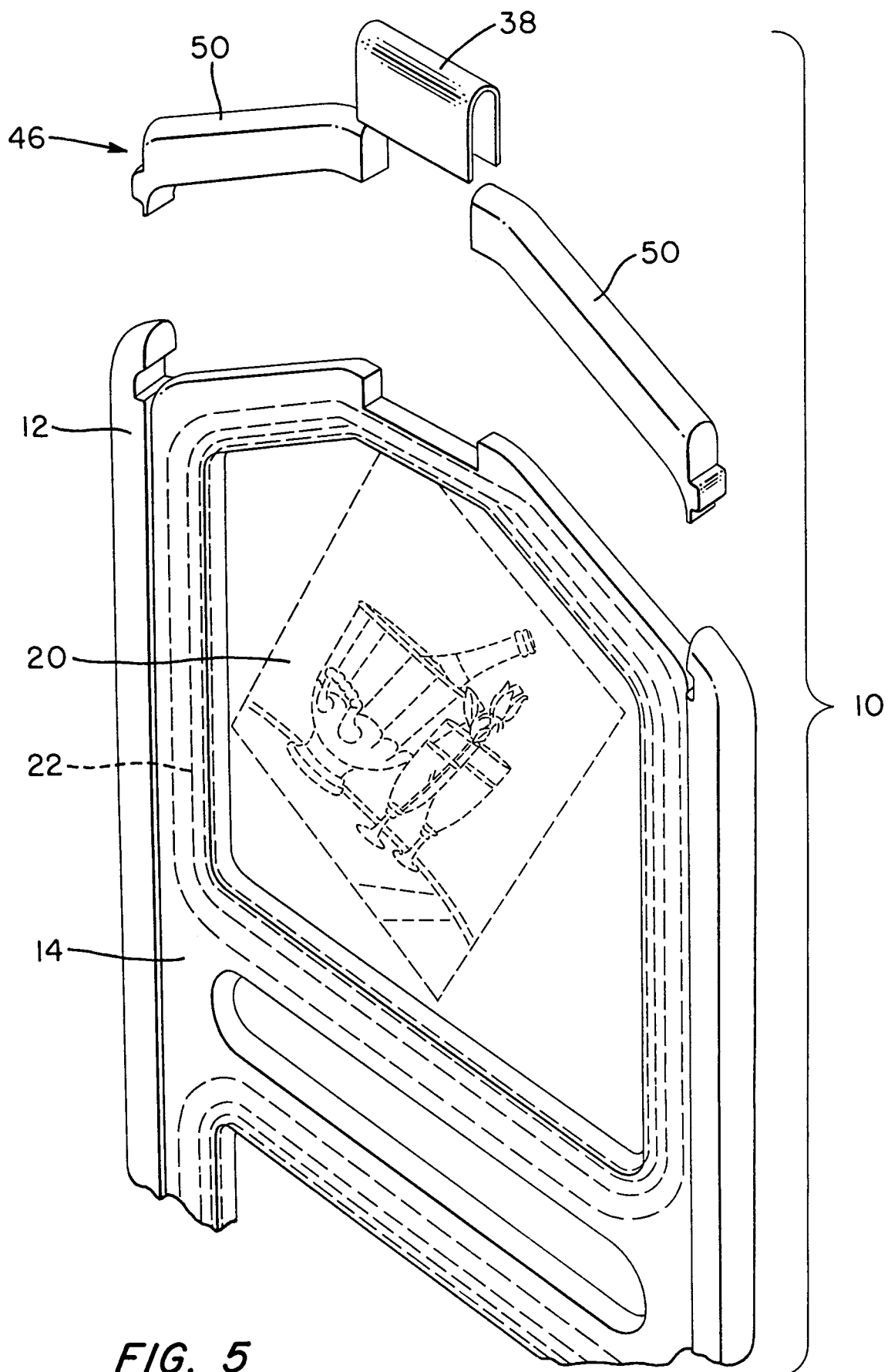


FIG. 4





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EUROPEAN SEARCH REPORT

Application Number
EP 94 11 8389

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.6)
A	EP-A-0 352 513 (KNOGO) * column 7, line 24 - column 10, line 17; figures 5-8 * ---	1,10	H01Q7/04 G08B13/24
A	US-A-5 260 853 (YAP ET AL.) * column 1, line 41 - column 2, line 4; figures 1-4 * ---	1,10	
A	US-A-5 268 699 (LAUTE ET AL.) * column 3, line 30 - column 4, line 18; figure 2 * -----	1,10	
			TECHNICAL FIELDS SEARCHED (Int.Cl.6)
			H01Q G08B
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 30 May 1995	Examiner Angrabeit, F
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			