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[54] **EXPULSION OF DETRIMENTAL SUBSTANCE FROM THEFT-DETERRENT DEVICE**

[75] Inventors: **Dennis L. Hogan**, St. Petersburg; **John L. Lynch**, Holiday; **Lincoln H. Charlot, Jr.**, St. Petersburg, all of Fla.

[73] Assignee: **Security Tag Systems, Inc.**, Boca Raton, Fla.

[21] Appl. No.: **954,905**

[22] Filed: **Sep. 30, 1992**

Related U.S. Patent Documents

Reissue of:

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Issued: **Oct. 8, 1991**
Appl. No.: **602,818**
Filed: **Oct. 24, 1990**

[51] **Int. Cl.**[6] **A44B 9/00**

[52] **U.S. Cl.** **24/704.1**; 70/57.1

[58] **Field of Search** 24/704.1, 707.1, 24/706.8, 711.4, 711.5; 70/57.1; 340/572; 116/203, 212

[56] **References Cited**

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2,804,029	8/1957	Fitzgerald .	
4,483,049	11/1984	Gustavsson et al. .	
4,590,461	5/1986	Cooper .	
4,649,397	3/1987	Heaton et al.. .	
4,670,950	6/1987	Wisecap et al. .	
4,944,075	7/1990	Hogan .	

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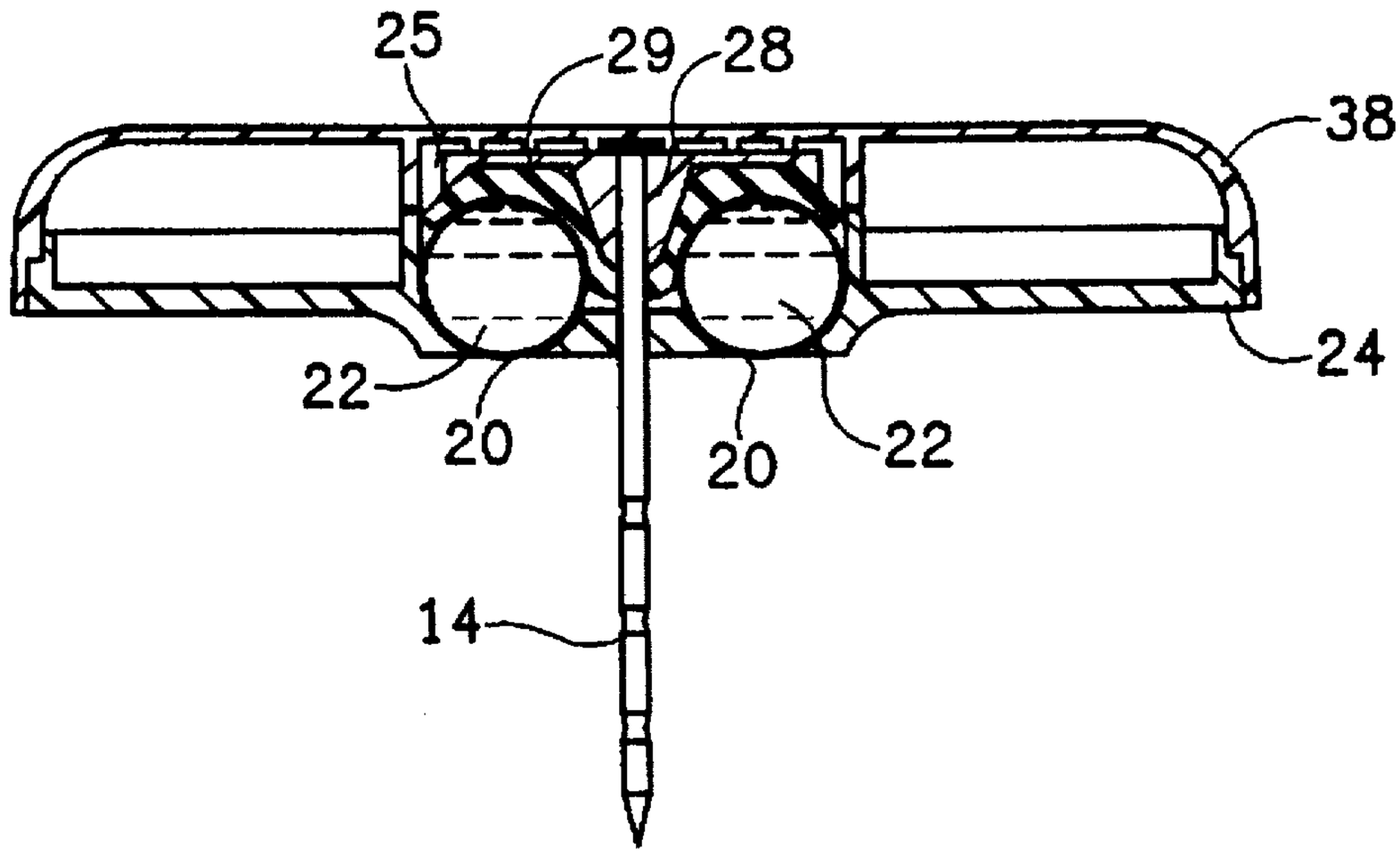
WO9204705	3/1992	WIPO .

Primary Examiner—James R. Brittain
Attorney, Agent, or Firm—Edward W. Callan

[57] **ABSTRACT**

In a device for deterring theft of a protected article, including a pin and clutch respectively embodied in two components that are adapted to be locked together on opposite sides of a portion of the protected article to prevent unauthorized removal of the device from the article, the pin-containing component contains two fragile elongated glass vials that fracture when at least a predetermined pressure is applied thereto, with the vials containing a detrimental substance that would damage an article attached to the device if such substance were to be released from the vial; and the head of the pin includes a breaker element having a wedge-shaped surface of a fiber-loaded-reinforced thermoplastic, (which does not scratch glass), for applying more than the predetermined pressure against the vial in response to the pinhead being moved in response to application to the two components of at least a predetermined threshold separation force, to thereby completely fracture the vials by inducing a high bending stress without prematurely cracking the vials, and to thereby release the substance contained therein before the components are separated by prying or pulling the components apart. A pliable seal is disposed between the breaker element and the vials for preventing the detrimental substance that is released from the fractured vials from entering the head space and for expelling the released detrimental substance through the adjacent opening in response to pressure applied against the seal by the breaker element by the movement of the pinhead that results in the vials being fractured.

25 Claims, 2 Drawing Sheets



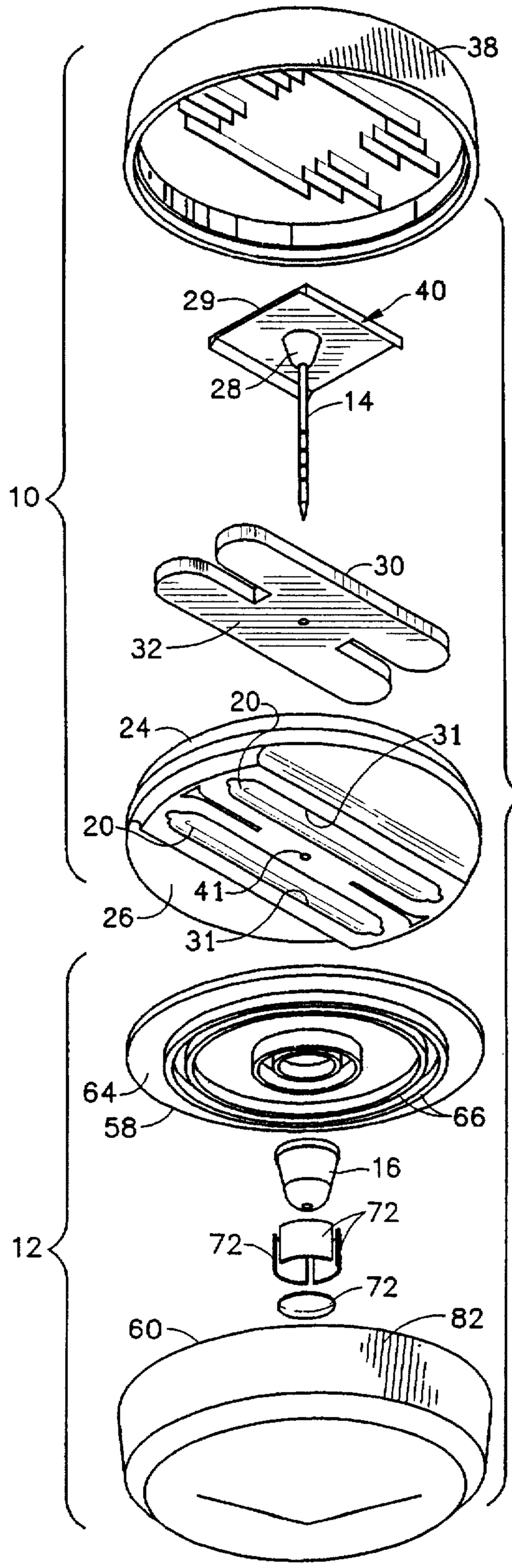


FIG. 1

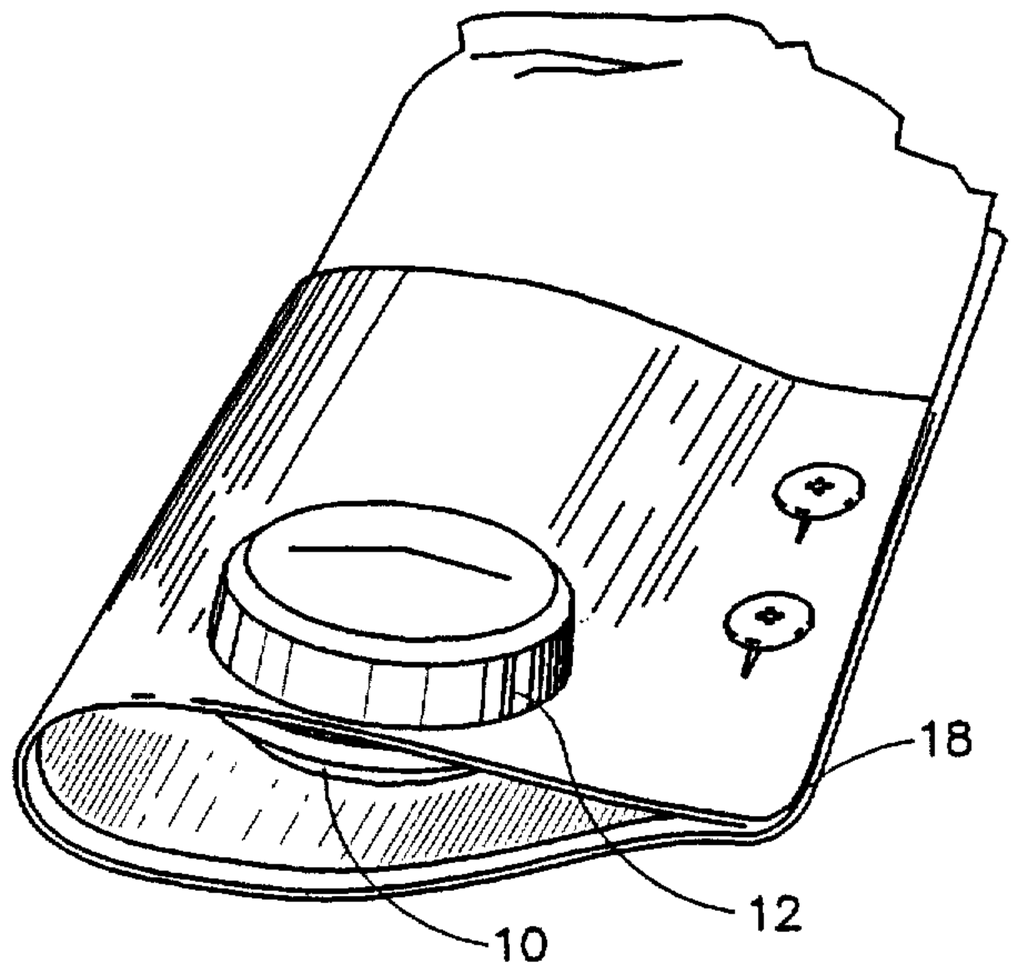


FIG. 2

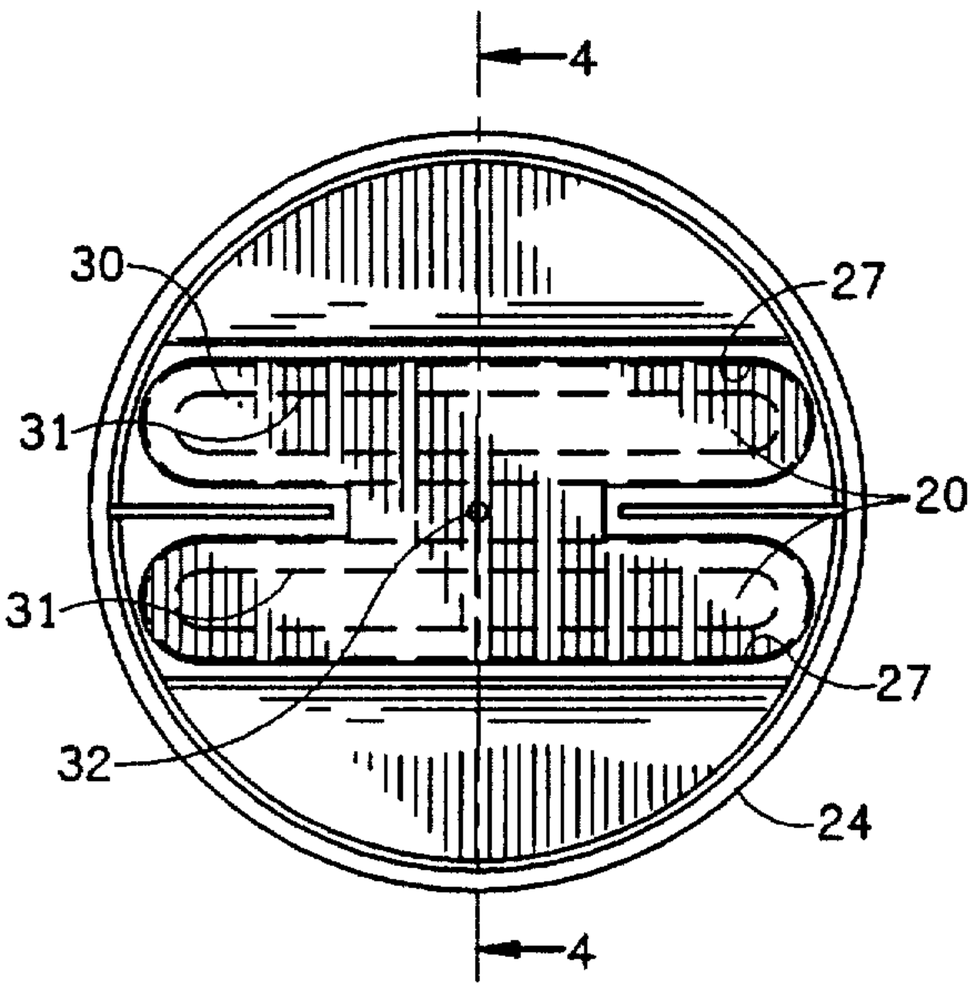


FIG. 3

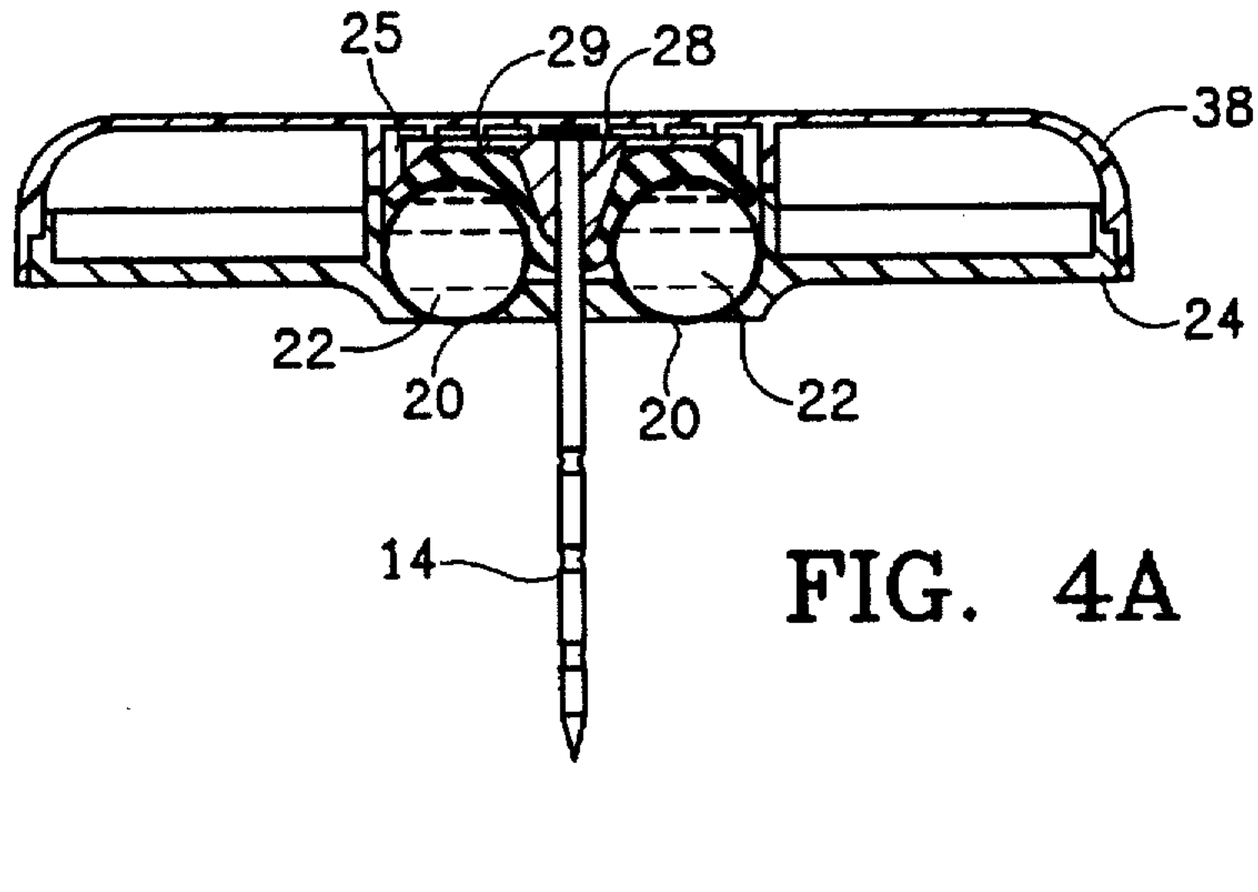


FIG. 4A

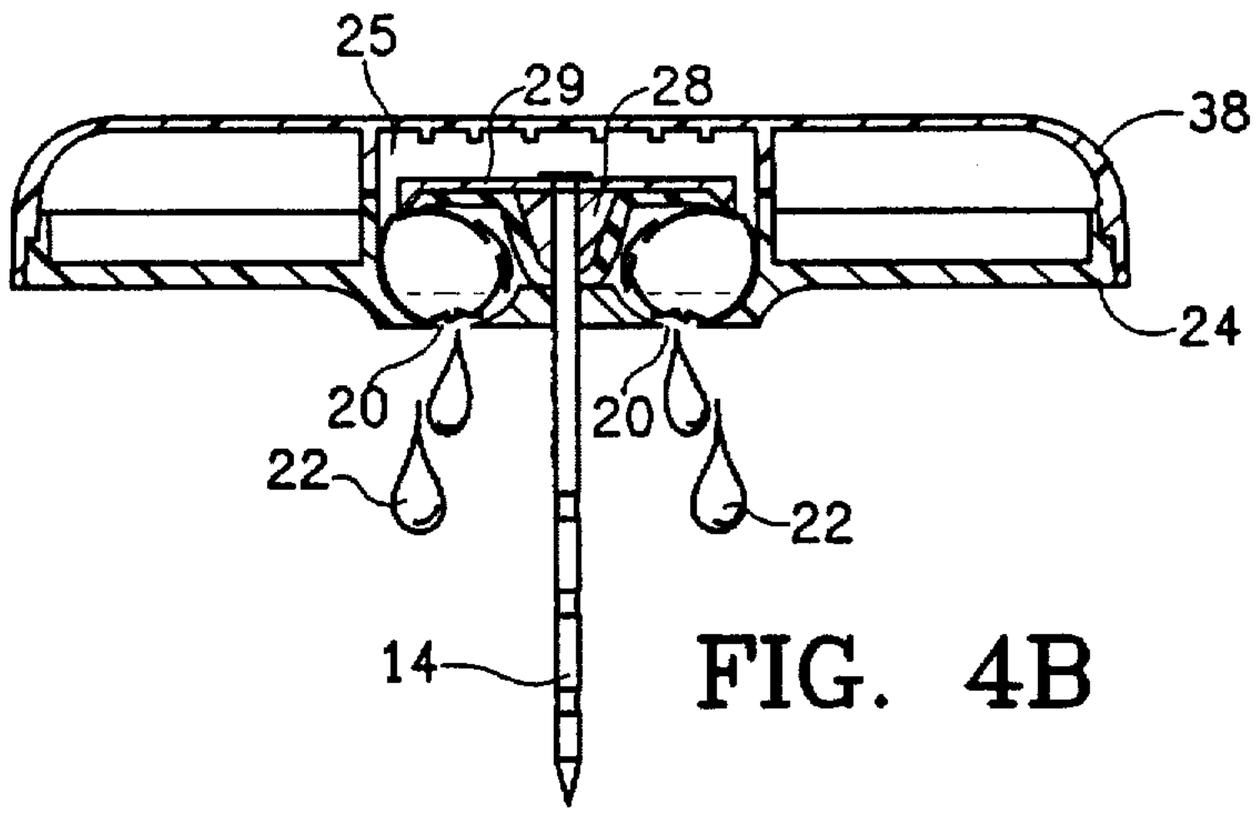


FIG. 4B

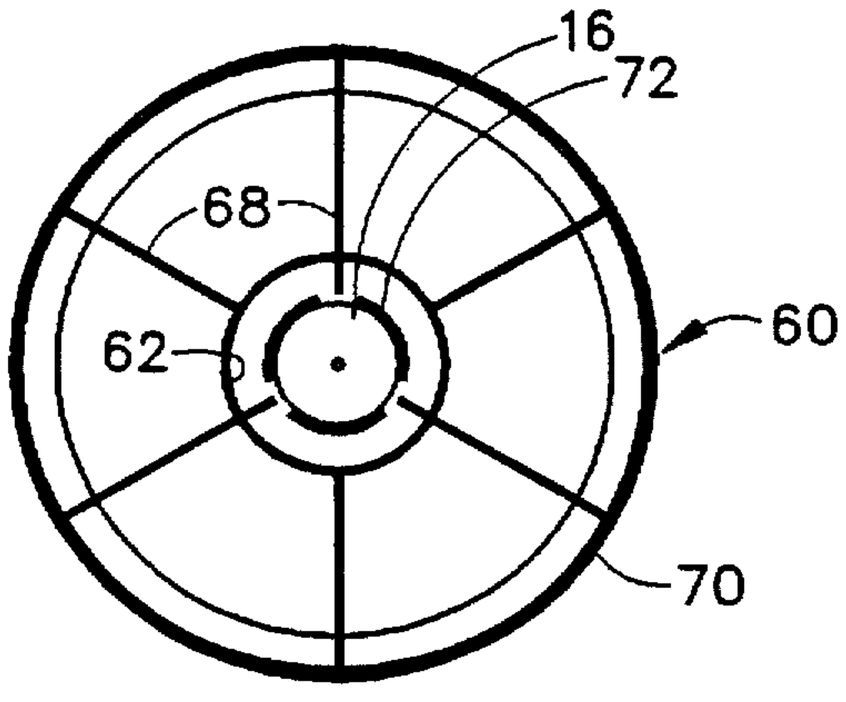


FIG. 5

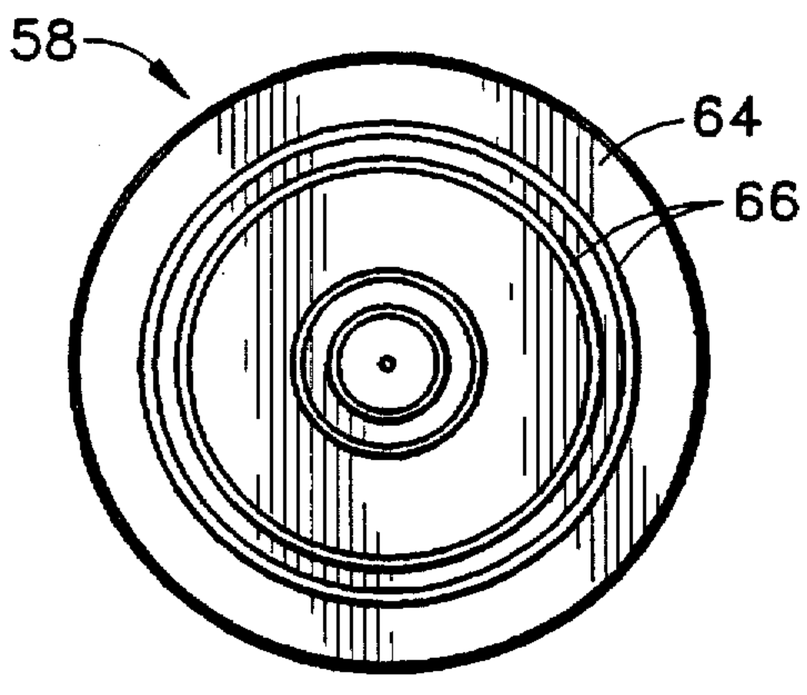


FIG. 6

EXPULSION OF DETRIMENTAL SUBSTANCE FROM THEFT-DETERRENT DEVICE

Matter enclosed in heavy brackets [ ] appears in the original patent but forms no part of this reissue specification; matter printed in italics indicates the additions made by reissue.

BACKGROUND OF THE INVENTION

The present invention is generally directed to devices that may be attached to articles, such as merchandise, for deterring the theft of such articles, and is particularly directed to improvements in a theft-deterrent device of the type that contains a detrimental substance that damages a protected article attached to the device by releasing such substance when the device is tampered with during an unauthorized attempt to remove the device from the article.

Typically, the device includes means for attaching the device to the article, with the attaching means being embodied in two components that are adapted to be locked together on opposite sides of a portion of said article to prevent unauthorized removal of the device from the article. A typical attaching means includes a pin having a head embodied in one of the two components and means embodied in the other component for receiving the free end of the pin. The device is attached to the protected article by passing the free end of the pin through a portion of the article. At least one of the two components includes a fragile elongated vial that fractures when flexed longitudinally, with said vial containing the detrimental substance that would damage the article if the vial were to be fractured while the device was attached to the article.

Prior art devices of this nature are described in U.S. Pat. Nos. 4,483,049 to Gustavsson et al., 4,670,950 to Wisecup et al. and 4,649,397 to Heaton et al. Typically, these devices are used to discourage the theft of such articles of merchandise as clothing, and the detrimental substance typically is an ink or dye or foul-smelling substance that permanently stains and or fouls the clothing so as to make the clothing unattractive and thereby generally unfit for wear.

In both the device described in U.S. Pat. No. 4,483,049 and the device described in U.S. Pat. No. 4,670,950, a detrimental substance is contained in two frangible vials that are respectively disposed in two opposing components that are secured together on opposite sides of a portion of the protected article when the device is locked to the article.

In the device described in U.S. Pat. No. 4,483,049, the vials fracture when severely contacted by a tool, such as a screw driver, that typically would be used in an attempt to pry apart the opposing components of the device so that the device could be removed from the protected article. The vials are so disposed in the device as to be readily contacted by a tool being used to pry apart the object and thereby fracture to release the detrimental substance onto an protected article locked to the device.

In the device described in U.S. Pat. No. 4,670,950, the frangible vials are longitudinally disposed in the two opposing elongated components so that when either component is flexed longitudinally during an attempt to pry the two components apart, the vial contained therein fractures to release the detrimental substance onto an protected article locked to the device.

In the device described in U.S. Pat. No. 4,649,397, two frangible vials are longitudinally disposed in one of two opposing elongated components so that when such component is flexed longitudinally during an attempt to pry the two components apart, the vials contained therein fracture to release the detrimental substance onto an protected article locked to the device. Such device further contains an electronic article surveillance tag of the type described in U.S. Pat. No. 4,481,428 to Lincoln H. Charlot, Jr.

Another prior art detrimental-substance-containing theft-deterrent device having a vial that will fracture to release the detrimental substance whenever a forceful attempt is made to detach the theft-deterrent device from the article to be protected, is described in U.S. Pat. No. 4,944,075 to Dennis L. Hogan. In such device, an attachment-pin-containing component having openings in a surface through which the pin passes for engagement with the other component includes a plurality of fragile elongated detrimental-substance-containing vials that fracture when at least a predetermined pressure is applied thereto; and defines a head space for enabling limited axial movement of the pinhead, and guide channels containing balls between the pinhead and the vials. The guide channels are contoured for enabling the pinhead to force the balls to move and apply more than said predetermined pressure against the vial in response to the pinhead being moved in response to application to the two components of at least a predetermined threshold separation force that is nevertheless less than that required to overcome the retaining force between the pin and the clutch, to thereby fracture at least one of the vials to release the substance contained therein through the openings and onto the article attached to the device before the components are separated by prying or pulling the components apart.

SUMMARY OF THE INVENTION

The present invention provides an improvement to the detrimental-substance-containing component of the theft-deterrent device described in the aforementioned U.S. Pat. No. 4,944,075 to Hogan that enhances expulsion of the detrimental substance from the detrimental-substance-containing component once any one of the vials is fractured.

In one aspect, the present invention provides a detrimental-substance-containing component for use in a theft-deterrent device that includes means for attaching the device to the article, with said attaching means being embodied in two components that are adapted to be locked together on opposite sides of a portion of said article to prevent unauthorized removal of the device from the article, wherein the attaching means include a pin having a head that is anchored within the detrimental-substance-containing component and a clutch contained in the other component for grasping the pin to provide a predetermined retaining force for resisting separation of the components by prying or pulling the components apart, wherein the detrimental-substance-containing component includes a surface through which the pin passes for engagement with the other component, wherein said surface contains at least one opening; wherein the detrimental-substance-containing component includes at least one fragile vial that fractures when at least a predetermined pressure is applied thereto, with said vial being disposed adjacent said at least one opening and containing a detrimental substance that would damage an article attached to the device if the vial were to be fractured and the detrimental substance were to be released from the fractured vial through said at least one opening onto the attached article; wherein the detrimental-substance-containing component defines a head space for enabling limited axial movement of the pinhead; wherein the pinhead includes a

breaker element having a contoured surface for applying more than said predetermined pressure against the vial in response to the pinhead being moved in response to application to the two components of at least a predetermined threshold separation force that is nevertheless less than that required to overcome said predetermined retaining force, to thereby fracture the vial and release the substance contained therein before the components are separated by prying or pulling the components apart; and wherein the detrimental-substance-containing component includes a pliable seal disposed between the breaker element and the vial for preventing the detrimental substance that is released from the fractured vial from entering the head space and for expelling the released detrimental substance through said at least one opening in response to pressure applied against the seal by the breaker element by said movement of the pinhead that results in the vial being fractured.

Accordingly, the detrimental substance is expelled from the detrimental-substance-containing component and onto the article attached to the theft device even though the theft-deterrent device is oriented such that the detrimental-substance-containing component is positioned beneath the other component at the time when the vial is fractured; whereas except for the positive expulsion of the detrimental substance provided by the present invention, the force of gravity would retain the detrimental substance within the detrimental-substance-containing component.

Expulsion of the detrimental substance is further improved in a preferred embodiment in which the seal is more extensive than the breaker element; and in which the pinhead further includes a flange extending beyond the breaker element for contacting the seal beyond the breaker element for further forcing the seal to expel the released detrimental substance through said at least one opening in response to pressure applied against the seal by the flange by said movement of the pinhead that results in the vial being fractured.

In a second aspect, the present invention provides a detrimental-substance-containing component for use in a theft-deterrent device that includes means for attaching the device to the article, with said attaching means being embodied in two components that are adapted to be locked together on opposite sides of a portion of said article to prevent unauthorized removal of the device from the article, wherein the attaching means include a pin having a head that is anchored within the detrimental-substance-containing component and a clutch contained in the other component for grasping the pin to provide a predetermined retaining force for resisting separation of the components by prying or pulling the components apart, wherein the detrimental-substance containing component includes at least one fragile vial that fractures when at least a predetermined pressure is applied thereto, with said vial containing a detrimental substance that would damage an article attached to the device if the vial were to be fractured and the detrimental substance were to be released from the fractured vial onto the attached article; wherein the detrimental-substance-containing component defines a head space for enabling limited axial movement of the pinhead; wherein the pinhead includes a breaker element disposed on the pin so as to move parallel to the axial movement of the pinhead and having a wedge-shaped surface for applying more than said predetermined pressure against the vial in response to the pinhead being moved in response to application to the two components of at least a predetermined threshold separation force that is nevertheless less than that required to overcome said predetermined retaining force, to thereby fracture the vial

and release the substance contained therein before the components are separated by prying or pulling the components apart; and wherein the vial is elongated with closed ends and is disposed in relation to the pinhead such that the breaker element can apply pressure to induce a high bending stress in the vial and thereby completely fracture the vial.

It has been found that if during the process of fracturing the vial, the breaker element induces a high bending stress in the vial without causing premature cracking, the vial will fracture completely; whereas if either the high bending stress is not induced or premature cracking occurs, the vial does not fracture completely. Such incomplete fracturing of the vial sometimes results in the fractured portions of the vial collapsing into the remaining portions of the vial in such a manner as to prevent a large portion of the detrimental substance from being expelled from the vial.

Premature cracking of the vial may occur if the vial is scratched such that minute high pressure points occur when pressure is applied by the breaker element.

To prevent scratching of the vial in those embodiments of the detrimental-substance-containing component of this second aspect of the present invention, as described above, in which the breaker element can contact the vial, the surface of the breaker element that applies the pressure against the vial is made of a smooth, rigid material that does not scratch the vial.

In a preferred embodiment of this second aspect of the present invention, in which the vial is made of glass, the surface of the breaker element that applies the pressure against the vial is made of a fiber-loaded-reinforced thermoplastic material, such as glass-fiber-loaded nylon.

Both of the aforementioned aspects of the invention are combined in the preferred embodiment of the present invention to still further enhance expulsion of the detrimental substance from the detrimental-substance-containing component.

The present invention further provides theft-deterrent devices containing an improved detrimental-substance-containing component according to the present invention.

Additional features of the present invention are described in relation to the description of the preferred embodiment.

BRIEF DESCRIPTION OF THE DRAWING

FIG. **1** is an exploded perspective view of a preferred embodiment of the theft-deterrent device of the present invention.

FIG. **2** illustrates the attachment of the theft-deterrent device of FIG. **1** to a protected article or clothing.

FIG. **3** is a top plan view of a member of the one component of the theft-deterrent device of FIG. **1** that contains the vials and the seal and anchors the pin.

FIGS. **4A** and **4B** are sector sectional views of the detrimental-substance-containing component of the theft-deterrent device of FIG. **1** taken along lines **4—4** in FIG. **3**, showing a sequence of operation as the breaker element of the pinhead moves to fracture the vials in response to the pin being forced downward.

FIG. **5** is a top plan view of the barrel of the second component of the theft-deterrent device of FIG. **1**.

FIG. **6** is a bottom plan view of the cover of the second component of the theft-deterrent device of FIG. **1**.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring to FIG. **1**, a preferred embodiment of the theft-deterrent device of the present invention includes a first

component **10** and a second component **12**. The first component **10** includes a pin **14**, and the second component **12** includes a clutch **16** for grasping the pin **14**. The pin **14** is centrally located in the first component **10**; and the clutch **16** is centrally located in the second component **12**. The theft-deterrent device is attached to an article **18** to be protected (as illustrated in FIG. **2**) by passing the pin **14** through a portion of the protected article **18** and engaging the pin **14** in the clutch **16** so that the clutch **16** grasps the pin **14**. While the pin **16** is grasping the pin **14**, the first component **10** and the second component **12** are locked together on opposite sides of a portion of the protected article **18** and thereby prevent unauthorized removal of the theft-deterrent device from the protected article **18**. The pin **14** has a head **40** that is anchored within the first component **10**; and the clutch **16** in the second component **12** gasps the pin **14** to provide a predetermined retaining force, such as 100 pounds (25 newtons), for resisting separation of the components **10**, **12** by prying or pulling the components apart. The predetermined retaining force must be much greater than the separation force that would be applied in attempting to separate the two components **10**, **12** by using one's bare hands.

The pin **14**, the clutch **16** and the technique of releasing the pin **14** from the grasp of the clutch **16** so that the first component **10** can be unlocked from the second component **12** to thereby detach the protected article **18** from the theft-deterrent device are described in U.S. Pat. No. 4,523,356 to Lincoln H. Charlot, Jr.

Referring to FIGS. **1**, **3**, **4A** and **4B**, the first component **10** includes a member **24** that contains two fragile elongated glass vials **20** that fracture when at least a predetermined pressure is applied thereto. Each vial **20** contains a detrimental substance **22** that would damage the protected article **18** if the vial were to be fractured while the theft-deterrent device was attached to the article **18**. The detrimental substance **22** preferably is a fluid colored dye or permanent ink.

The first component **10** includes a plastic vial-containing member **24** and a circular plastic cover **38**. The member **24** is ultrasonically welded to the cover **38** at the circumferential edge of the member **24**.

The member **24** and the cover **38** define a head space **25** in which the pinhead **40** is anchored. The head space **25** also enables limited axial movement of the pinhead **40**. The pin **14** passes through a hole **41** in an exposed surface **26** of the member **24**.

The exposed surface **26** of the member **24** further includes openings **31** into two chambers **27** defined by the member **24** for respectively disposing the two vials **20** adjacent such openings **31**. The openings **31** are smaller than the vials **20** so as to recess the vials **20** from the exposed surface **26** and thereby prevent the vials **20** from being fractured during normal handling of the component **10**.

The pinhead **40** includes a breaker element **28** and a flange **29**.

The breaker element **28** exerts little or no pressure on the vials **20** while the attached pin **14** and clutch **16** are in a relaxed state, which occurs when no force is being applied to separate the two components **10**, **12**.

The breaker element **28** has a wedge-shaped surface for applying more than the predetermined pressure against the vials **20** in response to the pinhead **40** being moved in response to application to the two components **10**, **12** of at least a predetermined threshold separation force, such as approximately 40 pounds (10 newtons), that is nevertheless less than that required to overcome the predetermined retaining force, to thereby fracture the vials **20** and release the substance **22** contained therein before the components **10**, **12** are separated by prying or pulling the components apart. The predetermined threshold separation force must be well above both normal handling forces for the theft-deterrent device and the separation force that would be applied in attempting to separate the two components **10**, **12** by using one's bare hands; and but yet, the predetermined threshold separation force must be easily attained by attempting to pry the two components **10**, **12** apart with a screwdriver.

The vials **20** are elongated with closed ends and are disposed in relation to the pinhead **40** such that the breaker element **28** can apply pressure to induce a high bending stress in the vials **20** and thereby completely fracture the vials **20**.

The surface of the breaker element **28** that applies the pressure against the vials **20** is made of a smooth, rigid material that does not scratch the vial **20**. In the preferred embodiment, the vials **20** are made of glass; and the surface of the breaker element **28** that applies the pressure against the vial **20** is made of a fiber-loaded-reinforced thermoplastic material, such as glass-fiber loaded nylon.

The vials **20** are symmetrically disposed in relation to the pinhead **40** so that the pinhead **40** applies approximately equal pressure to both vials **20**.

A pliable seal **30** is disposed between the breaker element **28** and the vials **20**. The seal **30** includes a hole **32** through which the pin **14** passes. The pliable seal **30** is disposed between the breaker element **28** and the vials **20** for preventing the detrimental substance **22** that is released from the fractured vials **20** from entering the head space **25** and for expelling the released detrimental substance **22** through the openings **31** in response to pressure applied against the seal **30** by the breaker element by said movement of the pinhead that results in the vial being fractured. The pliable seal **30** preferably is rubber, such as foam rubber or latex sheet material. The foam rubber flows has the advantage of flowing around the glass particles of the fractured vials **20**.

The seal **30** is more extensive than the breaker element **28**; and the flange **29** of the pinhead **40** extends beyond the breaker element for contacting the seal **30** beyond the breaker element **28** for further forcing the seal **30** to expel the released detrimental substance **22** through the openings **31** in response to pressure applied against the seal **30** by the flange **29** by the movement of the pinhead **40** that results in the vials **20** being fractured.

The seal **30** also serves as a shock absorbers for the vials **20** in order to prevent the vials **20** from being broken during normal handling of the component **10**.

When forced separation of the two components **10**, **12** is attempted, the pin **14** is forced to move axially within the vial-containing member **24** and the breaker element **28** of the pinhead **40** applies pressure against the vials **20** to fracture the vials **20**, as illustrated in FIGS. **4A** and **4B**. The pinhead **40** is shown in the relaxed position in FIG. **4A** and is shown in the position in which the vials **20** are fractured in response to downward movement of the pinhead **40** in FIG. **4B**. The second component **12** also is so structured as not to flex when an attempt is made to pry the first component **10** from the second component **12** while the two components are locked together, thereby concentrating separation forces resulting from said prying to be applied to forcing movement of the pinhead **40** within the member **24** of the first component **10**.

Referring to FIGS. **5** and **6**, the second component **12** includes a plastic cover **58** and a plastic barrel **60**. The barrel

60 includes a central chamber 62 that holds the housing of the clutch 16. In order to make the second component 12 rigid so that it does not flex, the concealed surface 64 of the cover 12 includes a plurality of circular stiffening ribs 66; and the barrel 60 includes a plurality of supporting struts 68 extending radially between the central chamber 62 and the outer wall 70 of the barrel 60.

The second component 12 also includes deflection plates 72 made of two-percent-carbon hardened spring steel, which line the central chamber 62 around the clutch 16 for deflecting the bit of a drill that one might use in an attempt to penetrate the housing of the clutch 16, and thereby shield the housing of the clutch 16 from a drilling tool.

The barrel 60 is ultrasonically welded to the cover 58 at the circumferential edge of the cover 58 and at the upper edge of the central chamber 62.

We claim:

1. A detrimental-substance-containing component of a device for deterring theft of a protected article, the device comprising means for attaching the device to the article, with said attaching means being embodied in two components that are adapted to be locked together on opposite sides of a portion of said article to prevent unauthorized removal of the device from the article, wherein the attaching means include a pin having a head that is anchored within the detrimental-substance-containing component and a clutch contained in the other component for grasping the pin to provide a pre-determined retaining force for resisting separation of the components by prying or pulling the components apart,

wherein the detrimental-substance-containing component includes a surface through which the pin passes for engagement with the other component,

wherein said surface contains at least one opening;

wherein the detrimental-substance-containing component includes at least one fragile vial that fractures when at least a predetermined pressure is applied thereto, with said vial being disposed adjacent said at least one opening and containing a detrimental substance that would damage an article attached to the device if the vial were to be fractured and the detrimental substance were to be released from the fractured vial through said at least one opening onto the attached article;

wherein the detrimental-substance-containing component defines a head space for enabling limited axial movement of the pinhead;

wherein the pinhead includes a breaker element having a contoured surface for applying more than said predetermined pressure against the vial in response to the pinhead being moved in response to application to the two components of at least a predetermined threshold separation force that is nevertheless less than that required to overcome said predetermined retaining force, to thereby fracture the vial and release the substance contained therein before the components are separated by prying or pulling the components apart; and

wherein the detrimental-substance-containing component includes a pliable seal disposed between the breaker element and the vial for preventing the detrimental substance that is released from the fractured vial from entering the head space and for expelling the released detrimental substance through said at least one opening in response to pressure applied against the seal by the breaker element by said movement of the pinhead that results in the vial being fractured.

2. A component according to claim 1, wherein the seal is more extensive than the breaker element; and

wherein the pinhead further includes a flange extending beyond the breaker element for contacting the seal beyond the breaker element for further forcing the seal to expel the released detrimental substance through said at least one opening in response to pressure applied against the seal by the flange by said movement of the pinhead that results in the vial being fractured.

3. A component according to claim 1, wherein the contour of the breaker element is wedge-shaped; and

wherein the vial is elongated with closed ends and is disposed in relation to the pinhead such that the breaker element can apply pressure to induce a high bending stress in the vial and thereby completely fracture the vial.

4. A component according to claim 3, wherein the surface of the breaker element that applies said pressure against the vial is made of a smooth, rigid material that does not scratch the vial.

5. A component according to claim 3, wherein the vial is made of glass; and

wherein the surface of the breaker element that applies said pressure against the vial is made of a smooth, rigid fiber-loaded-reinforced thermoplastic material that does not scratch glass.

6. A component according to claim 3, comprising a plurality of said vials symmetrically disposed in relation to the breaker element of the pinhead.

7. A detrimental-substance-containing component of a device for deterring theft of a protected article, the device comprising means for attaching the device to the article, with said attaching means being embodied in two components that are adapted to be locked together on opposite sides of a portion of said article to prevent unauthorized removal of the device from the article,

wherein the attaching means include a pin having a head that is anchored within the detrimental-substance-containing component and a clutch contained in the other component for grasping the pin to provide a predetermined retaining force for resisting separation of the components by prying or pulling the components apart,

wherein the detrimental-substance-containing component includes at least one fragile vial that fractures when at least a predetermined pressure is applied thereto, with said vial containing a detrimental substance that would damage an article attached to the device if the vial were to be fractured and the detrimental substance were to be released from the fractured vial onto the attached article;

wherein the detrimental-substance-containing component defines a head space for enabling limited axial movement of the pinhead;

wherein the pinhead includes a breaker element disposed on the pin so as to move parallel to the axial movement of the pinhead and having a wedge-shaped surface for applying more than said predetermined pressure against the vial in response to the pinhead being moved in response to application to the two components of at least a predetermined threshold separation force that is nevertheless less than that required to overcome said predetermined retaining force, to thereby fracture the vial and release the substance contained therein before the components are separated by prying or pulling the components apart; and

wherein the vial is elongated with closed ends and is disposed in relation to the pinhead such that the breaker

element can apply pressure to induce a high bending stress in the vial and thereby completely fracture the vial.

8. A component according to claim **7**, wherein the surface of the breaker element that applies said pressure against the vial is made of a smooth, rigid material that does not scratch the vial.

9. A component according to claim **7**, wherein the vial is made of glass; and

wherein the surface of the breaker element that applies said pressure against the vial is made of a smooth, rigid fiber-loaded-reinforced thermoplastic material that does not scratch glass.

10. A component according to claim **7**, comprising a plurality of said vials symmetrically disposed in relation to the breaker element of the pinhead.

11. A device for deterring theft of a protected article, comprising

means for attaching the device to the article, with said attaching means being embodied in two components that are adapted to be locked together on opposite sides of a portion of said article to prevent unauthorized removal of the device from the article, wherein the attaching means include a pin having a head that is anchored within one component and a clutch contained in the other component for grasping the pin to provide a predetermined retaining force for resisting separation of the components by prying or pulling the components apart;

wherein said one component includes a surface through which the pin passes for engagement with the other component, wherein said surface contains at least one opening;

wherein said one component includes at least one fragile vial that fractures when at least a predetermined pressure is applied thereto, with said vial being disposed adjacent said at least one opening and containing a detrimental substance that would damage an article attached to the device if the vial were to be fractured and the detrimental substance were to be released from the fractured vial through said at least one opening onto the attached article;

wherein said one component defines a head space for enabling limited axial movement of the pinhead;

wherein the pinhead includes a breaker element having a contoured surface for applying more than said predetermined pressure against the vial in response to the pinhead being moved in response to application to the two components of at least a predetermined threshold separation force that is nevertheless less than that required to overcome said predetermined retaining force, to thereby fracture the vial and release the substance contained therein before the components are separated by prying or pulling the components apart; and

wherein the one component further includes a pliable seal disposed between the breaker element and the vial for preventing the detrimental substance that is released from the fractured vial from entering the head space and for expelling the released detrimental substance through said at least one opening in response to pressure applied against the seal by the breaker element by said movement of the pinhead that results in the vial being fractured.

12. A device according to claim **11**, wherein the seal is more extensive than the breaker element; and

wherein the pinhead further includes a flange extending beyond the breaker element for contacting the seal beyond the breaker element for further forcing the seal to expel the released detrimental substance through said at least one opening in response to pressure applied against the seal by the flange by said movement of the pinhead that results in the vial being fractured.

13. A device according to claim **11**, wherein the contour of the breaker element is wedge-shaped; and

wherein the vial is elongated with closed ends and is disposed in relation to the pinhead such that the breaker element can apply pressure to induce a high bending stress in the vial and thereby completely fracture the vial.

14. A device according to claim **13**, wherein the surface of the breaker element that applies said pressure against the vial is made of a smooth, rigid material that does not scratch the vial.

15. A device according to claim **13**, wherein the vial is made of glass; and

wherein the surface of the breaker element that applies said pressure against the vial is made of a smooth, rigid fiber-loaded-reinforced thermoplastic material that does not scratch glass.

16. A device according to claim **13**, comprising a plurality of said vials symmetrically disposed in relation to the breaker element of the pinhead.

17. A device for deterring theft of a protected article, comprising

means for attaching the device to the article, with said attaching means being embodied in two components that are adapted to be locked together on opposite sides of a portion of said article to prevent unauthorized removal of the device from the article, wherein the attaching means include a pin having a head that is anchored within one component and a clutch contained in the other component for grasping the pin to provide a predetermined retaining force for resisting separation of the components by prying or pulling the components apart;

wherein said one component includes at least one fragile vial that fractures when at least a predetermined pressure is applied thereto, with said vial containing a detrimental substance that would damage an article attached to the device if the vial were to be fractured and the detrimental substance were to be released from the fractured vial onto the attached article; p1 wherein said one component defines a head space for enabling limited axial movement of the pinhead;

wherein the pinhead includes a breaker element disposed on the pin so as to more parallel to the axial movement of the pinhead and having a wedge-shaped surface for applying more than said predetermined pressure against the vial in response to the pinhead being moved in response to application to the two components of at least a predetermined threshold separation force that is nevertheless less than that required to overcome said predetermined retaining force, to thereby fracture the vial and release the substance contained therein before the components are separated by prying or pulling the components apart; and

wherein the vial is elongated with closed ends and is disposed in relation to the pinhead such that the breaker element can apply pressure to induce a high bending stress in the vial and thereby completely fracture the vial.

18. A device according to claim **17**, wherein the surface of the breaker element that applies said pressure against the vial is made of a smooth, rigid material that does not scratch the vial.

19. A device according to claim **17**, wherein the vial is made of glass; and

wherein the surface of the breaker element that applies said pressure against the vial is made of a fiber-loaded-reinforced thermoplastic material.

20. A device according to claim **17**, comprising a plurality of said vials symmetrically disposed in relation to the breaker element of the pinhead.

21. A detrimental-substance-containing component of a device for deterring theft of a protected article, the device comprising means for attaching the device to the article, with said attaching means being embodied in two components that are adapted to be locked together on opposite sides of a portion of said article to prevent unauthorized removal of the device from the article, wherein the attaching means include a pin having a head that is anchored within the detrimental- substance-containing component and a clutch contained in the other component for grasping the pin to provide a predetermined retaining force for resisting separation of the components by prying or pulling the components apart,

wherein the detrimental-substance-containing component includes a surface through which the pin passes for engagement with the other component, wherein said surface contains at least the opening;

wherein the detrimental-substance-containing component includes at least one fragile vial that fractures when at least a predetermined pressure is applied thereto, with said vial being disposed adjacent said at least one opening and containing a detrimental substance that would damage an article attached to the device if the vial were to be fractured and the detrimental substance were to be released from the fractured vial through said at least one opening onto the attached article;

wherein the detrimental-substance-containing component defines a head space for enabling limited axial movement of the pinhead;

wherein the pinhead includes a surface for applying more than said predetermined pressure against the vial in response to the pinhead being moved in response to application to the two components of at least a predetermined threshold separation force that is nevertheless less than that required to overcome said predetermined retaining force, to thereby fracture the vial and release the substance contained therein before the components are separated by prying or pulling the components apart; and

wherein the detrimental-substance-containing component includes a pliable seal disposed between the pinhead and the vial for preventing the detrimental substance that is released from the fractured vial from entering the head space and for expelling the released detrimental substance through said at least one opening in response to pressure applied against the seal by the pinhead by said movement of the pinhead that results in the vial being fractured.

22. A detrimental-substance-containing component of a device for deterring theft of a protected article, the device comprising means for attaching the device to the article, with said attaching means being embodied in two components that are adapted to be locked together on opposite sides of a portion of said article to prevent unauthorized

removal of the device from the article, wherein the attaching means include a pin having a head that is anchored within the detrimental- substance-containing component and a clutch contained in the other component for grasping the pin to provide a predetermined retaining force for resisting separation of the components by prying or pulling the components apart,

wherein the detrimental-substance-containing component includes at least one fragile vial that fractures when at least a predetermined pressure is applied thereto, with said vial containing a detrimental substance that would damage an article attached to the device if the vial were to be fractured and the detrimental substance were to be released from the fractured vial onto the attached article;

wherein the detrimental-substance-containing component defines a head space for enabling limited axial movement of the pinhead;

wherein the pinhead has a surface for applying more than said predetermined pressure against the vial in response to the pinhead being moved in response to application to the two components of at least a predetermined threshold separation force that is nevertheless less than that required to overcome said predetermined retaining force, to thereby fracture the vial and release the substance contained therein before the components are separated by prying or pulling the components apart;

wherein the vial is elongated with closed ends and is disposed in relation to the pinhead such that the pinhead can apply pressure to induce a high bending stress in the vial and thereby completely fracture the vial; and

wherein the surface that applies said pressure against the vial is made of a smooth, rigid material that does not scratch the vial.

23. A component according claim 22, wherein the vial is made of glass; and

wherein the surface thai applies said pressure against the vial is made of a smooth, rigid fiber-loaded-reinforced thermoplastic material that does not scratch glass.

24. An article-protecting theft deterrent including a first element which comprises a base element, an elongated, generally pin-shaped or needle-shaped connecting element which projects from said base element and which is intended for insertion through said article, and a second element comprising a head which is intended for attachment to the connecting element and which is locked on said connecting element against movement away from the base element so as to hold the theft deterrent on said article, wherein the base element is provided with a fragile, tubular ampule which contains a staining substance and which is intended to fracture when the connecting element is manipulated, such as to release the staining substance from said ampule, characterized in that the ampule is supported at both ends thereof against movement in a direction away from the base element; and in that the connecting element includes an abutment part which is integral to the connecting element and located on that side of the ampule which is opposite to said direction and which is intended to come into engagement with the ampule when an attempt is made to manipulate the connecting element.

25. A detrimental-substance-containing component of a device for deterring theft of a protected article, the device comprising means for attaching the device to the article, with said attaching means being embodied in two compo-

nents that are adapted to be locked together on opposite sides of a portion of said article to prevent unauthorized removal of the device from the article, wherein the attaching means include a pin having a head that is anchored within the detrimental-substance-containing component and a clutch contained in the other component for grasping the pin to provide a predetermined retaining force for resisting separation of the components by prying or pulling the components apart,

wherein the detrimental-substance-containing component includes at least one fragile vial that fractures when at least a predetermined pressure is applied thereto, with said vial containing a detrimental substance that would damage an article attached to the device if the vial were to be fractured and the detrimental substance were to be released from the fractured vial onto the attached article;

wherein the detrimental-substance-containing component defines a head space for enabling limited axial movement of the pinhead;

wherein the pinhead includes a breaker element integral to and disposed on the pin so as to move parallel to the axial movement of the pinhead and having a surface for applying more than said predetermined pressure against the vial in response to the pinhead being moved in response to application to the two components of at least a predetermined threshold separation force that is nevertheless less than that required to overcome said predetermined retaining force, to thereby fracture the vial and release the substance contained therein before the components are separated by prying or pulling the components apart; and

wherein the vial is elongated with closed ends and is disposed in relation to the pinhead such that the breaker element can apply pressure to fracture the vial.

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