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⑦① Applicant: **JOHN THOMAS BATTS, INC.**
200 North Franklin
Zeeland, Michigan(US)

⑦② Inventor: **Morgan, Donald Farrell**
133 East Central
Zeeland Michigan(US)

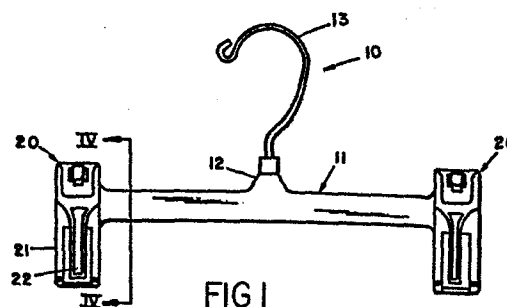
⑦② Inventor: **Duester, Everett Leslie**
37 1/2 Sanford Street
Zeeland Michigan(US)

⑦② Inventor: **Garrison, Judd Frederick**
3199 East Beltline
Grand Rapids Michigan(US)

⑦④ Representative: **Robinson, Anthony John**
Metcalf et al,
Kilburn & Strobe 30 John Street
London, WC1N 2DD(GB)

⑤④ Hangers.

⑤⑦ A moulded plastic garment hanger (10) has a garment gripping clamp including a pair of jaws (21, 22) joined by a hinge (23), one jaw (21) of which has a bifurcated portion adjacent its free end and the other (22) is of a size and shape such that it can pass through the bifurcated end of the one jaw. The clamp is fabricated of a resilient plastic and has a latch (33) for holding it closed on a garment while partially flexed by the garment.



HANGERS

This invention relates to hangers and more particularly to the gripping or clamping structure of a garment hanger designed specifically for supporting garments of light or intermediate weight.

5. Moulded plastic garment hangers having means to grip a garment have been used in the garment merchandising field for many years. These hangers are moulded from plastic as one piece, including a hook or they are moulded as a single, one-piece body to which a
10. hook is attached. The primary use of these hangers has been the display of womens wear, particularly the lighter weight garments such as slips, summer skirts, dresses and the like. For a number of years the so-called three-fingered garment hanger described in
15. US-A-3 047 196 has been extensively used. This hanger is particularly attractive because of its light weight, low cost and front-to-back thin silhouette. It is capable of reuse and occupies a minimum of rod length on the display racks. This hanger, however, is
20. limited to use with only very light garments because the heavier garments have a tendency to become detached from the clips as a result of their weight. Also, over a period of time, these hangers have a tendency to release their garments simply because of the creep
25. of the plastic induced by the weight of the garment. Release also occurs as a result of jostling and impatient handling by customers and sales assistants as well as creep resulting from the vibration to which display areas are commonly subjected, particularly in metro-
30. politan areas adjacent heavy traffic. Because of these

characteristics, the hanger has been limited to point-of-sale use. It could not be used as a transport hanger. In attempting to overcome these problems it has been necessary to give consideration to two

5. particularly important factors, those being the necessity for maintaining a construction capable of low cost manufacture and one which will not permanently indent or otherwise damage the garment, even if the garment is removed from the hanger in a rather abrupt
10. manner.

- According to a first aspect of the present invention a hanger for articles, comprises means for supporting the hanger and a garment clamp having first and second jaws hingedly connected at their
15. upper ends, one of the first and second jaws being stationary and the other being vertically pivotable about the hinge connection, the hanger being characterized in that one of the jaws has an aperture through its lower portion, the free end of the other jaw
 20. being of a width and length to pass through the aperture as it is moved to a closed position; and latch means for holding the jaws in the closed position. Reference to articles in the present application refers to all sorts of garments such as slips, skirts and dresses
 25. and also encompasses articles such as scarves and handkerchieves and any other similar articles.

- The aperture is preferably closed at the free end of the jaw by an end bar extending between and joining the sides of the jaw and preferably it is the
30. stationary jaw which has the aperture.

- According to a second aspect of the present invention a hanger for articles comprises means by which the hanger can be suspended; a clamp having first and second jaws hingedly connected at their upper ends
5. whereby the jaws can be pivotally opened and closed, characterised in that one of the first and second jaws is bifurcated adjacent its free end, the other of the first and second jaws being of a shape and size such that its free end can pass between the sides of the
 10. bifurcated portion of the one jaw as the clamp is moved to maximum closed position; latch means adjacent the hinge connection of the jaws for holding the jaws in closed position; the jaws having aligned and inwardly facing garment gripping pads adjacent their
 15. free ends; the jaws defining a pocket between the pads and the latch means, the jaws being of a length such that an article can be received and seated in the pocket.

- Such hangers can be used with garments having a
20. waist band, in which case the jaws are elongated to reach past the welted waist band seams and close on the thinner section of the garment below the waist band. The hangers may be provided with a body member to which the clamp is attached. One of the first and second
 25. jaws is preferably stationary with respect to the body member.

- In a preferred embodiment the latch means includes a latch finger secured to one of the jaws and a latch opening through the other of the jaws, one wall of the
30. opening being a keeper for engaging the latch finger.

- This provides a latching system permitting the clamping action to be easily released by the operator when it is desired to remove the garment from the hanger. Its design is such that once unlatched, the
5. hanger no longer imposes any resistance to removal of the garment. Thus, there is no need to forcibly pull the garment free of the hanger. This release is effected simply by flipping a latch finger into the release position.
10. Preferably, at least one of the jaws has a reinforcing rib formed therein adjacent the wall.
- At least one of the jaws intermediate its ends may be arched away from the other thereof and the latch means is conveniently placed between the
15. arch and the hinge connection between the jaws.
- Preferably the jaws are moulded of a stiff and resilient plastics whereby the jaws may be flexed as they are closed to accommodate the thickness of an
20. article seated between their free ends, the resiliency of the plastics applying sufficient pressure to positively grip the article. Each of the jaws may be provided with a pair of reinforcing flanges, one along each side extending generally perpendicular to the plane of the jaw.
25. In a preferred embodiment each of the jaws at the end distant from the hinge connection has gripping teeth extending towards the teeth on the other. The teeth are preferably on both of the jaws are offset toward each other from the planes of the adjacent
30. surfaces of the jaws. Each jaw may also be provided with a substantially horizontal stop surface facing

toward the upper end and being in a common plane when the jaws are closed to the article clamping position.

- In one embodiment according to the invention the latch means has a latch lever integral with one of the jaws and a web forming a keeper on the other jaw; the lever having a plurality of depending teeth spaced lengthwise of the lever; the lever being inclined upwardly and the teeth being inclined from the plane of the lever downwardly and toward the base of the lever to form an engagement with the web which urges the teeth and web to remain engaged when the jaws are subjected to pressure tending to force them apart.
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10. lever to form an engagement with the web which urges the teeth and web to remain engaged when the jaws are subjected to pressure tending to force them apart.

- Hangers according to the present invention may be provided with any number of clamps according to the article; for example hangers for handkerchieves suitably have only one clamp whereas hangers for skirts suitably have two clamps spaced apart on a body member. More than two clamps can be used if the article is particularly wide or heavy. Suitably the hangers may be made from moulded plastics and the means by which the hanger can be supported or suspended is suitably a hook which can be formed integrally or as a separate item which attaches to a boss on the hanger. The hanger is capable of manufacture as a one-piece product or it may be manufactured with all of the parts except the hook moulded as a single, integral component and the hook, as a separate item, assembled to it.
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25. or it may be manufactured with all of the parts except the hook moulded as a single, integral component and the hook, as a separate item, assembled to it.

The invention may be put into practice in various ways but one garment hanger incorporating the invention and several modifications will now be described by way of example with reference to the accompanying drawings,

5. in which:

Figure 1 is a front elevation view of a hanger;

Figure 2 is an enlarged, fragmentary front elevation of one of the clamps of the hanger;

Figure 3 is a figure similar to Figure 2 but
10. illustrating the clamp in fully opened position, as it would appear when removed from the mould;

Figure 4 is a sectional elevation view taken along the plane IV-IV of Figure 1 illustrating the clamp in maximum closed position;

15. Figure 5 is a view similar to Figure 4 but illustrating the clamp in its open garment receiving position;

Figure 6 is a view similar to Figure 5 illustrating the clamp as it is being closed and first engaging the
20. garment;

Figure 7 is a view similar to Figure 6 illustrating the garment after it has been closed and latched;

Figure 8 is a sectional elevation view through the centre of the clamp taken along the plane VIII-VIII
25. of Figure 2 and illustrating the clamp as it is being closed upon a garment;

Figure 9 is a view similar to Figure 8 illustrating the clamp after it has been closed and latched;

Figure 10 is a sectional view taken along the
30. plane X-X of Figure 5;

Figure 11 is an enlarged fragmentary, sectional view of the latch;

Figure 12 is a sectional view taken along the plane XII-XII of Figure 11;

5. Figures 13 and 14 are similar to Figures 2 and 3, respectively, illustrating a modified form of the invention;

Figure 15 is a fragmentary front elevation view of a further modified construction for the clamps;

10. Figure 16 is a sectional elevation view taken along the plane XVI-XVI of Figure 15;

Figure 17 is an enlarged, fragmentary illustration of a modified construction for the latch and keeper, prior to engagement;

15. Figure 18 is a view similar to Figure 17 illustrating the engagement of the latch and keeper when the garment is thin;

- Figure 19 is a view similar to Figure 17 illustrating the engagement of the latch and keeper when the garment is thick; and
- 20.

Figure 20 is an end elevation view of the clamp appearing in Figure 15 illustrating the clamp in garment supporting position.

- Referring now to the drawings and particularly to
25. Figure 1, the numeral 10 identifies a hanger having an elongated body member 11 in the form of a beam at the centre of which is a boss 12. Secured to the boss 12 is a supporting hook 13. It will be recognized that it would be conventional practice to mould the hook as
30. an integral part of the hanger body, eliminating the assembly of a separate hook component.

At each end of the body 11 the hanger is provided with a clamp 20. The clamp 20 consists of a pair of jaws 21 and 22 which are moulded as one piece, joined at the centre by a thin, flexible web 23.

5. The flexible web 23 serves as a hinge about which the jaws 21 and 22 can be folded or pivoted with respect to each other. The clamps 20 are moulded as integral extensions of the body 11 with the ends of the body 11 being joined to the rear or back jaw 21. This
10. arrangement holds the jaw 21 stationary with respect to the body 11. In contrast to this, as will be seen in Figures 4 to 7, the jaw 22 is pivotable about the hinge 23 with respect to the jaw 21.

- Both of the jaws are outwardly arched, that is,
15. arched away from each other. The apex 24 of the arch of each of the jaws is preferably offset toward the hinge 23 from the midpoint of the jaws. The rear jaw 21 has reinforcing ribs 26 along each side edge together with parallel reinforcing ribs 27 in the area adjacent
20. to the hinge 23 (Figure 3). The ribs extend inwardly toward the centre of the clamp and in the area of the ribs 27 form inwardly facing recesses 28. The jaw 21 has a large aperture 29 between the arch 24 and the free end of the jaw. The aperture 29 is closed at the
25. end of the jaw by a cross bar 30. Adjacent the cross bar the inside face of the ribs 26 is provided with gripping pads 31 equipped with teeth for engaging a garment.

- Adjacent the hinge, the jaw 21 has an opening
30. 32. A latch lever 33 extends inwardly from the lower

edge of this opening and terminates in a finger pad 34 (Figures 11 and 12). Adjacent the finger pad the latch has a pair of sockets 35.

The jaw 22, adjacent the hinge 23, has a

5. construction quite similar to that of the jaw 21 including the reinforcing ribs 27a and recesses 28a. However, instead of the latch structure 33, the jaw has an opening 40, one end of which has a narrowed portion forming an end wall 41 which serves as a
10. keeper for the latch. The wall has a notch 37 which cooperates with the latch finger in providing a positive lock for the latch when it is closed (Figure 11). Each end of the wall 41 terminates in a shoulder 42. When the clamp is closed and the latch is locked, the
15. shoulders 42 are seated in the sockets 35. The front jaw 22 adjacent the wall 41 has a laterally extending stiffening rib 45 (Figure 9).

- Approximately at the apex 24 of its arch, the forward jaw 22 narrows into an elongated finger which
20. is of a width to pass through the aperture 29 in the rear jaw. Also the length of the jaw is such that its free end will not be intercepted by the cross bar 30. The finger portion is also stiffened and reinforced by suitable ribs 42a which stiffen and provide
 25. structural integrity for the narrowed cross section of the jaw. Adjacent the free end of the jaw, the inside face is equipped with a gripping pad 43, the inner surface of which is provided with article gripping teeth designed to cooperate with the teeth of the
 30. gripping pads 31 on the inside of the rear jaw 21. The gripping pads 31 and 43 are directly opposed.

The length of the jaws is such that the waist band of a garment can be seated in a pocket 50 between the latch 33 and the pads 31 and 43. The arched shape of the jaws gives the pocket sufficient

5. front-to-back space to accommodate the average waist band with only enough deflection of the jaws at the latched position to assure a positive grip on the latch and a firm grip on the garment. By this arrangement the pads are able to grip the garment below
10. the waist band.

The body and the clamps are moulded as a single, integral component from a suitable plastic as, for example, a polypropylene. The selected plastic has to have resilience and be capable of being flexed.

15. When provided with the stiffening and reinforcing ribs it must also be able to act with a sufficient degree of resistance that it will provide adequate pressure on a garment to assure a positive clamping and supporting action. The selected plastic must be sufficiently
20. limited in its fatigue and creep characteristics that it will not, over a period of time, progressively lose its gripping ability and release the garment.

In this connection the existence of the arch in the jaws is important because it provides both strength

25. and a point where a limited degree of bending or pivotal action can be generated within each of the jaws, permitting them to flex and account for the thickness of the garment trapped between them. It will be noted from Figure 4 that, when no garment is present, the

30. jaws are designed in such a manner that the front or

pivotal jaw will pivot past the plane of the fixed or rear jaw and in fact pass through the aperture 29. Thus, as is progressively illustrated in Figures 5 to 7, when a garment A is placed between the jaws and

5. the jaws are closed, they first come to bear against the garment and then, as they continue to be pressed together, the jaws themselves flex until they have been deformed sufficiently that the latch 33 can be secured. In this manner a resilient spring-like

10. pressure is built up, assuring a positive grip on the garment.

In the case of many garments the thickness of the waist band is such that the jaws will exert their greatest pressure against the waist band rather than

15. between the teeth of the pads 31 and 43. Because the pads extend inwardly from the inner faces of the jaws, they will seat under the waist band. Thus, the garment is positively gripped and will not be released by the jaws unless the latch is released. At the same

20. time the pressure exerted on the garment between the pads is not such as to mark the garment and render it unattractive when removed. This feature makes the hanger suitable for transport because it will not release the garment in response to either vibration

25. or creep of the plastic. Thus, the hanger can be applied to the garment by the manufacturer and remain with it until the garment is sold to the ultimate customer.

It will be recognised that depending on the type

30. of garments with which the hanger is to be used, the

amount of resistance which the hanger exerts on the garment can be governed by the thickness of the reinforcing ribs and by the composition of the plastic from which it is moulded. It is also entirely

5. possible to somewhat lengthen the latch finger or to make the latch finger with more than one pair of notches spaced lengthwise of the finger thus making it possible to adjust the degree to which the jaws are closed and flexed when they are latched.
10. Figures 13 and 14 illustrate a modification of the hanger previously described. In this construction there is no body, the clamp 20a having a hook 13a integral with one side edge of the rear jaw 21a. The remaining structure of the clamp remains the same
15. as that illustrated in Figures 1 to 12. The minimum size of the hook is such that it is moulded around the end of the jaw 22 as illustrated in Figure 12. In this form the invention can be used to display small, single articles such as handkerchieves.
20. Figures 15 to 20 illustrate a modification of the clamp structure. The modified clamp 20a has a ratchet type of latch. In this construction the latch lever 33a is equipped with a plurality of parallel depending teeth 60 which are spaced apart lengthwise
25. of the lever. The ratchet lever concept is illustrated in US-A-3 745 616 and US-A-3 698 043. In the present construction the latch lever 33a is always inclined upwardly from the point of attachment to the jaw 21a and the teeth 60 are inclined toward the base of the
30. lever to form a positive interference type engagement

with a web 61 forming a keeper on the movable jaw 22a. The design of both the teeth 60 and the web 61 is such that the interengaging faces of the teeth and web at all positions of the jaw 22a do not

5. create any forces creating a cam-like force urging the latch and keeper to disengage (Figures 17 to 19). This is important because the clamps are designed to have the capability of gripping relatively thick materials which may necessitate substantial closing
10. forces.

- Figures 15, 16 and 20 illustrate the hanger with the jaws specifically designed for garments having a waist band. In this construction pads 63 and 64 are designed to provide substantially horizontal stop
15. surfaces 65 and 66 as the jaws close. These stop surfaces are in substantially the same plane when the jaws are in the garment clamping position and seat under the waist band A providing a positive grip on the garment of a type which does not exert a
 20. separating force against the jaws 21a and 22a. Thus, the clamps are capable of positively holding a garment against release even when substantial force is applied as may occur during shipment and handling.

CLAIMS

1. A hanger (10) for articles comprising means for supporting the hanger (13) and a garment clamp (20) having first and second jaws (21, 22) hingedly connected (23) at their upper ends, one of the first and second jaws (21, 22) being stationary and the other being vertically pivotable about the hinge connection, the hanger being characterized in that one of the jaws has an aperture (29) through its lower portion, the free end of the other jaw being of a width and length to pass through the aperture as it is moved to a closed position; and latch means (33) for holding the jaws in the closed position.

2. A hanger as claimed in Claim 1 in which the aperture is closed at the free end of the jaw by an end bar (30) extending between and joining the sides of the jaw.

3. A hanger as claimed in Claim 1 or Claim 2 in which the stationary jaw (21) has the aperture (29).

4. A hanger (10) for articles comprising means by which the hanger (13) can be suspended; a clamp (20) having first and second jaws (21, 22) hingedly connected (23) at their upper ends whereby the jaws can be pivotally opened and closed, characterised in that one of the first and second jaws is bifurcated adjacent its free end, the other of the first and second jaws being of a shape and size such that its free end can pass between the sides of the bifurcated portion of the one jaw as the clamp is moved to maximum

closed position; latch means (33, 33a) adjacent the hinge connection of the jaws for holding the jaws in closed position; the jaws having aligned and inwardly facing garment gripping pads (31, 43) adjacent their free ends; the jaws defining a pocket (50) between the pads and the latch means, the jaws being of a length such that an article can be received and seated in the pocket.

5. A hanger as claimed in any one of the preceding claims comprising a body member (11) to which the clamp is attached.

6. A hanger as claimed in Claim 5 in which one of the first and second jaws is stationary with respect to the body member.

7. A hanger as claimed in any one of the preceding claims in which the latch means includes a latch finger (34) secured to one of the jaws and a latch opening (32) through the other of the jaws, one wall of the opening being a keeper (61) for engaging the latch finger.

8. A hanger as claimed in Claim 7 in which at least one of the jaws has a reinforcing rib (45) formed therein adjacent the wall.

9. A hanger as claimed in any one of the preceding claims in which at least one of the jaws intermediate its ends is arched away (at 24) from the other thereof.

10. A hanger as claimed in Claim 9 in which the latch means is between the arch and the hinge connection between the jaws.

11. A hanger as claimed in any one of the preceding claims in which the jaws are moulded of a stiff and resilient plastics whereby the jaws may be flexed as they are closed to accommodate the thickness of an article seated between their free ends, the resiliency of the plastics applying sufficient pressure to positively grip the article.

12. A hanger as claimed in any one of the preceding claims in which each of the jaws has a pair of reinforcing flanges (26, 27, 42a), one along each side extending generally perpendicular to the plane of the jaw.

13. A hanger as claimed in any preceding claim in which each of the jaws at the end distant from the hinge connection has gripping teeth (31, 43) extending towards the teeth on the other jaw.

14. A hanger as claimed in Claim 13 in which the teeth on both of the jaws are offset toward each other from the planes of the adjacent surfaces of the jaws.

15. A hanger as claimed in Claim 13 or 14 in which each jaw has a substantially horizontal stop surface (65, 66) facing toward the upper end and being in a common plane when the jaws are closed to the article clamping position.

16. A hanger as claimed in any one of the preceding claims in which the latch means has a latch lever (33, 33a) integral with one of the jaws and a web forming a keeper on the other jaw; the lever having a plurality of depending teeth (60) spaced lengthwise of the lever; the lever being inclined upwardly and the teeth being inclined from the plane of the lever downwardly and toward the base of the lever to form an engagement with the web which urges the teeth and web to remain engaged when the jaws are subjected to pressure tending to force them apart.

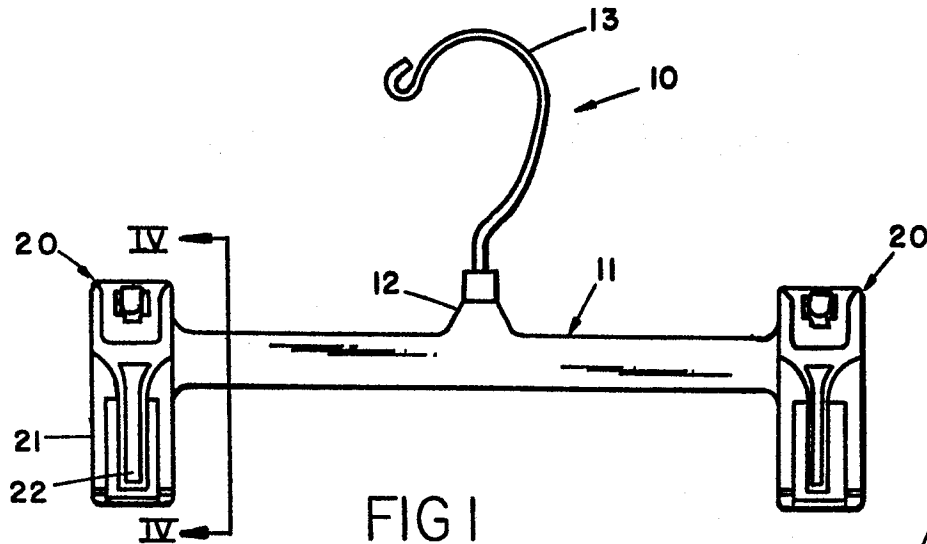


FIG 1

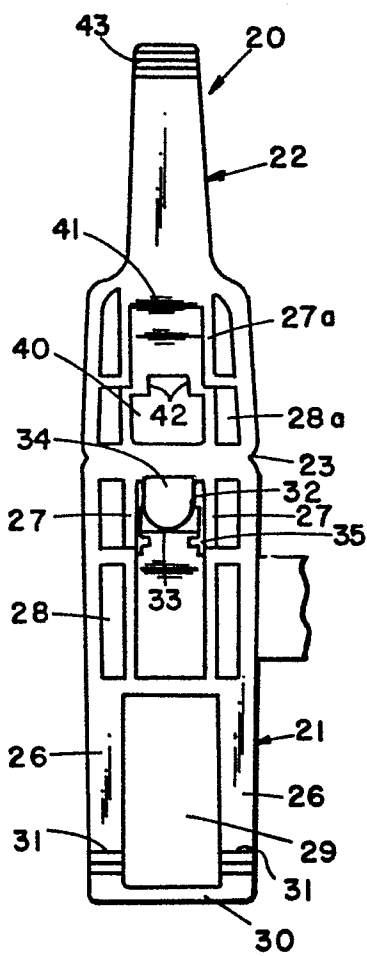


FIG 3

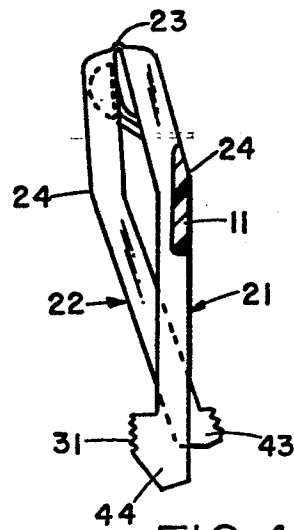


FIG 4

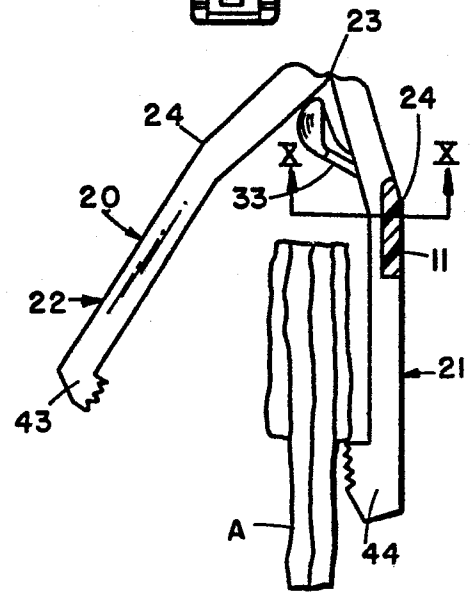


FIG 5

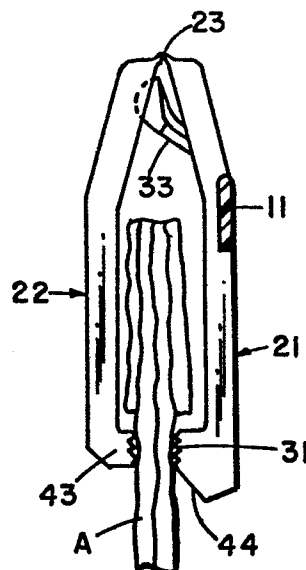


FIG 6

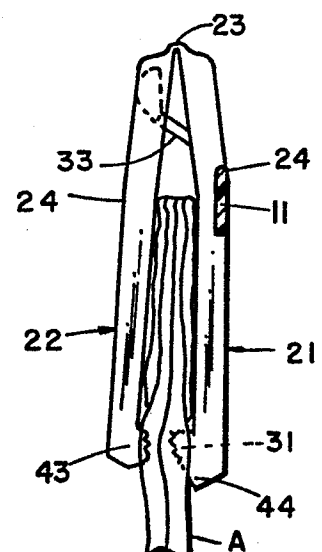
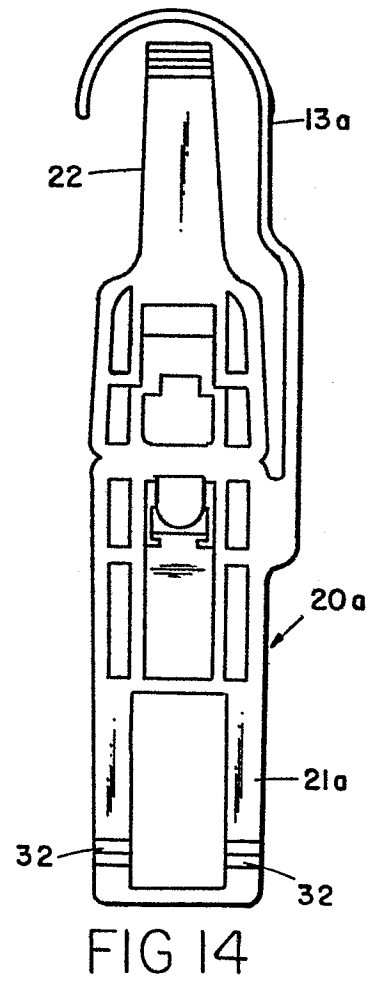
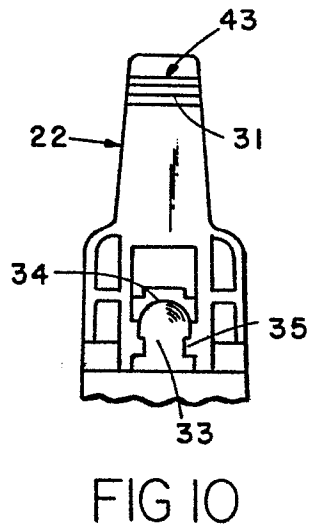
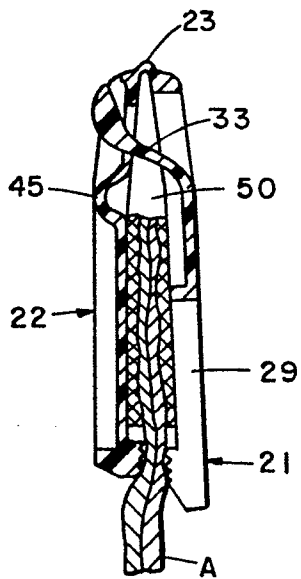
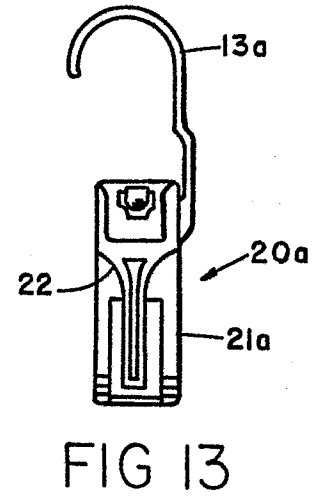
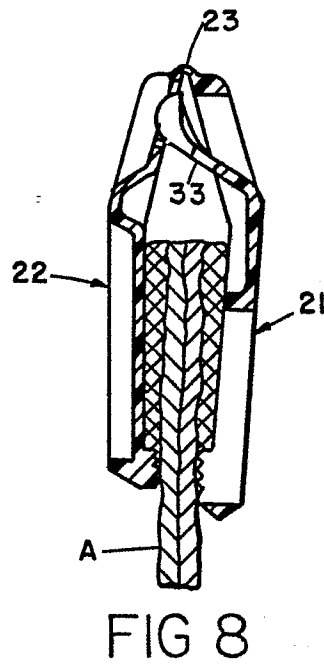
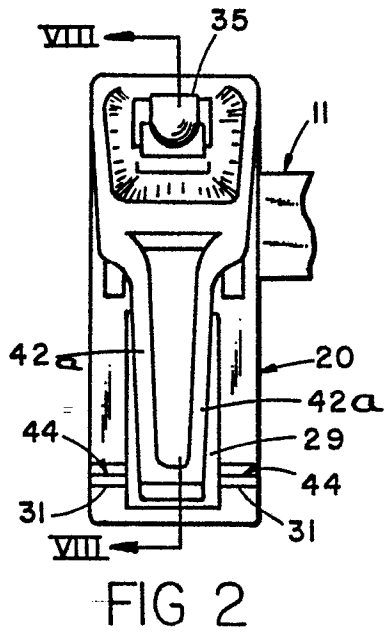


FIG 7



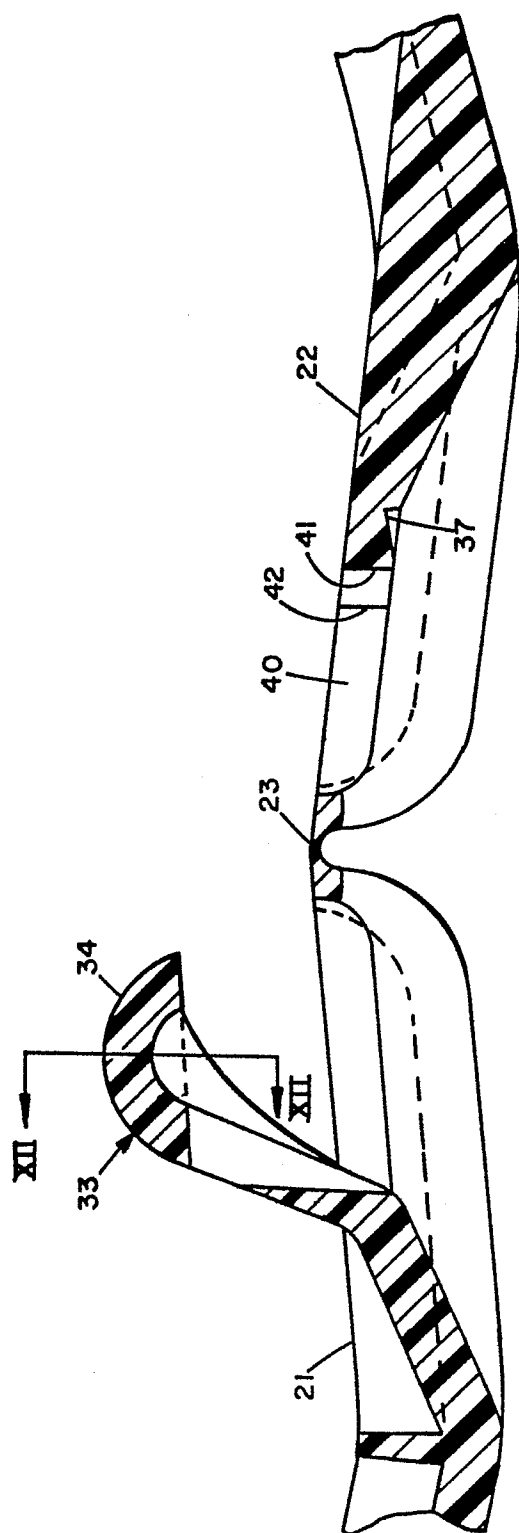


FIG II

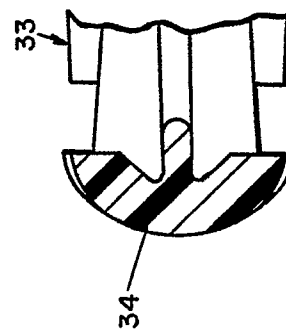


FIG I2

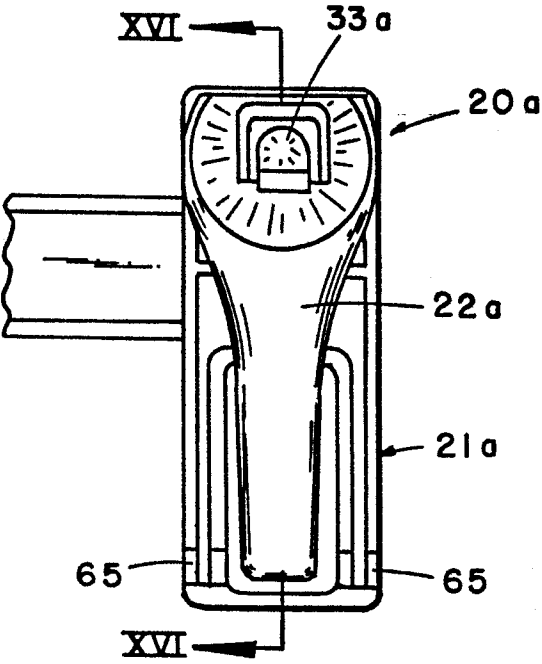


FIG 15

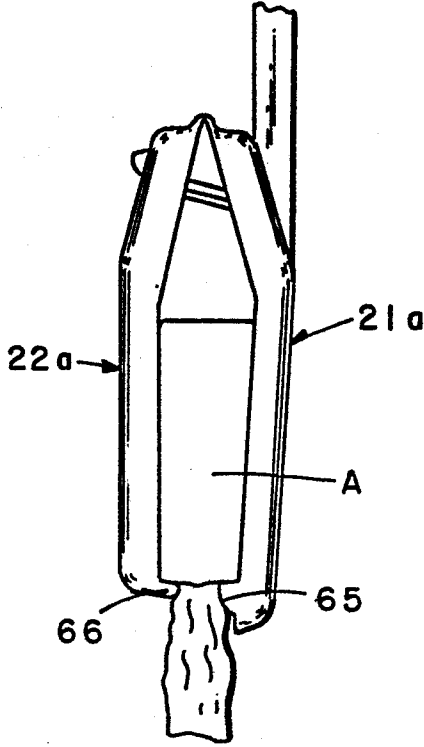


FIG 20

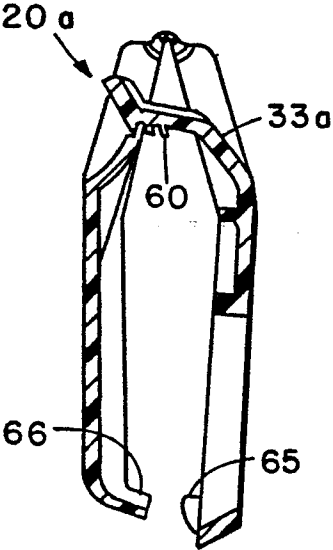


FIG 16

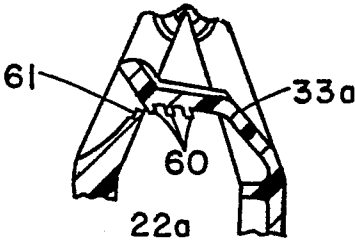


FIG 17

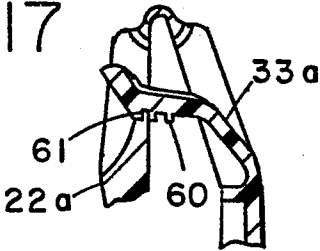


FIG 18

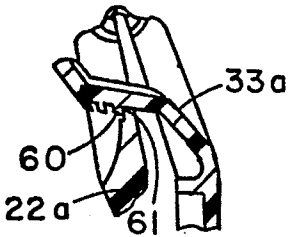


FIG 19



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. 3)
X	US-A-4 209 879 (PAAJANEN) * Whole document *	1-3, 5-7, 9-11, 16	A 47 J 51/14
A	FR-A-2 045 142 (DYON) * Figures 1-4 *	1	
A	WO-A-8 101 361 (LAND) * Figures 1-3 *	1	
A	US-A-4 012 811 (MAZZAFERRO) * Figures 3, 4 *	1	
A	FR-A-2 336 108 (S.A.T.E.) * Figures 1-5 *	1	
A	US-A-3 698 043 (BATTS) * Figures 10, 12, 16, 20 *	1	TECHNICAL FIELDS SEARCHED (Int. Cl. 3) A 47 J D 06 F
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The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 18-08-1983	Examiner SCHARTZ J.
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			



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. ³)
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Place of search THE HAGUE		Date of completion of the search 18-08-1983	Examiner SCHARTZ J.
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