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(11)

**EP 1 574 156 A2**

(12)

**EUROPEAN PATENT APPLICATION**

(43) Date of publication:  
**14.09.2005 Bulletin 2005/37**

(51) Int Cl.7: **A47H 7/00**

(21) Application number: **05003888.4**

(22) Date of filing: **23.02.2005**

(84) Designated Contracting States:  
**AT BE BG CH CY CZ DE DK EE ES FI FR GB GR  
HU IE IS IT LI LT LU MC NL PL PT RO SE SI SK TR**  
Designated Extension States:  
**AL BA HR LV MK YU**

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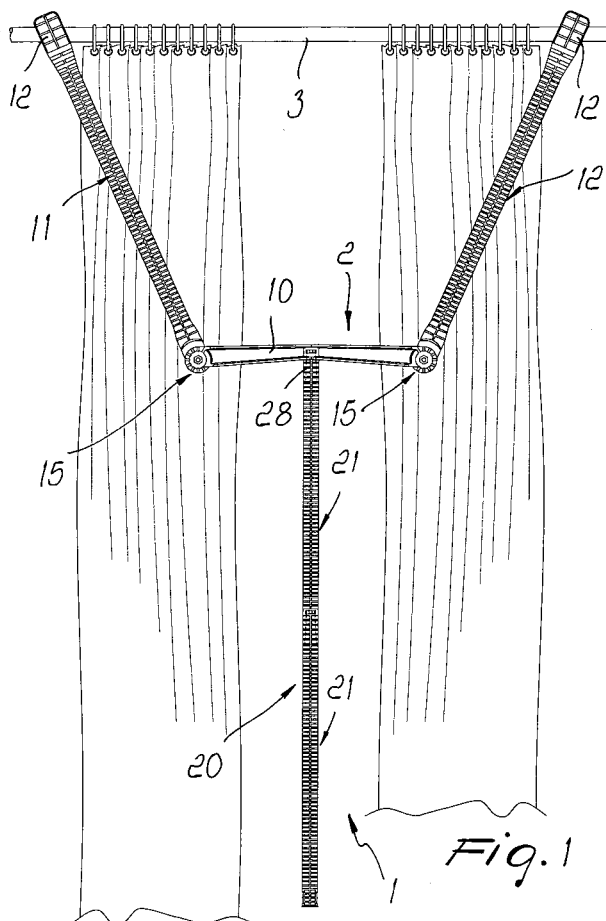
(30) Priority: **26.02.2004 IT MI20040343**

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**(54) Tool for fitting and removing curtains without using stepladders**

(57) A tool for fitting and removing curtains without using stepladders, comprising an engagement structure (2) that can be detachably coupled, in at least two mu-

tually spaced points, with a rod (3) for supporting curtains and the like, the engagement structure (2) being associable with a supporting element (20) for lifting the engagement structure (2).



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## Description

**[0001]** The present invention relates to a tool for fitting and removing curtains without using stepladders.

**[0002]** As is known, one problem that is currently strongly felt in the household field relates to the fitting and removal of curtains, which must be performed by using a stepladder in order to be able to reach the rod that supports the curtain and the like.

**[0003]** Once the rod has been reached, it is necessary to fit and/or remove the curtain while remaining balanced on the stepladder, and therefore a relatively simple operation like fitting and removing the curtain is generally rather complicated due to the precarious balance with which one is forced to work.

**[0004]** The aim of the invention is to solve the problem described above by providing a tool for fitting and removing curtains that allows to perform this operation without having to use a stepladder, therefore working in much more comfortable and safe conditions.

**[0005]** Within this aim, an object of the invention is to provide a tool that is particularly simple from a structural standpoint and is very compact when it is not being used.

**[0006]** Another object of the present invention is to provide a tool for fitting and removing curtains without using stepladders that thanks to its particular constructive characteristics is capable of giving the greatest assurances of reliability and safety in use.

**[0007]** Another object of the present invention is to provide a tool for fitting and removing curtains without using stepladders that can be obtained easily starting from commonly commercially available elements and materials and is further competitive from a merely economical standpoint.

**[0008]** This aim and these and other objects that will become better apparent hereinafter are achieved by a tool for fitting and removing curtains without using stepladders, according to the invention, characterized in that it comprises an engagement structure that can be detachably coupled, in at least two mutually spaced points, with a rod for supporting curtains and the like, said engagement structure being associable with a supporting element for lifting said engagement structure.

**[0009]** Further characteristics and advantages of the present invention will become better apparent from the description of a preferred but not exclusive embodiment of a tool for fitting and removing curtains without using stepladders, illustrated by way of non-limiting example in the accompanying drawings, wherein:

Figure 1 is a schematic view of the tool according to the invention in a first operating position;

Figure 2 is a view of the tool according to the invention in a different operating position;

Figure 3 is a schematic perspective exploded view showing the engagement structure;

Figure 4 is a view of the articulation at the base of

one of the arms of the engagement structure, seen from one side;

Figure 5 is a view of the articulation at the base of one of the arms of the engagement structure, seen from the other side;

Figure 6 is a perspective exploded view showing the connection between the arm and the central cross-member;

Figure 7 is a sectional view of the means for detachable connection between the engagement structures of the supporting element;

Figure 8 is a sectional view of the step for coupling the detachable connection means;

Figure 9 is a partially sectional view of the connection means in a coupled condition;

Figure 10 is a sectional view, taken along the line X-X of Figure 9;

Figure 11 is a schematic view of the end of one of the arms of the engagement structure, with the hook for engaging window curtains;

Figure 12 is a view of the end of the arm of the engagement structure, with a protective element;

Figure 13 is a view of the end of an arm of the engagement structure, with a rod locking element;

Figure 14 is a perspective view of a different embodiment of the tool;

Figure 15 is a perspective view of another embodiment of the tool;

Figure 16 is an end view of the tool of Figure 15.

**[0010]** With reference to the figures, and particularly to Figures 1 to 10, a tool for fitting and removing curtains without using stepladders is illustrated which is generally designated by the reference numeral 1 and has an engagement structure, designated by the reference numeral 2, which can be engaged detachably with the rod 3 for supporting curtains and the like.

**[0011]** In a preferred embodiment, the engagement structure has a central cross-member 10, with the ends of which two arms 11 engage; said arms end with fork-like elements 12, which can be detachably coupled to the rod 3 in order to fit and/or remove it with respect to the open supporting hooks provided on the wall to which the curtains are applied.

**[0012]** The arms 11 allow to engage the rod 3 in two spaced points, and in order to adapt to the different lengths, the arms 11 are preferably connected to the central cross-member 10 by way of articulation means, generally designated by the reference numeral 15, which are constituted by a first front set of teeth 16 formed on the cross-member 10 and by a second front set of teeth 17 formed at the end of the arm 11; there is also a central connecting pivot 18, which is provided with a coupling knob, designated by the reference numeral 19, which can be screwed into a bolt 19a that allows to position the arms 11 with the selected divarication.

**[0013]** The supporting structure 2 can be detachably coupled to a supporting element, generally designated

by the reference numeral 20, which is advantageously provided by means of modular elements 21, which can be detachably coupled with a bayonet-type coupling, so as to obtain a tool that is very compact when it is not being used and allows to provide a packaging that is suitable for shipping by mail.

**[0014]** For the coupling of the supporting element 20 to the structure 2, and for the mutual coupling of the various modular elements 21, detachable coupling means are provided, that may have the configuration shown in Figures 7 to 10, which have a frustum-shaped portion 25 that is associated with one end of the modular elements 21 and can be inserted in a frustum-shaped receptacle 26, with particular but not exclusive examples, conical that is formed both on the other end of modular elements 21 and on the coupling tang 28 that is formed in a central portion of the cross-member 10.

**[0015]** For coupling, at the end of the frustum-shaped portion 25 there is a radial protrusion 30, which engages a longitudinal recess 31 formed in the conical receptacle 26, which ends at an inclined locking plane 32, where the protrusion 30 engages, by virtue of the rotation of the frustum-shaped portion 25 with respect to the frustum-shaped receptacle with simultaneous locking in an axial direction; there is also a rotation-preventing element 33.

**[0016]** With this embodiment, it is therefore possible to provide a stable and quick mutual coupling of the parts that constitute the tool, obtaining a structure that is particularly stable and allows the user to pick up the rod with the curtain applied thereto without having to use the stepladder, in order to remove the curtain in a particularly comfortable and easy position.

**[0017]** To facilitate the engagement of the fork-like elements 12 with the rod 3, supporting pads 35 are advantageously provided on the active faces of the fork-like elements 12, which are preferably formed by pieces or plugs of elastic material or similar materials, such as a sponge-like material or rubber-like plastic material.

**[0018]** In order to allow easy engagement with the supporting rods of window curtains, it is possible to arrange next to one of the arms or legs of the fork 12 an upper hook 40, as shown schematically in Figure 11.

**[0019]** In order to facilitate the step of coupling the fork to the rod 3 and to provide in practice a retention element, it is possible to provide, at one arm of the fork 12, as shown in Figure 12, a vertical portion 41 that is blended with a horizontal upper portion 42 that lies above the rod 3.

**[0020]** This arrangement, by having an upper portion, allows a safer coupling; moreover, the vertical portion 41 allows easier and more comfortable engagement of the fork with the rod, since during the engagement step it is sufficient to rest the rod against the vertical portion 41 in order to have a guide for the engagement between the fork 12 and the rod 3.

**[0021]** Figure 13 provides an embodiment in which at the end of the arms 11, at the fork 12, there is a locking

means that allows to prevent accidental disengagement of the rod from the fork 12.

**[0022]** Said locking means provide for an oscillating hook 50, which is pivoted at 51 to the base of the fork so as to have an eccentric mass 52, which in the absence of other forces causes the hook to arrange itself in an open position, i.e., such as to disengage from the upper part of the fork.

**[0023]** In these conditions, the oscillating hook 50 has a tab 53 that is arranged inside the fork and, by engaging the rod 3, turns the hook 50 into the closed position.

**[0024]** The weight of the rod 3, which engages the tab 50, keeps the hook in a closed position.

**[0025]** When disengagement is performed, the rod 3 tends to move away from the fork and accordingly the hook 50, due to the presence of the eccentric mass 15, simply by gravity, returns to the open position, thus allowing quick and easy disengagement of the rod from the structure in order to fit and remove the curtains.

**[0026]** From what has been described above, it is therefore evident that the invention achieves the proposed aim and objects, and in particular the fact is stressed that a tool is provided which has a structure that is particularly simple and lightweight and allows easily to fit and remove curtains without having to use stepladders, since the supporting structure, with the engagement of the supporting element, allows the operator to perform this operation while keeping his feet on the ground.

**[0027]** Another important aspect further consists in that the tool is obtained from modular elements that are quick and easy to assemble, and therefore it has very small dimensions that allow to perform a very compact packaging, and further allows to store the tool in very small spaces when it is not being used.

**[0028]** The invention thus conceived is susceptible of numerous modifications and variations, all of which are within the scope of the appended claims.

**[0029]** Thus, for example, as shown in Figure 14, the engagement structure can be constituted by a transverse bar 60, which is connected to a supporting element, again designated by the reference numeral 20. Arms 61 extend from the bar 60 and form saddle-shaped portions 62 that are spaced from the bar 60 for engagement with the rod 3.

**[0030]** According to what is shown in Figure 15, the engagement structure can be constituted by a cradle-like bar 70, which accommodates the rod 3 and is provided with elastically yielding engagement elements 71 for retaining the rod 3.

**[0031]** All the details may further be replaced with other technically equivalent elements.

**[0032]** In practice, the methods used, as well as the contingent shapes and dimensions, may be any according to requirements.

**[0033]** The disclosures in Italian Patent Application no. MI2004A000343 from which this application claims priority, are incorporated herein by reference.

**[0034]** Where technical features mentioned in any claim are followed by reference signs, those reference signs have been included for the sole purpose of increasing the intelligibility of the claims and accordingly such reference signs do not have any limiting effect on the interpretation of each element identified by way of example by such reference signs.

## Claims

1. A tool for fitting and removing curtains without using stepladders, **characterized in that** it comprises an engagement structure (2) that is detachably couplable, in at least two mutually spaced points, with a rod (3) for supporting curtains and the like, said engagement structure (2) being associable with a supporting element (20) for lifting said engagement structure (2).
2. The tool according to claim 1, **characterized in that** said engagement structure (2) comprises a central cross-member (10), two arms (11) engaging the ends of said cross-member (10) and ending with fork-like elements (12) that can be detachably coupled to said supporting rod (3).
3. The tool according to the preceding claims, **characterized in that** it comprises articulation means (15) for the connection of said arms to said central cross-member.
4. The tool according to claim 3, **characterized in that** said articulation means (15) comprise a first front set of teeth (16) formed on the cross-member (10) and a second front set of teeth (17) formed on the end of the respective arm (11), a connecting pivot (18) being further provided which has a knob (19) for the coupling of said sets of teeth (16, 17).
5. The tool according to one or more of the preceding claims, **characterized in that** said supporting element (20) is constituted by modular elements (21) that can be detachably coupled.
6. The tool according to one or more of the preceding claims, **characterized in that** it comprises detachable coupling means (25, 26) for the mutual connection of said engagement structure (2) and said supporting element (20).
7. The tool according to claim 6, **characterized in that** said detachable coupling means comprise a frustum-shaped portion (25), which is associated with one end of said modular elements (21) and can be inserted detachably in a frustum-shaped receptacle (26) formed on the other end of said modular elements (21).
8. The tool according to claim 7, **characterized in that** said frustum-shaped portion (25) has a radial protrusion (30) that can engage detachably a longitudinal recess (31), which is formed in said frustum-shaped receptacle (26) and ends at an inclined locking plane that can be engaged by said protrusion.
9. The tool according to one or more of the claims 2-8, **characterized in that** it comprises supporting pads (35) on the active faces of said fork-like elements (12).
10. The tool according to one or more of the claims 2-9, **characterized in that** it comprises an upper hook (40) that is arranged laterally with respect to one of the arms of each fork (12) and is open for engagement with the rods (3) that support window curtains and the like.
11. The tool according to one or more of the claims 2-10, **characterized in that** it comprises, at an arm of said fork (12), a retention element that is provided with a vertical portion (41) that blends with an upper horizontal portion (42) that can be arranged above the supporting rod (3).
12. The tool according to one or more of the claims 2-11, **characterized in that** it comprises, at the ends of said arms (11), a locking means (50) in order to prevent the accidental disengagement of said supporting rod (3) from said fork (12).
13. The tool according to claim 12, **characterized in that** said locking means comprises an oscillating hook (50), which is pivoted to the base (51) of said fork (12) and has an eccentric mass (52) for the positioning of said hook (50) so that it is spaced from the upper part of said fork (12), a tab (53) being connected to said hook (50) and being arrangeable inside said fork (12) and engageable with said supporting rod (3) for the rotation of said hook (50) in the closed position upon the engagement of said hook (50) with said supporting rod (3).
14. The tool according to one or more of the preceding claims, **characterized in that** said engagement structure (2) comprises a transverse bar (60), from which arms (61) protrude which form saddle-shaped portions (62) for engagement with said rod (3).
15. The tool according to one or more of the preceding claims, **characterized in that** said engagement structure (2) comprises a cradle-shaped bar (70) that can engage said rod (3) detachably.
16. The tool according to one or more of the preceding

claims, **characterized in that** it comprises elastically yielding engagement elements (71) for detachably retaining said rod (3).

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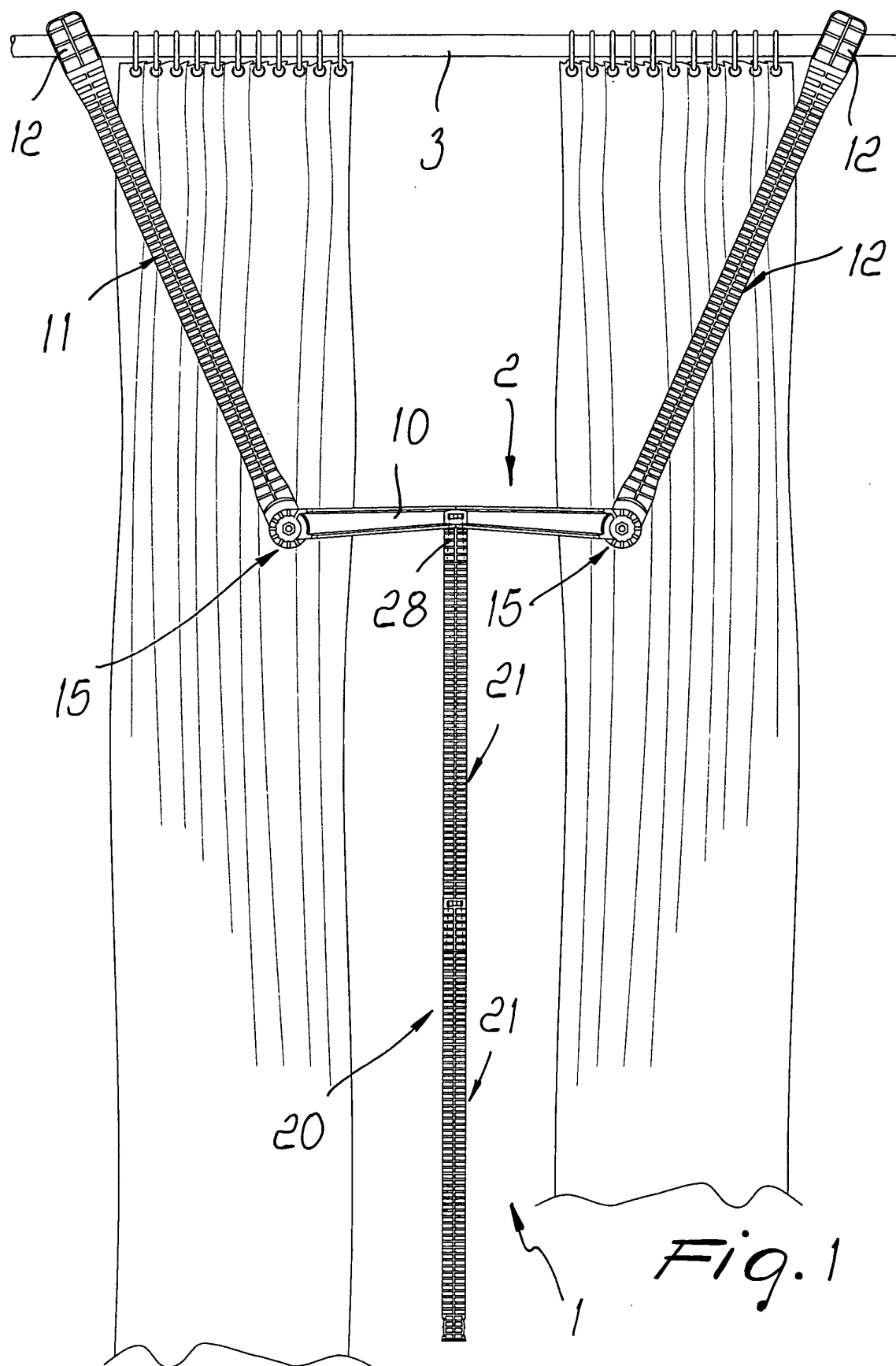
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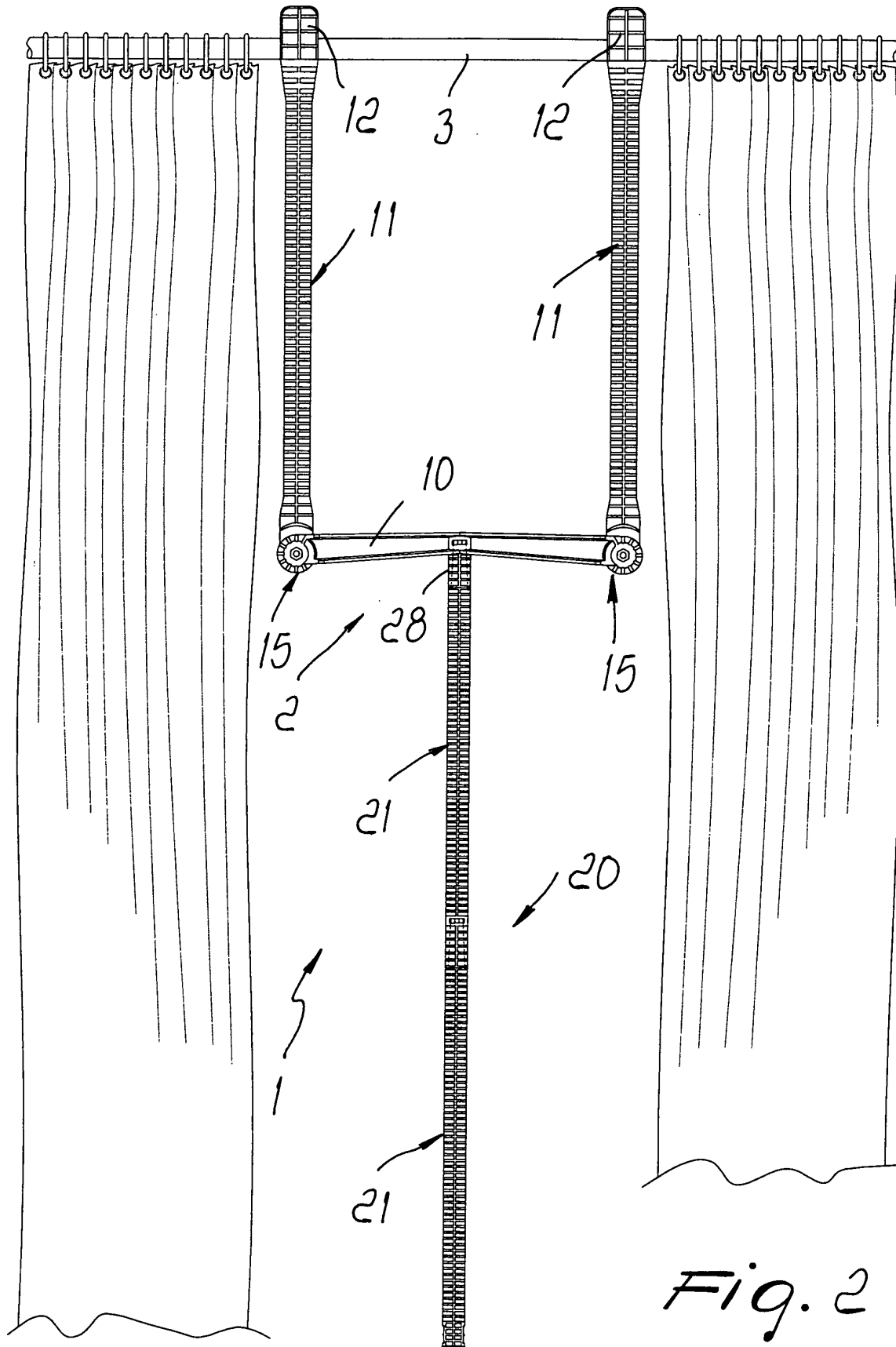
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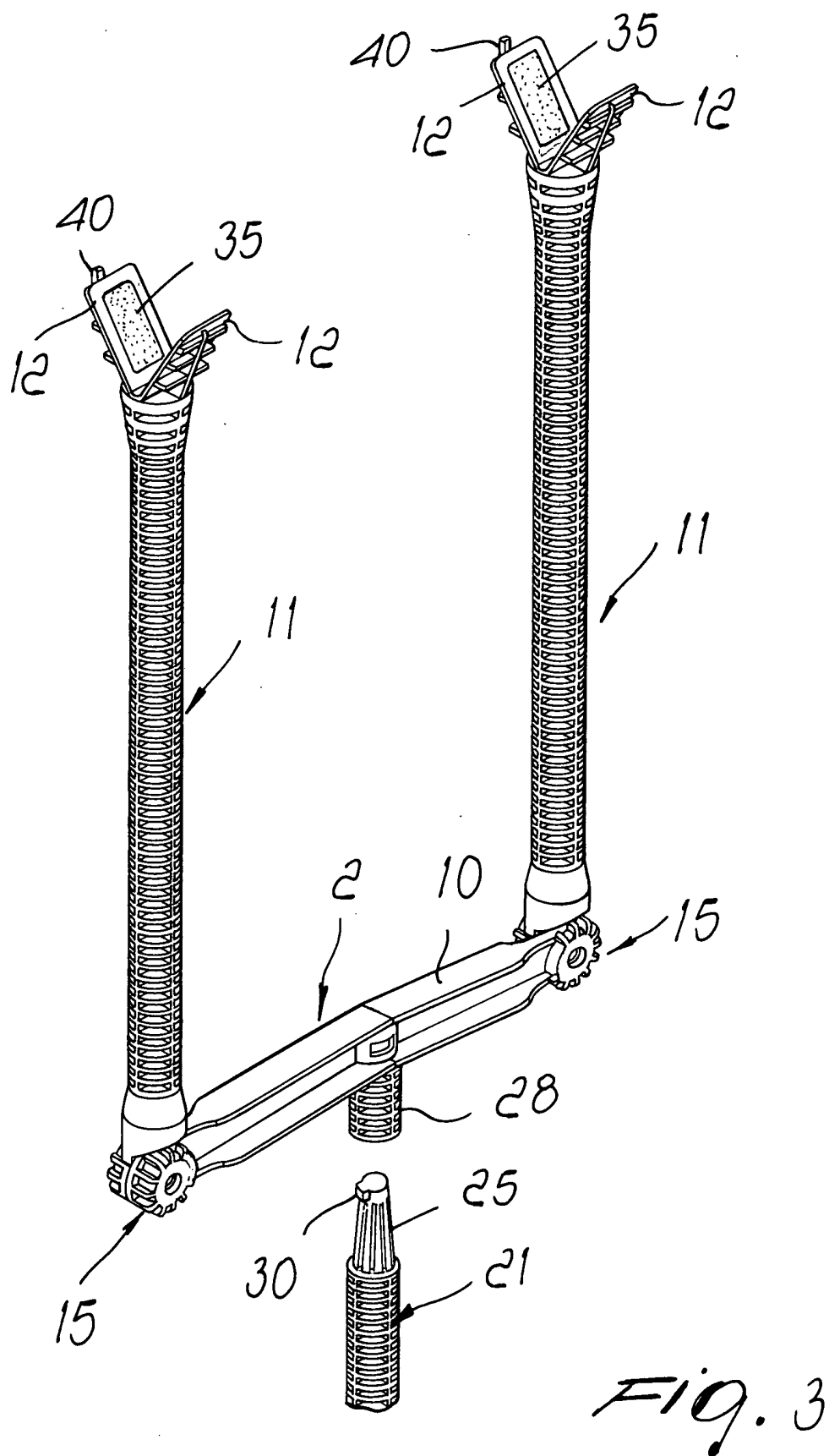
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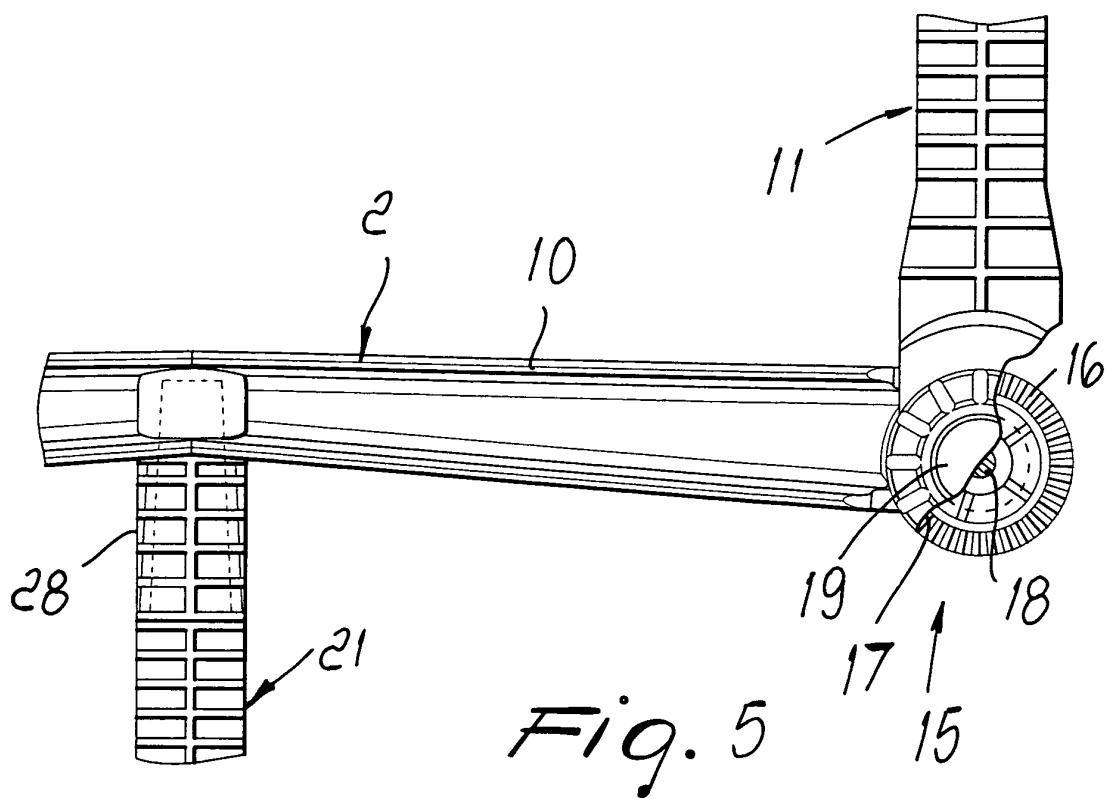
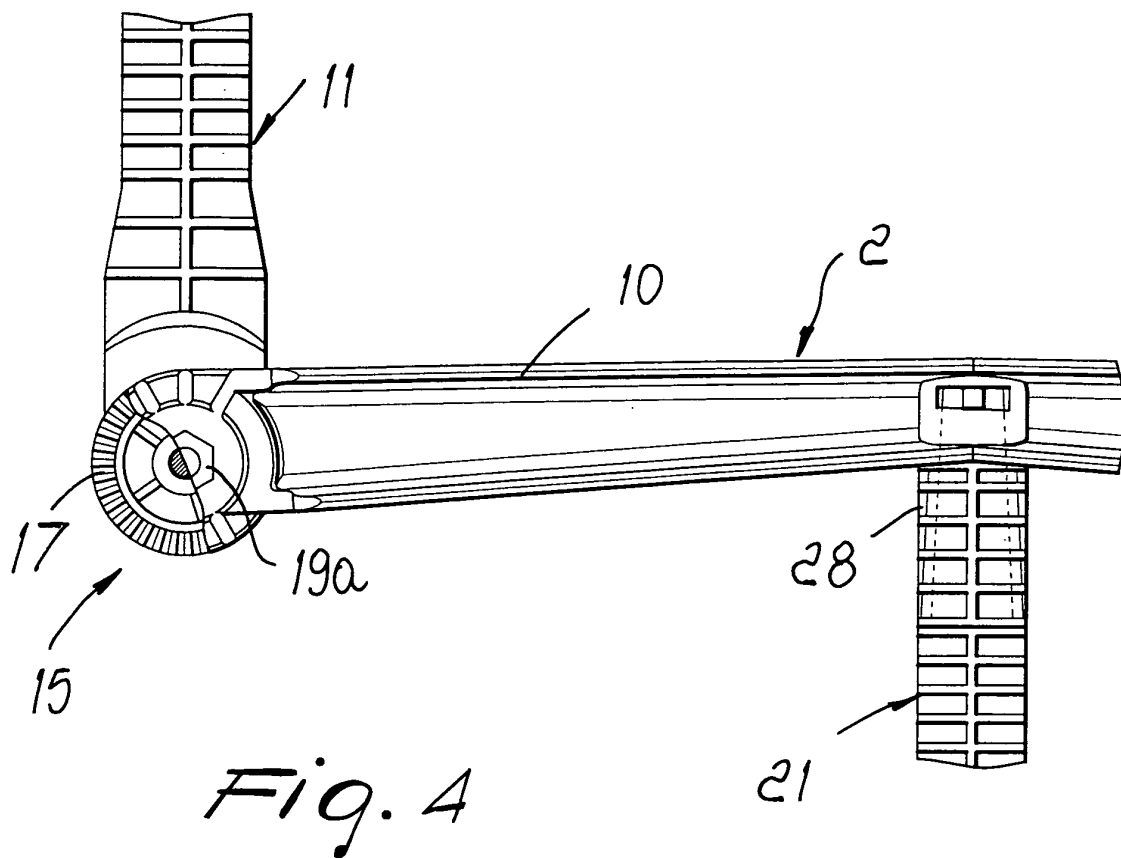
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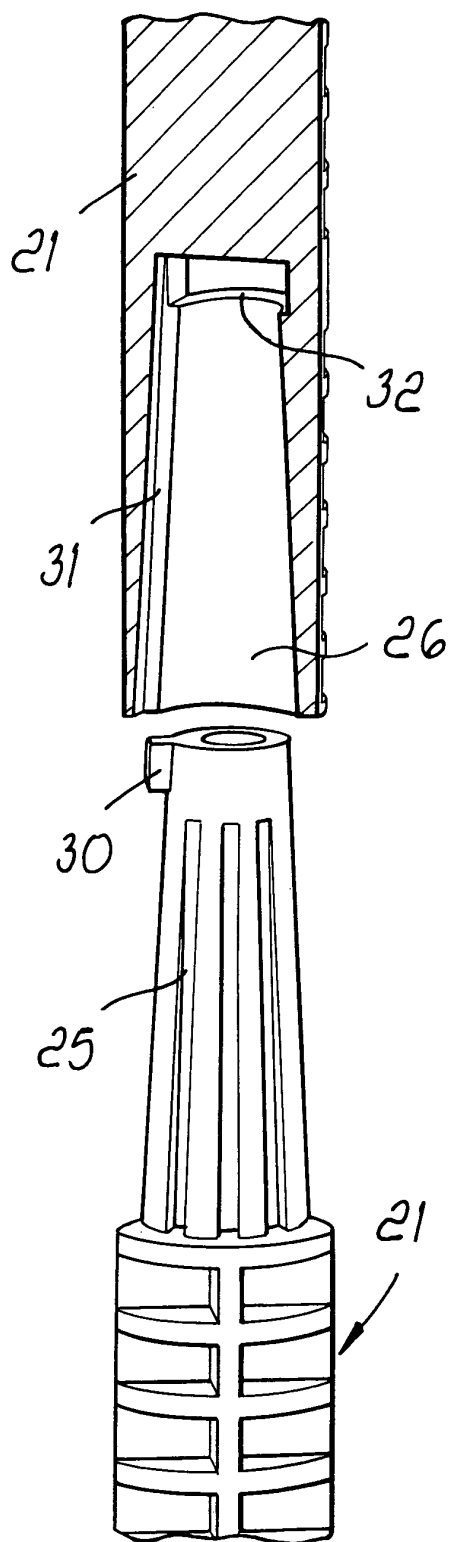




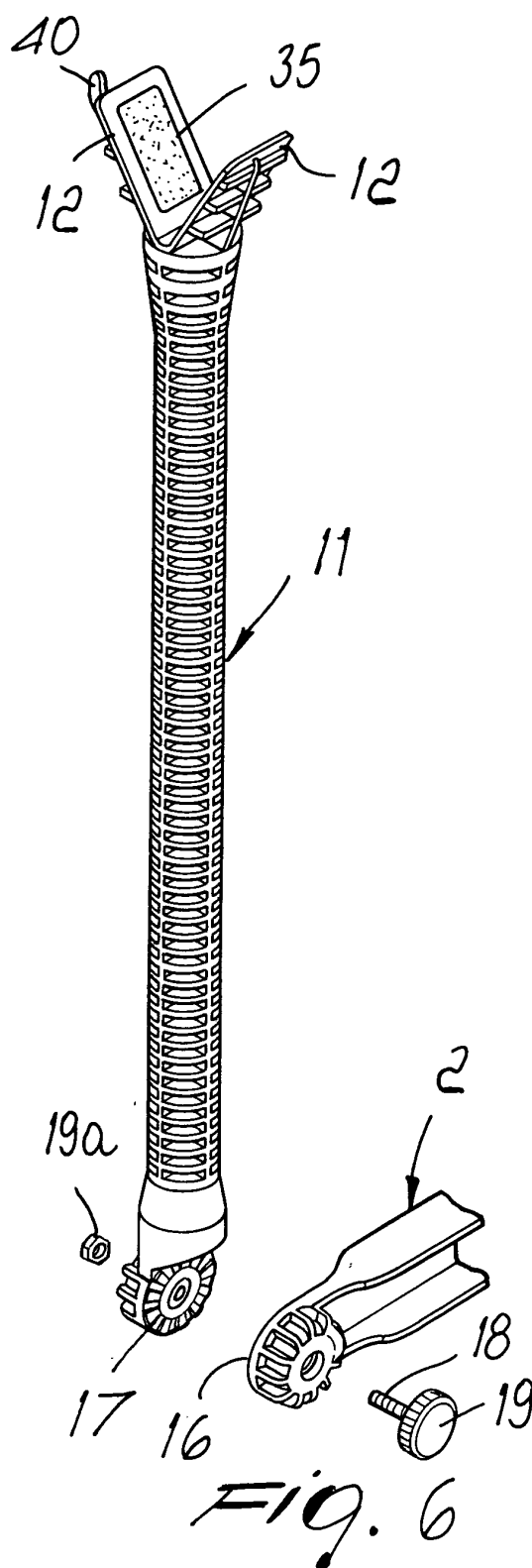




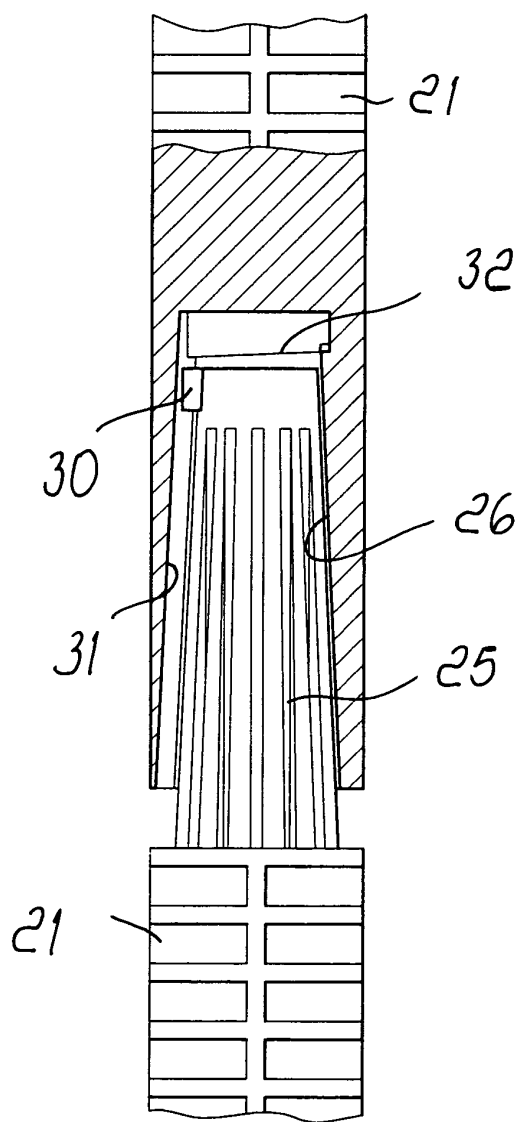




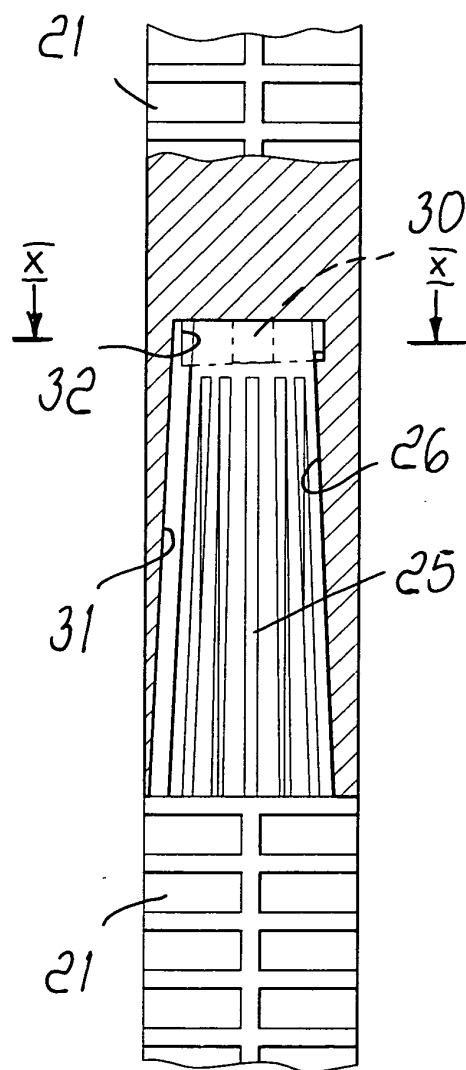
*Fig. 7*



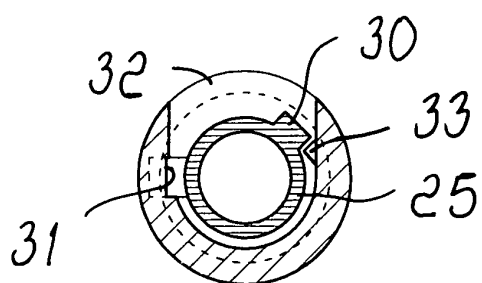
*Fig. 6*



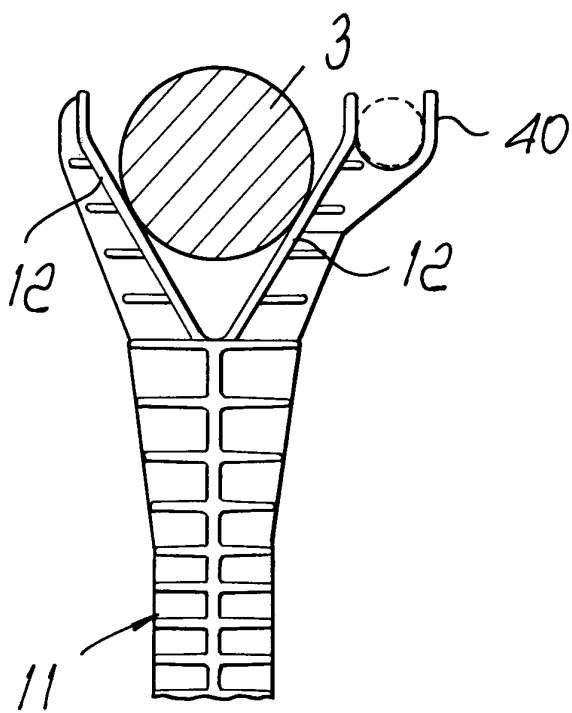
*Fig. 8*



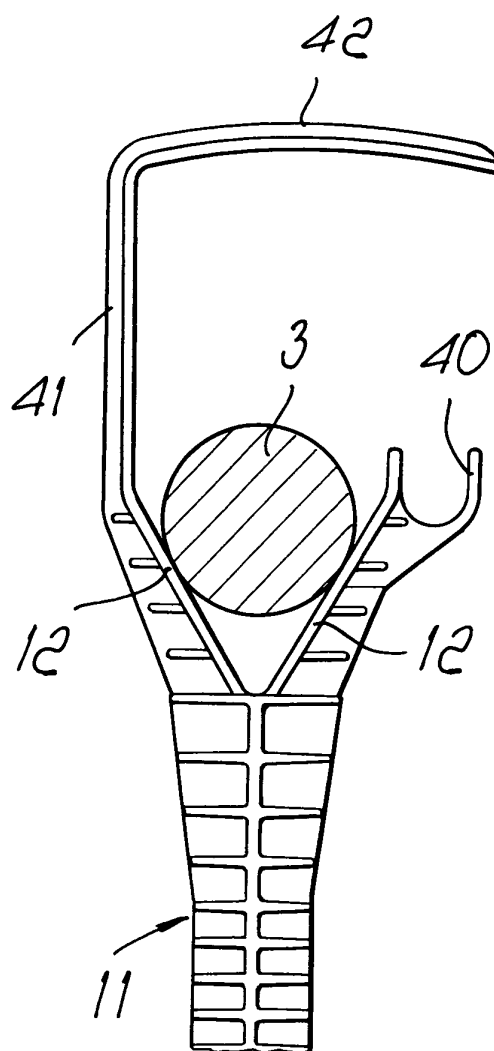
*Fig. 9*



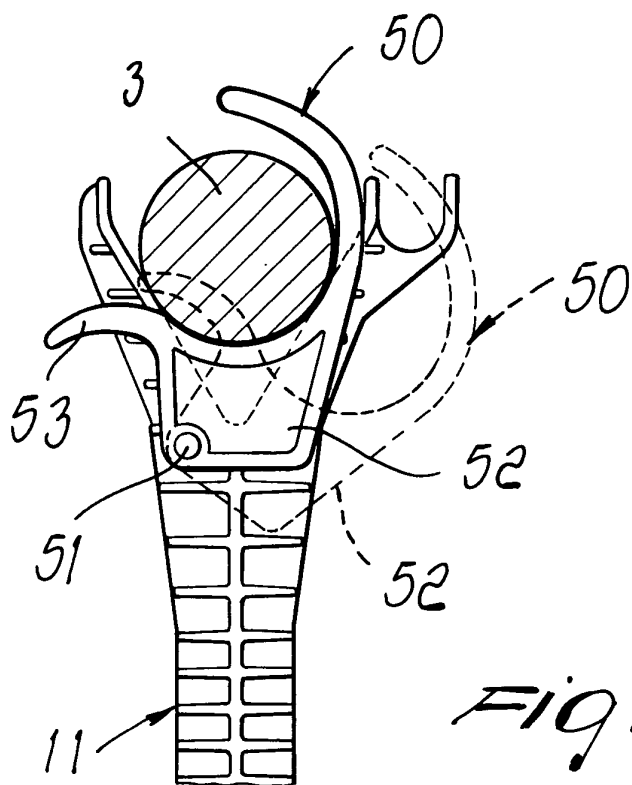
*Fig. 10*



*Fig. 11*



*Fig. 12*



*Fig. 13*

