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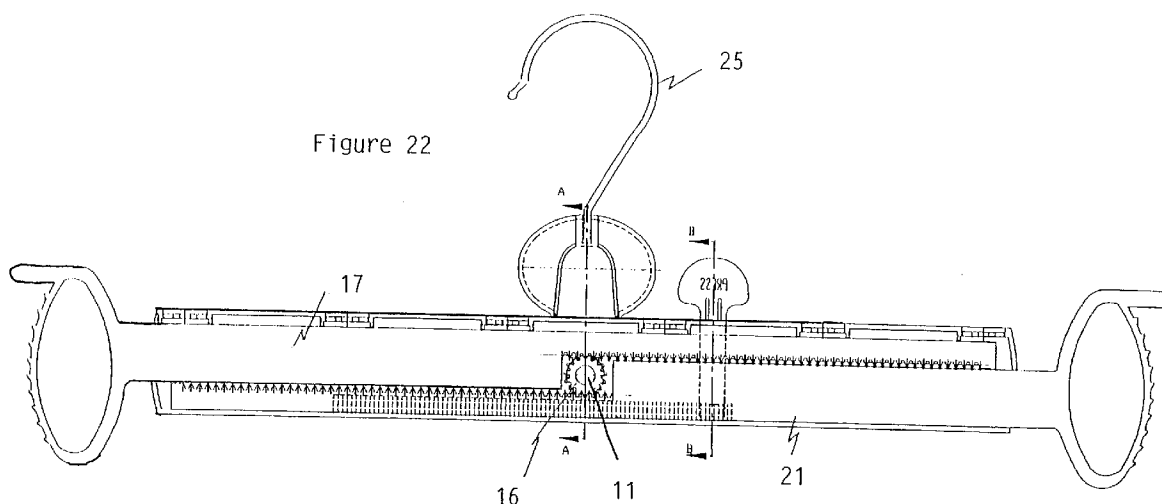
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(54) **A clothes hanger**

(57) The invention discloses a clothes hanger (50), in particular an adjustable clothes hanger for displaying garments in a shop or for hanging garments during storage. The hanger (50) can be used for various types of garments and is not restricted to one size. The hanger (50) comprises a centrally located hook (25), a main body (4) consisting of a back element (6) and a cover

(9) and two side elements (3,8) and a pawl (7) adapted to lock one of two movable arms (17, 21) in one direction only. Each of the arms (17, 21) has a rack (18, 22) engageable with a pinion (16) mounted on a spud (11) which is part of the main body part (4). The main body (4) is manufactured by injection moulding in one piece and also includes a press-fit securing means and a support (1) for a hook (25).

Figure 22



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Description

[0001] The present invention relates to an adjustable clothes hanger for displaying garments in a shop or for hanging garments during storage. The hanger can be used for various types of garments and is not restricted to one size.

[0002] According to the present invention a garment hanger comprises a centrally located hook, a main body forming a support enclosure for two movable arms having racks thereon, a centrally located pinion wheel engageable with the racks and a locking means adapted to lock the movable arms in one direction only, wherein the main body includes a cover which is removably engageable with the enclosure to allow insertion of, access to and removal of parts in the enclosure.

[0003] Additionally, a garment hanger comprises a centrally located hook, a main body forming a support enclosure for two movable arms having racks thereon, a centrally located pinion wheel engageable with the racks and a locking means adapted to lock the movable arms in one direction only wherein the enclosure comprises a back element and two side elements hinged to the back element to form a box like enclosure and the cover is hinged along one of its longitudinal edges to one of the side elements.

[0004] Advantageously, the main body is manufactured by injection moulding in one piece. The back element and cover, the two side elements, a spud for the pinion and locking device are all incorporated in one part. A press-fit securing means and a support for a hook are also included in the main body.

[0005] In a further embodiment, the support enclosure comprises a back element and two side elements extending laterally and unidirectional from opposite longitudinal edges of the back element and being formed for engagement with a separate cover to be mounted thereon.

[0006] The pinion wheel is attached to the main body via the spud and rotates in a plane parallel to the back element and cover.

[0007] The movable arms have toothed racks on a first surface which engage with the pinion or gear wheel in order to produce equal movement of each arm in either direction as a result of the movement of one arm. The lower arm also has a toothed rack on a second surface to engage with a locking mechanism. The movable arms can have different types of locating elements on their end portion to hold the garments in place.

[0008] The locking means is an integral part of the main body provided in the form of a pawl. The pawl is permanently in contact with the toothed rack on one movable arm. It prevents the reduction in overall length of the hanger and is disengageable by pressing an upper portion of a lever.

[0009] The press-fit securing means is provided by clips on one side element and coupling interference fit holes on the adjacent position of the cover.

[0010] Conveniently, when the hanger main body is closed there are no holes remaining on the body of the hanger thus reducing the risk of children getting fingers injured or caught in the holes.

[0011] The invention will hereinafter be more particularly described with reference to the accompanying drawings, which show, by way of example only, one embodiment according to the invention. In the drawings:

Figure 1 is an open elevation rear view of the main body;

Figure 2 is a section view through the centre of the main body along the line A-A;

Figure 3 is a section view through the main body along the line B-B;

Figure 4 is a top plan view of the hook support;

Figure 5 is a section view along the line C-C;

Figures 6 to 9 are detail views of one part of the press-fit assembly;

Figure 6 is an elevation view thereof;

Figure 7 is a top plan view thereof;

Figure 8 is a bottom plan view thereof;

Figure 9 is a section view A-A thereof;

Figures 10 to 13 are detail views of one part of the press-fit assembly;

Figure 10 is an elevation view thereof;

Figures 11, 12 and 13 are section views thereof along lines C-C, A-A and B-B of Figure 10 respectively;

Figure 14 is an elevation view of the pinion wheel;

Figure 15 is a section view through the centre of the wheel;

Figure 16 is an elevation view of one moveable arm;

Figure 17 is a section view along the lines A-A of the movable arm;

Figure 18 is a section view along the line B-B of the movable arm;

Figure 19 is an elevation view of the second movable arm;

Figure 20 is a top plan view of a section of the movable arm;

Figure 21 is a section view along the line C-C of the second arm;

Figure 22 is an elevation view of the complete hanger with the back element of the main body removed;

Figure 23 is a section view along the line A-A of the complete hanger;

Figure 24 is section view along the line B-B of the complete hanger;

Figure 25 is an open rear elevation view of a second embodiment of a main body;

Figure 26 is a section view of the main body of Figure 25 along the line B-B.

Figure 27 is a detail view of a pawl mounted on the main body of Figure 25;

Figure 28 is a rear elevation view of a third embodiment of main body;

Figure 29 is an elevation view of a cover for inter-engagement with the main body of Figure 28; and

Figure 30 is a section view of the main body of Figure 28 along the line A-A.

[0012] With reference to the drawings and initially to Figure 22, assembled hanger 50 comprises a main body part 4 and a pair of movable arms 17 and 21 which can be extended or retracted to vary the length of the hanger 50. Each of the arms 17, 21 has a rack 18, 22 engageable with a pinion 16 mounted on a spud 11 which is part of the main body part 4. A hook 25 is provided on the main body part to act as the hook for the assembled hanger.

[0013] Referring to Figure 1 the main body part 4 is moulded in one piece and comprises a back element 6 connected to a first side element 8 by a hinge 8a. The first side element 8 is in turn connected by a hinge 8b to a cover 9. A second side element 3 is provided at the edge of the back element 6 remote from the first side element 8.

[0014] Figures 1-5 show the support 1 for the hook 25 and the adjoining display plate 2 incorporated into the second side element 3 of the main body 4 of the hanger. The second side element 3 also houses clips 5 of the press-fit assembly. The back element 6 houses a pawl 7 for engagement and disengagement with a movable arm, and is hinged with a first side element 8. A second hinge 8b on the first side element 8 is connected to the cover 9. The cover 9 houses the interference fit holes 10 of the press-fit assembly.

[0015] Figure 2 shows spud section 11 used to support pinion wheel 16 and support web 12 for the display

plate 2. Figure 4 shows the support 13 for the hook 25. Figure 5 shows the back element 6 and teeth 14 of the pawl 7. Figure 7 shows the clips 15 used to secure the main body 4 around the movable arms. Figure 10 shows the corresponding interference fit hole 10. Figure 14 shows the geared wheel 16 that fits onto the spud 11.

[0016] Figure 16 shows the movable arm 17 with the toothed rack 18 to engage with the pinion wheel 16. The open ring section 19 engages the garments. As the garments stretch the ring 19 expands to keep the garment display neat. Support ribs 20 are incorporated along the movable arms 17, 21. Figure 17 shows a section of the movable arm 17, which has two I-Beam sections 24 to provide lateral stability for the garments.

[0017] Figure 19 shows the bottom movable arm 21 with a series of ridges 23 on the surface of one side. This series of ridges 23 engages with the locking pawl 7. Figure 20 shows the same feature 22 from above.

[0018] To assemble a hanger 50, pinion wheel 16 is placed on the spud 11 and two arms 17, 21 are engaged with the pinion wheel 16. The cover 9 of the main body part 4 is then folded about the hinges 8a, 8b and locks with the second side element 3 by means of clips 5 engaging with the interference fit holes 10. To extend the arms 17, 21 a user pulls either arm and the other extends a corresponding amount. To contract the arms 17, 21 the user first presses the pawl 7 so as to disengage the locking teeth 14 from the series of ridges 23 and then pushes one of the arms 17, 21 towards the main body part 4.

[0019] Referring now to the drawings and in particular to Figure 25 and Figure 26 the main body part 104 is moulded in one piece and comprises a back element 106 connected to a side element 108 by a hinge 108a. The side element 108 is in turn connected by a hinge 108b to a cover 109. A side element 103 is provided at the edge of the back element 106 remote from the side element 108. A support 101 for a hook (not shown) and adjoining display plate 102 are incorporated into the side element 103 of the main body 104 of a hanger (not shown). The side element 103 houses clips 105 and the cover 109 houses the interference fit holes 110 of the press-fit assembly. The back element 106 houses a pawl 107 for engagement and disengagement with a movable arm (not shown) and supports a stop lug 111 which abuts against the end web of the associated moveable arm preventing extension beyond that point. The pawl 107 incorporates two support blocks 112 formed between the internal surface of the pawl 107 and the underside of the side element 103. The blocks 112 strengthen the pivot point of the pawl 107 and also assist in retaining the overall elasticity of the pawl 107. The blocks 112 also act as a stop to prevent over-extending of the lever.

[0020] Referring now to Figure 27 there is shown a pawl 107 including a peripheral support ridge 131 and two undercuts 132 provided on each side of a section at which the pawl 107 is mounted on the side element

103. The undercuts 132 reduce the torque required to disengage the pawl 107 from a moveable arm further helping to retain the elasticity of the pawl 107 thereby increasing the life of the hanger.

[0021] Referring to the drawings and more particularly to Figures 28 to 30, a third embodiment of the invention includes a main body 204 having a back element 206 connected to a side element 208. A side element 203 is provided at the edge of the back element 206 remote from the side element 208. A support 201 for a hook (not shown) and adjoining display plate 202 are incorporated into the side element 203 of the main body 204. The back element 206 houses mounting pillars 205 and the cover 209 houses corresponding interference fit holes 210 of the press-fit assembly. The back element 206 supports an internal stop lug 211 which abuts against the end web of the associated moveable arm preventing extension beyond that point. The pawl 207 incorporates two support blocks 212 formed between the internal surface of the pawl 207 and the underside of the side element 203. The blocks 212 strengthen the pivot point of the pawl 207 and also assist in retaining the overall elasticity of the pawl 207.

[0022] To assemble a hanger, a pinion wheel (not shown) is placed on the spud 231 and two arms are engaged with the pinion wheel. The cover 209 is then moved towards the main body 204 with the interference fit holes 210 facing the mounting pillars 205. The holes 210 are lined up with the corresponding pillars 205 and the cover 209 is pressed onto the main body 204 enclosing the arms and the pinion. To extend the arms a user pulls either arm and the other extends a corresponding amount. To contract the arms, the user first presses the pawl 207 so as to disengage the locking teeth 214 from a series of ridges and then pushes one of the arms towards the main body part 204.

[0023] It will of course be understood that the invention is not limited to the specific details described herein, which are given by way of example only, and that various alterations and modifications are possible without departing from the scope of the invention.

Claims

1. A garment hanger (50) comprising a centrally located hook (25), a main body (4) forming a support enclosure for two movable arms (17,21) having racks (18,22) therein, a centrally located pinion wheel (16) engageable with the racks (18,22) and a locking means adapted to lock the movable arms (17,21) in one direction only characterised in that the main body (4) includes a cover (9) which is removably engageable with the enclosure to allow insertion of, access to and removal of parts in the enclosure.
2. A garment hanger (50) as claimed in claim 1 characterised in that the enclosure comprises a back el-

ement (6) and two side elements (3,8) hinged to the back element (6) to form a box like enclosure and the cover (9) is hinged along one of its longitudinal edges to one of the side elements (3,8).

3. A garment hanger (50) as claimed in claim 1 or claim 2 wherein the main body (4) is an injected moulded piece including the back element (6), the cover (9) and two side elements (3,8), a spud (11) for the pinion wheel (16) and a locking device (5,10).
4. A garment hanger (50) as claimed in claim 1 characterised in that the support enclosure comprises a back element (206) having two sides (203,208) extending laterally and unidirectional from opposite longitudinal edges of the back element (206) and being formed for engagement with a separate cover (209) to be mounted thereon.
5. A garment hanger (50) as claimed in claim 3 characterised in that the pinion wheel (16) is attached to the main body (4) via the spud (11) and rotates in a plane parallel to the back element (6) and cover (9), the movable arms (17,21) having toothed racks (18,22) on a first surface which engage with the pinion wheel (16) in order to produce equal movement of each arm (17,21) in either direction as a result of the movement of one arm, one arm having a toothed rack on a second surface to engage with a locking means.
6. A garment hanger (50) as claimed in any of the preceding claims, characterised in that the locking means is an integral part of the main body (4) provided in the form of a pawl (7) and is permanently in contact with the toothed rack on one movable arm thereby preventing the reduction in overall length of the hanger and is disengageable by pressing an upper portion of a lever.

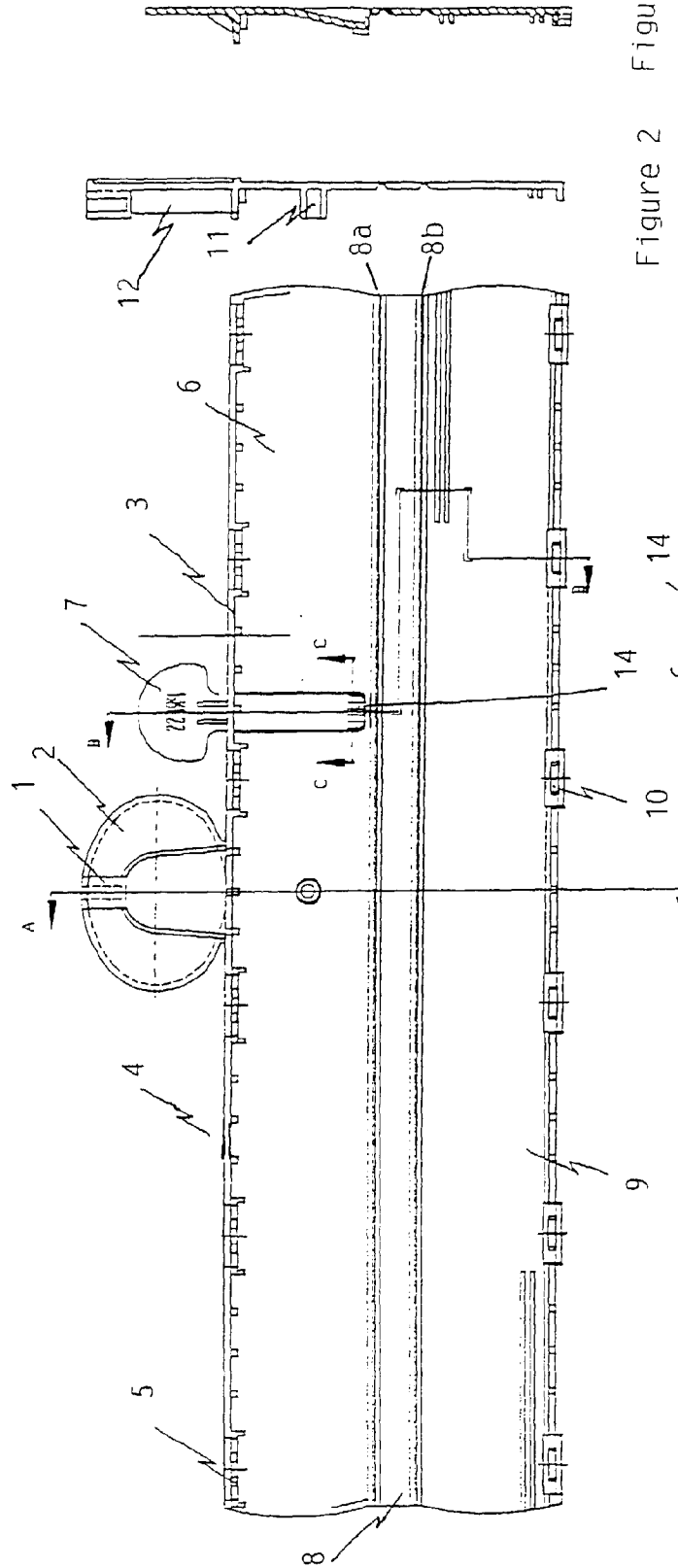


Figure 1

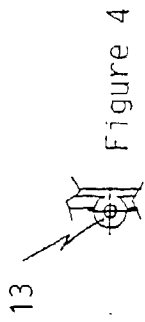


Figure 4

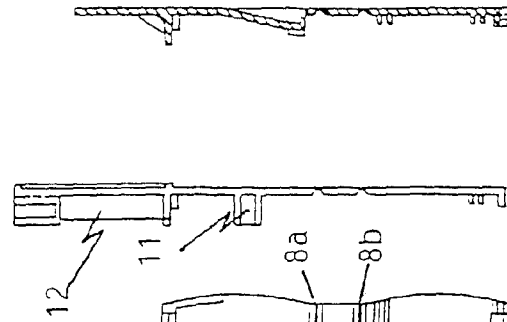


Figure 2

Figure 3

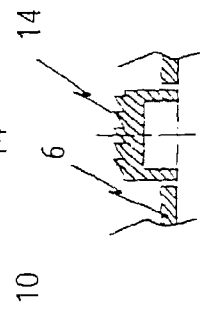


Figure 5

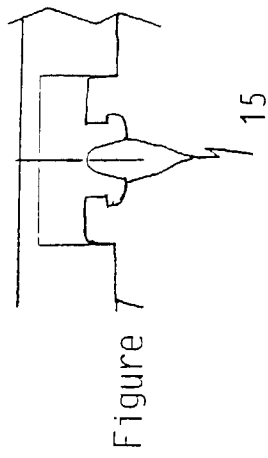


Figure 7

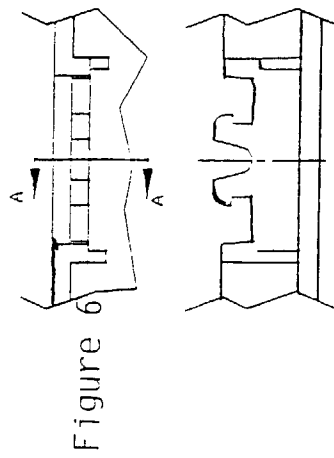


Figure 6

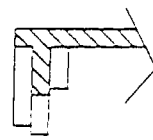


Figure 9

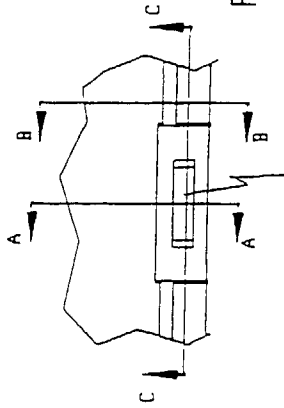


Figure 10

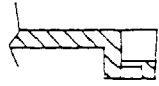


Figure 12

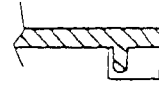


Figure 13

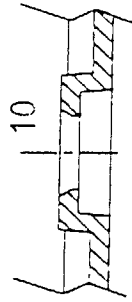


Figure 11

Figure 8

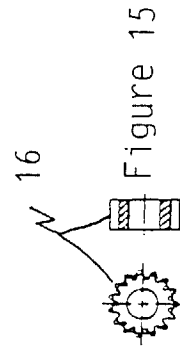


Figure 14

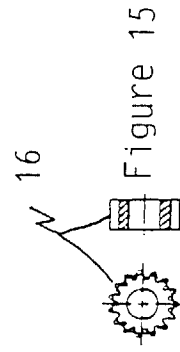
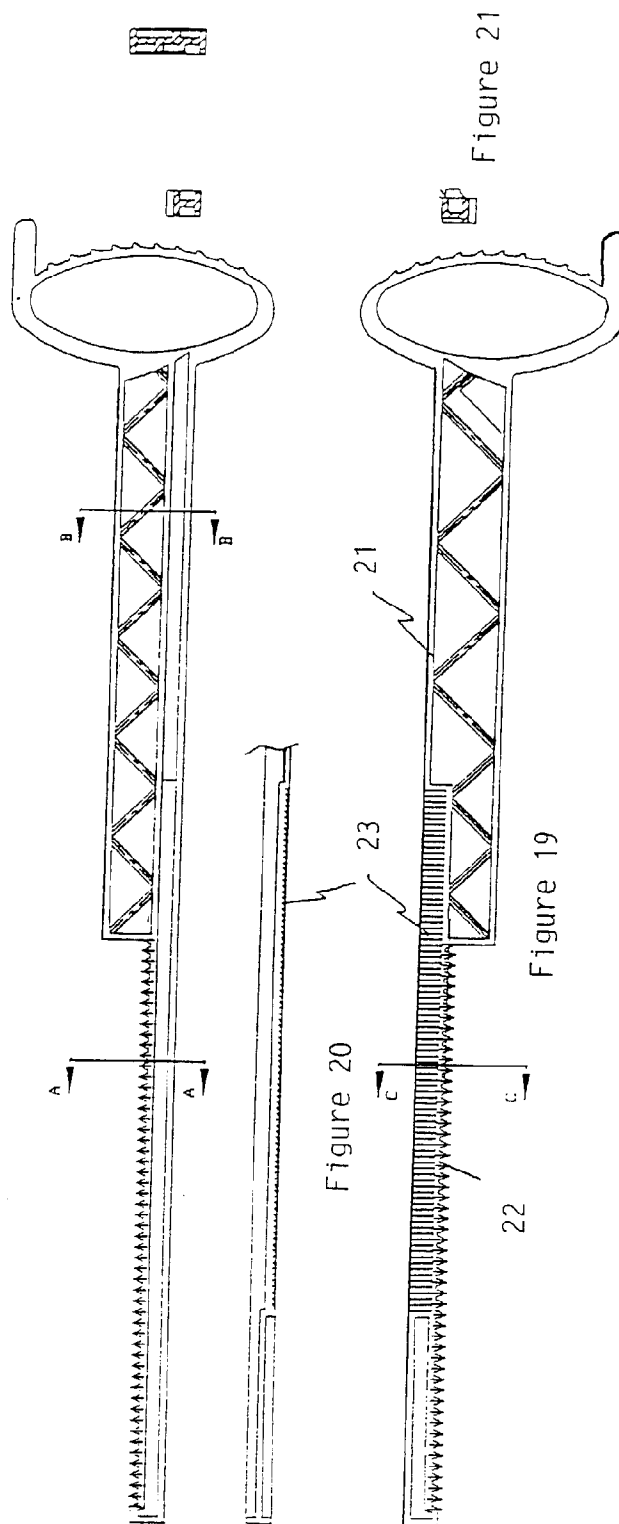
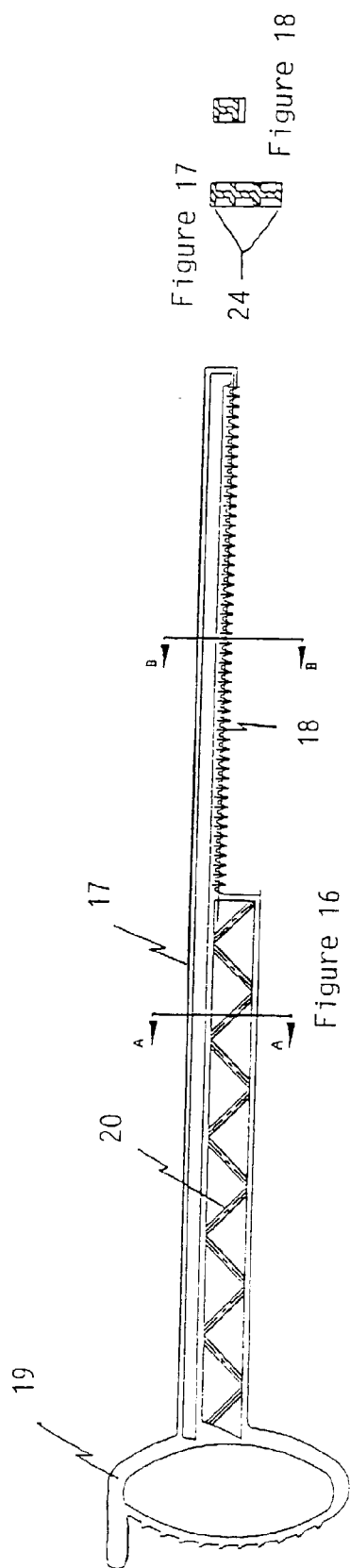
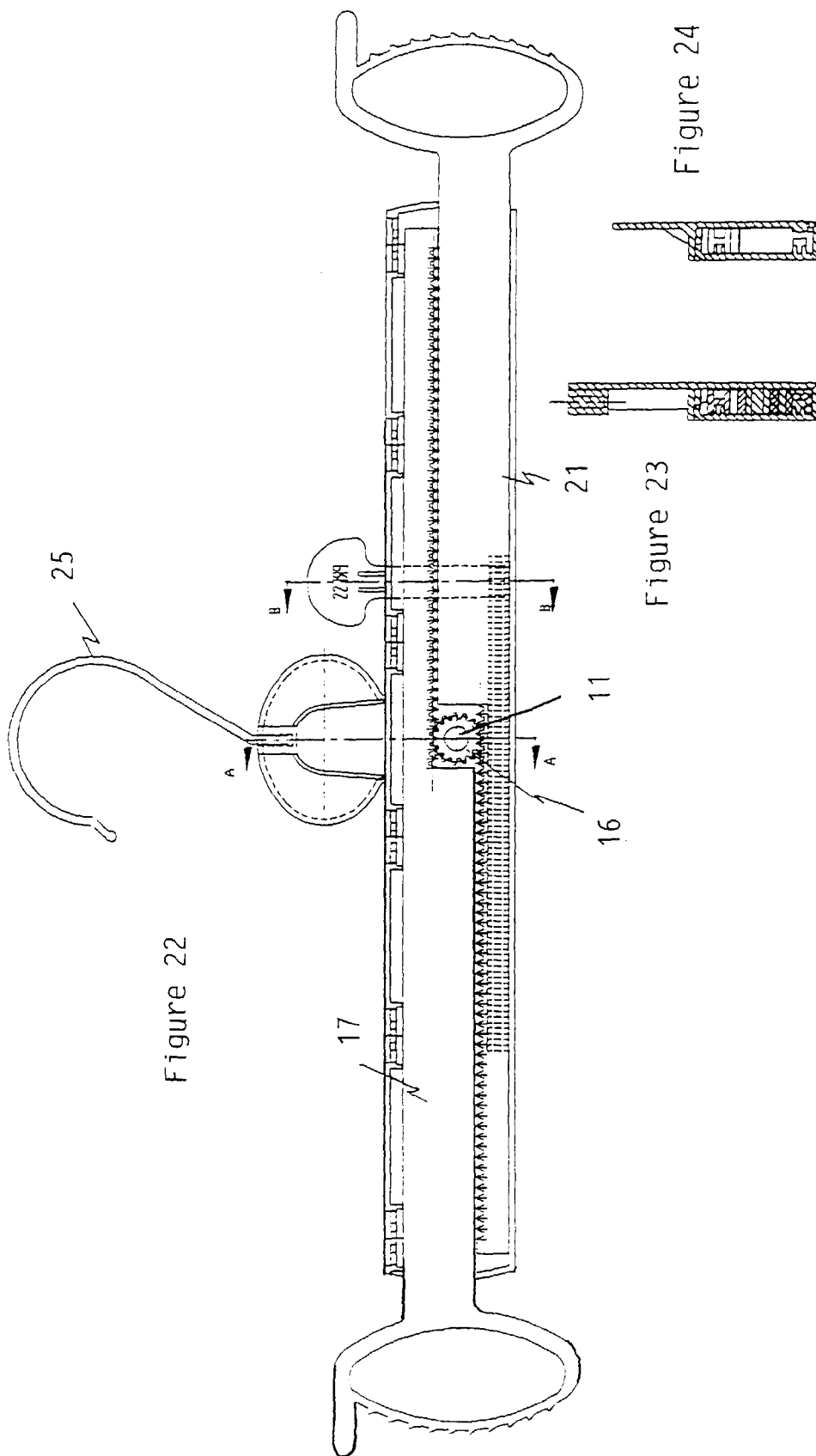


Figure 15

Figure 16





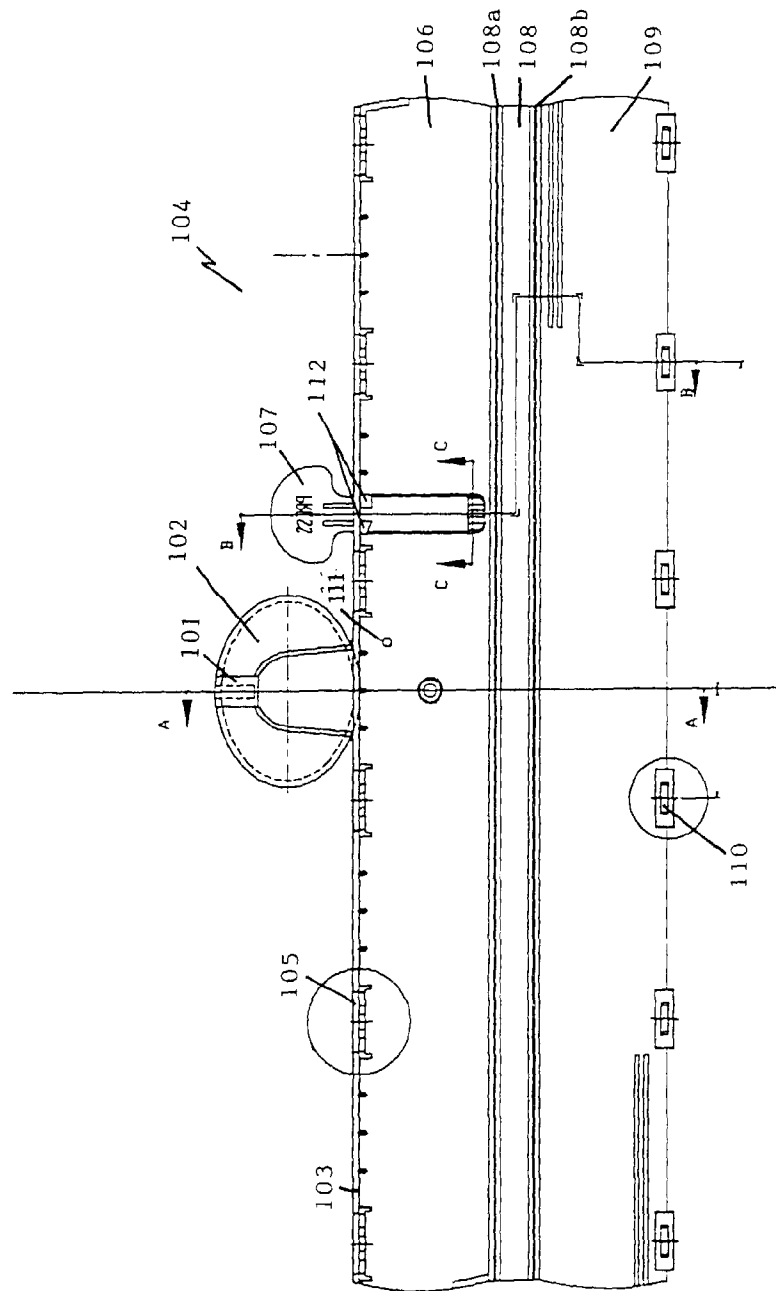


Figure 25

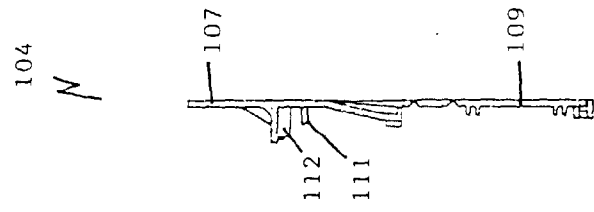


Figure 26

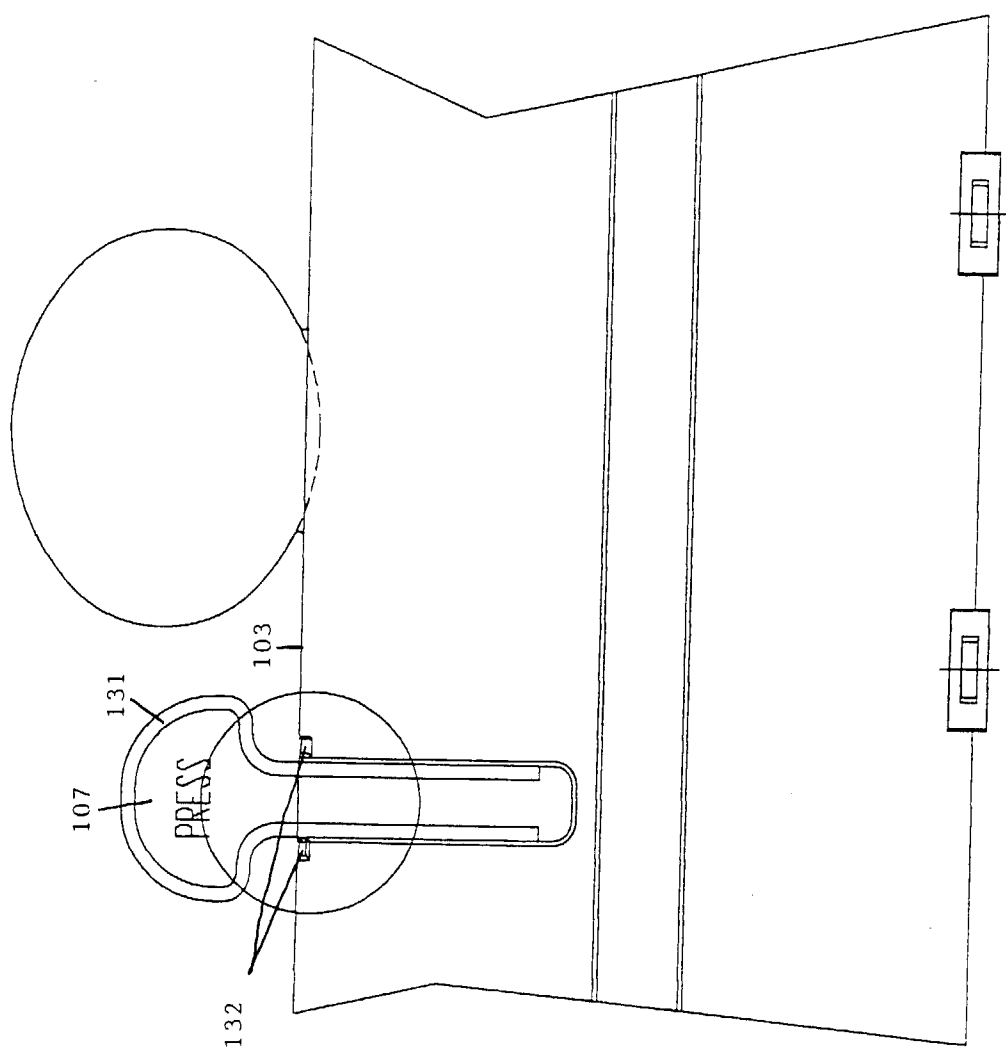
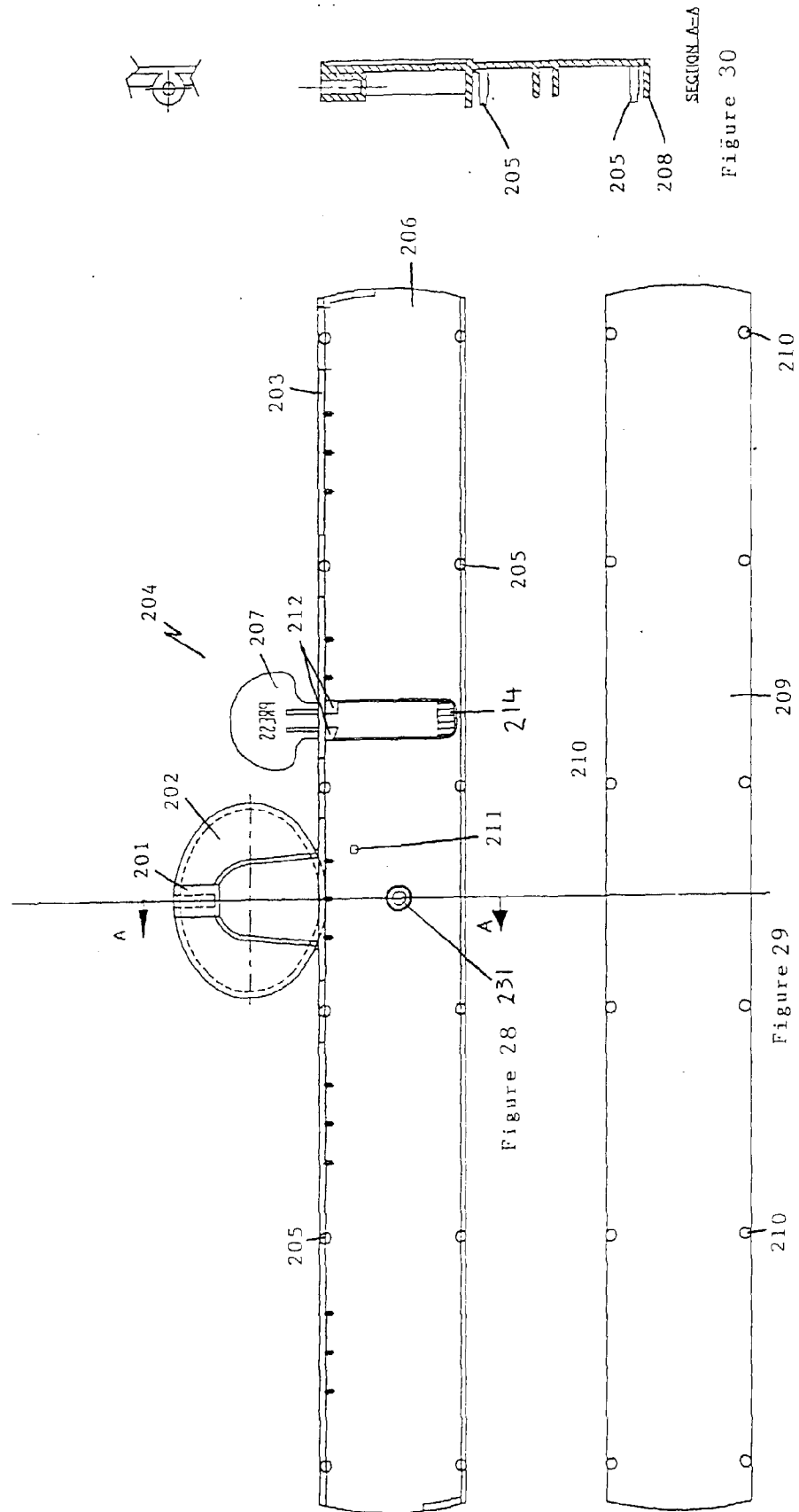


Figure 27





European Patent
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EUROPEAN SEARCH REPORT

Application Number
EP 99 65 0060

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.6)
X	US 5 456 391 A (CHANG) 10 October 1995 (1995-10-10) * figure 2 *	1, 4	A47G25/44
X	EP 0 548 402 A (YEUNG) 30 June 1993 (1993-06-30) * column 3, line 41 - line 44; figures 1, 3 *	1, 4	
X	DE 296 02 194 U (MAWA- METALLWARENFABRIK WAGNER) 12 June 1997 (1997-06-12) * page 7, line 4 - line 20; figure 8 *	1, 4, 6	
			TECHNICAL FIELDS SEARCHED (Int.Cl.6)
			A47G
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 1 October 1999	Examiner Beugeling, G.L.H.
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EP 99 65 0060

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01-10-1999

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