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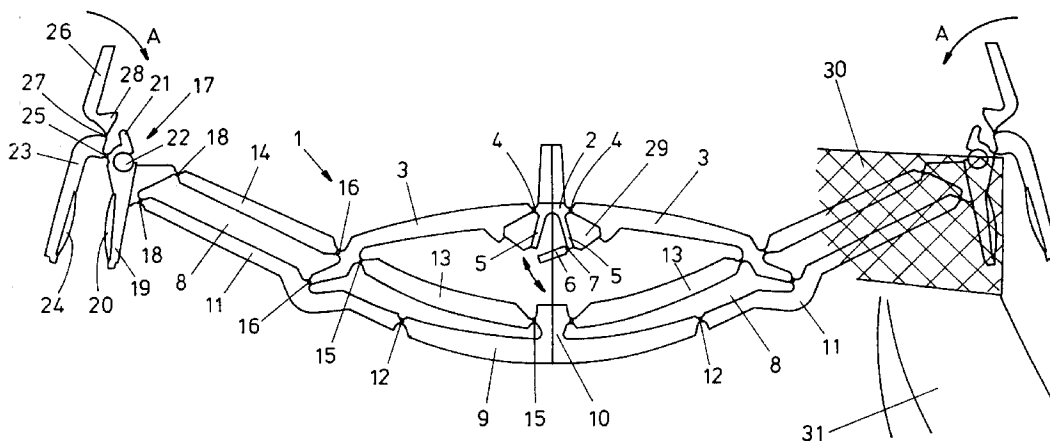
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(54) **Variable width garment hanger**

(57) A garment hanger 1 is described which comprises a hook (not shown) for suspending the hanger 1 from a support, and a pair of upwardly inclined tensioning arms 8 pivotable relative to each other to adjust the separation between the free ends of the tensioning arms 8, wherein the free end of each tensioning arm has a respective garment carrier 17 for engaging the waistband 30 of a garment 31. A pair of downwardly inclined connecting arms 3 extend from the suspension means and are pivotable relative to each other, the lower end of each connecting arm 3 being pivotally connected to a respective tensioning arm 8 at a location between its ends such that downward pivoting of the connecting arms 3 causes upward pivoting of the tensioning arms

8. A pair of compressible inserts 29 are provided between the connecting arms 3 such that movement of the garment carriers 17 towards each other compresses the compressible inserts 29 to oppose forces urging the garment carriers 17 towards each other. A closure member 6 enables the amount of compression exerted on the compressible inserts 29 to be adjusted, such that the hanger has a first condition in which the garment carriers 17 are adapted to apply tension to the waistband 29 of a garment 30 over a first garment size range, and a second condition in which the garment carriers 17 are adapted to apply tension to the waistband 29 of a garment 30 over a second garment size range larger than the first garment size range.

**FIG. 1****EP 0 861 624 A1**

Description

The present invention relates to variable width garment hangers and relates particularly, but not exclusively, to variable width skirt hangers.

Variable width skirt hangers are known which comprise a pair of tensioning arms telescopically mounted to a central body having a suspension hook. The arms are urged outwardly by springs to engage the waistband of a skirt to enable the skirt to be mounted to a display. Such known hangers suffer from the disadvantage that they are relatively complicated and therefore expensive to manufacture. Such hangers also generally utilise metal springs, which can under certain circumstances result in hazardous pieces of flying material if the hanger should be damaged while a garment is violently removed from the hanger. Metal springs can also result in the application of excessive tension to a garment, resulting in garment damage. A further disadvantage arising from such known hangers is that the force applied to the waistband of a garment is relatively large when the hanger arms are compressed to a substantial extent, and is small when the arms are relatively uncompressed. As a result, it is difficult to manufacture such hangers such that a single size of hanger is suitable for a wide range of garment sizes because the force applied by the hanger to small garments is excessive and the force applied to larger garments is insufficient.

GB 2012581 discloses a skirt hanger comprising a lower member having a pair of upwardly inclined tensioning arms and an upper member having a pair of downwardly inclined connecting arms connected at their lower ends to the tensioning arms at a generally central location thereof such that downward pivoting of the connecting arms causes upward pivoting of the tensioning arms, which in turn adjusts the separation between the free ends of the tensioning arms. Spring joints and/or tensioning springs are provided to urge the free ends of the tensioning arms outwardly to apply a tension to the waistband of a garment mounted to the hanger.

Such hangers suffer from the drawback that the spring joints require metal spring components to be joined to plastics hanger components. This often results in creep with repeated use of the hanger, and may also significantly increase the cost of manufacture. In addition, it is difficult to construct a hanger of this type which operates satisfactorily to apply a desired amount of tension to the waistband of garments over a sufficiently wide range of garment sizes.

Preferred embodiments of the present invention seek to overcome the above disadvantages of the prior art.

According to the present invention, there is provided a garment hanger comprising:

- suspension means for suspending the hanger from a support;
- a pair of upwardly inclined tensioning arms pivota-

ble relative to each other to adjust the separation between the free ends of the tensioning arms, wherein the free end of each tensioning arm has a respective garment carrier for engaging the waistband of a garment;

a pair of downwardly inclined connecting arms extending from the suspension means and pivotable relative to each other, the lower end of each said connecting arm being pivotally connected to a respective tensioning arm at a location between its ends such that downward pivoting of the connecting arms causes upward pivoting of the tensioning arms;

biasing means provided between at least two of said arms of the hanger and comprising at least one compressible member of resilient material, wherein movement of said garment carriers towards each other compresses the or each said compressible member to oppose forces urging the garment carriers towards each other; and

compressing means for adjusting the amount of compression exerted on the or each compressible member;

wherein the hanger has a first condition in which the compressing means is not actuated and the garment carriers are adapted to apply a tension to the waistband of a garment over a first garment size range, and a second condition in which the compressing means is actuated and the garment carriers are adapted to apply a tension to the waistband of a garment over a second garment size range larger than said first garment size range.

By providing biasing means which operate by the use of resilient material, this enables the hanger to be constructed without the use of metal. This provides the advantage of avoiding the problem of creep mentioned above, and enables garments to be passed through a metal detector, for example to detect any pins which have not been removed from the garment. The use of resilient materials also enables the hanger to be constructed in such a manner as to avoid applying so much tension to a small size garment as to damage it and to avoid applying insufficient tension to a larger garment, thus enabling a single size of hanger to be used over a wide range of garment sizes. In addition, because the amount of tension applied to a garment by resilient material is generally lower than that caused by metal springs, if a garment should be rapidly pulled from a hanger, the danger caused by flying parts is avoided.

Preferably, the biasing means is provided between the connecting arms such that downward pivoting of the connecting arms compresses the or each compressible member.

In a preferred embodiment, each said connecting arm is connected at one end thereof to a central body member and the biasing means comprises a pair of said compressible members, each said compressible mem-

ber being located between a respective connecting arm and the central body member.

Preferably, the central body member comprises a pair of abutment members for abutting a respective compressible member, and said compressing means comprises a substantially rigid member for urging the abutment members apart.

The substantially rigid member may have a plurality of actuating positions for adjusting the amount by which the abutment members are urged apart.

This provides the advantage of maximising the range of garment sizes over which satisfactory operation of the hanger can be obtained.

The plurality of actuating positions may be provided by a cam arrangement.

Alternatively, the plurality of actuating positions may be provided by a ratchet arrangement.

Alternatively, the plurality of actuating positions may be provided by a cooperating pin and hole arrangement.

The resilient material may be rubber.

In a preferred embodiment, the pair of tensioning arms comprises a pair of first upwardly inclined members pivotally connected at the proximal ends thereof to an intermediate body.

Preferably, each said tensioning arm comprises a second upwardly inclined member interconnecting the intermediate body and a connecting arm and a third upwardly inclined member interconnecting the connecting arm and a garment carrier.

The hanger may be made substantially of plastics material and said pivotable connections may be realised by live hinges.

In a preferred embodiment, each said garment carrier comprises a pair of pivotally interconnected jaw members for receiving the waistband of a garment therebetween, and adjustment means for adjusting the angular spacing between said jaw members.

This provides the advantage in the case of a skirt hanger of enabling the hanger to engage the waistband of a skirt with or without a belt.

Preferably, the or each said adjustment means comprises a compressible member of resilient material provided on one of said jaw members, and a lever movable between a first position in which the compressible member is not compressed and a second position in which the compressible member is compressed to urge the jaw members closer together.

In a preferred embodiment, the or each compressible member is located in a recess in one of said jaw members, and said lever in said second position urges the sides of said recess towards each other.

Each said jaw member may further comprise an insert of resilient material for engaging the waistband of a garment.

As an aid to understanding the invention, a preferred embodiment thereof will now be described in detail below, by way of example only and not in any limitative sense, with reference to the accompanying draw-

ings, in which:

Figure 1 is a schematic elevational view of a garment hanger embodying the present invention; and Figure 2 is a plan view of the garment hanger of Figure 1 when a garment is mounted thereto.

Referring to Figure 1, an adjustable garment hanger 1 comprises an upper body member 2 for receiving a suspending hook (not shown) for suspending the hanger 1 from a rail, and a label area (not shown). A pair of downwardly inclined connecting arms 3 are integrally joined to the upper body member 2 by means of live hinges 4. The upper body member 2 comprises a pair of diverging limbs 5, the function of which will be described in detail below, and a closure member 6 integrally joined to one of the limbs 5 by means of a live hinge 7 such that the closure member 6 has an open position as shown in Figure 1 in which the limbs 5 are not forced apart and a closed position in which the distal ends of the limbs 5 are urged apart from each other. The closure member 6 may have more than one closed position, in which case the limbs 5 are forced apart to varying extents.

A pair of upwardly inclined tensioning arms 8 is formed by a curved base member 9 having an upstanding projection 10 and a pair of upwardly inclined members 11, each of which is integrally joined to the base member 9 by means of a live hinge 12. Each tensioning arm 8 also includes an upwardly inclined member 13 extending between the upstanding projection 10 of the base member 9 and a lower end of the corresponding connecting arm 3, and a generally straight member 14 extending between the connecting arm 3 and the distal end of the tensioning arm 8. The upwardly inclined member 13 is integrally joined to the upstanding projection 10 and connecting arm 3 by means of live hinges 15, and the connecting arm 3 is attached to the upwardly inclined member 11 and generally straight member 14 by means of further live hinges 16.

The hanger 1 is injection moulded from polypropylene or other suitable material having some inherent flexibility, such that as the tensioning arms 8 incline upwards, the flexibility of the live hinges causes the connecting arms 3 to incline downwardly, and the spacing between the limbs 5 of the central body member 2 and the adjacent region of the corresponding connecting arm 3 to decrease.

A garment carrier 17 is located at the distal end of each tensioning arm 8 and is integrally attached thereto by means of a pair of live hinges 18. Each garment carrier 17 comprises a first jaw member 19 having a soft rubber insert 20 at an inner face thereof. The first jaw member 20 has a projection 21 at its upper end defining a recess in which a compressible member 22 of resilient material such as rubber is arranged. A second jaw member 23 having a soft rubber insert 24 facing soft rubber insert 20 is integrally moulded with first jaw member 19

and is attached thereto by means of a live hinge 25. A lever 26 is integrally attached to the second jaw member 23 by means of a live hinge 27 and has a projection 28 for co-operating with the projection 21 of the first jaw member 19, the purpose of which will be described in detail below.

A pair of compressible inserts 29 of resilient material such as rubber are provided on the hanger such that one of the inserts 29 is arranged between each limb 5 of the central body member 2 and the adjacent face of the corresponding connecting arm 3. It will be appreciated by persons skilled in the art that the hanger 1 shown in Figure 1 would be formed in a two stage process, the main parts of the hanger initially being injection moulded from polypropylene or other suitable material, and the rubber inserts and compressible members 20, 24, 22, 29 being moulded in a subsequent step.

The operation of the hanger shown in Figure 1 will now be described.

For smaller garments sizes, (i.e. garments having a waistband of width of the order of the separation of the garment carriers 17 as shown in Figure 1), closure member 6 is in its open position as shown in Figure 1, so that compressible members 29 are not placed under compression. As a result, the connecting arms 3 are not urged upwardly to force the tensioning arms 8 downwards. In this condition, the hanger 1 is placed within the waistband 30 of a garment 31 such as a skirt such that the waistband 30 abuts the outer face of each of the first jaw members 19. As a result of the inherent resilience of the hanger 1, for smaller garment sizes, the hanger tends to resist forces urging the garment carriers 17 together and the outward movement of the garment carriers 17 places the waistband 30 of the garment 31 under tension. The bulk of the hanger 1 is hidden by the waistband 30 as shown in the right hand portion of Figure 1 and in Figure 2.

In the arrangement shown in Figure 1, the separation between the first 19 and second 23 jaw members is sufficiently large to accommodate a waistband 30 carrying a relatively thick belt. For waistbands 30 either not carrying a belt or carrying a thin belt, the lever 26 of each second jaw member 23 is rotated in the direction of arrows A shown in Figure 1 until the projection 28 of the lever engages behind the projection 21 on the first jaw member 19. As a result, the compressible member 22 is placed under compression and the second jaw member 23 is urged towards the first jaw member 19 to reduce the gap between the rubber inserts 20, 24 to accommodate waistbands 30 not having a belt. Because of the compressibility of member 22, with the projection 28 engaged behind projection 21, the separation between jaw members 19,23 can vary substantially, with the result that a relatively wide range of garment waistband thicknesses can be accommodated between the jaw members 19,23.

For larger garment sizes, the separation between the garment carriers 17 is increased by moving the clo-

sure member 6 of the central body member 2 to its closed position to move the limbs 5 thereof further apart. This places the compressible members 29 under compression, which in turn urges the connecting arms 3 upwards and the tensioning arms 8 downwards. The hanger 1 then operates in an identical manner to smaller garment sizes.

It will be appreciated by persons skilled in the art that the above embodiment has been described by way of example only and not in any limited of sense, and that various alterations and modifications are possible without departure from the scope of the invention as defined by the independent claims. For example, although the closure member 6 has been illustrated as a "trap-door" type member, the skilled person will appreciate that other types of closure member can be used to force the limbs 5 apart, such as a cam arrangement, a toothed ratchet, or a pin and series of corresponding holes. In addition, although the closure member 6 and compressible inserts 29 have been shown in the described embodiment as arranged between the connecting arms 3, it will be appreciated by persons skilled in the art that the closure member and inserts can be arranged between any pair of rigid members of the hanger such that the angle between the members is decreased if the garment carriers 17 are moved closer together.

Claims

1. A garment hanger comprising:

suspension means for suspending the hanger from a support;

a pair of upwardly inclined tensioning arms pivotable relative to each other to adjust the separation between the free ends of the tensioning arms, wherein the free end of each tensioning arm has a respective garment carrier for engaging the waistband of a garment;

a pair of downwardly inclined connecting arms extending from the suspension means and pivotable relative to each other, the lower end of each said connecting arm being pivotally connected to a respective tensioning arm at a location between its ends such that downward pivoting of the connecting arms causes upward pivoting of the tensioning arms;

biasing means provided between at least two of said arms of the hanger and comprising at least one compressible member of resilient material, wherein movement of said garment carriers towards each other compresses the or each said compressible member to oppose forces urging the garment carriers towards each other; and

compressing means for adjusting the amount of compression exerted on the or each com-

pressible member;

wherein the hanger has a first condition in which the compressing means is not actuated and the garment carriers are adapted to apply a tension to the waistband of a garment over a first garment size range, and a second condition in which the compressing means is actuated and the garment carriers are adapted to apply a tension to the waistband of a garment over a second garment size range larger than said first garment size range.

2. A hanger according to claim 1, wherein said biasing means is provided between the connecting arms such that downward pivoting of the connecting arms compresses the or each compressible member. 15
3. A hanger according to claim 2, wherein each said connecting arm is connected at one end thereof to a central body member and the biasing means comprises a pair of said compressible members, each said compressible member being located between a respective connecting arm and the central body member. 20
4. A hanger according to claim 3, wherein said central body member comprises a pair of abutment members for abutting a respective compressible member, and said compressing means comprises a substantially rigid member for urging the abutment members apart. 25
5. A hanger according to claim 4, wherein said substantially rigid member has a plurality of actuating positions for adjusting the amount by which the abutment members are urged apart. 30
6. A hanger according to claim 5, wherein said plurality of actuating positions are provided by a cam arrangement. 35
7. A hanger according to claim 5, wherein said plurality of actuating positions are provided by a ratchet arrangement. 40
8. A hanger according to claim 5, wherein said plurality of actuating positions are provided by a cooperating pin and hole arrangement. 45
9. A hanger according to any one of the preceding claims, wherein said resilient material is rubber. 50
10. A hanger according to any one of the preceding claims, wherein said pair of tensioning arms comprises a pair of first upwardly inclined members pivotally connected at the proximal ends thereof to an intermediate body. 55
11. A hanger according to claim 10, wherein each said tensioning arm comprises a second upwardly inclined member interconnecting the intermediate body and a connecting arm and a third upwardly inclined member interconnecting the connecting arm and a garment carrier.
12. A hanger according to any one of the preceding claims, wherein the hanger is made substantially of plastics material and said pivotable connections are realised by live hinges.
13. A hanger according to any one of the preceding claims, wherein each said garment carrier comprises a pair of pivotally interconnected jaw members for receiving the waistband of garment therebetween, and adjustment means for adjusting the angular spacing between said jaw members.
14. A hanger according to claim 13, wherein the or each said adjustment means comprises a compressible member of resilient material provided on one of said jaw members, and a lever movable between a first position in which the compressible member is not compressed and a second position in which the compressible member is compressed to urge the jaw members closer together.
15. A hanger according to claim 14, wherein the or each compressible member is located in a recess in one of said jaw members, and said lever in said second position urges the sides of said recess towards each other.
16. A hanger according to any one of claims 13 to 15, wherein each said jaw member further comprises an insert of resilient material for engaging the waistband of a garment.

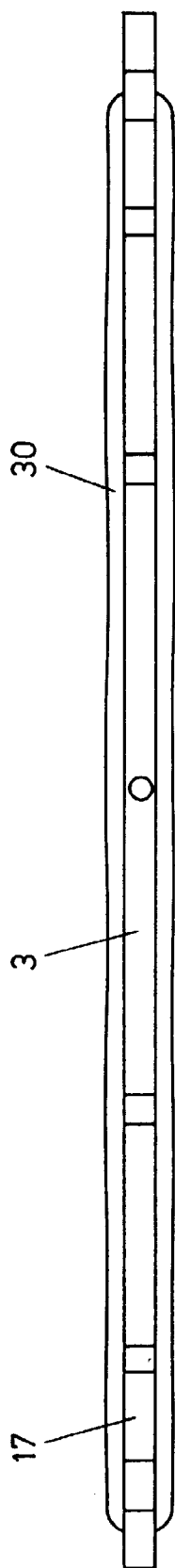


FIG. 2

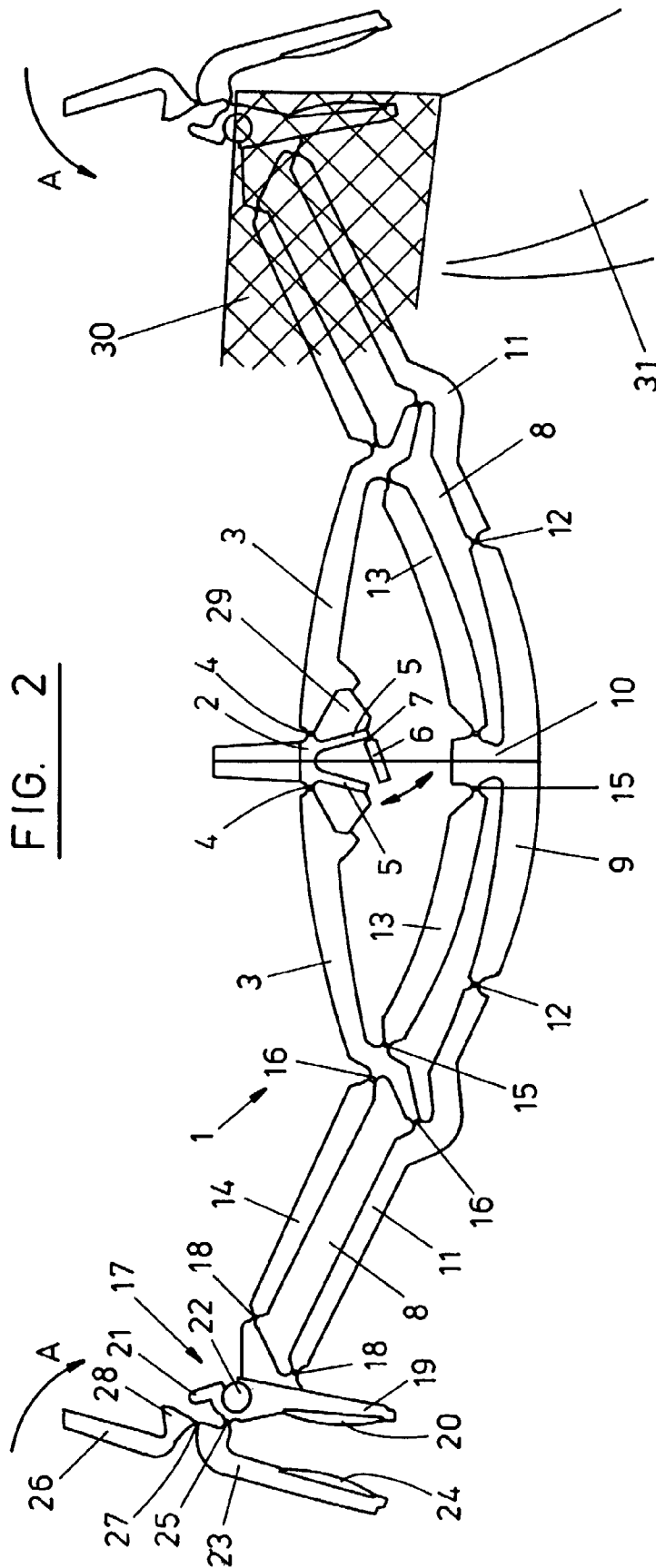


FIG. 1



European Patent
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EUROPEAN SEARCH REPORT

Application Number
EP 98 30 0848

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.6)
A	FR 2 414 896 A (HAZENVELD) 17 August 1979 * page 7, line 7 - line 14; figures *	1	A47G25/62
A	DE 81 16 612 U (CORONET-KUNSTSTOFFWERK GMBH) 3 September 1981 * claim 1; figure 1 *	1	
A	GB 2 128 079 A (BRAITRIM LTD) 26 April 1984 * figure 1 *	1	
			TECHNICAL FIELDS SEARCHED (Int.Cl.6)
			A47G
The present search report has been drawn up for all claims			
Place of search		Date of completion of the search	Examiner
THE HAGUE		18 May 1998	Beugeling, G.L.H.
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			

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