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(54) IMPROVEMENTS IN OR RELATING TO CLOTHES HANGERS

(71) I, YUTAKA MATSUMOTO, a Japanese citizen, of No. 21-1, 1-chome, Higashisugano, Ichikawa-shi, Chiba-ken, Japan, do hereby declare the invention, for which I pray that a patent may be granted to me, and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention relates to clothes hangers, and more particularly relates to portable clothes hangers which are foldable.

According to the present invention there is provided a clothes hanger which comprises (i) a pivot shaft; (ii) a first pair of main hanging members each pivotably mounted on the pivot shaft at or near one end of the member; (iii) a second pair of main hanging members each pivotably mounted on the pivot shaft at or near one end of the member, each of the members comprising the second pair having an auxiliary hanging member pivotably mounted at or near the other end of the member, and (iv) means for suspending the hanger the arrangement being such that the members comprising the first pair are pivotable about the pivot shaft between a first position in which the angle between them is substantially 0° and a second position in which the angle between them is substantially 180°, and that the members comprising the second pair are pivotable about the pivot shaft between a first position in which the angle between them is substantially 0° and a second position in which the angle between them is a reflex angle such that the members comprising the first pair are included in the reflex angle.

A portable hanger according to the present invention is preferably made of a synthetic plastics material.

In one embodiment of the invention the means for suspending the hanger comprises a suspending rod pivotably mounted on the pivot shaft. Advantageously, the clothes hanger further comprises a pin provided on the suspending rod and arcuate slots provided in the main hanging members, which arcuate slots co-operate with the pin

for limiting the pivotable movement of the main hanging members from their first positions to their second positions. The main hanging members having arcuate slots may be subjected to an especially heavy load and are therefore advantageously made relatively thick at least in parts thereof to increase their mechanical strength. Thus one surface of each of the main hanging members may be made thick around its periphery to form a peripheral rib and so reinforce the member.

The auxiliary hanging members provided at the free ends of the second pair of main hanging members are especially suitable for preventing small washed articles from slipping off and falling and for adjusting the shapes of such articles.

For a better understanding of the present invention and to show more clearly how the same may be carried into effect reference will now be made, by way of example, to the accompanying drawings in which:

Figure 1 is a perspective view of a clothes hanger according to the present invention in a folded state;

Figure 2 is a front view of the hanger shown in Figure 1 in an expanded state;

Figure 3 is a plan view, partially in cross-section, of the hanger shown in Figure 2;

Figure 4 is a cross-sectional view of the hanger shown in Figure 1;

Figures 5a to 5d are cross-sectional views along lines a-a, b-b, c-c and d-d in Figure 4; and

Figure 6 is a front view, partially broken away, showing the relationships between the respective arcuate slots and the pin.

Referring to Figures 2 and 3, a suspending rod 1 is formed at one end with suspending hole 2 through which a nail, string or the like may be passed. The other end of the suspending rod 1 is provided with a hole 3. A pivot shaft 4 is inserted through the hole and an arcuate pin 5 (Figure 4) is formed on suspending rod 1.

Referring now to Figures 4 and 5, four main hanging members are pivotably mounted on the shaft 4, the members being

secured on the shaft by means of enlarged portions formed at each end of the shaft. Each trunk portion 8 of the main hanging members is constructed such that one surface is substantially flat and a rib 6 is formed at the peripheral edge on the other surface, thus forming a depressed central part 7. Four trunk portions 8, each having a flat portion 9 extending therefrom, constitute a first pair of main hanging members 10 and 10¹ and a second pair of main hanging members 11 and 11¹. The main hanging members are pivotably mounted on the shaft 4 by means of holes 12 in the members. The pin 5 enters into arcuate slots 13 and 13¹ formed in the members 10 and 10¹ comprising the first pair of main hanging members with the arc thereof concentric with the shaft 4. The arcuate slots 13 and 13¹ subtend an angle of approximately 90° and are provided in members 10 and 10¹ concentric with the respective holes 12 thereof. Similar arcuate slots 14 and 14¹ which subtend an angle of approximately 120° are provided in the members 11 and 11¹ comprising the second pair of main hanging members. Slots 13 and 13¹ and 14 and 14¹ fit over the pin 5 of suspending rod 1. The parts of the members in which the arcuate slots 13 and 13¹ and 14 and 14¹ are formed are made equal in thickness to those parts of trunk portions 8 which include ribs 6 of the respective members 10 and 10¹ and 11 and 11¹.

An auxiliary hanging member 15 is provided on each of the main hanging members 10 and 10¹ extending from the far end of the flat portion 9, and a pair of auxiliary hanging members 15¹ and 15¹¹ are provided on each of the members 11 and 11¹, each auxiliary hanging member of a pair of auxiliary hanging members being attached to opposite sides of the flat portion 9 of members 11 and 11¹. The auxiliary hanging members 15 may be mounted so as to be rotatable, or may be engaged at predetermined positions, by means of pivotable shafts 16.

A simple scale 17 may be provided on the surface of members 10 and 10¹ and the auxiliary hanging members 15. Thus, for example, this scale can be used by a traveler to determine whether a package is within the dimensional limits on postal packages. The rotational directions of the respective members in unfolding the hanger for use are indicated by arrows 18. Thus, the hanger can be opened and used without delay.

The hanger is especially suitable for carrying in the folded state if it is constructed such that, as illustrated in Figure 4, each auxiliary hanging member 15, 15¹ and 15¹¹ lies over the flat portions 9 so that these two members in combination are equal

in thickness to and level on both sides with the respective trunk portion 8 in the folded state.

When the hanger of the present invention is used, suspending rod 1 is rotated out of the folded pack of members. The respective members are turned around the suspending rod 1 in the direction of the arrows 18, i.e. member 10 is rotated clockwise about shaft 4, while member 10¹ is turned anticlockwise. Both members 10 and 10¹ are fixed in the horizontal state at positions of about 90° with respect to the suspending rod 1 by means of the slots 13 and 13¹ and the pins 5. Next the members 11 and 11¹ are respectively turned in the direction of arrows 18, i.e. member 11 is turned clockwise, while member 11¹ is turned anticlockwise. Slots 14 and 14¹ and pins 5 engage and fix the members 11 and 11¹ at positions at which the members subtend an angle of about 120° with the suspending rod 1. For suspending, for example, a shirt or the like, the angle of the auxiliary hanging members 15 is suitably selected according to the shoulder width of the garment. In addition, the body portion of the shirt is held out by the auxiliary hanging members 15¹ and 15¹¹. Thus, the shirt is suspended with its shape properly maintained. Stockings or the like 19 may be hung on the auxiliary hanging members 15¹ or 15¹¹ by suitably positioning the auxiliary hanging members (see Figure 2). Underwear or the like 20 can be hung on the members 15¹ or 15¹¹ by rotating the members into opposing horizontal positions.

WHAT I CLAIM IS:—

1. A clothes hanger which comprises (i) a pivot shaft; (ii) a first pair of main hanging members each pivotably mounted on the pivot shaft at or near one end of the member; (iii) a second pair of main hanging members each pivotably mounted on the pivot shaft at or near one end of the member, each of the members comprising the second pair having an auxiliary hanging member pivotably mounted at or near the other end of the member, and (iv) means for suspending the hanger, the arrangement being such that the members comprising the first pair are pivotable about the pivot shaft between a first position in which the angle between them is substantially 0° and a second position in which the angle between them is substantially 180°, and that the members comprising the second pair are pivotable about the pivot shaft between a first position in which the angle between them is substantially 0° and a second position in which the angle between them is a reflex angle such that the members comprising the first pair are included in the reflex angle.



secured on the shaft by means of enlarged portions formed at each end of the shaft. Each trunk portion 8 of the main hanging members is constructed such that one surface is substantially flat and a rib 6 is formed at the peripheral edge on the other surface, thus forming a depressed central part 7. Four trunk portions 8, each having a flat portion 9 extending therefrom, constitute a first pair of main hanging members 10 and 10¹ and a second pair of main hanging members 11 and 11¹. The main hanging members are pivotably mounted on the shaft 4 by means of holes 12 in the members. The pin 5 enters into arcuate slots 13 and 13¹ formed in the members 10 and 10¹ comprising the first pair of main hanging members with the arc thereof concentric with the shaft 4. The arcuate slots 13 and 13¹ subtend an angle of approximately 90° and are provided in members 10 and 10¹ concentric with the respective holes 12 thereof. Similar arcuate slots 14 and 14¹ which subtend an angle of approximately 120° are provided in the members 11 and 11¹ comprising the second pair of main hanging members. Slots 13 and 13¹ and 14 and 14¹ fit over the pin 5 of suspending rod 1. The parts of the members in which the arcuate slots 13 and 13¹ and 14 and 14¹ are formed are made equal in thickness to those parts of trunk portions 8 which include ribs 6 of the respective members 10 and 10¹ and 11 and 11¹.

An auxiliary hanging member 15 is provided on each of the main hanging members 10 and 10¹ extending from the far end of the flat portion 9, and a pair of auxiliary hanging members 15¹ and 15¹¹ are provided on each of the members 11 and 11¹, each auxiliary hanging member of a pair of auxiliary hanging members being attached to opposite sides of the flat portion 9 of members 11 and 11¹. The auxiliary hanging members 15 may be mounted so as to be rotatable, or may be engaged at predetermined positions, by means of pivotable shafts 16.

A simple scale 17 may be provided on the surface of members 10 and 10¹ and the auxiliary hanging members 15. Thus, for example, this scale can be used by a traveller to determine whether a package is within the dimensional limits on postal packages. The rotational directions of the respective members in unfolding the hanger for use are indicated by arrows 18. Thus, the hanger can be opened and used without delay.

The hanger is especially suitable for carrying in the folded state if it is constructed such that, as illustrated in Figure 4, each auxiliary hanging member 15, 15¹ and 15¹¹ lies over the flat portions 9 so that these two members in combination are equal

in thickness to and level on both sides with the respective trunk portion 8 in the folded state.

When the hanger of the present invention is used, suspending rod 1 is rotated out of the folded pack of members. The respective members are turned around the suspending rod 1 in the direction of the arrows 18, i.e. member 10 is rotated clockwise about shaft 4, while member 10¹ is turned anticlockwise. Both members 10 and 10¹ are fixed in the horizontal state at positions of about 90° with respect to the suspending rod 1 by means of the slots 13 and 13¹ and the pins 5. Next the members 11 and 11¹ are respectively turned in the direction of arrows 18, i.e. member 11 is turned clockwise, while member 11¹ is turned anticlockwise. Slots 14 and 14¹ and pins 5 engage and fix the members 11 and 11¹ at positions at which the members subtend an angle of about 120° with the suspending rod 1. For suspending, for example, a shirt or the like, the angle of the auxiliary hanging members 15 is suitably selected according to the shoulder width of the garment. In addition, the body portion of the shirt is held out by the auxiliary hanging members 15¹ and 15¹¹. Thus, the shirt is suspended with its shape properly maintained. Stockings or the like 19 may be hung on the auxiliary hanging members 15¹ or 15¹¹ by suitably positioning the auxiliary hanging members (see Figure 2). Underwear or the like 20 can be hung on the members 15¹ or 15¹¹ by rotating the members into opposing horizontal positions.

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2. A clothes hanger as claimed in claim 1, wherein, when the members comprising the first and second pairs of main hanging members are in their first position, the first pair of main hanging members overlie the second pair of main hanging members.
3. A clothes hanger as claimed in claim 1 or 2, wherein each of the members comprising the first pair of main hanging members is provided with an auxiliary hanging member pivotably mounted at or near the other end of the member.
4. A clothes hanger as claimed in claim 3, wherein the members comprising the first pair of main hanging members and the auxiliary hanging members pivotably mounted thereon are provided with a scale along an edge.
5. A clothes hanger as claimed in claim 1, 2, 3 or 4, wherein each of the members comprising the second pair of main hanging members is provided with two auxiliary hanging members pivotably mounted at or near the other end of the member.
6. A clothes hanger as claimed in claim 1, 2, 3, 4 or 5, wherein the means for suspending the hanger comprises a suspending rod pivotably mounted on the pivot shaft.
7. A clothes hanger as claimed in claim 6, wherein the clothes hanger further comprises a pin provided on the suspending rod and arcuate slots provided in the main hanging members, which arcuate slots cooperate with the pin for limiting the pivotable movement of the main hanging members from their first positions to their second positions.
8. A clothes hanger as claimed in any one of the preceding claims, wherein the members comprising the first and second pairs of main hanging members are formed with flanges along at least part of their edges.
9. A clothes hanger as claimed in any one of the preceding claims, wherein the clothes hanger is made of a synthetic plastics material.
10. A clothes hanger substantially as hereinbefore described with reference to, and as shown in, the accompanying drawings.

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