

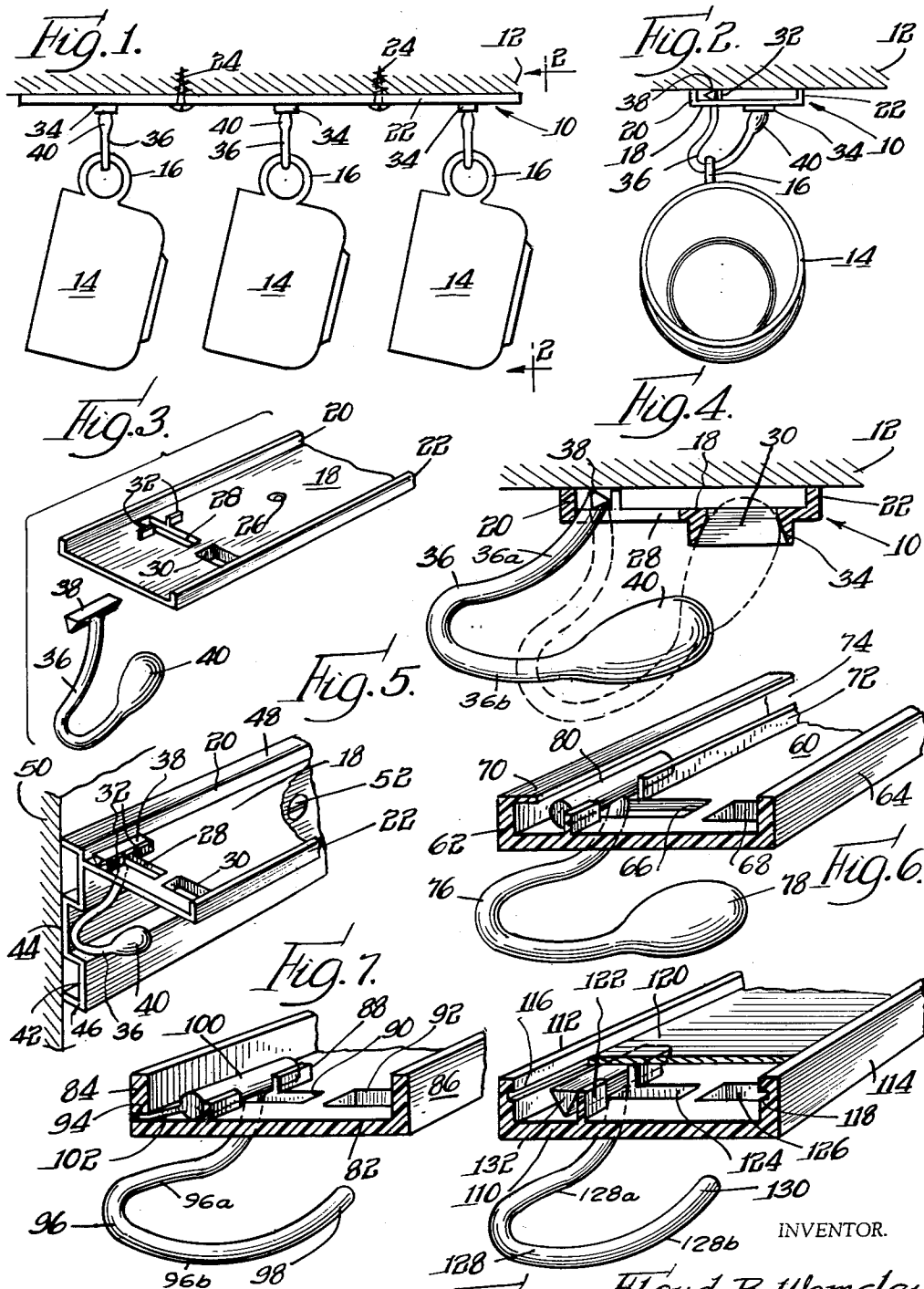
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HANGER

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HANGER

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This invention relates to hangers for suspending articles having an opening adapted to be engaged by a hook, such as articles having hooked or looped handles or other attaching devices, for instance, tea cups, brooms or tools having handles provided with hooks or eyelets, and the like.

The present invention provides a hanger of the type indicated including a bracket and a depending hook-shaped suspending member having a free end adapted to be inserted into an opening in an article to be suspended, for instance, a hooked or looped handle or attaching device. The suspending member is movable between a first position where the free end of the hook-shaped suspending member is spaced from said bracket and therefore easily introduced into a hooked or looped handle or other attaching device and a second position where the free end of the suspending member is seated against the bracket. Means are provided for biasing the suspending member into the first position with a force easily overcome by the weight of an article hanging from the suspending member. The suspending member is so shaped that the weight of an article hanging therefrom moves the suspending member into the second position wherein the handle or other attaching device threaded over the suspending device is held against accidental displacement therefrom.

Other and further features of the present invention will become apparent from the following description and appended claims as illustrated by the accompanying drawings, in which:

FIG. 1 is a fragmentary side elevational view, with parts shown in vertical cross sectional view, of a hanger according to the present invention adapted for mounting on the underside of a shelf or the like;

FIG. 2 is a view taken along the line 2—2 of FIG. 1;

FIG. 3 is a perspective exploded view of the device of FIGS. 1 and 2;

FIG. 4 is an enlarged view similar to FIG. 2;

FIG. 5 is a fragmentary perspective view, with parts shown in vertical cross section, of a device similar to that of FIGS. 1—4 but adapted for mounting on a vertical surface;

FIG. 6 is a fragmentary perspective view, with parts shown in vertical cross section, of another device according to the present invention;

FIG. 7 is a fragmentary perspective view, with parts shown in vertical cross section, of still another device according to the present invention; and

FIG. 8 is a fragmentary perspective view, with parts shown in vertical cross section, of still another device according to the present invention.

Referring now to FIGS. 1—4, a hanger according to the present invention indicated generally at 10 is shown as attached to the underside of a shelf 12 and having a plurality of tea cups 14 suspended from the hanger 10 by looped cup handles 16. The hanger 10 includes a rectangular bracket or panel 18 formed with upwardly projecting flanges 20 and 22 extending along the long panel edges. The top surfaces of these flanges contact the underside of the shelf 12. The panel 18 may be held in any desired position on the underside of the shelf 12 by screws 24 or the like passing through apertures 26 formed in the panel 18. At areas spaced lengthwise of the panel 18, the latter is pierced by pairs of aligned

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transverse slots 28 and 30. On each side of each longer slot 28, one of a pair of studs 32 projects upwardly. A depending flange 34 extends around the shorter slot 30.

A hook-shaped suspending member 36 is provided at one end with a transverse bar 38 of triangular cross sectional shape. The hook-shaped member 36 is substantially U-shaped with a pair of legs 36a, 36b joined by a bight portion, the leg 36a being connected to the transverse bar 38 and the leg 36b having a free end at the enlargement 40. The other end of the suspending member 36 is enlarged, as shown at 40. The suspending member 36 is assembled with the panel 18 before the latter has been secured to the underside of the shelf 12 by moving the cross bar 38 upwardly through the slot 28, rotating the hanger 36 90° to bring the cross bar 38 into parallelism with the flanges 20 and 22, lifting the cross bar over the studs 32 and depositing the cross bar on the upper surface of the panel 18 between the flange 22 and the studs 32. The cross bar 38 is so joined to the end of the suspending member 36 that when the cross bar is thus deposited on the upper surface of the panel 28, the cross bar presents one of its three edges to the panel 18. The cross bar 36 is thus pivotally or swingably suspended from the panel 18, the flange 20, the studs 32, and the upper surface of the panel 18 therebetween defining a concave seat for the cross bar 38.

As shown in FIG. 4 in full lines, the suspending member 36, when not loaded by a suspended article, is biased by the weight of its enlarged free end 40 to the left, so that the free end 40 may easily be inserted into a cup handle 16 by moving the latter to the left. But when loaded, as by the weight of a cup 14, the suspending member is swung over to the right, to seat its enlarged free end 40 in the slot 30 and the depending flange 34 therearound. Thus, the cup handle 16 is secured against accidental displacement from the suspending member 36.

The cross section of the cross bar 38 need not be triangular but can be of any shape that permits rotation of the cross bar 38, for instance, a circular or oval or other rounded or polygonal shape.

The slot 30 and the depending flange 34 therearound define a seat receiving the free end 40 of the suspending member 36 when the hanger 10 is loaded. This seat holds the free end 40 against lateral displacement. However, the flange 34 and/or the slot 30 can be omitted. In that event, the free end 40 of the suspending member 36 will bear against the underside of the panel 18 when the hanger 10 is loaded. Although the free end 40 then is not held against lateral displacement, the handle 16 is still secured to a significant extent against accidental displacement from the suspending member 36, although greater protection against such displacement is obtained by providing the panel 18 with the slot 30 and/or the depending flange 34.

The hanger illustrated in FIG. 5 contains all the parts and features of the hanger of FIGS. 1—4, except for the omission of the panel apertures 26 and the screws 24, and functions exactly as the hanger of FIGS. 1—4. Additionally, the hanger of FIG. 5 is provided with a depending flange 42 aligned with the upstanding flange 20 and offset centrally and outwardly, as indicated at 44, to provide a seat for the suspending member 36 when not loaded. Further, a horizontal flange 46 extends outwardly from the lower edge of the flange 44, and similar flange 48 extends outwardly from the upper edge of the flange 20. The end surfaces of the flanges 46 and 48 and of the offset portion 44 of the flange 42 are aligned for abutment against a wall indicated at 50. Screws 52 passing through the flange 42 hold the hanger 70 of FIG. 5 on the wall 50.

The hanger shown in FIG. 6 is generally similar to that of FIGS. 1—4, comprising a bracket or panel 60 formed

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with upstanding flanges 62 and 64 along its long edges and spaced pairs of aligned apertures 66 and 68. However, the flange 62 is deflected inwardly, as shown at 70. Another upstanding flange 72 shorter than the flange 62 extends in parallelism with the latter a short distance therefrom. The flange 72 is interrupted by the slot 66. The end of the flange 72 and the end of the deflected portion 70 of the flange 66 together define a slot 74.

The hanger of FIG. 6 also includes, like the hanger of FIGS. 1-4, a hook-shaped suspending member 76 having an enlarged free end 78 and a cross bar 80 at its other end. The latter may be round in cross section.

When the hanger of FIG. 6 is assembled, the cross bar 80 of the suspending member 76 is moved upwardly through the slot 66; the hanger is then moved to the right and rotated 90°; the cross bar 80 is forced through the slot 74, which has a width slightly less than the diameter of the cross bar 80; and the cross bar 80 is deposited on top of the panel 60 between the flanges 62 and 72. In a hanger so constructed, the cross bar 80, and thereby also the suspending member 76, is positively restrained against disassociation from the panel 60.

The hanger of FIG. 7 includes a panel 82 having upstanding vertical flanges 84 and 86 extending along the long panel edges. Another somewhat shorter upstanding flange 88 extends parallel with and close to the flange 84. Spaced pairs of aligned apertures 90 and 92 are formed in the panel 82. The apertures 90 extend upwardly through the flange 88. Spaced horizontal slots 94 extend outwardly through the flange 84 from the inner corner defined by the panel 82 and the flange 84. The middle of each slot 94 is aligned with a center line through the apertures 90 and 92. A hook-shaped suspending member 96 has a free end 98 which is not enlarged and a cross bar 100 at its other end. The hook-shaped member 96 is also generally U-shaped with the legs 96a, 96b joined by a bight portion, the leg 96a connected to the cross bar 100 and the leg 96b having the free end 98. The cross bar 100 is provided with a spring plate 102 extending radially therefrom.

In assembling the hanger of FIG. 7, the suspending member 96 is threaded through the slot 90 downwardly, with the free end 98 leading. The edge of the plate 102 is inserted into the slot 94 at the end of the downward movement of the suspending member. The flanges 84 and 88 are so spaced, in relation to the width of the plate 102 and the diameter of the cross bar 100, and the points of junction of the suspending member 96 and of the spring plate 102 with the cross bar 100 are so spaced peripherally on the cross bar 100 that the spring plate 102 will have its junction with the cross bar 100 above the opening of the slot 94 when the suspending member 96 is swung to the left as far as permitted by the slot 90. Thus, a slight amount of force must be exerted, to flex the spring plate 102, when the hanger of FIG. 7 is assembled.

When not loaded, the hanger of FIG. 7 presents the free end 98 of the suspending member 96, as shown in FIG. 7, for easy insertion into the cup handle 16. When loaded, the hanger 96 assumes a position similar to that shown in FIG. 4 in broken lines, the spring plate 102 then being flexed.

The hanger of FIG. 8 includes a rectangular panel 110 having upstanding flanges 112 and 114 extending along its long edges. These flanges are formed, respectively, with grooves 116 and 118 on their insides above the upper surface of the panel 110. A rectangular resilient plate 120 has its long edges seated in the grooves 116 and 118. An upstanding flange 122 extends close to and parallel with the flange 112 in contact with the underside of the plate 120. Spaced pairs of aligned transverse slots 124 and 126 are formed in the panel 110. The slots 124 extend upwardly through the flange 122. A suspending hook member 128 has a free end 130 and a cross bar 132 of triangular cross section. The hook member 128 is

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similar in shape to the hook member 96 with the leg 128a connected to the cross bar 132 and the leg 128b having the free end 130.

In assembling the hanger of FIG. 8, the cross bar 132 of the suspending member 128 is passed through the slot 124, rotated 90°, passed over the flange 122 and deposited on the upper surface of the panel 110 between the flanges 112 and 122 (which are spaced further than the width of the cross bar 132) with one edge of the cross bar resting on the upper surface of the panel 110 to form a knife edge permitting swinging movement of the suspending member 128. Next, one end of the plate 120 is introduced into the grooves 116 and 118 at one end of the panel 110 and placed in position by a longitudinal sliding movement.

When the hanger of FIG. 8 is not loaded, the upper surface of the cross bar 132 contacts the underside of the plate 120 and thereby holds the suspending member 128 in the position shown in FIG. 8 where the free end 130 of the suspending member 128 is easily introduced into a cup handle 16 by simply moving a cup 14 toward the left. When the hanger of FIG. 8 is loaded, the weight of the cup 14 or other articles suspended therefrom causes the suspending member 128 to assume the position shown in FIG. 4 in broken lines, the spring plate 120 being flexed slightly by the rotation of the cross bar 132.

In the hangers of FIGS. 6-8, the apertures 68, 92 and 126 may be omitted. Further, these openings may or may not be provided with depending flanges around their lower openings. As pointed out hereinabove, such slots, and depending flanges therearound, provide additional protection against accidental displacement of a handle or other attaching device of a suspended article from the suspending members. But this added protection, although significant, can be dispensed with, if desired.

The brackets or panels 60, 82 and 110 of the hangers of FIGS. 6-8 may be attached to the underside of a shelf or the like by any suitable conventional means, for instance, by means of screws as shown in FIG. 1. Then these panels (and in the case of the hanger of FIG. 8, also the plate 120) may be provided with suitable apertures for the screws. Or the panels may be attached to a vertical surface by suitable means, for instance, the means illustrated in FIG. 5.

In all of the hangers of FIGS. 1-8, the suspending members 36, 76, 96 and 128 have one feature in common. The shape of each suspending member (particularly the configuration of the inner face of the leg terminating in the free end) is such that when a handle or other attaching device of an article to be suspended is initially deposited on the suspending member, the point of contact of the handle or other attaching device will be located to the left of the cross bar. The resulting shifting of the common center of gravity of the suspending member and the suspended article will cause movement to the right of the suspending member and the suspended article, and this movement in turn will cause the handle or other attaching device to be displaced along the inner surface of the leg of the suspending member terminating in the free end (which leg on such movement will assume a more erect position). Finally the handle or other attaching device will rest in the bight of the suspending member; and in this rest position, the center of gravity of the suspended article and the center of gravity of the suspending member will reside on opposite sides of the line which is defined by the common center of gravity and the pivot point of the cross bar. The free end of the suspending member bears against the panel on which the suspending member is mounted. Of course, if the handle or other attaching device initially is brought all the way to the bight of the suspending member before being released, then the only movement that occurs is the swinging or pivoting movement of the suspending member to the right causing the free end thereof to bear against the panel on which the suspending member is mounted. It will also be seen that

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the bight section is disposed in a substantially horizontal position and substantially to one side of the point of engagement between the cross bar and the panel when the hook member is unloaded but that when an article is suspended by the hook member, the bight portion is shifted toward a position opening upwardly toward the panel and approaching a vertical plane between the point of engagement between the cross bar and the panel.

The leg of each suspending member terminating in a free end is accordingly preferably shaped or curved so that even when a handle or other attaching device is released at point close to the free end, and even when this point is not to the left of the cross bar of the suspending member, the inner leg surface at this point slopes downwardly to the left when the suspending member is in the position assumed when not loaded. Then the handle or other attaching device will slide to the left, and thus bring about the above noted swinging movement to the right. In other words, the terminal inner portion of the leg having a free end slopes downwardly from the free end at all times.

As shown hereinabove, the hangers of the present invention securely hold handles or other attaching devices of articles (such as tea cups) suspended therefrom. Ordinary C-shaped hooks, of the type conventionally used for suspending such articles from a horizontal surface, do not offer comparable security against accidental displacement. Only slight twisting movement, for instance, of a tea cup, is sufficient to dislodge the handle thereof from a conventional C-shaped hook.

The hangers of the present invention may easily be fabricated from any suitable conventional material such as synthetic resins, metals such as aluminum, and the like.

Many details may be varied but not departing from the principles of this invention and it is therefore not my intention to limit the patent granted on this invention otherwise than necessitated by the scope of the appended claims.

The invention is claimed as follows:

1. A hanger including a bracket adapted to be attached to a supporting surface and having a substantially flat panel formed with a slot intermediate its ends, a cross bar in swingable engagement with said flat panel, a substantially U-shaped hook member including a pair of legs joined by a bight portion with one leg extending through

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said slot and attached to said cross bar and with the other leg having a free end, biasing means to position the unloaded bight portion in a substantially horizontal position and disposed substantially to one side of the point of engagement between the cross bar and the panel and with the free end of said other leg spaced from the panel and providing an access opening for receiving an article to be suspended from the hook member whereby when an article is so disposed the biasing means will be counteracted and the hook member shifted to a position with the free end of said other leg adjacent the panel and with the bight portion correspondingly shifted toward a position opening toward said panel and approaching a vertical plane through the point of engagement between the cross bar and the panel.

2. A hanger as claimed in claim 1, wherein the free end of said other leg member is enlarged to provide gravitational biasing means.

3. A hanger as claimed in claim 1, wherein the biasing means includes spring means seated on said bracket.

4. A hanger as claimed in claim 3, wherein the spring means is connected to said cross bar.

5. A hanger as claimed in claim 1, wherein the said other leg is inclined downwardly from the free end thereof toward the bight portion to facilitate positioning of an article to be suspended from the said bight portion.

6. A hanger as claimed in claim 1, wherein the panel is provided with an additional opening to receive the free end of said other leg when an article is supported by the hook member.

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