

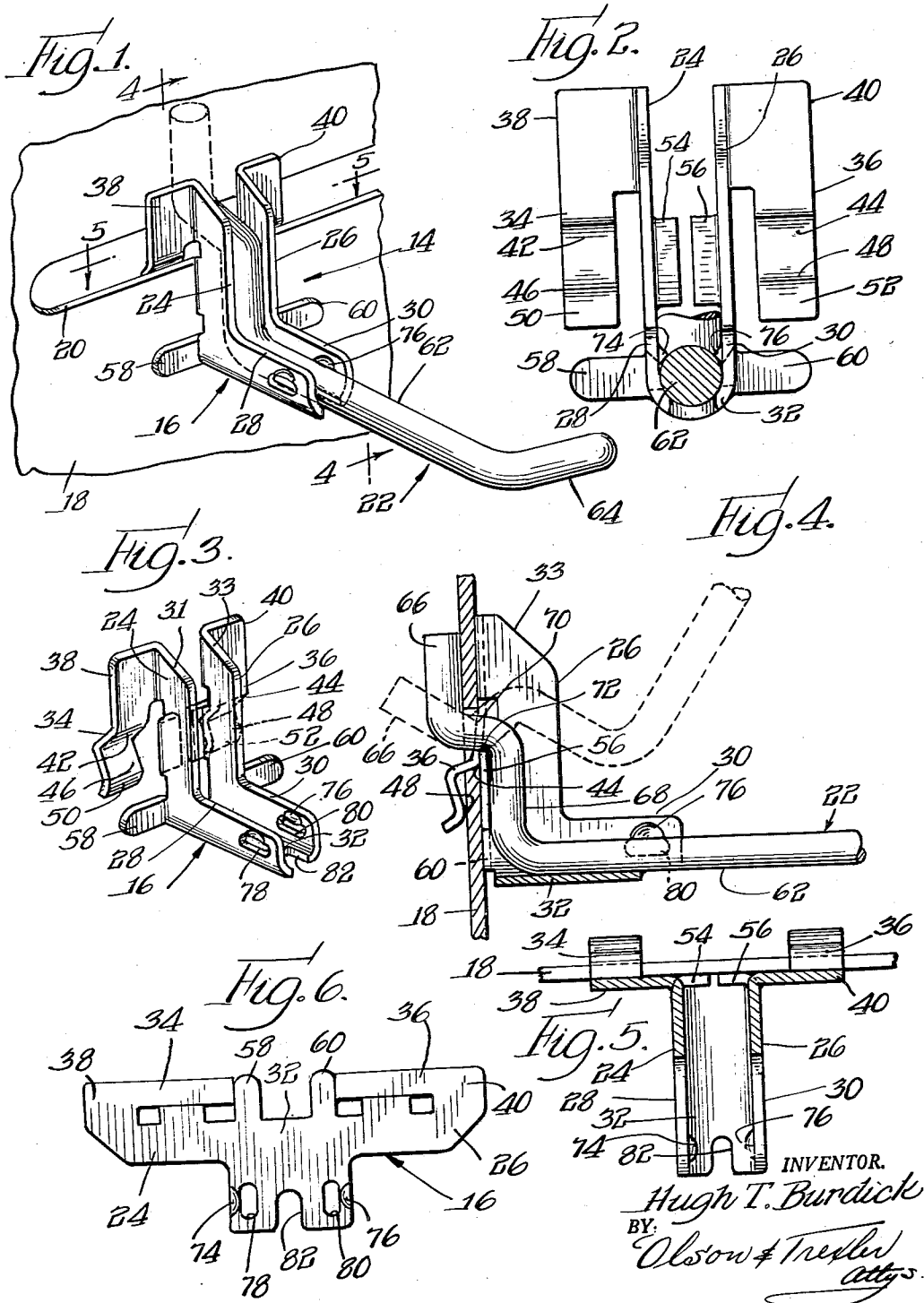
July 1, 1958

H. T. BURDICK
HOOK FASTENER

2,841,353

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2 Sheets-Sheet 1



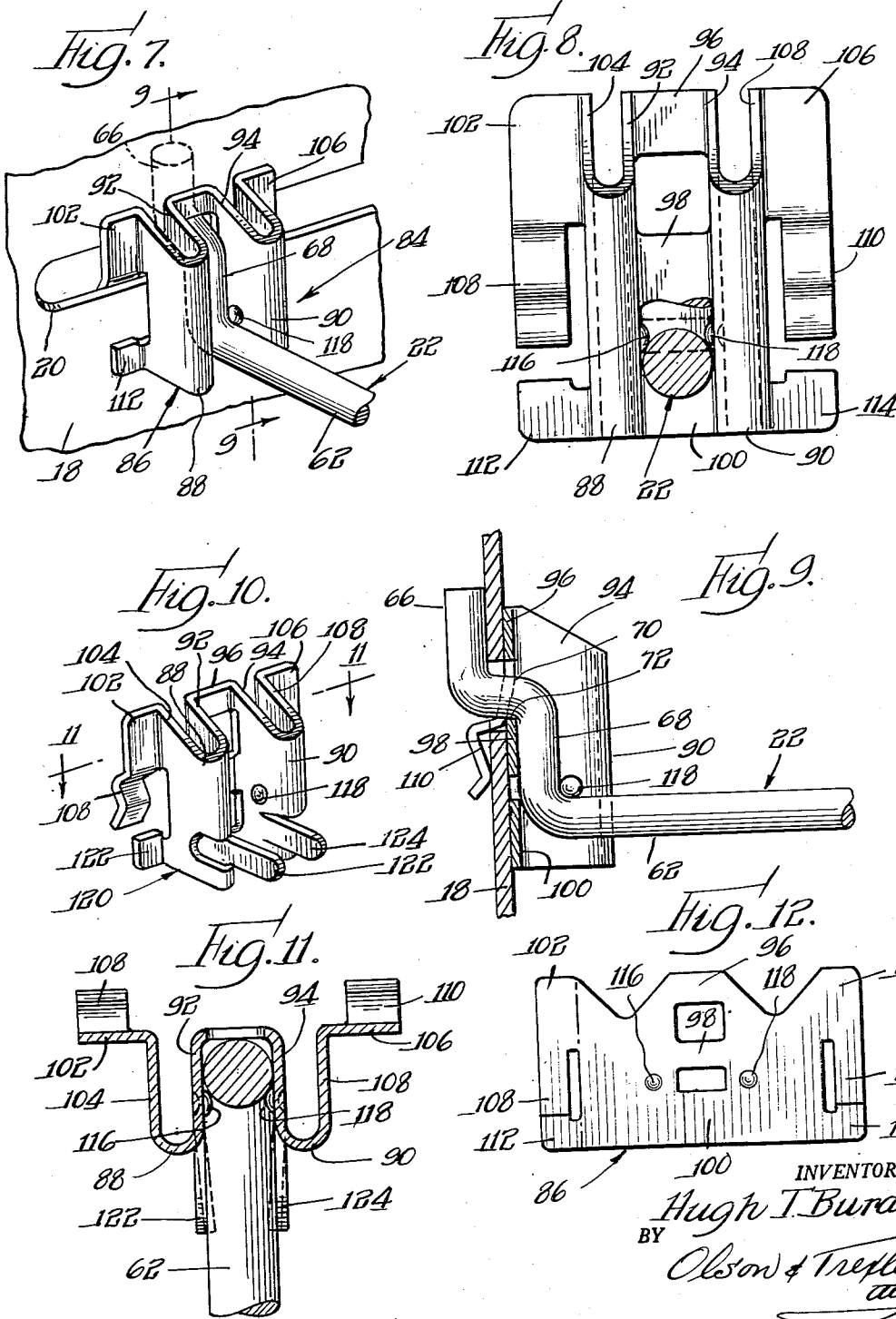
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HOOK FASTENER

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5 Claims. (Cl. 248—224)

The present invention relates to a novel supporting assembly, and more particularly to a novel hook-like assembly adapted to be secured to an apertured panel.

There are many instances when it is desirable to secure article supporting hooks to panels of work benches, lockers, and the like. In many cases, it is difficult to mount such supporting hooks heretofore known, because the hooks require some securing device to be attached thereto from the back side of the panel, and the back side of the panel is often inaccessible. It is, therefore, an object of the present invention to provide a novel hook assembly which may be quickly and easily secured to an apertured panel from the front side of the panel and without any need for auxiliary fastening means, such as nuts, screws, or bolts.

Another object of the present invention is to provide a novel hook assembly of the above described type which is of simple construction and may be readily and economically manufactured by standard bending and stamping operations.

Another object of the present invention is to provide a novel hook assembly of the above described general type which includes an elongated hook-like element and a hanger member which may be easily assembled with an apertured panel for supporting the hook-like element.

Still another object of the present invention is to provide a novel hook assembly as described in the preceding paragraph wherein the hook-like element and the hanger member are formed so that a substantial portion of any weight on the elongated hook element is transferred to the panel rather than the hanger member.

A more specific object of the present invention is to provide a novel one piece hanger member for use in a hook assembly of the above described type, which hanger member may be readily manufactured from sheet material.

Still another object of the present invention is to provide a novel hanger member as set forth in the preceding paragraph, which hanger member may be secured to a panel having an elongated aperture in a manner so that the hanger member, and thus the hook assembly, may be adjusted longitudinally of the aperture.

Other objects and advantages of the present invention will become apparent from the following description and the drawings, wherein:

Fig. 1 is a perspective view illustrating a novel hanger assembly embodying the principles of this invention mounted on an apertured panel;

Fig. 2 is an enlarged front elevational view of a hanger assembly embodying the principles of this invention with the hook element partially broken away;

Fig. 3 is a perspective view illustrating the novel hanger member of this invention;

Fig. 4 is an enlarged cross sectional view taken along line 4—4 in Fig. 1;

Fig. 5 is a horizontal cross sectional view taken along line 5—5 in Fig. 1 with the hook element removed;

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Fig. 6 is a plan view of a blank utilized to form the hanger member shown in Fig. 3;

Figs. 7, 8, and 9 are similar to Figs. 1, 2, and 4, but show a slightly modified embodiment of the present invention;

Fig. 10 is a perspective view showing a hanger member embodying still another modified form of the present invention;

Fig. 11 is a cross sectional view taken along line 11—11 in Fig. 10 and also shows the hook element in place; and

Fig. 12 is a plan view of a blank utilized to manufacture the hanger member shown in Fig. 7.

Referring now more specifically to the drawings, wherein like parts are designated by the same numerals throughout the various figures, a hanger assembly 14 embodying the principles of this invention is shown best in Figs. 1 and 4. The assembly 14 includes a hanger member 16 which is adapted to be secured to a panel 18 having an aperture 20 therein. The assembly 14 also includes a hook element or member 22 which extends through the aperture in the panel and is supported by the hanger member.

The hanger member 16 is preferably made from the sheet material blank shown in Fig. 6 and includes a pair of spaced walls 24 and 26 which merge at their lower ends with angularly disposed walls 28 and 30, respectively. Lower edges of the walls 28 and 30 are joined together by a bottom section 32, as shown best in Figs. 2 and 5. Thus, the wall sections 24—28 and 26—30 provide an integral cradle-like structure adapted to receive the hook member 22, as shown best in Fig. 1 and restrain the hook member against pivotal or turning movement in a horizontal plane. The upper ends of the wall sections 24 and 28 are bevelled, as at 31 and 33, to eliminate the possibility of an article catching as the article is being placed on the hook member.

In order to mount the hanger member 16 on the panel 18 means is provided for clampingly engaging opposite sides of the panel. This means includes a pair of finger portions 34 and 36 which are adapted to be inserted through the aperture 20 for engagement with the back surface of the panel. These finger portions are respectively integrally connected with the walls 24 and 26 by substantially flat laterally extending sections 38 and 40. As shown best in Figs. 3 and 4, the finger portions 34 and 36 are bent rearwardly at an angle to the plane of the flat sections 38 and 40 to provide abutments 42 and 44 engageable with the lower edge of the panel aperture 20. Each of the fingers then extends forwardly to provide panel clamping surfaces 46 and 48. Preferably, the free ends of the fingers are disposed to extend rearwardly, thereby providing cam surfaces 50 and 52 for facilitating insertion of the fingers through the aperture. With this structure, the hanger member may be readily assembled with the panel merely by first inserting the cam portions 50 and 52 of the fingers through the aperture and then sliding the hanger downwardly until the abutment surfaces 42 and 44 engage the lower edge of the aperture. In order to prevent accidental removal of the hanger member from the panel, the fingers are preferably formed so that the panel is resiliently clamped between the fingers and portions of the hanger overlying the front surface of the panel.

In order to provide the forwardly extending walls 24 and 26 with means for cooperating with the resilient fingers 34 and 36 to grip the panel, tabs 54 and 56 extend inwardly from the walls 24 and 26, respectively, as shown best in Figs. 2 and 5. In addition, stabilizing feet 58 and 60 extend outwardly from the lower ends of the walls 24 and 26. These stabilizing feet not only help to clamp the hanger to the panel, but also restrain the walls

24 and 26 from twisting in the event a load having a horizontally directed component is applied to the hook member 22. The tabs 54 and 56 also cooperate with the mounted hook member to prevent upward movement of the hanger member and thus hold the resilient fingers in engagement with the panel. Furthermore, the tabs 54 and 56 provide a bearing surface for the hook member, thereby preventing injury to the panel surface, especially when the panel surface is painted.

The hook member 22 includes an article supporting shank 62 which may be made from a metal rod or any other suitable material, such as an extruded or molded plastic rod. Preferably, the outer end of the shank 62 is turned upwardly, as at 64, to prevent articles from slipping off of the shank. As shown best in Fig. 4, the inner or attachment end of the hook member is provided with a pair of substantially parallel portions 66 and 68 which are integrally connected by a transverse portion 70. The parallel portions 66 and 68 extend at an angle to the shank 62, which angle may be formed in accordance with the angle it is desired to have the shank extend from the panel 18. The hook member 22 may be assembled by first inserting the end portion 66 between the wall sections 24 and 26 of the hanger and through the aperture of the panel in the manner shown in dotted lines in Fig. 4. The hook member is then pivoted downwardly to the full line position of Fig. 4 so that the portion 66 abuts the inner surface of the panel, and the parallel portion 68 abuts the tabs 54 and 56 of the hanger. In this position, it should also be noted that the transverse portion 70 of the hook member engages the top edges of the hanger tabs 54 and 56 and is restrained against outer movement thereby. Preferably, the transverse portion 70 is provided with a flattened area 72 for engagement with the tabs 54 and 56 so that the hook member when under load tends to pivot about the upper edges of the tabs 54 and 56 so that a substantial portion of the load is transmitted transversely to the panel by the hook portions 66 and 68.

When the hook member 22 is in its fully assembled position, a substantial portion of the shank 62 is enclosed between the generally L-shaped walls provided by the wall sections 24-28 and 26-30. The shank is thus securely retained against any swinging or turning movement in a horizontal plane. In order to prevent inadvertent upward movement of the hook member, the wall sections 28 and 30 are provided with protuberances 74 and 76 engageable with the shank 62 in the manner shown best in Fig. 2. The inherent flexibility of the wall sections 28 and 30 is preferably increased adjacent these protuberances to permit the walls to spring apart as the hook member is being assembled. This may be accomplished by providing the walls 28 and 30 with apertures 78 and 80 adjacent the protuberances, and, in addition, if desired, the bottom wall section 32 may be recessed, as at 82 (see Figs. 3 and 5).

Another hanger assembly 84 embodying the principles of this invention is illustrated in Figs. 7, 8, and 9. In this embodiment, the hook member is identical to the above described hook member 22, as indicated by the reference numerals. However, the assembly 84 includes a hanger member 86 of modified form.

The hanger member 86 includes a pair of U-shaped sections 88 and 90 which have adjacent walls 92 and 94 thereof integrally joined by wall sections 96, 98, and 100. A substantially flat section 102 extends laterally from an outer wall 104 of the U-shaped section 88, and a similar flat section 106 extends from the wall 108 of the U-shaped section 90. These substantially flat sections correspond to the above described sections 38 and 40 of the hanger member 16, and resilient finger elements 108 and 110 extend from the sections 102 and 106 in the same manner as the above described finger elements 34 and 36 extend from the flat sections. The hanger member 86 also in-

cludes stabilizer feet 112 and 114 which correspond to the above described stabilizer feet 58 and 60.

As shown in Fig. 7, the hanger member 86 is mounted on the apertured panel 18 in the same manner as the hanger member 16 is mounted. The hook member 22 is assembled with the hanger member 86 by inserting the end portion 66 through the aperture defined by the wall sections 96 and 98. The hook member is then pivoted downwardly until the shank portion 68 is disposed between the walls 92 and 94 of the U-shaped portions. It is believed to be clear that the walls 92 and 94 will function to prevent horizontal swinging movement of the hook member in substantially the same manner as the above described wall sections 24 and 26. As shown in Fig. 9, the hook member 22 pivots about and presses against the wall section 98 so that this wall section performs essentially the same functions as the above described tabs 54 and 56 of the hanger member 16. In order to prevent upward pivotal movement of the hook member, protuberances 116 and 118 extend from the wall sections 92 and 94 for engagement over the shank 62 of the hook member in the manner illustrated best in Figs. 8 and 9.

Fig. 12 illustrates a simple flat blank from which the hanger member 86 may be formed. It will be obvious when comparing the blanks of Figs. 6 and 12 that the hanger member 86 requires considerably more sheet material stock than the hanger 16, and while this has some disadvantage from an economy standpoint, the looped or U-shaped sections of the hanger 86 provide substantially increased strength and rigidity for use when heavy loads are to be supported.

Figs. 10 and 11 illustrate another slightly modified form of the present invention which includes a hanger member 120 which is substantially identical to the above described hanger member 86 as indicated by the application of identical reference numerals to identical parts. The hanger 120 differs from the hanger 86 only in that a pair of arms 122 and 124 are struck from the U-shaped sections 88 and 90 so as to project along opposite sides of the hook member shank 62 in the manner illustrated in Fig. 11. These arms perform the same function as the wall sections 28 and 30 in the above described hanger 16. Thus, the arms 122 and 124, which normally converge slightly toward each other as indicated in dotted lines in Fig. 11, resiliently grasp opposite sides of the hook member to eliminate any possible lateral play. It is seen, therefore, that the hanger member 120 incorporates some of the advantages of both of the above described hanger members 16 and 86.

From the above description, it is seen that the present invention has provided a novel hook assembly which may be easily mounted on an apertured panel without the aid of fasteners such as screws or bolts. In addition, it is seen that because of the manner in which the hanger members resiliently grasp the panel, the hanger may be adjusted longitudinally of the elongated aperture or opening in the panel without removing the hanger from the panel. Furthermore, it is seen that the present invention has provided a device of simple and economic construction which may be made of relatively lightweight material since a substantial portion of any load on the hook member is supported by the panel rather than by the hanger member.

While the preferred embodiments of the present invention have been shown and described herein, it is obvious that many structural details may be changed without departing from the spirit and scope of the appended claims.

I claim:

1. A supporting assembly adapted to be mounted for limited lateral movement on a panel in an elongated panel aperture, comprising a hook-like member having oppositely extending first and second portions disposed in generally parallel planes and joined by a connecting sec-

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tion adapted to extend through the panel aperture so that said first and second portions may extend in opposite directions along the back and front sides respectively of the panel, a third portion integral with and extending forwardly from the free end of said second portion, and a sheet material hanger clip, said hanger clip including two L-shaped members each having a vertical and horizontal leg extending forwardly of the panel in spaced substantially parallel relation, portions of said clip being positioned both above and below said panel aperture and confining therebetween for lateral stability a part of said second and third portions of the hook-like member, a bight portion interconnecting a portion of at least one adjacent leg of each spaced member, said spaced L-shaped members each having at opposite ends of the vertical leg thereof integral laterally outwardly extending flanges for stabilizing engagement with the front side of the panel both above and below said aperture, and resilient finger means connected to the L-shaped members and extending downwardly and rearwardly in a direction opposite to the first portion of the hook-like member for insertion through the panel aperture to engage the back side of the panel whereby the hanger member is secured to the panel but capable of lateral sliding movement within the confines of the elongated aperture therethrough.

2. A supporting assembly as claimed in claim 1, wherein the bight portion is located between and interconnects the horizontal legs of the L-shaped members.

3. A supporting assembly as claimed in claim 1, wherein the adjacent legs of the hanger member which are interconnected by the bight portion each have protuberance means directed towards the opposite leg and so positioned whereby a portion of the hook-like member is removably

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retained against the bight portion inter-connecting the L-shaped members.

4. A supporting assembly as claimed in claim 1, wherein the bight portion interconnects the horizontal legs, the resilient finger means depend from the pair of laterally extending flange means located at the top of the vertical legs and wherein said vertical legs are each provided with a third flange intermediate their lengths and directed towards the adjacent leg, whereby the upper edges of the inwardly directed flanges provide a fulcrum for the insertion of the hook-like member.

5. A supporting assembly as claimed in claim 1, wherein the vertical legs of the L-shaped members are interconnected by the bight portion, wherein said laterally outwardly extending flanges are connected to the edge of said vertical legs remote from the hook-like member by means of reversely bent sections and wherein the horizontal legs are resiliently biased inwardly at their free ends towards one another whereby the third portion of the hook-like member is grippingly retained therebetween and provided with lateral stability.

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