

[54] **HANGER DEVICE FOR ATTACHMENT TO WALLS**

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[58] **Field of Search** **248/277, 475, 489, 497, 248/498, 74 PB, 218, 493, 301, 341, 204; 24/230.5 PH, 230.5 S**

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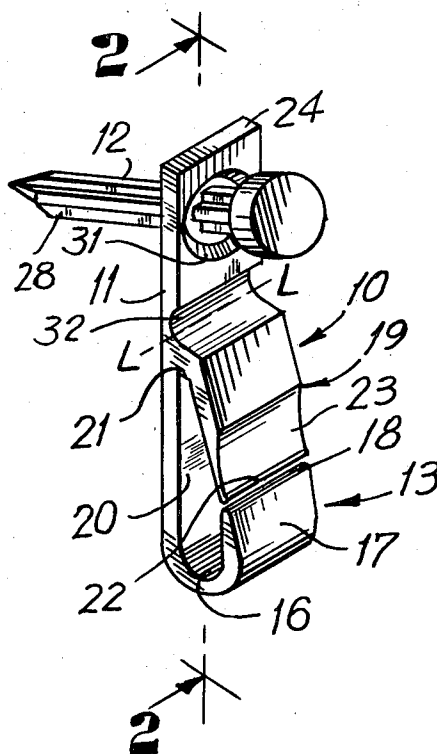
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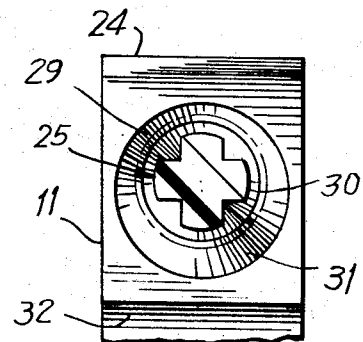
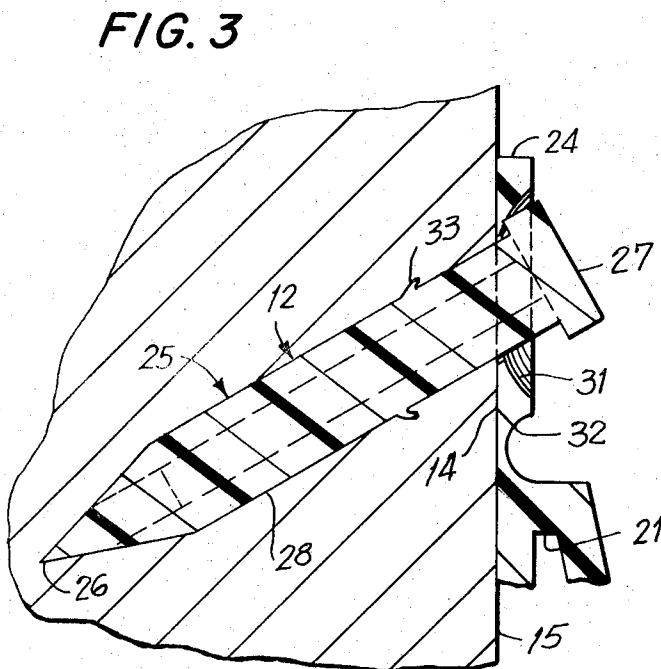
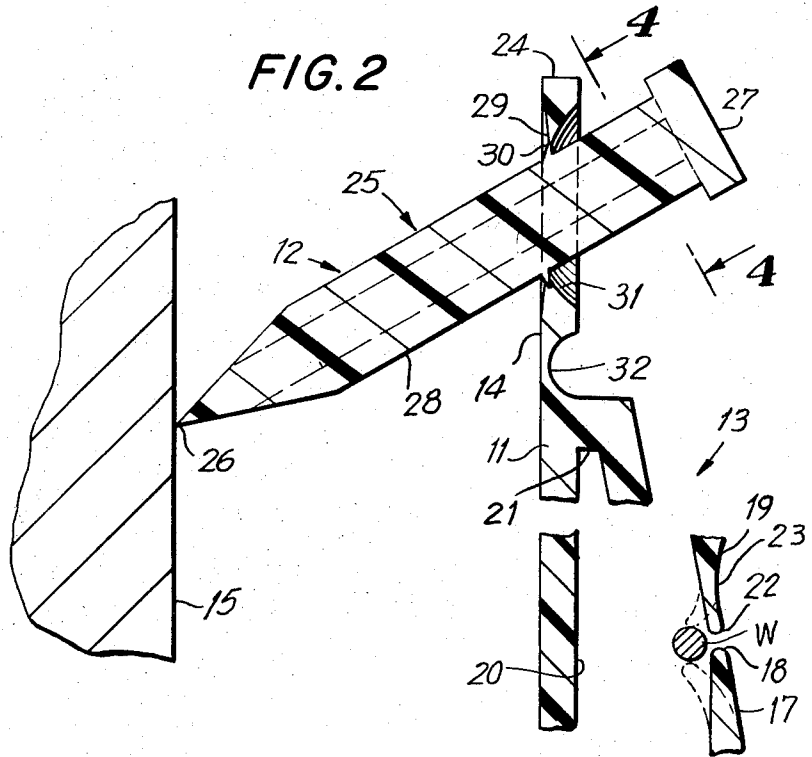
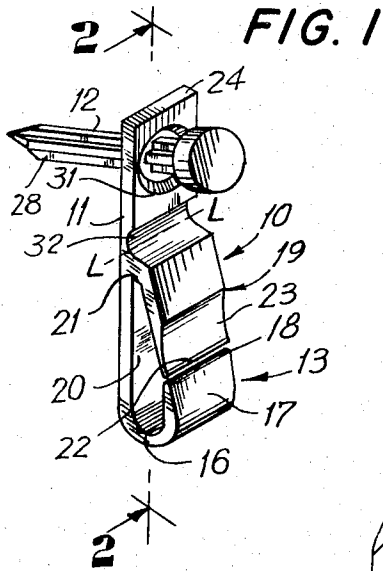
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[57] ABSTRACT

The present invention is directed to an integral polymeric hanger structure adapted to be molded in a single piece and to be used for hanging pictures or the like on plaster board or Gypsum board wall structures. The hanger includes an integrally molded nail member adapted to be hammered into the dry wall, the nail being initially connected to the body portion by a weakened web, the connection between nail and body rupturing at an interim stage of attachment of the hanger, the remnants of the ruptured connection preferably augmenting the connection of the hanger to the wall. The hanger includes a hook having a wire trapping flap component, preventing accidental dislodging of a supported picture, and is further characterized by a hinge element separating the hook component from the nail component.

5 Claims, 4 Drawing Figures





HANGER DEVICE FOR ATTACHMENT TO WALLS

BACKGROUND OF THE INVENTION

1. Field of the Invention

The present invention is in the field of picture hangers, and specifically relates to an improved picture hanger structure of integral construction which may be molded from polymeric compositions at low cost.

2. The Prior Art

A well known form of picture hanger consists essentially of a body portion having a hook at one end and a nail receiving eye at the other. The known devices are attached by placing the body portion flat against the wall and driving a nail through the eye which is provided with an opening elongated in the direction of the shank of the nail whereby the back of the body portion is held in parallelism with the vertical wall surface.

The hanger hook, which receives and bears the weight of a mirror or picture, is in such known structures spaced from the wall, the spacing introducing a moment arm which, in addition to applying a downward force for the hook, also applies a vector tending to press the lower part of the hanger against the wall, thus to reduce the downward stress on the hanger nail proper.

In such known hanger constructions, if the back portion of the hanger is not in flatwise relation to the wall to which it is affixed, a turning moment is applied by the picture support wire through the lever arm defined by the length of the body of the hanger to the nail connection, whereupon there is a constant and substantial torque applied to the nail, reducing the holding power thereof.

Since the nail is often driven into relatively soft material, such as plaster board, composition board, etc., there is a substantial tendency toward enlarging the hole, compromising the security with which the hanger is attached.

Additionally, in such conventional hanger structures there is typically only a light frictional connection between the nail and the plaster board components surrounding the nail hole due to the non-resilient nature of the board and the nail, with the result that a hanger may be readily and inadvertently pulled from the wall if, upon demounting a painting or the like, the wire is snagged in the hook.

Further, in conventional hangers of the type described, the wire picture support may be inadvertently dislodged from the hanger in the event that the painting is jostled, with resultant likelihood of damage.

SUMMARY

The present invention may be summarized as directed to an improved picture hanger construction formed by molding a polymeric substance, the nail portion forming an integral part of the hanger. Preferably the nail is connected to the hanger in such manner that it occupies a first position relative to the hanger when the hanger is driven into the wall and a second position after attachment, a reduced strength web which secures the nail and hanger in the first mentioned position forming, after the nail has been driven, a means of augmenting the frictional connection of the hanger to the wall.

The hanger is further characterized by the provision of a closed hook structure whereby a picture hanger

wire which is once seated in the structure may not be inadvertently removed therefrom.

A further characterizing feature of the invention is the interpositioning between the hook and the nail of a transversely extending hinge line whereby the lower or hook components of the hanger will at all times bear against the vertical support wall, notwithstanding inaccuracies in connecting the hanger to the wall.

It is accordingly an object of the invention to provide an integral picture hanger including a nail, a body portion and a hook portion, the same being molded of polymeric material and adapted to be applied to relatively soft walls, such as Gypsum board, dry wall, plaster board, etc.

It is a further object of the invention to provide a hanger of the type described having an enclosed picture wire receiving hook whereby, after insertion of the wire, inadvertent removal of the latter from the closed hook structure is prevented.

A further object of the invention is the provision of a device of the type described incorporating a hinge element permitting relative pivotal movement about a horizontal axis between the upper body portion to which the nail is attached and the hook, whereby the apparatus may compensate for inaccuracies in the manner in which the nail is inserted into the wall, without subjecting the nail to excessive turning moments and assuring that certain of the downward force moments are translated into vectors directed toward the wall surface.

To attain these objects and such further objects as may appear herein or be hereinafter pointed out, reference is made to the accompanying drawings forming a part hereof, in which:

FIG. 1 is a perspective view of a hanger in accordance with the invention;

FIG. 2 is a magnified vertical sectional view through the hanger structure prior to affixation;

FIG. 3 is a sectional view similar to that of FIG. 2 after affixation;

FIG. 4 is a section taken on the line 4—4 of FIG. 2.

Reference will now be made to the drawings wherein the hanger 10 is fabricated of a resilient polymeric material having substantial structural integrity, examples of suitable materials being polypropylene or nylon (long chain polyamide). The hanger is integrally formed, preferably by molding, and incorporates generally a body portion 11, an integral support nail 12 and a hook assembly 13.

The body portion 11 includes a back face 14 adapted to rest against support wall 15, it being understood that the principal end use of the hanger is in conjunction with walls of the plaster board type.

At the lower edge of the body portion there is formed the depending hook assembly 13 which includes the wire support portion 16, the hook assembly including upwardly directed finger 17 terminating in upwardly facing lip 18.

The hook assembly 13 includes a locking flap 19, the flap extending angularly downwardly from the outer face 20 of the body portion from the junction 21 medially of the body portion. The flap 19 terminates in a depending lip 22 in proximate spaced relation to the lip 18 of the finger 17. It will be appreciated that the spaced lips 18 and 22 define an open mouth through which may be inserted the conventional wire W, FIG. 2, secured to the back of a painting, mirror or the like.

The lowermost section 23 of the flap 19 adjacent lip 22 is preferably formed of relatively thin cross section, such as to render the lip 22 readily deflectible in a direction toward the inner face 20 of the body portion 11 responsive to pressures in both a downward and an inward direction, and to combinations thereof. As will be seen in FIG. 2, pressures on the wire are effective to bend the flap inwardly, permitting the wire to pass through the temporarily enlarged space between the sets of lips 18 and 22, whereat the weight of the wire may be carried by support portion 16.

The manner in which the portion 23 is deflected is shown in FIG. 2, wherein the portion shown in dotted lines represents the flap in its deflected position.

Although the wire W is shown as shifted into position in FIG. 2 for convenience of illustration, it will be appreciated that the wire is not normally so positioned until after the hanger is attached to the wall in the position of FIG. 3.

Adjacent the upper end 24 of the body there is positioned a nail component 25 which is preferably cruciform in cross section — see FIG. 4, the nail including a sharpened point 26 at the inner or back face 14 of the body portion, and a head 27 at the outer or hook carrying face 20 of the body portion. As shown in the drawing, the nail 25 includes a longitudinally extending shank 28 of the cruciform section previously described.

The nail 25 is connected to the body portion 11 by a circumferentially extending weakened web 29 spanning the space between the shank and the body portion. The web tapers gradually from its point of securement to the body portion to a weakened area 30 spaced slightly from the shank 28 of the nail. Preferably a countersunk recess 31 is defined in the outer face 20 of the body portion surrounding the nail.

A hinge component 32 is defined by a transversely extending recess or groove, the hinge 32 permitting relative pivotal movement of the parts defined by the hinge about the hinge line L—L, FIG. 1.

The apparatus is applied by aligning the body portion 11 in substantially parallel relation to the vertical face 15 of the wall to which the apparatus is to be attached, the point 26 of the nail being located against the face 15, as shown in FIG. 2. With the parts thus positioned, the head 27 of the nail is subjected to hammer blows in the direction of the longitudinal axis of the nail shank, the action of the blows causing the point and the shank of the nail to penetrate into the wall without relative movements between the nail and body portion of the hanger. After the nail penetrates partially into the wall, the back face 14 of the body portion will be disposed against the surface 15 of the wall, continued hammering, after contact of the noted portions, causing for the first time a relative movement between the nail 25 and the body portion. Such relative movement will be accompanied by a rupturing of the linking web about circumferential weakened area 30, separating the nail from the body portion.

As best appreciated from FIG. 3, the web components 33 to the nail side of the weakened circumferential area will, after separation of the nail, be carried along with the nail shank, defining one or more radially projecting barbs or collars which, in the attached position of the hanger assembly shown in FIG. 3, project a slight distance beyond the nail shank, materially augmenting the frictional forces and security of attachment of the nail to the wall.

As will be appreciated from an inspection of FIG. 3, the radial outermost portions of barbs 33 will trail the lead portions thereof, an orientation which increases the frictional resistance of the nail to removal. Thus, the portions 33 perform a double function in the combination of the instant invention, notably, a securing function of the nail to the remainder of the hanger before driving the nail, and subsequently as augmenting the connection of the nail to the wall.

In prior art hanger structures, the back portion of the hanger is positioned against the wall and the nail receiver acts as a guide for driving the nail. It is thus relatively easy to assure that the supporting nail is so inserted into the wall as to maintain the back of the hanger in the desired parallel position. In the apparatus of the present invention, and as may be readily perceived from an inspection of FIG. 2, it is possible that since the back will not lie against the wall during at least the initial stages of hammering of the nail, there would be, if the body portion were entirely rigid, a possibility of misalignment of the parts. As previously explained, this misalignment would reduce the effective carrying capacity of the hanger. The provision of the hinge structure 32 counteracts any such tendency since it enables a pivotal movement of the body components to either side of the hinge line, assuring that certain of the downward force moment is directed toward the wall.

It will be further observed that following rupture of the web, circumferential clearances are provided between the nail and the body portion, assuring accommodation of the upper body portion to the wall, regardless of the initial position of such upper portion when nailing was commenced. Preferably, as shown, the components above the hinge are shorter in their vertical dimension than those below the hinge, to facilitate such accommodation.

As shown in FIG. 3, the major portions of the head 27 of the nail are, after application to the wall, received within the countersunk portion 31. By this means, the possibility of the wire being snagged on exposed portions of the nail rather than being received within the hook component is minimized.

It should be further appreciated that in known picture hangers it is conventional to provide a substantial length of the hook surrounding the nail, such that the interengagement of the surrounding portion and shank of the nail prevents relative tilting movements between the nail and the body portion. Such relationship mandates that the head of the nail be spaced from the wall a substantial distance, increasing the tendency previously mentioned to hang the picture support wire on the nail rather than the hook.

It will be understood that in order to remove the picture wire from the device of the present invention, it is necessary to press the flap 23 inwardly toward the body portion, providing a space between lips 18 and 22 for removal of the wire. It will be observed that in the absence of thus depressing the flap, attempts to remove the picture cannot result in the release of the wire since upward movement of the wire will result in the deflection of the wire to a position above the opposed lips 18 and 22, at which position the wire cannot be removed. Thus it will be appreciated that the hanger of the instant invention provides a degree of security against unintentional and unauthorized removal of a supported

article by persons unfamiliar with the manner of operation of the device.

The hanger is susceptible of being manufactured at low cost and provides a convenient and secure means for supporting paintings and like articles on dry wall and similar partitions.

Having thus described the invention and illustrated its use, what is claimed as new and is desired to be secured by Letters Patent is:

1. An integral picture hanger formed of molded polymeric material comprising a body portion including a hook portion forming a downward continuation of said body portion, an integral hanger nail member extending transversely through said body portion, said nail being joined to said body by weakened connector web portions extending between peripheral portions of said nail and said body portion, said connector web portions including a reduced thickness rupture zone spaced from the periphery of said nail adapted to be fractured responsive to the application of hammer blows to the head of said nail, portions of said connector web between the periphery of said nail and said rupture zone being of greater thickness than and remaining connected to and forming barbs extending from the shank of said nail following nail to the nail receiving surface, said nail including a head at the hook side of said body portion, an elongated shank, and a pointed tip to the opposite side of said body portion from said head.

2. Apparatus in accordance with claim 1 wherein said body portion includes a widthwisely extending weakened hinge connection disposed along said body in an area between said nail and said hook portion, said hinge connection permitting facile relative pivotal movement between said hook portion and body portion.

3. Apparatus in accordance with claim 1 wherein said

web is connected to the shank portion of said nail intermediate said head and tip, said web being retained intact during initial stages of hammering said nail into a support surface, and being ruptured responsive to hammer blows effected subsequent to said opposite side of said body portion engaging said surface.

4. An integral picture hanger formed of molded polymeric material comprising a body portion including a hook portion forming a continuation of the lower end of said body portion and extending to one side thereof, said hook including a horizontal support surface, an integral hanger nail member extending transversely through the upper end of said body portion, said nail member including a shank and a sharpened tip disposed to the opposite side of said body portion from said hook portion, said body portion including a widthwisely extending weakened recess portion defining a linear hinge connection interposed between said nail member and said hook portion and paralleling said support surface of said hook, said hinge connection permitting facile relative pivotal movement between components of said body to the opposite sides of said connection about a pivot axis paralleling said support surface whereby increments of the rear surface of said body portion below said hinge line will engage against a wall surface into which said nail member is affixed notwithstanding the angular relation of the body portions above said hinge line and the wall.

5. A hanger in accordance with claim 4 and including a yieldably displaceable retainer latch covering said hook portion, said latch comprising an integral, resilient flap extending from said body portion and terminating in proximate spaced relation to the distal end of said hook portion.

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