Jan. 12, 1965 C. F. OVERTON ETAL 3,165,290

EASEL

Filed March 14, 1963 2 Sheets-Sheet 1

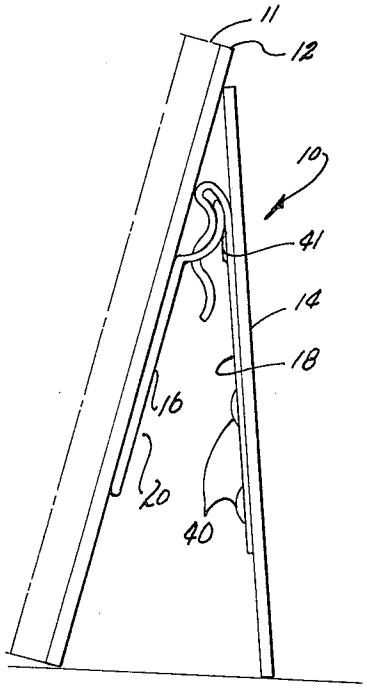


Fig. 1

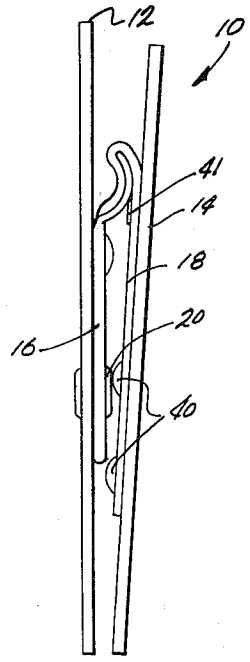


Fig. 2

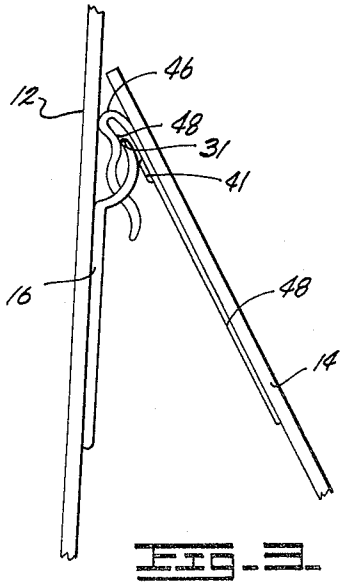


Fig. 3

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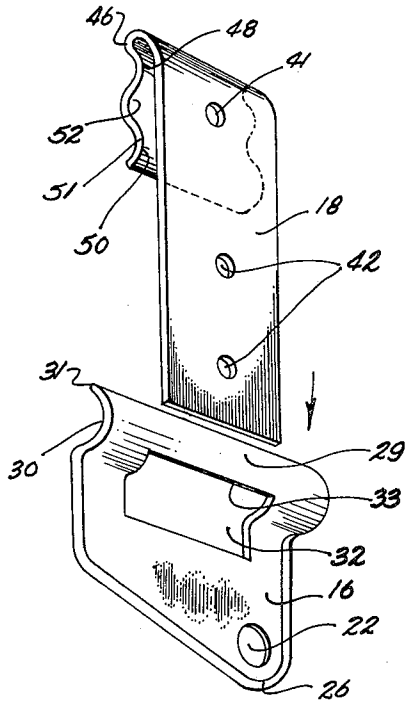


FIG. 4.

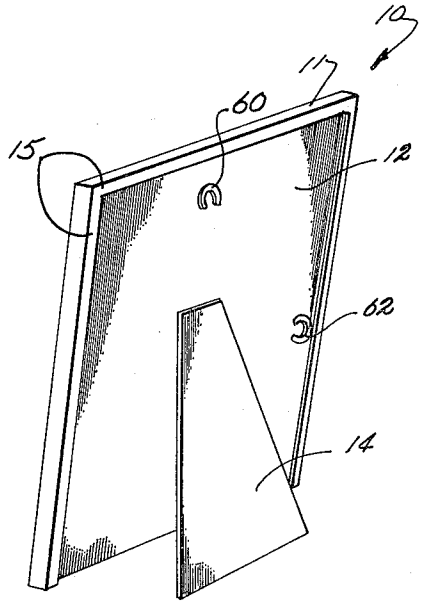


FIG. 5.

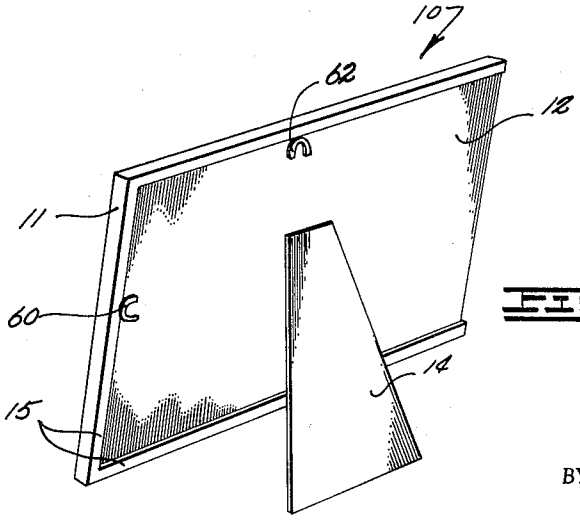


FIG. 6.

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14 Claims. (Cl. 248—463)

This invention relates to an easel back for a picture frame, and more particularly to a joint connection between the back plate and the prop of an easel back.

Construction of presently available easel backs is characterized by bulkiness of the prop and prop connection, lack of design simplicity for aesthetic appeal, little or no versatility of use, and the presence of tiny parts which are difficult to use and expensive to manufacture. Those having a pivotal prop allowing 90° rotation of the prop for horizontal or vertical positioning, ordinarily involve undesirable paperboard joints, complex frame backs, unstable bendable wire supports, or delicate, tiny hinge parts. Those providing a removable prop to enable wall hanging of the easel as an alternate to table propping, involve delicate hinge structure with a removable hinge pin which is readily lost, and difficult to remove and replace, or readily breakable wire connectors to be bent for removal or attachment.

It is, therefore, an object of this invention to provide an easel back having complete versatility of positioning, either horizontally or vertically using the prop, or horizontally or vertically without the prop, having structural simplicity, inexpensive manufacturing characteristics, and no small, delicate hinge parts or pins to disassemble and become lost. The prop is quickly and readily removable from the back plate for wall hanging, to thus not interfere and cause the frame to protrude in an unsightly manner from the wall. Another object of this invention is to provide a prop htat is readily snapped off the back plate, and just as quickly snapped back on with a small force, to remove it or replace it as needed, without removing or adding any additional or special parts. The prop can be pivoted outwardly from the plate as with conventional structures. It can be rotated also. No paperboard joints are used or needed. No bendable wire elements are employed.

It is another object of this invention to provide an easel back prop joint formed of only two sturdy stampings of sheet metal which can be assembled or disassembled in a fraction of a second, are relatively inexpensive to manufacture, and are extremely versatile in use. The joint is free of accidental disassembly even though it readily disassembles when desired. These and several other objects of this invention will be apparent upon studying the following specification in conjunction with the drawings in which:

FIG. 1 is a side elevational view of an easel back on a frame, showing the novel joint connection between the prop and the back plate, with the prop extended;

FIG. 2 is a side elevational view of the easel back, including prop and back plate, with the prop shown collapsed;

FIG. 3 is a fragmentary side elevational view of the apparatus in FIG. 1 showing the act of assembly, i.e., connection of the two hinge links affixed respectively to the frame and the prop,

FIG. 4 is a perspective exploded view of the two connecting hinge links;

FIG. 5 is a perspective view of an assembled frame and easel back, showing the elongated frame positioned vertically, and supported by the extended prop; and

FIG. 6 is a perspective view of the frame positioned horizontally with the prop being rotated 90° and extended.

Basically, the inventive easel back for a picture frame includes a back plate, a prop, and a pivotal, separable connection therebetween. The connection includes a first link or swivel plate affixed to the back plate, having its upper edge portion protruding away from the plate, curving arcuately back toward the plate, and terminating short thereof to form an elongated concave bearing surface towards the plate, and a second link or clip having one leg affixed to the prop and a second leg bent back and having a pair of convex elongated arcuate surfaces towards the prop, with an intermediate concave surface. The first link is pivotally mounted on the back plate for 90° rotation.

Other detailed features will be specifically explained with respect to the drawings, wherein the complete picture frame assembly **10** comprises a suitable frame **11** of conventional type adapted to retain a photograph or other picture (not shown) in its front face, and an easel back including a back plate **12** of covered cardboard or the like to retain the picture in the frame and serve as a mounting surface for the prop, a prop **14**, and a separable joint connection between the prop and back plate. The back plate may be slidably fitted within the flanges **15** on three sides of the frame, or attached in some other suitable manner.

The connection is formed between a first link or swivel plate **16** of sheet metal pivotally affixed to the back of the frame, and a second link or clip **18** of sheet metal having one leg affixed to prop **14**. The swivel plate **16** is attached to the back of the back plate by a single rivet **20** or equivalent connector extending through the drilled opening **22** (FIG. 4) in the swivel plate **16**, and a corresponding orifice in back plate **12**. Consequently, the swivel plate, and the entire joint and prop, may be rotated with respect to frame **11** and its back plate **12**. This enables the frame to be positioned horizontally as in FIG. 6 or vertically as in FIG. 5, merely by a simple rotation of the prop and the links with respect to the frame.

For hanging purposes, one or two eyelets **60** and **62** for vertical or horizontal hanging may be attached to the back plate.

The bottom peripheral edge of swivel plate **16** may include a rolled edge **26** to form a strengthening bead. The upper portion of the swivel plate projects outwardly and away from the frame. Its upper edge terminates short of the frame to leave a gap. The upper portion of the plate forms a horizontally-elongated, concave, bearing surface **30** which resembles an arcuate portion of a cylinder. The surface **30** cooperates with a convex bearing surface on clip **18** as explained in detail hereinafter.

Adjacent the base of the protruding portion **29** of swivel plate **16**, is an elongated central opening or cutout **32** which extends a substantial distance from the flat area of the plate around an arcuate portion of the curved area **29**. This slot receives the terminal portion of the second leg of clip **18** when the two are engaged.

The clip **18** really is formed of two legs, with the short connecting leg being bent back upon the first leg which forms the main body of the clip. The legs or panels, therefore, have a bight **46** therebetween. The long leg is affixed to prop **14** by rivets **40** through openings **42**. The short connector leg includes a convex bearing surface **48** protruding towards the main body of the clip, a second convex surface **50** with its uppermost surface spaced a small distance from the main panel or body portion of the clip, and an intermediate generally concave surface **52**. The convex surface **48** closest to bight **46** pivots on the central portion of concave bearing surface **30** on swivel plate **16**. The width of clip **18** is slightly less than the width of slot **32**, so that the concave surface **52** and the projecting convex portion **50** can protrude through the slot when the elements are interengaged.

Actually, convex surface 50 could be terminated at its uppermost peak closest to the main body portion of the clip, since its main function is to retain the parts in engagement as explained hereinafter. However, the flared edge of this convex portion, creating an outwardly divergent gap, facilitates simple engagement of the parts, since the forward edge of curved portion 29 may be more readily slid into the gap between these two legs of the clip.

Actually, the slot 32 could be provided in link 18, with link 16 being narrow enough to fit within the slot. This would be an equivalent structure.

To prevent accidental disassembly of the parts, e.g. when the entire assembly is lifted by grasping the prop 14, a boss 41 is stamped into link 18 to protrude inwardly beneath the convex portion 29 of link 16. Consequently, disassembly will occur only when the two legs of link 18 are spread with respect to each other, causing temporary deformation of the bight 46 to allow convexity 29 to pass protrusion or dimple 41.

To engage the two members, the flared edge of surface 50 on clip 18 is placed adjacent the central portion of the forward edge 31 of swivel plate 16, and the two are forced axially together (see FIGS. 3 and 4). The curved arcuate portion 29 readily slips over the convex surface 50 until it reaches the position illustrated in FIG. 3. At this point, there is insufficient spacing between the two legs of the clip for the projecting arcuate portion of the plate to slide therein. With application of a slight amount of force, the clip is resiliently deformed about its bight to spread the legs thereof and allow the arcuate bearing surface to readily snap into engagement so that concave surface 30 then fits smoothly over convex surface 48. These surfaces have approximately the same curvature. Since the concave surface has an arcuate dimension between edge 33 of opening 32 and forward edge 31 smaller than the arcuate dimension of convex surface 48 between the bight and the bottom of concavity 52, the two components can be arcuately moved in bearing engagement with each other from the position illustrated in FIG. 1 to that illustrated in FIG. 2. This allows prop 14 to be extended or collapsed on the frame. The connection cannot accidentally become disassembled, since, in order to disassemble it, the two components must be forced out of engagement with deformation of the bight to spread the legs of clip 18.

Ordinarily, when the prop is fully extended, its upper edge abuts the back plate 12 of the frame to serve as a stop. Alternatively, if desired, a stop may be formed by causing upper edge 33 (FIG. 4) of opening 32 to contact the concave surface 52 to prevent further rotation. Thus, the device has an inherent stop means which limits the extension of the prop.

The structural components of this connection can be formed by conventional progressive die-forming techniques, in a relatively inexpensive manner. There are only two components. No delicate hinge parts or pins are needed. The elements are easily assembled and disassembled with a simple snap, to enable the structure to be used with a prop or to be hung on a wall. When hung on the wall, the prop does not interfere since it is removed.

One important feature is the rotational feature of the prop on the back plate, achieved with this unique easel back. The easel may be placed vertically or horizontally merely by rotating swivel plate 16, clip 18 and prop 14 around the pivotal point 20. In both positions, it has a stop means. The structure thus has great versatility, as well as aesthetic appeal and structural simplicity.

It will be obvious to those having ordinary skill in the art that the detailed structural features on the link components may be interchanged within the broader aspects of this invention. Also, the structural details may be modified somewhat to cause either component to be wider than the other to straddle it for connection, all within the principles taught. These obvious modifications are, therefore, deemed to be part of this invention, which is not to be limited to the illustrative form shown, but only by the scope of the appended claims and the reasonably equivalent structures to those defined therein.

We claim:

1. An easel back including a back plate, and a prop; a connection between said plate and prop allowing prop extension and collapse, including a first link attached to one of said plate and prop and having a horizontally elongated convex surface, a second link attached to the other of said plate and prop and having a horizontally elongated concave surface interfitting on said convex surface; said concave surface having a smaller arcuate length than that of said convex surface allowing arcuate movement therebetween for collapsing and extending of said prop with respect to said frame.

2. The easel back in claim 1 wherein said first link has two legs with a bight therebetween, one leg being attached to one of said plate and prop and the second leg having said convex surface, and wherein the portion of said second link including the concave surface is normally trapped in an engagement between said legs.

3. The easel back in claim 2 wherein said first and second leg can be resiliently spread by temporary deformation of said bight to release said first and second links from their interfitting engagement.

4. An easel back comprising a back plate and a prop, a connection between said plate and prop allowing prop extension and collapse, including a first link affixed to said prop and having an elongated convex bearing surface, a second link affixed to the back plate and having an elongated concave surface slidingly interfitting with said convex surface; said concave and convex surfaces having a sliding interfit allowing sliding movement therebetween for collapsing and extending of said prop with respect to said back plate; and said second link being affixed to said back plate on a pivotal axis to rotate at least 90° with respect to said frame, whereby said collapsible prop can be rotated with respect to said back plate for use of said easel back in either of two alternate positions.

5. An easel back comprising a back plate and prop and a pair of connecting links mounted to respective ones of said back plate and prop, and being interengaged with a sliding fit allowing arcuate movement therebetween and thus between said prop and back plate for prop extension; one of said links receiving said other link in a groove to form the interengagement which is normally inseparable; said one link being resiliently temporarily deformable to release said other link with a snap action allowing separation of the links and of the back plate and prop when desired.

6. An easel back comprising a back plate and a prop, a connection between said back plate and prop allowing prop extension and collapse; said connection formed from a plate and a clip; said plate being affixed to the back plate and having an elongated upper edge portion projecting away from said back plate to form a bearing surface and a receiving gap between it and said back plate; said clip being affixed to said prop and having its upper portion bent back to form a bight, and having an adjacent elongated arcuate surface interfitting with said edge portion in an arcuate sliding relationship for extension and collapse of said prop; and the edge of said clip portion protruding toward said prop to normally retain said bearing surface adjacent said bight and prevent disengagement of the interfit and sliding relationship.

7. The easel back in claim 6 wherein said plate is pivotally connected to said back plate to allow the easel back to be rotated with respect to said prop.

8. The easel back in claim 6 wherein said clip is resiliently deformable about said bight to allow disengagement and re-engagement of the interfit as desired.

9. An easel back comprising, a back plate and a prop, a connection between said back plate and prop allow-

ing prop extension and collapse; said connection formed from a plate and a clip; said plate being affixed to the back of said back plate and having an elongated upper edge portion projecting away from said back plate and curving arcuately back toward said back plate but terminating short of it to form a vertically-arcuate, horizontally-elongated concave bearing surface and an adjacent receiving gap; said clip being affixed to said prop and having its upper portion bent back to form a bight and a short leg having an adjacent elongated arcuate surface interfitting with said bearing surface in an arcuate sliding relationship for extension and collapse of said prop; one of said plate and clip having a width greater than the other, and having an opening at the base of its arcuate surface of a width slightly greater than that of the other of said plate and clip to allow interfitting of said plate and clip; and a portion of said bent back clip portion being closely spaced from the main body of said clip to normally retain said interfit.

10. The easel back in claim 9 wherein said clip includes a protrusion extending beneath said interfitting arcuate surface and bearing surface to prevent disassembly without spreading of said clip portion and body.

11. An easel back comprising, a back plate and a prop, a swing connection between said back plate and prop allowing prop extension and collapse; said connection formed from a plate and a clip; said plate being pivotally affixed to the back plate and having an elongated upper edge portion projecting away from said back plate and curving arcuately back toward said back plate but terminating short of it to form a vertically-arcuate, horizontally-elongated concave bearing surface and an adjacent gap; said clip being affixed to said prop and having its upper portion bent back upon itself to form a short leg and a bight, said short leg having a pair of adjacent, convex, arcuate curves, with the one curve closest said bight slidably engaged with said concave plate surface for extension and collapse of said prop, and the other curve closest the terminal edge of said short leg serving

to normally retain said surfaces in engagement; one of said plate and clip having a width greater than the other, and having an opening at the base of its arcuate surface of a width slightly greater than that of the other of said plate and clip to allow interfitting of said plate and clip; and a portion of said bent back clip portion being closely spaced from the main body of said clip to normally retain said interfit.

12. The easel back in claim 11 wherein said short leg may be temporarily spread away from the remainder of said clip by resilient deformation at said bight for reception of said upper edge portion, and release thereof.

13. An easel back for a picture frame comprising a rectangular panel and a prop; a connecting joint between said panel and prop; said joint including a first link attached to said panel and a second link attached to said prop; said links having cooperatively engaged convex and concave surfaces therebetween providing prop extension capacity; and said first link being attached to said panel with a pivotal connector, allowing 90° rotation of said prop with respect to said panel for horizontal and vertical positioning.

14. An easel back comprising: a back plate, a prop, and a pair of connecting links attached respectively to said back plate and prop; one of said links having two legs and a bight and being temporarily resiliently deformable to allow said legs to be spread for reception of the other link; said links having interfitting convex and concave portions; and said link having said two legs including a protrusion adjacent said interfitting convex and concave portions to prevent disassembly therebetween.

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