Oct. 24, 1950 G. E. NICHOLS 2,526,765

LEG AND BRACE UNIT FOR EASELS

Filed Nov. 27, 1946 3 Sheets-Sheet 1

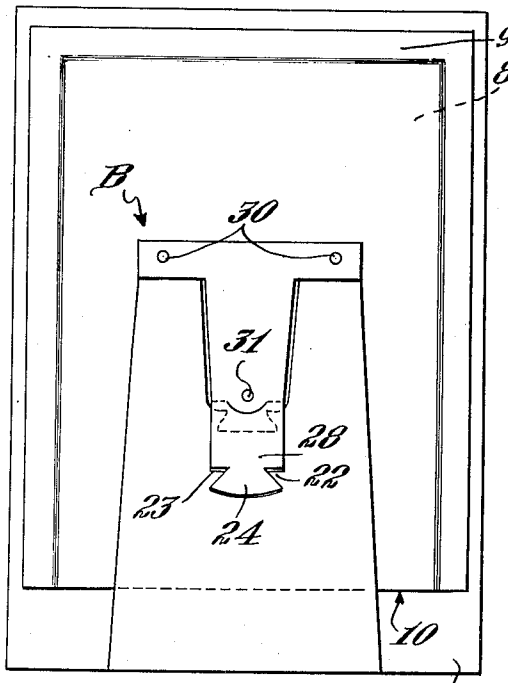
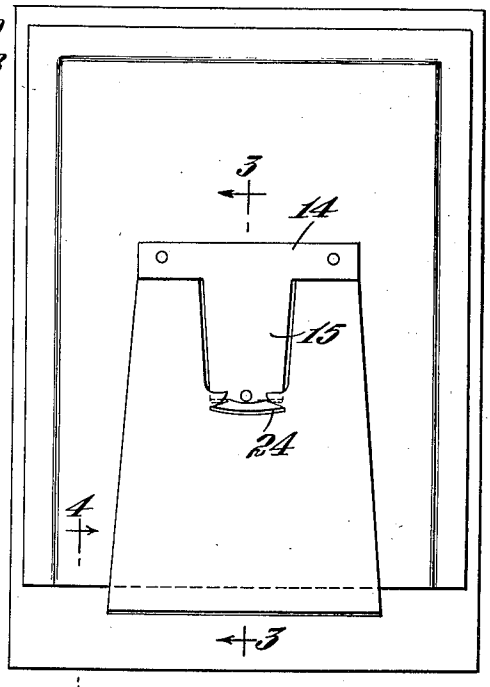


Fig. 2



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Fig. 1

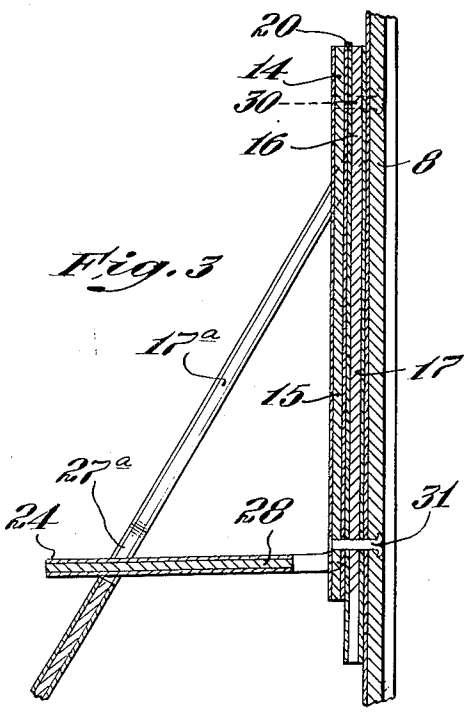


Fig. 3

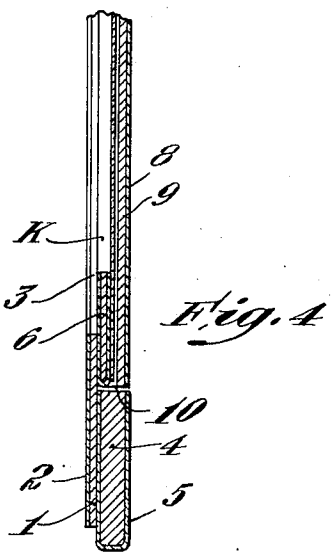


Fig. 4

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LEG AND BRACE UNIT FOR EASELS

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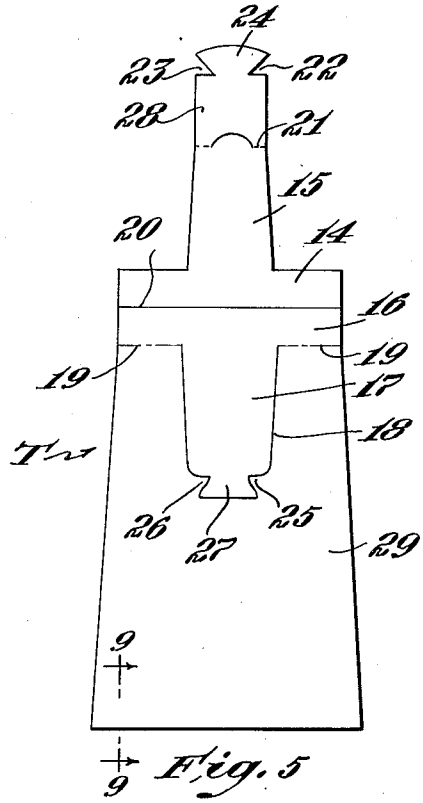


Fig. 5

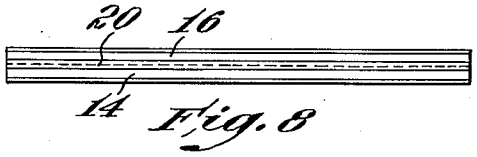


Fig. 8

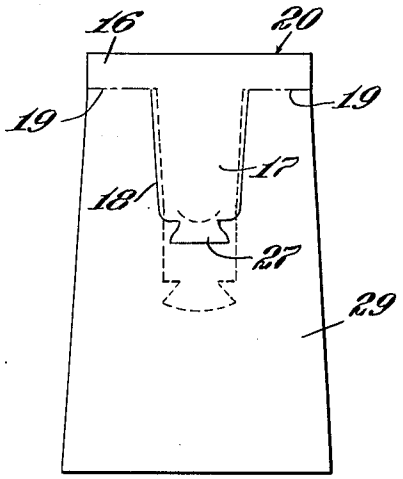


Fig. 6

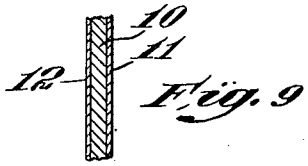


Fig. 9

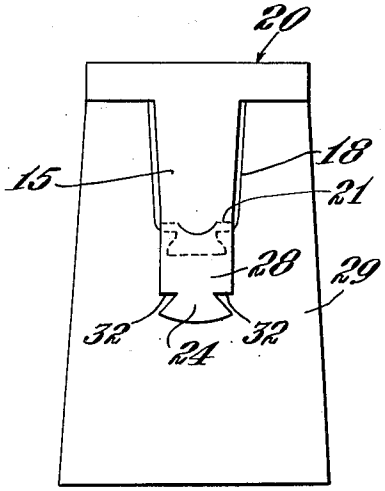


Fig. 7

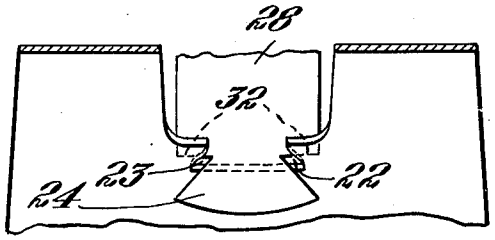


Fig. 10

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LEG AND BRACE UNIT FOR EASELS

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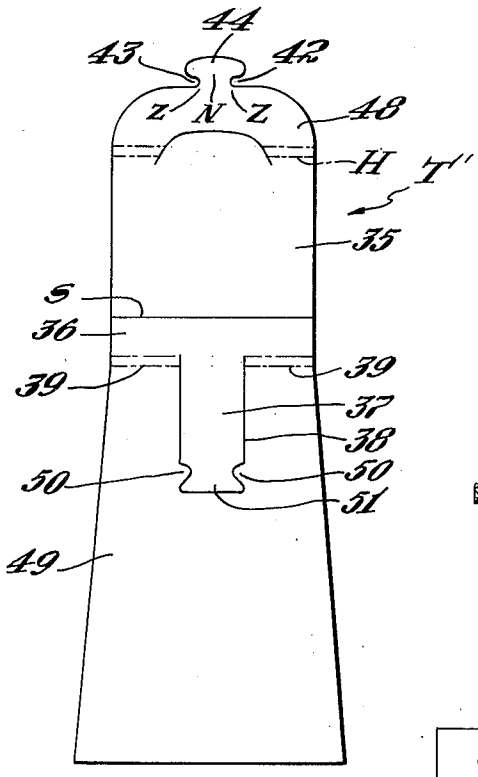


Fig. 11

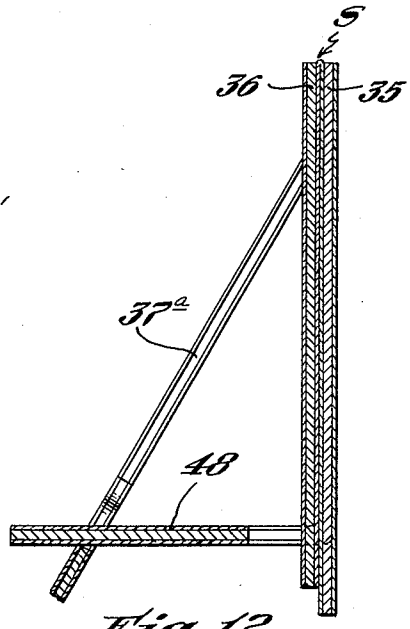


Fig. 12

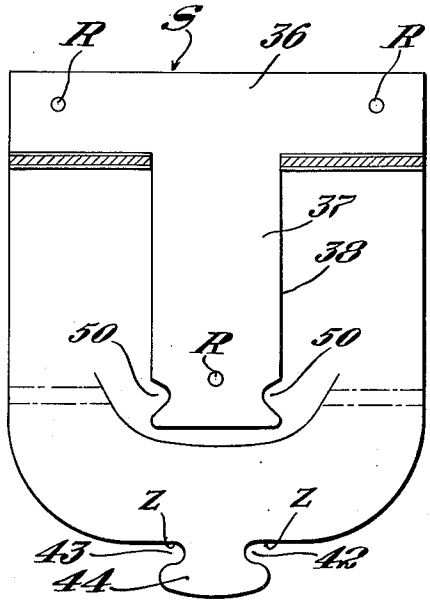


Fig. 13

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UNITED STATES PATENT OFFICE

2,526,765

LEG AND BRACE UNIT FOR EASELS

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Application November 27, 1946, Serial No. 712,663

5 Claims. (Cl. 248—198)

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This invention pertains to foldable mounts or easels for photographs, calendars, etc., and relates more especially to an improved leg and brace unit for a foldable mount or easel, the present invention concerning improvements in the device disclosed in Letters Patent No. 2,454,521.

The above application discloses an arrangement such that swinging the leg to the operative position automatically sets the brace, the parts reacting to produce a recognizable snap as they assume the operative position. The arrangement also permits ready disengagement of the brace from the leg preparatory to folding the easel, and the construction is such that the leg and brace form integral parts of a single piece of material to which they are hinged. However, in the device of the aforesaid application, the part to which the leg and brace are hinged is designed to constitute the rear member or back of the mount, being of substantially the same size and contour as the mount. The brace has a longitudinally extending slot for the reception of a locking element carried by the leg, and the leg is necessarily of substantial width to accommodate a brace wide enough to contain the longitudinal locking slot and at the same time to have the requisite rigidity. While the construction is highly desirable when the member of which the brace and leg form a part is the back board of the mount, it is often desirable to have a leg and brace unit which may be applied to existing mounts or to mounts of a type of construction such that the rear member or back board of the mount may not be integral with the brace and leg. It is also desirable, for economy in material, to reduce the external dimensions of the leg and the attaching member to which it is hinged so far as possible, and in particular when the leg and brace unit are to be applied to existing mounts so that there is no need for a leg-attaching element of large size.

One object of the invention is to provide a leg and brace unit such that the parts have the same desirable capabilities as those described in the above application, but so devised that the leg and brace, as a unit, may be applied to existing mounts. A further object is to provide a leg and brace unit which may be made of relatively thin sheet material, but which is so devised as to provide a reinforcement for the mount to which it is attached, and to afford ample anchorage for fastener elements whereby it is attached to the mount. A further object is to provide a leg and brace unit which may be

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made from a piece of sheet material of substantially less superficial area than that disclosed in the aforesaid application. A further object is to provide a leg and brace unit which may be sold in folded condition for application to existing mounts and which may readily be applied to the mounts without resort to special tools or instruments and without requiring special skill. A further object is to provide a leg and brace unit of such construction and dimensions as to have a pleasing appearance when applied to the mount. Other and further objects and advantages of the invention will be pointed out in the following more detailed description and by reference to the drawings wherein

Fig. 1 is a rear view of a mount provided with the leg and brace unit of the present invention as it appears when set up for use;

Fig. 2 is a similar view showing the leg and brace unit folded;

Fig. 3 is a fragmentary section, to large scale, on the line 3—3 of Fig. 1, showing the brace in the operative position for holding the leg in divergent relation to the member of the mount back;

Fig. 4 is a fragmentary large scale section substantially on the line 4—4 of Fig. 1;

Fig. 5 is a view of a blank preferably employed in making the leg and brace unit;

Fig. 6 is a front view of the blank after folding but before its application to the easel back;

Fig. 7 is a rear view of the parts shown in Fig. 6;

Fig. 8 is a top edge view of the parts as shown in Fig. 6 but to larger scale;

Fig. 9 is a fragmentary section illustrating the type of material preferably employed in making the leg and easel unit;

Fig. 10 is a fragmentary plan view, partly in section, showing the interlocking elements of the leg and brace;

Fig. 11 is a plan view generally similar to Fig. 5 but showing a blank of modified shape;

Fig. 12 is a fragmentary section similar to Fig. 3 but showing the construction resulting from the use of the blank of Fig. 11; and

Fig. 13 is a fragmentary plan view showing the blank of Fig. 11 folded to provide a two-ply reinforce element with the brace member lying in the plane of the front ply, and with the leg cut off (and in section) at the hinge joint.

Referring to the drawings and particularly to Figs. 1, 2 and 4, the leg and brace unit of the present invention is shown in association with a picture mount which comprises the ornamental

front board 1 (Fig. 4) which may be of cardboard or the like, having an ornamental surface covering 2, for example of paper, cloth or leather. This front board defines the large sight opening 3 and is associated with the frame member 4, for example of cardboard, preferably covered on both sides, as shown at 5, with paper, textile fabric or the like, and which has a central opening, preferably longer in dimensions than the sight opening 3 and which is designed to receive the matte element 6. This matte element 6 may be of cardboard, suitably covered or ornamented, or of any other suitable stiff material and defines the inner sight opening K through which the picture is viewed. This matte element 6 is secured to the back board 8, which also preferably consists of stiff sheet material, such as cardboard, covered at its rear side at least with ornamental material such as paper, indicated at 9. This covering overlaps the rear surface of the frame member 4 at the top and sides and is secured to the latter, for example by means of adhesive, but leaving an entrance slot at 10 through which the picture may be pushed up between the back board 8 and the frame member 4. While this is a desirable type of mount, it is to be understood that the present invention is not necessarily limited to use with this mount but is applicable to mounts of other kinds.

In accordance with the present invention, the leg and brace unit B (Fig. 2) is made from a single piece of stiff sheet material. For example, this material may be cardboard 11 (Fig. 9) preferably covered on opposite sides with paper or textile fabric, as indicated at 12 and 13, respectively. From this sheet material there is prepared, preferably by a die operation, a blank T (Fig. 5) to be used in making the leg and brace unit. This blank, as illustrated, comprises two approximately T-shaped members, one comprising the transverse element 14 and the upright element 15, and the other comprising the transverse element 16 and the upright element 17. As illustrated (Figs. 5 and 7) the upright element 17 is substantially wider than the upright element 15 so that when the element 15 is projected through the opening in the part 29 left by removal of the upright 17, there is substantial clearance between the lateral edges of the part 28 (the brace) and the edges of the aperture in the leg 29 so that the brace 28 may pass freely through the opening in the leg 29 without binding or wedging. The latter T-shaped member is defined by an incision 18 extending completely through the material and by hinge lines 19 which may be score lines in the material merely sufficient to weaken it so that it may bend. The transverse elements 14 and 16 of the T-shaped members are arranged edge to edge an are joined at the hinge line 20. The hinge at this point may be formed by cutting through the material so as to leave merely one thickness of the covering, for example, the covering sheet 12 (Fig. 9) intact, this sheet then forming the hinge at which the parts 14 and 16 may be swung. The material of the blank below the hinge axis 19 and outside the area defined by the incision 18 constitutes the leg of the device.

The upright element 15 of the upper T-shaped member which is inverted, as shown in Fig. 5, is provided with a score line or other weakening means at 21 to form a hinge axis about which the free end portion of this upright may be bent. If the score lines at 19 or 21 should be other than straight (for example, a curved or equivalent line as suggested in applicant's copending application, Serial No. 653,338, filed March 9, 1946, now issued as patent No. 2,454,521 dated November 23, 1948) in order to accentuate the resilient tendency of the leg or brace to remain in the plane of the part to which it is hinged, the effective axes about which the brace and leg swing would nevertheless be horizontal and paralliel just as when the score lines at 19 and 20 are straight. Near its free end the part 15 is provided with triangular locking notches 22 and 23 at its opposite edges defining an actuating tab 24. The portion of the upright element 15 which is beyond the hinge axis 21 constitutes a brace member 28. The maximum width of this tab 24 does not exceed the width of the body of the brace and is less than the width of the opening in the part 29 so that the tab may pass freely through the opening.

The lower end of the upright member 17 of the lower T-shaped member is shaped to provide a tongue 27 of substantially truncated triangular shape. At opposite sides of this tongue the incision 18 extends inwardly, forming, in the material of the leg, the locking ears or lugs 25 and 26 which form the opposite sides of a truncated triangular recess 27 resulting from the removal of the tongue 27. Each of the V-shaped notches 22 and 23 is defined at one side by a substantially straight, horizontal edge, these horizontal edges of the two notches being in alignment. The space between the inner or proximate ends of the notches constitutes a neck portion N which is of a width less than the distance between the lugs 25 and 26 so that said neck portion N may be passed between said lugs.

The blank, as shown in Fig. 5, may be shipped flat to the user, and then bent by the user, preparatory to attaching it to the mount, or it may be folded, as hereinafter described, before shipment. To prepare the blank for use, it is folded along the line 20 to bring the part 14 into registry with the part 16, as shown in Figs. 6 and 7, the contacting registering parts 14 and 16 forming the upper part of what is hereafter referred to as an "anchorage", said anchorage thus comprising the front ply 16 and the rear ply 14. Before applying the leg and brace unit to the back of the frame or easel, the lower part of the member 17 is pushed forwardly so as to lie at an angle to the plane of the leg member 29, and the part 15 is likewise pushed forwardly and through the elongate aperture 17a (Fig. 3) left in the part 29 by pushing the part 17 forwardly. The part 17 is somewhat wider than the part 15 (Fig. 6) so that the part 15 may readily be pushed through this aperture and brought into contact with the part 17, as shown in Fig. 3. Suitable fastener elements, for example rivets 30 and 31, are passed through the anchorage comprising parts 14 and 16, and through the lower portions of the parts 15 and 17 into the back board 8, thus securely attaching the leg and brace unit to the back board. After the parts have thus been attached, the leg may be swung down into substantial parallelism with the back 8, with the lower end portion of the brace member 28 overlying the rear surface of the leg (Fig. 2). When the user desires to set up the easel, he merely seizes the lower end of the leg and swings it rearwardly. The brace member 28 slides through the lower part of the elongate aperture 17a of the leg, the lateral margins of the brace riding on the upper edges of the lugs 25 and 26 until the

notches 22 and 23 register with the opposed inner corners of the lugs or ears 25 and 26 which define the narrow entrance to the truncated triangular recess 27a at the lower end of the aperture 17a. The neck portion N of the free end of the brace then snaps down between lugs 25 and 26 into the recess and the edges 32 of the notches 22 and 23 engage the rear side of the leg, thus locking the brace and leg against movement in either direction. However, by mere upward pressure on the actuating tab 24, the edges 32 may be disengaged from the lugs 25 and 26, thus permitting the leg to move backwardly toward parallel relation to the easel back. It may be noted that the hinge connection between the leg 29 an the part 16 is preferably such that the leg resiliently resists movement out of the plane of the part 16 so that it tends to resume the folded position when the brace is released. The aperture in the leg is of such size and the spacing of the axes of the hinges of the brace and leg is such that after the parts 14 and 16 have been placed in registry and permanently united, it is possible to pass the free end of the brace through the aperture in the leg, for example if it be desired in shipping the device to dispose the brace in vertical position forwardly of the folded leg.

Referring to Figs. 11 to 13, inclusive, a slightly modified construction is illustrated. The material employed in accordance with this modification may be the same as that previously suggested. In this instance the blank T' (Fig. 11) comprises a T-shaped member having the transverse part 36 and the upright part 37, the latter being defined by an incision 38 which extends all of the way through the material, and which is so contoured near the lower end of the part 37 as to provide the inwardly directed ears or lugs 50 which define the side edges of a recess of truncated triangular shape when the part 37 is pushed forwardly out of the plane of the material, this recess having the shape of the lower end 51 of the part 37.

The upper edge of the transverse element 36 of the T-shaped member is defined by the incision S which extends transversely across the material and through all of its constituent layers except one of the outer layers which remains intact to form a hinge joint. Above this incision line S, the blank comprises a portion 35 of generally rectangular shape terminating at a transverse hinge line H which may be a line of weakness formed by scoring, indenting, perforating or the like. Above this hinge line H the blank comprises a portion 48 having a curved upper edge and terminating in an actuating tab 44 which joins the main part 48 at a narrow neck N defined by the opposed recesses 42 and 43. The part 48 constitutes the brace element of the completed unit. The leg 49 is resiliently hinged along the line 39 to the lower edge of the transverse element 36 of the T-shaped member. When the part 37 is pushed forwardly out of the plane of the leg 49, it leaves a vertically elongate aperture 37a (Fig. 12) having the aforesaid truncated triangular recess at its lower end. Prior to use, the part 35 is folded down along the incision line S, as shown in Fig. 12, thus forming a two-ply construction in which the part 35 is designed to contact the back of the easel when the unit is assembled with the latter. When the parts have thus been folded, the T-shaped member, comprising the parts 36 and 37, lies in contact with the front ply 35 and, together with the

latter, provides a two-ply anchorage for the reception of fasteners, such, for example, as rivets R (Fig. 13), whereby the unit is securely anchored to the easel back. When the easel is to be set up for use, the leg 49 is swung rearwardly and the tab 44 is passed through the elongate aperture 37a at a point above the lugs 50. The narrow neck N of the tab is caused to pass down between the lugs 50, which define a narrow entrance to the recess at the lower part of the aperture 37a, and the shoulders Z, forming the rear boundaries of the recesses 42 and 43, contact the rear surface of the leg, thus locking the parts in position. To fold the easel, the tab 44 is lifted so as to disengage the neck N from the recess in the leg, and the brace is pushed rearwardly and then folded down into the plane of the part 35, the leg also being folded down until it lies substantially in the plane of the part 37. Obviously, so far as the interlocking features of the leg and brace are concerned, the shapes and dimensions of the parts 15 and 16 to which the brace and leg are hinged is immaterial.

While certain desirable embodiments of the invention have been illustrated by way of example, it is to be understood that the invention is broadly inclusive of any and all modifications falling within the scope of the appended claims.

I claim:

1. A foldable leg and brace unit for attachment to an easel back, said unit consisting of an integral sheet of cardboard folded transversely to provide a two-ply anchorage, each ply including a T-shaped part having a transverse element and an upright element, the transverse elements of said T-shaped parts being in registry and in contact, a leg attached to the lower edge of the transverse element of the said T-shaped part of one ply, the leg having therein an aperture of the same size and contour as the upright element of the T-shaped part to which the leg is hinged, the upright of the T-shaped part of the second ply of said anchorage being of lesser transverse width than the aperture in the leg and having a transverse hinge intermediate its ends, the portion of said latter upright below the hinge constituting a brace, the brace lying in the plane of said second ply when the unit is folded but being capable of swinging about its hinge to engage its free end with the leg, the free end portion of the brace having opposed notches and the leg having spaced locking elements which seat in said notches when the leg and brace are in operative position.

2. In combination in a device of the class described, a leg and brace unit for attachment to an easel back, said unit consisting of a single piece of stiff, sheet material doubled along a transverse fold line and comprising two T-shaped members disposed with their transverse elements horizontal and in registry, the upright element of the first of said T-shaped members being of greater width than that of the second T-shaped member, the upright of the second T-shaped member being longer than that of the first and having a transverse hinge joint intermediate its ends, that part of the upright of the second T-shaped member which lies below the hinge joint constituting a brace, the brace being of lesser transverse width than the upright of the first T-shaped member, and a leg hinged to the lower end of the transverse element of the first transverse member, said leg having an aperture intermediate its lateral edges, the aperture being wider than the brace, the free end portion of

the brace having opposed V-shaped notches, one edge of each notch being substantially straight and horizontal, said straight edges being aligned, the proximate ends of the notches being spaced apart to define a neck portion, said notches receiving portions of the leg when the leg and brace are in operative position thereby to lock the leg and brace in said position.

3. In combination in a foldable easel device, a single piece of stiff sheet material folded to provide two registering parts, a leg hinged to one of said parts and a brace hinged to the other of said parts, the leg having an unobstructed aperture midway between its lateral edges, said aperture being bounded at one end by a transverse edge having a centrally located recess whose entrance is of a width less than that of the aperture proper, the brace being of a width less than that of the aperture proper so that it may pass through the aperture proper without contacting the lateral edges of the aperture, the free end of the brace having opposed V-shaped notches in its opposite edges respectively, the width of the material of the brace intervening between the proximate ends of the notches being less than that of the entrance of said recess, the brace overlying the rear surface of the leg when the easel device is folded, the size and location of the aperture relative to the hinge axes of the hinge and brace being such as to permit the end of the brace to be passed through the aperture so that the brace may be disposed to overlie the rear surface of the folded leg, the lateral edges of the brace riding upon those portions of the transverse edge of the aperture at opposite sides of the recess as the leg is swung rearwardly toward its operative position thereby automatically swinging the brace to operative position in response to such rearward swinging of the leg, the material between the inner ends of the notches in the brace entering the recess as the leg and brace near operative position whereupon the rear edges of the notches in the brace engage the forward surface of the leg and hold the latter in position of use.

4. In combination in a foldable easel device of the class described, an integral sheet of cardboard folded transversely to provide two registered plies disposed in face-to-face relation, a leg hinged to one of said piles to swing about a horizontal axis, a brace hinged to the other ply to swing about an axis which, in effect, is horizontal and which is vertically spaced from the hinge axis of the leg, the leg having an unobstructed aperture midway between its lateral edges, the aperture being bounded at one end by a horizontal transverse edge having a centrally located recess whose entrance is of a width less than the width of the aperture proper, the brace also being of a width less than the width of the aperture proper so that the brace may pass freely through the aperture without contacting the lateral edges of the latter, the brace terminating in an actuating tab joined to the brace proper by a relatively narrow neck intervening between opposed notches extending inwardly from opposite edges respectively of the brace, the maximum width of the tab being less than the width of the aperture proper, said neck being of a width less than that of the entrance to said recess, the brace overlying the rear surface of the leg when the easel device is folded, the aperture in the leg being of such size and so located relatively to the hinge axes of the leg and brace that the free end of the brace may be passed through the aperture in the leg after the cardboard sheet has been folded to place the two plies in registry, the lateral edges of the brace riding upon those portions of the transverse edge of the aperture at opposite sides of the recess when the leg is swung rearwardly toward its operative portion so that mere movement of the leg toward operative position automatically sets the brace in operative position, the neck portion of the brace entering the recess in the transverse edge of the aperture as the leg and brace near operative position whereupon the rear edges of the notches in the brace engage the forward surface of the leg and lock the latter in position of use, the neck being disengageable from the recess by mere pressure of the finger upon said tab.

5. In combination in a foldable easel device, two flat parallel plies each comprising a piece of stiff, sheet material, means holding said flat plies in assembled relation, a leg hinged to one of said plies and a brace hinged to the other of said plies, the effective hinge axes of the leg and brace being parallel, horizontal and vertically spaced apart, the hinge connection between the leg and its supporting ply being such that the leg may lie in the plane of its supporting ply, the leg having an unobstructed aperture midway between its lateral edges through which the brace projects when the leg is folded, the brace terminating in an actuating tab whose width does not exceed that of the body of the brace, the tab being joined to the body of the brace by a relatively narrow neck intervening between two notches, one transverse edge of the aperture in the leg being shaped to provide a recess whose entrance is of a width sufficient to pass the neck portion of the brace, the aperture, adjacent to said recessed edge, being of a width greater than the width of the body of the brace whereby the brace may be passed freely through the aperture without contacting the lateral edges of the latter, the recess having spaced locking edges operative to enter into locking engagement with the respective notches in the brace thereby to hold the brace and leg in operative position, the neck portion of the brace being freely disengageable from the recess by mere pressure of the finger against the tab portion of the brace thereby permitting the leg to resume its normal position in the plane of its supporting part, the aperture in the leg being of such size and so located relatively to the hinge axes of the hinge and brace that the free end of the brace may be passed through the aperture in the leg while said united flat plies are in the assembled relation of use.

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