

June 21, 1966

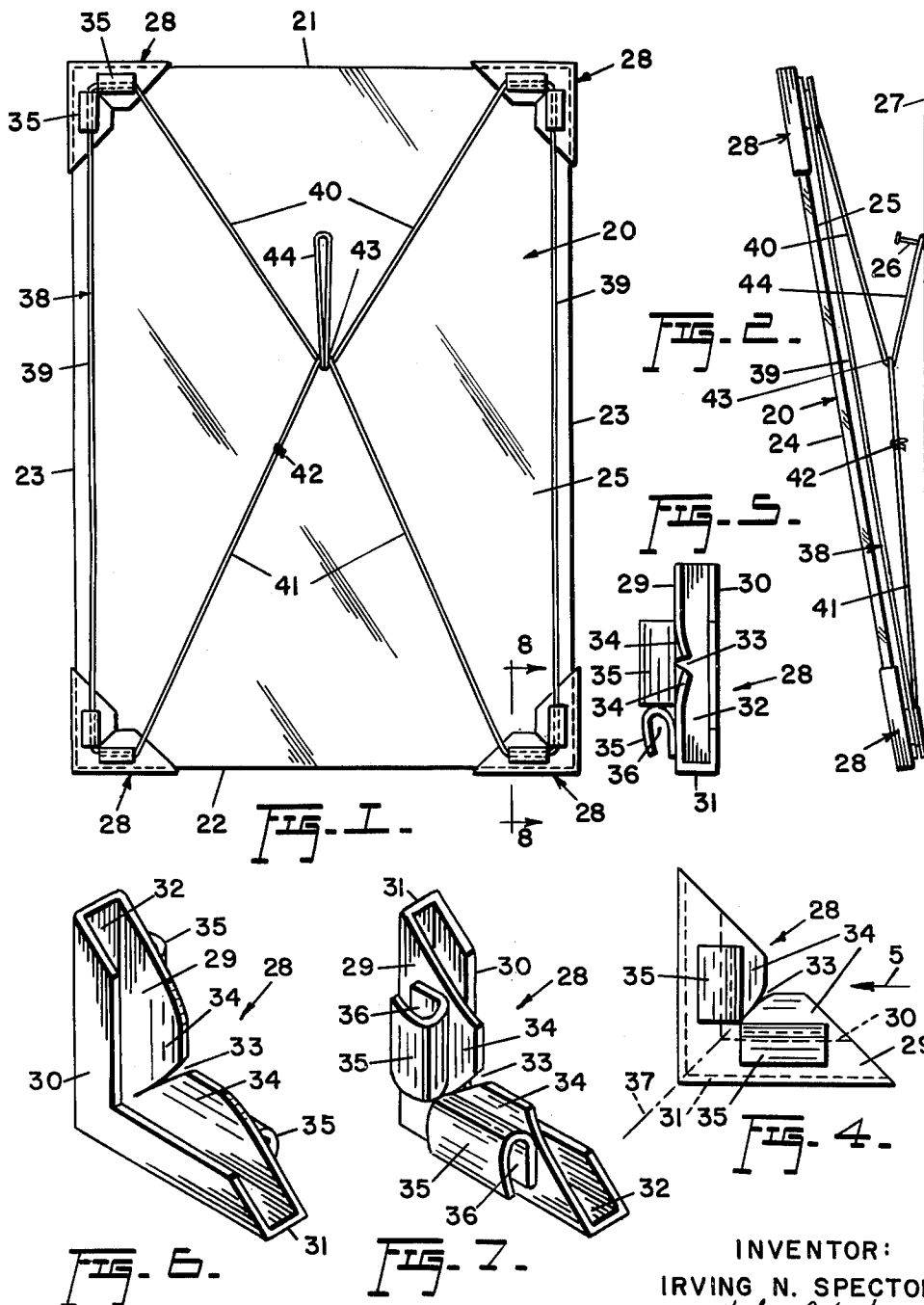
I. N. SPECTOR

3,256,630

SUPPORTING MEANS FOR DISPLAY PANELS

Filed July 24, 1963

3 Sheets-Sheet 1



INVENTOR:
IRVING N. SPECTOR
By: *Arthur L. Nathanson*

ATT'Y.

June 21, 1966

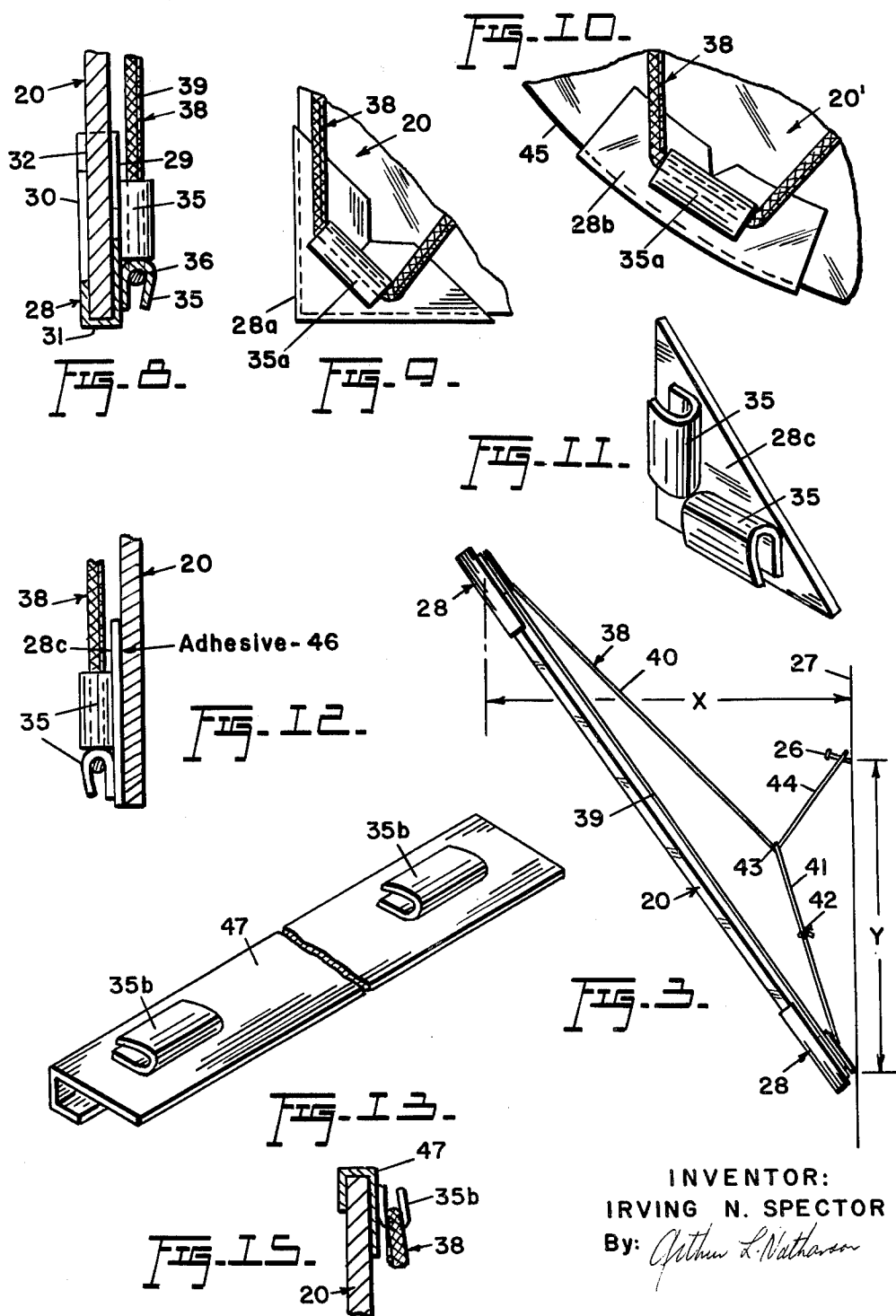
I. N. SPECTOR

3,256,630

SUPPORTING MEANS FOR DISPLAY PANELS

Filed July 24, 1963

3 Sheets-Sheet 2



INVENTOR:
IRVING N. SPECTOR
By: *Arthur L. Nathanson*

ATT'Y.

June 21, 1966

I. N. SPECTOR

3,256,630

SUPPORTING MEANS FOR DISPLAY PANELS

Filed July 24, 1963

3 Sheets-Sheet 3

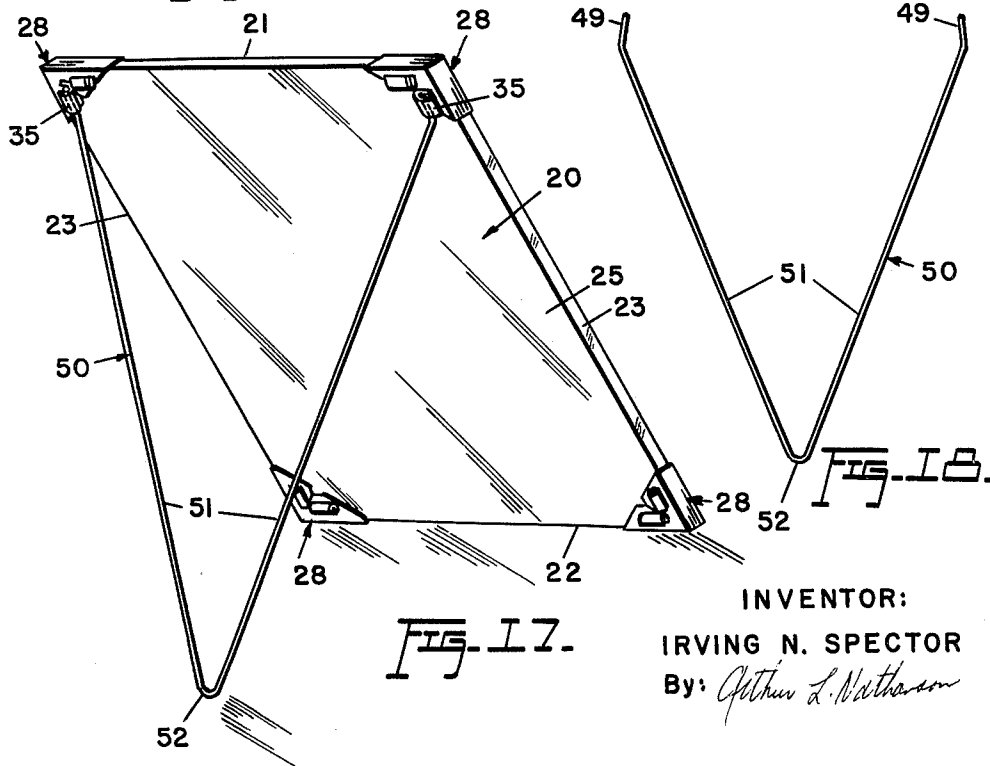
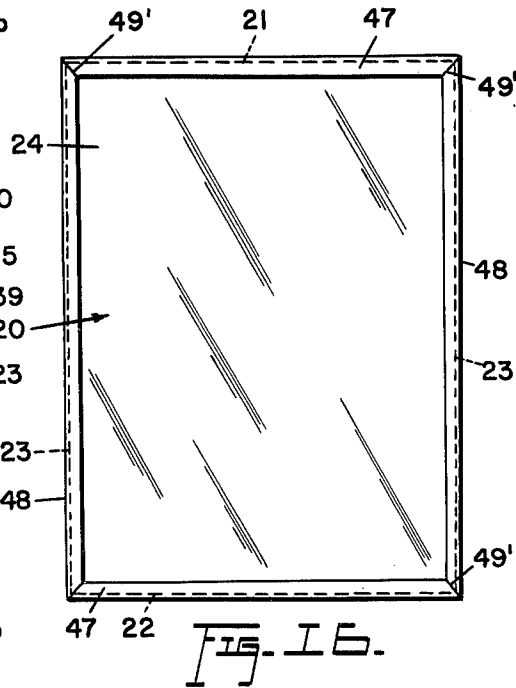
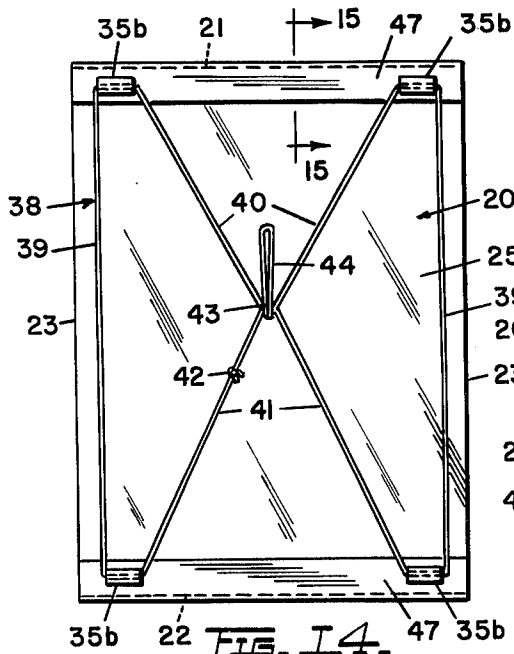


FIG. 17.

INVENTOR:
IRVING N. SPECTOR
By: *Arthur L. Nathan*

ATT'Y.

1

3,256,630

SUPPORTING MEANS FOR DISPLAY PANELS

Irving N. Spector, 27 Royden Drive N., Merrick, N.Y.

Filed July 24, 1963, Ser. No. 297,311

11 Claims. (Cl. 40—152.1)

This invention relates to new and useful improvements in means for supporting display panels such as pictures, diplomas, signs, advertising cards, mirrors, or the like, and the principal object of the invention is to provide simple and highly versatile means which may be quickly and easily applied to such panels, regardless of size and shape, for supporting the same, either as by suspension from a suitable hanger on a wall, or in an easel-like manner on a horizontal supporting surface.

In its broad aspect, the supporting means of the invention involve the provision of brackets which are applied to edge portions of the panel to be supported, such brackets being equipped with grooved keeper members at the rear face of the panel, and an elongated supporting element which engages the grooves of the keeper members and is adapted for a supporting mount on a wall or other supporting surface. As such, the brackets of the invention are readily applicable to panels of various sizes which have a rectangular, polygonal, circular, oval or irregularly shaped marginal edges.

More specifically, the arrangement of the invention which is intended for supporting a panel by suspension from a wall hanger involves the provision of keeper-equipped brackets which are mounted on the upper and lower edge portions of the panel and a cord-like suspension element which engages the grooved keeper members of the brackets, such an element having V-shaped stretches between the keeper members, with the apex portion of one stretch passing through the apex of the other stretch to form a suspension loop at the rear of the panel for hanging the same. The cord-like suspension element slidably engages the keeper grooves and the weight of the suspended panel tensions the element so that it urges the brackets inwardly against the edges of the panel to retain the same in place. Moreover, the slidable engagement of the suspension element with the keeper members permits the reach of the V-shaped stretches of the element to be varied, so that the planar relationship of the panel relative to the wall may be quickly and easily adjusted as desired.

In the easel-like arrangement of the invention the keeper-equipped bracket means are provided on the upper edge portion of the panel and the supporting element is in the form of a substantially V-shaped wire or rod which has its end portions received in the grooves of the keeper members while its bight portion or apex portion rests on the supporting surface at a point spaced rearwardly from the lower edge of the panel.

In both instances, the supporting means of the invention are particularly well suited for assembly by the user without the employment of special tools or skill.

With the foregoing more important object and features in view and such other objects and features as may become apparent as this specification proceeds, the invention will be understood from the following description taken in conjunction with the accompanying drawings, wherein line characters of reference are used to designate like parts, and wherein:

FIGURE 1 is a rear elevational view of a panel with suspension type supporting means in accordance with the invention;

FIGURE 2 is a side elevational view thereof, suspended from a hanger on a wall;

FIGURE 3 is a side elevational view similar to FIGURE 2 but showing the panel supported at a different angle;

2

FIGURE 4 is a rear elevational view, on an enlarged scale, of one of the brackets;

FIGURE 5 is a side elevational view taken in the direction of the arrow 5 in FIGURE 4;

FIGURE 6 is a front isometric view of the bracket;

FIGURE 7 is a rear isometric view thereof;

FIGURE 8 is an enlarged, fragmentary sectional detail, taken substantially in the plane of the line 8—8 in FIGURE 1;

FIGURE 9 is an enlarged fragmentary rear elevational view showing a portion of the panel with a bracket having a modified keeper member;

FIGURE 10 is an enlarged fragmentary rear elevational view of a panel portion with another modified embodiment of the bracket;

FIGURE 11 is a rear isometric view of another modified embodiment of the bracket;

FIGURE 12 is a fragmentary sectional detail showing the bracket of FIGURE 11 applied to a panel;

FIGURE 13 is an isometric view showing another modified embodiment of the bracket means;

FIGURE 14 is a rear elevational view, on a reduced scale, showing a panel equipped with the bracket means of FIGURE 13;

FIGURE 15 is an enlarged sectional detail, taken substantially in the plane of the line 15—15 in FIGURE 14;

FIGURE 16 is a front elevational view of the panel and bracket means shown in FIGURE 14 but with side channels added for framing the panel;

FIGURE 17 is a rear perspective view of a panel with easel-type supporting means in accordance with the invention; and

FIGURE 18 is an elevational view of the supporting element used in the arrangement of FIGURE 17.

Referring now to the accompanying drawings in detail, particularly to FIGURES 1—8 inclusive, the general reference numeral 20 designates a panel such as a picture, diploma, display sign, advertising card, mirror, or the like, which is to be supported by the supporting means of the invention. The term "panel" as used throughout this specification and claims is employed broadly to designate any plate-like or panel-like object to be supported, and as such, it may either have a single thickness or a multiple thickness, as for example, a paper sheet covered by a transparent medium such as glass, or sandwiched between a transparent medium and a backing sheet. In any event, the make-up of the panel is of no importance as far as the invention is concerned, although it is to be noted that if the panel is composed of two or more superposed layers of material, the supporting means of the invention can assist in holding such layers together in addition to its primary function of supporting the panel as a whole.

Although the supporting means of the invention are applicable to panels of various configurations, the panel 20 in FIGURES 1—3 has been shown as a rectangular panel, having an upper edge 21, a lower edge 22, a pair of side edges 23 and front and rear faces 24, 25, respectively. The supporting means of the invention as shown in FIGURES 1—8 are adapted for suspending the panel 20 from a suitable hanger 26 on a wall 27. The hanger 26 may be in the form of a nail, screw, hook, or the like.

The supporting means comprise a set of brackets designated generally by the numeral 28 which are positioned on the four corners of the panel 20 as will be hereinafter described. These brackets are identical in construction, so that a description of one will suffice for all.

Each bracket 28, which may be formed from metal, plastic, or the like, includes a substantially triangular rear portion 29, a substantially L-shaped front portion 30 which is spaced forwardly from the rear portion, and a web 31 which connects the outer side edges of the portions 29,

30 together, as will be clearly apparent from FIGURES 4-7. The bracket thus forms a right-angled channel 32 for the reception of the side and upper edges 23, 21 and of the side and lower edges 23, 22 of the panel 20 when the brackets are applied to the corner portions of the panel as shown in FIGURE 1. The rear portion 29 of the bracket is preferably provided with a diagonal split 33 and regions of the portion 29 at opposite sides of the split 33 are curved forwardly somewhat, that is, toward the front portion 30, to constitute a pair of resiliently yieldable wings 34, so that when the bracket is applied to a corner of the panel 20 with the bracket front portion 30 abutting the front face 24 of the panel and the bracket rear portion 29 lying against the back face 25, the resiliently yieldable wings 34 will frictionally engage the panel and hold the bracket in position thereon.

A pair of keeper members 35 are provided on the rear portion 29 of each bracket 28, these keeper members being preferably elongated and disposed at right angles to each other with their adjacent ends touching or nearly touching at the slit or split 33. The keeper members are parallel to and spaced laterally inwardly from the outer side edges of the bracket and are provided with open ended grooves 36 which are also open in a laterally outward direction, that is, toward the outer side edges of the bracket, as is clearly shown in FIGURE 7. The grooves 36 may be formed in the keeper members or the keeper members may have a substantially U-shaped or horseshoe-shaped cross-section whereby the grooves inherently exist therein. Also, the keeper members 35 may be secured to the rear portion 29 of the bracket by adhesive or a thermal bond, or they may be formed integrally with the bracket if so desired. The bracket itself may be molded as such, or a running length of an extruded channel may be provided, from which two complementary mitered bracket sections may be cut and suitably bonded together along a line indicated at 37 in FIGURE 4.

In any event, after the brackets 28 are applied to the corners of the panel 20 as shown in FIGURE 1 a supporting element in the form of a length of cord, thin wire, or the like, indicated at 38, is applied to the brackets by inserting the same into the grooves 36 of the keeper members 35. It is preferable that the cord 38 be approximately twice as long as the perimeter of the panel 20, so that when the cord is applied to the brackets, straight stretches 39 of the cord will run between the brackets at the upper corners and the brackets at the lower corners of the panel in substantially parallel relation to the panel side edges 23. However, the portion of the cord between the upper pair of brackets will be sufficiently slack to form a downwardly extending, substantially V-shaped stretch 40, while the portion of the cord between the lower pair of brackets similarly forms an upwardly extending, inverted V-shaped stretch 41, it being understood, of course, that the ends of the cord are tied together, as by a knot 42.

The lower portion which may be referred to as the apex portion of the downwardly extending stretch 40 is passed slidably through the apex 43 of the upwardly extending stretch 41 and projects upwardly therefrom to form a suspension loop 44, whereby the entire device may be suspended from the wall hanger 26 as shown in FIGURES 2 and 3. It is to be noted that the suspension cord 38 slidably engages the grooves 36 of the keeper members 35 and when the device is suspended from the hanger 26, the cord 38 is tensioned by the weight of the panel 20, whereby the brackets 28 are automatically drawn inwardly against the marginal edges of the panel, that is, laterally inwardly against the side edges 23, as well as the lower pair of brackets being drawn upwardly against the lower edge 22 and the upper pair of brackets being drawn downwardly against the upper edge 21 of the panel, whereby to assist in retaining the brackets in place and in secure engagement with the panel.

Also, the slidable positioning of the cord in the grooves

36 permits the cord to be adjusted so that the reach of the cord stretch 40 may be increased while the reach of the stretch 41 is decreased and vice versa, with the result that the planar disposition of the panel 20 relative to the wall 27 may be varied as desired, as exemplified in FIGURES 2 and 3. In other words, by varying the reach of the cord stretches 40, 41 as above described, the horizontal distance X of the upper corner brackets from the wall 27 as shown in FIGURE 3 may be increased or decreased so that the panel is disposed at a greater or lesser angle relative to the wall. An increase in the distance X is reflected by a decrease in the vertical distance Y between the hanger 26 and the point where the wall is contacted by the lower corner brackets of the panel. Conversely, the distance Y is increased by a decrease in the distance X. The arrangement is such that the panel may be supported at any desired angular position within the range of 180°, which makes it possible to display the rear face of the panel or the front face thereof, as the occasion may demand.

FIGURE 9 illustrates a modified arrangement of the bracket, designated as 28a, which is the same as the bracket 28 with exception that a single keeper member 35a is provided diagonally on the bracket 28a in place of the two, right-angularly disposed keeper members 35 on the bracket 28.

FIGURE 10 shows another modified bracket arrangement wherein the bracket 28b, provided with a single keeper member 35a, is curved longitudinally to fit a curved edge 45 of a panel 20' which may be circular or oval in shape. However, in all instances the suspension arrangement of the cord 38 is the same as already described and in all instances the slidable engagement of the cord with the keeper members of the brackets causes the suspension loop 44 to become automatically centralized between the side edges 23 of the panel, so that the panel is self-leveling when suspended by the supporting means of the invention.

FIGURES 11 and 12 illustrate another modified bracket arrangement wherein the bracket 28c is in the form of a simple plate which is secured to the rear face of the panel 20 by a suitable adhesive 46. The bracket 28c may be provided with the two angularly disposed keeper members 35 as shown, or with a single keeper member 35a, if so preferred.

FIGURES 13, 14 and 15 show a further modified bracket structure wherein, in place of four corner brackets, two elongated channel-like brackets 47 are used at the upper and lower edges 21, 22 of the panel. The brackets 47 may or may not be coextensive in length with the panel edges 21, 22, and each bracket is provided with a pair of transversely spaced, longitudinally aligned keeper members 35b to receive the suspension cord as already described the transverse spacing of these keeper members being sufficient to result in the formation of the cord stretches 40, 41.

If the brackets 47 are coextensive in length with the panel edges 21, 22 they will also serve as frame members for these upper and lower edges of the panel, and if it is desired to complete the frame effect, a pair of side channels 48, of the same cross-section as the brackets 47, may be applied to the side edges 23 of the panel as shown in FIGURE 16. The side channels 48 need not be equipped with the keeper member 35b, and both the brackets 47 and the channels 48 may be furnished to the purchaser in a running length, to be cut as necessary for the dimensions of a particular panel. As will be noted from FIGURE 16, such cutting may be mitered at the corners as indicated at 49', to attain a pleasing frame effect.

Referring again to the keeper members 35, 35a, 35b, although these have been described as having a groove for reception of the suspension cord, it will be appreciated that these keeper members may also be in the form of open-ended tubes through which the suspension cord is threaded, or in the form of simple eyes or outwardly opening hooks, as distinguished from members having a substantial longitudinal dimension.

Finally, FIGURES 17 and 18 illustrate an easel-type supporting arrangement of the invention wherein the panel 20 is provided at the two upper corners thereof with the brackets 28 and the keeper members 35 of these brackets which are parallel to the side edges 23 of the panel receive in their grooves the end portions 49 of a substantially V-shaped supporting element 50. The latter is formed from a wire rod, or the like, and has side portions 51 converging to an apex or bight portion 52 which is adapted to rest on a horizontal supporting surface in rearwardly spaced relation from the lower edge 22 of the panel, whereby to support the panel in an easel-like manner. The element 50 is inherently resilient so that the side portions 51 thereof are biased toward each other, thus urging the end portions 49 into the grooves of the keeper members 35 and correspondingly urging the brackets 28 against the side edges 23 of the panel to hold the brackets in place. If desired, a pair of the corner brackets 28 may be also provided on the two lower corners of the panel. Although such lower corner brackets are not necessary for the easel-like support, if the panel is composed of two or more layers of material, the lower corner brackets will coact with those at the upper corners for holding the panel layers together. In any event, the planar disposition of the panel relative to the horizontal supporting surface may be readily adjusted by simply bending the end portions 49 of the element 50 relative to the side portions 51, and if desired, the element 50 may be quickly removed from the panel for purposes of compact storage by disengaging the end portions 49 from the keeper members 35 of the upper corner brackets.

While in the foregoing there have been described and shown the preferred embodiments of the invention, various modifications and equivalents may become apparent to those skilled in the art to which the invention relates. Accordingly, it is not desired to limit the invention to this disclosure and various modifications and equivalents may be resorted to, falling within the spirit and scope of the invention as claimed.

What is claimed as new is:

1. The combination of a display panel having upper and lower edge portions, and means for suspending said panel from a hanger on a substantially vertical supporting surface, said means comprising pairs of upper and lower transversely spaced keeper members mounted on the respective upper and lower edge portions of said panel, and an endless cord-like suspension element engaging said keeper members, a portion of said element between the upper pair of keeper members forming a downwardly extending substantially V-shaped stretch, a portion of said element between the lower pair of keeper members forming an upwardly extending inverted V-shaped stretch, the apex portion of said downwardly extending stretch passing through the apex of the upwardly extending stretch and projecting upwardly therefrom to form a loop for suspension from said hanger.

2. The combination as defined in claim 1 wherein said suspension element slidably engages said keeper members and is adjustable therein, whereby the reach of said downwardly and upwardly extending stretches may be varied to adjust the planar relationship of said panel relative to said supporting surface.

3. The combination of a display panel having upper and lower edge portions and front and rear faces, and means for suspending said panel from a hanger on a substantially vertical supporting surface, said means comprising pairs of upper and lower brackets mounted in transversely spaced relation on the respective upper and lower edge portions of said panel, said brackets being channel-shaped and frictionally receiving the edge portions of the panel therein, pairs of upper and lower keeper members provided on the respective upper and lower brackets at the rear face of the panel, said keeper members being formed with laterally outwardly open grooves, and an endless cord-like suspension element extending slidably

through the grooves of said keeper members, a portion of said element between the upper pair of keeper members forming a downwardly extending substantially V-shaped stretch, a portion of said element between the lower pair of keeper members forming an upwardly extending inverted V-shaped stretch, the apex portion of said downwardly extending stretch passing slidably through the apex of the upwardly extending stretch and projecting upwardly therefrom to form a loop for suspension from said hanger, the slidable positioning of said suspension element in the grooves of said keeper members permitting the reach of said downwardly and upwardly extending stretches to be varied, whereby the planar relationship of said panel relative to said supporting surface may be adjusted.

4. The combination of a display panel having upper and lower edge portions and front and rear faces, and means for suspending said panel from a hanger on a substantially vertical supporting surface, said means comprising upper and lower brackets mounted on the respective upper and lower edge portions of said panel, pairs of upper and lower transversely spaced keeper members provided on the respective upper and lower brackets at the rear face of the panel, said keeper members being formed with laterally outwardly open grooves, and an endless cord-like suspension element extending slidably through said grooves of said keeper members, a portion of said element between the upper pair of keeper members forming a downwardly extending substantially V-shaped stretch, a portion of said element between the lower pair of keeper members forming an upwardly extending inverted V-shaped stretch, the apex portion of said downwardly extending stretch passing slidably through the apex of the upwardly extending stretch and projecting upwardly therefrom to form a loop for suspension from said hanger, the slidable positioning of said suspension element in the grooves of said keeper members permitting the reach of said downwardly and upwardly extending stretches to be varied, whereby the planar relationship of said panel relative to said supporting surface may be adjusted.

5. The combination as defined in claim 4 wherein said brackets are adhesively secured to the rear face of said panel.

6. The combination as defined in claim 4 wherein said brackets are channel-shaped and frictionally receive the edge portions of said panel therein.

7. The combination as defined in claim 4 wherein said upper and lower brackets comprise elongated channels coextensive with and frictionally receiving therein the respective upper and lower edge portions of said panel.

8. The combination as defined in claim 7 wherein said panel also includes a pair of side edge portions, together with a pair of elongated side channels frictionally mounted on said side edge portions of the panel, said side channels coacting with said upper and lower brackets to provide a perimetric frame for said panel.

9. The combination of a display panel having front and rear faces, an upper edge portion and a lower edge adapted to rest on a substantially horizontal supporting surface, and means for supporting said panel on said surface in an easel-like manner, said means comprising a pair of transversely spaced keeper members mounted on the upper edge portion of said panel at the rear face thereof, and a substantially V-shaped supporting element having a pair of end portions separably connected to the respective keeper members, the apex portion of said element being adapted to rest on said supporting surface at a point spaced rearwardly from the lower edge of said panel.

10. The combination as defined in claim 9 wherein said keeper members are formed with laterally outwardly open grooves, the end portions of said supporting element being received in said grooves.

11. The combination of a display panel having front and rear faces, a pair of side edges, an upper edge and a lower edge adapted to rest on a substantially horizontal supporting surface, and means for supporting said panel

7

on said surface in an easel-like manner, said means comprising a pair of corner brackets mounted on said panel at the junctions of its side and upper edges, a pair of keeper members provided on the respective brackets at the rear face of the panel, said keeper members being 5 formed with grooves opening laterally outwardly in the direction of the side edges of the panel, and a substantially V-shaped supporting element having an apex portion, a pair of side portions and a pair of end portions seated in said grooves of the respective keeper members, the side 10 portions of said element being resiliently biased toward each other whereby to urge said brackets inwardly against the side edges of the panel, and the apex portion of said element being adapted to rest on said supporting surface at a point spaced rearwardly from the lower edge of the panel.

8

References Cited by the Examiner

UNITED STATES PATENTS

636,592	11/1899	Turner	40—152.1
656,342	8/1900	Carlton	40—155
686,601	11/1901	Frenzel	248—30
700,548	5/1902	Nelson	40—153
1,023,072	4/1912	Fleming	248—30
2,209,972	8/1940	Horwitt	40—152.1
2,357,071	8/1944	Bowden	248—29
2,540,907	2/1951	Paschal	40—153
2,661,560	12/1953	Malby	40—155

EUGENE R. CAPOZIO, *Primary Examiner.*15 JEROME SCHNALL, *Examiner.*WENCELSON J. CONTRERAS, *Assistant Examiner.*