

Sept. 18, 1934.

W. A. BOHANNON ET AL

1,974,039

AERIAL BANNER

Filed April 21, 1934

2 Sheets-Sheet 1

FIG. 1.

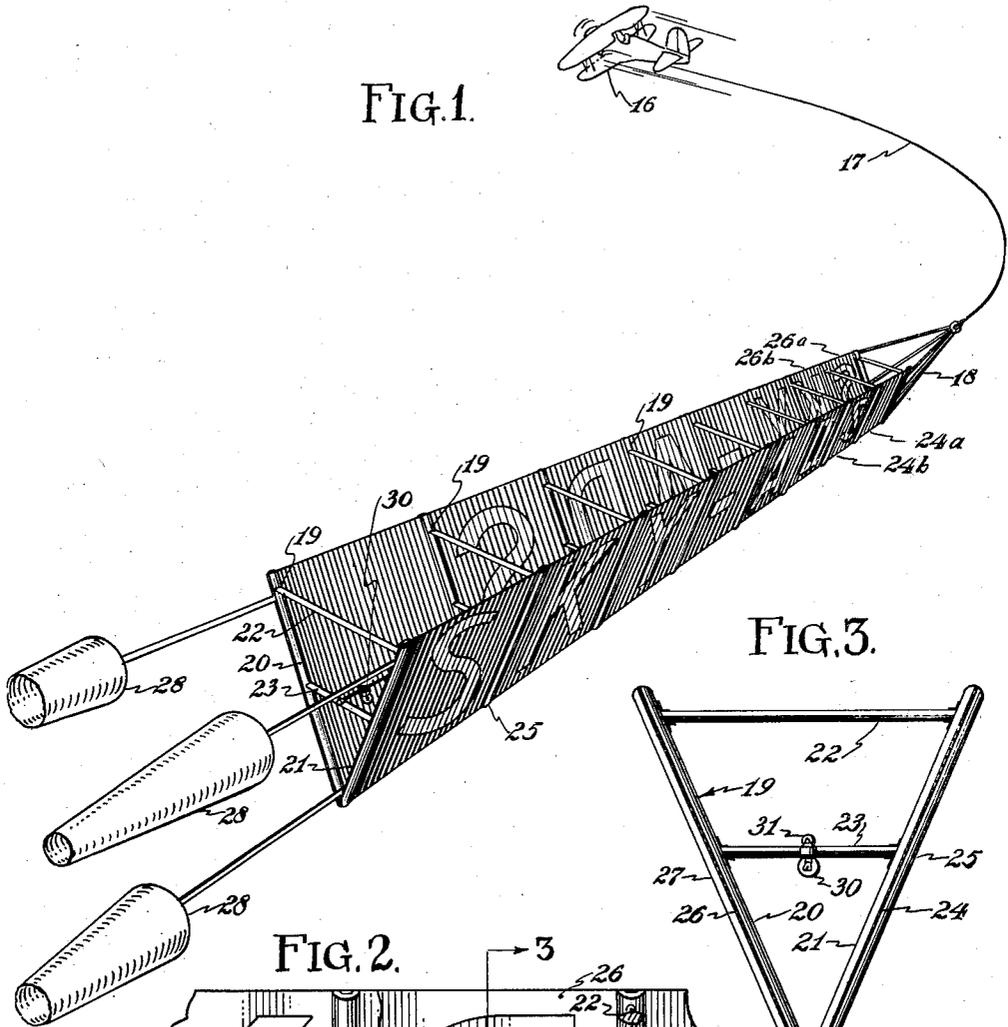


FIG. 3.

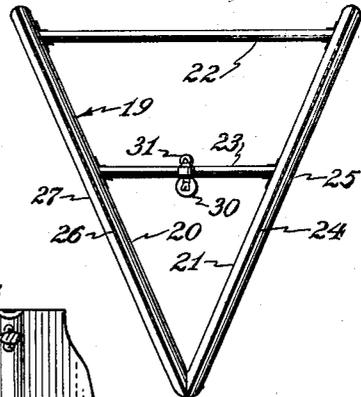
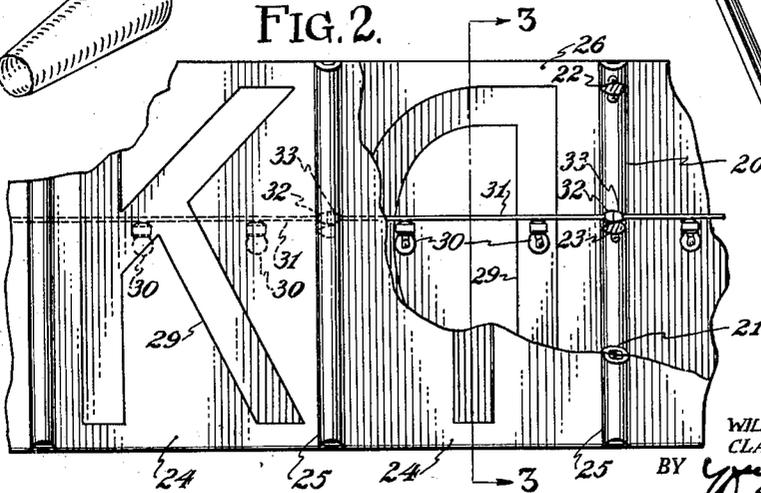


FIG. 2.



INVENTORS.
WILLIAM A. BOHANNON and
CLARA B. GILBERT.

BY *W. Stack*
ATTORNEYS.

Sept. 18, 1934.

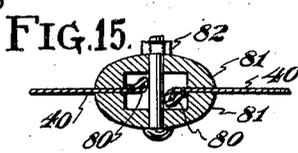
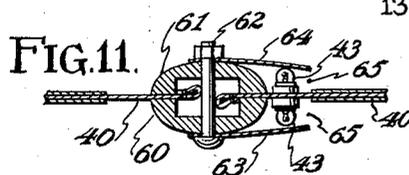
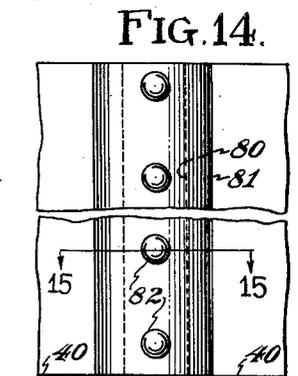
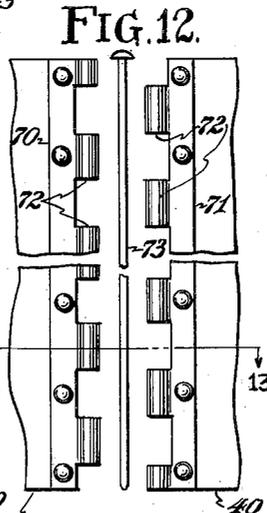
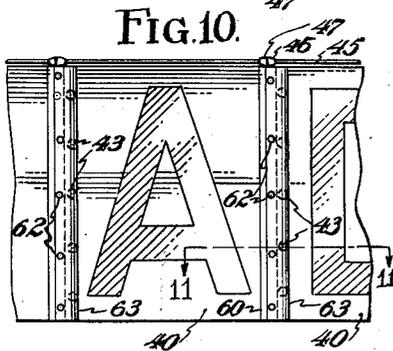
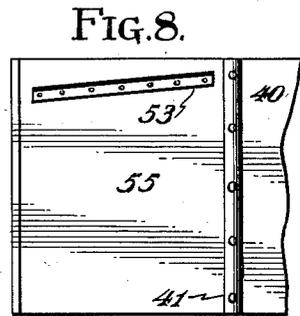
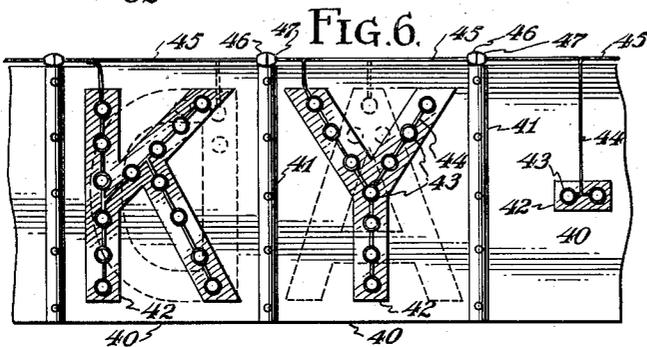
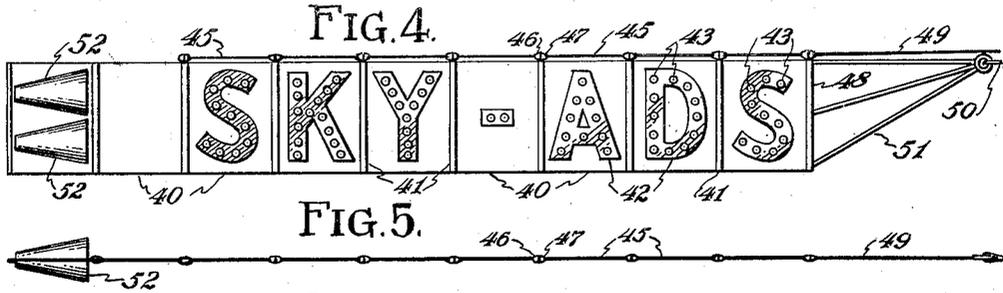
W. A. BOHANNON ET AL

1,974,039

AERIAL BANNER

Filed April 21, 1934

2 Sheets-Sheet 2



INVENTORS.
WILLIAM A. BOHANNON and
CLARA B. GILBERT.
BY *W. O. Stack*
ATTORNEYS.

UNITED STATES PATENT OFFICE

1,974,039

AERIAL BANNER

William A. Bohannon, Mineola, and Clara B. Gilbert, New York, N. Y.

Application April 21, 1934, Serial No. 721,678

13 Claims. (Cl. 40—127)

This invention relates to aerial banners of the type adapted to be drawn behind an aircraft, for carrying advertising slogans or other legends. Particularly, the invention constitutes certain improvements over our co-pending application, Serial No. 678,154, filed June 29, 1933.

An object of the invention is to provide an improved form of sign having a plurality of interchangeable panels which are joined edge to edge to form a banner of any length necessary to carry the legend desired. Each said panel carries a single symbol and, by having in stock an assortment of these symbol panels, a sign carrying any legend may readily be made up.

A further object is to provide improved means for assembling the symbol panels edge to edge, whereby they may be readily assembled and disassembled and yet, are firmly joined when in use.

Still another object is to provide an aerial banner having oppositely facing sets of panels arranged on V frames, so that each panel faces outwardly and downwardly to be more readily legible from the ground, and so that the legend appears on both sides of the banner.

Still another object is to provide an improved trailing edge stabilizer for a banner wherein a single set of panels is used, or wherein pairs of panels are placed back to back in the same plane.

An additional object is to provide means for illuminating an aerial banner for night flying, and to provide knockdown electrical cables, whereby each panel constituting the sign carries its own electrical connections which may be readily joined to adjacent panels, electrical current for illumination of the various lamps being supplied to the leading edge panel. Therefrom, the illuminating current passes rearwardly through the several separable connectors to illuminate all the lamps of the banner.

Various other objects will be appreciated in reading the annexed specification and claims, in which:

Fig. 1 is a perspective view of the V-shaped banner in operation;

Fig. 2 is a side elevation, partly broken away, of a portion of the V-shaped banner;

Fig. 3 is a section on the line 3—3 of Fig. 2;

Fig. 4 is an alternative embodiment of an aerial banner showing, diagrammatically, illuminating means therefor;

Fig. 5 is a plan of the banner of Fig. 4;

Fig. 6 is an enlarged side elevation of a portion of the banner of Fig. 4, showing in greater detail, the electrical connections for the various illuminating lamps;

Fig. 7 is a plan of that portion of the banner shown in Fig. 6;

Fig. 8 is an enlarged side elevation of the trailing portion of a banner showing means for stabilizing and lifting the rearward end of the banner;

Fig. 9 is a plan of the stabilizer and banner shown in Fig. 8;

Fig. 10 is an enlarged side elevation of a portion of a banner showing an alternative means for illuminating said banner;

Fig. 11 is a section on the line 11—11 of Fig. 10; Fig. 12 shows one means of separably joining adjacent panels of an aerial banner;

Fig. 13 is a section on the line 13—13 of Fig. 12;

Fig. 14 shows an alternative method of separably joining adjacent panels of a banner; and

Fig. 15 is a section on the line 15—15 of Fig. 14.

The V-shaped banner of this invention is illustrated in Figs. 1 to 3, and for operation includes a towing aircraft 16 from which a cable 17 extends rearwardly to a bridle 18 carried by the banner.

The banner itself comprises a plurality of transverse, V-shaped, longitudinally spaced frames 19, each frame consisting of a pair of acutely angled channel members 20 and 21 having their lower ends abutting, and having their upper ends comparatively widely spaced. The angular relationship of the channel members 20 and 21 is maintained by horizontal brace members 22 and 23

fixed to the upper and intermediate portions of said members 20 and 21. These braces 22 and 23 should be streamlined in cross section, as shown in Fig. 2, to reduce their drag during flight. The edges of sign panels 24a, 24b, etc., are placed over the longitudinally spaced members 21 and are clamped thereto by a series of external channel members 25, each member 25 lying opposite each member 21. Similarly, the edges of a plurality of sign panels 26a, 26b, etc., are placed over the several longitudinally spaced members 20, the sign panels being clamped to each member 20 by an external channel member 27. Attachment of the members 25 and 21, and of the members 20 and 27 may be readily effected by screws, bolts, rivets or the like. Broadly, the joinder of the edges of the various channels 24 and 26 may be accomplished by the means shown in the aforementioned copending application, or by the means shown in Figs. 12 and 13 or 14 and 15, which subsequently will be described in greater detail. As shown in Fig. 1, the sign panels are assembled so that when viewing the sign from the right side, the legend reads from left to right, and when viewing the sign from the left side, the legend also reads from left to right. Therefore, the

edges of sign panels 24a, 24b, etc., are placed over the longitudinally spaced members 21 and are clamped thereto by a series of external channel members 25, each member 25 lying opposite each member 21. Similarly, the edges of a plurality of sign panels 26a, 26b, etc., are placed over the several longitudinally spaced members 20, the sign panels being clamped to each member 20 by an external channel member 27. Attachment of the members 25 and 21, and of the members 20 and 27 may be readily effected by screws, bolts, rivets or the like. Broadly, the joinder of the edges of the various channels 24 and 26 may be accomplished by the means shown in the aforementioned copending application, or by the means shown in Figs. 12 and 13 or 14 and 15, which subsequently will be described in greater detail. As shown in Fig. 1, the sign panels are assembled so that when viewing the sign from the right side, the legend reads from left to right, and when viewing the sign from the left side, the legend also reads from left to right. Therefore, the

edges of sign panels 24a, 24b, etc., are placed over the longitudinally spaced members 21 and are clamped thereto by a series of external channel members 25, each member 25 lying opposite each member 21. Similarly, the edges of a plurality of sign panels 26a, 26b, etc., are placed over the several longitudinally spaced members 20, the sign panels being clamped to each member 20 by an external channel member 27. Attachment of the members 25 and 21, and of the members 20 and 27 may be readily effected by screws, bolts, rivets or the like. Broadly, the joinder of the edges of the various channels 24 and 26 may be accomplished by the means shown in the aforementioned copending application, or by the means shown in Figs. 12 and 13 or 14 and 15, which subsequently will be described in greater detail. As shown in Fig. 1, the sign panels are assembled so that when viewing the sign from the right side, the legend reads from left to right, and when viewing the sign from the left side, the legend also reads from left to right. Therefore, the

edges of sign panels 24a, 24b, etc., are placed over the longitudinally spaced members 21 and are clamped thereto by a series of external channel members 25, each member 25 lying opposite each member 21. Similarly, the edges of a plurality of sign panels 26a, 26b, etc., are placed over the several longitudinally spaced members 20, the sign panels being clamped to each member 20 by an external channel member 27. Attachment of the members 25 and 21, and of the members 20 and 27 may be readily effected by screws, bolts, rivets or the like. Broadly, the joinder of the edges of the various channels 24 and 26 may be accomplished by the means shown in the aforementioned copending application, or by the means shown in Figs. 12 and 13 or 14 and 15, which subsequently will be described in greater detail. As shown in Fig. 1, the sign panels are assembled so that when viewing the sign from the right side, the legend reads from left to right, and when viewing the sign from the left side, the legend also reads from left to right. Therefore, the

edges of sign panels 24a, 24b, etc., are placed over the longitudinally spaced members 21 and are clamped thereto by a series of external channel members 25, each member 25 lying opposite each member 21. Similarly, the edges of a plurality of sign panels 26a, 26b, etc., are placed over the several longitudinally spaced members 20, the sign panels being clamped to each member 20 by an external channel member 27. Attachment of the members 25 and 21, and of the members 20 and 27 may be readily effected by screws, bolts, rivets or the like. Broadly, the joinder of the edges of the various channels 24 and 26 may be accomplished by the means shown in the aforementioned copending application, or by the means shown in Figs. 12 and 13 or 14 and 15, which subsequently will be described in greater detail. As shown in Fig. 1, the sign panels are assembled so that when viewing the sign from the right side, the legend reads from left to right, and when viewing the sign from the left side, the legend also reads from left to right. Therefore, the

edges of sign panels 24a, 24b, etc., are placed over the longitudinally spaced members 21 and are clamped thereto by a series of external channel members 25, each member 25 lying opposite each member 21. Similarly, the edges of a plurality of sign panels 26a, 26b, etc., are placed over the several longitudinally spaced members 20, the sign panels being clamped to each member 20 by an external channel member 27. Attachment of the members 25 and 21, and of the members 20 and 27 may be readily effected by screws, bolts, rivets or the like. Broadly, the joinder of the edges of the various channels 24 and 26 may be accomplished by the means shown in the aforementioned copending application, or by the means shown in Figs. 12 and 13 or 14 and 15, which subsequently will be described in greater detail. As shown in Fig. 1, the sign panels are assembled so that when viewing the sign from the right side, the legend reads from left to right, and when viewing the sign from the left side, the legend also reads from left to right. Therefore, the

edges of sign panels 24a, 24b, etc., are placed over the longitudinally spaced members 21 and are clamped thereto by a series of external channel members 25, each member 25 lying opposite each member 21. Similarly, the edges of a plurality of sign panels 26a, 26b, etc., are placed over the several longitudinally spaced members 20, the sign panels being clamped to each member 20 by an external channel member 27. Attachment of the members 25 and 21, and of the members 20 and 27 may be readily effected by screws, bolts, rivets or the like. Broadly, the joinder of the edges of the various channels 24 and 26 may be accomplished by the means shown in the aforementioned copending application, or by the means shown in Figs. 12 and 13 or 14 and 15, which subsequently will be described in greater detail. As shown in Fig. 1, the sign panels are assembled so that when viewing the sign from the right side, the legend reads from left to right, and when viewing the sign from the left side, the legend also reads from left to right. Therefore, the

edges of sign panels 24a, 24b, etc., are placed over the longitudinally spaced members 21 and are clamped thereto by a series of external channel members 25, each member 25 lying opposite each member 21. Similarly, the edges of a plurality of sign panels 26a, 26b, etc., are placed over the several longitudinally spaced members 20, the sign panels being clamped to each member 20 by an external channel member 27. Attachment of the members 25 and 21, and of the members 20 and 27 may be readily effected by screws, bolts, rivets or the like. Broadly, the joinder of the edges of the various channels 24 and 26 may be accomplished by the means shown in the aforementioned copending application, or by the means shown in Figs. 12 and 13 or 14 and 15, which subsequently will be described in greater detail. As shown in Fig. 1, the sign panels are assembled so that when viewing the sign from the right side, the legend reads from left to right, and when viewing the sign from the left side, the legend also reads from left to right. Therefore, the

edges of sign panels 24a, 24b, etc., are placed over the longitudinally spaced members 21 and are clamped thereto by a series of external channel members 25, each member 25 lying opposite each member 21. Similarly, the edges of a plurality of sign panels 26a, 26b, etc., are placed over the several longitudinally spaced members 20, the sign panels being clamped to each member 20 by an external channel member 27. Attachment of the members 25 and 21, and of the members 20 and 27 may be readily effected by screws, bolts, rivets or the like. Broadly, the joinder of the edges of the various channels 24 and 26 may be accomplished by the means shown in the aforementioned copending application, or by the means shown in Figs. 12 and 13 or 14 and 15, which subsequently will be described in greater detail. As shown in Fig. 1, the sign panels are assembled so that when viewing the sign from the right side, the legend reads from left to right, and when viewing the sign from the left side, the legend also reads from left to right. Therefore, the

edges of sign panels 24a, 24b, etc., are placed over the longitudinally spaced members 21 and are clamped thereto by a series of external channel members 25, each member 25 lying opposite each member 21. Similarly, the edges of a plurality of sign panels 26a, 26b, etc., are placed over the several longitudinally spaced members 20, the sign panels being clamped to each member 20 by an external channel member 27. Attachment of the members 25 and 21, and of the members 20 and 27 may be readily effected by screws, bolts, rivets or the like. Broadly, the joinder of the edges of the various channels 24 and 26 may be accomplished by the means shown in the aforementioned copending application, or by the means shown in Figs. 12 and 13 or 14 and 15, which subsequently will be described in greater detail. As shown in Fig. 1, the sign panels are assembled so that when viewing the sign from the right side, the legend reads from left to right, and when viewing the sign from the left side, the legend also reads from left to right. Therefore, the

beginning of the legend is started from the rear of the banner on the right side, and from the front of the banner on the left side. Each panel 24 and 26 is substantially identical in size and conformation, so that the panels may be assembled to form any desired legend without requiring the fabrication of a new series of panels. To the most rearward frame 19 are attached one or more wind sacks 23 to form a drag whereby the banner, in flight, is held extended, and whereby flutter at the rearward end of the banner is minimized.

By forming the several panels 24 and 26 of a more or less translucent material, and by forming the letters or other indicia 29 with opaque paint, the letters may readily be illuminated by placing a series of electric lamps 30 between the two sides of the banner. Conversely, the indicia 29 may be translucent and the background for each panel may be opaque. The lamps 30 are carried by a short section of cable 31, of a length corresponding to the width of each panel 24 or 26. One element 32 of a separable connector forms the terminus for the forward end of each cable 31, and the other element of a separable connector 33 forms the rear terminus of each cable 31. Preferably, the forward connector 32 is fixed to the cross member 23 of each frame 19, while the rearward connector 33 is loose. Thus, when the sign is assembled, the connector 33 of each panel assembly may be snapped into the connector 32 of the next rearward panel assembly, whereby a continuous trunk cable is provided from the front to the rear of the banner, and the electric current necessary for each lamp is continuously provided from the front to the rear of the banner. The connectors 32 and 33 may be of any well known type suitable for this purpose, and should preferably be organized so that they may be locked together to prevent inadvertent separation thereof in flight. By attaching each connector 32 to the member 23 of each frame, the drag occasioned by the cable and the attached lamps is assumed by each frame, so that no undue drag or tensile stress is imposed upon the cable.

A banner constructed in accordance with the above description is very stable in flight, since the outer surfaces of the several panels 24 and 26 form a sort of an airfoil which tends to maintain the banner in a stable upright position. In addition, the V-shaped arrangement of the panels affords a considerable degree of lift, whereby towing is made easier, the towing force only balancing the drag of the banner. The angle of the V may be acute or obtuse, as may best suit the degree of lift desired. The top of the V may be closed by a top panel if desired. Since the air stream passes both inside and outside of the banner, and since the frames 19 form frequent transverse braces for the flexible panels, rippling or flutter of the panels in flight is minimized.

The usual procedure in taking off with an aerial banner is to lay the banner on the ground with the trailing edge in the direction of take-off. As the aircraft takes off, the aircraft gradually picks up the forward edge of the banner and curls the banner into a trailing position behind the aircraft. With this banner, the conventional method may readily be accomplished, since the flexible panels 24 and 26 will readily permit the banner to curl into a trailing position behind the craft.

The usual method of landing with a banner of this type is to release the cable at the airplane over the airport, and to allow the banner to drop to the ground. This method, likewise, may read-

ily be followed with a banner of this type and, by the organization of the lamps between the frames 19, lamp breakage, when the banner is dropped, is minimized, since these lamps are flexibly suspended upon the frames.

Now referring to Figs. 4 to 7, inclusive, a plurality of consecutive panels 40 are shown, joined edge to edge by cross members 41, either according to the method outlined in said co-pending application, or according to the methods shown in Figs. 12 to 15. The conformation of the indicia 42 is followed by a series of electric lamps 43 being connected in parallel by wiring 44, which wiring is spliced into a cable section 45 of a length substantially equal to the width of each panel 40. As in the V sign previously described, each cable 45 is provided with separable connectors 46 and 47 at its forward and rearward ends, respectively, which connectors are organized to mate with the next adjacent connector of the next adjacent panel upon assembly of the banner. The plurality of longitudinally connected cables 45 extends from the leading edge 48 of the banner rearwardly to the last symbol of the banner, and the most forward cable 45 is then connected to a supply cable 49 leading to the aircraft in which current supply equipment is installed. The cable 49 will be preferably tied at intervals to the tow cable 50, the tow cable being attached to a suitable bridle 51 carried by the cross bracing at the leading edge 48 of the banner.

A banner of the type being described is preferably made up of similar symbol panels 40 placed back to back and so organized that the sign may be read from both sides, the cross members joining the edges of the adjacent panels serving to clamp both the right and left panels to each other and to the next adjacent pair of panels. The lamps 43, being carried on each single panel, form a unit which may be readily assembled with the balance of the panels, and the lamp inter-connecting wires 44 for each side of the panel may be readily spliced into the supply cables 45 running longitudinally along the upper edge of each panel pair. By the construction above outlined, an aerial banner is provided for night flying, whereby the sign may be read from either side, and whereby the proper illumination for both sides of the sign is attained.

In Figs. 4 and 5 are shown split wind sacks 52 carried by the trailing edge panel to form a drag for holding the banner from fluttering in the wind stream. Figs. 8 and 9 show an alternative form of trailing edge device for stabilizing the banner, and for effecting a certain amount of lift thereon. Such stabilizer comprises a pair of oppositely facing fins 53 and 54 attached to each other as by rivets with the trailing panel 55 between them. The fins are arranged at a slightly positive angle of incidence with respect to the longitudinal axis of the banner, so that the air striking the under surface of the fins tends to lift the rearward portion of the banner. If necessary, the arrangement of the fins 53 and 54 may be combined with wind sacks such as 52.

Figs. 10 and 11 show an alternative method for illuminating the sign panels. In this form, the relatively rigid cross braces 60 and 61 embrace the adjacent edges of panels 40, and are clamped together as by bolts 62. A rearwardly extending shield 63, preferably of sheet metal, extends from bottom to top of the cross brace 60, and a similar shield 64 extends from bottom to top of the cross brace 61. Thereby, pockets 65

are formed between the panel 40, the shields 63 and 64, and the cross braces 60 and 61. In each pocket, lamps 43 may be arranged, several such lamps being spaced throughout the length of the pockets. Electric current for lighting these lamps may be provided by the same means as previously outlined. The illuminating rays from the shields 63 and 64 to illuminate both sides of the panel immediately rearward thereof. As each panel is illuminated by a separate set of lamps, adequate illumination is maintained.

Figs. 12 and 13 show an alternative method for joining adjacent panels 40 of a banner of the type described. In this arrangement, metallic strips 70 and 71 are attached as by riveting to the panel edges, these strips 70 and 71 being formed with a plurality of spaced hollow beads 72 in such manner that the beads on the strip 70 engage within the inter-bead spaces of the strip 71. The hollows of the beads are thereby aligned, and a mandrel 73 is inserted through the succession of hollow beads. The mandrel then retains the adjacent panels and the strips 70 and 71 form relatively rigid cross braces to hold the panels to their full width.

Figs. 14 and 15 show an alternative method of attaching the edges of adjacent panels 40. Each panel edge is formed with a seam 80 of substantial thickness. Channel members 81, extending the full width of the panels, are oppositely located against the panel edges, the open sides of the channels embracing the seams 80 of the adjacent panel edges. The channels 81 may then be clamped to each other by means of a plurality of spaced through bolts 82 which are clamped against the channels to hold them and the panels in fixed relationship. The seams 80 within the channel openings prevent the panels from pulling out from between the channels. Obviously, if two panels 40 are to be placed back to back so that the banner may be read from both sides, the beads of the back to back panels will both lie within the openings of the channels 81. The channels themselves may be formed of elliptical shape exteriorly to reduce the aerodynamic drag occasioned by their projection into the wind stream. By their channel conformation, a considerable degree of strength and stiffness is given them.

It is apparent that the foregoing details of construction or illumination may be readily incorporated in any banner wherein a plurality of separable panels are arranged in edge to edge relationship. The fastening means shown in Figs. 12 and 13, or in Figs. 14 and 15 may be incorporated in the banner shown in Figs. 1 to 3, or in the banner shown in Figs. 4 to 7. Likewise, the method of illumination shown in Figs. 10 and 11 may be incorporated in either banner, the method of illumination shown in Figs. 4 to 7 may be incorporated in either banner, and the trailing edge stabilizer shown in Figs. 8 and 9 may be incorporated in either banner.

While we have described our invention in detail in its present preferred embodiment, it will be obvious to those skilled in the art, after understanding our invention, that various changes and modifications may be made therein without departing from the spirit or scope thereof. We aim in the appended claims to cover all such modifications and changes.

What is claimed is:

1. In an aerial banner adapted to be towed, in combination, a succession of panels having sym-

bolts thereon, said panels being separably attached at their forward edges to the rearward edges of adjacent panels, electrical illuminating devices carried by each panel, conductors connected to said devices and extending to the forward and rearward edges of each panel, and separable connector elements forming the terminal for each said conductor at each edge of said panel, the forward connector element of one panel being engageable with the rearward connector element of the adjacent panel upon attachment of the corresponding forward and rearward edges of said panels.

2. In an illuminated aerial banner adapted to be towed, in combination, a plurality of separable symbol carrying elements each provided with a source of light, said symbol carrying elements being fastened one to another edge to edge to trail in the air stream during flight, a length of electrical cable carried by each element from which wires lead to the individual illuminating devices on each said element, and means for successively separably joining said cables one to another upon assembly of said symbol carrying elements.

3. In a knockdown aerial banner, a plurality of separately formed generally similar panels having reinforced fore and aft edges, said panels being interchangeable as to position and adapted, when assembled, to trail in the air stream one behind the other, with the edges of adjacent panels attached one to the other, electric lamps carried by each said panel for the illumination thereof, a cable extending lengthwise each said panel to which the lamps of the panel are connected, and means carried at the ends of each cable for separably connecting each said cable end to the cable end of the next adjacent panel.

4. An illuminated knockdown aerial banner comprising a plurality of substantially similar unit panels detachably joined edge to edge and adapted, when assembled, to trail in the air stream one behind the other, each unit panel including electric lamps for the illumination thereof and cables for distribution of lighting current, certain of said cables terminating adjacent to the forward and rearward edges of said panel for joinder to the corresponding cables of adjacent unit panels when said panels are assembled.

5. In an aerial banner comprising a plurality of symbol carrying panels joined edge to edge, spaced hollow beads formed at the forward and rearward edges of each said panel, the beads at the forward edge of each panel being adapted to engage the inter-bead spaces at the rearward edge of the next adjacent panel, and a mandrel insertable within the hollows of the inter-engaging beads for holding said panels one to the other.

6. In an aerial banner comprising a succession of generally similar panels joined edge to edge, each said panel having a bead along its forward and rearward edge, means for joining successive panels comprising a pair of opposed channel-shaped members having their open sides facing inwardly, one said forward panel bead and one said rearward panel bead lying within said opening and the corresponding panels extending forwardly and rearwardly from the channel flanges, and means for clamping said channel members to each other whereby said panels are firmly joined at their edges.

7. In an aerial banner comprising a plurality of substantially similar panels joined edge to edge, cross members overlapping the edges of ad-

5 adjacent panels on each side thereof, light shields extending rearwardly from said cross members in laterally spaced relation to that panel which extends rearwardly from said cross members, and lamps for illuminating said rearwardly extending panel interposed between said panel and said light shields.

8. In an aerial sign, a plurality of substantially triangular frames in longitudinally spaced parallel relation, the apex of each frame pointing downwardly, and a plurality of symbol carrying panels each joined at its forward and rearward edge to the sides of successive said frames adjacent said downwardly pointing apices.

9. In an aerial sign, a plurality of substantially triangular frames in longitudinally spaced parallel relation, the apex of each frame pointing downwardly, a plurality of symbol carrying panels each joined at its forward and rearward edge to the sides of successive said frames adjacent said downwardly pointing apices, electrical illuminating means for said panels, a cable for supplying electrical energy to said means, between each pair of successive frames, and separable connectors carried at each end of each said cable for joining the successive cables.

10. An aerial banner adapted to be towed comprising two sets of generally similar panels, the panels of each set being separably connected to the edges of the next adjacent panels to trail, when assembled, one behind the other during flight, and the sets being so disposed with relation to each other that the lower edges of the panels forming one set lie adjacent the lower edges of the panels forming the other set, and the upper edges of the respective sets of panels are well spaced from each other, whereby each set of panels faces downwardly and outwardly at a dihedral angle such that lift is obtained by the towing of the banner through the air.

11. An aerial banner, comprising two sets of generally similar panels, the panels of each set being separably connected to the edges of the next adjacent panels, and the sets being so disposed with relation to each other that the lower edges of the panels forming one set lie adjacent the lower edges of the panels forming the other set, and the upper edges of the respective sets of panels are well spaced from each other, whereby each set of panels faces downwardly and outwardly at a dihedral angle such that lift is obtained by the towing of the banner through the air.

12. In an aerial banner adapted to be towed, a plurality of longitudinally spaced angled frames each comprising a pair of substantially similar strips spaced at their upper ends and joined at their lower ends, and a plurality of substantially similar sign panels, each being attached at its forward edge to one said strip and at its rearward edge to the next successive strip, said banner, when assembled, being substantially V-shaped in cross section, with its apex directed downwardly, whereby lift is obtained in towing the banner through the air.

13. In an aerial display banner adapted to be towed through the air comprising a pair of relatively long and narrow strips arranged as a V in cross section, with the apex of the V pointing downwardly, said strips, as the banner is towed, being adapted to produce a substantial lift by the reaction of the air on said strips, substantially V-shaped bracing members spaced longitudinally along the banner and to which said strips are attached, said strips, upon their outwardly and downwardly facing outer surfaces having indicated thereon a sign or other symbol adapted for display, and a towing harness for said banner fastened thereto at one end only and to which the towing stresses are applied.

WILLIAM A. BOHANNON.
CLARA B. GILBERT.

80

85

90

95

100

105

110

115

120

125

130

135

140

145

150