

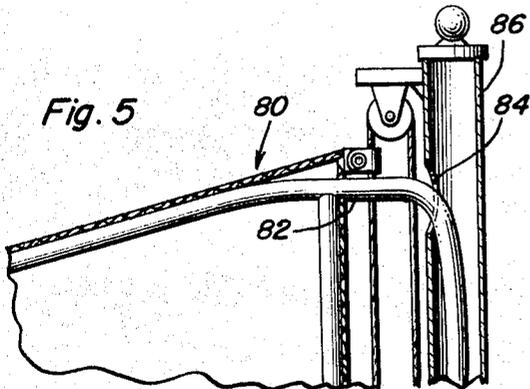
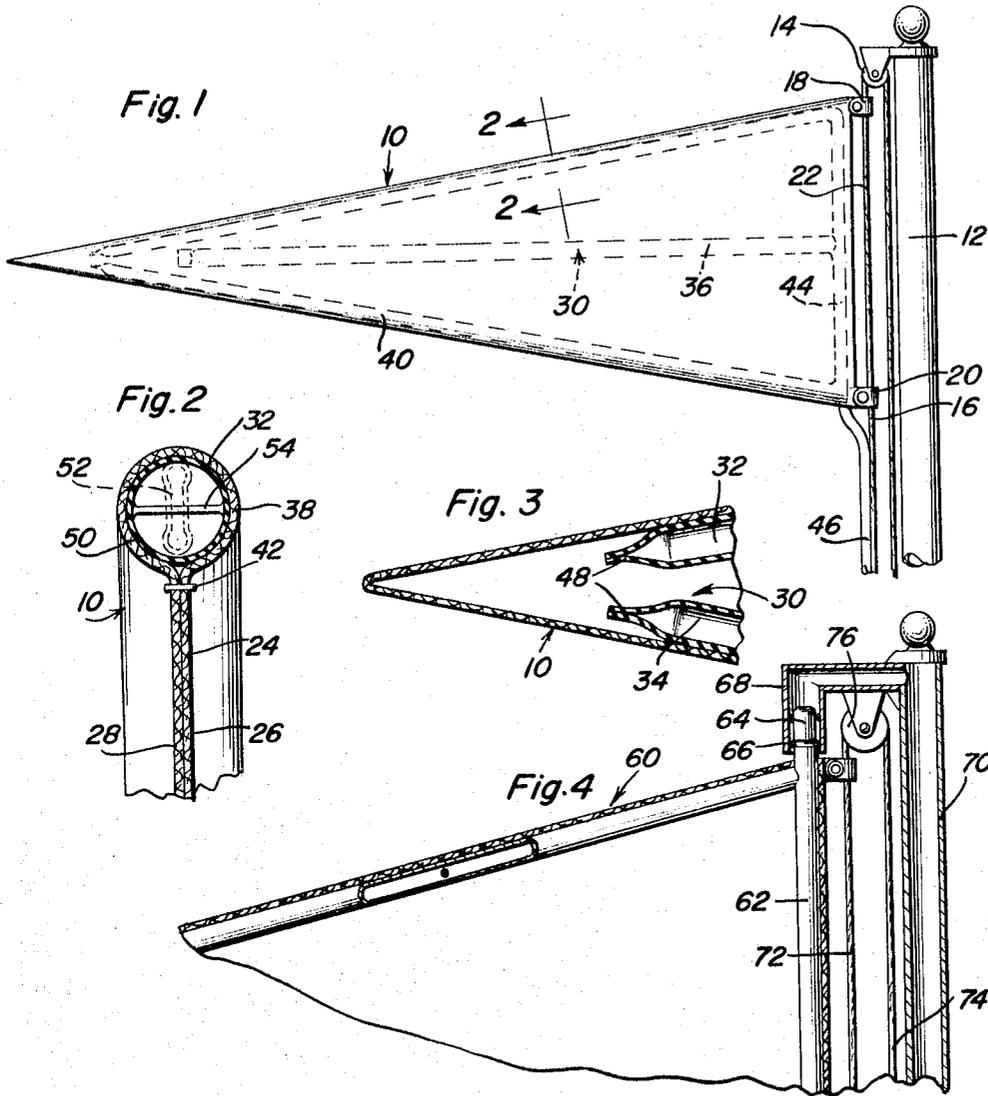
Aug. 16, 1966

A. A. AHLQUIST

3,266,458

FLAG AND BANNER SUPPORT WITH COMPRESSED AIR OUTLET MEANS

Filed Nov. 26, 1965



Alfred A. Ahlquist
INVENTOR.

BY *Alfonso A. O'Brien*
and *Harvey B. Jacobson*
Attorneys

1

3,266,458

FLAG AND BANNER SUPPORT WITH COMPRESSED AIR OUTLET MEANS

Alfred A. Ahlquist, Box 85, Miles City, Mont.

Filed Nov. 26, 1965, Ser. No. 509,720

10 Claims. (Cl. 116—173)

This invention relates to a novel and useful flag and banner support with compressed air outlet means and more specifically to a flag or banner assembly including compressed air passage and outlet means operative in a manner to cause the flag or banner portion thereof to wave in still air as though it is being blown by wind.

The flag or banner assembly of the instant invention includes flexible air passage means which are generally horizontally disposed and which include inlet ends adjacent the end of the banner which is to be secured to a flagstaff or the like and valved outlet means at the outer ends thereof adapted to sequentially vary the air pressure within the air passage means although air under pressure is supplied to the air passage means at a constant rate. In addition, the air passage means further include portions thereof which restrict the passage of air therethrough and which are constructed in a manner so as to induce curling or folding of the associated flag or banner at those locations.

The flag or banner assembly of the instant invention may be operatively communicated with a suitable source of air under pressure either by means of a flexible air line extending along the rope on which the flag or banner is secured, by means of a special air outlet at the top of the associated flagstaff or pole with which the flag or banner assembly of the instant invention is operatively connected automatically upon raising the flag or banner, or by means of a flexible air supply conduit extending downwardly through the center of the associated flagstaff or pole.

The main object of this invention is to provide a flag or banner assembly including compressed air passage means and valve means for the air passages operable to cause the flag or banner assembly to curl or wave in still air as though it were being acted upon by wind.

Another object of this invention is to provide a flagstaff or pole for the flag or banner assembly of the instant invention adapted to provide means for operatively communicating the air passages of the flag and banner assembly with a suitable source of compressed air.

A still further object of this invention is to provide a flag and banner assembly including means for causing the assembly to wave as though acted upon by the wind and by means of operations supported by a source of air under pressure but not utilized to blow one or more jets of air over the flag or banner assembly itself.

A final object of this invention is to provide an apparatus enumerated herein is to provide an apparatus in accordance with the preceding objects and which will conform to conventional forms of manufacture, be of simple construction and easy to use so as to provide a device that will be economically feasible, long lasting and relatively trouble free in operation.

These together with other objects and advantages which will become subsequently apparent reside in the details of construction and operation as more fully hereinafter described and claimed, reference being had to the accompanying drawings forming a part hereof, wherein like numerals refer to like parts throughout, and in which:

FIGURE 1 is a side elevational view of one form of flag or banner assembly of the instant invention shown operatively supported from a flagstaff or pole;

FIGURE 2 is an enlarged fragmentary vertical sectional view taken substantially upon the plane indicated by the section line 2—2 of FIGURE 1;

FIGURE 3 is an enlarged fragmentary vertical sectional view of the free end portion of the flag or banner

2

illustrated in FIGURE 1 and taken substantially upon a plane passing through the medial plane of the flag or banner;

FIGURE 4 is a fragmentary enlarged vertical sectional view of a modified form of flag or banner illustrating the manner in which it may be automatically removably operatively communicated with a suitable source of air under pressure upon raising the flag or banner to the top of the associated flagstaff or pole; and

FIGURE 5 is a fragmentary vertical sectional view similar to that of FIGURE 4 but illustrating a still further modified form of flag and flagstaff therefor.

Referring now more specifically to the drawings, the numeral 10 generally designates a flag-like banner constructed in accordance with the present invention. The banner 10 is shown in FIGURE 1 of the drawings as supported from the top of a flagpole or staff 12. The staff 12 has a pulley 14 journaled at its upper end over which a length of flexible rope or line 16 is passed. The flag or banner 10 includes a pair of releasable clamp assemblies 18 and 20 which clampingly secure the banner 10 to one reach 22 of the line 16.

As can best be seen from FIGURES 2 and 3 of the drawings the banner 10 comprises a flexible panel-like member 24 which is generally triangular in shape and which includes a pair of flexible panel elements 26 and 28 joined together along corresponding marginal edge portions.

A compressed air handling tube assembly generally referred to by the reference numeral 30 is provided and includes upper and lower tube sections 32 and 34 and a center tube section 36. The tube sections 32 and 34 are secured in hems 38 and 40 formed in the upper and lower marginal edge portions of the banner 10 by means of stitching 42 and each of the tube sections 32 includes an inlet end communicated with a header tube 44 secured in one upstanding marginal edge portion of the banner 10 in a similar manner. Additionally, the tube section 36 substantially bisects the angle formed by the tube sections 32 and 34 and may be secured between the panel elements or sections 26 and 28 in any convenient manner. Still further, one end of the tube section 36 is also in communication with the header tube 44.

The header tube 44 includes a section 46 thereof which projects from the lower marginal edge portion of the banner 10 and extends down along the reach 22 of the line 16. The ends of the tube sections 32, 34 and 36 remote from the header tube section 44 are each provided with line pressure and airflow responsive outlet valves 48 which comprise merely flattened end portions of the tube sections 32, 34 and 36 constructed of resilient material so as to be yieldingly urged toward closed positions. In addition, each of the tube sections 32, 34 and 36 is provided with a normally constricted and flattened zone 50 centrally disposed intermediate its opposite ends and each zone 50 is normally flattened and vertically elongated in cross-sectional shape as indicated in phantom lines in FIGURE 2 of the drawings as at 52 with an integral and elastic brace member 54 extending between opposite side portions of each zone 50. Although each of the tube sections 32, 34 and 36 may be provided with a zone 50, if it is desired, only one of the tube sections may be formed with a zone 50.

With reference now more specifically to FIGURE 4 of the drawings there will be seen a modified form of banner generally referred to by the reference numeral 60 which comprises a substantial duplicate of the banner 10 except that the header tube section 62 of the banner 60 does not extend downwardly from the latter but includes an upwardly projecting neck portion 64 including a suitable O-ring seal 66 and which is removably telescopically engageable in a downwardly opening com-

pressed air outlet pipe 68 carried by the tubular associated flagstaff 70 and communicated with the interior thereof.

Of course, the lower end of the staff 70 is adapted to be communicated with a suitable source of air under pressure and the banner 60 is removably secured to one reach 72 of a line 74 which passes over a pulley wheel 76 similar to the pulley 14. Further, the outlet pipe or neck 68 may be flared at its lower end portion so as to function to properly align the neck 64 therewith when the banner 60 is raised.

With attention now invited to FIGURE 5 of the drawings there will be seen still another modified form of banner generally referred to by the reference numeral 80 and which is quite similar to the banner 60 except that instead of the neck portion 64 on the banner 60 the banner 80 is provided with a flexible elongated neck portion 82 which is slidably received in the tubular staff 86 and through an opening 84 formed in the staff 86 with its end remote from the banner 80 being adapted in any convenient manner to be operatively connected to a suitable source of air under pressure.

In operation, each of the banners 10, 60 and 80 operates in substantially the same manner. The compressed air tube means of each banner may be operatively associated with a suitable source of air under pressure and as pressure builds up in the individual tube sections of the banners the banners will be raised to horizontally straightened positions such as that illustrated in FIGURE 1 of the drawings. Then, when the air pressure within the tube means reaches a predetermined maximum, the line pressure and flow responsive valves 48 will open thereby reducing the pressure within the tube means of the banners and allowing the weakened or flattened zones 50 to assume their flattened states such as that illustrated in FIGURE 2 of the drawings in phantom lines. At this point, the banners will fold or flap to one side or the other and the line pressure and flow responsive valves 48 will remain open until such time as a predetermined minimum air pressure is realized within the tube means. Then, the line pressure and flow responsive valves 48 will close and the air pressure within the tube means of the banners 10, 60 and 80 will begin to build up. As soon as the air pressure reaches a given level, each weakened zone 50 will be expanded into the stronger cylindrical cross-sectional shape thereof illustrated in solid lines in FIGURE 2 of the drawings and the resultant rigidifying effect of the compressed air within the various tube members or sections will cause the associated banners 10, 60 and 80 to be raised into the horizontally disposed positions illustrated in FIGURES 1, 4 and 5. Of course, as soon as the buildup of air pressure within the various tube sections of the banners 10, 60 and 80 has again reached the predetermined maximum, the line pressure and flow responsive valves 48 will again open so as to allow the various tube sections to collapse in the zones 50 and to again cause the banners 10, 60 and 80 to give the illusion of waving in the breeze.

The suitable source of air under pressure with which the various tube sections of the banners 10, 60 and 80 are communicated may be of the type including gradually fluctuating air pressure and accordingly, the folding and waving action of the banners 10, 60 and 80 may be further enhanced. In addition, it is to be understood that the source of air under pressure with which the banners 10, 60 and 80 are communicated is metered in order that the flow of air outwardly of the line pressure and flow responsive valves 48 will be greater than the inlet of compressed air into the various tube sections when the line pressure and flow responsive valves 48 are open.

The foregoing is considered as illustrative only of the principles of the invention. Further, since numerous modifications and changes will readily occur to those skilled in the art, it is not desired to limit the invention to the exact construction and operation shown and described, and accordingly all suitable modifications and

equivalents may be resorted to, falling within the scope of the invention as claimed.

What is claimed as new is as follows:

1. In combination with a horizontally elongated flag-like banner of flexible material including one side edge portion adapted to be secured to a support such as a flagpole or staff and a free remote edge portion, elongated tube means secured to and extending along said banner from said one side edge portion toward said free remote edge portion, a first end of said tube means adjacent said one side edge portion being adapted to be communicated with a source of air under pressure, the other end portion of said tube means including normally closed pressure and flow responsive outlet valve means, said tube means being semi-rigid but flexible and sufficiently rigid to maintain said banner in a generally horizontal position when supported from said one side edge portion only when the pressure of the air in said tube means is at a predetermined minimum, said valve means being operable to open and vent said tube means to the ambient atmosphere in response to an increase of air pressure within said tube means above said predetermined minimum and to maintain said tube means vented to the ambient atmosphere until the air pressure within said tube means drops to a pressure below said predetermined minimum.

2. The combination of claim 1 wherein said tube means includes at least one portion spaced somewhat centrally intermediate said one side edge portion and said remote side edge portion normally restricted in cross-sectional area and defining a structurally weakened bending zone adapted to form the initial bend in said tube means when the air pressure within said tube means drops below said predetermined minimum.

3. The combination of claim 2 wherein said one portion of said tube means is normally elongated in cross-sectional shape in a direction generally paralleling the medial plane of said banner so that said banner will, when disposed in an upright position and said pressure drops below said predetermined minimum, tend to fold to one side of said medial plane or the other.

4. The combination of claim 1 wherein said tube means comprises a plurality of valved tube members extending from said one side edge portion toward said remote side edge portion operatively communicated at the end portions thereof adjacent said one side edge portion.

5. The combination of claim 4 wherein said tube means includes at least one portion spaced somewhat centrally intermediate said one side edge portion and said remote side edge portion normally restricted in cross-sectional area and defining a structurally weakened bending zone adapted to form the initial bend in said tube means when the air pressure within said tube means drops below said predetermined minimum.

6. The combination of claim 5 wherein said one portion of said tube means is normally elongated in cross-sectional shape in a direction generally paralleling the medial plane of said banner so that said banner will, when disposed in an upright position and said pressure drops below said predetermined minimum, tend to fold to one side of said medial plane or the other.

7. The combination of claim 1 wherein said other end portion of said tube means includes a section thereof which is flattened and normally closed by the resiliency of said section and comprises said pressure and flow responsive outlet valve means.

8. The combination of claim 1 including a flagstaff up which said banner is adapted to be raised, said flagstaff including downwardly opening compressed air supply outlet means, said banner being mounted on said staff for up-and-down movement therealong and including upwardly opening compressed air inlet means with which said one end of said tube means is communicated and which is releasably engageable with said outlet means when said banner is raised on said staff.

9. The combination of claim 1 including a flagstaff up which said banner is adapted to be raised, said banner

5

being mounted on said staff for up-and-down movement therealong, said one end portion of said tube means terminating in a length of flexible tubing extending down said staff.

10. The combination of claim 1 including a flagstaff up which said banner is adapted to be raised, said banner being mounted on said staff for up-and-down movement therealong, said staff being tubular and including an open-

6

ing in its upper end opening laterally thereof, said one end portion of said tube means terminating in a length of flexible tubing slidably received through said opening and slidable in said staff.

No references cited.

LOUIS J. CAPOZI, *Primary Examiner.*