Jan. 15, 1963 T. C. JONES 3,073,047

ANIMATED SIGN

Filed Nov. 7, 1960

Fig. 1.

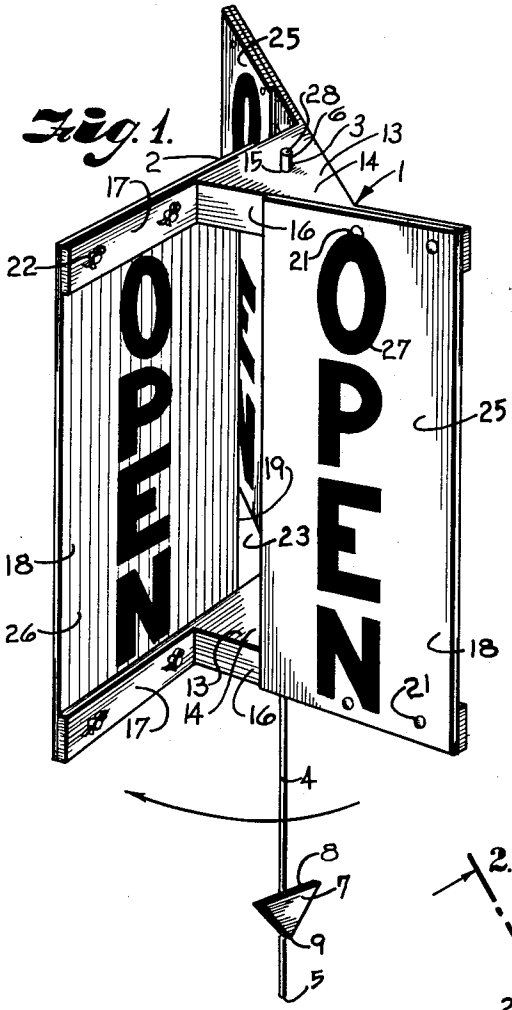


Fig. 2.

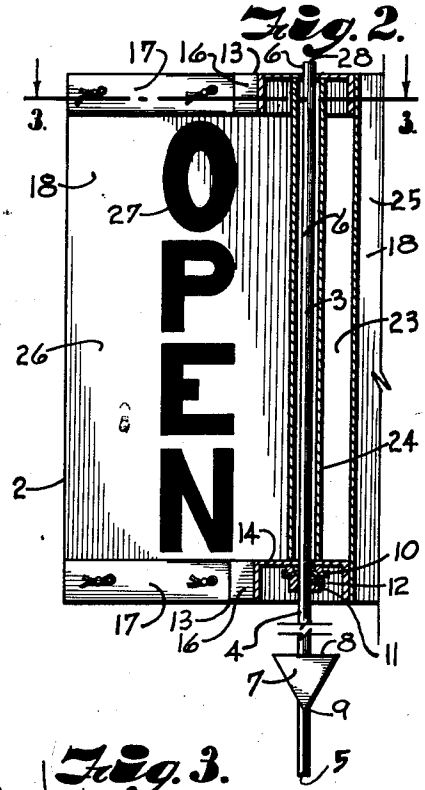


Fig. 3.

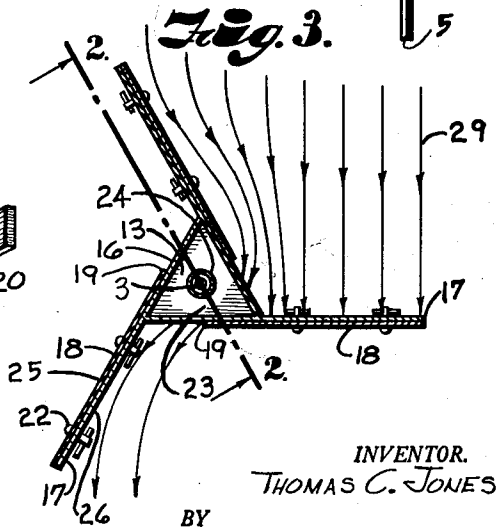
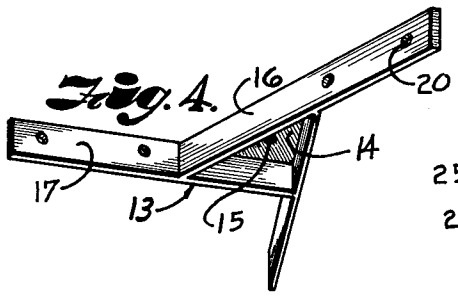


Fig. 4.



INVENTOR.
THOMAS C. JONES

BY

Fishburn & Gold

ATTORNEYS

United States Patent Office

3,073,047
Patented Jan. 15, 1963

3,073,047

ANIMATED SIGN

Thomas C. Jones, 4448 Prospect, Kansas City, Mo.

Filed Nov. 7, 1960, Ser. No. 67,598
1 Claim. (Cl. 40—39)

This invention relates to animated signs, and more particularly to a display sign structure rotatable about a generally vertical axis by currents of air.

The principal objects of the present invention are to provide a novel sign structure including a supporting member and a rotor mounted thereon for rotation about a generally vertical axis with a plurality of message-bearing panels extending outwardly relative to said axis and arranged whereby air currents directed thereagainst will rotate the rotor in one direction; to provide such a rotor structure with spaced heads and with the panels extending therebetween with the inner edges of the panels spaced from the axis of rotation and adjacent panels forming air passages for movement of air inwardly in the rotor from one panel to the next leading panel; to provide such a sign structure which will rotate even with very slight air movement wherein the increase in rotative speed due to inincreased wind velocity is less than the proportionate increase in the wind velocity whereby the rotor does not have excessive speed in high winds; to provide such a sign structure which may be shipped in knocked down condition and readily assembled and set up at any desired location by an inexperienced person without the aid of any special tools; and to provide an animated sign which is inexpensive to manufacture, that has interest-attracting qualities and displays messages in a manner that they are easily read during rotation of the sign rotor.

Other objects and advantages of this invention will become apparent from the following description taken in connection with the accompanying drawings wherein are set forth by way of illustration and example certain embodiments of this invention.

FIG. 1 is a perspective view of a sign structure embodying the features of the present invention.

FIG. 2 is a fragmentary vertical sectional view through the sign structure taken on the line 2—2, FIG. 3.

FIG. 3 is a horizontal sectional view through the sign structure taken on the line 3—3, FIG. 2.

FIG. 4 is a bottom perspective view of one of the rotor heads.

Referring more in detail to the drawings:

1 designates an animated sign consisting generally of a rotor 2 rotatably carried on a supporting structure 3. In the structure illustrated, the supporting structure 3 is a relatively long vertical standard 4 having a lower end 5 adapted to be forced into the ground to position the upper portion 6 substantially vertically. To facilitate insertion of the lower portion into the ground, a plate member 7 is secured thereto in upwardly spaced relation from the lower end 5 with the plate having upper edges 8 forming a step portion whereby a person may use his foot in applying pressure toward the ground. The plate portion 7 is illustrated as being substantially triangular with the apex 9 downwardly whereby when the support structure is forced into the ground sufficiently for the apex of the plate to also enter the ground the plate will tend to retain the support member against rotation.

The upper or rotor-carrying portion 6 of the support member is cylindrical and of suitable length to extend vertically through said rotor 2. A bearing member 10 preferably of the ball thrust type is sleeved on the upper portion 6 of the support member 3 to form a bottom support bearing for the rotor 2, said bearing member 10 resting on a collar 11 sleeved on the support member and secured in selected position by suitable fastening device

such as a set screw 12. The rotor 2 preferably has heads 13 spaced from each other in the direction of the axis of rotation. In the illustrated structure, the heads 13 are identical in shape and may be formed of suitable metal or plastic. The heads 13 each have horizontal walls 14 with central apertures 15 of suitable size to receive the upper portion 6 of the support structure 3 and provide a bearing engagement therewith. The outer edges of the walls 14 have depending flanges 16 providing rigidity to the structure. The heads 13 include outwardly extending arms 17 equally spaced around the rotor and adapted to have message-bearing panels 18 suitably secured thereto with the inner edges 19 of the panels spaced from the axis of rotation and also spaced from the next adjacent panels. In the illustrated structure, the walls 14 of the heads 13 are equilateral triangles in shape with the arms 17 forming extensions in line with the respective depending flanges 16, as illustrated in FIG. 4. The arms 17 each have spaced apertures 20 for registry with apertures 21 in the sign panels for receiving suitable fastening devices 22 to secure the upper portions of the sign panels 18 to the upper head and the lower portion of the sign panels to the lower head as illustrated in FIG. 1. The inner edges 19 of the sign panels are preferably in planes extending longitudinally of and through the axis of the support member perpendicular to the plane of the respective message-bearing panel 18 whereby said panels 18 are spaced from the next leading panel to provide an air passage 23 therebetween. A tubular spacer 24 is preferably loosely sleeved on the upper portion 6 of the support member between the heads 13 to hold same apart, as illustrated in FIG. 2. The leading faces 25 and the trailing faces 26 of each of the panels 18 preferably have letters or other indicia 27 to provide the desired mesage. It is preferred that suitable words be placed on both the leading and trailing faces.

The sign and structure when manufactured consists of a plurality of separate pieces or assemblies, namely, the support structure with the bearing 10 and collar 11 thereon as one portion, the spacer 24, each of the heads 13 and each of the panels 18 being individual parts. All of these parts may be easily arranged in a relatively flat container with the fastening devices 22 and shipped to desired destinations.

In assembling the sign, the collar 11 is adjusted to desired position in spaced relation to the upper end 28 of the support structure and secured in place to support the bearing 10. With the support structure substantially upright, the lower head 13 is mounted on the support structure by inserting the upper end 28 of the support structure into the aperture 15 of the respective head, and said support structure moved down until the wall 14 thereof engages or rests on the bearing 10. Then the tubular spacer 24 is sleeved on the support structure and the upper head placed thereon whereby the wall thereof rests on the upper end of the spacer 24. The heads 13 are then turned whereby the arms 17 of the upper head are in vertical alignment with corresponding arms of the lower head. Then the sign panels 18 are arranged on respective aligned arms, and the fastening devices 22 inserted through the apertures 20 and 21 to secure the sign panels in place to complete the sign assembly. The sign can be erected at the desired location of use or it may be assembled and then moved to a selected position and the lower portion of the support structure inserted into the ground and with the rotor free to rotate even slight air currents will effect operation and animation of the sign. Air currents or wind directed toward the rotor 2 will rotate same in a direction as indicated by the arrow in FIG. 1 and, regardless of the speed of rotation, the words or message 27 appearing on the surfaces of the

panels facing the observer will be readily readable, regardless of the position of the observer around a circle of 360 degrees with the sign as a center.

As the wind currents indicated by the arrows **29** apply force to the trailing surface of one panel, some retarding force is applied to the leading surface of the next trailing panel and also some of the air will pass inwardly through the passages **23** and be effective on the trailing surface of the next leading panel, as illustrated in FIG. 3. This combination of propelling and retarding forces effects rotation of the rotor in slight air currents or wind, but in strong winds the speed of rotation is retarded whereby the speed will never reach a point that would tend to damage the sign and, while the width of the passage **23** may vary to a small degree, it is found that best results are obtained when the edge **19** of the panels is substantially in an axial plane that is perpendicular to the plane of the respective panel, as illustrated in FIG. 3 as, for example, with panels approximately 7 inches wide and the side edges of the head walls **14** approximately 4 inches in length the spacing between the edge **19** and the next leading panel is approximately 2 inches, this arrangement being very effective for efficient rotation in both slight winds and strong winds.

It is to be understood that while I have illustrated and described one form of my invention, it is not to be limited to the specific form or arrangement of parts herein described and shown except insofar as such limitations are included in the claim.

What I claim and desire to secure by Letters Patent is:

A sign revolvable by air currents comprising, anchorable support means having an upstanding shaft portion, a rotor mounted on said shaft portion and rotatable on the axis thereof, said rotor having heads spaced from each other in the direction of said axis, each head having a plurality of arms extending therefrom outwardly from said shaft and equally spaced around the rotor, the arms of one head being aligned with respective arms of the other head, panel members extending between respective arms of said heads, means securing said panel members to the respective arms, said panel members each having opposed message-bearing faces, said panel members secured to the respective arms of the heads each being substantially in a respective plane equally spaced from the shaft axis and parallel thereto with said panel members cooperating to define a central area therebetween, each of said panel members having an inner edge substantially in a respective plane extending through the shaft axis and perpendicular to the respective panel and spaced from a trailing face of the next leading panel whereby said inner edge and said trailing face cooperate to define an elongate air passage extending between said heads and communicaitng with said central area, said opposed message bearing faces of the panels being visible from positions laterally of the rotor as said rotor is rotated, the panel members and air passages defining an air path wherein air currents directed toward the rotor act on a trailing face of one panel member with a portion of the air current passing through the respective air passage between the trailing face of said one panel member and the inner edge of the next trailing panel member and then inwardly along said trailing face of the one panel member in the central area and outwardly of the central area through the air passage between the inner edge of said one panel member and the next leading panel member to act on said next leading panel member and cooperate with the air acting on said one panel member in effecting rotation of the rotor in response to low velocity air currents.

References Cited in the file of this patent

UNITED STATES PATENTS

917,988	Barratt	Apr. 13, 1909
954,288	Holloway	Apr. 5, 1910
983,684	Clapp	Feb. 7, 1911
1,794,677	Dunwody	Mar. 3, 1931
1,928,449	Fugman	Sept. 26, 1933
2,066,063	Walker	Dec. 29, 1936

FOREIGN PATENTS

523,598	Great Britain	July 18, 1940