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# EUROPEAN PATENT APPLICATION

21 Application number: 89110615.5

51 Int. Cl.4: G09F 7/22

22 Date of filing: 12.06.89

30 Priority: 25.06.88 GB 8815187

43 Date of publication of application:  
 03.01.90 Bulletin 90/01

84 Designated Contracting States:  
 BE DE ES FR GB NL

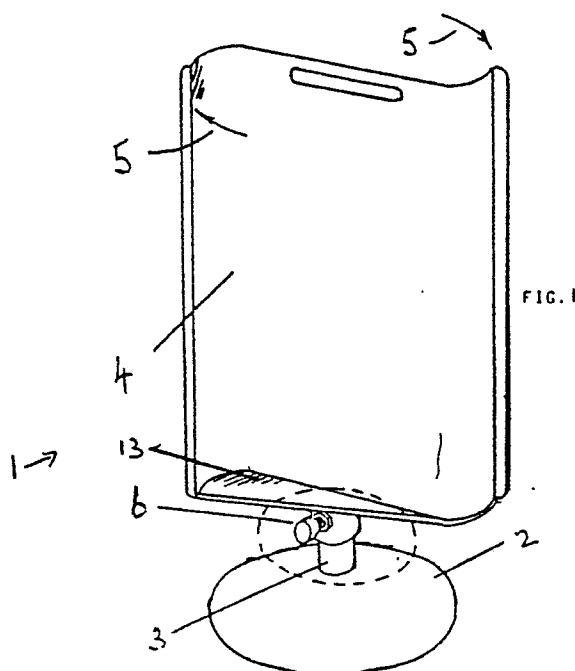
71 Applicant: Venture Projects (UK) Limited  
 1 Redcliffe Lane  
 Maidstone Kent, ME14 2AG(GB)

72 Inventor: The inventor has agreed to waive  
 his entitlement to designation

74 Representative: Fränkland, Nigel Howard et al  
 FORRESTER & BOEHMERT  
 Widenmayerstrasse 4/I  
 D-8000 München 22(DE)

54 A rotating sign.

57 A rotatable sign has a base (2) with a tubular housing (3) containing bearings supporting a vertical shaft on which is mounted a display panel (4) adapted to rotate when the wind blows. A knob (6) can be rotated to drive a frictional element into contact with the shaft to retard the speed of rotation of the display panel (4).



## A ROTATING SIGN

THIS INVENTION relates to a rotating sign and more particularly relates to a rotating sign, such as may be used for advertising purposes, comprising an element or display panel adapted to be rotated by the wind, and a shaft supporting that display panel, the shaft itself being supported on a support structure by means of bearings to enable the shaft and the display panel to rotate relative to the support structure.

A typical prior-proposed sign adapted to be rotated by the wind comprises a base, which forms part of a support structure. A housing, formed on the base, contains appropriate bearings, which rotatably support a vertical shaft. The vertical shaft is secured to an appropriately shaped display panel which lies in a substantially vertical plane. The display panel is normally provided with writing or other indicia on both sides, and typically the writing on the two opposed sides is different, in that each side of the panel carries a different message.

In high wind conditions, the display panel of such a rotating sign may rotate at such a high speed that it is difficult or impossible to read the messages present on the panel. In the case where the base of the sign is a free standing pedestal, the sign can become unstable, particularly if the rotating panel is not perfectly balanced. This condition is exacerbated if the pedestal is on a smooth surface. In such a situation the pedestal can move laterally, and can wobble. In extreme cases the sign may fall over.

The present invention seeks to provide an improved rotating sign.

According to this invention there is provided a wind powered rotating sign comprising a support incorporating a housing containing bearings rotatably supporting a shaft for rotation about a substantially vertical axis, and a display panel carried by the shaft lying in a substantially vertical plane for rotation about said vertical axis, wherein means are provided for retarding the rotation of the display panel.

Preferably the means for retarding the display panel comprise means for urging an element into contact with said shaft to exert a frictional effect thereon.

Conveniently the means to urge said element into contact with the shaft incorporate a spring adapted to bias the said element into contact with the shaft. The spring may be a conventional helical wire spring or any other equivalent resilient component.

Preferably means are provided to adjust the biasing effect provided by the spring.

Advantageously the means adapted to adjust

the bias provided by the spring comprise a knob incorporating a threaded shaft passing through a threaded bore in said housing, said knob incorporating a blind bore containing said spring and said element.

Preferably a locknut is provided on said threaded shank to lock said threaded shank in any desired position.

Conveniently the dimension of the blind bore, the spring and the element are such that the knob may be moved to such a position that the spring is fully compressed so that direct pressure can be applied from the knob to the element.

Preferably said urging means comprise a knob having a threaded shank engaged in a threaded bore, said shank carrying said element, so that rotation of the knob urges the element into contact with the shaft.

In order that the invention may be more readily understood, and so that further features thereof may be appreciated, the invention will now be described, by way of example, with reference to the accompanying drawings in which:

FIGURE 1 is a perspective view of a rotating sign in accordance with the invention and

FIGURE 2 is an enlarged sectional view of part of the sign as illustrated in Figure 1.

Referring initially to the drawings, Figure 1 illustrates a rotating sign 1 in accordance with the invention. The sign is a free-standing sign which incorporates, as a base, a pedestal 2, which is substantially circular in plan and of dome-configuration. A tubular housing 3, defining a vertical axis, is secured to the top of the base 2 in a central position. Contained within the housing 3 are bearings, which support a shaft, so that the shaft can rotate about a vertical axis. The top of the shaft is secured to the lower part of a rotating display panel 4. The panel 4 is of conventional design, and is such that the sign will rotate, in a clockwise direction, as generally indicated by the arrows 5, whenever the wind blows. As thus far described the sign is conventional.

The sign illustrated in Figure 1 is, however, provided with a manually operable knob 6 which controls means which provide a braking or retarding effect on the shaft, thus preventing the panel 4 from rotating too fast.

Reference is now made to Figure 2 of the accompanying drawings.

Figure 2 illustrates that the base 2 is formed, in the region illustrated, of a single curved sheet of metal or the like. The tubular housing 3 has a lower portion which passes through an aperture in the top of the base 2, and the housing 3 is retained in

position by means of welds 7. The shaft 8 upon which the panel 4 is mounted passes axially through the tubular housing 3, and is retained by an upper ball race 9 and a lower ball race 9'. The upper ball race guides the shaft vertically and acts laterally, to achieve minimal friction as well as supporting the shaft. The lower ball race 9' merely serves to provide vertical guidance and lateral support to the shaft, with minimal friction. The upper end of the shaft 8 is welded to a holder 10 by means of welds 11. The holder is in turn welded by means of welds 12 to a horizontal supporting flange 13 which actually supports the panel 4. Part of the flange 13 can be seen in Figure 1. The holder 10 may be of any convenient design and serves to provide a sufficiently strong connection between the shaft 8 and the flange 13.

The lower end of the shaft 8 receives a screw 14 which retains a washer 15 provided to prevent the shaft being lifted upwardly through the ball races 9 and 9'. The radius of the outer part of the washer is thus greater than the radius of the shaft.

In the side of the housing 3 is a radially extending threaded bore 16. Received threadedly within the bore 16 is the threaded shank 17 of the knob 6. Mounted on the threaded shank 17, on the exterior of the housing, is a conventional lock nut 18. The shank 17 is provided with an axial blind bore, and located in the blind bore are a compression spring 19 and one end of a cylindrical rubbing piece 20. The spring may be formed of metal or may be formed from a urethane plastic element which has similar properties to that of a conventional spring. The rubbing piece may be formed of hard plastic or brass.

The spring 19 serves to bias the rubbing piece 20 into contact with the exterior of the shaft 8 at a position intermediate the ball races 9 and 9'. The rubbing piece thus exerts a frictional effect when the shaft rotates, tending to retard rotation of the panel 4.

It will be appreciated that if the knob is rotated in a clockwise direction, the knob will be driven in towards the shaft 8, and thus the rubbing piece will be pressed against the shaft 8 with a greater force, thus providing a greater braking or retarding effect. It is to be understood that the knob 6 may be turned so far that the spring 19 is fully compressed and then further rotation of the knob 6 will urge the rubbing piece 20 against the shaft 8 with a very significant force, since then the rubbing piece 20 will effectively be directly mechanically connected to the knob 6.

It is to be appreciated that one function of the spring is to take up any wear experienced by the rubbing piece 20. Thus, as the rubbing piece 20 gradually wears away, so the spring will still bias the rubbing piece into contact with the exterior of

the shaft 8.

The lock nut 18 is provided to enable the knob 6 to be readily locked in any desired position.

The exterior of the lock nut 18 and the exterior of the knob 6 may both be knurled, or one or both may be of hexagonal form to be rotated by means of a spanner.

In use of the described sign, the knob 6 will be adjusted, with regard to the prevailing wind conditions, so that the rubbing piece 20 provides a sufficient frictional effect on the shaft 8 to ensure that the sign will only rotate at a suitable speed. If the wind is only light, the knob may be rotated significantly in the anti-clockwise direction, so that the rubbing piece 20 only exerts a very light frictional effect on the shaft 8. In very high wind conditions, however, the knob 6 will be rotated fully in the clockwise direction, so that the spring 19 is fully compressed, thus enabling the full pressure applied by the knob 6 to be transferred directly to the shaft 8 by means of the rubbing piece 20. This pressure may be sufficient to even prevent the shaft 8 from turning at all.

## Claims

1. A wind powered rotating sign comprising a support (2) incorporating a housing (3) containing bearings (9, 9') rotatably supporting a shaft (8) for rotation about a substantially vertical axis, and on display panel (4) carried by the shaft lying in a substantially vertical plane for rotation about said vertical axis, characterized in that means (6, 19, 20) are provided for retarding the rotation of the display panel.

2. A sign according to Claim 1 wherein the means for retarding the display panel (4) comprise means (6) for urging an element (20) into contact with said shaft (8) to exert a frictional effect thereon.

3. A sign according to Claim 2 wherein the means (6, 19) to urge said element (20) into contact with the shaft incorporate a spring (19) adapted to bias the said element (20) into contact with the shaft (8).

4. A sign according to Claim 3 wherein means (6) are provided to adjust the biasing effect provided by the spring (19).

5. A sign according to Claim 4 wherein the means (6) adapted to adjust the bias provided by the spring comprise a knob (6) incorporating a threaded shaft (17) passing through a threaded bore (16) in said housing (3), said knob incorporating a blind bore containing said spring (19) and said element (20).

6. A sign according to Claim 5 wherein a locknut (18) is provided on said threaded shank

(17) to lock said threaded shank in any desired position.

7. A sign according to Claim 5 or 6 wherein the dimension of the blind bore, the spring (19) and the element (20) are such that the knob (6) may be moved to such a position that the spring (19) is fully compressed so that direct pressure can be applied from the knob (6) to the element (20).

8. A sign according to Claim 2 wherein said urging means (6) comprise a knob having a threaded shank engaged in a threaded bore, said shank carrying said element (20), so that rotation of the knob (6) urges the element (20) into contact with the shaft (8).

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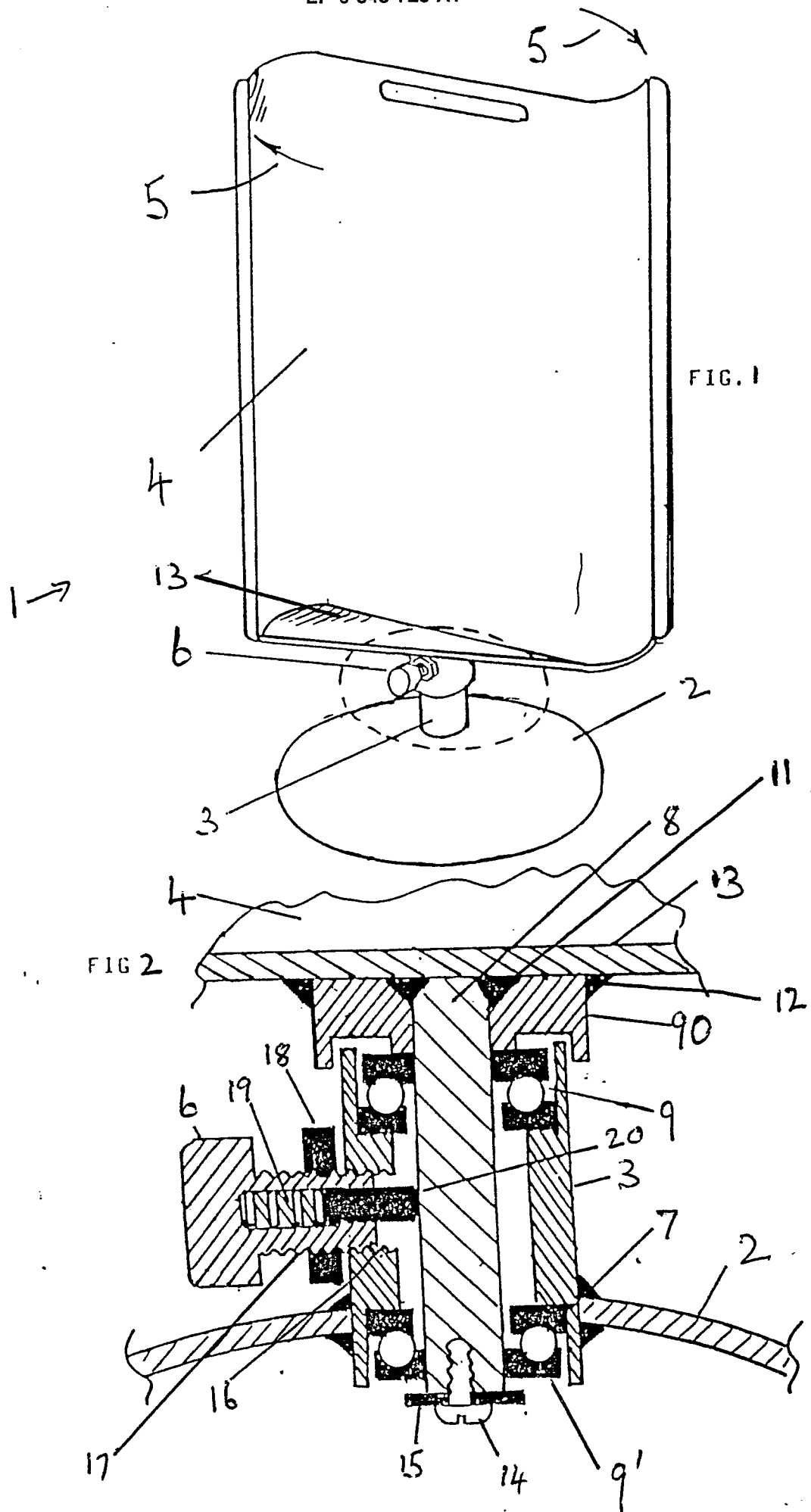
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DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl.4)
X	DE-C- 577 816 (H. MEHL) * Claim 2; page 2, lines 8-44,61-65; figures 1,2,4 *	1,2	G 09 F 7/22
Y	---	3-5	
Y	EP-A-0 243 345 (ESSELTE PENDAFLEX GmbH) * Claims 1-5; page 3, last paragraph; page 4, whole page; page 11, last paragraph - page 12, paragraph 1; figures 1,10-11 *	3-5	
X	---		
X	EP-A-0 152 210 (H.G. HANNEMANN) * Claim 1; page 5, line 27 - page 6, line 13; figures 6,7 *	1-2	
X	---		
X	GB-A- 939 879 (DIEGO ZAMORA CONESA Y CAI, S.R.C.) * Claim 1; page 1, line 55 - page 2, line 6; figures 1-2 *	1-2	
A	-----	8	TECHNICAL FIELDS SEARCHED (Int. Cl.4)
			G 09 F
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 02-10-1989	Examiner FRANSEN L.J.L.
<b>CATEGORY OF CITED DOCUMENTS</b> X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			