Jan. 22, 1929. 1,699,831

E. F. BRAUCHER

ADVERTISING DISK

Filed Dec. 27, 1927

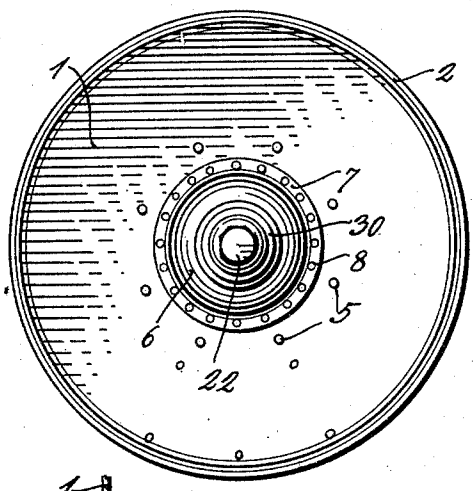


Fig. 1.

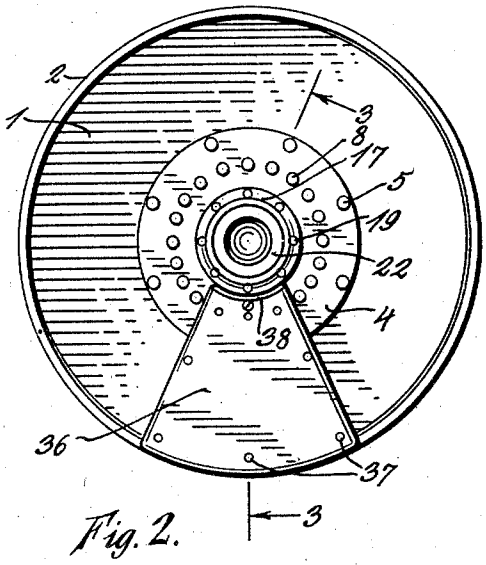


Fig. 2.

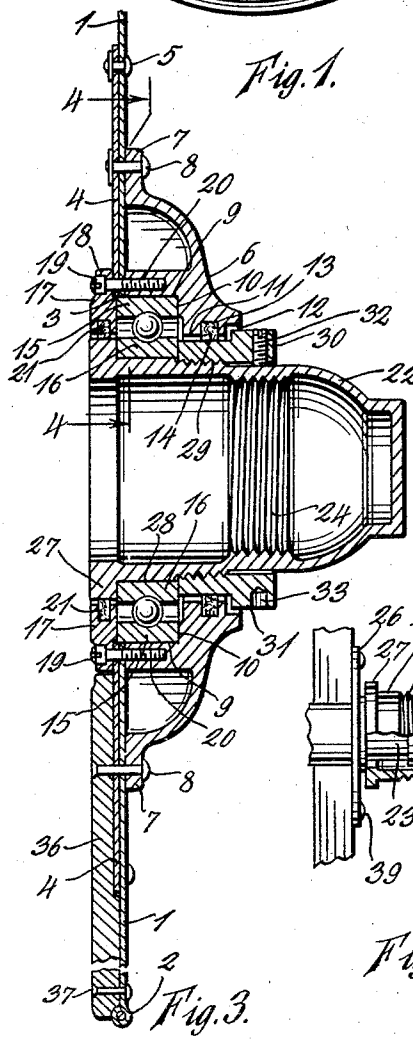


Fig. 3.

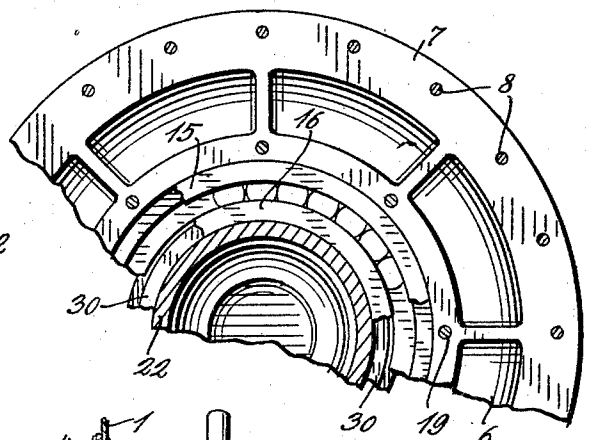


Fig. 4.

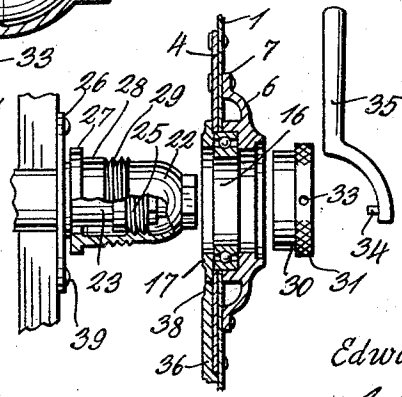


Fig. 5.

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Patented Jan. 22, 1929. 1,699,831

UNITED STATES PATENT OFFICE.

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ADVERTISING DISK.

Application filed December 27, 1927. Serial No. 242,933.

This invention relates to improvements in advertising disks of the type which is adapted to be attached to the hubs of automobile wheels.

It is often desirable for stores and other business houses to provide their delivery wagons with display devices which can be readily changed and which can be used for advertising purposes. In order to attract the most possible attention, these display devices should be distinctive. It has been found that disks applied to the hubs of the wheels by means of bearings which permit them to rotate relative to the wheels, and which are kept from rotation by means of a counter weight so that they will alway retain a predetermined position and which, when they are lettered so as to advertise certain articles or for other purposes, can be read while the automobile is moving as well as when the same is stationary.

It is the object of this invention to produce an improved form of such advertising disks, which shall be of substantial construction and of neat appearance and which, when placed on the automobile wheels, will be held in such position that they can not readily be damaged during the operation of the automobile. It is another object of this invention to produce a construction of disks which shall be capable of being readily removed or applied in position, and which can easily be lubricated, so as to prevent excessive wear.

It is the further object of this invention to produce an improved form of hub cap which shall be provided with means for clamping a ball bearing in place, and which can be readily substituted for the ordinary hub cap.

The above and other objects that may become apparent as this description proceeds are attained by means of a construction and an arrangement of parts that will now be described in detail, and reference for this purpose will now be had to the accompanying drawing in which the preferred embodiment has been illustrated and in which:

Fig. 1 is a side elevation showing the outer surface of my improved disk;

Fig. 2 is a side elevation showing the rear surface of my improved disk;

Fig. 3 is a section taken on line 3—3, Fig. 2 and shows the parts to a somewhat enlarged scale;

Fig. 4 is a section taken on line 4—4, Fig. 3 and shows a fragment of the casting which forms part of the bearing of my advertising disk; and

Fig. 5 is a view showing several of the parts in separated condition.

My improved disk comprises an annular piece of sheet metal which has been indicated by numeral 1 and whose outer end has been flanged over a wire core so as to form a circular bead 2 in the manner illustrated most clearly in Fig. 3. This disk has a central opening 3. For the purpose of reenforcing this disk and to obviate the necessity of making it of extremely heavy material, an annular disk 4 of sheet metal has been secured to the inner surface of the same by means of rivets 5. Disk 4 has a central opening of the same diameter as disk 1 which opening is concentric with opening 3. Secured to the outer surface of disk 1, is an aluminum casting 6 which forms the hub of the disk. This casting has a flange 7 that is provided with a plurality of openings which correspond to similar openings in disks 1 and 4 and which receive the rivets 8 that serve to secure the casting to the disk in the manner shown in Fig. 3. This casting is provided with a circular recess 9 that terminates in a shoulder 10 and its outer end is provided with an opening 11 of smaller diameter than the recess 9 and the outer end of this opening has a circular rabbet 12. The wall of opening 11 is provided with an annular recess 13 within which a felt ring 14 is located. A ball bearing comprising two ball race members 15 and 16 is located in the recess 9 and is held in place by means of a clamping ring 17. This ring has a flange 18 that is perforated for the reception of screws 19 that extend into threaded openings 20 in casting 6, all as shown in Fig. 3. The wall of the opening in ring 17 has an annular groove for the reception of a felt washer 21. When screws 19 are tightened, the ball race 15 will be clamped between the inner surface of this ring and the shoulder 10, so as to be held securely in place, while permitting the ball race 16 to rotate freely.

For the purpose of securing the disk to the hub of an automobile wheel, I have provided a hub cap 22 of a special construction. This hub cap is preferably cast of brass or other suitable material, and has a central opening of sufficient size to receive the hub 23. The surface of the opening within the hub cap is provided with threads 24 that engage the threads 25 on hub 23. The length of this hub cap is such that when it is in place on the hub,

its inner end terminates quite close to the outer surface of the hub plate 26. The inner end of hub cap 22 is provided with an external flange 27 and has a cylindrical surface 28 that extends from the outer shoulder of flange 27 to the externally threaded section 29. The diameter of the cylindrical portion 7 is the same as the diameter in the opening in ball race 16 so that the hub cap can be inserted through the ball race in the manner shown in Fig. 3. A ring 30 has an internally threaded surface that engages with the threads 29 and is also provided with a flange 31, which is adapted to extend a short distance into the rabbet 12. When this ring is threaded onto the hub cap, its inner end will engage the ball race 16 and clamp the same so as to hold it against rotation. After ring 30 has been tightened sufficiently, it is clamped against accidental rotataion by means of a set screw 32. Flange 31 is provided with an opening 33 which is adapted to receive the pin 34 of the spanner wrench 35, by means of which the ring can be put into place or removed. The felt rings 14 and 21 contact respectively with the outer surface of ring 30 and the outer surface of flange 27, and serve to form a seal that prevents the grease from flowing out from the ball bearing.

The disk is held against rotation by means of counterweight 36 which is sector-shaped and is secured to the disk by means of rivets 37. The upper end of counterweight 36 terminates adjacent the periphery of flange 18 and has a bevelled portion 38 that provides a passageway for the boltheads 39 on the wheel hub. When this disk is to be used, the hub cap 22 is applied to the hub in the manner shown in Fig. 5, after which the disk is put into place with the ball race 16 resting on the cylindrical surface 28. The clamping nut or ring 30 is then threaded onto the threaded surface 29 and tightened by means of wrench 35, after which the set screw 32 is forced against the outer surface of cap 22 so as to hold ring 30 against accidental rotation. The disk is now supported by the ball bearing and is therefore free to rotate relative to the hubcap. When the automobile is running the hub of the wheel and the cap 22 will, of course, rotate, but the disk will be held against rotation by the action of the counterweight 36, the disk therefore remains stationary at all times and any sign that is printed on its surface can be read when the automobile is in motion, as well as when it is standing still.

Attention is called to the construction which permits the disk to be so readily removed for the purpose of cleaning it or repainting. The only thing that is required is to unscrew the nut 30 after which the disk can be pulled from the hub cap. The removal and replacement of these disks can be effected without the necessity of soiling the hands by coming in contact with grease. The felt washers, as above indicated, form seals that prevent grease from flowing out from the bearing, and they also prevent dust and dirt from entering.

I also desire to call particular attention to the construction of the hub cap which extends inwardly over the wheel hub a sufficient distance to permit the disk to occupy a position quite close to the wheel spokes. The outer end of the hub cap projects outwardly a considerable distance beyond the disk and the disks are therefore in such a position that they cannot readily be damaged during ordinary operations of the automobile. If the hub cap should strike an obstruction, and become damaged, the chances are that the operation of the disk which is secured to it would not be effected as this is supported by the cap portion that is located inside of the threaded section 24.

Having described my invention what is claimed as new is:

1. A device of the class described, comprising, in combination, a disk having a central opening, an annular sheet metal ring secured in concentric position to the disk so as to reenforce the same, a hub casting secured to the disk, said hub casting having an axial opening, one end of which is of the same diameter as the opening in the disk and the remaining portion of which is smaller, a ball race located in the larger part of the opening and means comprising a ring for securing the ball race in the opening.

2. A device of the class described, comprising, in combination, a disk having a central opening, an annular sheet metal ring secured in concentric position to the disk so as to reenforce the same, a hub casting secured to the disk, said hub casting having an axial opening, one end of which is of the same diameter as the opening in the disk and the remaining portion of which is smaller, a ball race located in the larger part of the opening and means comprising a ring for securing the ball race in the opening, the wall of the opening in the ring and the wall of the smaller portion of the axial opening being provided with grooves for the reception of felt packing rings.

3. A device of the class described comprising, in combination, a hollow hub cap having one end closed and the other open, an integral flange extending outwardly adjacent the open end, the interior surface of the hub cap being threaded to engage a threaded hub, the outer surface of the hub cap being formed in part by a smooth cylindrical surface that lies adjacent the outer wall of the flange and a threaded surface that lies adjacent the cylindrical surface, a ball bearing comprising two concentric annular ball races, the smaller of which is supported on the smooth cylindrical surface and has one side lying against the outer surface of the flange, a nut

cooperatively associated with the threaded section of the cap and serving to clamp the ball race against the flange, a circular disk having a central opening, a hollow hub secured to the disk in concentric relation therewith, said hub having an axial opening comprising two sections of different diameters, the larger of which is adjacent the disk and adapted to receive the larger ball race and means comprising a ring secured to the disk on the side opposite from that to which the hub is secured for clamping the larger ball race in place.

4. A device of the class described comprising, in combination, a hollow hub cap having one end closed and the other open, an integral flange extending outwardly adjacent the open end, the interior surface of the hub cap being threaded to engage a threaded hub, the outer surface of the hub cap being formed in part by a smooth cylindrical surface that lies adjacent the outer wall of the flange and a threaded surface that lies adjacent the cylindrical surface, a ball bearing comprising two concentric annular ball races, the smaller of which is supported on the smooth cylindrical surface and has one side lying against the outer surface of the flange, a nut cooperatively associated with the threaded section of the cap and serving to clamp the ball race against the flange, a circular disk having a central opening, a hollow hub secured to the disk in concentric relation therewith, said hub having an axial opening comprising two sections of different diameters, the larger of which is adjacent the disk and adapted to receive the larger ball race, means comprising a ring secured to the disk on the side opposite from that to which the hub is secured for clamping the larger ball race in place and dust protective seals located on opposite sides of the ball bearing.

In testimony whereof I affix my signature.

EDWARD F. BRAUCHER.