Dec. 12, 1933. G. T. BALFE 1,939,095

WHEEL

Filed June 30, 1931

Fig. 1.

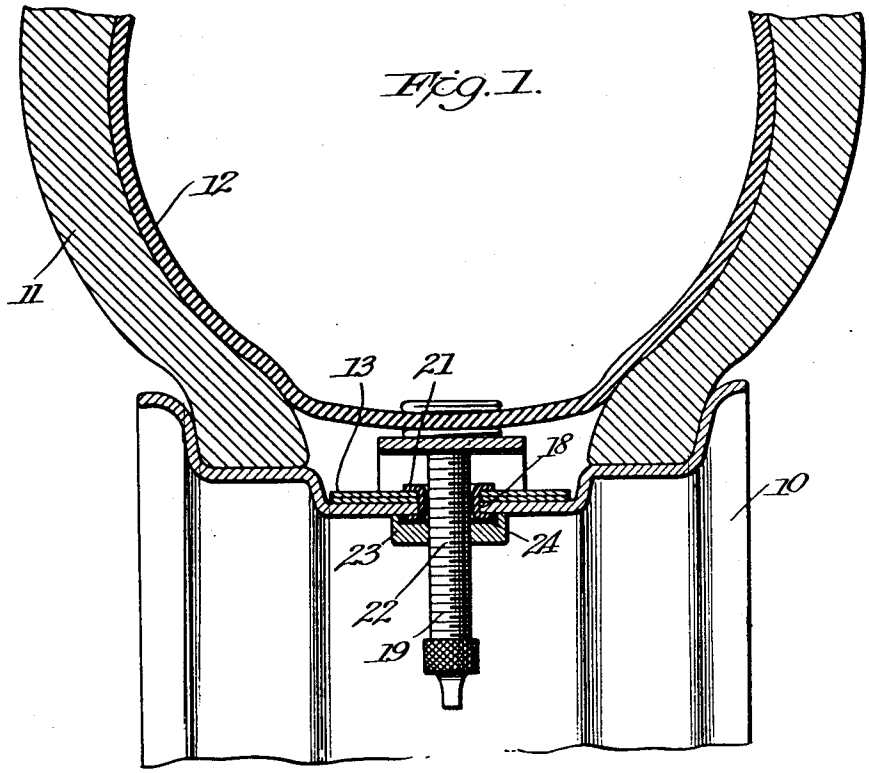


Fig. 3.

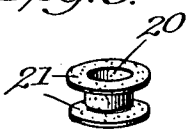


Fig. 2.

Inventor

George T. Balfe.

By

Cushman, Bryant, Darby & Cushman

Attorneys

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WHEEL

George T. Balfe, Detroit, Mich., assignor to Detroit Gasket & Mfg. Co., Detroit, Mich., a corporation of Michigan

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4 Claims. (Cl. 152—20)

The present invention relates to wheels, and specifically to the rims thereof, and has to do with an improved liner and securing means therefor for holding the liner at all times in operative position.

With present constructions of this character, the liner is subject to weather conditions, causing it to buckle and detach itself or ride off the rim, and it is this tendency which the present invention seeks to overcome. Also, with present conventional structures, the application of the liner to the rim requires considerable time and effort, whereas the present invention seeks to provide a construction which will enable the liner to be applied and removed quickly and easily.

A further object of the invention is to produce an inexpensive construction and one which can be manufactured in large quantities and applied without the necessity for skilled labor.

In the drawing:—

Figure 1 is a sectional view.

Figure 2 is a perspective view, and

Figure 3 is a perspective view.

The numeral 10 indicates the conventional wire wheel rim, and the numeral 11 the usual pneumatic tire within which is disposed an inner tube 12.

While I have illustrated the invention in connection with a drop-center rim, it will be understood that it can be applied to all types of rims and wherever it is desired to protect the inner tube from wear by contact with the rough, exposed surface of the rim.

The improved liner of this invention is indicated at 13, and is preferably a flexible composite material having a cloth finished surface on one side 14 which abuts the surface of the inner tube and an adhesive cork layer on the opposite side 15 which contacts with the surface of the rim.

It will be understood that any other suitable flexible material may be used in the manufacture of the liner, there being several commercial materials available for this purpose.

The liner will be cut from a strip of material to a length so that it may be disposed about the exposed surface of the rim in the form of a band. At the ends of the band, the liner or protector is provided with openings 16, which are preferably circular and are preferably so disposed that when the ends of the band are overlapped, the edges will coincide and the respective opening 16 will register.

The band 13 is applied to the rim, as shown in Figure 1, and the edges thereof overlapped, as shown at 17. As is well understood, the rim is provided with an opening 18 to permit the valve tube stem 19, connected to the inner tube, to project through the rim.

In positioning the band, the registering openings 16 are brought into register with the opening 18 for a purpose which will now be described.

Referring to Figure 3, there is illustrated one type of connecting member 20 which I employ for the dual purpose of connecting the overlapped ends of the band 13 and securing the band to the rim.

This member 20 may be of yieldable material, such as rubber, metal, and, in fact, any composite material which will be effective for the purpose, and will preferably be resilient.

The member 20, as will be observed, is tubular, as shown in Fig. 3, and the ends of the tube are provided with circular flanges 21.

Referring now to Figure 1, it will be assumed that the band has been positioned tightly upon the rim, with its overlapping ends bringing the openings 16 into register with each other and with the opening 18 in the rim.

In order to obtain a simple and effective securing of the said ends in their overlapping engagement and to bind them to the rim, the separable member 20 is buttoned through the registering openings 16 and 18, so that one of the flanges contacts with the exposed surface of the top overlapping portion of the band, and the other flange contacts with the exposed portion of the rim.

Where a resilient material is used, this can be readily accomplished, and where a metal bushing or separable member 20 is employed, one of the flanges, preferably that which contacts with the exposed portion of the rim, will not be formed until after the tubular member has been positioned, when the tube will be bent over after the manner of a grommet. Also, the tubular member may have a threaded portion to receive a threaded stem carrying a flange where a metal construction is employed.

By reason of the present invention, it will be clear that the liner or protector may be tightly positioned in the exposed surface of the rim and securely held to the rim by the simple expedient of applying the flexible or resilient button 20, or a button 20 of resilient metal.

It will be observed that the member 20 in any event being substantially circular in cross section, will provide a satisfactory bushing for the valve stem, thereby protecting the edges of the liner openings against wear, as well as the edges of the rim opening.

It will moreover be noted that one of the flanges 21 engages the overlapped end portion of the band, and the other the exposed portion of the rim, so that where resilient material is employed, the three lamina are tightly held or clamped.

It is further to be noted that by providing the separable member 20, it will act as a seal for the opening 18, thereby preventing the entrance of any foreign matter into the rim which would have the effect of causing deterioration and disintegration of the tube and the tire.

The valve stem 19 is threaded at 22 and receives the usual nut 23 which is secured thereon to firmly engage the rim. A suitable washer may be interposed between the nut and the adjacent flange 21 of the separable member, such washer being of metal, leather, or other desired material.

On the other hand, I have found it desirable to provide the nut 23 with a circular recess 24 of sufficient area to freely receive the adjacent flange 21, so that as the nut is turned, there will be no likelihood of wear upon the material of the said flange 21.

As stated, the flanges 21 act to clamp the three lamina comprising the rim and the two overlapping portions of the liner, and it will be understood that since the liner is of flexible material and compressible, that where a rigid button is employed, it will act to resiliently compress the three parts together and hold them tightly.

I claim:

1. The combination with a wheel rim, of a flexible protecting liner therefor positioned in the exposed surface of the rim to engage and protect the tube of a tire carried by the rim, said liner having its abutting ends provided with openings and the ends overlapped to bring said openings into register with each other, and with the valve stem opening in the rim, and an independent yieldable member having flanges at its ends, positioned in the registering openings to connect the ends of the liner and secure the same to the rim, the flange on one end of the member engaging over the liner and the flange on the other end of the member engaging over the rim.

2. The combination of a wheel rim, of a flexible protecting liner therefor, and an independent fastening member of yieldable material connecting the ends of the liner, said fastening member extending through the valve stem opening of the rim, and having a means for securing the liner to the rim.

3. A wheel rim liner adapted to be positioned upon the outer surface of a wheel rim and to be secured thereto to contact with the inner tube of a tire assembled upon the rim, comprising a strip of flexible material, valve stem openings in the ends of the liner, a fastening member engaging in said openings for securing the ends of the liner together, said fastening member also adapted to be received in the valve stem opening of the wheel rim and having means thereon for engaging the inner surface of said rim to secure the liner thereto and hold it in position.

4. A wheel rim liner adapted to be positioned upon the outer surface of a wheel rim and to be secured thereto to contact with the inner tube of a tire assembled upon the rim, comprising a strip of flexible material, valve stem openings in the ends of the liner, a fastening member of yieldable material engaging in said openings for securing the ends of the liner together, said fastening member also adapted to be received in the valve stem opening of the wheel rim, and having means thereon for engaging the inner surface of said rim to secure the liner thereto and hold it in position.

GEORGE T. BALFE.