Jan. 18, 1938. J. J. HRUSKA 2,105,860

TIRE

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Fig. 1.

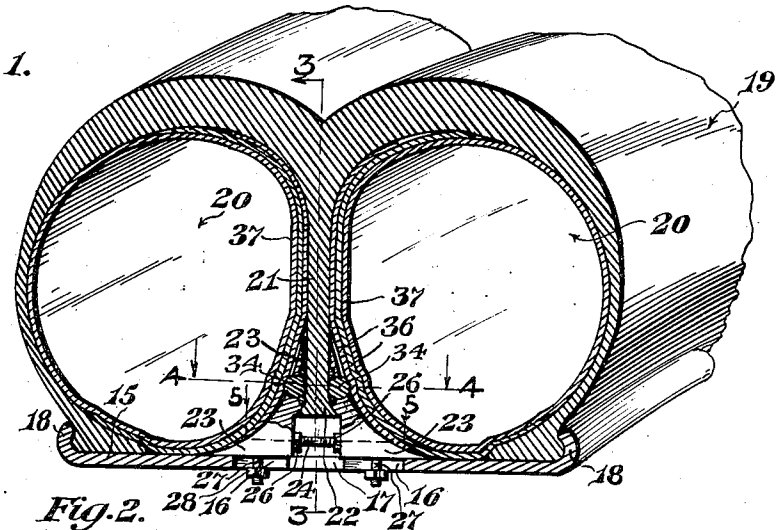


Fig. 7.

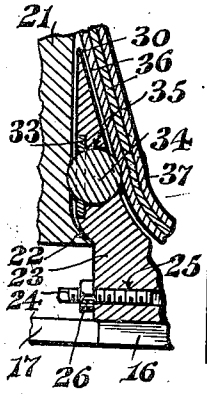


Fig. 2.

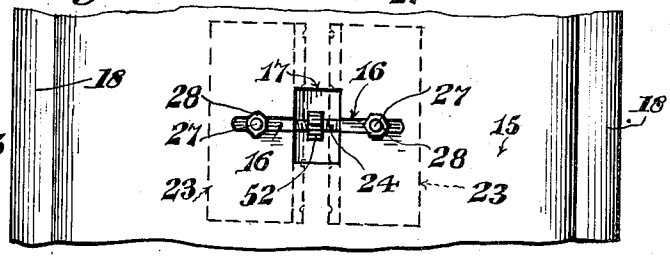


Fig. 3.

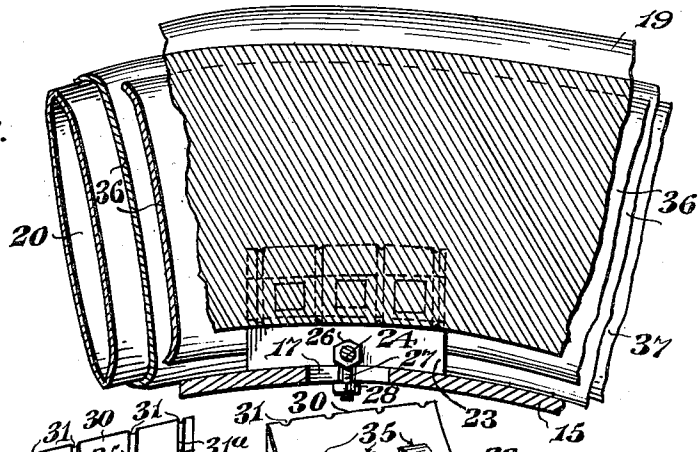
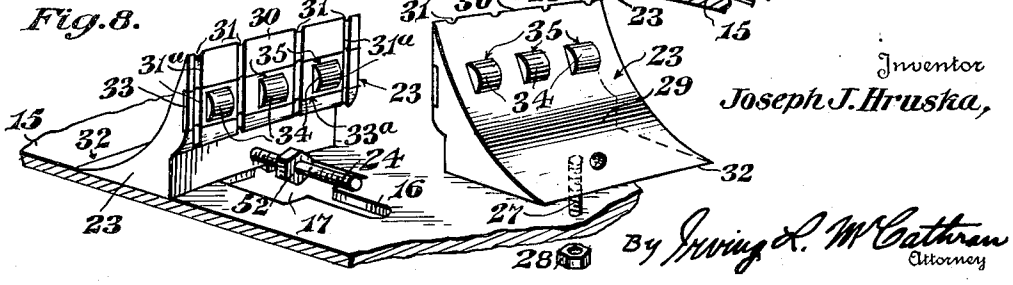


Fig. 8.



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TIRE

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Fig. 4.

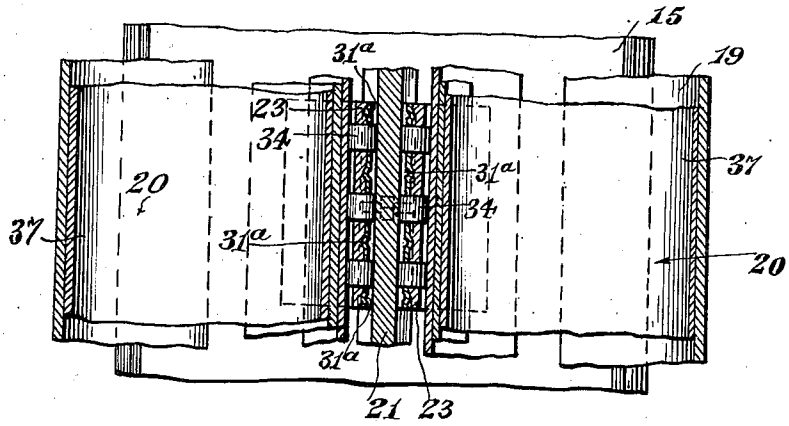


Fig. 5.

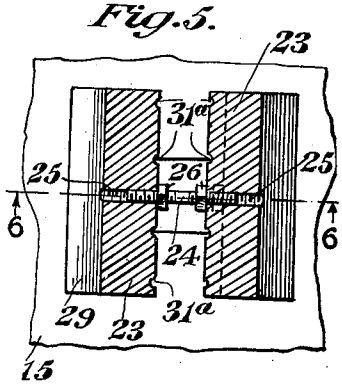
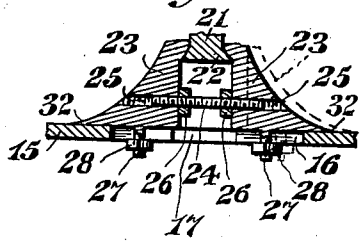


Fig. 6.



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UNITED STATES PATENT OFFICE

2,105,860

TIRE

Joseph J. Hruska, Milwaukee, Wis.

Application July 3, 1935, Serial No. 29,728

5 Claims. (Cl. 152—22)

This invention relates to automobile and other vehicle tires, and has for its object the production of a simple and efficient multiple tube tire which is provided with means for reducing the friction between the inner tubes and the center heel piece of the tire, as well as the central dividing strip of the multiple tube tire.

The present invention is an improvement upon my previous Patent #1,946,622, issued February 13, 1934, relating to tires.

A further object of the present invention is the production of a simple and efficient heel piece, which heel piece is provided with bearing means for contacting and engaging the heel piece in such a manner as to permit the heel piece to shift and reduce the friction between the heel cleats and the center heel piece to a minimum.

Other objects and advantages of the present invention will appear throughout the following specification and claims.

In the drawings:—

Figure 1 is a transverse sectional perspective view through a section of the multiple tube tire;

Figure 2 is a fragmentary bottom plan view of the rim and tire;

Figure 3 is a vertical sectional view taken on line 3—3 of Figure 1;

Figure 4 is a horizontal sectional view taken on line 4—4 of Figure 1;

Figure 5 is a horizontal sectional view taken on line 5—5 of Figure 1;

Figure 6 is a transverse sectional view taken on line 6—6 of Figure 5;

Figure 7 is an enlarged vertical sectional view through a portion of one of the heel pieces and showing the manner in which the bearing contacts with the inner tube and its protecting strips and the central dividing strip of the tire;

Figure 8 is a drawn-apart perspective view illustrating a pair of the center heel cleats.

By referring to the drawings, it will be seen that 15 designates the rim which is provided with transversely extending slots 16 arranged near the center thereof, which slots 16 communicate with the enlarged apertures 17, as shown in Figure 2. The rim 15 is provided with the usual tire engaging flanges 18 along the periphery thereof for holding the outer edges of the tire firmly in engagement with the rim. The present invention relates more particularly to a multiple tube tire and rim structure, the tire being indicated generally by the numeral 19, the casing being preferably provided with a pair of substantially parallel tube receiving channels 20. The channels 20 are separated by the centrally located partition 21, which partition 21 is provided at its lower end with a central heel piece 22. The heel piece 22 preferably terminates short of the inner face of the rim 15, as will be noted by considering Figure 1, and this heel piece 22 is preferably engaged upon either side thereof by means of the heel cleats 23 which are shaped to fit the heel piece 22 and firmly clamp the heel piece against displacement from between the cleats 23. The cleats 23 are held in locked spaced relation through the medium of the spacing bolt 24, which spacing bolt 24 is oppositely threaded at its ends for fitting into the sockets 25 of the heel cleats 23—note in detail Figure 7. Lock nuts 26 are mounted upon the spacing bolts 24 for locking the cleats in proper spaced relation for efficient engagement with the central heel piece 22. The cleats 23 are also provided with depending threaded pins 27 which extend through the slots 16, these pins 27 carrying locking nuts 28 whereby the cleats 23 may be anchored into engagement with the rim 15.

Each heel cleat 23 is provided with a concave outer face 29, the upper edge 30 of each cleat being notched, as at 31, which notches 31 communicate with channels 31*a* formed upon the inner faces of the cleats 23, as shown in Figure 8, to permit of a proper circulation of air around the heel cleats under the action of the tire and tubes. The lower outer edge 32 is also tapered, as indicated in Figure 8, to facilitate the convenient fitting of the tubes over the cleats and to avoid any abrupt edges.

Each cleat 23 is provided with a notch 33*a* along its inner face and within each notch is fitted a bearing supporting plate 33, which bearing supporting plate 33 supports the roller bearings 34, the roller bearings also extending beyond the outer concave face of the cleat. These roller bearings 34, are mounted within the sockets 35 which extend through the cleats 23, as shown in detail in Figure 7.

It should be understood that it is not desired to limit the present invention to the use of roller bearings in view of the fact that ball bearings or other rotating means may be employed without departing from the spirit of the invention.

In carrying out the invention, I preferably employ a plurality of protector strips 36 which may be used in any number desired and may be extended around the inner tubes 37 for a suitable distance to protect the tubes. When the tubes and protector strips are mounted within the tire casing 19, or placed within the channels 20 and inflated, one of the protector strips 36 will con-

tact with the bearing rollers **34** and constitute a non-friction contact between the protector strips, inner tubes and heel cleats, the bearings also contacting with the partition **21** adjacent the heel piece **22**, and thereby permitting the heel piece to move or reciprocate between the cleats **23** without setting up a great amount of friction between the concave faces **29** of the cleats **23** and the protector strips **36**. The bearing rollers **34** will compensate for this movement and by contacting and supporting the inner tubes through the medium of the protector strips the amount of friction between the inner tubes and the heel cleats will be reduced to a minimum.

Having described the invention, what I claim as new is:—

1. A device of the class described comprising a rim, a tire casing mounted thereon, said tire casing being provided with a plurality of longitudinally extending channels, an individual inflatable tube mounted within each channel, a dividing partition separating said channels and provided with a heel piece at its bottom, heel cleats anchored upon said rim and engaging the opposite faces of said heel piece, and bearings carried by the heel cleats for contacting with the heel piece and supporting the heel piece in a manner to reduce friction to a minimum between the heel cleats and the heel piece.

2. A device of the class described comprising a rim, a tire casing mounted thereon, said tire casing being provided with a plurality of longitudinally extending channels, an individual inflatable tube mounted within each channel, a dividing partition separating said channels and provided with a heel piece at its bottom, heel cleats anchored upon said rim and engaging the opposite faces of said heel piece, bearings carried by the heel cleats for contacting with said heel piece and supporting the heel piece in a manner to reduce friction to a minimum between the heel cleats and the heel piece, and said heel cleats provided with concave faces approximately conforming to the contour of the inflatable tubes and terminating in tapering upper and lower edges, the inner faces having ventilating channels formed therein.

3. A device of the class described comprising a rim, a tire casing mounted thereon, said tire casing being provided with a plurality of longitudinally extending channels, an individual inflatable tube mounted within each channel, a dividing partition separating said channels and provided with a heel piece at its bottom, heel cleats anchored upon said rim and engaging the opposite faces of said heel piece, roller bearings carried by the heel cleats for contacting with said heel piece and supporting the heel piece in a manner to reduce friction to a minimum between the heel cleats and the heel piece, and plates carried by the heel cleats for holding the roller bearings against displacement, said roller bearings projecting beyond the heel cleats upon the inner face to provide roller bearing contact with said heel piece.

4. A device of the class described comprising a rim, a tire casing mounted thereon, said tire casing being provided with a plurality of longitudinally extending channels, an individual inflatable tube mounted within each channel, a dividing partition separating said channels and provided with a heel piece at its bottom, heel cleats anchored upon said rim and engaging the opposite faces of said heel piece, roller bearings carried by the heel cleats for contacting with said heel piece and supporting the heel piece in a manner to reduce friction to a minimum between the heel cleats and the heel piece, plates carried by the heel cleats for holding the roller bearings against displacement, said roller bearings projecting beyond the heel cleats upon the inner face to provide roller bearing contact with said heel piece, and protector strips interposed between the inflatable tubes and the heel cleats.

5. A device of the class described comprising a rim, a tire casing mounted thereon, said tire casing being provided with a plurality of longitudinally extending channels, an individual inflatable tube mounted within each channel, a dividing partition separating said channels and provided with a heel piece at its bottom, heel cleats anchored upon said rim and engaging the opposite faces of said heel piece, roller bearings carried by the heel cleats for contacting with said heel piece and supporting the heel piece in a manner to reduce friction to a minimum between the heel cleats and the heel piece, plates carried by the heel cleats for holding the roller bearings against displacement, and said roller bearings projecting beyond the heel cleats upon the inner face to provide roller bearing contact with said heel piece.

JOSEPH J. HRUSKA.