April 8, 1941. T. HARRISON 2,237,702

DETACHABLE WHEEL

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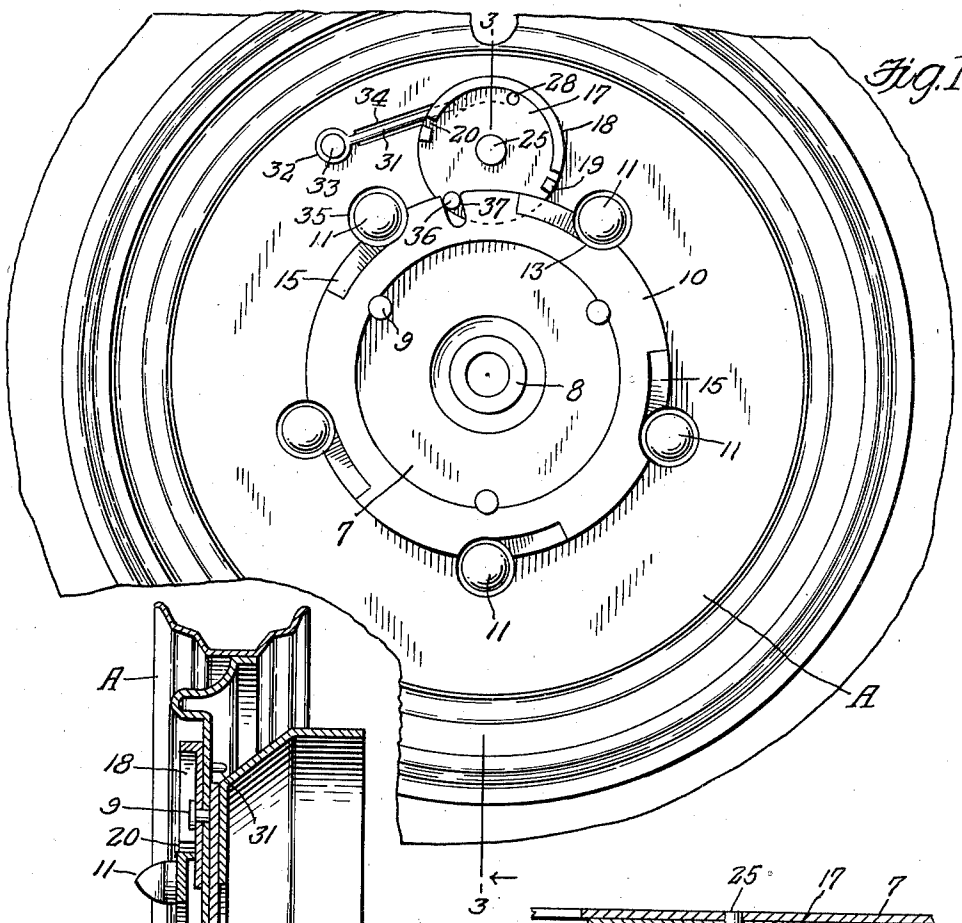


Fig. 1.

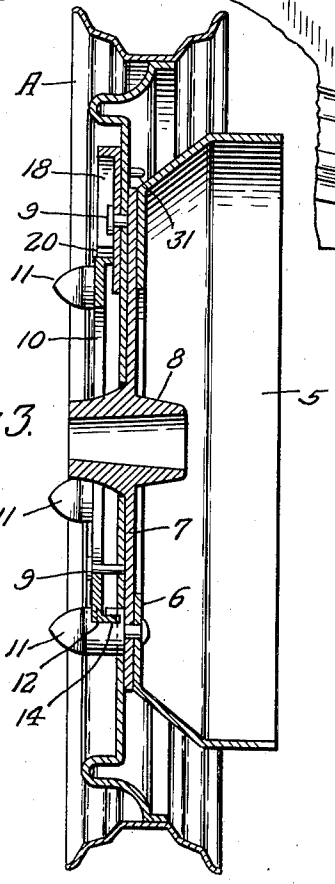


Fig. 3.

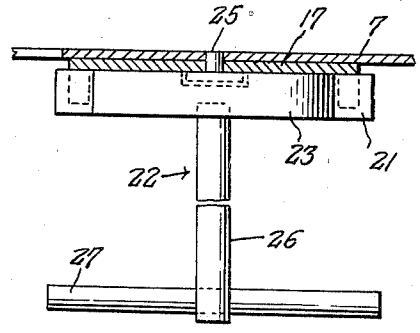


Fig. 5.

Inventor

Thomas Harrison

By Clarence A. O'Brien

Attorney

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Fig. 2.

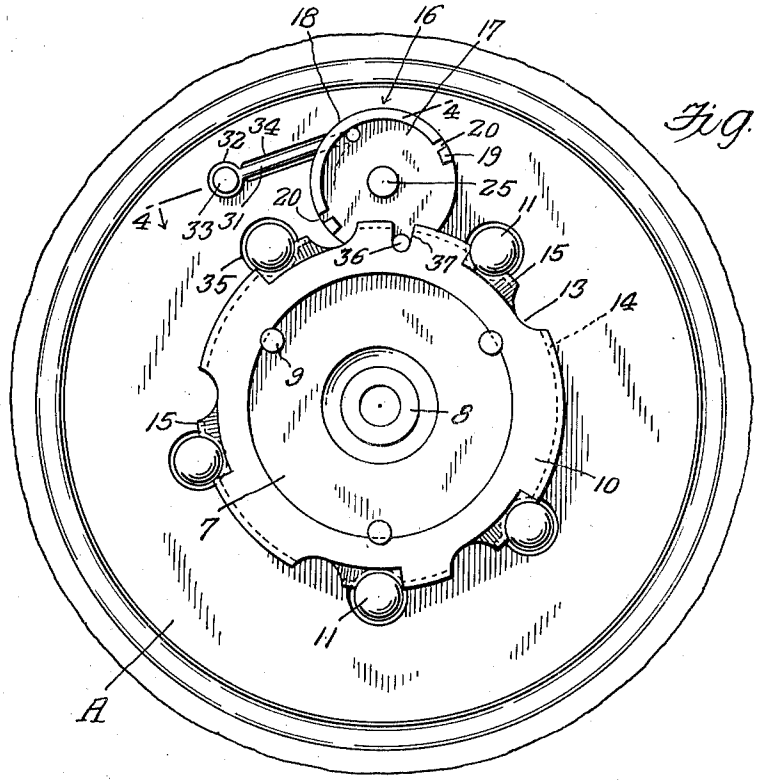


Fig. 4.

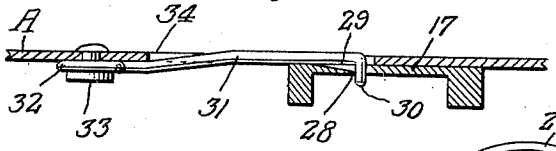


Fig. 7.

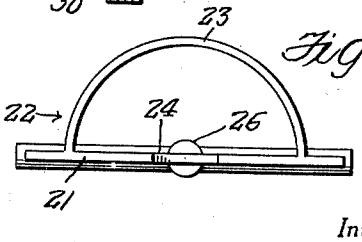
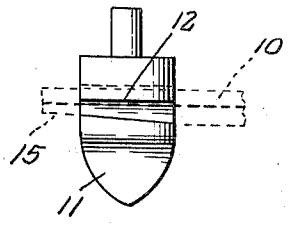


Fig. 6.



Inventor

Thomas Harrison

By Clarence A. O'Brien

Attorney

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UNITED STATES PATENT OFFICE

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DETACHABLE WHEEL

Thomas Harrison, Flint, Mich.

Application February 24, 1940, Serial No. 320,683

2 Claims. (Cl. 301—9)

This invention appertains to new and useful improvements in detachable wheels and more particularly to a wheel of the quick detachable type.

The principal object of the present invention is to provide a quick detachable wheel which involves only a single latch means as against the presence of a plurality of nuts and bolts such as are employed on most types of wheels in use today.

Still another important object of the invention is to provide a quick detachable wheel wherein the parts are of simple construction yet sturdy and not susceptible to the ready development of defects.

These and other objects and advantages of the invention will become apparent to the reader of the following description.

In the drawings—

Figure 1 represents a fragmentary outside elevational view showing the fastening means in released position.

Figure 2 is a fragmentary outside elevational view of the fastening means showing the same in latched position.

Figure 3 is a section on the line 3—3 of Figure 1 showing the fastening means in latched position.

Figure 4 is a section on the line 4—4 of Figure 2.

Figure 5 is a fragmentary top plan view of the wrench with a portion of the wheel in section.

Figure 6 is an inside elevational view of one of the studs.

Figure 7 is an end elevational view of the wrench.

Referring to the drawings wherein like numerals designate like parts, it can be seen that numeral 5 denotes a usual brake drum which is suitably secured by its inturned flange portion 6 to a hub plate 7, numeral 8 denoting a hub.

Projecting outwardly from the hubplate 7 are headed guide pins 9 overlapping the inner edge portion of a rotatable wedge annulus 10.

Projecting in an annular arrangement from the hub plate 7 are bullet-shaped studs 11, each of which has an L-shaped groove 12 at the inner side portion thereof, and as is shown in Figure 6, this groove is longitudinally tapered, for the purpose of having wedging action with certain portions of the outer edge of the annulus 10. As is shown in Figure 2, the peripheral portion of the annulus 10 has arcuate-shaped cut-outs 13 therein, equal in number to the number of studs 11. The edge portions of the annulus 10 between the cut-outs 13 are provided with inboard turned flanges 14 which ride in the grooves 12 of the studs 11, as in the manner suggested in Figure 3.

Furthermore, as is suggested in Figures 2 and 6, the edge portions of the annulus 10 adjacent the cut-outs 13 graduate in thickness as at 15 from a thin thickness of the cut-outs 13 for the purpose of providing a cam surface on which wedging action occurs between the graduated portions and the walls of the grooves of said studs 11.

Numeral 16 generally refers to a latch which consists of a disk 17 having a semi-circular flange 18 along the edge portion thereof and terminating in close spaced relation at its ends with lugs 19. Thus the slots 20 are defined for the reception of the straight flange 21 of a wrench generally referred to by numeral 22. Extending laterally from this straight flange 21 is an arcuate member 23 which can bear against the inner side of the disk flange 18. A cut-out 24 in the flange 21 serves to avoid the head of the pivot pin 25. Extending from the flange 21 as a shank 26 at the outer end of which is a handle 27.

The disk 17 has an opening 28 therein, which is at the end of an inclined channel 29 (see Figure 4) in which the tapered lateral head 30 of a spring arm 31 is seatable. One end of this arm is formed to provide a loop 32 which is secured by a rivet 33 to wheel A. The wheel A is formed with a slot 34 to permit free flexing of the spring 31. The disk 17 has a pin 36 projecting laterally therefrom and through a slot in the edge portion of the annulus 10 and it is by this pin and slot that the annulus 10 is rotated by the disk 7 as the disk is turned by the wrench 22.

It can now be seen, that the wheel A can be slipped over the studs 11, so that the studs 11 will project through the circular openings 35 in the wheel and through the cut-outs 13 in the annulus 10. The wrench can be applied to the disk 17 to the end that the disk is rotated and the pin 36 disposed in the notch 37 of the annulus 10 will rotate the annulus 10, binding the tapered portions 15 against the studs 11 and until the head 30 of the spring 31 snaps into the opening 28.

When it is desired to remove the wheel, the wrench 22 is applied to the disk 17 so that the flange 21 extends through the slots 20 and the arcuate flange 23 engages against the protruding head 30 (see Figure 4) of the spring 31, moving the head 30 inwardly, so that when the disk 17 is rotated by the wrench 22, the head 30 can easily slip into the groove 29. Further rotation of the disc 17 will cause the annulus 10 to rotate until

the cut-outs 13 are registering with the studs 11, whereupon the wheel can be slipped off of the hub.

While the foregoing specification sets forth the invention in specific terms, it is to be understood that numerous changes in the shape, size and materials may be resorted to without departing from the spirit and scope of the invention as claimed hereinafter.

Having described the invention, what is claimed as new is:

1. A demountable wheel comprising a hub structure, a wheel structure, grooved studs projecting from the hub structure, said wheel structure having openings for receiving the studs, a rotatably mounted annulus on the wheel structure having cut-outs for receiving the studs, said rotatable annulus being adapted to be rotated to dispose portions of its periphery in the slots of the studs, a rotatable disc mounted on the wheel structure, a pin and slot connection between the disc and the annulus whereby the annulus is rotated as the disc is turned, wrench engageable means on the disc, a spring arm having one end anchored to the wheel structure and provided with a laterally disposed tapered head at its free end for riding engagement against one side of the disc, said disc having an opening therein for receiving the tapered head when the disc and annulus have been rotated to a position with portions of the periphery of the annulus disposed in the grooves of the studs.

2. A demountable wheel comprising a hub structure, a wheel structure, grooved studs projecting from the hub structure, said wheel structure having openings for receiving the studs, a rotatably mounted annulus on the wheel structure having cut-outs for receiving the studs, said rotatable annulus being adapted to be rotated to dispose portions of its periphery in the slots of the studs, a rotatable disc mounted on the wheel structure, a pin and slot connection between the disc and the annulus whereby the annulus is rotated as the disc is turned, wrench engageable means on the disc, a spring arm having one end anchored to the wheel structure and provided with a laterally disposed tapered head at its free end for riding engagement against one side of the disc, said disc having an opening therein for receiving the tapered head when the disc and annulus have been rotated to a position with portions of the periphery of the annulus disposed in the grooves of the studs, said disc having a gradually deepening groove therein merging with the opening in the disc at the deep end thereof and in which the tapered head of the spring arm is ridable.

THOMAS HARRISON.