

W. C. FOWNES, JR. & F. HOFWING.
WHEEL.

APPLICATION FILED OCT. 31, 1912.

1,060,835.

Patented May 6, 1913

2 SHEETS-SHEET 1.

FIG. 1

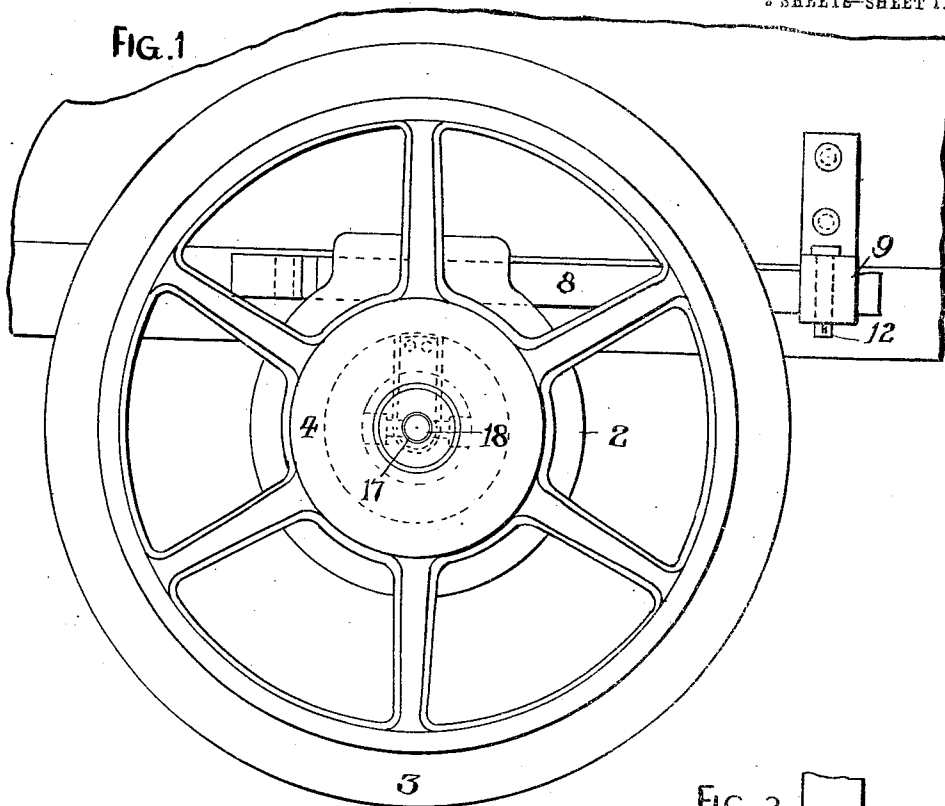


FIG. 2

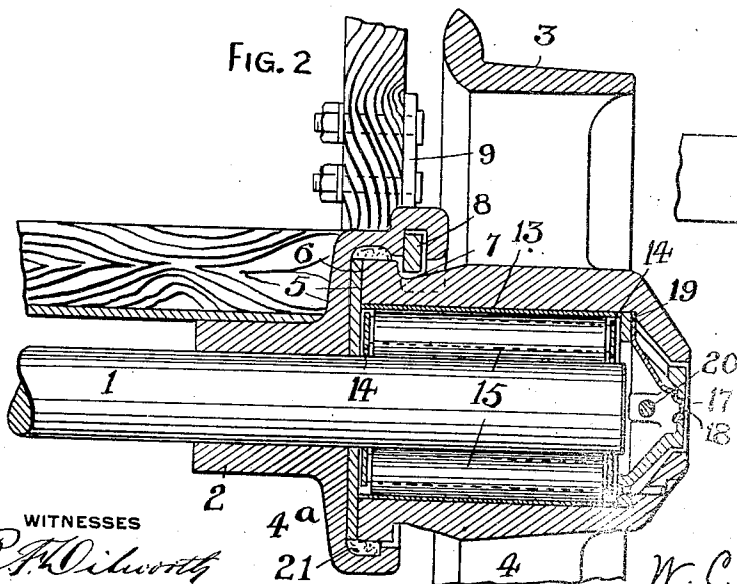


FIG. 3

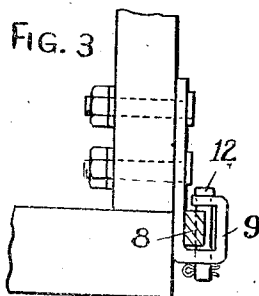
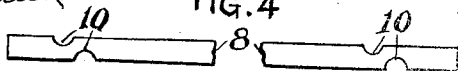


FIG. 4



WITNESSES

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2 SHEETS—SHEET 2.

FIG. 5

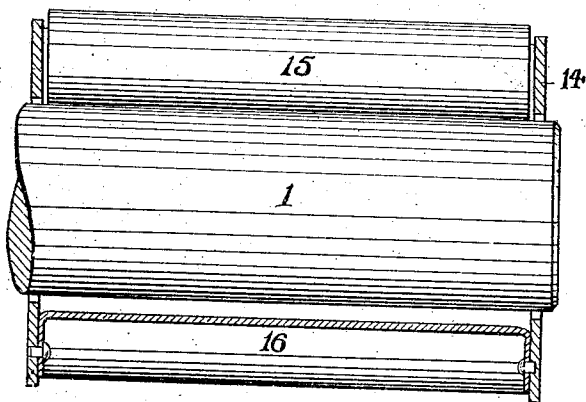


FIG. 6

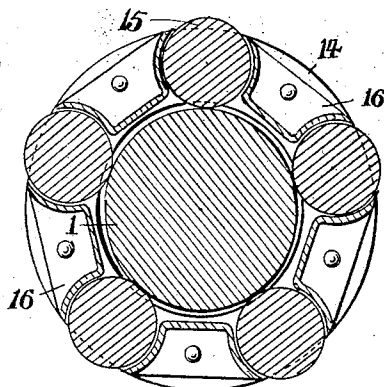


FIG. 9

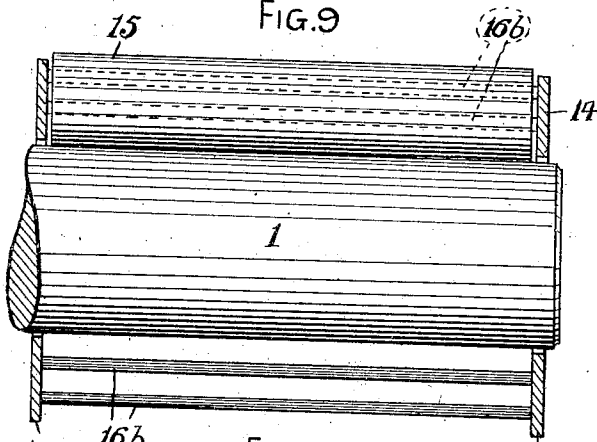


FIG. 10

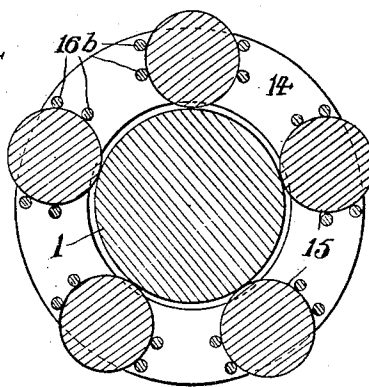


FIG. 7

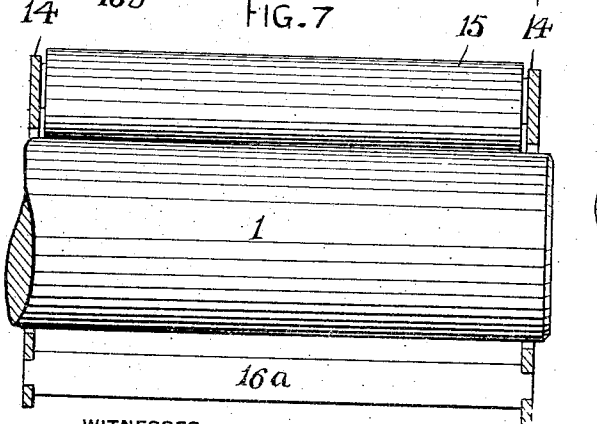
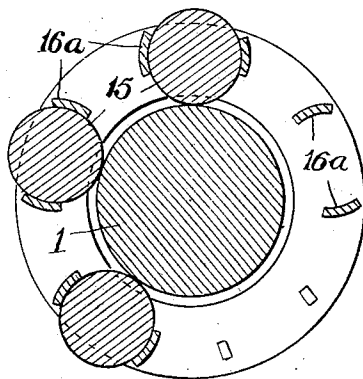


FIG. 8



WITNESSES

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UNITED STATES PATENT OFFICE.

WILLIAM C. FOWNES, JR., OF PITTSBURGH, AND FRITZ HOFWING, OF MIDLAND, PENNSYLVANIA, ASSIGNORS TO PITTSBURGH IRON & STEEL FOUNDRIES COMPANY, OF PITTSBURGH, PENNSYLVANIA, A CORPORATION OF PENNSYLVANIA.

WHEEL.

1.060,835.

Specification of Letters Patent.

Patented May 6, 1913.

Application filed October 31, 1912. Serial No. 728,906.

To all whom it may concern:

Be it known that we, WILLIAM C. FOWNES, Jr., a citizen of the United States, residing at Pittsburgh, in the county of Allegheny and State of Pennsylvania, and FRITZ HOFWING, a subject of Sweden, residing at Midland, in the county of Beaver and State of Pennsylvania, have invented new and useful Improvements in Wheels, of which the following is a specification.

Our invention relates to wheels which rotate on the end of a shaft or axle.

The object thereof is to provide a wheel which can be readily removed from its shaft or axle; which may be locked in place or unlocked therefrom by a simple device, more easily accessible than the usual locking and unlocking devices for wheels of the class to which our improved wheel belongs; which may have roller bearings or roller-bearing cages readily removed and inserted; which contains improved forms of roller bearings; and which is constructed to be readily oiled.

Other objects will appear hereinafter.

Referring to the accompanying drawings, Figure 1 is a side elevation of a wheel and a portion of a car with our invention applied thereto; Fig. 2, a longitudinal section through the center of the hub, the axle being in elevation; Fig. 3, a detail section showing the locking device and support for the hub-locking key; Fig. 4, an edge view of the key, with the center broken away; Fig. 5, a detail of one end of an axle with the roller bearing cage in section; Fig. 6, a cross-section of Fig. 4; Fig. 7, a detail of an axle with a second form of roller cage in section; Fig. 8, a cross-section of Fig. 6; Fig. 9, a detail of one end of an axle with a third form of roller cage in section; and Fig. 10, a cross-section of Fig. 7.

On the drawings, 1 designates the axle of a car, the axle being supported in the fixed bearing 2, from which the axle projects so as to form a bearing for the wheel 3 rotatable thereon. The bearing 2 has its outer end made in the form of a cup-shaped cavity so as to receive the inner end of the hub 4 of the wheel 3, the inner end of the hub engaging the ring 4^a which rests against the end, or bottom, wall 5 of the cup-shaped cavity. The inner end of the hub is provided with an annular flange 6 which presents an annular shoulder 7 facing the

outer end of the hub. The upper side of the bearing 2 has its outer end above the hub extending toward the end of the hub and provided with a horizontal opening to receive the reciprocatory key or bar 8, which lies in front of the flange 6 so as to engage the shoulder 7 and lock the hub to the bearing 2. The outer end of the bar or key 8 extends through an opening in a bracket or guide 9 secured to the side of the car body or other stationary support beyond the periphery of the wheel 3. The key 8 is provided with vertical holes or notches 10.

A locking pin 12 is passed down through holes in the top and bottom of the bracket 9 and through one of the notches 10 in the key to prevent endwise movement of the key when it is in its normal, or hub-locking position. We have shown each side of the key provided with notches 10, so that the key may be reversed end for end, or side for side when the flange 6 wears it considerably. By placing the bracket 9 and the locking pin beyond the periphery of the wheel, the key may be locked or unlocked, and withdrawn from its locking position in front of the flange 6 and returned to its locking position without reaching under the car or its axle or through the spokes of the wheel or between the wheel and the car body. As car wheels are usually very greasy and dirty, cars provided with our improvement may have their wheels changed without any necessity for soiling hands or clothes in manipulating the wheel-locking devices.

The interior of the hub is hollow and provided with the bearing sleeve or bushing 13. A cage provided with end rings 14, bearing bars connecting the end rings, and the rollers 15 located between the end rings is located between the bushing 13 and the projecting end of the axle. In Figs. 5 and 6, the end rings are connected by the bars 16 each having its opposite sides hollowed so as to fit adjacent rollers and form bearings therefor. Preferably the bars surround the rollers sufficiently to retain them in the cage, the space between adjacent edges of the bars being less than the diameter of the roller. We have shown the bars 16 riveted to the rings 14. In Figs. 7 and 8 there is a pair of separate bearing bars 16^a for each roller, the bars being hollowed like the bars 16, and their ends secured in holes in the rings. In

Figs. 9 and 10, a plurality of parallel bearing rods 16^b are placed on opposite sides of each roller. These rods may be considered as the bars 16^a with longitudinal portions removed. The front of the hub is closed except for a small axial opening 17 for the spout of an oil can. The opening 17 is normally closed by the spring pressed closure 18 which may be pushed inwardly by the spout of the oil can. The outer end of the roller cage is engaged by the outwardly dished casting 19 having the cross pin 20 which limits the inward movement of the spring closure 18.

15 The periphery of the flange 6 rotates in engagement with the annular packing 21 within the outer flange of the bearing 2.

It will be seen that our wheels can be very quickly removed for the purpose of packing the roller bearings with grease or for other purposes in a minimum of time and without soiling of the clothes or hands

in the manipulation of the bar 8 and the pin 12.

We claim—

The combination of a bearing, an axle projecting therefrom, a wheel-hub rotatable on the axle, having its inner end adjacent to the said bearing, and provided with an annular flange, a slidable locking key normally lying across the path of movement of the flange toward the outer end of the axle, and means beyond the periphery of the wheel for locking the key in its normal position.

Signed by us, the said WILLIAM C. FOWNES, Jr., and the said FRITZ HOFWING, at Midland, Pa., this 15th day of October A. D. 1912.

WM. C. FOWNES, JR.
FRITZ HOFWING.

Witnesses:

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W. C. RICE.