J. F. BERGER.

[illegible] WHEEL.

APPLICATION FILED OCT. 30, 1915.

1,201,315. Patented Oct. 17, 1916.

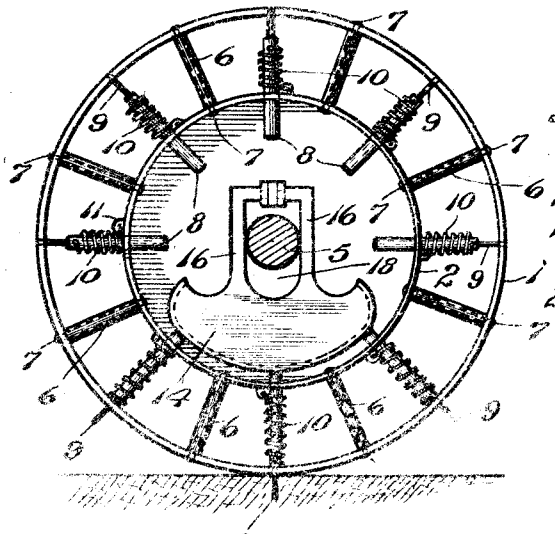


Fig. 1.

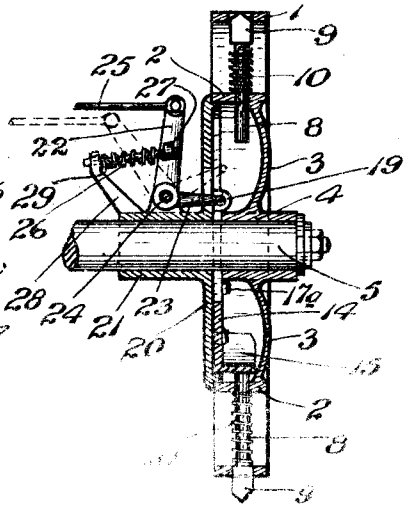


Fig. 2.

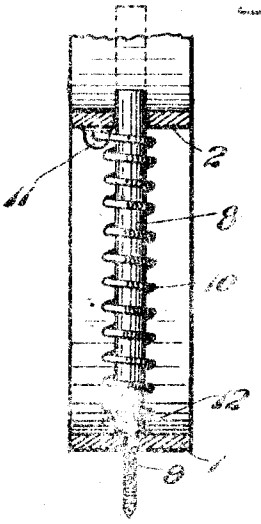


Fig. 3.

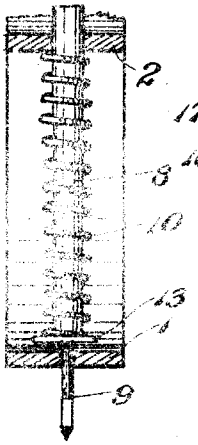


Fig. 5.

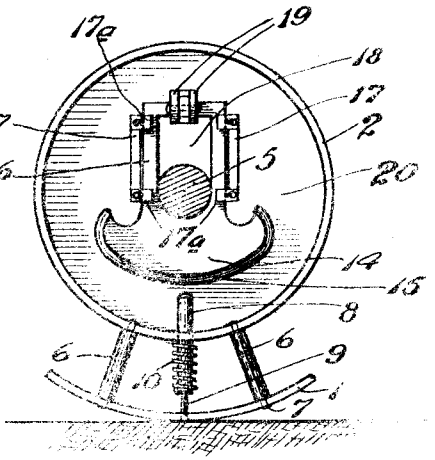


Fig. 4.

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UNITED STATES PATENT OFFICE.

JOHN T. LEINBERGER, OF BAY CITY, MICHIGAN, ASSIGNOR OF ONE-THIRD TO JOHN KOLB AND ONE-THIRD TO MORITZ KOLB, OF BAY CITY, MICHIGAN.

TRACTOR OR AUTO WHEEL.

1,201,315. Specification of Letters Patent. Patented Oct. 17, 1916.

Application filed October 30, 1915. Serial No. 58,816.

To all whom it may concern:

Be it known that I, JOHN T. LEINBERGER, a citizen of the United States of America, residing at Bay City, in the county of Bay and State of Michigan, have invented certain new and useful Improvements in Tractor or Auto Wheels; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to a wheel especially adapted for use on tractors, motor trucks or various other self moving vehicles.

It is the object and purpose of my invention to provide a wheel of this character which will present an ordinary smooth appearance but which when desired, may be operated to have earth engaging prongs projected therefrom adjacent its lower surface, the prongs projecting progressively with the movement of the wheel over the ground so that as any portion of the wheel approaches the ground the prongs are projected therefrom. This gives the appearance of a smooth wheel and the effect of one provided with members for making a firm engagement between the wheel and the ground over which it moves.

A further object of the invention is to provide a device of this character having a smooth exterior which when it passes over pavements or smooth roads or the like, may be rendered inoperative so far as the projection of the prongs is concerned, the road thereupon not being torn up or injured in any manner by the wheel.

Various other objects and purposes together with novel construction for attaining the same will be apparent upon understanding of the embodiment of my invention disclosed in the accompanying drawings, in which;

Figure 1 is a side elevation of the wheel with a part of the housing thereof removed. Fig. 2 is a vertical section taken centrally through the wheel. Fig. 3 is an enlarged detail of a movable prong member showing it projected beyond the outer surface of the wheel. Fig. 4 is a fragmentary side elevation of the wheel taken from the side opposite to that shown in Fig. 1 and with the other side of the housing and the hub of the wheel removed. Fig. 5 is a view similar to Fig. 3 but showing a slight modification in structural detail.

Like reference characters refer to like parts throughout the several views of the drawing.

In the construction of the wheel an outer band 1 of circular outline is provided which is positioned around and spaced a distance from an inner housing member including an inner circular band 2 integral with which is cast a web 3 and a hub 4, the hub being passed over a shaft or axle 5 of the vehicle. The outer band 1 is spaced from the housing by sleeves 6 and is connected thereto by rods passing through the sleeves and bands 1 and 2, said rods being headed at their ends as indicated at 7 to make a permanent connection.

Between each pair of sleeves 6 is located a rod 8 which passes through the part 2 and is flattened and formed with a pointed end or prong as shown at 9. Normally the prong is located within the boundaries of the wheel made by the band 1 and is held in such position by a coil spring 10 which is positioned around the rod 8 being secured at one end to an ear 11 formed on the part 2, its other end passing through an opening 12 in the outer end of rod 8. This spring has a tendency to withdraw the rod and force it inwardly so that the ends of prongs 9 will be located within the band 1, openings, however, being provided in said band to permit the prong to pass therethrough. A slight modification in the structure is shown in Fig. 5 in which a bar 13 passes over the prong 9 and seats against the end of rod 8, the lower end of the spring 10 being connected thereto instead of passing through the opening 12.

Within the housing is positioned a plate 14 which at its lower end has portions bent out at right angles to the plate and curved to form a cam as indicated at 15. The lower portion of the plate 14 is widened while its upper portion is comprised of spaced apart sections 16 which pass between guides 17 having lips 17^a extending over said sections 16. The space 18 between the sections 16 receives the shaft or axle 5, the member 14 being mounted to move up and down in the guides. At its upper end plate 14 is provided with upwardly extending spaced apart ears 19.

The guides 17 are secured to a housing member 20 which closes the side of the housing opposite the webs 3, this housing member being formed with an inwardly extending sleeve 21 which passes over shaft 5. A bell crank lever including a substantially vertical arm 22 and horizontal arm 23 is pivoted at 24 to lugs cast integral with the sleeve 21, the end of arm 23 passing through a slot in the housing member 20 and having pivotal and slidable connection with the ears 19. A rod 25 leads from the upper end of arm 22 to any convenient location for manual operation thereof, it being evident that by pulling on the rod and moving the bell crank lever to occupy the position indicated in dotted lines in Fig. 2 that the plate 14 and attached cam 15 will be elevated and made to occupy the position shown in Fig. 4 in which all of the spring operated rods 8 are retracted and a smooth outer surface to the wheel presented. The normal position of the plate 14 however, is the lower position, it being normally actuated by compression spring 26 which is interposed between a lug 27 cast integral with the arm 22 and the end of a bracket 28 which may be cast integral with or otherwise secured to the sleeve 21, a rod 29 fixed to this bracket passing loosely through the lug 27 to hold the spring in position.

In operation, when the plate 14 with its attached cam is occupying its normal lower position as shown in Fig. 1, as the wheel rotates and the spring operated rods 8 come into contact with the cam, they are forced outwardly in this manner projecting the prongs 9 beyond the surface of the band 1 as shown in Fig. 1. The projection of the prongs will occur shortly before said prongs enter the ground and the prongs will remain in projected position until after removal from the ground. The remaining prongs on the upper surfaces of the wheel and at each side occupy their normal inner positions whereby the wheel presents a smooth appearance. Accordingly it will be evident that the projection of the prongs occurs only for the time that they are in actual use.

From the foregoing it will be apparent that I have provided a motor or tractor wheel which while of simple construction is very efficient for the purpose desired. This wheel can be passed over pavements or hard roads without any impairment thereof, the wheel acting in such cases as any ordinary smooth surfaced wheel. Furthermore by reason of the projection and retraction of the ground engaging prongs any earth that might adhere to the prongs is removed and each time a prong is again projected for engagement with the ground it presents a clean and unobstructed body, the advantage of which will be obvious.

Various changes in structural detail may be resorted to without departing from the invention which is defined in the appended claims.

I claim:—

1. A wheel comprised of a housing member including a hub, a web extending therefrom and a housing band lying substantially parallel to the hub, an outer band located around and spaced from the housing band, sleeves interposed between the outer band and housing band, rods passing therethrough and headed on the inside of the housing band and outer side of the outer band, rods passing through the housing band, prongs on said rods normally lying inside the outer band, said band having openings to pass said prongs, a tension spring attached to each rod and the housing normally drawing the prongs inwardly, a stationary housing member closing the side of said housing, guides thereon, a plate slidably mounted on the guides, a cam at the lower end of the plate to engage the rods and project them outwardly as the wheel rotates, a bell crank lever mounted on and having an arm projecting through said housing member and connected to the plate, an operating rod leading from the other arm of the bell crank lever, a lug on the second arm, a rod passing therethrough, a bracket to which said last named rod is secured, and a spring around the rod between the lug and bracket.

2. A wheel comprised of a housing member including a hub, a web extending therefrom and a housing band lying substantially parallel to the hub, an outer band located around and spaced from the housing, means connecting said outer band to the housing band, rods positioned radially and passing at their inner ends through the housing band, prongs on said rods normally lying inside the outer band, said band having openings to permit the passage of said prongs, a tension spring attached to each rod and the housing band normally drawing the prongs inwardly, a stationary housing member, including a sleeve, closing the side of said housing, guides thereon, a plate slidably mounted between the guides, a cam at the lower end of the plate to engage the rods and project them outwardly as the wheel rotates, a bell crank lever mounted on the sleeve having an arm extending through said stationary housing member and connected to the plate, means to operate said bell crank lever, and spring means tending to move the bell crank lever to position to thereby force the plate and attached cam to lower position, substantially as described.

3. A wheel comprised of a housing member including a hub, a circular housing band positioned a distance from the hub and means connecting the hub and band, an outer

band located around and spaced apart from the housing band, means for connecting the outer band rigidly to the housing band, rods passing through the housing band, prongs on said rods normally lying inside the outer band, said band having openings to pass said prongs, a tension spring attached to each rod and the housing normally drawing the prongs inwardly, a stationary housing member closing the side of said housing, guides on said housing members within the housing, a plate slidably mounted between the guides, a cam at the lower end of the plate to engage the rods and project them outwardly as the wheel rotates, and manually operated means for elevating the plate and attached cam, substantially as described.

In testimony whereof I affix my signature.

JOHN T. LEINBERGER.