April 19, 1927. 1,625,327

A. MOORE

GYRAL WHEEL

Filed Jan. 31, 1923

Fig 1

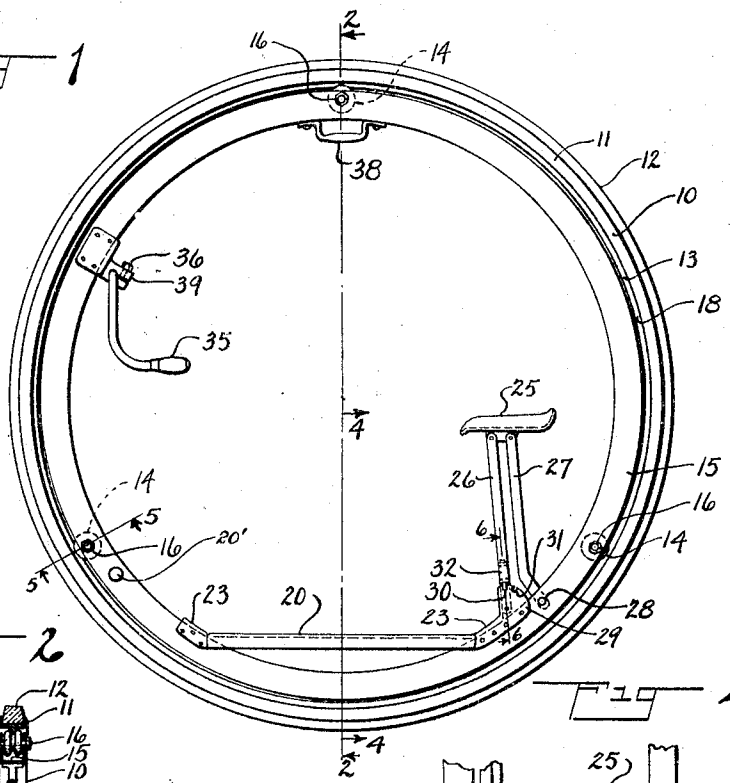


Fig 2

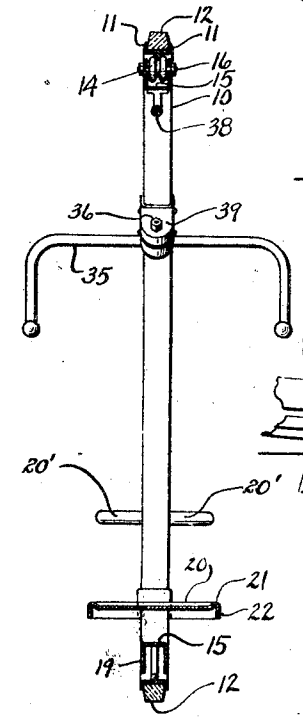


Fig 3

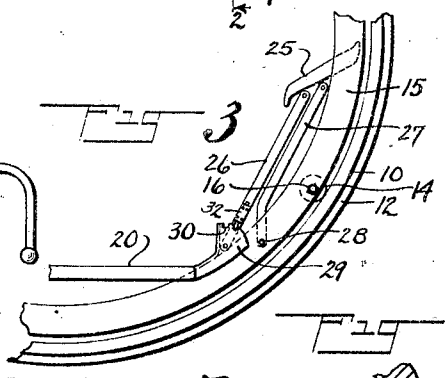


Fig 4

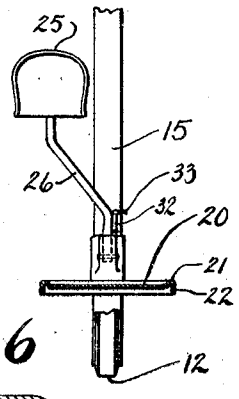


Fig 5

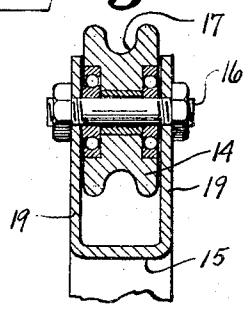
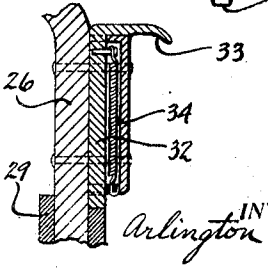


Fig 6



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Patented Apr. 19, 1927. 1,625,327

UNITED STATES PATENT OFFICE.

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GYRAL WHEEL.

Application filed January 31, 1923. Serial No. 615,991.

My invention relates to what I prefer to call a gyral wheel, to be used for sport and exercise, principally by children.

The present application is an improvement on my prior co-pending application Serial No. 583,637, filed Aug. 22, 1922, and the object of the present invention consists in the improvement of the device of my prior application in a number of important respects.

Among the important features are the provisions of an inner framework of circular form giving maximum room and minimum interference with the movements of the user, and at the same time serving to protect the user and his clothes from being injured or soiled.

Another feature consists in the equal distribution of the weight upon a plurality of equally spaced rollers. Other features of importance consist in the provision of additional holding means, the provision of a folding seat, still other features of improvement will be referred to in the course of the following specification and be pointed out in my claims.

An embodiment of the invention selected for illustration only, and not for limitation of the invention, is shown in the accompanying drawings in which Fig. 1 is a side view of a gyral wheel embodying the invention. Fig. 2 is a section on line 2—2, Fig. 1. Fig. 3 is a fragmentary detail view showing the seat in folded position. Figs. 4, 5 and 6 are detail sectional views on the lines 4—4, 5—5, and 6—6, respectively of Fig. 1.

The open center wheel or rim 10 is preferably of substantially T-shaped cross-section and has flanges 11, 11 on each side about its periphery for the reception of the tire 12, which preferably is a solid rubber tire similar to that used on buggy wheels and may be secured in place in a variety of known ways.

The internal rib 13 of the T-shaped metal frame 10 serves both to strengthen the rim 10, the cross-sectional form shown being very strong and rigid, and also serves to provide a track for the grooved rollers 14 mounted in the circular inner frame 15. Said inner frame 15 is circular in form, as already stated, and is substantially U-shaped in cross-section, the open side of the U-shaped section being directed outwardly. In this way, any matter, such as dirt, drops of oil or the like getting into the U-shaped frame 15 cannot drop out at the top, but before dropping out must pass downwardly to the side or bottom of the frame and when they do drop out at such position there is no resulting soiling of the clothes of the user who is fully protected against having his clothes injured or soiled while making use of the apparatus.

The rollers 14 are mounted on the framework 15, as by means of bolts 16. Ball bearing rollers are preferably made use of as shown and said rollers have peripheral grooves 17 adapted to run on the rib 13. These rollers are practically entirely enclosed, though a small segment thereof may project so as to be visible through the narrow circular slot 18 between the circular framework 15 and the frame 10. This slot 18, however, is so narrow and the side walls 19, 19 of the U-shaped frame member 15 are of such width that all parts of the person are thoroughly protected from coming in contact with the rollers and thereby all possible injury, as pinching of the fingers and the like, is prevented. Such plurality of rollers 14 are conveniently spaced about the framework 15. In the form shown, the three rollers illustrated are arranged 120° apart, one at the top of the framework 15 and one near the bottom on each side of the center.

The construction of the framework 15 in the manner described facilitates and simplifies the mounting therein, near the bottom, of the foot support member 20, which is preferably made from sheet metal with an upwardly extending marginal portion 21 adapted to keep the foot of the user from slipping off, and with the downwardly extending flange 22 about its edges. Such construction imparts great strength and stiffness to the foot support 20. The sheet metal of which the foot support 20 is made is provided with an inwardly struck portion 23 on each end, which is adapted to straddle the inner side of framework 15 and fit closely thereto and may be secured thereto in any suitable way, as by being riveted or electric spot welded in place thereon, thus making a very strong and substantial structure, and serving as a reinforcement for the framework 15.

A folding seat is provided for the user.

In the form shown, one such seat 25 is illustrated extending to one side of the device, but there may be another similar seat on the other side, if desired. The seat or saddle 25 is pivotally mounted on the folding legs 26, 27, leg 27 being pivoted to the framework 15 at 28, and leg 26 being pivoted to the extension 29 of the sheet metal foot support 20. Means are provided for locking the seat in the position for use, as shown Fig. 1, and in the folded position shown in Fig. 3. Such means may comprise notches 30, 31 formed in the extension member 29 as secured to framework 15, and a sliding catch 32 on the leg 26 which can be operated by the hookshaped handle 33, and is spring held into engagement with either notch 30 or notch 31, as the case may be, by means of the spring 34. When sitting on the seat 25, the feet of the user may be supported on foot rests 20′, which may be provided in any desired way, as by a bar extending through and fastened to the ring-shaped frame member 15.

The adjustable steering bar is secured to the framework 15, preferably on the side opposite the seat 25. In the form shown, the handlebars 35 are adjustable by means of the bolt 36 in the split collar 39 through which the handlebar 35 is passed, said collar 39 being secured to the framework 15 in any suitable way, as by being riveted, spot welded, etc. The handlebars can be adjusted through a considerable range and held by tightening bolt 36 in the position suitable to accommodate the reach, height, etc., of the user.

Handle 38 is also preferably provided on the inner side of the framework 15 at the top thereof and same being positioned vertically over the point of turning for steering is more especially useful if the user or users are in standing position, it being apparent that the device may be used by a single person or by two persons, one on each side thereof. This handle 38 being on the axial line of the apparatus as the same is turned for steering, is free from any of the wobbling action, such as the handlebars 35 may be subjected to, particularly in starting off and affords a means for steadying the apparatus in use.

It will be seen that a gyral wheel in accordance with my present invention has numerous features of advantage. Maximum room is provided for the user, permitting the person and clothes of the user to be readily kept out of contact with the parts of the device; no dirt or oil can drop on the user; the construction is strong, rigid and not readily gotten out of order; the foot support is well down in the framework and has maximum strength and serves as a reenforcement of the framework; the handlebars are adjustable to practically any user; the seat is well adapted for use and can readily be folded out of the way when not wanted and is securely held in either position; the user can grasp and hold the device at a point immediately above the axis of turning for steering, the working parts are substantially completely enclosed, and smooth and noiseless in operation; and numerous other features of advantage are obtained, which need not be referred to in detail.

I claim:

1. In a device of the class described, the combination of an open rim of substantially T-shaped cross-section and having peripheral flanges, a tire on said rim, a circular framework of substantially U-shaped cross-section within the wheel, and a plurality of rollers within said framework and adapted to run on the inwardly projecting rib of the wheel rim.

2. In a device of the class described, a wheel comprising an open rim having an inner central rib, a circular framework therein of substantially U-shaped cross-section open on the side next to the rim, and a plurality of substantially evenly spaced grooved rollers turning in said framework and having their grooved portions running on said rib of the rim as on a track.

3. In a device of the class described, the combination with a wheel comprising an open rim with a central rib on its inner face, a circular framework therein of substantially U-shaped cross-section, the open side thereof facing said rib, and a plurality of grooved rollers pivotally mounted in the interior of the framework and having the grooves thereof in engagement with the said rib on said rim.

4. In a device of the class described, an open rim, a circular framework of substantially U-shaped cross-section mounted to turn therein, and a footrest straddling the inner sides of the framework at about the bottom thereof.

5. In a device of the class described, an open rim, a circular framework of substantially U-shaped cross-section mounted to turn therein, a foot support in said framework, and a folded seat pivotally secured in said framework at one end of the foot support.

6. In a device of the class described, the combination of an open rim, a circular framework of substantially U-shaped cross-section on which said rim is mounted to turn, a foot support in said framework a folded seat pivotally secured in said framework at one end of the foot support, and a hand hold on said framework substantially diametrically opposite said foot support.

7. In a device of the class described, an open rim, a circular framework on which the rim is mounted to turn, a foot support

in the framework, said foot support comprising a notched extension member, a folding seat, and holding means associated with said seat to enter said notches and hold said seat in a variety of adjusted positions.

8. In a device of the class described, a wheel having the form of an open rim, said rim being substantially U-shaped in cross-section with an internally extending central rib and outwardly projecting lateral flanges, a tire received between the flanges of said rim, a substantially circular framework in said rim and being of substantially U-shaped cross-section with the open side toward the rim, three grooved rollers pivotally mounted in said framework and having the rib of said rim received to run in said grooves, a foot support extending across the framework at the lowermost portion thereof, a folding seat mounted in the framework at the after end of said foot support, a pair of pivotally adjustable handlebars in said framework on the side opposite said seat, and a hand hold in the framework substantially diametrically opposite said foot support.

In testimony whereof, I have signed my name hereto.

ARLINGTON MOORE.