2 Sheets—Sheet 1.

R. WINANS.

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Car Wheel.

Patented Nov. 19, 1833.

Fig: 5.

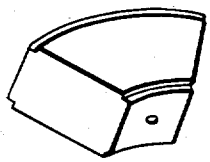
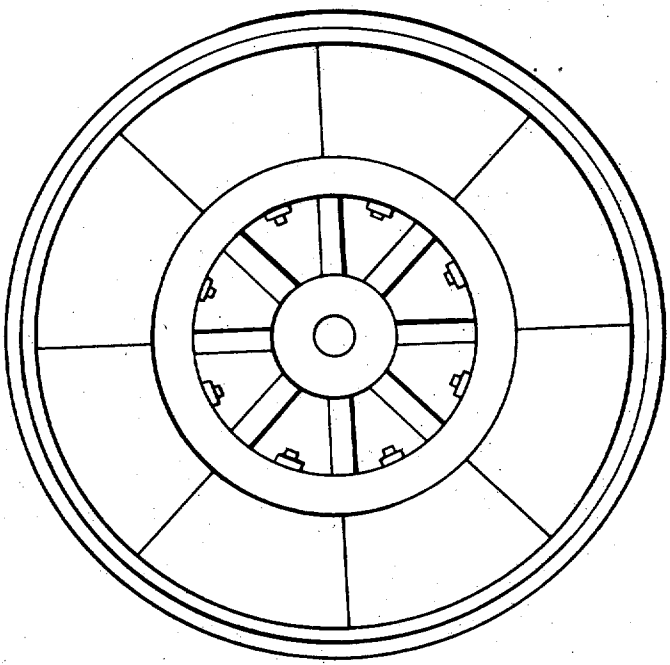


Fig: 1.



THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

2 sheets—Sheet 2.

R. WINANS.

7847X

Car Wheel.

Patented Nov. 19, 1833.

Fig. 4.

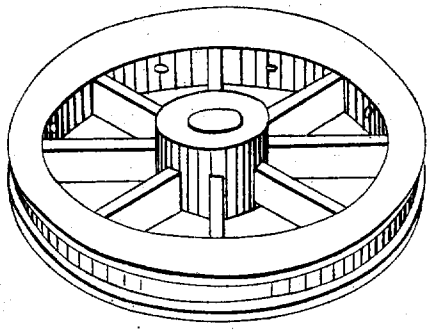


Fig. 3.

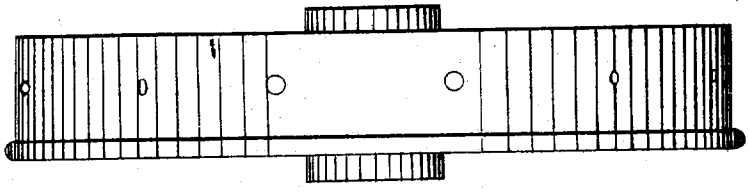
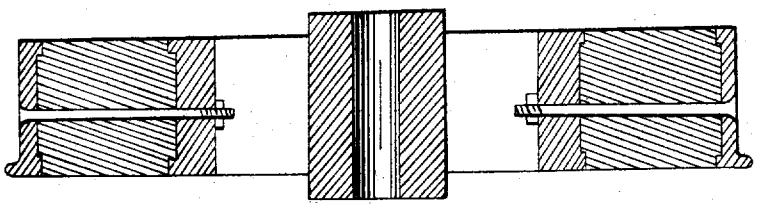


Fig. 2.



AM. PHOTO-LITHO. CO. N.Y. (OSBORNE'S PROCESS.)

Ch. 15

7844X Nov. 19, 1833 47

Ph. Williams

Letters Patent

The schedule referred to in these Letters Patent and making part of the same containing a description in the words of the said Ph. Williams himself of the improvement in the mode of constructing wheels for cars and locomotive engines to travel on Railways

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To all whom it may concern. Be it known that I Ph. Williams of the City of Baltimore in the State of Maryland civil Engineer have invented an improved mode of constructing wheels for cars and locomotive engines to be used upon Rail Roads and that the following is a full and exact description thereof.

The nature of my invention consists in the difference between my improved wheel and those wheels now in use for the same purpose. I will briefly point out the manner in which wheels for this purpose have been usually constructed, notwithstanding however as it is contemplated by the present invention to reduce all the plans which have been adopted, to that which I have made wholly or nearly of cast iron, the face or tread of them being cast outside a shell combining of a thick rim or hoop of iron which forms a part of the mould. 2nd The wheels have been cast without being chilled and after having been properly worked or straightened they form the face and flanch of the wheel. 3. Most wheels have or have been made to receive wooden spokes inserted in wooden felloes which were hooped with a hoop of wrought iron. 4th The hubs have been of cast iron with spokes of wrought iron and a rim of wrought iron or cast iron hooped with wrought iron. These plans have each their respective advantages and disadvantages but neither of them has fully preserved the true face for which it has been adopted. The wrought iron hoops or tires upon the cast iron rims have gradually become loosened. The wooden spokes and fellies have swelled the one into the other and the tires ceased to bind them, and such wheels undergoing inclined faces. To remedy these defects and others incident to some of the wheels in the use of any improvement. My wheel consists essentially of three parts namely an outer circular hub, spokes, and rim of which are of cast iron a part of which I proceed as a mould to be presently described surrounding the outer circular hub. A hoop or tire of wrought iron surrounding the mould and forming the face or tread of

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of the wheel. The cross wheel is made in some respects like those first mentioned but the face is not chilled nor has it the same form with the chilled face. It should be made of the same width on the rim with the straight arm which is to surround and form the frame of the wheel say five inches. The face of the cast iron may be cylindrical for the greater part of its width but it must in this case have a fillet or edge projecting upon each side of it say to the height and of the thickness of half an inch which will then give to it the appearance of a wheel with a double flanch having a cylindrical tread of four inches in width. Instead of making the face in this form I should sometimes to give to it a regular declination from each edge towards the centre. A section of the rim transversely would then be somewhat in the form of the letter V. but with the angle obtuse. The inclination will be sufficient if the diameter at the centre of the rim is one inch less than that of the side or edges. Other forms may be given to the face of this rim by which the object in view may be attained namely that of retaining the wooden rim in its place without allowing it to move out on either side. A rim of wood is to be placed around this which may consist of any convenient number of pieces fitted to each other and to the face of the wheel. The grain of the wood is to cross the rim of the wheel running parallel with its axis. These pieces may be fitted to the face of the wheel with great facility by dividing them into a large hoop running on a chuck in a lathe by which means they may be turned to the form required, they may then be fastened on to the rim by screws or other wise and turned therein to receive the iron hoop or tire. The best thickness of this rim will be from two to four inches. The hoop or tire of wrought iron is to be made in the usual form turned truly and fitted on over the wooden rim when expanded by heating it as highly as may be done without burning the wood. Bolts are then to be passed through the wrought iron, the wood and the cast iron rims and secured by nuts to confine the whole together. The best manner in which the wheel thus made may be cast on the inside of securing these divisions or spurring which are necessary on the chilled wheel is open for consideration. Although I have described the spokes and rim as being of cast iron, either or both of these may be of wrought iron but it would be more costly without affording any adequate advantages, those of cast iron being perfectly safe in this mode of construction. It will be an advantage for

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conceived that the wood Nave proposed between two hoops of iron has an object of leaving interspace which will effectually prevent it being condemned by the force to which it is subjected, whilst by its elasticity, it will tend to preserve both the wood and the tubes forming over it. If perfectly dried when put on which may be done by artificial heat the wood will never shrink but on the contrary will expand and render all the part more firm. Such a wheel will have less tendency than any other whose wood is employed to get out of truth and should wedging become necessary it may be done more effectually than with any other. The dimensions of most of the parts of such wheels need not differ greatly from those of the cast iron wheels with chilled rims, but the rims must vary according to their diameter and the load they are to sustain, the following is a good proportion for wheels of three feet in diameter intended for cars carrying three tons. Cast iron interior wheel 29 inches diameter, hub 7 inches long by 5 in diameter spokes 12 in number 3/4 of an inch thick and 3½ or 4 inches broad, rim 5 inches broad, by 3/4 of an inch thick, wooden rim 2 3/4 inches thick, 3 inches deep measuring across the rim, wrought iron tire 3/4 inch thick 5 inches broad flanch 1/4 inch deep ½ inch thick.

Although I have described the rim of wood as solid and with its grain crossing the rim of the wheel and am fully convinced that this is the best manner of placing it, yet it will answer the purpose to a considerable extent when running in the direction of the rim, and I do not intend therefore to limit myself in this respect as what I claim as my invention is the interposing a rim or belt of wood between an interior wheel of cast or forged iron and a wrought iron rim or tire, and securing the whole together in the manner and for the purposes herein before set forth.

Witnesses
Wm Elgar
Thos H Griffith

Edgt Stevens

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Ex
Chf W.