

(No Model.)

2 Sheets—Sheet 1.

S. R. WILSON.

CHANGEABLE GAGE TRUCK FOR CARS.

No. 381,312.

Patented Apr. 17, 1888.

Fig. 1.

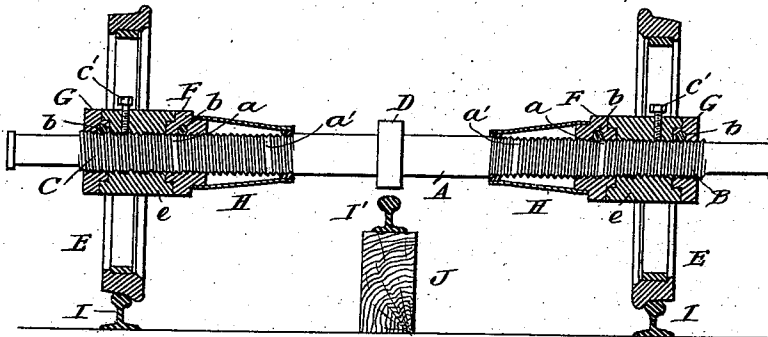
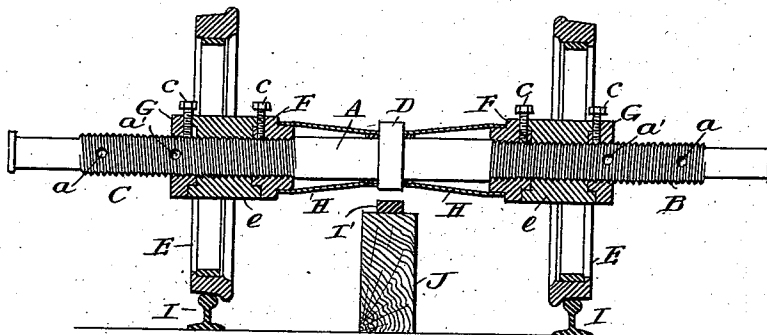


Fig. 2.



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*J. Clark.*  
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INVENTOR:

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BY

*Munn & Co.*

ATTORNEYS.

(No Model.)

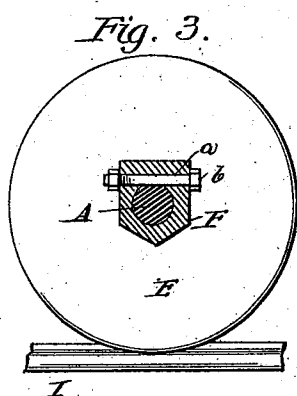
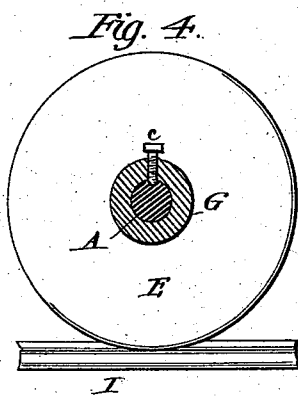
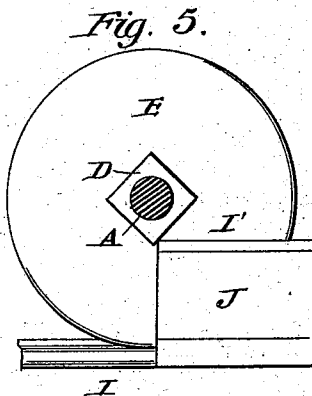
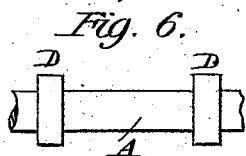
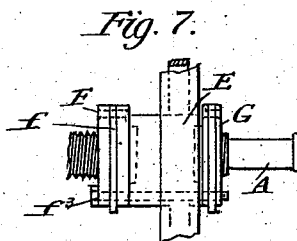
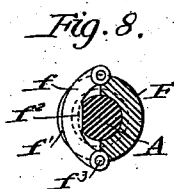
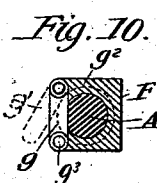
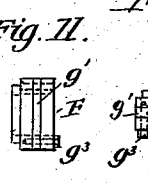
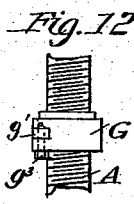
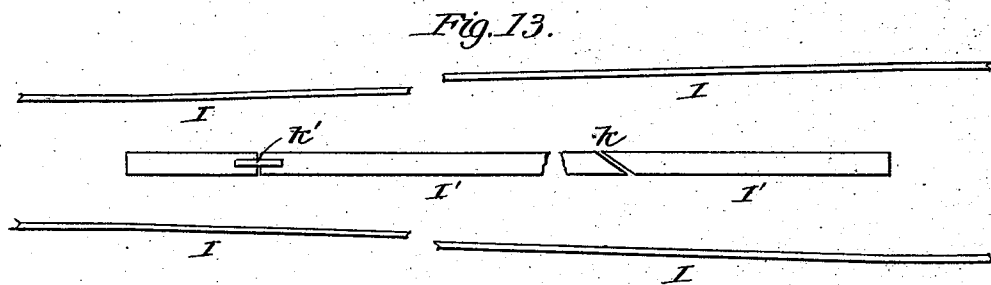
2 Sheets—Sheet 2.

S. R. WILSON.

CHANGEABLE GAGE TRUCK FOR CARS.

No. 381,312.

Patented Apr. 17, 1888.



WITNESSES:

*J. Clark.*  
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INVENTOR:

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# UNITED STATES PATENT OFFICE.

SAMUEL RUPERT WILSON, OF ADELAIDE, SOUTH AUSTRALIA.

## CHANGEABLE GAGE-TRUCK FOR CARS.

SPECIFICATION forming part of Letters Patent No. 381,312, dated April 17, 1888.

Application filed October 12, 1887. Serial No. 252,148. (No model.)

*To all whom it may concern:*

Be it known that I, SAMUEL RUPERT WILSON, a subject of the Queen of Great Britain, and residing at the city of Adelaide, in the Province of South Australia, have invented a new and useful Device for Changing the Gage of Railway-Car Wheels, of which the following is a full, clear, and exact description.

The object of my invention is to effect the automatic transfer of railway-cars from a track of one gage to another track of a different gage without the necessity of uncoupling the cars or lifting them from the rails, and the same is accomplished by screw-threading the extremities of the axle, providing the wheels with screw-threads to adapt them to the axle-threads, and forming or securing upon said axle midway of its extremities a square block, which, when it comes in contact with an elevated ridge or rail in the center of the track, slides thereon and locks the axle against rotation, causing the wheels as they revolve to approach or recede from each other as the cars pass from a broad to a narrow gage track, or vice versa, until such change of gage is made throughout the train.

The invention consists in the construction, arrangement, and combination of parts hereinafter described and claimed.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in the several views.

Figures 1 and 2 are respectively elevations of an axle and pair of wheels set for a broad and a narrow gage, the wheels, collars, track-rails, and center rail being shown in section. Figs. 3 and 4 are side elevations of a car-wheel and track-rail with the axle and collar shown in section, illustrating two methods of securing the collars to the axle. Fig. 5 is a side elevation of a car-wheel, block, and center rail, the axle being shown in section, illustrating the position of said block as it engages the central rail. Fig. 6 is a plan view of the axle, showing two blocks fixed thereon. Fig. 7 is a plan view. Figs. 8, 9, and 10 are sectional views. Fig. 11 is a side elevation. Fig. 12 is a plan view illustrating various methods of securing the collars to the axle, and Fig. 13 is a broken plan view of two tracks of different gages and a plan of the central rail or ridge.

The axle A may be made of the usual diameter, having a right-hand screw, B, raised upon its periphery at one extremity, and a left-hand screw, C, raised upon its periphery at its other extremity; or it may be made of increased diameter at its extremities sufficient to allow for the sinking of the screw-threads therein. At its center said axle is provided with a square or equal-sided block, D, integral therewith or forged or clamped thereon, and of suitable dimensions to assure of its resting fairly upon an elevated ridge or rail placed in the center of the track, as hereinafter explained. Two of such blocks may be clamped or otherwise suitably fixed upon said axle at suitable distances from each other and the extremities of the axle, as illustrated in Fig. 6 of the drawings; or said axle may have one or more square portions integral therewith and similarly located.

The wheels E and their bosses e are threaded to adapt them to screw upon the axle, and at either side of said bosses are placed collars F and G, also threaded to adapt them to be screwed upon said axle. On said axle are cut grooves a a', and bolts b pass through said grooves and proper apertures in said collars secure the latter and the wheels in required position on the axle, as shown in Figs. 1 and 3 of the drawings. Said collars and wheels may be secured in place upon the axle by means of a set-screw, c, passed through a proper aperture in the collar to a tight contact with the axle, as shown in Figs. 2 and 4 of the drawings; or said axle may be provided with a toe-piece, a<sup>2</sup>, threaded to adapt it to the threads of the axle and upon which said screw has a tight contact, as shown in Fig. 9 of the drawings.

Figs. 7 and 8 of the drawings illustrate a method of securing a circular collar to the axle, said collar having pivoted to one of its sides a curved clip, f, adapted to enter a suitable slot, f', in the collar, and engage a notch, f<sup>2</sup>, cut in the periphery of the axle, the clip being secured in place by a pin, f<sup>3</sup>, passing through it and the boss of the wheel.

Figs. 10, 11, and 12 of the drawings illustrate a method of securing a square collar to the axle, said collar having cut in one of its sides a groove, g, in which is hinged one end of a bar, g', which engages a groove, g<sup>2</sup>, in the

side of the axle, and is held to place by a pin,  $g^3$ , passing through it and the collar.

To each of the collars  $F$  is attached by screws or other suitable means a sheet-iron or steel cylinder,  $H$ , which is adapted to encircle a portion of the axle and protect its threads therein from dust and to travel with said collars on the axle. When two blocks,  $D$ , are provided on the axle, these cylinders  $H$  are not employed.

As an additional means of securing the wheels in position upon the axle, I provide in the wheels, at about the center of their hubs, proper apertures to receive set-screws  $c'$ , which may be caused to nip directly upon the axle, as shown in Fig. 1 of the drawings, or upon a toe-piece, such as is shown in Fig. 9 of the drawings.

At the point where the change of gage is to be made diverging and converging rails  $I$ , of the ordinary construction, are laid, of a width apart to suit the gages worked upon and of a length to suit the pitch of the screws on the axle, and in the center of the track an elevated rail,  $I'$ , is laid, said rails all being perfectly true with each other. The central ridge or rail may consist of a common iron or steel plate secured upon a foundation of masonry or timber,  $J$ , as shown in Fig. 2 of the drawings, or it may be an ordinary iron or steel railway-rail supported in like manner, as shown in Fig. 1 of the drawings. Two of these central ridges or rails may be used when the axle, as shown in Fig. 6 of the drawings, is provided with two blocks, and said blocks will be fixed at any convenient distance from each wheel respectively, in position according to the width of the road and the arrangement of the under carriage. Said blocks may be larger or smaller than as shown in the drawings, although I consider the size of block illustrated the preferable one. The central ridge or rail should have such a height in accordance with the block or square part of the axle that enough space shall be left between the block and the axle to allow for slight variance in the height of the axle caused by the turning down of the wheel-tires. In order to prevent any jarring at the joints of the central rail or ridge its parts may be jointed, as shown at  $k$  in Fig. 13; or tongues  $k'$  may be let into the body of the rail or ridge with their ends sunk slightly below its upper face, as shown in the same figure.

The operation of my invention is as follows: The cars being upon a broad or narrow gage track, as the case may be, the set screws and bolts which secure the collars and wheels are loosened and withdrawn, and as the cars are pushed forward by an engine at their rear the blocks on the axle come in contact with the central ridge or rail and lock the axles against rotation, causing the wheels to revolve and approach or recede from each other, as the case may be, according to whether the cars are being pushed from a broad to a narrow gage, or vice versa, the blocks sliding

along the central rail or ridge until the required change of gage has been effected throughout the entire train. When the termination of the central ridge or rail is reached, the blocks release the axles, by which time the bosses on the wheels are against the inside or outside collars on the axles, as the case may be. Any of the several methods herein described and shown in the drawings may then be adopted to secure the wheels and collars in place until such time as another change of gage is required to be made, and the cars are then ready to be drawn over the track to which they have been transferred.

It will be seen that the change of gage is accomplished automatically while the train is in motion. The block sliding on the elevated ridge or rail gives positive security against revolution of the axle, rendering it impossible for the cars to become disengaged from said ridge or rail until all the wheels are at the required gage, and but a trifle of time and labor is required to either fix or release the wheels and collars before or after the change of gage is made, this saving of labor and time being one of the greatest advantages accruing from the use of my invention.

I am aware that right and left screwed axles have heretofore been used, and am acquainted with English Letters Patent No. 16,256 of 1884, and Australian Letters Patent (application No. 594) granted to one McKinlay. I do not claim as my invention any of the appliances therein shown and described.

Having thus fully described my invention, I claim as new and desire to secure by Letters Patent—

1. The combination, with a car-axle having externally-threaded ends and an integral square portion midway of its length, of wheels thereon having internally-threaded hubs and bosses, and adjustable stops for holding said wheels in position on said axle, substantially as shown and described, for the purpose herein set forth.

2. The combination, with a car-axle having externally-threaded ends and wheels thereon having internally-threaded hubs and bosses, and adjustable stops for holding said wheels in position on said axle, of a square block clamped on said axle midway of its length, substantially as shown and described, for the purpose herein set forth.

3. The combination, with a car-axle having externally-threaded ends and wheels thereon having internally-threaded hubs and bosses, and adjustable stops for holding said wheels in position on said axle, of two square blocks clamped on said axle, equidistant from each other and from the threaded portions of said axle, substantially as shown and described, for the purpose herein set forth.

4. The combination, with a car-axle having externally-threaded ends, wheels thereon having internally-threaded hubs and bosses, and a square portion integral with said axle midway of its length, of an elevated rail fixed in the

center of the railway-track, substantially as shown and described, for the purpose herein set forth.

5 5. The combination, with a car-axle having externally-threaded ends, wheels thereon having internally-threaded hubs and bosses, and a square block clamped on said axle midway of its length, of an elevated rail fixed in the center of the railway-track, substantially as  
10 shown and described, for the purpose herein set forth.

6. The combination, with a car-axle having externally-threaded ends, wheels thereon hav-

ing internally-threaded hubs and bosses, and two square blocks clamped on said axle equi- 15 distant from each other and from the threaded extremities of said axle, of two elevated rails fixed in the center of the railway-track, substantially as shown and described, for the purpose herein set forth.

Signed by me this 5th day of August, 1887. 20

SAMUEL RUPERT WILSON.

Witnesses:

CHARLES NICHOLAS COLLISON,  
GEORGE EDWIN PASCOE.