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Drawing attached.

COMPLETE SPECIFICATION.

"Improvements in and connected with the adaptation of railway rolling stock to different gauges."

I, CHARLES ROBERT PROSSER, Stable Foreman, of Corporation Stables, Clara Street, South Yarra, in the State of Victoria, Commonwealth of Australia, hereby declare this invention and the manner in which it is to be performed, to be fully described and ascertained in and by the following statement:—

This invention relates to railway tracks of different gauge and to rolling stock of the kind wherein provision is made for passing over said tracks.

In prior Australian Patent No. 12,931, dated 20th day of April, 1914, provision has been made for the transferring rolling stock from one gauge to another by sliding the wheels of the rolling stock in relation to the axles thereof when passing over connecting rails uniting tracks of different gauge.

The object of the present invention is to improve and simplify rolling stock of the foregoing nature and also to provide improvements in and relative to the track

whereby should the locking of any wheel be inadvertently overlooked, warning is given in order that examination of the train may be made. In the following description two tracks only are considered for convenience, a broad and a narrow gauge, but it will be apparent to those skilled in the art that the invention is equally applicable for the passage of rolling stock over any number of gauges.

In practice when using rolling stock according to the invention danger is incurred only when a wheel is unlocked upon the broad gauge track. Should a wheel remain unlocked after a train has passed from the broad to the narrow gauge, although it is advisable to lock the wheels, accident will not occur if a wheel or wheels remain unlocked. For this reason the track improvements are hereinafter only set forth as applied to the broad gauge track, although they may be applied to both the broad and narrow gauge, if desired.

But in order that this invention may be better understood reference will now be made to the accompanying sheet of drawings which are to be taken as part of this specification and read herewith:—

Figure 1 is a plan of the rails of a track and its appurtenances according to the invention. Portions have been broken away for convenience of illustration.

Figure 2 is a plan on a larger scale of a depressor for operating a signal.

Figure 3 is a view showing the depressor and a slide and casing thereof.

Figure 4 is a cross sectional view of the rails of a track according to the invention showing an audible alarm.

Figure 5 is a view of a rolling stock axle and a pair of wheels according to the invention. One wheel and its appurtenances have been shown in section. Locking pins are removed. Portions have been broken away for convenience of illustration.

Figure 6 is an end view of a wheel removed from its axle and looking in the direction of the single arrow, Figure 5.

Figure 7 is an end view of an axle looking in the direction of the pair of arrows, Figure 5. The wheel is removed.

Figure 8 is an end view of a wheel in position upon its axle and looking in the direction of the single arrow, Figure 5.

Figure 9 is an end view of an axle with a wheel in position looking in the direction of the pair of arrows, Figure 5.

In the patent above mentioned the broad and narrow gauge rails do not meet but have disposed between their ends connecting rails. The broad and the narrow gauges are united in precisely the same manner when the present invention is employed and as no novelty exists so far as this invention is concerned in uniting the gauges in the manner above mentioned, connecting rails between broad and narrow gauge tracks are not herein described or illustrated in detail.

The invention consists in the application to broad gauge track rails 2 of a first outstanding deflector 3. The deflector preferably adjoins the connecting rails above referred to. Each end of the deflector is wedge shaped as at 4 and is impinged against by the outside of the flanges of the wheels of the rolling stock.

Inside and adjoining each track rail 2 for a predetermined distance is a guard rail 5 having an inwardly curved portion 6. Formed between the inwardly curved portion

of the guard rail and the first deflector 3 is a first flange passageway 7.

Adjoining the track rail 2 equipped with the first deflector 3 is a second deflector 8 having wedge shaped ends 9. Formed between the second deflector 8 and the track rail 2 adjacent the same is a second flange passageway indicated at 10. Formed between the second deflector 8 and the inwardly curved portion 6 of the adjacent guard rail 5 is a third flange passageway indicated at 11. Formed in the guard rail 5 adjoining the deflector 8 and at the entrance end of the third flange passageway 11 is an incut or recess accommodating the outer end of an intermediately pivoted lever 12. The inner end of the lever is adapted to engage a gong 13 or the like.

Disposed in the third flange passageway 11 at the exit end thereof is the upper end of an elevated depressor 14 having a slide 15 moving in a slideway 16 formed in a casing 17. Secured to the slide 15 are the lower ends of elevating springs 18, the upper ends of which are secured to the said casing 17. Formed in or carried by the slide 15 is a toothed rack 19. Engaging the rack 19 is a pinion 20 secured to the inner end of a spindle 21. Secured to the outer end of the spindle 21 is the near end of a suitable draw line 22 or the like, the far end of which is attached to any suitable signal arm of any suitable mechanism for operating the same.

With the foregoing and beneath the rolling stock are situated axles indicated at 23. Near the outer end of each axle is situated a hub. This is secured to the axle. Each hub is provided with a reduced outer portion 25 having formed therein a plurality of longitudinal rounded grooves 26.

Each hub is also provided with an enlarged inner portion 27. Protruding from the inner portion 27 is a plurality of retaining lugs 28. Formed through each lug 28 is a locking pin hole indicated at 29.

Around the hub before described is situated a wheel having a flange 30 and rim 31. Through the centre of the wheel is formed a hole 32 to accommodate the reduced outer portion 25 of the hub. Protruding into the central hole 32 of each wheel towards the centre thereof is a plurality of longitudinal rounds 33 corresponding with the longitudinal grooves 26 of the hub.

Protruding inwardly from each wheel is an inside boss extension, or collar 34. Protruding from each boss extension or collar 34 is a plurality of longitudinal lug casings 35.

Inside each lug casing is formed a passageway for the corresponding lug 28. Formed through each lug casing 35 is an inner pin hole indicated at 36 and an outer pin hole indicated at 37. The pin holes of each casing 35 accommodate a locking pin 38 of any suitable nature. When the locking pins are disposed in the inner holes 36 the wheels are retained to the broad gauge. If the locking pins are disposed in the outer holes 37 the wheels are retained to the narrow gauge.

Secured to the outer end of each hub 24 is a retaining ring 39.

With this invention before a train passes from one gauge to another the wheels of the rolling stock are released by removing the locking pins 38. When the train moves from the narrow to the broad gauge and the wheels, by reason of the connecting rails referred to herein but forming no part of this invention, have accommodated themselves to the new gauge it is necessary for the said wheels to be locked in position. This is effected by providing a pit or the like at a predetermined position of the track and inserting from beneath the train the locking pins 38 through the inner pin holes 36 and corresponding lug holes 29. When the train moves forwardly the flanges of each of its wheels encounter in turn a first deflector 3 adjoining one of the track rails. There is sufficient width in the tread of the wheels of rolling stock to permit of the same moving laterally upon the rails without becoming disconnected from the heads thereof. Should a wheel be locked it will simply be deflected laterally when engaging the deflector 3, but will pass through the second flange passageway 10. Should, however, any wheel be unlocked the first deflector 3 will cause the said wheel to bear against the corresponding guard rail 5 and the unlocked wheel will enter into the third flange passageway 11. As the unlocked wheel passes through the passageway 11 its flange will engage the outer end of the intermediately pivoted lever 12, the inner end of which immediately rises and strikes the gong 13. An audible signal is thus given. As the unlocked wheel proceeds through the passageway 11 its flange will engage the elevated depressor 14 causing the spindle 21 to rotate. The draw line 22 is thus operated and is adapted to lower an ordinary signal arm in order to stop the train. As such a signal arm would require manual resetting a train could not inadvertently proceed with the wheel unlocked unless the driver disobeyed the signal.

As before mentioned the construction of the rolling stock according to this invention is such that in the case of two gauges it is not absolutely essential that the wheels should be locked after passing from the broad to the narrow gauge and therefore it is thought that the invention need only be applied to the broad gauge track. If desired, however, it may be employed on both gauges. Should the rolling stock be required to pass over intermediate gauges the intermediate tracks would of necessity be equipped with the improvements described. The track improvements could also be applied to both rails of a track at different positions, but as the whole of a train would require examination after indication that a wheel was unlocked it is not considered necessary to equip both rails. Experiment has shown that it is immaterial which wheel is unlocked, that is, whether it is a wheel upon the rail equipped with the invention, or upon a fellow track rail not equipped, as a signal is given in either instance by the invention.

Having now fully described and ascertained my said invention and the manner in which it is to be performed, I declare that what I claim is:—

1. Improvements in and connected with the adaptation of railway rolling stock to different gauges, consisting in the combination with an axle of a hub having a reduced outer portion and an enlarged inner portion and a wheel slidably disposed upon the hub and rotating therewith, a boss extension or collar projecting from said wheel and engaging the enlarged inner portion of the hub, and means for locking the wheel and hub at different positions in relation to the length of the said hub. (Provisional Specification No. 15,980.)

2. Improvements in and connected with the adaptation of railway rolling stock to different gauges, consisting in the combination of an axle having a hub thereon said hub consisting of a reduced outer portion having longitudinal rounded grooves therein, said hub having an enlarged inner portion, a wheel disposed upon said hub, said wheel having longitudinal rounded protuberances engaging the longitudinal grooves, an inside boss extension or collar carried by the wheel and engaging the enlarged inner portion of the hub, and means for locking the enlarged inner portion of the hub and the boss extension or collar of the wheel at predetermined positions in relation to their length. (Provisional Specification No. 15,980.)

3. In the adaptation of railway rolling stock to different gauges, as claimed in Claim 2, a plurality of retaining lugs protruding from the inner portion of the hub, each lug 5 having a pin hole therein, a series of longitudinal lug casings protruding from the boss extension or collar of the wheel, each casing having a plurality of pin holes therein, and a locking pin for engagement in the pin holes 10 of the retaining lugs and the lug casings. (Provisional Specification No. 15,980.)

4. Improvements in and connected with the adaptation of railway rolling stock to different gauges, consisting in the combina- 15 tion with rolling stock having loose wheels adapted to be locked at predetermined positions, of a first deflector adjoining one of the rails of the track, a guard rail adjoining the track rail and the deflector, a second de- 20 flector disposed between the track rail and the guard rail, flange passageways being formed between the guard rail and the first deflector and between the track rail and the second deflector and between the second de- 25 flector and the guard rail, and signalling devices operated by any wheel of the rolling stock passing through the passageway between the second deflector and the guard rail. (Provisional Specification No. 16,191.)

5. In the adaptation of railway rolling stock to different gauges, as claimed in Claim 4, an intermediately pivotted lever project- 30 ing into the passageway between the second deflector and the guard rail, and a gong struck by said lever. (Provisional Specifica- 35 tion No. 16,191.)

6. In the adaptation of railway rolling stock to different gauges, as claimed in Claim 4, an elevated depressor projecting into the passageway between the second deflector and the guard rail, and means for operating a 5 signal arm by the depressor. (Provisional Specification No. 16,191.)

7. In the adaptation of railway rolling stock to different gauges, as claimed in Claim 6, a slide operated by the depressor, a spindle 10 operated by the slide, and a draw line operated by the spindle. (Provisional Specification No. 16,191.)

8. Improvements in and connected with the adaptation of railway rolling stock to 15 different gauges, consisting in the combination and arrangement of parts as hereinbefore described and illustrated with reference to Figures 5 to 9 of the accompanying draw- 20 ings. (Provisional Specification No. 15,980.)

9. Improvements in and connected with the adaptation of railway rolling stock to different gauges, consisting in the combina- 25 tion with the track devices hereinbefore described and illustrated with reference to 25 Figures 1 to 4 of the running gear hereinbefore described and illustrated with reference to Figures 5 to 9 of the accompanying draw- ings. (Provisional Specification Nos. 15,980 30 and 16,191.)

Dated this 10th day of January, A.D. 1916.

EDWIN PHILLIPS,

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Witness—E. W. Granter.

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Adapting Trains to Different Gauges.

