

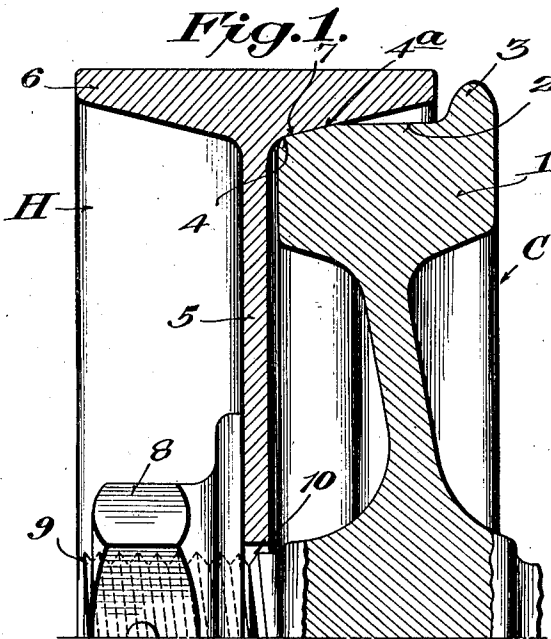
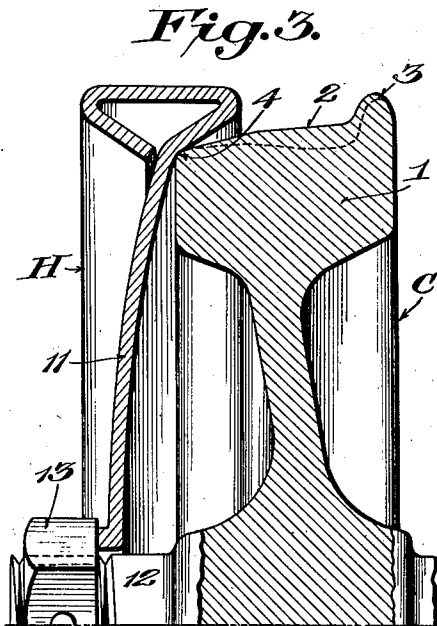
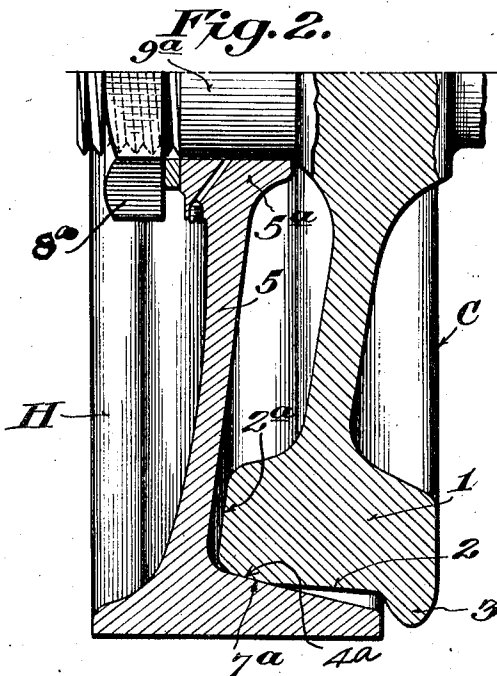
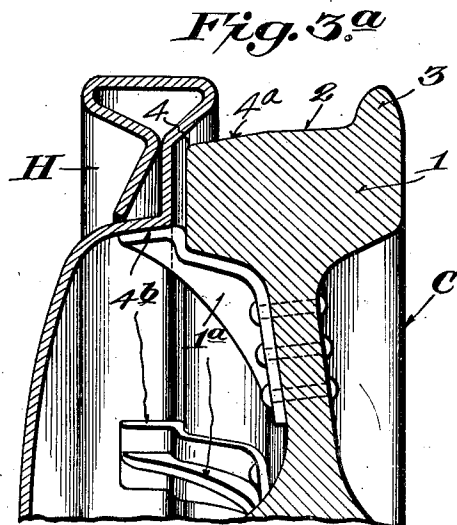
July 27, 1926.

S. G. THOMSON

1,593,857

HIGHWAY ATTACHMENT FOR RAILWAY CAR WHEELS

Original Filed Feb. 21, 1924 6 Sheets-Sheet 1



WITNESSES:-

Chas. L. Grifflauer
Emory Druff

Inventor

Samuel G. Thomson,

By

Dr. W. C. C. C.

Attorney

July 27, 1926.

S. G. THOMSON

1,593,857

HIGHWAY ATTACHMENT FOR RAILWAY CAR WHEELS

Original Filed Feb. 21, 1924 6 Sheets-Sheet 2

Fig. 4.

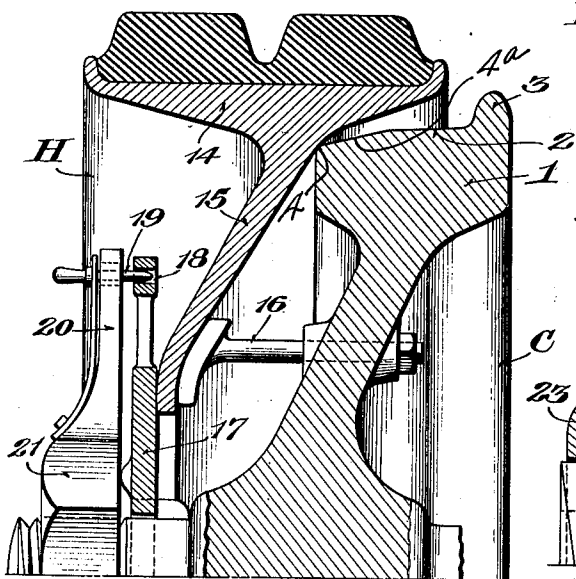


Fig.5.

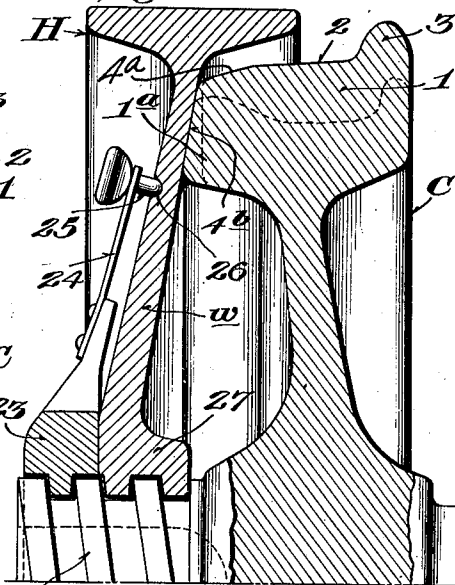
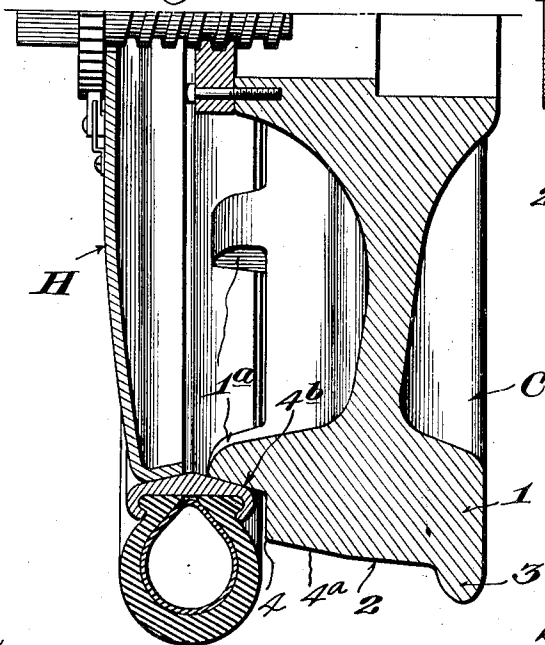
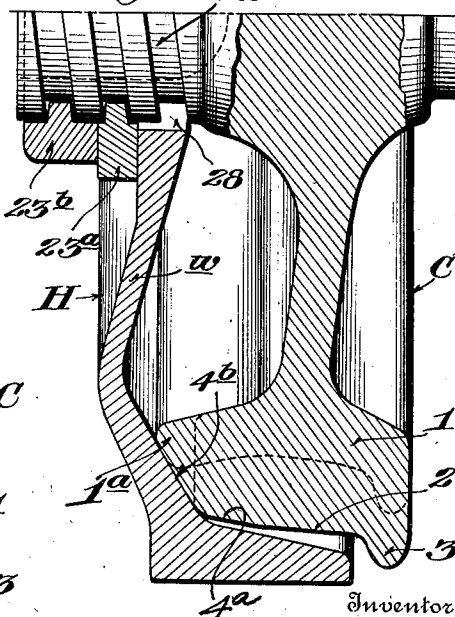


Fig. 3.^b



²²Fig. 6. ^{22a}



WITNESSES:-

Chas. L. Grieshaber
 Emory A. Buff

Samuel G. Thomson,

 $\mathbb{B}_4$

S. P. Wachob

Attorney

July 27, 1926.

S. G. THOMSON

1,593,857

HIGHWAY ATTACHMENT FOR RAILWAY CAR WHEELS

Original Filed Feb. 21, 1924 6 Sheets-Sheet 3

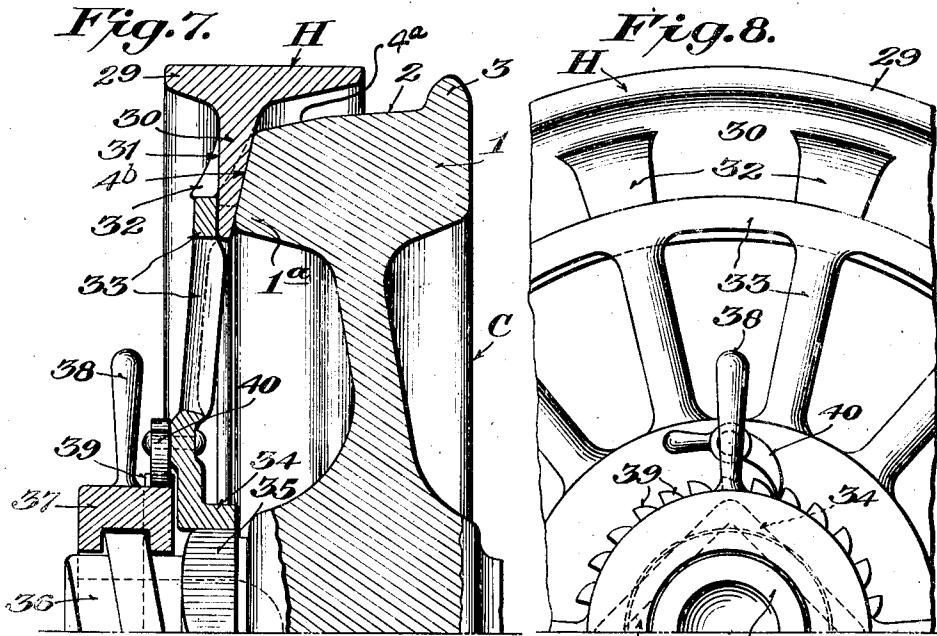
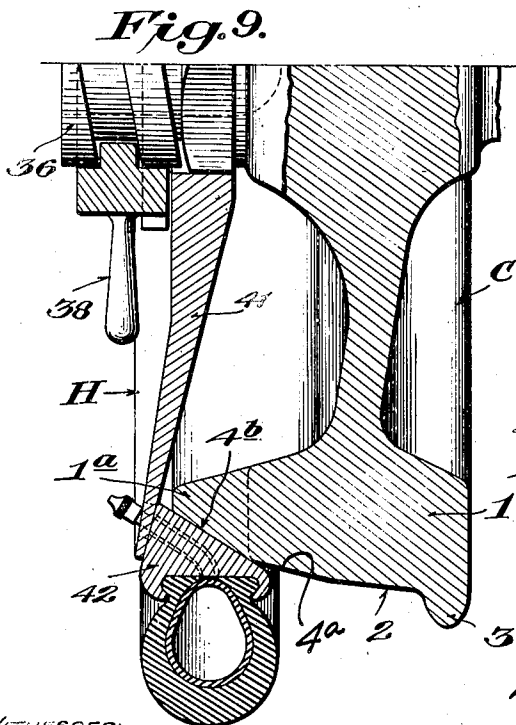
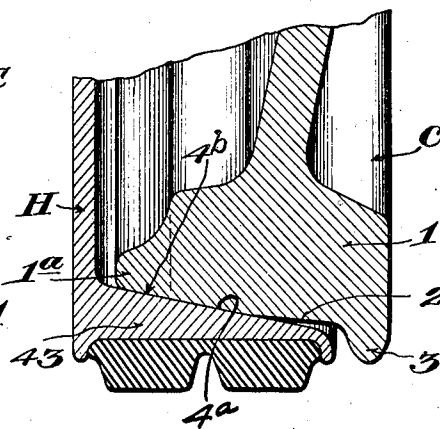


Fig. 10.



Inventor

Samuel G. Thomson

WITNESSES:

Chas. L. Grifflinger
Emory Dwyer

By

J. P. W. Chandler
Attorney

July 27, 1926.

S. G. THOMSON

1,593,857

HIGHWAY ATTACHMENT FOR RAILWAY CAR WHEELS

Original Filed Feb. 21, 1924 6 Sheets-Sheet 4

Fig. 11.

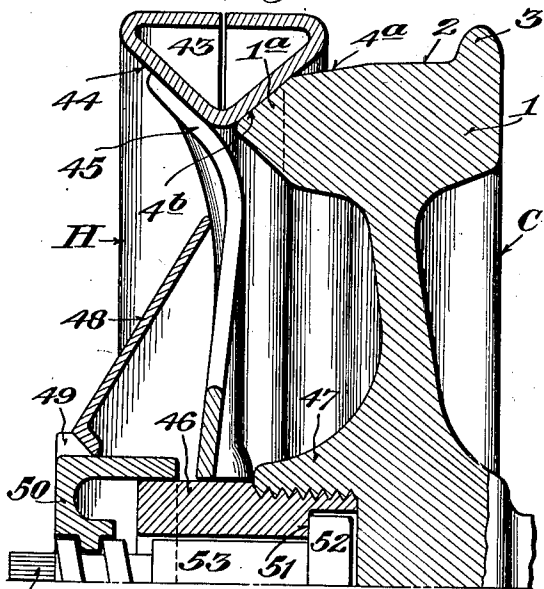


Fig. 12.

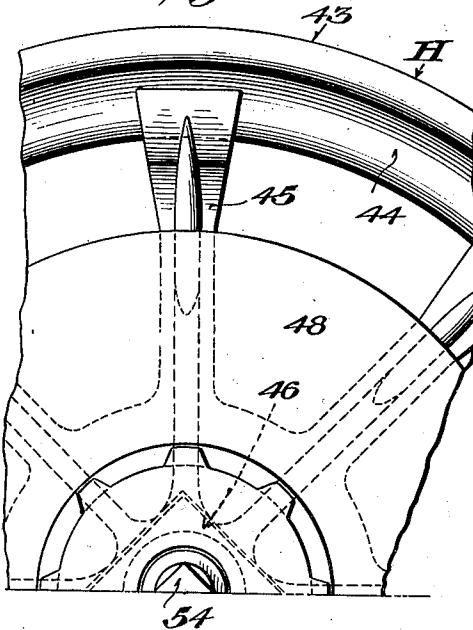


Fig. 13.

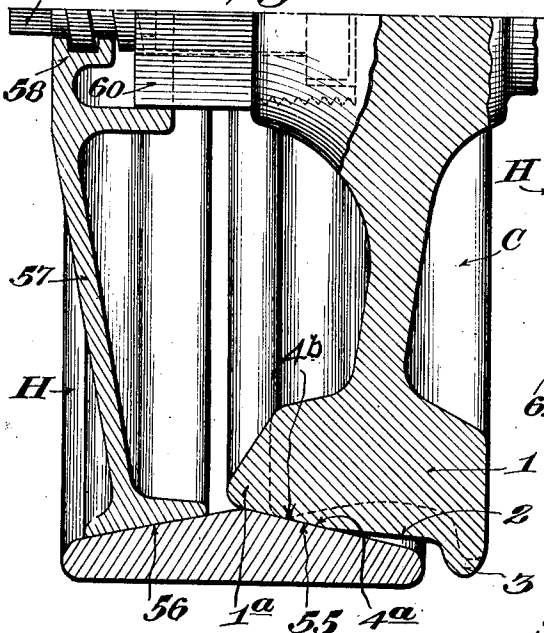
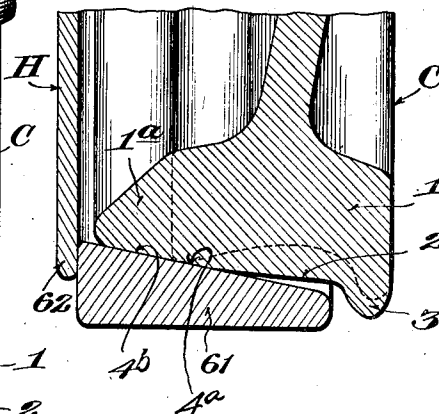


Fig. 14.



WITNESSES:-

Chas. L. Gipsbauer
Emory L. Huff

Inventor
Samuel G. Thomson,

By Sturges

Attorney

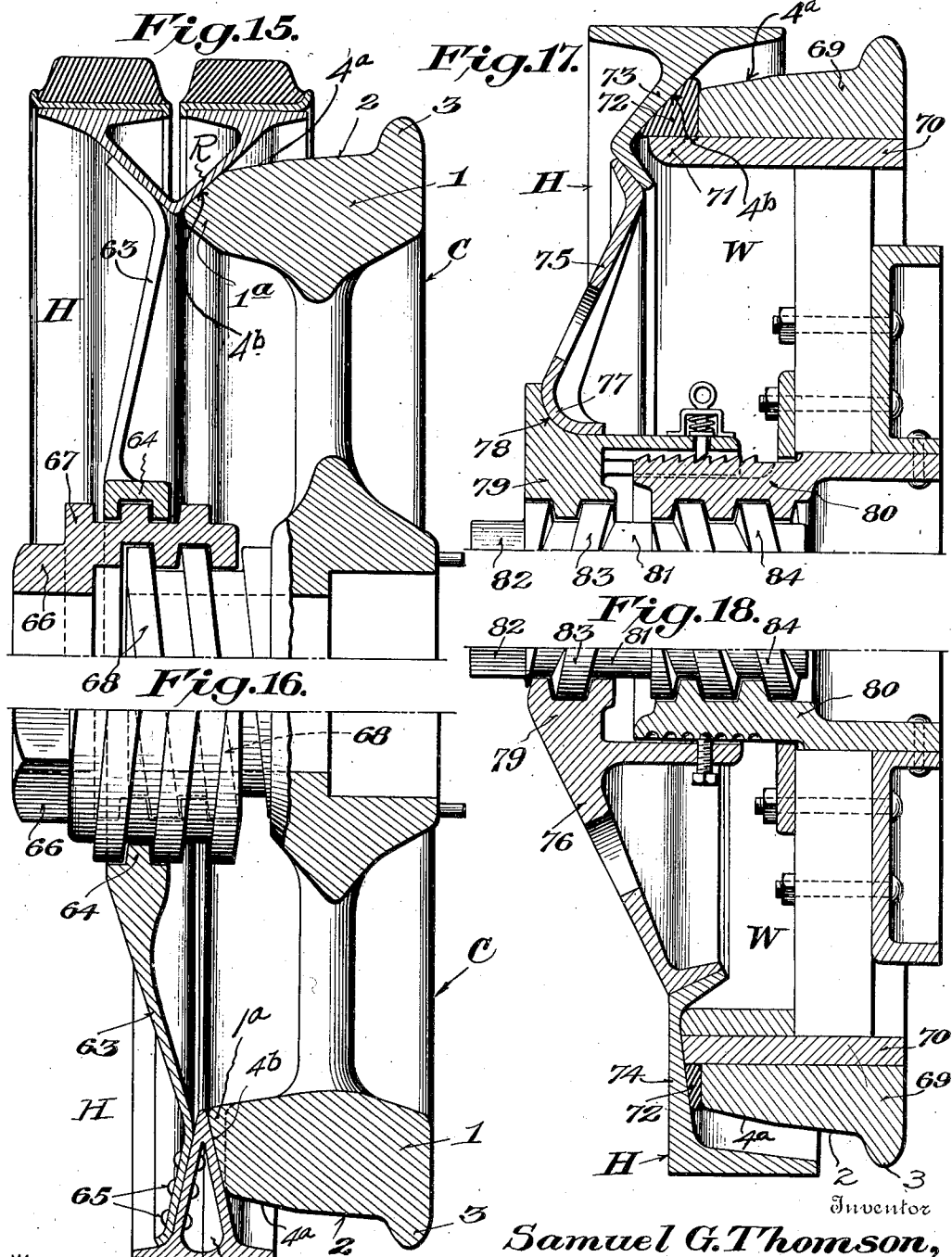
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S. G. THOMSON

HIGHWAY ATTACHMENT FOR RAILWAY CAR WHEELS

Original Filed Feb. 21, 1924 6 Sheets-Sheet 5



WITNESSES:

Chas. L. Grigsbauer
Conroy L. Grigsbauer

By

S. G. Thomson

Attorney

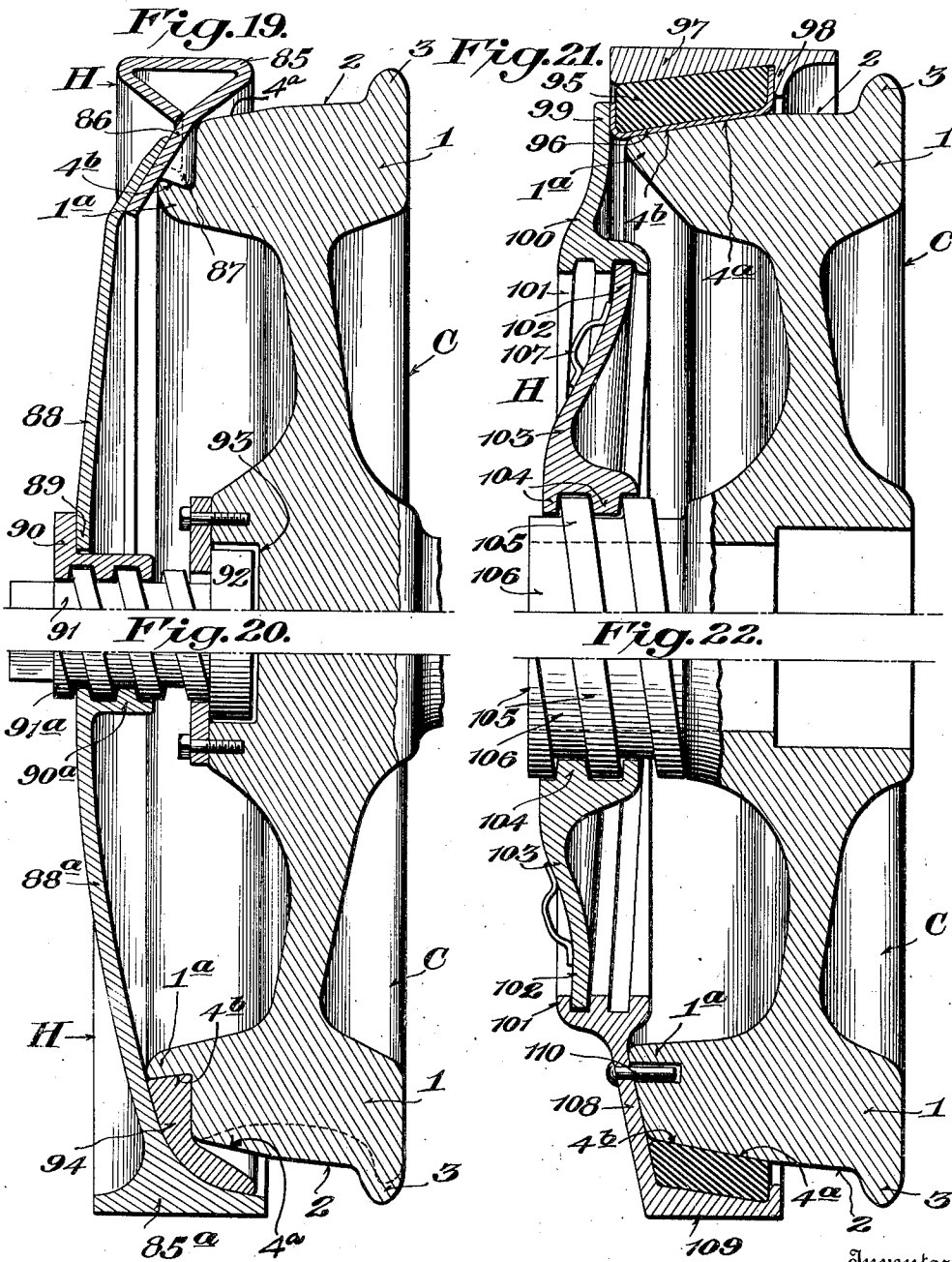
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S. G. THOMSON

HIGHWAY ATTACHMENT FOR RAILWAY CAR WHEELS

Original Filed Feb. 21, 1924 6 Sheets-Sheet 6



WITNESSES:-

Chas. L. Spiesbauer
Emory D. Hoff

By

S. G. Thomson

Attorney

UNITED STATES PATENT OFFICE.

SAMUEL G. THOMSON, OF NEW YORK, N. Y.

HIGHWAY ATTACHMENT FOR RAILWAY CAR WHEELS.

Application filed February 21, 1924, Serial No. 694,409. Renewed January 2, 1926.

This invention relates to convertible wheel structures adapted for use either upon tracks or highways, more particularly to facilitate the movement of railway cars on streets or highways, or on the other hand to adapt the wheels of highway vehicles for traveling on rails.

To that end the invention contemplates a novel wheel structure which may be readily converted for use either upon railway tracks or highways in a thoroughly practical and expeditious manner, thereby providing a partial solution at least to one of the problems of commodity handling at large terminals or distributing centers.

A primary object of the present invention is to apply a highway attachment to that part of a flanged car wheel which is only slightly affected by wear, that is, to the outer half of the coned tread and to the outer corner radius. It may be applied also to the outer or front face of the wheel rim which may be altered from the usual vertical position to afford highway-member bearing faces of various dimensions and lying at various angles. When the outer portion of the coned tread embodied in the standard car wheel contour is used as a part of the bearing for the highway member, such designs are particularly adaptable to "one wear" wheels, either cast-iron having a chilled tread or case-hardened steel wheels, in both of which cases the reduction by wear in the size of this outer portion of the tread is not sufficient to prevent the maintenance of a tight fit during the life of the wheel by drawing the highway attachment to a slightly closer position. With steel wheels not having a specially hardened tread and where greater amounts of wear require returning of the tread and flange to restore standard contour, the corner radius of the wheel rim may be used as a bearing which recedes slightly with the wear and turnings, but not sufficiently to greatly affect the position or fit of a highway member having a bearing or contacting face lying at rather a steep angle to the horizontal.

Accordingly, the present invention aims to provide a highway attachment which has a bearing on an outer portion of the rim which is not subjected to wear thereby making it unnecessary to contend with the many differences and forms of tread wear as it may exist in the great number of car wheels

to which the attachment must be instantly applicable to meet all requirements of use.

With the above and other objects in view which will more readily appear as the nature of the invention is better understood, the same consists in the novel construction, combination, and arrangements of parts hereinafter more fully described, illustrated and claimed.

Though susceptible of embodiment in a variety of modifications, a number of practical and desirable forms of construction, carrying out the special features of the invention, are shown in the accompanying drawings, in which:—

Figures 1 to 22 inclusive are similar sectional half-views showing various modifications of the present invention with respect to the form and construction of the highway member and with respect to the form and character of the clamping means therefor.

Like references designate corresponding parts throughout the several figures of the drawings.

In carrying the present invention into effect, it is proposed to apply the highway member designated generally as H to a standard car wheel C which includes the usual rim portion 1 formed with the coned tread 2 and the flange 3. In that connection it may be pointed out that one of the distinctive features of the present invention resides in so mounting the highway member H that it has a bearing engagement on the outer portion only of the tread 2 which is the least affected by wear, namely, the outer corner 4 or its equivalent for example the portion 4^a of Figure 1, or the portion 4^b of the rim extension 1^a shown in Figs. 3^a and 3^b, 5, 7 etc.

The distinctive and distinguishing features of the invention as above pointed out, may, of course, be embodied in a great variety of forms of construction, but for purposes of illustration there have been selected certain particular forms which are of practical importance. These forms will now be described more in detail with special reference to the figures showing the same, to wit:—

In Figure 1 is shown a highway member H of a rolled T-section which comprises a web 5 and a tread 6 whose inner face 7 contacts with the normal cone portion 4^a of

the standard car wheel tread 1 against which it is drawn up tightly by a large nut 8 clamping against the web 5 of the highway member. The said holding and clamping nut 8 is screwed on and locked to the threaded hub extension 9 of the car wheel while the highway member has a central hole 10 in its web to clear the said hub extension 9.

Figure 2 illustrates a construction similar to Figure 1 except that highway member has a central bearing 5^a fitting over a journal turned on outer end of the wheel hub 9^a. Provision is made for lubricating this bearing so that the fit may be close and the application and removal of highway member made easy. Relative revolving movement between attachment and wheel can take place until the under face 7^a of rim flange of highway member is brought into contact with the normal coned tread 4^a of the car wheel, in which position the highway appliance is then clamped by drawing up the nut 8^a threaded around extension of hub beyond the bearing journal. In this figure the outer face 2^a of car wheel rim is slightly beveled inwardly to afford clearance for the inwardly slanting web of highway member.

A simple construction is shown in Figure 3 wherein the highway member is flanged from light plate steel. It stands free of all of the car wheel tread except the corner radius 4, thus reducing the co-acting contacts, and giving a bearing for the highway member on the car wheel which is not in the least affected by the preliminary tread wear as shown in dotted lines. The web member 11 extends to touch a finished portion of the wheel hub 12 in order to center the highway appliance, and also to provide a clamping face for a nut 13, or other holding means. The web 11 is inclined outwardly away from its wheel contact points thus forming a disc concaved toward the wheel, so that, under load, the tendency of the highway member is to increase its thrust against the corner 4 of the wheel rim as the load increases.

A particular feature however of my invention, and one which may be used to advantage with any kind and type of wheel, is the addition of a rim-extension 1^a or other carrying means which projects forward at right angle to the plane of rotation and extends beyond the usual vertical front face of the wheel rim, as shown in Figs. 3^a and 3^b. This extension provides a bearing seat 4^b for the highway member beyond the parts of the wheel tread which are subject to wear, and is only partially reduced in the turning process to restore contour, always retaining a part of the bearing face in its original position. This rim-extension 1^a is preferably an integral part of the wheel rim 1 as shown in Fig. 3^b although

any sort of riveted, bolted or welded combination of flanges, castings or built-up material, as shown in Figure 3^a for example, may be constructed to afford a bearing for a highway attachment projecting from the front face of the wheel, and preferably from the rim, without departing from the spirit of my invention.

Figure 4 shows a highway member H including a carrier rim 14 for cushion tire, and an inside clamping flange or apron 15 slanting away from the wheel. The corner-rim bearing, and the action of the appliance under load is the same as indicated for Fig. 3. The lower end of the clamping flange 15 is held in fixed position between a number of bearing bolts 16 spaced around the car wheel and a locking plate 17 keyed to a finished portion of the car wheel hub and carrying a series of locking holes 18 around its outer rim. These locking holes are engaged by a latch 19 carried by an extension arm 20 of a clamping nut 21 mounted on a threaded extension of the wheel hub. In this arrangement the nut is locked by means of the plate keyed to the car wheel, thus preventing it from backing off due to relative movement between the highway appliance and the car wheel.

Figures 5 and 6 illustrate highway members similar in section to those shown in Figures 1 and 2. In these figures however, the webs *w* of the highway members H bear against faces 4^b of extensions 1^a to the car wheel rim, instead of fitting the normal coned face of the standard car wheel tread. The function of this rim extension is to provide a permanent bearing for the highway attachment. It will be noted from these figures that the bearing face 4^b of this rim extension 1^a relieves the co-acting bearing even from the corner-radius contact illustrated in Figures 3 and 4, and thus prevents interference with the fit of the highway member on the wheel by wear of the tread and flange as shown in dotted lines, which in Figure 5, represents excessive wear prior to re-turning to restore contour, while the dotted lines in Figure 6 represents wear to the condemning limit. In both of these cases it will be noted that the rim extension 1^a preserves at least a portion of the original seat 4^b for the highway member. The holding means consists of a threaded hollow hub extension 22 engaged by a nut 23 with a spring handle 24 attached to an extension from its side. This handle includes a latch 25 to engage holes or sockets 26 in the web of the highway member. In Figure 5, the highway member has a threaded hub portion 27 to engage coarse threads around the wheel hub. It is locked to its position against the hub extension by the outside nut acting with its hub as a jam-nut. In Figure 6 the

highway member is provided with a clearance opening 28 which slips over the threads of the hub 22^a and is clamped by an intermediate flat nut or threaded ring 23^a which acts as a jam-nut with the outer locking nut 23^b.

Figures 7 and 8 show a highway member having a rolled T-section 29 with its depending flange 30 bearing against the face 4^b of rim extension 1^a and with its outer face 31 approaching the vertical, said flange having a portion 32 cut loose and forced out of its original alignment to form an offset to take a portion of the load. A clamping wheel 33 engages the lower end of its depending flange and the above mentioned offset, and takes a central bearing by means of a turned-in flange 34 surrounding a squared portion 35 of a hollow extension 36 to the car wheel, thus preventing the clamping wheel from revolving relative to the car wheel. A threaded lock-nut 37 with handles 38 engages the clamping wheel at its squared central bearing portion. When this lock-nut or clamping ring is revolved tightly home by means of the handles, all parts are held tightly together. The clamping ring carries a rack 39 around its circumference adjacent to the clamping wheel, and this rack is engaged by a ratchet pawl 40 carried on the clamping wheel, thus locking the nut from backing off.

Figure 9 shows the same lock nut and clamping means as Figures 7 and 8; but the clamping wheel illustrated is in the form of a solid disc 41. This disc may make a close bearing fit around square portion of hub as in Figure 7, or it may have a clearance from the hub, since its almost vertical contact with the pneumatic tire-carrying ring 42 will transmit only a slight amount of the vertical load. The highway member illustrated here is clampingly held against a rim extension face 4^b which is horizontally inclined, thus directly carrying nearly all of the vertical load.

In Figure 10 I have shown the section of the rim of a car wheel having an extension 1^a with a bearing face 4^b continues the tread face in a plane at the same angle as the original outer coned part 4^a of the standard car wheel contour. This standard coned tread portion together with the rim extension forms a widely inclined flat bearing for an angle-shaped highway member H having the flange 43 carrying solid rubber tires. The web or plate extending toward the wheel hub, obviously may be combined with any combination of centrally located clamping parts.

Figures 11 and 12 show a wheel having a rim extension 1^a with its bearing face 4^b sloping toward the wheel center at a slightly steeper angle than Figure 9, but not nearly as much as Figure 7. This inclined bearing

face carries a highway member 4 in the form of a ring 43 extending around the wheel rim, this highway member being flanged from thin plate steel into the form of a triangular tube, thus forming a tread member which is light and stiff in all directions. The meeting ends of the plate may be welded. The outer-under side 44 of this tread member is supported by the ends of the flanged arms of a spider 45 which slips over and takes a bearing on the squared end of a bushing 46 screwed into the wheel hub 47, thus affording a bearing and supplying a keyed connection to the car wheel similar to that of Figures 7 and 8. A cone 48 of light section bears at its inner edge against the flanged portion of the spider arms, and thus transmits the downwardly and outwardly thrust to circumferential abutment ribs 49 carried by a threaded clamping collar 50 which is hollowed out square to fit over and make a sliding bearing on the squared hub-bushing 46. This hub-bushing has an inner shoulder 51 which engages under the circular head 52 of a clamping bolt 53 extending through the bushing 46 and having its portion beyond the bushing coarse-threaded to engage said clamping collar. The end 54 of the central clamping bolt is squared for a wrench. Other means may be used for turning this clamping bolt, and additional devices added to act, with the general elasticity of the structure, in holding the bolt against turning relative to the clamping collar. It is obvious that a solid cone or disc or other clamping means may be used in this arrangement instead of the spider.

Figure 13 shows a car wheel having an added rim portion 1^a which extends the outer coned face 4^a of the standard car wheel contour. This wide bearing, including part 4^a of the standard wheel tread, supports the inner-under side 55 of a highway ring or tire, the outer-under side 56 being supported by a disc wheel 57 concaved toward the car wheel and having its hub 58 threaded and hollowed-out square to engage clamping bolt 59 and to fit over squared hub bushing 60, thus including the same functions in a single member as is performed by three separate members shown in Figures 11 and 12. It will be noted that the highway tire is supported in permanent position by face 4^b of the rim extension 1^a even after considerable wear has taken place, as indicated by the dotted lines.

In Figure 14 I have shown a section of the rim of a car wheel having an added rim portion 1^a which extends the outer coned tread of the standard car wheel contour, similar to Figures 10 and 13. The highway tire 61 illustrated in this figure has a wedge section which is clamped against its bearing formed by the outer part 4^a of car wheel

tread and by the bearing 4^b on the rim extension. Any clamping means may be used in combination with plate 62 or arm extending toward the wheel center. It is shown by dotted lines that the highway member is held in permanent position by the rim extension, regardless of tread and flange wear.

Figures 15 and 16 are similar to Figures 11 and 7 respectively in regard to the shape and bearing angle of the rim extension 1^a. Highway rims R of V-section are supported by discs or spiders 63 each having a hub portion 64 engaging coarse threads around the outside of a clamping collar, which in turn is threaded on the inside in the reverse direction from its outside thread, to engage coarse threads around a hollow hub extension of the car wheel. The disc or spider which supports the outer face of highway rims is shown in Figure 15 as separate from the V-member, while Figure 16 shows it as riveted to V-member as at 65 thus affording a solid connection to resist the load thrust along the almost vertical bearing face. This connection may be welded instead of riveted. The reverse screw arrangement of the clamping means doubles the travel of the affected parts thus greatly increasing the rapidity with which the highway appliance may be applied and removed. When wrench is applied over "hex" nut 66 on the end of the clamping collar 67 and turned to the right to tighten the clamping parts, the clamping collar moves inwardly around the right-hand threads 68 on the wheel hub extension, while the clamping discs or spiders, when prevented from turning by contact with highway rims, are forced inwardly an additional amount as they revolve relative to the left-hand thread around the outside of the clamping collar, which they engage. Various devices may be used, in addition to the general elasticity of the structure, to act in locking or holding the clamping collar in its tightened position.

In Figures 17 and 18 I have illustrated the usual built-up wooden auto-truck wheel W with a standard railway tire 69 shrunk around it, the wooden felly 70 carries an extension 71 or 1^a which supports a cushion member 72 made of rubber, fiber, leather or other resilient material. It may be in ring-form, or may be spaced in short pieces around the wheel rim. Highway members 73 and 74 of T and angle sections take a cushion bearing on these resilient rim extensions, and have inwardly turned bearing flanges at the edges of their members extending toward the wheel center. These bearings are engaged by clamping discs or spiders 75 and 76, which in turn, combine with other parts to form the clamping means. In Figure 17 the clamping disc 75 has a hub flange 77 which abuts an annular collar 78

on a clamping sleeve 79, this sleeve fitting over and being keyed to the wheel hub 80, thus affording a sliding contact and bearing. A central clamping screw 81 has a squared wrench-hold 82 on its outer end, and carries a left-hand thread 83 matching with similar interior thread of clamping sleeve. The clamping screw also carries a right-hand thread 84 around its other end matching with a similar interior thread in the wheel hub 80. Double travel of effected parts is thus afforded, same as with clamping arrangement illustrated in Figures 15 and 16. In Figure 18, the clamping disc 76 and sliding sleeve 79, are shown in one piece, thus forming a very stiff cone-shaped member which can be clamped rigidly against the highway rim. Various auxiliary devices may be used in combination with these parts to lock the highway appliance in its tightened position.

Figures 19 and 20 illustrate a car wheel C having a rim extension 1^a with a seat 4^b forming a re-entrant angle, thus requiring highway member H or its supporting ring to be in the form of a split spring ring, or a ring applied and removed in two pieces. Figure 19 illustrates a tread member having a loop-section 85 and a depending flange 86 to engage the clamping means. This depending flange 86 has displaced portions 87 at intervals around the wheel to seat into the re-entrant groove. The highway member must be applied and removed from the groove in two pieces, these separate halves being held together and clamped to the wheel by a concave clamping disc 88, which in turn engages in its middle or hub portion 89 with the collar of a clamping sleeve 90. This sleeve is threaded on the inside to register with a coarsely threaded centrally located clamping bolt 91. This bolt has a round head 92 held in a turned-out portion 93 of the wheel hub by a plate bolted to the hub face, the outer end of the clamping bolt is squared for a wrench. Various appliances may be added to this arrangement to lock this bolt in its tightened position.

Figure 20 has the same clamping means as Figure 19, except that the clamping sleeve 90^a, concave clamping disc 88^a and the highway tread member 85^a are all merged into one piece, thus forming a disc wheel having a highway tread and a hub portion threaded on the inside to engage a central clamping bolt 91^a. Instead of the highway member fitting into and seating directly on the rim extension as in Figure 19, this arrangement shows a supporting or carrier ring 94, which can be a split spring ring or a split ring applied and removed in two pieces. This supporting ring takes a positive seat in the re-entrant groove formed by the rim extension, and the overhanging flange of this ring supports the highway member at a point well

over the car wheel tread. Both the supporting ring and the highway wheel are held tightly in their operative position by the clamping bolt.

Figures 21 and 22 illustrate a series of arrangements where the highway tread member is supplemented by one or more coacting split or solid rings 95 and 96 made of resilient or rigid material, these rings bearing on the outer coned tread 4^a of the standard car wheel as well as on rim extension. Figure 21 shows a steel highway tread member 97 with a rib 98 around its underside to engage the inner face of the channeled steel holder ring 96 which necessarily would be split in one or two places. This holder ring embraces a ring of rubber or other resilient material, and the ring combination is clamped tightly against the coned tread 4^a and face 4^b of the rim extension 1^a of the car wheel by an outwardly extending flange 99 of an exterior clamping ring 100. This ring has a left-hand coarse thread 101 around its inner face to engage an outwardly extending flange 102 of an interior clamping ring 103, the flange being bent to conform to said coarse-thread pitch. This inner clamping ring has a right-hand coarse thread 104 around its inner face to engage a similar thread 105 around the outside of an extension of the wheel hub 106. This interior clamping ring is furnished with handles 107 to assist in revolving it, and in handling both clamping rings when screwed together during application and removal. While the inner ring is being revolved in the act of entering the highway appliance on the hub, it will carry the outer ring around with it until the outer ring is prevented from turning by contact with rim members or by other restriction, under which conditions the entire device quickly tightens into operative position on account of the double throw of the opposed screw pitches. The resultant clamping screw action of this arrangement is the same as that described for Figures 15 and 17.

Figure 22 shows the same screw clamping arrangement as Figure 21, but in this figure, the outer clamping ring 108 also forms the tread 109 for the highway appliance. This tread lips around the inside of a cushion ring of rubber or of the resilient material. A bolt 110 is shown as extending through the web of tread member, to register with a hole in the face of the wheel rim, thus stopping revolution and actuating double travel of parts during the greater part of the application and removal process.

I claim:—

1. A convertible wheel structure including a flanged railway car wheel, and a highway member adapted to be held entirely free from contact with the wheel flange, and to have a bearing on said wheel adjacent to the outer upper corner of the wheel rim.

2. A convertible wheel structure including a flanged railway car wheel, and a highway attachment having all of its parts free from contact with the wheel flange, said attachment having a portion contacting with the wheel rim at a point between the lower outer corner of the wheel rim and the wheel tread.

3. A convertible wheel structure including a flanged railway car wheel having an extension beyond the vertical normal outer face of its rim, and a highway member contacting with said extension and held free from contact with the wheel flange, and releasable means for clamping the highway member to the car wheel.

4. A flanged railway car wheel having a portion projecting from its outer face beyond the normal wheel rim width, and a highway attachment contacting with said projecting portion and held free from contact with the wheel flange.

5. A flanged railway car wheel having a portion of its rim projecting beyond the usual location of its vertical outer face, and a highway attachment contacting with said projecting rim portion.

6. A flanged railway car wheel having a projecting rim portion forming a coned face laterally beyond the normal rim width and a highway attachment contacting with said face.

7. A flanged railway car wheel having a lateral coned face forming at least a portion of the front face of its rim and a highway attachment contacting with said face.

8. A flanged railway car wheel having a coned face forming at least a portion of the front face of its rim, and a highway member contacting with said coned face.

9. A convertible wheel structure including a flanged railway car wheel having an overhanging outer rim portion, and a highway attachment standing entirely free from the wheel flange, said attachment including a member contacting with an upper outer face of said rim portion.

10. A convertible wheel structure including a flanged railway car wheel, and a highway attachment consisting of tread and clamping members, said wheel structure having a member with right and left hand threads actuating separately moving parts of the attachment.

11. A convertible wheel structure including a flanged railway car wheel, and a highway attachment having a member adapted to be drawn into a tightened position against a conical face of the wheel extending beyond the usual wheel rim width, and means for releasably clamping said parts together.

12. A convertible wheel structure including a flanged railway car wheel having a rim portion projecting outwardly beyond the outermost face of its spoke or web portion, and a highway attachment having a member

extending from a point adjacent to the wheel hub to a point adjacent to the wheel rim, and standing free from at least a portion of the wheel tread.

13. A convertible wheel structure including a flanged railway car wheel, and a highway member standing apart from the hub and flange of said car wheel and having a bearing on it adjacent to the outer tread corner of its rim.

14. A convertible wheel structure including a flanged railway car wheel, and a highway member standing apart from the wheel hub and bearing on its rim adjacent to its upper outer corner, and centrally located clamping means.

15. A convertible wheel structure including a flanged member for tracks, and an attachment adapted to highways having all of its parts free from contact with the wheel hub and wheel flange, said attachment having a portion contacting with a face of the wheel rim lying outside of the circle circumscribed by the outermost edge or portion of the outer face of the rim.

16. A convertible wheel structure including a flanged member for tracks, and a member adapted to highways, said highway member being free from contact with the hub of the flanged member and contacting with its rim outside of the circle circumscribed by the outermost edge or portion of the outer face of the rim, and centrally located clamping means.

17. A convertible wheel structure including a flanged railway car wheel having a rim portion projecting outwardly beyond the outermost face of its web or spoke portion, and a highway member bearing on said wheel outside of the circle circumscribed by the outermost edge or portion of the outer face of the rim and being free from contact with the wheel flange.

18. A convertible wheel structure including a flanged railway car wheel having a rim portion projecting outwardly beyond the outermost face of its web or spoke portion, and a highway member bearing on said wheel outside of the circle circumscribed by the portion of the wheel rim lying the greatest horizontal distance from its flange side, and centrally located clamping means.

19. A convertible wheel structure including a flanged railway car wheel, and a highway member bearing on said wheel outside of the circle circumscribed by the portion of the wheel rim lying the greatest horizontal distance from its flange side, and centrally located rotary clamping means.

20. A flanged railway car wheel having a portion projecting outwardly and laterally beyond the normal vertical face of its rim, and a highway member contacting with said portion and free from the wheel flange.

21. A flanged railway car wheel having

a portion of its rim projecting outwardly and laterally beyond the normal location of its vertical face, and a highway member contacting with said projection and free from the wheel flange.

22. A flanged railway car wheel having a portion projecting outwardly and laterally beyond the normal wheel rim width, and a highway member contacting with said projection and free from the wheel flange.

23. A flanged railway car wheel having a projecting rim portion forming a bearing face beyond the normal wheel rim width, and a highway member engaging said face and free from the wheel flange.

24. A flanged railway car wheel having a portion projecting laterally from its outer face to form a bearing beyond the normal wheel rim width, and a highway member engaging said bearing and free from the wheel flange.

25. A flanged railway car wheel having a coned surface forming a substantial portion of the outer face of its rim, and a highway member contacting with said outer face.

26. A flanged railway car wheel having a coned bearing surface projecting beyond the normal wheel rim width, and a highway member contacting with said surface.

27. A convertible wheel structure including a flanged railway car wheel, and a highway appliance consisting of tread and clamping members, said wheel structure having a member with right and left hand threads actuating separately moving parts of the appliance.

28. A convertible wheel structure including a flanged member for tracks, and a member adapted to highways, and a clamping member comprising right and left hand screw portions.

29. A convertible wheel structure including a flanged member for tracks, and a member adapted to highways, and a clamping member, one of said members being threaded to engage a right-hand screw, and another member threaded to engage a left-hand screw.

30. A convertible wheel structure including a flanged member for tracks, and a member adapted to highways, and a clamping member comprising a right-hand and a left-hand screw.

31. In a convertible wheel structure, a flanged member for tracks, and another member free from contact with said flange and having two under faces lying at an angle to the horizontal.

32. In a convertible wheel structure, a tread member having two under faces lying at an angle to the horizontal, and centrally located rotary clamping means.

33. In a convertible wheel structure, a flanged car wheel having an overhanging outer rim portion, and a highway member

free from contact with the wheel flange and bearing on said rim portion, said highway engaging said overhanging outer rim portion member also having a face engaging a clamping member. 10

34. In a convertible wheel structure, a
5 flanged car wheel having an overhanging outer rim portion, and a highway member free from contact with the wheel flange and In testimony whereof I hereunto affix my signature.

SAMUEL G. THOMSON.