

Dec. 12, 1950

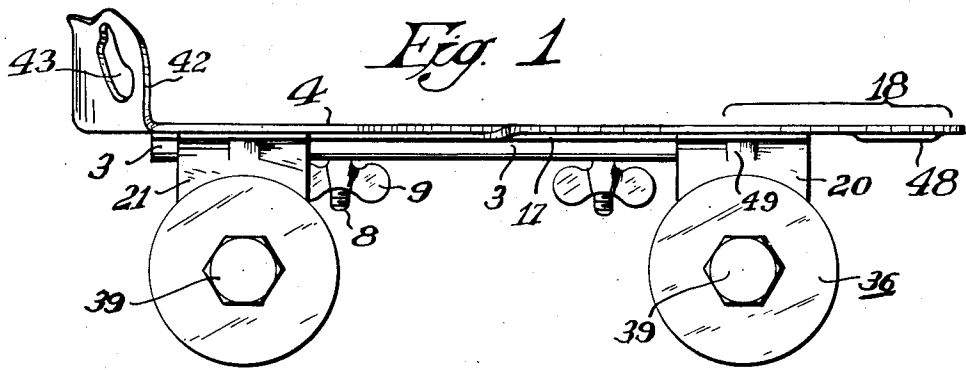
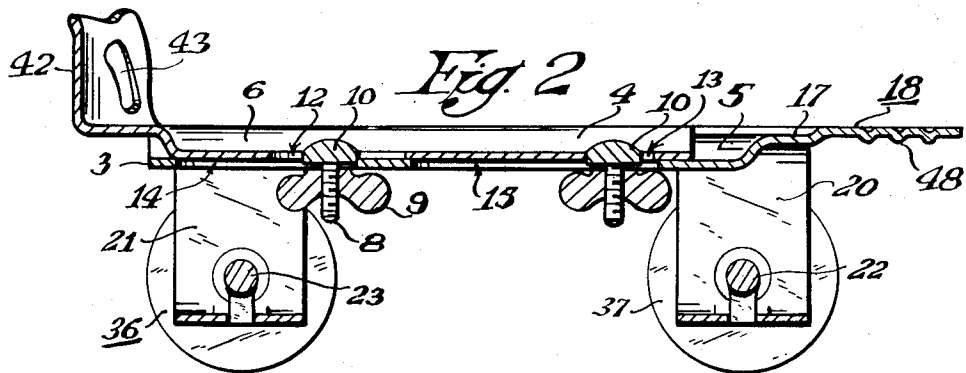
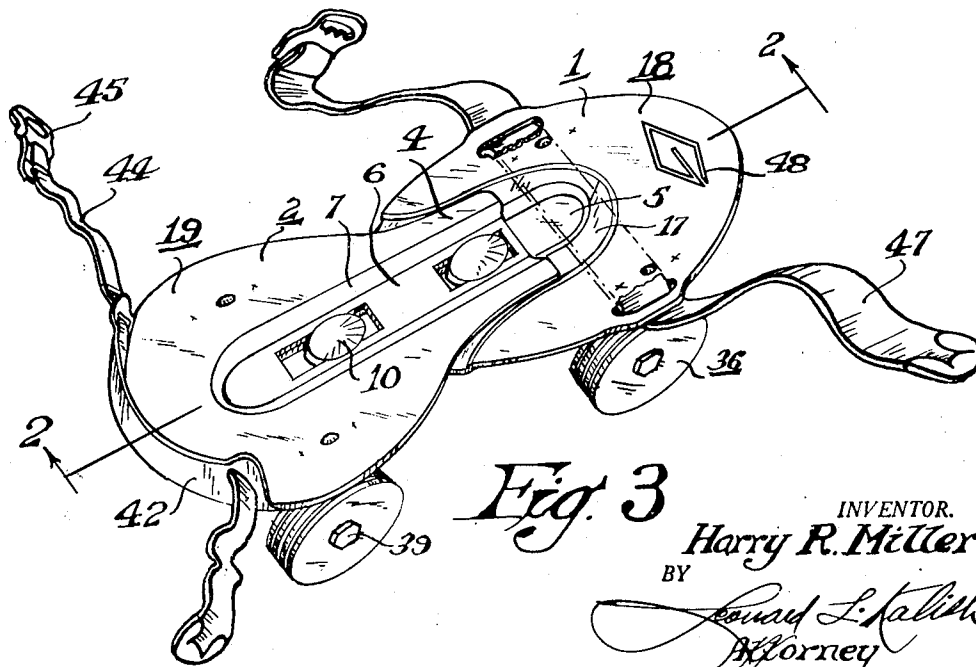
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2,533,277

ROLLER SKATE CONSTRUCTION

Filed Feb. 7, 1946

3 Sheets-Sheet 1



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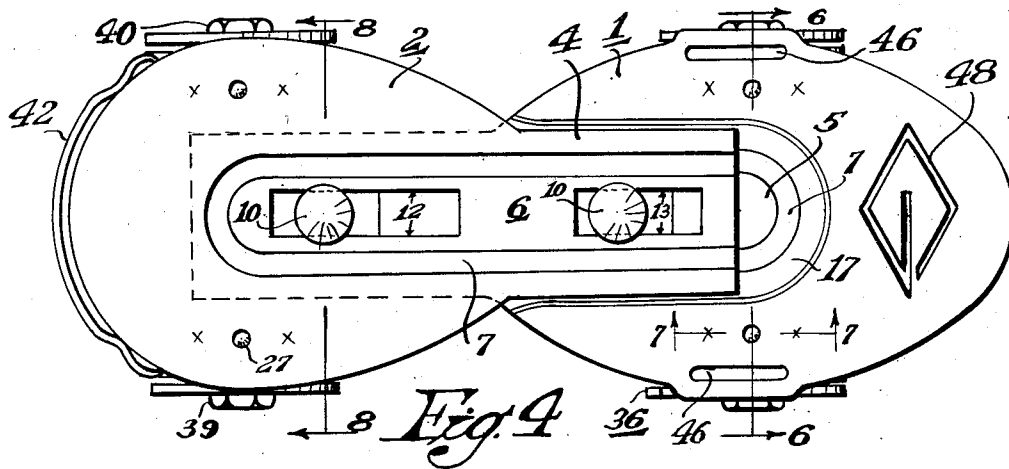
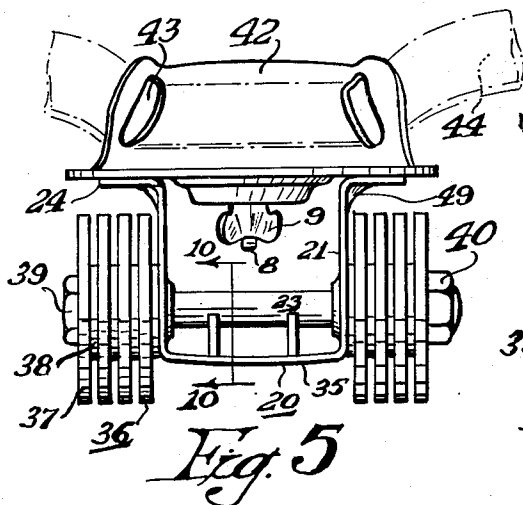
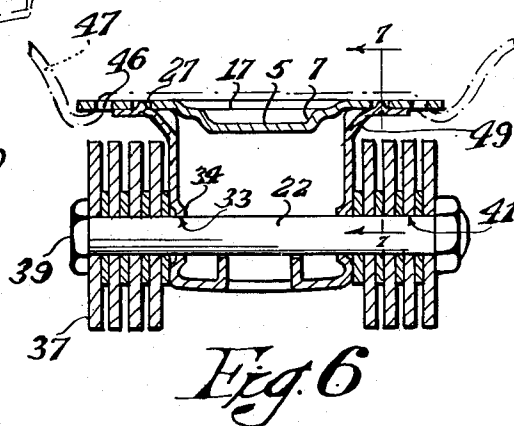
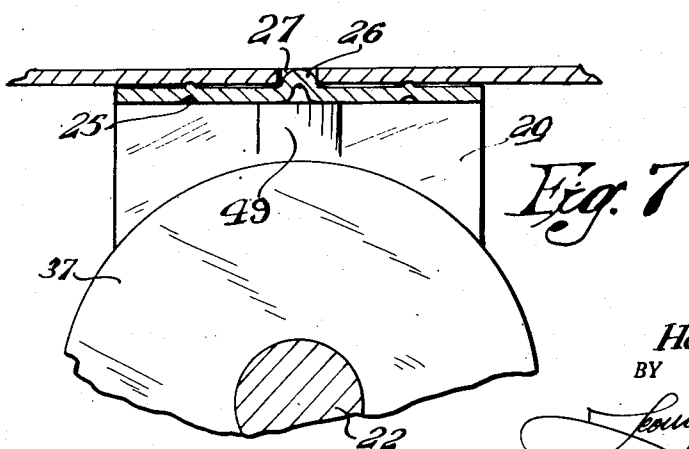
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ROLLER SKATE CONSTRUCTION

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3 Sheets-Sheet 2



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ROLLER SKATE CONSTRUCTION

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3 Sheets-Sheet 3

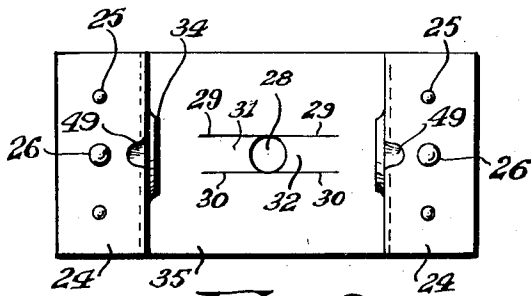


Fig. 9

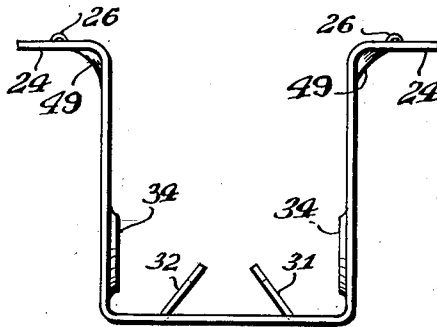


Fig. 12

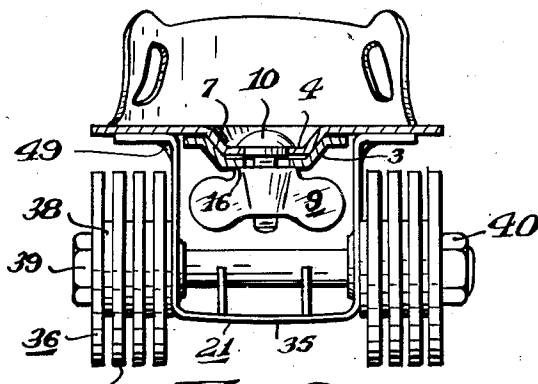


Fig. 8

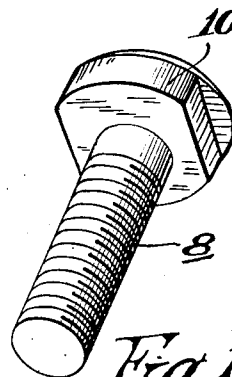


Fig. 11

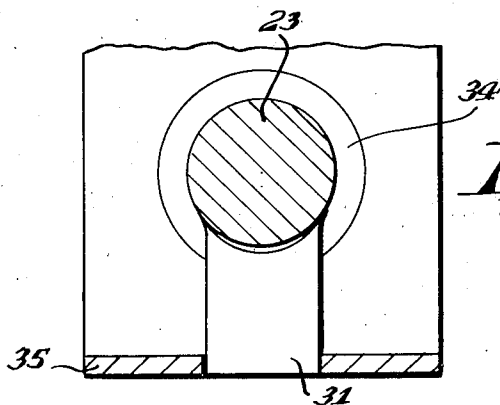


Fig. 10

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UNITED STATES PATENT OFFICE

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ROLLER SKATE CONSTRUCTION

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4 Claims. (Cl. 280-11:27)

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The present invention relates to roller skates of inexpensive and yet sturdy and durable construction, suitable for children and beginners.

An object of the present invention is to increase the durability of the roller skate and to facilitate its assembly, and also to eliminate chatter and wear in the roller skates, in actual use.

For the purpose of illustrating the present invention, there is shown in the accompanying drawing one exemplifying form thereof, although it is to be understood that the various instrumentalities of which the invention consists can be variously arranged and organized and that the invention is not limited to the precise arrangements and organizations of the instrumentalities as herein shown and described.

In the drawings, in which like reference characters indicate like parts:

Figure 1 represents a side-elevational view of a roller skate embodying the present invention,

Figure 2 represents a view, in longitudinal vertical cross-section on line 2-2 of Figure 3,

Figure 3 represents a perspective view of a roller skate embodying the present invention,

Figure 4 represents a top or plan view of the same,

Figure 5 represents a view, in front end elevation, looking toward the rear.

Figure 6 represents a view in vertical lateral cross-section on line 6-6 of Figure 4,

Figure 7 represents a view, in longitudinal vertical cross-section, on line 7-7 of Figures 4 and 6, showing a portion of the roller skate on an enlarged scale,

Figure 8 represents a cross-section on line 8-8 of Figure 4,

Figure 9 represents top plan view of one of the two sheet-metal journal-brackets, before the axle-gripping tabs are bent upwardly therefrom,

Figure 10 represents a section on line 10-10 of Figure 5, on an enlarged scale,

Figure 11 is a perspective view of the adjustment bolt connecting the toe-plate and the heel-plate, and

Figure 12 represents a front view of the U-shaped journal-bracket before assembly to the chassis.

In the embodiment of the present invention, the roller skate comprises two chassis members 1 and 2, respectively, the chassis member 1 being at the front and the chassis member 2 being at the rear, the former constituting a support for the toe and ball of the foot while the rear member 2 constitutes a support for the heel of the foot. Each of the two chassis members 1 and 2 is pro-

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vided with an extension 3 and 4 respectively, which are channeled, and which overlap the other chassis member, the channels 5 and 6 extending into the respective chassis member and nesting into each other, thereby to form longitudinal extensible guides, to keep the two chassis members in longitudinal alignment with each other. The channels preferably have slightly inclined side walls 7, so that when the two chassis members are secured to each other, in any adjusted position, by means of the bolts 8 and wing-nuts 9, they will be wedged into each other to prevent any sidewise play or looseness between channels.

The channels are preferably so proportioned in respect to each other, that the one channel does not quite "bottom" in the other (namely in the channel in which it is "nested"). This insures tight "wedging" of one channel member within the other.

The heads 10 of the bolts 8 are flattened, on two parallel sides, as indicated in Figure 11, the flattened portion being just beneath the topmost part of the head, and being of such transverse dimension between the "flats," so that the flats fit snugly, yet slideably within the elongated slots 12 and 13 of the upper chassis member, whereby the bolts are prevented from turning, while the overhanging part of the head, beyond the flats, engages the chassis member adjacent the slots.

The lower chassis member 1, in turn, has similar slots 14 and 15, respectively, the flanking sides of which are engaged by the flat portions 16 of the wing-nuts 9, to tighten the two chassis members to each other.

The lower of the two chassis members, that is the chassis member which is overlapped by the other, from above, which, in the particular illustration in the drawings, is chassis member 1, is also preferably depressed in an area 17, which includes the channel 5, and extends slightly beyond the channel 5, sufficient to accommodate the extension 4, and to a depth substantially the thickness of the sheet-metal of which the extension 4 is made, so that the main footrest portions 18 and 19, of the front and rear chassis members 1 and 2, will be substantially in a single plane, or co-planar.

To each of the chassis members 1 and 2 a generally U-shaped journal-bracket 20 and 21, respectively, is secured, in the manner hereinafter described, for supporting, preferably non-revolvably, the front and rear axles 22 and 23, respectively.

Each of the two generally U-shaped journal-brackets 20 and 21 is formed of sheet-metal of

suitable gage and has upper flanges 24, extending outwardly from each side, preferably with a stiffening or bracing web 49 of generally U-shaped cross-section, pressed across the bend of the flange 24 and the leg of the U of the bracket, preferably at about an angle of 45°, to resist bending or flexing of the leg of the U of the bracket in relation to the side-flanges of the bracket. Each of the flanges 24 has pressed upwardly, thereinto, two or more weld-projections 25, which are raised just sufficiently above the surface of the flange to form an advanced electrical contact before the body of the flange itself makes contact with the chassis plate to which it is fastened in welding operation, and a dowel-projection 26 of preferably greater height, and of a height more or less that of the thickness of the chassis plate.

The chassis is provided with a dowel hole 27, to receive each of the dowel-projections 26. During assembly, the dowel-projections 26 are set into or telescoped into the dowel holes 27 and the welding electrodes of a spot-welder adjusted to align with the weld-projections 25, and in the welding operation the weld is affected through the projection 25, which are thereby fused and flattened to the contiguous surfaces of the chassis-plates, and the dowel-projection 26 thereby driven in the dowel holes 27. By this means, the fore-and-aft shearing strain created between the journal-brackets and the chassis-plates, in actual use of the skate, is borne to a large extent or shared to a large extent by the dowel-projection 26, thereby relieving the spot-welds of the shearing strain, and more nearly relegating the spot-welds to the function of resisting tension tending to separate the flanges 24 from the chassis-plates; thereby creating a more durable structure from the standpoint of ultimate use, and at the same time aiding in the quicker and less expensive assembly of the skate in course of manufacture.

The journal-brackets, when formed out of flat strip-metal, have a central hole 28 punched thereinto, in the center of the base of the U. These central holes serve to space the cut length of strip-metal for the punching and forming operations (in the various dies and fixtures), namely, in the die-formation of the projections 25 and 26 and also in the bending of the piece to form the U and also to form the flanges at the top of the U. The diameter of the hole 28 is preferably made slightly smaller than the diameter of the axle 22 or 23 for the reasons hereinafter pointed out. Either simultaneously with the formation of the hole 28, or in a subsequent die-operation, a pair of cuts 29 and 30 are formed more or less tangent to the hole 28 and parallel to the long sides of the strip-metal of which the U-shaped journal-bracket is formed. Thereafter, the strips or tabs 31 and 32 formed by these cuts 29 and 30 are bent upwardly to form axle-gripping tabs, but they are preferably not bent out fully, that is not quite to a right angle to the base of the U, so as to permit the insertion of the axle through the axle openings or holes 33, which axle holes are preferably formed in an inwardly pressed annular portion 34 in the sides of the U.

The length of the tabs 31 and 32 are such that when bent out at a right angle to the base 35 of the U, they will be wedged tightly between the axle and the base 35 of the U, with the fork-like terminal portion of the tab straddling the bottom of the axle and with the tops of the forks perhaps slightly spread apart while being

jammed into place because the curvature of the tab forming fork being of slightly smaller radius than that of the axle. This wedging of the tabs 31 and 32 also slightly tensions the bottom 35 of the U and perhaps slightly bows this bottom 35 of the U downwardly to create a constant upward pressure upon the axle through the tabs 31 and 32. The purpose of this construction is to prevent the axle from turning in the journal-bracket or in the supporting bracket 21 or 22, and also to prevent the chattering of the axle within its supporting holes 33, and to prevent the wear of these holes by the harder axle.

The axle-gripping tabs 31 and 32 also act as a lateral reinforcement to prevent the relatively thin sheet-metal U-shaped brackets 20 and 21 from swaying laterally under the lateral force induced by sharp turns and braking action in the act of skating.

The wheels 36 are preferably formed of flat sheet-metal wheel discs 37 and with intervening spacer discs 38 loosely threaded on the axles 22 and 23, as shown in the drawings. The axles 22 and 23 are preferably formed of hardened steel or case-hardened steel, and are preferably provided with an hexagonal integral head 39 at one end and an hexagonal non-integral threaded nut 40 at the other end; this end of the axle 23 being similarly threaded, with the threaded end of the axle peened over on the nut 40 to prevent the nut from turning loose or unthreading; the nut 40 being threaded onto the axle just to the point where the discs 37 are free to revolve upon the axle with a minimum lateral clearance between discs 37 and 38, and between the innermost spacer washer 38 and the side-walls of the U-bracket, and between the outermost disc 37 and the head 39 and nut 40.

The discs 37 may also be hardened, but are preferably somewhat softer than the surface of the axles 22 and 23. The discs 37 are preferably made of steel and may be hardened at their outer periphery for road-contact, while their inner portions, surrounding the axle-receiving holes 41 thereof are left soft or unhardened, although, if desired, these discs 37 may be hardened throughout.

The rear chassis member or heel-supporting chassis member 2 may be formed with an upturned rear heel-abutment 42, in the nature of an upstanding flange formed of the same metal with strap-receiving slots 43 therein, through which suitable strap 44 with buckle or other fastening 45 thereon, threaded through the slots 43, for embracing the ankle portion or the instep portion of the foot of the user.

The front or ball-supporting chassis member 1 may be similarly provided with strap-receiving slots 46, through which a similar strap 47 may be threaded in the manner indicated in the drawings for embracing the toe portion foot or shoe of the wearer.

In the front toe supporting portion 18 of the front chassis member 1 a reinforcing and a non-skid embossing 48 may be impressed (with a suitable die) either downwardly as shown in the drawings or upwardly. This embossing or grooving serves to stiffen the toe portion of the front chassis member and also serves to give a better frictional engagement between the toe of the shoe and the toe of the skate.

The present invention may be embodied in other specific forms without departing from the spirit or essential attributes thereof, and it is therefore desired that the present embodiment be

considered in all respects as illustrative and not restrictive, reference being had to the appended claims rather than to the foregoing description to indicate the scope of the invention.

Having described the invention, what is hereby claimed as new and sought to be protected by Letters Patent are the following:

1. A roller skate including a sheet-metal chassis, a pair of generally U-shaped axle-supporting brackets secured to said chassis, each of said brackets having aligned axle-holes in the sides thereof, an axle extending through the holes of each bracket and protruding appreciably beyond the sides of said bracket and constructed and arranged to carry wheel-members upon its protruding portions, and a pair of spaced axle-gripping tabs integrally struck out of and extending upwardly from the bottom of each U-shaped bracket, said tabs having notches formed at their upper ends in alignment with the axle-holes and constructed and arranged to engage the bottom of the axle and to prevent the axle from rotating.

2. A roller skate including a sheet-metal chassis, a pair of generally U-shaped axle-supporting brackets secured to said chassis, each of said brackets having aligned axle-holes in the sides thereof, an axle extending through the holes of each bracket and constructed and arranged to carry wheel-members upon its protruding portions, and a pair of spaced axle-gripping tabs integrally struck out of and extending upwardly from the bottom of each U-shaped bracket, said tabs having notches formed at their upper ends in alignment with the axle-holes and constructed and arranged to engage the bottom of the axle, said tabs being constructed and arranged to tension the bottom of the bracket so as to exert an upward force upon the axle and thereby to prevent the axle from rotating.

3. A roller skate including a sheet-metal chassis, a pair of generally U-shaped axle-supporting brackets secured to said chassis, each of said brackets having laterally-extending flanges formed at its top, said flanges having dowel-projections extending upwardly, said chassis having dowel-holes formed therein to receive said dowel-projections, an electrically spot-welded junction between the contiguous surfaces of each of said flanges and the undersurfaces of the chassis, each of said brackets having aligned axle-holes in the sides thereof, an axle extending through the holes of each bracket and

protruding appreciably beyond the sides of said bracket and constructed and arranged to carry wheel-members upon its protruding portions, and a pair of spaced axle-gripping tabs integrally struck out of and extending upwardly from the bottom of each U-shaped bracket, said tabs having notches formed at their upper ends in alignment with the axle-holes and constructed and arranged to engage the bottom of the axle and to prevent the axle from rotating.

4. A roller skate including a sheet-metal chassis, a pair of generally U-shaped axle-supporting brackets secured to said chassis, each of said brackets having laterally-extending flanges formed at its top, said flanges having dowel-projections extending upwardly, said chassis having dowel-holes formed therein to receive said dowel-projections, an electrically spot-welded junction between the contiguous surfaces of each of said flanges and the undersurfaces of the chassis, each of said brackets having aligned axle-holes in the sides thereof, an axle extending through the holes of each bracket and protruding appreciably beyond the sides of said bracket and constructed and arranged to carry wheel-members upon its protruding portions, and a pair of spaced axle-gripping tabs integrally struck out of and extending upwardly from the bottom of each U-shaped bracket, said tabs having notches formed at their upper ends in alignment with the axle-holes and constructed and arranged to engage the bottom of the axle, said tabs being constructed and arranged to tension the bottom of the bracket so as to exert an upward force upon the axle and thereby to prevent the axle from rotating.

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