Jan. 15, 1935. J. S. COLDWELL 1,987,668

ROLLER SKATE

Original Filed July 20, 1931 2 Sheets-Sheet 1

Fig. 1.

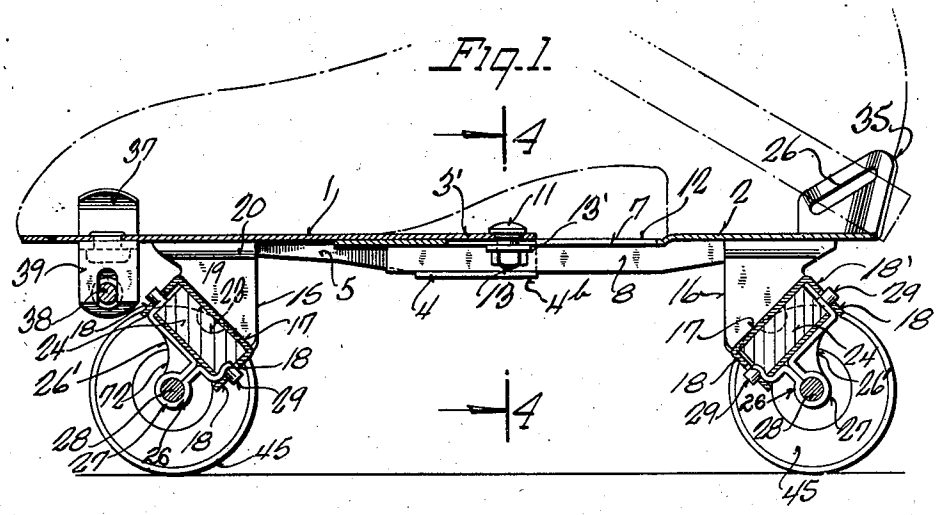


Fig. 2.

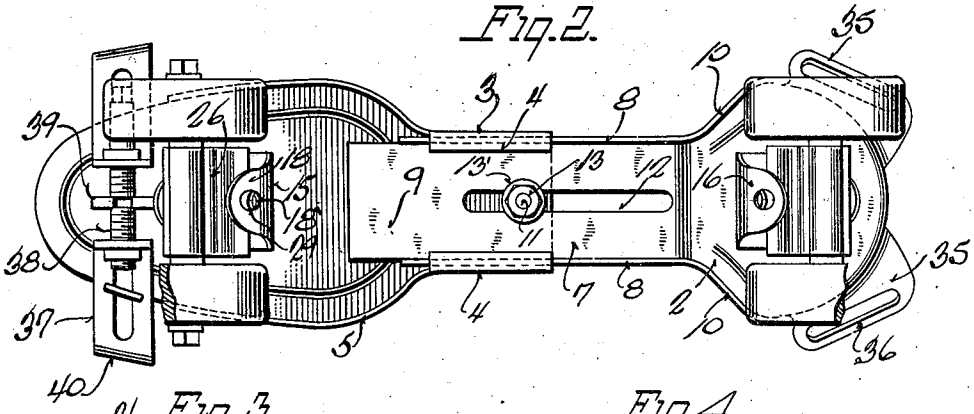


Fig. 3.

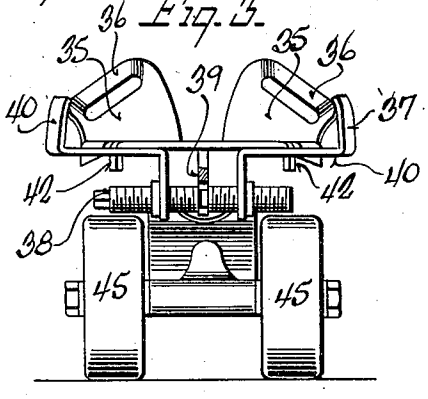


Fig. 4

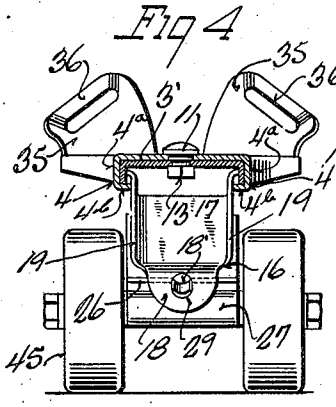
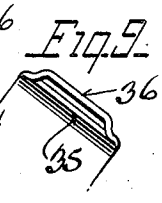


Fig. 5.



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Fig. 5.

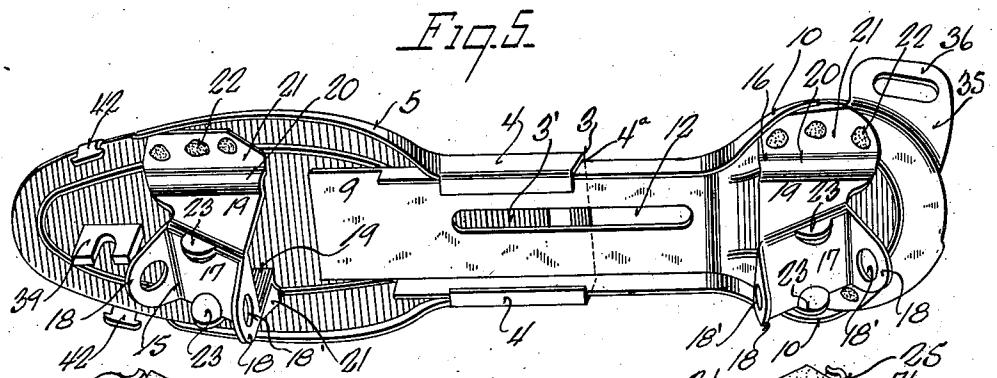


Fig. 6.

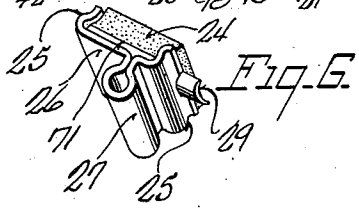


Fig. 7.

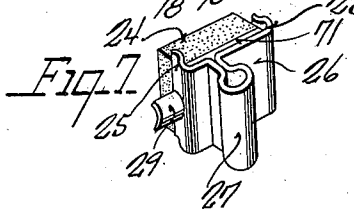


Fig. 8.

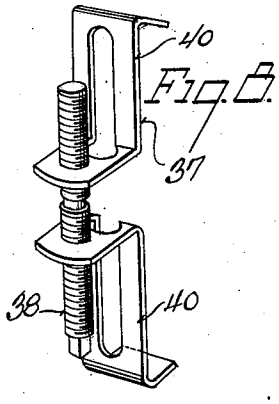
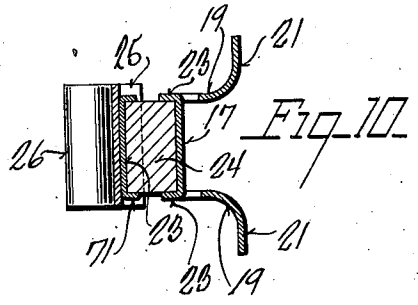


Fig. 10.



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UNITED STATES PATENT OFFICE

1,987,668

ROLLER SKATE

John S. Coldwell, Milwaukee, Wis., assignor to Globe-Union Mfg. Co., Milwaukee, Wis., a corporation of Wisconsin

Original application July 20, 1931, Serial No. 551,929. Divided and this application April 11, 1932, Serial No. 604,374

11 Claims. (Cl. 208—179)

This invention relates to an improvement in roller skates and the present application is a division of my pending application for roller skates filed July 20, 1931, Serial No. 551,929.

Among the ultimate objects of the invention are to provide a roller skate which is of simple, durable and well balanced construction and of attractive appearance, which is susceptible of quantity production at a low cost and by standard manufacturing practices, and which, while adjustable over a wide range of sizes, preserves its advantage of strength, durability, rigidity and the like in all of its various adjustments.

More particularly, the invention contemplates an improved construction of toe and heel plates and a novel mode of adjustably interconnecting the toe and heel plates, and this latter feature lends itself to a simple, practical and yet effective mode of reinforcing the toe and heel plates. Further, the truck hangers are of novel construction, are secured in an advantageous and novel manner to the toe and heel plates, and together with the axle brackets or cradles are so designed as to simplify the operative assembly of the axle brackets with the truck hangers as well as the construction of the rubber blocks or elastic cushions and their assembly with the hangers and brackets. The invention also provides a simple, reliable and well-appearing means for mounting the toe clamps on the toe plate.

Other objects and advantages reside in certain novel features of the construction, arrangement and combination of parts which will be hereinafter more fully described and particularly pointed out in the appended claims, reference being had to the accompanying drawings, forming a part of this specification, and in which:

Figure 1 is a view in central, vertical, longitudinal section showing a skate construction embodying the present invention;

Figure 2 is a bottom plan view of the skate shown in Figure 1, parts being broken away for the sake of illustration;

Figure 3 is a view showing the skate in end elevation looking toward the front end of the skate;

Figure 4 is a view in transverse section taken on line 4—4 of Figure 1 and looking in the direction of the arrows;

Figure 5 is a perspective view of the toe and heel plates with the truck hangers attached but with the axle brackets removed;

Figures 6 and 7 are detail perspective views of the axle brackets;

Figure 8 is a detail perspective view of the toe clamp;

Figure 9 is a fragmentary detail view in top plan showing a manner in which portions of the strap attaching lugs above the slots are offset; and

Figure 10 is a fragmentary detail sectional view of another construction of truck hanger.

Referring to the drawings, it will be seen that the skate comprises generally a toe plate 1 and a heel plate 2, each of said plates being constructed of a single piece of sheet metal.

The toe plate 1 has a rearwardly directed extension 3 of box-like section in that this extension 3 has a plate-like body portion 3' formed as a continuation of the toe plate 1 and has angular flanges 4 integral with the margins thereof, each flange comprising, as clearly shown in Figure 4, a vertical portion 4^a depending from the plate-like body portion 3' and an inturned and horizontally disposed lower end portion 4^b. The vertical portions of the flanges 4 are integrally formed with reinforcing flanges 5 which are also integral with and extend vertically downward from the margins of the toe plate.

The heel plate 2 is provided with a forwardly extending shank or girder 7 having along its edges depending guide and reinforcing flanges 8. The flanges 8 terminate short on the forward end of the girder 7 to provide a plain or unflanged and flat plate-like end portion 9 designed for interfitting with other elements of the skate structure in certain adjustments as will hereinafter more clearly appear. Heel plate reinforcing flanges 10 are integrally formed with the heel plate along portions of the side edges thereof and are also continuations of the girder flanges 8.

From the foregoing it will be understood that the flanged girder 7 of the heel plate 2 may be adjusted or slid back and forth through the guide constituted by the box-like extension 3 of the toe plate. For securing these parts in any desired adjustment, a bolt 11 is provided and extends through the bolt hole in the plate-like body portion 3' of the toe plate extension and through a slot 12 in the girder 7. A nut 13 and washer 13' coact with the bolt 11 and with the girder 7 to secure these parts in any desired adjustment.

Truck hangers designated at 15 and 16 are provided on the toe and heel plates respectively. As these truck hangers are of identical construction, a single description will serve for both. Each truck hanger comprises an inclined body plate 17 formed at its ends with integral bearing lugs 18 having bearing openings 18' and integrally connected along its side edges with vertical side plates 19 connected by integral and offset connecting portions or shoulders 20 with attaching flanges

21. The attaching flanges 21 flatly engage the heel and toe plate and are spot welded thereto as indicated at 22. The offset portions or shoulders 20 coact with the underside of the toe plate to provide guides or guideways which, in certain adjustments, receive the plain flat forward end 9 of the girder to enhance the interconnection between the toe and heel plates. The inclined body plate of each hanger adjacent the juncture with the side plates 19 have retaining lugs 23 struck therefrom. Elastic pads or rubber blocks 24 are positioned flatly against the body plate 17 of the hangers and are retained against lateral displacement by the lugs 23 and against fore and aft displacement by the end flanges 25 of axle brackets or cradles 26 of the truck. The axle brackets 26 have integral bearing portions 27 which receive the axles 28 and their flanges have integral semi-cylindrical trunnions 29 which interfit with the bearing openings 18' of the end lugs 18 of the truck hangers.

As illustrated in Figure 1, the axle brackets preferably have integral reinforcements in the form of outwardly displaced rib-like structures 26'. Such reinforcements stiffen up the axle brackets and eliminate bending and breaking of the axle bracket bearings and make it possible to obtain these desirable properties while using thinner metal than customary.

The metal of which the truck hangers are constituted is sufficiently resilient to enable it to be shaped and bent as described and also to enable one of the end lugs 18 to be bent to effect its interconnection with its trunnion 29 to complete the assembly and yet this metal is sufficiently stiff and strong to retain its form in service.

The heel plate 2 is provided with slotted strap attaching lugs 35 and the portions 36 of the lugs above the slots are offset outwardly to prevent cutting of the straps.

A conventional set of toe clamps 37 is provided on the toe plate 1 and has its screw 38 interconnected with the usual notched lug 39 secured to and depending from the toe plate and has its slotted clamping member 40 slidably interfitted with novel guide lugs 42. Each guide lug 42 is of T-shaped form and is formed integral with the edges of its toe plate.

On the ends of each axle 28 wheels designated generally at 45 are rotatably mounted.

From the foregoing, it will be understood that while the construction of the skate has been much simplified its strength and durability has been enhanced. These advantages result from the manner of constructing the truck hangers and welding them to the toe and heel plates and to the character of the interconnection between the toe and heel plates. Concerning the latter, it will be appreciated that the box-like section of the rearward extension of the toe plate and flanged girder of the heel plate telescoping therein afford a superior mode of adjustably interconnecting the toe and heel plates. Another feature contributing to economy in cost of manufacture and to simplicity is the manner of interconnecting the axle brackets or cradles with the truck hangers. By providing the integral trunnions on the brackets the necessity of forming a hole within the rubber block or cushioning pad and of providing a separate pivot pin extending through this hole and through registering openings on the bracket and hanger is avoided. With applicant's construction the use of separate retaining elements for the cushioning pads or rubber blocks is not essential, since these pads are securely held against accidental displacement by the integral retaining lugs of the hangers and the end flanges of the axle brackets.

It is to be understood, however, that the action of the cushioning pads or rubber blocks may be stiffened whenever desirable by employing retaining clips 70 interfitted with the cradles or axle brackets 26 in the manner shown in Figure 10 and having flanges 71 engageable with the sides of the rubber blocks supplementing the action of the cradles and lugs 23 in the assembly.

The guide lugs for the toe clamps being formed as extensions or continuations of the toe plate avoid puncturing of this plate and represent a simpler and less expensive manner of organizing the toe clamps with the toe plate than the use of separate headed studs or rivets.

In the present application no claim is made to the novel mode of interconnecting the toe and heel plates for relative longitudinal adjustment as this and related features form the subject matter of the parent application Serial No. 551,929, referred to above.

While I have shown and described one construction embodying the present invention it is to be understood that this has been done for the sake of illustration and the various changes in the size, shape and arrangement of the parts may be made without departing from the spirit of the invention or the scope of the sub-joined claims.

The invention claimed is:

1. A roller skate comprising toe and heel plates, truck hangers secured to said plates and having apertured bearing lugs, formed sheet metal axle brackets having integral trunnions rockably fitted in said bearings and cushioning pads between said brackets and said hangers.

2. A roller skate comprising toe and heel plates, truck hangers secured to said plates and having an inclined body plate formed with integral apertured bearing lugs at its ends and side plates integral with the side edges of the body plate and connected to said toe and heel plates, formed sheet metal axle brackets having integral trunnions rockably fitted in said bearings and cushioning pads between said brackets and said hangers.

3. A roller skate comprising toe and heel plates, sheet metal truck hangers secured to said plates, axle brackets rockably interfitted with said hangers, cushioning pads interposed between said brackets and hangers, and retaining lugs struck from said sheet metal hangers and engaging said pads to secure them in position.

4. A roller skate comprising toe and heel plates, sheet metal truck hangers secured to said plates, axle brackets rockably interfitted with said hangers, cushioning pads interposed between said brackets and hangers, and retaining lugs struck from said sheet metal hangers and engaging said pads to secure them in position, said brackets being provided with ribbed portions having securing engagement with said pads.

5. A roller skate comprising toe and heel plates, truck hangers secured to said plates and having an inclined body plate formed with integral apertured bearing lugs at its ends and side plates integral with the side edges of the body plate and connected to said toe and heel plates, axle brackets having integral trunnions rockably fitted in said bearings, cushioning pads between said brackets and said hangers, said hangers having retaining lugs struck from their inclined body plates and engaging said pads.

6. A roller skate comprising toe and heel plates, truck hangers secured to said plates and having

an inclined body plate formed with integral apertured bearing lugs at its ends and side plates integral with the side edges of the body plate and connected to said toe and heel plates, axle brackets having integral trunnions rockably fitted in said bearings, cushioning pads between said brackets and said hangers, said hangers having retaining lugs struck from their inclined body plates and engaging said pads, said axle brackets having flanges engaging said pads and coacting with said lugs to hold said pads in operative position while leaving the brackets free to rock against the elastic resistance of said pads.

7. A roller skate comprising toe and heel plates, truck hangers connected to said plates, axle brackets, cushioning pads between said axle brackets and said hangers, and interengaging parts formed on said brackets and said hangers and located entirely outside of said pads and intermediate the tops and bottoms thereof for rockably interconnecting said brackets with said hangers.

8. A roller skate comprising toe and heel plates, truck hangers connected to said plates and having bearings spaced apart in the direction of the length of the skate, and axle brackets formed with an axle bearing and having end flanges provided with longitudinally extending integral trunnions fitted in the spaced bearings of the hanger to provide for transverse rocking of the axle brackets.

9. A roller skate comprising toe and heel plates, truck hangers connected to said plates and having bearings spaced apart in the direction of the length of the skate, and formed sheet metal axle brackets formed with an axle bearing and having longitudinally extending integral trunnions fitted in the spaced bearings of the hanger to provide for transverse rocking of the axle brackets.

10. A roller skate comprising toe and heel plates, truck hangers connected to said plates and having bearings spaced apart in the direction of the length of the skate, and axle brackets formed with an axle bearing and having longitudinally extending integral trunnions fitted in the spaced bearings of the hanger to provide for transverse rocking of the axle brackets, cushioning pads interposed between the brackets and the hangers, ribbed means on the brackets engaged with the ends of the pads and means on the hangers engaged with the sides of the pads.

11. A roller skate comprising toe and heel plates, truck hangers secured to said plates and having bearings and formed sheet metal axle brackets having integral trunnions rockably fitted in said bearings.

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