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Marks et al.

[11] **3,837,662**

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[54] **TWO WHEELED ROLLER SKATE**

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[73] Assignee: **said Beaupre, by said Marks**

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[52] **U.S. Cl.** **280/11.23**, 301/5.7, 308/191

[51] **Int. Cl.** **A63c 17/06**

[58] **Field of Search** 280/11.23, 11.25, 11.22, 280/7.13, 11.27; 301/5.7, 5.3; 308/190, 191, 189, 188

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Primary Examiner—Leo Friaglia
Assistant Examiner—Milton L. Smith

[57] **ABSTRACT**

A two wheeled roller skate having supporting structure attachable to a shoe is disclosed. The supporting structure has forward and rearward wheel holders each consisting of a pair of portions disposed and spaced apart to receive a wheel between them, each such portion having a downwardly opening slot. Each wheel has a tread surface that is arcuate transversely considered and is supported by bearings that have surfaces arranged to take the load as the skate is tilted from side-to-side in use and include independently rotatable parts having projections slidably seated in the downwardly opening slots. Releasable keepers underlie the projections to block their escape from the slots in which they are seated but are movable to permit the wheels to be removed and replaced.

4 Claims, 5 Drawing Figures

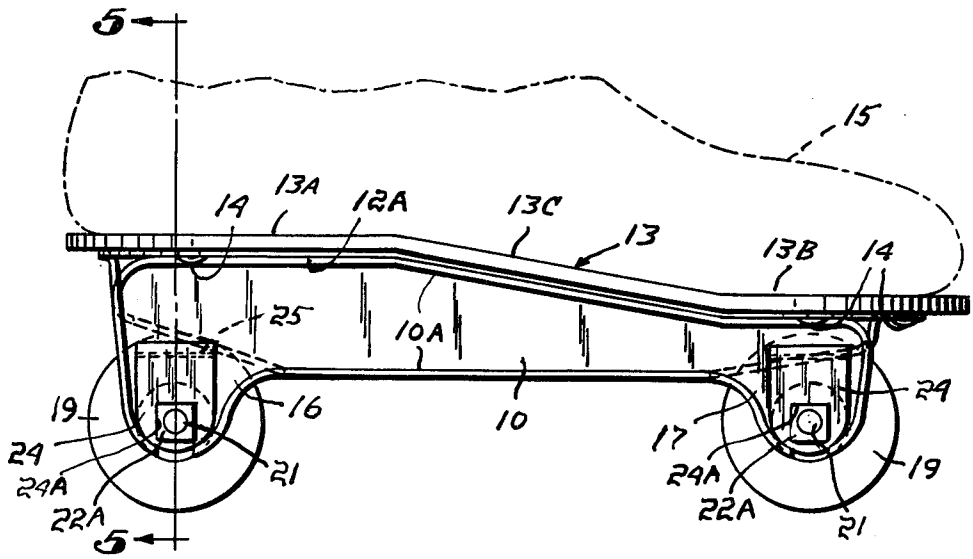


Fig. 1.

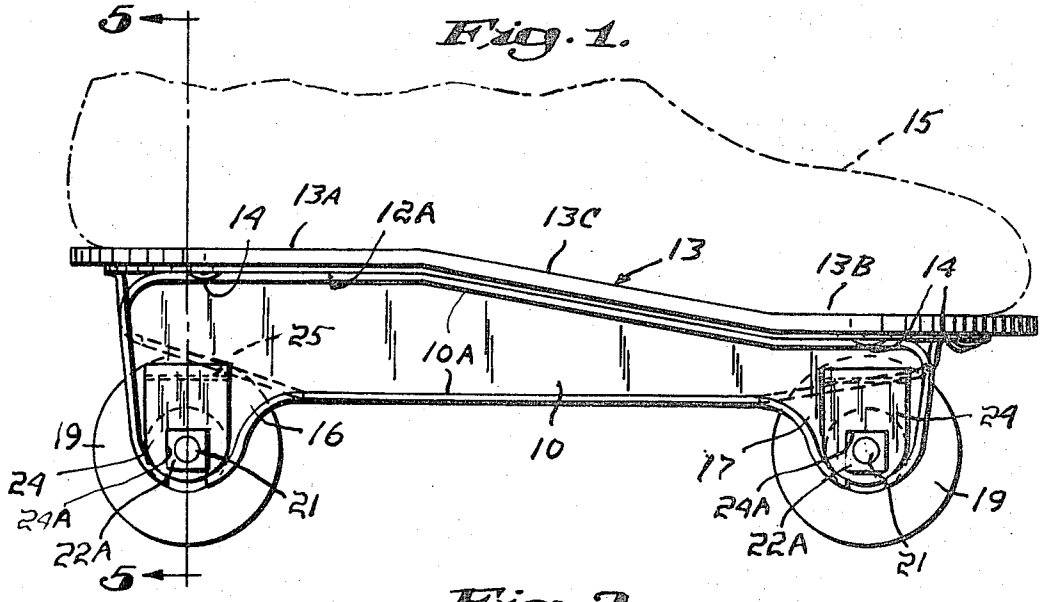


Fig. 2.

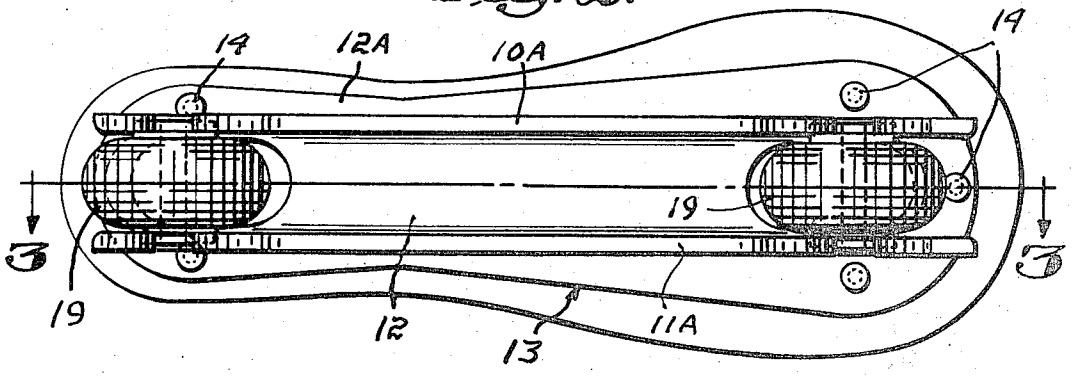


Fig. 3

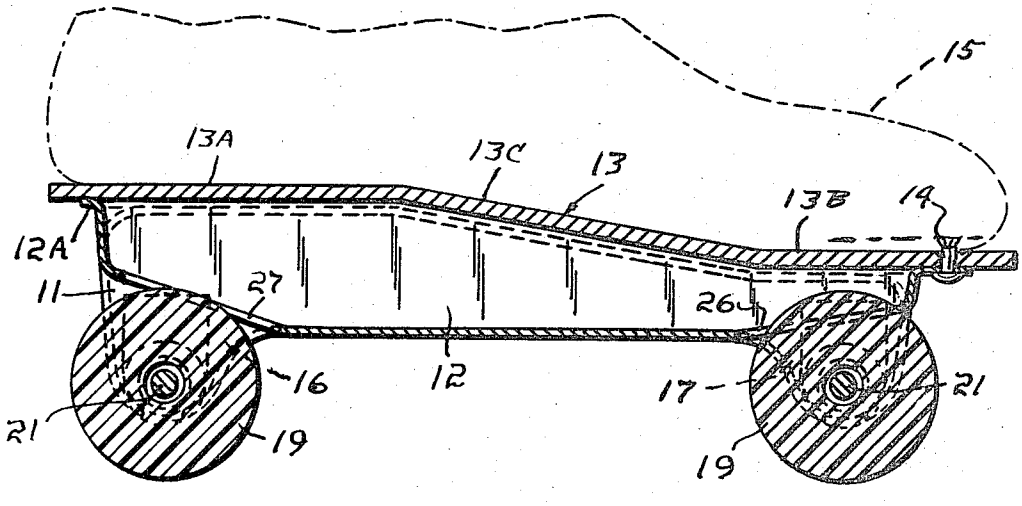


Fig. 3.

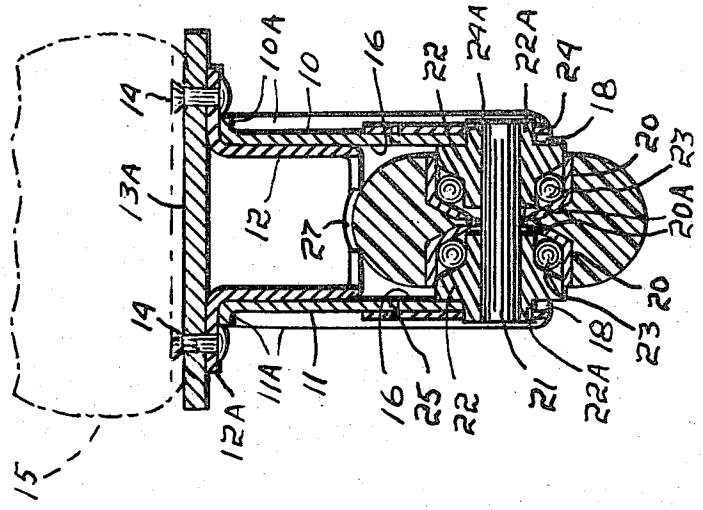
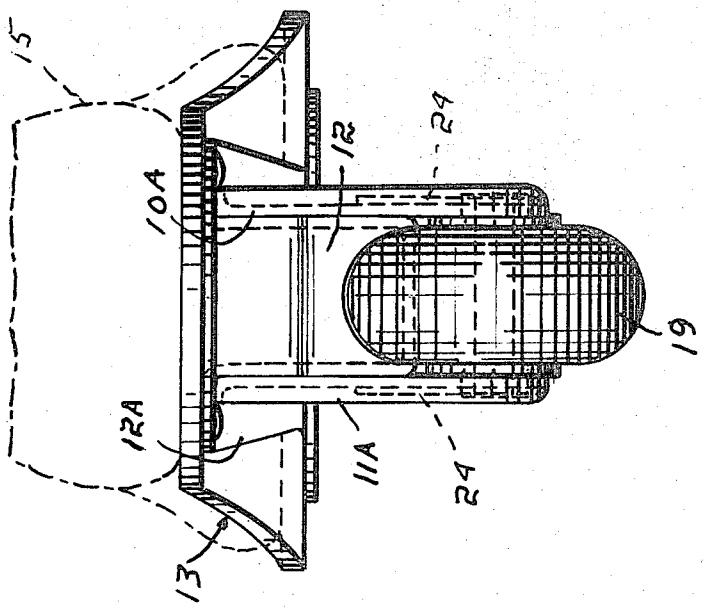

15
14
13A
14
12A
11A
11
12
27
10A
10
16
22
24A
22A
24
18
20
20A
23
20
18
23
22A
21
16
25
22

Fig. 4.


15
10A
12
24
19
12A
11A
24
13

TWO WHEELED ROLLER SKATE

BACKGROUND OF THE INVENTION

Conventional roller skates are widely used but have limitations in their use because they have double front and back wheels and because the tread surfaces of their wheels are flat. They are not, accordingly, well adapted for use where a closer approach to ice skating is wanted, in playing hockey-like games, for example.

At the present time, there is considerable interest in playing hockey-like games on paved surfaced with the players running but such games would obviously be faster and of more interest and more widely practiced if roller skates could be used.

THE PRESENT INVENTION

The principal objective of the present invention is to provide two wheeled roller skates that enable their users to more closely simulate ice skating than is possible with four wheeled roller skates.

In accordance with the invention, this objective is attained by providing supporting structure attachable to a shoe with forward and rearward wheel holders each consisting of a pair of depending portions, each pair spaced apart to receive the appropriate one of the two wheels between it. Each wheel has a tread surface that is arcuate transversely considered.

A particular objective of the invention is to provide a connection between each wheel and its holder that includes a pair of bearing units provided with bearing surfaces disposed to accept loads substantially through the arc within which the tread surface enables the skate to be tilted in use.

Another objective of the invention is to provide a connection between each wheel and its holder that is secure yet enables the wheel to be quickly and easily removed and replaced. This objective is attained by providing each of the portions of the supporting structure portions that establish the wheel holders with downwardly opening, transversely aligned slots and with the bearing means for each wheel including independently rotatable, outer members provided with outwardly disposed projections shaped and dimensioned to be slidably entered in and seated against the closed end of a slot. Each holder-establishing portion has a keeper underlying the seated projection to prevent its escape therefrom. Preferably, the keepers are resilient so that they are normally in their operative position but can be easily pried outwardly sufficiently to release the caught projections.

Yet another objective of the invention is to provide a strong, simple, and inexpensive supporting structure, an objective that is attained by providing a U-shaped frame to which the side plates are welded and which also has an outwardly disposed flange to which a plate is marginally riveted that is to have a shoe attached thereto. The side plates have the depending portions to which the wheels are connected.

BRIEF DESCRIPTION OF THE DRAWINGS

In the accompanying drawings, a preferred embodiment of the invention is illustrated and in the drawings

FIG. **1** is a side view of a two wheeled roller skate;

FIG. **2** is a bottom view thereof;

FIG. **3** is a section taken approximately along the indicated line **3—3** of FIG. **2**;

FIG. **4** is a view of the skate as seen from the rear thereof; and

FIG. **5** is a section taken approximately along the indicated lines **5—5** of FIG. **1.**

THE PREFERRED EMBODIMENT OF THE INVENTION

The two wheeled roller skate shown in the drawings consists of two side members **10** and **11** having outwardly disposed marginal stiffening flanges **10A** and **11A**, respectively. The side members **10** and **11** are welded to opposite sides of a frame **12** of U-shaped cross section and provide with an outwardly disposed marginal flange **12A** of substantial width to which a sole plate, generally indicated at **13,** is secured at appropriate intervals by rivets **14.**

A shoe, which may be of any style or construction, is indicated at **15** and it may be attached to the sole plate **13** in any conventional way, typically by means of the rivets **14.** It will be noted that the sole plate is shaped to have a rearward, elevated heel area **13A**, a forward lower forepart area **13B** and a forwardly and downwardly inclined shank area **13C** and this shape is reflected in like portions of the side members **10** and **11** and the frame **12.**

The wheel holders are established by providing each of the side members with forwardly and rearwardly located, downwardly disposed projecting portions indicated at **16** and **17,** respectively, and each has a vertical, downwardly opening slot **18,** shown as rectangular in shape.

The front and rear wheels **19** are identical and desirably are molded from a relatively hard elastomer with a tread surface that is arcuate, transversely considered. Each wheel **19,** see FIG. **5,** is to turn on ball bearing units, each including a part **20** molded in one side of a wheel **19** and provided with a hole **20A** axially thereof for the free passage of an axle **21** on which the bearing unit parts **22** are a press fit. Each part **22** has an outwardly disposed projection **22A** shown as square and dimensioned to be a sliding fit in a slot **18** and to project therethrough.

It will be noted that the proximate faces of the parts **20** and **22** that define the races for the balls **23** are V-shaped with one wall parallel to the axis of the wheel and the other wall inclined inwardly towards said axis at an angle of 120° to said one wall so that the bearings are effective to accept the load as the skate is tilted to one side or the other in use.

Each projection **22A** is held against escaping from its slot **18** by a resilient keeper **24** welded to the outer face of a side wall **11** as at **25** and shown as having a square hole **24A** dimensioned to fit said projection. It will be noted that practically no strain is placed on the keepers **24,** that each lies within the plane defined by the outer edges of the sides, and that each may be readily pried outwardly to free a projection **22** if a wheel has to be removed and will snap back against the side to which it is welded once the pry tool used is removed.

The supporting structure, while simple in construction, provides great strength to the skate and has holes **26** and **27** for the front and rear wheels, respectively, in order that the U-shaped frame **12** may reinforce the side members **10** and **11** as close as possible to the projections that establish the wheel holders.

I claim:

1. A two wheeled roller skate comprising a pair of wheels, supporting structure attachable to a shoe, and means rotatably connecting said wheels to said structure in longitudinal alignment, said structure including a pair of side plates, an upwardly opening U-shaped frame member to which said side plates are secured and which includes a marginal, outwardly disposed flange, and a sole plate to which the shoe is attachable and which is secured to said flange, and said side plates having transversely aligned front and rear portions extending below said frame member between which the appropriate one of the wheels is located and means connecting each wheel to the appropriate ones of said portions.

2. The two wheeled roller skate of claim 1 in which each side plate includes an outwardly disposed stiffening flange.

3. The two wheeled roller skate of claim 2 in which the wheel connecting means are on the outer faces of said portions but inside the plane inclusive of their flanges.

4. A roller skate comprising wheels, supporting structure attachable to a shoe and including wheel holders spaced lengthwise thereof, each holder including a pair of transversely spaced, downwardly disposed portions, and means rotatably connecting each wheel to the appropriate one of said pairs of portions, said means including bearing means for each wheel, each bearing means including axial, independently rotatable members one at each wheel side and each including an outwardly disposed projection, and each pair of portions having transversely aligned pairs of downwardly opening slots, the slots and projections being so shaped and dimensioned that the projections may be slidably entered in the appropriate slots and held against turning with the projections seated against their upper ends, and a resilient keeper plate for each slot including an attaching portion welded to the outer face of the appropriate slotted portion above the slot thereof and a retainer portion underlying the associated projection to prevent the projection from escaping from the proximate slot, the retainer portion of each keeper plate being so spaced from the attaching portion thereof that the retainer portion may be readily pried outwardly to free the associated projection.

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