

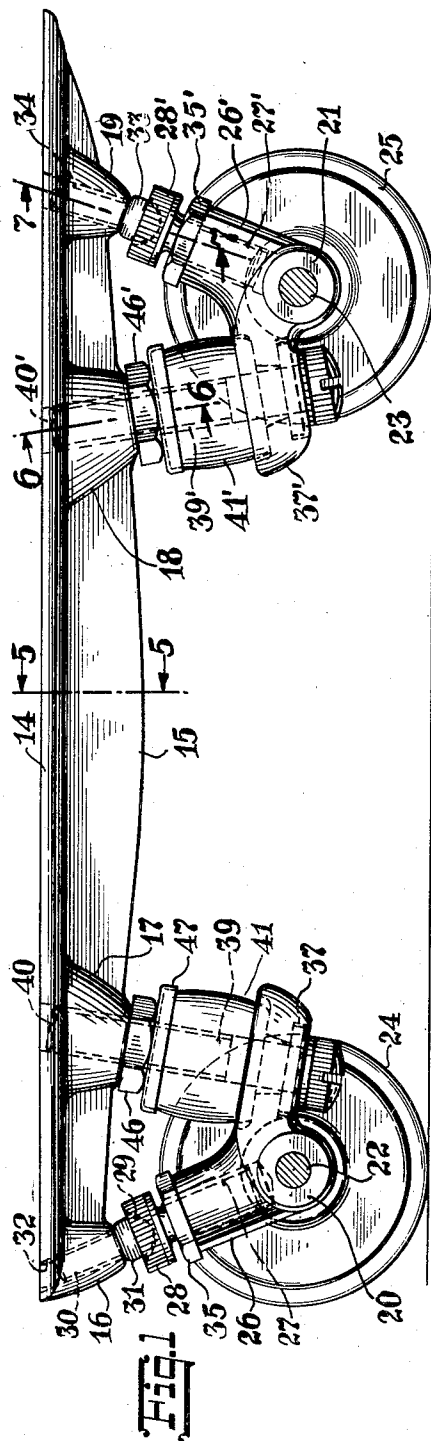
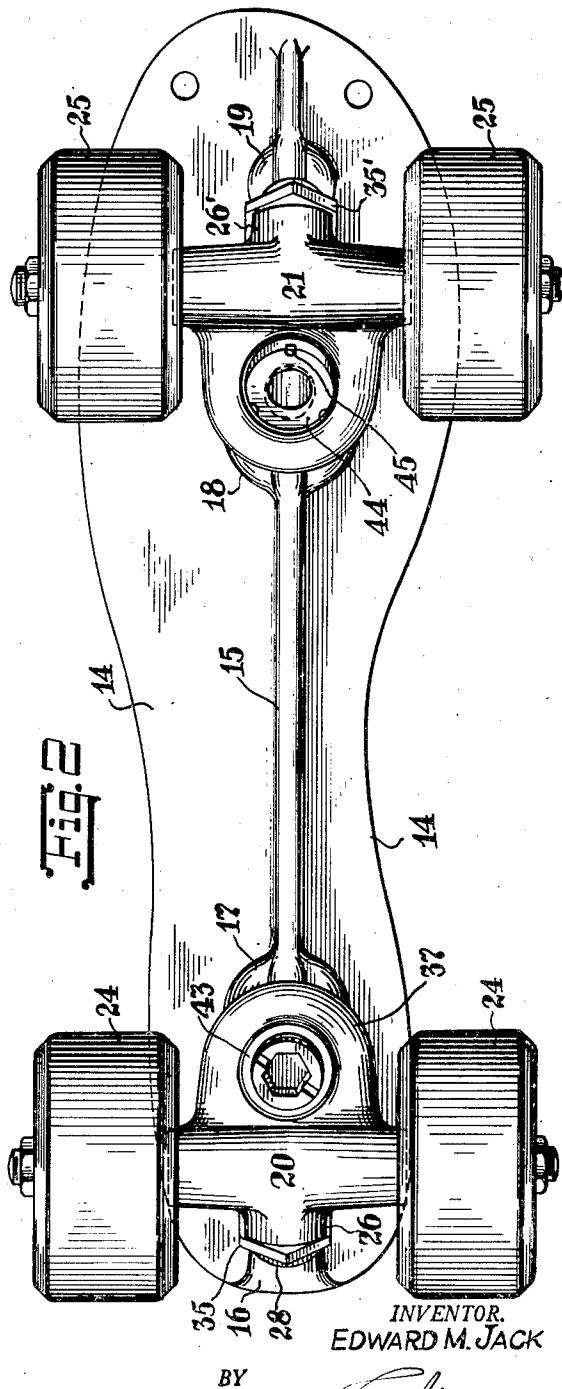
March 28, 1950

E. M. JACK
ROLLER SKATE

2,502,153

Filed Dec. 26, 1947

3 Sheets-Sheet 1



INVENTOR.
EDWARD M. JACK

BY

R. S. Mlye
ATTORNEY

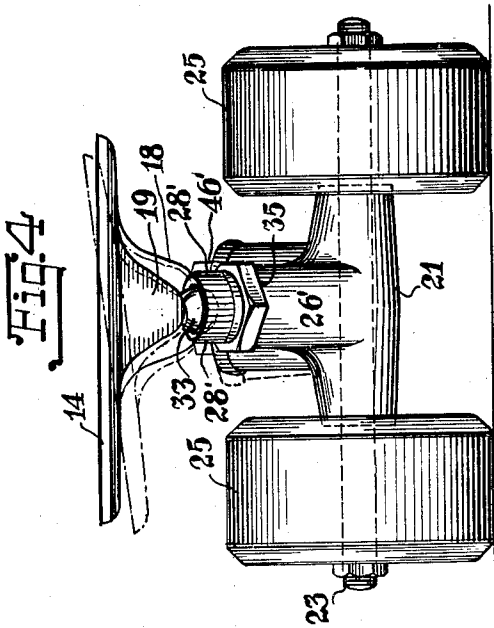
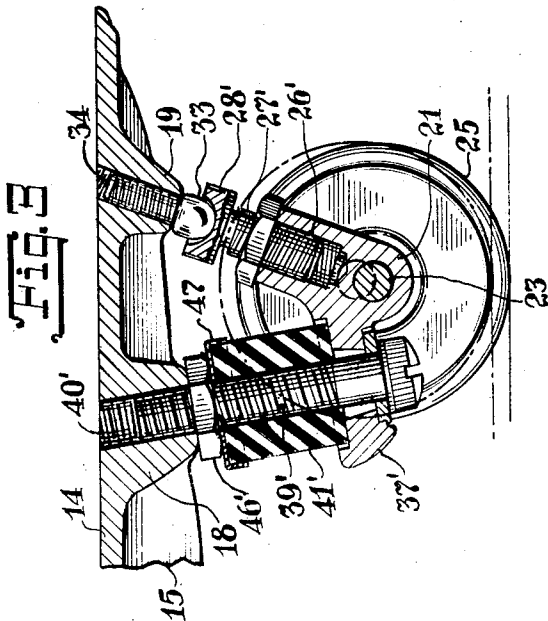
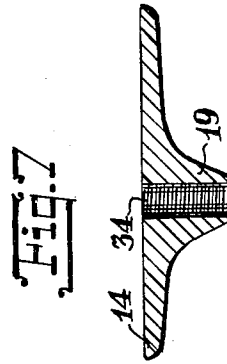
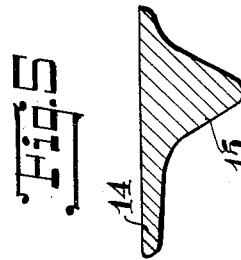
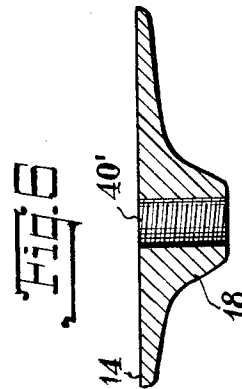
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BY

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EDWARD M. JACK

R. S. Allge
ATTORNEY

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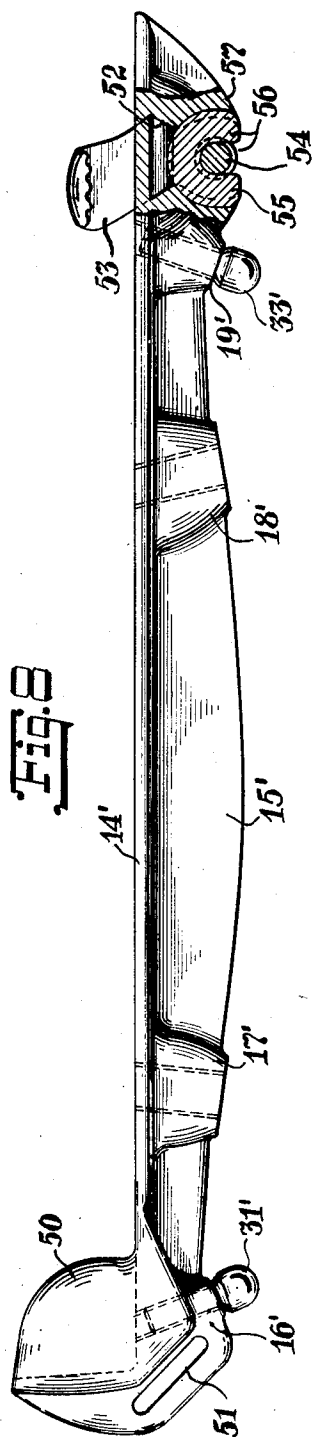
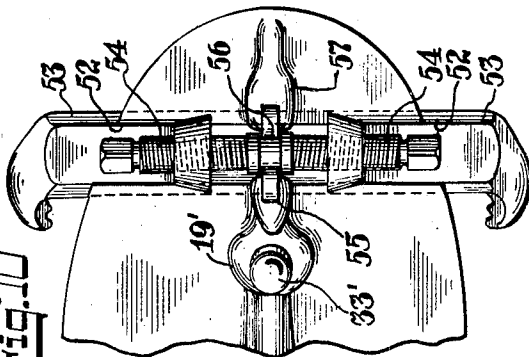
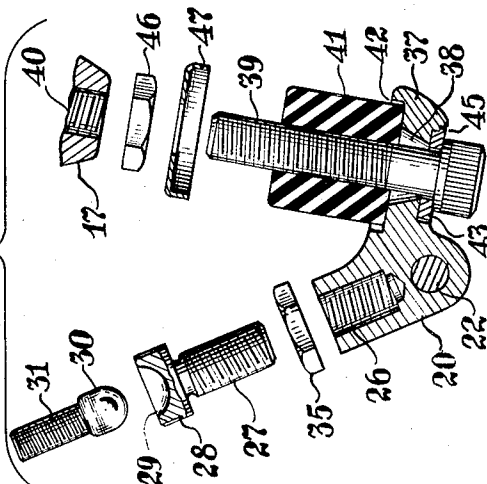


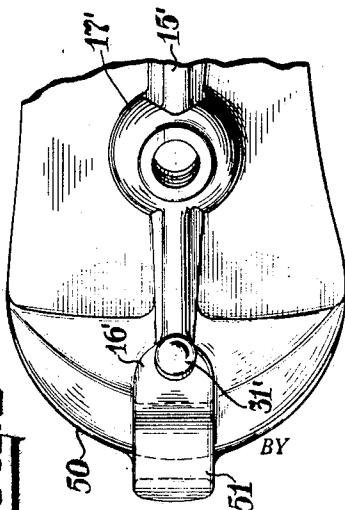
Fig. 10



II. 6. 11



6. 5. 11



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INVENTOR.
EDWARD M. JACK

ATTORNEY

UNITED STATES PATENT OFFICE

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ROLLER SKATE

Edward M. Jack, Litchfield, Conn., assignor to
Union Hardware Company, Torrington, Conn.,
a corporation of Connecticut

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8 Claims. (Cl. 280—11.28)

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This invention relates particularly to skates of the four-wheel type capable of automatic turning movements when the skater leans side-wise.

The main object is to provide a very light but strong skate capable of various adjustments to suit the wishes of the user for plain and fancy skating.

Another object is to simplify the construction so that the skate can be made of few parts.

Another object is to provide a construction which is economical to manufacture and easy and simple to maintain.

Another object is to provide a construction in which the parts which wear can be readily replaced.

Another object is to form the principal parts of material which is rustproof and clean in use.

Accordingly the foot or shoe plate and the bosses for the seats for the front and rear wheel carriers are made of a single casting of a very light metal such as an aluminum alloy integrally reinforced by a depending beam extending along the bottom of the plate. Each carrier is supported adjustably and pivotally near one end of the shoe plate and resiliently and adjustably at another point nearer the center.

The invention applies equally well to the clamp-on type skate and to the type which is fixed to the shoe with an added improvement applicable to the clamp-on type.

Fig. 1 is a side view and partial section showing a skate embodying one form of the invention with the wheel carriers adjusted to one of their upper positions.

Fig. 2 is a bottom plan view of the same.

Fig. 3 is a longitudinal sectional view showing a carrier attached to the front end of the skate and adjusted to a lower position.

Fig. 4 is a front view of the skate showing the shoe plate tilted in dotted lines.

Figs. 5, 6, and 7 are transverse sectional views of the shoe plate on the planes of the line 5—5, 6—6 and 7—7, respectively, of Fig. 1.

Fig. 8 is a side view of a shoe plate for a clamp-on type of skate.

Fig. 9 is a bottom plan view of the heel portion of the plate of Fig. 8.

Fig. 10 is a bottom plan view of the toe portion of the plate of Fig. 8.

Fig. 11 is an exploded sectional view of the parts of one of the wheel carriers.

Fig. 12 is a detail view of a bearing for the adjusting screw for the clamp of Figs. 8 and 10.

The foot or shoe plate 14 is shaped to the ap-

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proximate form of the sole and heel of the shoe and has the integral longitudinal beam 15 extending the length of the plate. This is of V-shape in cross-section except where it is enlarged to form bosses 16, 17, 18 and 19 to receive supporting elements for the carriers 20 and 21. This beam is preferably arched longitudinally between the bosses 17 and 18.

Each wheel carrier is preferably formed of a light metal such as an aluminum alloy and, as usual, has a hub carrying a shaft such as 22 and 23 with a pair of wheels or rollers 24, 24 and 25, 25, respectively.

Each carrier has an integral sleeve 26 projecting upwardly from its hub and inclined outwardly toward one end of the skate. This sleeve is interiorly screw-threaded to receive a screw-threaded adjusting member 27 which has at its upper end a head 28 with a concave seat 29 for the end 31 of the stud 30. Stud 30 is secured in a seat 32 in boss 16 at the rear of the skate. A similar ball headed stud 33 is secured in a seat 34 at the front end of the skate. This seat may go part way or all the way through plate 14. The end 31 is rounded to an approximate semi-spherical shape and set close to the plate and the seat 29 is enough larger in cross-section and of sufficient depth to allow for a considerable lateral movement of the stud in the seat without dislodging the stud from the seat when the shoe plate is tilted. A lock nut 35 on the member 27 serves to hold it in position in the sleeve 26. The stud 30 may be of steel.

Each carrier also has an integral arm 37 which projects inwardly from its hub toward the center of the skate and is preferably inclined downwardly. This arm has a passage 38 through which extends a bolt 39 which is adjustably screwed into a screw-threaded seat 40 in the boss 17 of the shoe plate. A resilient buffer 41 is mounted on the stem of the bolt 39 and seated in a recess 42 in the arm 37. A washer 43 is also employed to take up the wear due to the twisting of the arm on the bolt head. This washer is seated in a recess 44 in the arm and prevented from turning for instance by one or more lugs 45. The bolt 39 is held in its adjusted position in boss 17 by a lock nut 46 and the rubber buffer 39 will usually be headed by a protective cap 47.

The front support for the shoe plate is effected in the same manner as that just described. The carrier 21, sleeve 26', screw member 27', nut 35', stud 33, arm 37', bolt 39', seat 40' and buffer 41'

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corresponding with the elements 20, 26, 27, 35, 30, 37, 39, 40 and 41, respectively.

The weight of the body rests on the foot or shoe plate and is distributed between the front and rear pairs of supports.

It will be seen that the axes of the seats 32 and 40 are shown as inclined downwardly from in rear and from in front of the roller axis, with an acute angle between them. This is preferable but not always necessary. The bolts 39, 39' are of course adjustably fixed to the shoe plate and turn with it as the plate is tilted from side to side.

As pressure is applied off-center to the longitudinal axis of the skate, greater pressure is applied to one side of buffers 41, 41' than to the other shortening the length on the side under greater compression; this exerting a torsional movement to the truck and turning sleeves 26, 26' and cup-like bearings on studs 30 and 33 so that axle shafts 21 and 22 are no longer parallel but converge toward the side under the greater pressure.

By tightening or loosening the bolts 39, 39', the buffers 41, 41', may be compressed or released so as to afford the desired resistance to twisting and turning movement. The screw-threaded seat members 27, 27' may also be adjusted to afford the tight or loose bearing desired on the studs 30 and 33.

By adjusting the socket headed screws 27 and 27' the positions of the wheel axes may be changed so as to vary the centerline spacing. This also results in some change in the skate action.

The skates are designed exactly to place the carriers under the most desirable load points at heel and toe.

The studs 30 and 33 are suitably seated in recesses 32 and 34 which may be screw threaded. These recesses may extend through the plate 14 but not necessarily.

The clamp-on type of skate has the same construction of shoe plate 14' with its integral depending arched beam 15' extending from end to end with the bosses 16', 17', 18' and 19' for carrying the supporting elements and in addition has a heel flange 50 integral with the plate and a strap loop 51 also integrally projecting beyond the stud 31' and flange 50. At the front end also integral with the shoe plate are the undercut flanges 52 which serve as guides for the clamp members 53 immediately in front of the stud 33'. These clamp members are preferably formed of a light metal alloy and are adjusted in the usual manner by means of a transverse screw 54 having a groove 56 seated in a bearing 55. This bearing may be formed in a U-shaped piece of hard metal (Fig. 12) set into a part 57 of the beam 15'. This bearing 55 being hard takes up the wear of the screw and may be replaced if necessary.

It will be understood of course that the skates can be made with different sizes of plates but that the carriers and supporting elements may be interchangeable in both types of skates.

I claim:

1. A foot plate of light metal having a longitudinal beam integral therewith and including two pairs of depending bosses, one boss of each pair being located near one end of the beam and the other boss of each pair being located nearer the center of the beam, said bosses having interiorly screw-threaded sockets, the beam being of V-section and arched between the center bosses, the axes of the sockets of each pair being inclined at acute angles to the plate and intersecting beneath the plate, a carrier member for each end of

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the foot plate, each carrier member having a transverse hub and shaft for supporting rollers, an upwardly extending sleeve and a laterally extending arm, each sleeve having a screw-threaded part, a bearing member having a screw-threaded post adjustably connected to the screw-threaded part of said sleeve, a bearing member having a screw-threaded shank seated in the adjacent screw-threaded boss near each end of the plate and coacting with the bearing member of the screw-threaded post, a bolt extending through the laterally extending arm of each carrier and adjustably seated in the inner boss of each pair of bosses and a resilient member mounted on each bolt between the arm of the carrier member and the foot plate.

2. A foot plate having a longitudinal reinforcing beam integral therewith and including two pairs of depending bosses, one boss of each pair being located near one end of the beam and the other boss of each pair being located nearer the center of the beam, said bosses having sockets, the axes of the sockets of each pair being inclined at acute angles to the plate and intersecting beneath the plate, a wheel carrier member for each end of the plate, each carrier member having a transverse hub and shaft for supporting rollers, an upwardly extending sleeve and a laterally extending arm, each sleeve being interiorly screw-threaded, a bearing member having a screw-threaded post adjustably connected in the screw-threaded part of said sleeve, a bearing member having a shank seated in a boss near each end of the plate and coacting with the bearing member of the adjacent screw-threaded post, a bolt extending through the laterally extending arm of each carrier and adjustably seated in the inner boss of each pair of bosses and a resilient member mounted on each bolt between an arm of the carrier member and the foot plate.

3. A roller skate foot plate having a longitudinal reinforcing member integral therewith and extending along the underside thereof, said plate including a pair of oppositely inclined bosses with sockets near each end, a ball-ended stud secured in one of the bosses of each pair of bosses, a carrier member for each pair of the bosses, each carrier member having a horizontal wheel bearing, an interiorly screw-threaded upwardly inclined sleeve and a perforated arm, a screw-threaded bolt extending upwardly through each arm and adjustably secured in one of the bosses, the axis of each bolt being inclined at an acute angle to the plate, a resilient buffer on each bolt between its arm and boss, a screw-threaded extension adjustable in each sleeve and having a concave socket at its upper end serving as a support for the adjacent ball-ended stud.

4. A roller skate foot plate having a longitudinal reinforcing member integral therewith and extending along the underside thereof, said member including a pair of oppositely inclined interiorly screw-threaded bosses near each end, a ball-ended stud screwed into one of the bosses of each pair of bosses, a carrier member for each pair of the bosses, each carrier member having a horizontal wheel bearing, an upwardly inclined interiorly screw-threaded sleeve and a downwardly inclined perforated arm, a screw-threaded bolt extending through each arm and adjustably screwed into one of the bosses, a resilient member on each bolt between its arm and a boss, a screw-threaded extension adjustable in each sleeve and

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having a concave socket at its upper end serving as a support for the adjacent ball-ended stud.

5. A roller skate as set forth in claim 4 in which each bolt has a head beneath the arm through which it passes, a washer interposed between the head of each bolt and said arm and means for preventing rotation of said washer with respect to the arm.

6. In a roller skate, a shoe plate having a depending, integral longitudinal beam with bosses at each end integral therewith, a wheel carrier supported at each end of the plate by an adjustable bolt seated in one boss, with a resilient buffer interposed between the carrier and the boss and a screw-threaded member adjustable in each carrier and having a head, with a bearing socket at its upper end, and a stud mounted in another boss and having a bearing at its lower end seated in said bearing socket, said socket being of a concave form and the outer edge of the head surrounding the bearing end of said stud so as to ensure a free swinging and pivotal movement of the stud in said socket.

7. In a roller skate, a shoe plate having a depending, longitudinal beam integral therewith and extending from end to end thereof, a wheel carrier supported at each end of the plate by an adjustable bolt seated in the beam, with a resilient buffer interposed between the carrier and the beam and a screw-threaded member adjustable in each carrier and having a head with a bearing socket at its upper end and a stud secured in the beam and having a bearing at its lower end seated in said bearing socket, said

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socket being of a concave form of larger radius than the bearing end.

8. In a roller skate, a shoe plate of light metal having a pair of depending bosses near each end and an integral longitudinal reenforcement connecting the bosses which are near the center, a wheel carrier having a transverse axis supported at each end of the plate by an adjustable bolt seated in one boss with a resilient buffer interposed between the carrier and its boss, a screw-threaded socket member adjustable in each carrier and having a head with a bearing socket at its upper end and a discrete stud mounted in the plate and having a bearing at its lower end seated in said bearing socket, said socket being of a concave form of larger radius than the bearing end of said stud and the outer edge of the head surrounding the bearing end of said stud so as to ensure a free swinging and pivotal movement of the stud in said socket, said screw-threaded members and said bolts being inclined from opposite sides of the axes of the carriers at similar acute angles.

EDWARD M. JACK.

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