April 3, 1951 C. E. SWENSSON 2,547,796

ROLLER SKATE

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Fig. 1.

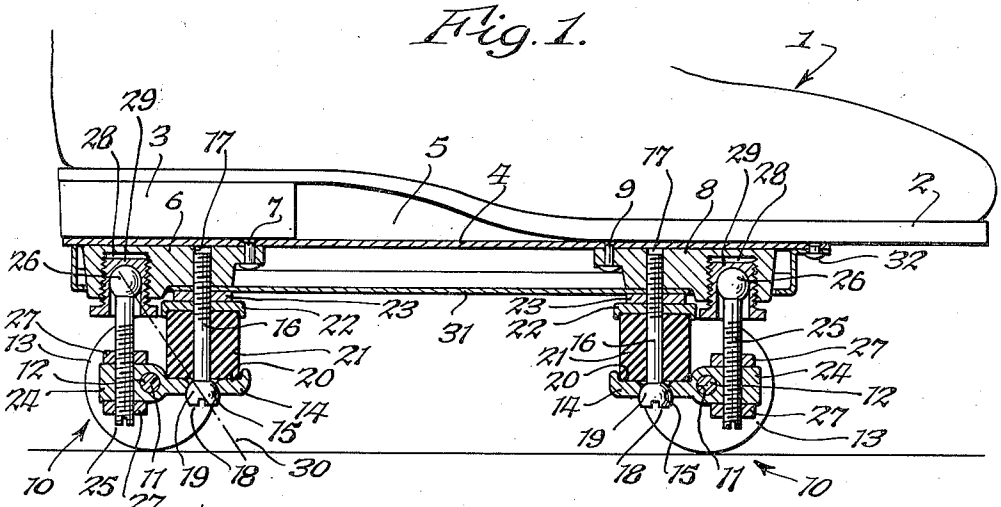


Fig. 2.

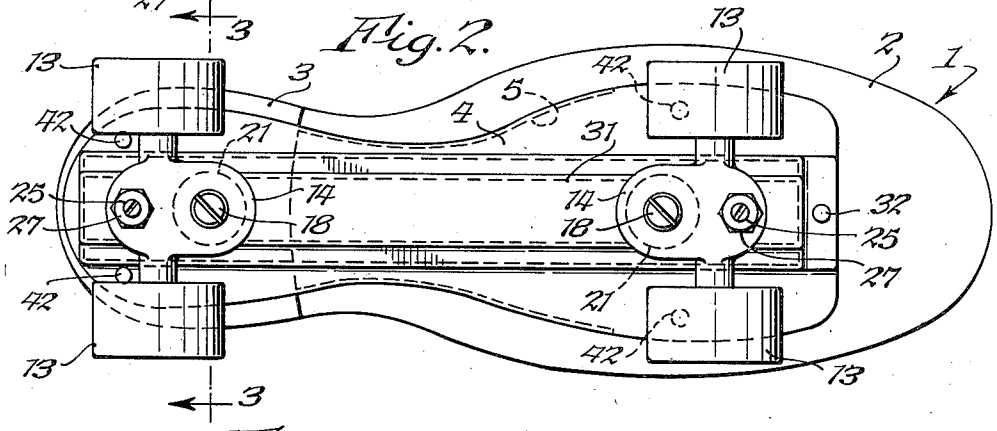


Fig. 3

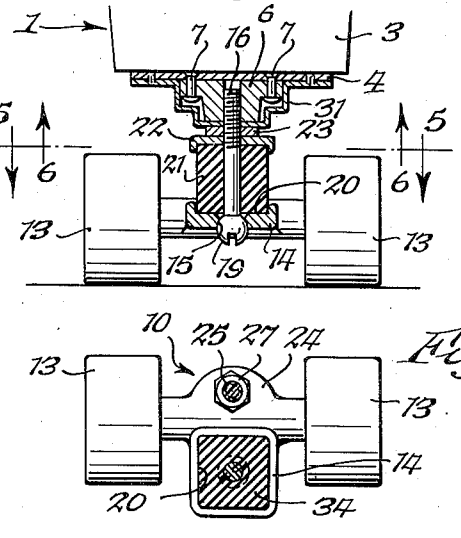


Fig. 4.

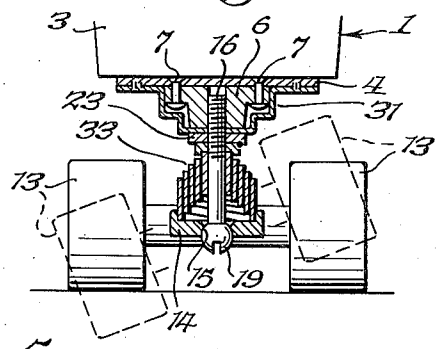


Fig. 5.

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ROLLER SKATE

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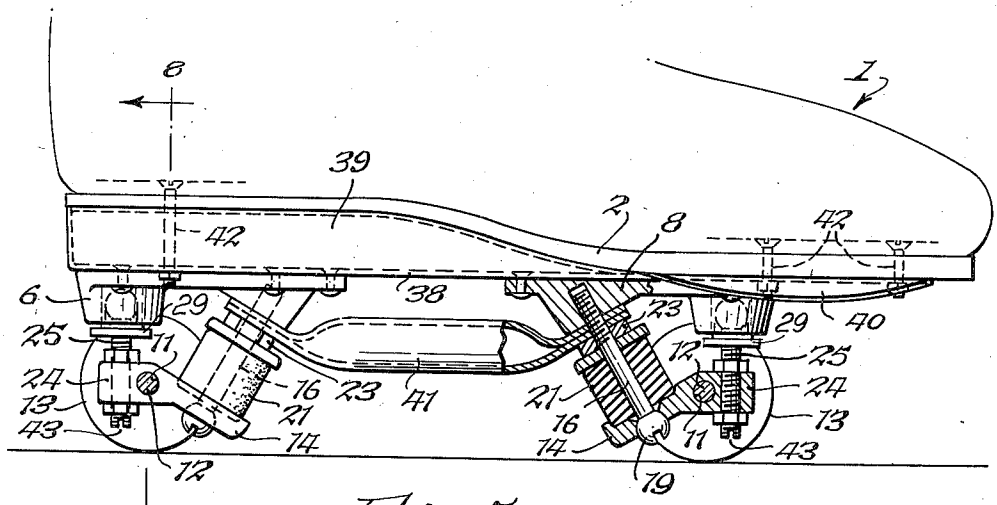


Fig. 7.

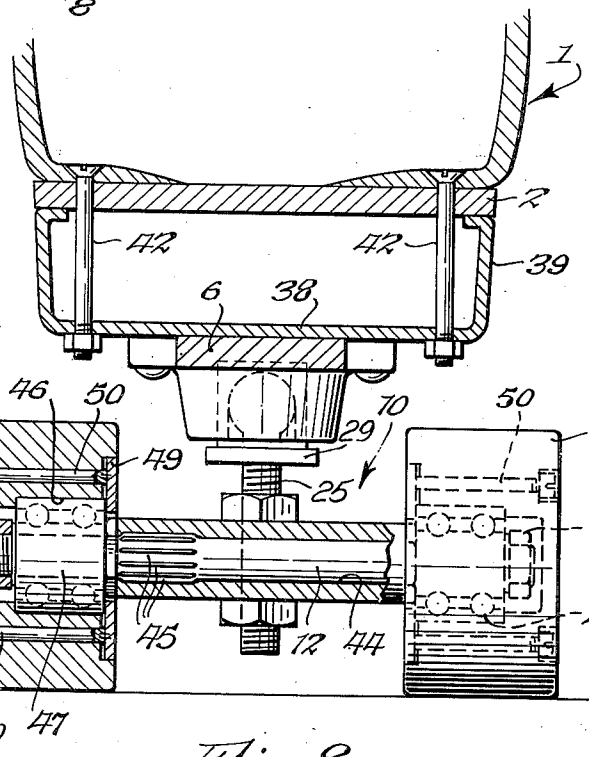


Fig. 8.

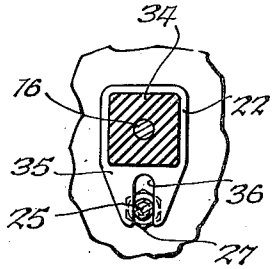


Fig. 6.

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UNITED STATES PATENT OFFICE

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ROLLER SKATE

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Application September 6, 1946, Serial No. 695,178

18 Claims. (Cl. 280—11.28)

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This invention relates to roller skates, and particularly to those used by exhibition and figure skaters. Such skates should be as light in weight as possible, consistent with rigidity and strength, but the trucks thereof should be tiltable laterally of the skate as well as forwardly and rearwardly.

An object of the invention is to provide an improved skate which may be successfully worn by exhibition, dance and figure skaters; with which maximum freedom in and ease of skating is possible; with which the skaters may easily execute all desired skating movement with ease and safety; which will be light in weight and well balanced; which will have adequate strength to resist the stresses imparted to skates in all skating operations; with which the rocking angle of the trucks may be selectively varied; with which any selected rocking angle may be maintained as the compression on the cushions is varied; with which danger of interference between the roller wheels on different feet is reduced to a minimum; with which the wheels on each shaft may be relatively close so as to extend a minimum distance sidewise from the shoes; with which the trucks will be resiliently urged into normal positions when released after being turned; and which will be simple and inexpensive in construction.

Another object of the invention is to provide an improved and simple mounting of the wheels on the axle; with which the rolling wheels may be replaced easily when worn; and with which bearing looseness may be reduced to a minimum.

Other objects and advantages will be apparent from the following description of some embodiments of the invention, and the novel features will be particularly pointed out hereinafter in connection with the appended claims.

In the accompanying drawing:

Fig. 1 is a longitudinal, sectional elevation of a skate constructed in accordance with this invention;

Fig. 2 is a bottom plan of the same;

Fig. 3 is a transverse, sectional elevation of the same, the section being taken approximately along the line 3—3 of Fig. 2;

Fig. 4 is a sectional elevation similar to that of Fig. 3 but illustrating a modified construction;

Fig. 5 is a sectional plan, similar to a section taken approximately along the line 5—5 of Fig. 3 but illustrating a modification thereof;

Fig. 6 is a bottom, sectional plan corresponding to one taken approximately along the line 6—6 of Fig. 3 but looking in the direction of the

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arrow and representing the embodiment shown in Fig. 5;

Fig. 7 is a longitudinal, sectional elevation through a skate also constructed in accordance with this invention, and representing another embodiment thereof; and

Fig. 8 is a transverse, sectional elevation of the same, the section being taken approximately along the line 8—8 of Fig. 7.

In the embodiment of the invention illustrated in Figs. 1 to 3, the improved skate is shown as attached to a shoe 1, having a sole 2 and a heel 3. The device includes a flat metal sole plate 4 which is provided with apertures by which it may be riveted or screwed or bolted to the bottom of the shoe in any suitable manner, and this plate 4 is curved in outline to be similar in shape to that of the periphery of the sole and heel of the shoe, but slightly smaller, as shown in Fig. 2. The opposite side edges of the plate 4, in the portion which is beneath the arch of the shoe, has its edge portions flanged upwardly as at 5 so as to fit against the bottom of the shoe sole along the arch and entirely to the heel. The flanges 5 thus serve as an arch support for the shoe and also stiffen the plate against flexing in the portion thereof intermediate the front and rear parts thereof.

A casting 6 is secured, such as by rivets 7, to the bottom of the sole plate 4 beneath the heel 3, and another casting 8 is also secured as by rivets 9 to the underface of the plate 4 in the portion beneath the ball of the foot. The plate 4 and castings 6 and 8 may collectively be considered as a member that is attached to the shoe sole. A truck designated generally at 10 is disposed beneath the casting 6. This truck 10 has a body with a transverse passage 11 in which is disposed an axle rod 12 that extends sidewise in both directions beyond the truck body and rotatably mounts wheels 13. The truck body is provided with a forwardly extending platform 14 having an aperture 15 from face to face thereof, and a screw 16 passes upwardly through the aperture 15 and is threaded at its upper end into a threaded passage 17 in the casting 6. The screw 16 has a head 18 provided with a partially spherical underface 19, which fits in a corresponding concave seat in the aperture 15, so as to have something of a ball and socket contact between the spherical part of the head 18 and the platform at aperture 15. The aperture 15 has a larger diameter than the diameter of the shank of screw 16, so that the plate 14 may rock on the head of the screw to a limited extent.

Disposed on the platform 16 is a shallow cup 20 which has a slight recess on its upper face that receives a resilient cushion 21, such as of soft, elastic rubber. This cushion 21 has a passage from end face to end face through which the shank of screw 16 passes. An inverted but similar cup 22 is provided on the screw 16 and abutting the other or upper end of cushion 21, so that the ends of the cushion 21 will be received in the cups 20 and 22. A lock nut 23 may be threaded on the screw 16 above the cup 22 and which, when tightened against the casting 6, serves to prevent unintentional turning of the screw 16, thus holding it in adjusted positions. The truck also has a rearwardly extending arm 24, and another screw 25 is threaded upwardly through the arm 24. The upper end of the screw 25 terminates in a ball-like head 26, and lock nuts 27 on the screw 25 engage with opposite faces of the arm 24 to prevent unintentional rotation of the screw 25 in arm 24. The casting 6 is provided in its underface, but in alignment with the head 26, with a recess 28 having threaded side walls, and an inverted cup 29 is threaded into this recess 28 to selected extents.

The cup 29 has its bottom wall uppermost, and the inside face of the closed end of the cup has a ball-like seat against which the head 26 abuts, so as to provide a universal rocking contact between the ball 26 and the closed end of the cup 27. The truck is thus supported on the casting 6 by the screw 16 and cushion 21, but has a rocking contact with screw 25. The truck can rock and turn sidewise to a limited extent as permitted by the rocking of the head of the screw in the aperture 15 of the platform, and as permitted by the cushion 21, during which the screw 25 rocks in the cup 27. A line 30 through the center of the head 26 and the seat in the aperture 15 indicates what may be called the rocking angle. This rocking angle is the angle or line about which the truck may rock as the skate is used, and may vary considerably to suit the individual tastes of the skater, but is preferably around 45° to 55° to the horizontal.

A similar truck is provided beneath the casting 8 but turned around so that the platform 14 extends toward the rear truck. It is to be understood that in the rear truck the platform 14 preferably extends forwardly toward the forward truck. The construction of the forward truck is similar to that for the rear truck, and the corresponding parts have corresponding reference characters.

A channel-shaped strip 31 is fitted over the castings 6 and 8 and extends between them, with the open face of the channel towards the plate 4. This channel 31 extends along each casting 6 or 8 beyond the lock nut 23, and its forward end is turned upwardly and riveted to the sole plate by a rivet 32. Its rear edge is similarly flanged upwardly and attached to plate 4. The bottom of the channel which abuts against the castings 6 and 8 is apertured to clear the recesses 28, and also apertured to pass the screws 16. The sides of channel 31 abut the bottom face of plate 4 and its side edges and end are flanged and riveted thereto to reinforce it. This channel 31 thus extends between the castings 6 and 8 and provides for plate 4 a stiff reinforcement which gives maximum rigidity, with lightness in weight, for the base which is attached to the shoe sole, and because of engagement of its side walls with plate 4, the channel resists transverse flexing of the plate 4.

By turning the screw 16 in each truck, the compression on the cushion 21 of that truck may be varied, and thus the resistance to turning and sidewise rocking of that truck may be varied. Whenever the screw 16 is shifted endwise in this manner, and for this purpose, one may also turn the screw 25 in the same truck, and also turn the cup 29 in its recess, so that the position of the rocking fulcrum at the ball-head 26 may be shifted toward and from the plate 4 to approximately the same extent as the movement of the ball head 19 on the screw 16. Thus even though the cushion 21 is compressed or relaxed, the same angle of rocking represented by the line 30 may be maintained, or it may be varied to a limited extent, as desired.

In Fig. 4 the construction is the same as that in Figs. 1 to 3 except that the cushion 21 of Figs. 1 to 3 is replaced by a volute spring 33 with its larger base downwardly and received on the platform 14. The dash lines in Fig. 4 illustrate possible rocking positions of the wheels and truck while the skate is in use, and since the smaller end of the spring 33 is uppermost, the wheels 13 can be positioned closer together beneath the sole and still give maximum rocking, relatively to the shoe, since the wheels can rock closer to the center vertical axis of the truck when the smaller end of the cushion is uppermost. This makes it possible to have the wheels 13 close together and not extend as far from the sides of the shoe as has heretofore been required. This reduces the danger of one bumping the wheels on the inside of one skate against the corresponding inside wheels on the other skate.

In Figs. 5 and 6 the construction is similar to that shown in Figs. 1 to 3 except that the cushion 34 which corresponds to the cushion 21 of Figs. 1 to 3, is square or non-circular in transverse cross section, and received at its ends in correspondingly shaped, non-circular recesses in the cups 20 and 22. The lower cup 20 is similarly shaped and received in a correspondingly shaped shallow recess in the platform 14. The upper cup 22 has a laterally extending arm 35 which extends toward the screw 25 and has a slot 36 which straddles that screw, as shown in Fig. 6. This prevents rotation of the cup 22. Since the upper cup 22 is held against turning and it, in turn, prevents rotation of the upper end of the soft, elastic cushion 34, and the lower end of the cushion is also held against turning by cup 20 and platform 14, it follows that the truck is free to twist and rock sidewise to a limited extent against the resistance of the elastic cushion. As soon as the truck is released, after it has been twisted, the tortional stresses in the cushion 34 will urge the truck back into its normal, straight forward position shown in the drawings.

In Figs. 7 and 8 another modification is illustrated in which the sole plate 38 is provided on a shoe 1 from which the heel has been removed, and accordingly the side edges of the plate 38 are turned upwardly to form flanges 39 that fit the arch of the sole 2 of the shoe from the ball of the foot to the rear of the heel space and around the rear of the heel space, thus replacing the heel and lightening the weight of the shoe. The side edges of the plate 38 forwardly of the flanges 39 are flanged downwardly as at 40 to provide side flanges that stiffen the forward end of the plate 38 against transverse flexing.

The construction is otherwise similar to that

described in connection with Figs. 1 to 3, except that the screws 16 are disposed at an acute angle to the vertical, and the platform 14 of each truck is also inclined and at an acute angle to the arm 24. The screws 25 remain vertical. The channel 31 is replaced by a tube 41 having its end pinched together, and the flat ends apertured to receive the screws 16. The tube 41 thus provides a stiffening element connecting the forward and rearward castings 6 and 8, and which further resists lateral flexing of the sole plate 38 in the portion between the two trucks. The sole plate 38 may be secured to the shoe by bolts, screws or rivets 42, see Fig. 8.

The screws 25, in all of the embodiments of the invention, may be provided with transverse slots 43 so that they may be turned for adjustment by inserting a screw driver in the slot 43 and turning it. Similarly the sole plate 4 of Figs. 1 to 3 may have downwardly turned side flanges 40 at the forward part the same as shown for Figs. 7 and 8.

In Fig. 8 I have shown a particular mounting for the wheels 13 on the axle rod 12. The truck 10 has a tubular body with a passage 44 through which the axle 12 is forced. The axle 12 may have longitudinally extending, fluted ribs 45 which bite into the wall of the passage 44 as the axle rod is driven into the passage, and these flutes 45 serve to hold the axle 12 against rotation in passage 44. Each wheel is formed of a body of suitable material having a recess 46 extending from its inside face and which slidingly receives, with a sliding fit, the outer ring or race of a ball-bearing 47. The inner ring or race of that bearing has a slide fit with the projecting end of the axle 12, and the inner ring is confined against the end of the tubular part of the truck by a nut 48 which is threaded on the end of the axle. The rear or inside, recessed face of each wheel 13 carries an annular plate 49 countersunk therein, but removable, and which overhangs the recess 46 slightly so as to abut against the inside end face of the outer ring of the bearing 47. Studs 50 welded to plate 49 extend through passages in the wheel 13 and have nuts 51 thereon so as to clamp the wheel to the plate 49 and against the bearing 47. The nuts 51 of the studs 50 are countersunk in the outer face of the wheel. Thus to remove any wheel for repair or replacement, one merely removes the nuts 51 in that wheel, which allows the wheel to be slid off from its bearing 47, and a new wheel may then be replaced on the bearing and secured thereon by reapplying the nuts 51. The wheel provides a covering for the nut 48. Because of this the wheels present an attractive appearance and may be easily and quickly replaced, with merely the use of a screw driver.

It will be noted, in all embodiments of the invention, that whenever the compression on the cushion 21, 33, or 34 is varied, it changes the rocking angle, and if one desires to keep the same rocking angle, the screw 25 and cup 29 must be also adjusted. One may vary the compression on the cushion, depending on personal choice, the weight of the skater, the speed, the sharpness of turning, or on other factors.

It will be understood that various changes in the details, materials and arrangements of parts, which have been herein described and illustrated in order to explain the nature of the invention, may be made by those skilled in the art within the principle and scope of the invention, as expressed in the appended claims.

I claim:

1. A roller skate comprising a sole plate, a pair of wheel hangers beneath and spaced apart along said plate, each hanger carrying an axle and having an apertured platform extending to one side of said axle, and an arm to the other side of the axle, a compression cushion disposed between said platform and said sole plate, a screw passing through an aperture in said platform and having a threaded connection to said sole plate, the outer end of said screw having a head bearing rockably against said platform, so as to clamp said cushion between the platform and sole plate under pressure determined by the compression of said cushion, a rod extending transversely through said arm and adjustable lengthwise through said arm, the upper end of said rod carrying a partially spherical head, a seat for said head carried by said plate, whereby the pressure on said cushion may be varied while maintaining the same rocking angle of the hanger, and roller wheels carried by said axles.

2. The skate substantially as set forth in claim 1 in which said cushion element is a volute spring with its base lowermost and resting on said platform, whereby the roller wheels may be placed closely together and give maximum lateral rocking range.

3. A roller skate comprising a metal sole plate of uniform thickness for attachment to a shoe minus a heel but having an arch fitting portion, said plate having its marginal portion turned upwardly along its rear edge to a height corresponding to that of the missing heel, and also turned upwardly along its side edges from said rear edge forwardly and along said arch fitting portion, but decreasing in height along the arch fitting portion, whereby when the plate is secured to the sole of a shoe, it provides the heel and supports the arch of the shoe so as to give lightness and a rigid support for the shoe, and roller elements secured to the lower face of said plate.

4. A roller skate comprising a metal sole plate of uniform thickness for attachment to a shoe minus a heel but having an arch fitting portion, said plate having its marginal portion turned upwardly along its rear edge to a heighth corresponding to that of the missing heel, and also turned upwardly along its side edges from said rear edge forwardly and along said arch fitting portion but decreasing in height along the arch fitting portion, whereby when the plate is secured to the sole of a shoe, it provides the heel and supports the arch of the shoe so as to give lightness and a rigid support for the shoe, and roller elements secured to the lower face of said plate, the side marginal edges of said plate forwardly of the arch fitting portion being flanged downwardly to impart rigidity to the forward part of the plate.

5. A roller skate for attachment to a shoe having an arch portion and a sole, which comprises a metal sole plate of uniform thickness having an outline generally that of the sole of the shoe to which it is to be attached, the side edges of said plate being flanged upwardly along the portion aligned with the arch portion of said shoe to which it is to be attached, and flanged downwardly forwardly of said arch portion of said shoe, and rolling elements secured to said plate in tandem arrangement forwardly and rearwardly.

6. A roller skate for attachment to the bottom of a shoe, comprising a sole plate of sheet metal, a pair of base castings secured to the underface

of said plate in spaced relation lengthwise of the plate, a hanger mounting an axle disposed beneath each casting and having an apertured platform at one side of the axle and an arm at the opposite side, an elastic cushion disposed on the upper face of each platform, and having a longitudinally extending passage, a screw passing loosely and upwardly through the aperture in said platform, through said passage in said cushion, and threaded into the casting immediately above it, said screw having a head with a rockable bearing in said platform, a rod carried by each hanger arm extending upwardly therefrom towards the casting above it, and terminating at its upper end in a somewhat ball-like head, said casting above it having a seat fitting said head and adjustable toward and from said head, and roller wheels carried by each of said axles.

7. A roller skate for attachment to the bottom of a shoe, comprising a sole plate of sheet metal, a pair of base castings secured to the underface of said plate in spaced relation lengthwise of the plate, a hanger mounting an axle disposed beneath each casting and having an apertured platform at one side of the axle and an arm at the opposite side, an elastic cushion disposed on the upper face of each platform, and having a longitudinally extending passage, a screw passing loosely and upwardly through the aperture in said platform, through said passage in said cushion, and threaded into the casting immediately above it, said screw having a head with a rockable bearing in said platform, a rod carried by each hanger arm extending upwardly therefrom towards the casting above it and terminating at its upper end in a somewhat ball-like head, said casting above it having a seat fitting said head, and roller wheels carried by each of said axles, each of said rods being adjustable endwise of itself on said arm which carries it.

8. A roller skate for attachment to the bottom of a shoe, comprising a sole plate of sheet metal, a pair of base castings secured to the underface of said plate in spaced relation lengthwise of the plate, a hanger mounting an axle disposed beneath each casting and having an apertured platform at one side of the axle and an arm at the opposite side, an elastic cushion disposed on the upper face of each platform, and having a longitudinally extending passage, a screw passing loosely and upwardly through the aperture in said platform, through said passage in said cushion, and threaded into the casting immediately above it, said screw having a head with a rockable bearing in said platform, a rod carried by each hanger arm extending upwardly therefrom towards the casting above it and terminating at its upper end in a somewhat ball-like head, said casting above it having a seat fitting said head and adjustable toward and from said head, roller wheels carried by each of said axles, and a tubular brace extending between said castings and secured thereto by said screws.

9. A roller skate for attachment to the bottom of a shoe, comprising a sole plate of sheet metal, a pair of base castings secured to the underface of said plate in spaced relation lengthwise of the plate, a hanger mounting an axle disposed beneath each casting and having an apertured platform at one side of the axle and an arm at the opposite side, an elastic cushion disposed on the upper face of each platform, and having a longitudinally extending passage, a screw passing loosely and upwardly through the aperture in said platform, through said passage in said cushion, and threaded into the casting immediately above it, said screw having a head with a rockable bearing in said platform, a rod carried by each hanger arm extending upwardly therefrom towards the casting above it, an abutment carried by each casting in approximate alignment with the adjacent rod, and adjustable towards and from the rod, said abutment and adjacent rod end having ball and socket contact to provide a limited rocking action, and roller wheels carried by each of said axles.

10. A roller skate for attachment to the bottom of a shoe, comprising a sole plate of sheet metal, a pair of base castings secured to the underface of said plate in spaced relation lengthwise of the plate, a hanger mounting an axle disposed beneath each casting and having an apertured platform at one side of the axle and an arm at the opposite side, an elastic cushion disposed on the upper face of each platform, and having a longitudinally extending passage, a screw passing loosely and upwardly through the aperture in said platform, through said passage in said cushion, and threaded into the casting immediately above it, said screw having a head with a rockable bearing in said platform, a rod carried by each hanger arm extending upwardly therefrom towards the casting above it, an abutment carried by each casting in approximate alignment with the adjacent rod, and adjustable towards and from the rod, said abutment and adjacent rod end having ball and socket contact to provide a limited rocking action, and roller wheels carried by each of said axles, each of said rods being adjustable endwise of itself on said arm which carries it.

11. A roller skate for attachment to the bottom of a shoe, comprising a sole plate of sheet metal, a pair of base castings secured to the underface of said plate in spaced relation lengthwise of the plate, a hanger mounting an axle disposed beneath each casting and having an apertured platform at one side of the axle and an arm at the opposite side, an elastic cushion disposed on the upper face of each platform, and having a longitudinally extending passage, a screw passing loosely and upwardly through the aperture in said platform, through said passage in said cushion, and threaded into the casting immediately above it, said screw having a head with a rockable bearing in said platform, a rod carried by each hanger arm extending upwardly therefrom towards the casting above it, an abutment carried by each casting in approximate alignment with the adjacent rod, and adjustable towards and from the rod, said abutment and adjacent rod end having ball and socket contact to provide a limited rocking action, roller wheels carried by each of said axles, a channel shaped strip fitted over said castings in straddling relation and having apertures through which said screws pass into said castings, so as to be clamped to the castings by said cushions.

12. The skate substantially as set forth in claim 9, in which each of said cushions has non-circular ends, one end secured against turning about its axis, on its platform, and the other against turning, about its axis, on its platform.

13. A roller skate comprising a member formed for attachment to a shoe sole, and a pair of trucks disposed beneath each plate in spaced relation to each other in a direction lengthwise of the plate, each truck including a body having

axle extensions from each side, a roller wheel mounted on each extension, said body having an apertured platform extending from one side thereof and an arm from the other side, a screw passing loosely through an aperture in said platform, with its head rocking against said platform and threaded into said member, another screw threaded through said arm toward said member and having universal rocking bearing on said member, a cushion of soft, elastic material disposed between said platform and member, anchored to the platform against relative rotation thereon, an abutment element on said screw and non-rotatably secured to the opposite end of said cushion, and clamped against said member by tightening of said first screw, said element being nonrotatably anchored relatively to said member, whereby when either of said trucks is rotated beneath said member, the cushion will be given a torsional twist that will urge the truck back into initial position when it is released from its rotating forces.

14. A roller skate comprising a member formed for attachment to a shoe sole, and a pair of trucks disposed beneath each plate in spaced relation to each other in a direction lengthwise of the plate, each truck including a body having axle extensions from each side, a roller wheel mounted on each extension, said body having an apertured platform extending from one side thereof and an arm from the other side, a screw passing loosely through an aperture in said platform, with its head rocking against said platform, and threaded into said member, another screw threaded through said arm toward said member and having a universal rocking bearing on said member, the part of said member which contacts with said another screw being adjustable towards and from that screw in a direction endwise thereof, whereby the rocking seat on the end of said another screw may be shifted towards and away from said member by similar adjustments of said another screw in said arm and said part on said member, a cushion of soft, elastic material clamped under variable stress between said platform and said member by adjustment of said first mentioned screw into and out of said member.

15. A roller skate for attachment to the bottom of a shoe, comprising an element extending lengthwise of the shoe and attached to the face of the sole thereof, said element having a pair of base castings spaced apart lengthwise of the sole, a hanger mounting an axle disposed beneath each casting and having an apertured platform at one side of the axle and an arm at the opposite side, an elastic, tubular member disposed between each platform and the adjacent casting, a rod passing loosely and upwardly through the aperture in said platform, through the passage of said tubular member and coupled to the adjacent casting above it, said rod having means on its lower end engaging with the under face of said platform for limited universal movement of said rod in the aperture of the platform, and compressing the platform against said member and the latter against said casting above it, each said arm of a hanger having a vertical passage therethrough, a post extending upwardly through, and shiftable endwise along said arm passage, and terminating at its upper end in a somewhat ball-like head, said casting above each post having a downwardly opening socket part adjustable generally vertically thereon, and said ball-like head rocking in the socket of said socket part, means on said post and engaging with said arm to limit movement of said arm along said post toward the shoe, and roller wheels carried by said axles.

16. A roller skate for attachment to the bottom of a shoe, comprising a base element confined to the exposed face of the sole of a shoe, a pair of hangers disposed in spaced tandem relation along and lengthwise of the under face of said base element, each hanger having a body mounting an axle disposed crosswise of the length of the shoe and having an arm and an apertured platform extending in opposite directions from the axle, one forwardly and one rearwardly, an elastic, tubular member disposed between each platform and the base element, a rod passing loosely and upwardly through the aperture in said platform, through said elastic member, and coupled to said base element, said rod having means on its lower end engaging with the under face of said platform for limited universal movement of the rod in the aperture of said platform, and compressing said platform against said elastic member and confining the latter against the under face of said base element, each said arm of a hanger having a vertical passage therethrough, a post disposed in and relatively shiftable along said vertical arm passage, said post at its upper end and said base element having a universal rocking contact which is selectively shiftable vertically on the base element, means on said post and above and engaging with said arm to limit relative movement of said arm along said post toward said shoe, and roller wheels carried by said axles.

17. A roller skate for attachment to the bottom of a shoe, comprising a base element confined to the exposed face of the sole of a shoe, a pair of hangers disposed in spaced tandem relation along and lengthwise of the under face of said base element, each hanger having a body mounting an axle disposed crosswise of the length of the shoe and having an arm and an apertured platform extending in opposite directions from the axle, one forwardly and one rearwardly, an elastic, tubular member disposed between each platform and the base element, a rod passing loosely and upwardly through the aperture in said platform, through said elastic member, and coupled to said base element, said rod having means on its lower end engaging with the under face of said platform for limited universal movement of the rod in the aperture of said platform, and compressing said platform against said elastic member and confining the latter against the under face of said base element, an upstanding post slidingly telescoping with said arm for generally vertical movement thereon, said base element having, on its lower face, a vertically adjustable part, said last named part and the upper end of said post having a universal rocking contact, enabling rocking of said post relative to said base element, means on said post and engaging with the upper face of said arm to limit relative movement of said arm and post in a direction toward said base element, and roller wheels carried by said axles.

18. A roller skate for attachment to a shoe having a sole with an arch between its heel portion and its portion under the ball of the foot, which comprises a flat body of sheet metal of approximately the length of the sole, having its opposite side edges flanged upwardly from the portion engaging with the ball of the foot rearwardly to its rear end, the free edges of the side flanges fitting the bottom face of the sole and following the

contour of the arch and the sole to the rear of the arch, to provide a light weight, rigid body on which the shoe may be supported, and rolling elements secured to the plate at its under face in tandem arrangement forwardly and rearwardly.

CARL EINAR SWENSSON.

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