March 27, 1956 C. A. STONER 2,739,819

ROLLER SKATE TRUCK STRUCTURE

Original Filed Oct. 6, 1947 2 Sheets-Sheet 1

Fig. 1.

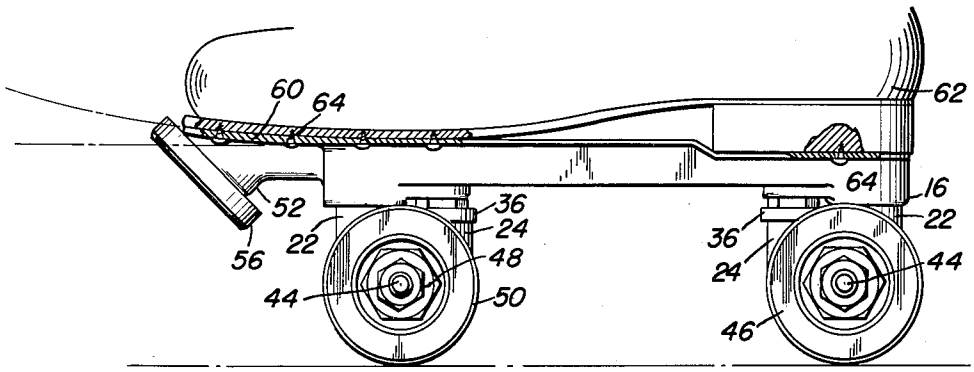


Fig. 2.

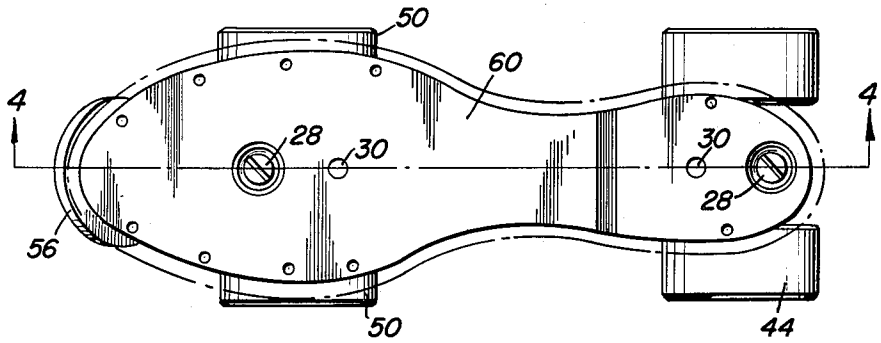
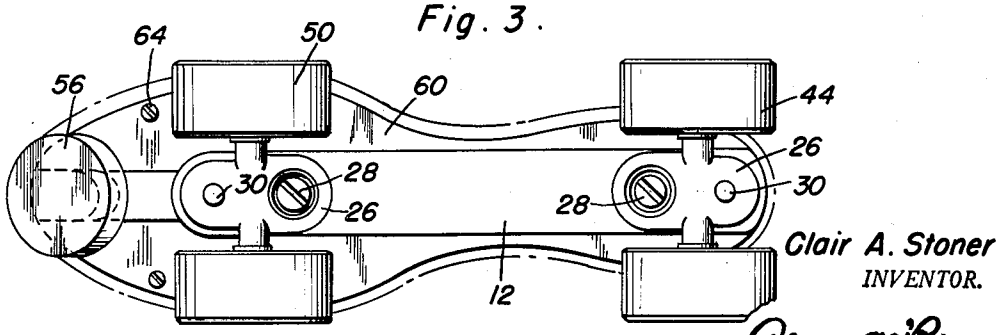


Fig. 3.



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Fig. 4.

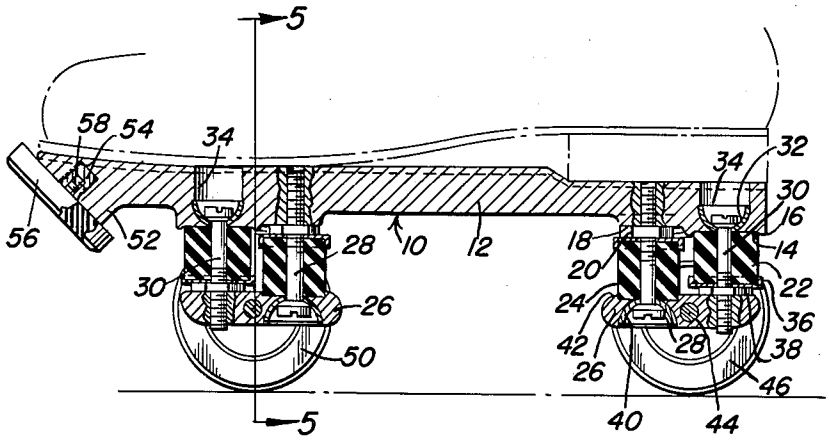


Fig. 5.

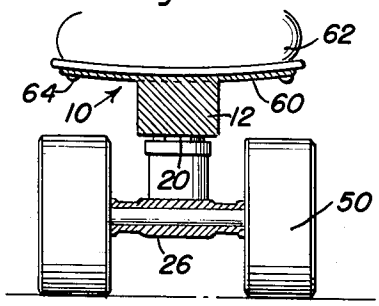


Fig. 6.

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ROLLER SKATE TRUCK STRUCTURE

Clair Arthur Stoner, Mohnton, Pa., assignor of one-third to Max M. Yaffe and Harold Blumberg and one-sixth to Thomas Thompson, Jr., and Thomas Thompson, Sr., all of Reading, Pa.

Substituted for abandoned application Serial No. 778,066, October 6, 1947. This application October 8, 1953, Serial No. 384,811

12 Claims. (Cl. 280—11.28)

This invention appertains to novel and useful improvements in vehicles for locomotion of individuals, and pertains particularly to an improved skate.

This application is a substitute application for my earlier application, Serial No. 778,066, filed October 6, 1947, now forfeited and abandoned.

An object of this invention is to transport individuals by means of attaching improved skates to the feet of individuals.

Another object of this invention is to absorb the shock normally encountered in skating in an improved manner, the shock absorbing means contributing to the ease and facility in guiding the skates.

Another object of this invention is to improve the action of the skate by employing an arrangement of elements forming trucks, said arrangement for each truck including a pair of parallel action bolts, one being fixed to the carriage or truck plate and rockingly connected with the sole plate, while the other is fixed to the sole plate and rockingly connected with the truck plate.

Another purpose of this invention is to provide means for rockingly supporting the wheels of the skate for improved action in use of the skate.

Another purpose of this invention is to provide a detachable brake member at the forward portion of the sole plate, said brake member being angularly inclined relative to the longitudinal axis of the sole plate.

Another purpose of this invention is to provide means for lockingly supporting the wheel supporting shafts which are disposed between the rocker shafts or action bolts.

Ancillary objects and features of novelty will become apparent to those skilled in the art, in following the description of the preferred form of the invention, illustrated in the accompanying drawings, wherein:

Figure 1 is an elevational side view of the preferred form of the invention, portions being broken away in section to illustrate details of construction;

Figure 2 is a plan view of the invention shown in Figure 1;

Figure 3 is a bottom view of the invention shown in Figure 1;

Figure 4 is a longitudinal sectional view of the invention disclosed in Figure 2 and taken substantially on the line 4—4 thereof and in the direction of the arrows;

Figure 5 is a transverse sectional view of the invention shown in Figure 4 and taken substantially on the line 5—5 thereof and in the direction of the arrows;

Figure 6 is an elevational side view of the invention shown in Figure 1, showing a second operative position thereof.

Reference is now made primarily to the accompanying drawings wherein a device for improved skating is illustrated. By the particular arrangement of the carriage plate and shock absorbing means the shaft in the carriage plate, which supports the wheels or the like, is capable of being resiliently and rockingly supported for

not only dampening shock but also effecting improved steering and guiding of the skate by improving the action of the trucks.

The preferred embodiment of the invention has a first rocker shaft or action bolt secured to the carriage plate and bearing against the frame member, while the action bolt or rocker shaft juxtaposed relative thereto is secured to the frame member and engages the rocker plate. This permits of ease of manufacture as well as assists in carrying out the objects of the invention. Inasmuch as each action bolt in both trucks is fixed stationarily with an element at one end and rockingly connected with an element at the opposite end, in a sense each action bolt forms a part of a connection permitting rocking movement. Therefore the action bolts will be called rocker shafts.

A brake element preferably resilient in nature is positioned at the forward portion of the frame member and is detachable relative thereto. The angularity of the brake plate is such that the skate may be easily decelerated by the use thereof. A small portion of the brake plate extends above the upper surface of the frame member for protection of an individual's shoes or the shoe attached to the said frame member.

A frame member 10 which constitutes a sole plate 60 and which is composed of any suitable material, preferably light metal, is provided with a longitudinal flange 12 extending substantially the full length thereof. Front and rear trucks are provided on the frame member. Integral with the flange 12 is a plurality of seats, which are in pairs. One pair of seats is positioned at the rear of the flange 12 while the other pair of seats is positioned adjacent but not at the forward end of the frame member. A careful inspection of Figure 4 will disclose that the rear pair of seats are non-coplanar, one seat being slightly lower than the other seat. The slightly lower seat 14 has a marginal flange 16 therearound, while the other seat 18 is adapted to receive the action lock nut 20 thereon.

Resilient bearing blocks or cushions 22 and 24, respectively, are positioned on each of the seats 14 and 18 and central bores are provided in the cushions. Means for rockingly supporting a carriage or truck plate 26 is provided.

This rockingly supporting means is preferably a pair of rocker shafts or action bolts, which are simple bolts 28 and 30, respectively. The bolts 28 and 30 are similar in construction and are interchangeable. These bolts extend through the central bores in the cushions 22 and 24 and are associated with the flange 12 and the carriage plate 26. The cushions 22 and 24 are similar and are interchangeable with each other.

The rocker shaft 30 has a beveled head portion engaging a metallic semi-spherical bearing insert 32. This insert 32 is cast in a suitable recess 34 formed in the flange 12. The recess 34 together with the insert 32 therein forms a seat for the head of the rocker shaft 30. One of the cushions is positioned in the seat 14 and within the confines of the flange 16. A retainer 36 is placed on the opposite end of the cushion 22 and has the rocker shaft 30 extending therethrough. A conventional nut 38 is interposed between this retainer 36 and the carriage plate 26. Since the rocker shaft 30 is threadedly received in the carriage plate 26, it is quite obvious that the action lock nut 38 is locked due to the arrangement of juxtapositioned parts, thereby obviating the necessity of conventional lock washers and the like.

The rocker shaft or action bolt 28 is positioned somewhat similar to the rocker shaft or action bolt 30. However, it is inverted. The threaded portion of the rocker shaft 28 engages a suitable threaded aperture in the flange 12, while the beveled head of the rocker shaft 28

engages a suitable bearing 40 which is seated in a suitable recess provided in the carriage or truck plate 26. To assist in retaining the cushion 24 in position, a flange or lip 42 is provided on one surface of the carriage plate 26, thereby defining a recess in which the cushion 24 is seated.

A shaft or axle 44 extends through the carriage plate 26 and has conventional wheels 46 at opposite ends thereof. Of course, suitable nuts 48 may be utilized in association with the terminal portions of the shaft 44 for the firm retention of the wheels in proper position. It is noted at this point that the shaft 44 extends through the truck plate 26 in a position so that each of the rocker-shafts 28 and 30, respectively, are substantially normal to and equally spaced therefrom. The action bolts 28 and 30 are substantially perpendicular to the longitudinal axis of the sole plate.

A construction for supporting front wheels 50 of the skate is provided. This front wheel support means is identical to the back wheel support means, it being noted that the support means is positioned adjacent the forward end of the flange 12. Since the constructions are identical, it is believed that a detailed description of the forward assembly is unnecessary.

An extension 52 is provided on the flange 12 and has an angularly disposed face thereon. This angularity is relative to the longitudinal axis of the flange 12. An internally threaded sleeve 54 is positioned in the extension 52 for the purpose of receiving a disk 56 detachably therein. This disk has a lug 58 extending therefrom which is threadedly received in the bore of the sleeve 54. The resilient disk 56 is utilized for the purpose of a brake, as illustrated in Figure 6.

The frame member 10 has said shoe-engaging plate 60 integrally formed on the upper surface thereof and this shoe-engaging plate has a slight transverse curve therein as seen in Figure 5, together with a longitudinal curvature arranged so that the toe part is raised as seen by the extension lines in Figure 1 whereby the sole plate is arranged to suit a shoe sole curved as normally would be after wearing the shoe for a time. A conventional shoe 62 is secured to the plate 60 by means of conventional screws 64, rivets, or the like. Of course, if it is found desirable, means for securing the frame member of the skate to an individual, other than the shoe 62, might be utilized. Clamps adapted to be secured to an individual's shoes may be substituted in lieu of the applicant's shoe 62 or, if desired, straps may also be utilized. It is noted at this point that it is within the purview of the present invention to substitute skate blades in lieu of the conventional wheels 46 and 50. The particular type of skate blade preferably substituted would be the multi-runner type generally utilized by persons learning the art of skating.

While there has been described and illustrated only a preferred form of the invention, it is apparent that variations may be made without departing from the spirit thereof. Accordingly, limitation is sought only in accordance with the scope of the following claims.

What is claimed as new is as follows:

1. In a skate, a longitudinal sole plate having a flat rear portion and a transversely curved forward portion, a longitudinal flange integrally formed on the bottom of said plate and extending substantially the full length of said sole plate, the curved portion of said sole plate adapted to accommodate the transverse curvature of the front portion of the skate shoe sole, trucks adjacent the forward portion and rear portion of said flange, each of which includes a truck plate having a wheel shaft mounted therein, a seat formed in said sole plate and a seat formed in said truck plate, a pair of action bolts, each having a threaded portion at one end and a head at the opposite end, one of said bolts being threadedly attached to said truck plate and having its head disposed in the seat in said sole plate, the other of said action bolts being threadedly attached to said sole plate and having its head disposed in the seat in said truck plate, and a pair of cushions having bores accommodating said action bolts and disposed between and engaging said truck plate and said flange.

2. A skate comprising a longitudinal frame member, the upper surface of said frame member forming a sole plate and the lower part of said frame member constituting hangers for a pair of spaced trucks, said upper surface being transversely and longitudinally inwardly curved at the front end to suit the front part of a skate shoe sole having similar curvature and thereby lower the part of the shoe supporting the ball of the foot, a front and rear truck, each truck comprising a plate with an axle, a recess in said plate with one end of a first action bolt rockingly disposed therein, the other end of said first bolt being fixed to the lower part of said frame, a second action bolt, a recess in said frame member with one end of said second action bolt rockingly disposed therein, the opposite end of said second bolt being fixed to said plate, a cushion disposed around each bolt, and said cushions reacting on said plate and the lower part of said frame member so that said frame member is cushioned by said cushions at two spaced places for each truck when weight is applied on the sole plate.

3. In a skate, a sole plate with a truck at the front part and a truck at the rear part thereof, one of said trucks comprising a truck plate with an axle carried intermediate the front and rear ends thereof, a recess forming a seat in said sole plate and a horizontally spaced recess forming a seat in said truck plate, a pair of action bolts which are arranged substantially perpendicular to said sole plate, one bolt being rockingly disposed at one end in the seat in said sole plate and fixed at its opposite end to said truck plate, the other bolt being rockingly disposed at one end in the seat in said truck plate and fixed at its opposite end to said sole plate, and cushions concentrically arranged with said bolts and reacting on said sole plate and said truck plate so that when weight is applied on said sole plate each of said cushions is vertically compressed.

4. In a skate, a sole plate with a truck at the front part and a truck at the rear part thereof, one of said trucks comprising a truck plate with an axle carried intermediate the front and rear ends thereof, a seat in said sole plate and a horizontally spaced seat in said truck plate, a pair of action bolts which are arranged substantially perpendicular to said sole plate, one bolt being rockingly disposed at one end in the seat in said sole plate and fixed at its opposite end to said truck plate, the other bolt being rockingly disposed at one end in the seat in said truck plate and fixed at its opposite end to said sole plate, and cushions concentrically arranged with said bolts and reacting on said sole plate and said truck plate so that when weight is applied on said sole plate each of said cushions is vertically compressed and said action bolts, and said cushions being arranged in flanking relationship with said axle so that cushioning takes place at two places of each truck and on opposite sides of said axle.

5. In a skate, a one-piece combination sole plate to support a skate shoe and hanger to support the action bolts of a pair of trucks, each truck comprising a truck plate with an axle carried thereby, a first and a second spaced action bolt perpendicular to said sole plate, a first and a second cushion arranged around said bolts and reacting on said sole plate and said truck plate, means rockingly connecting said first action bolt to said truck plate and said first action bolt being fixed to said sole plate, the second action bolt being fixed to said truck plate, a seat carried by said sole plate in spaced relation below an upper surface thereof, said seat having an enlarged bore therethrough, said second action bolt being freely mounted within said bore, a head of said second action bolt being normally seated on said seat, said seat being downwardly movable in response to an application of weight on said

sole plate due to compressing of said cushions, the space between said seat and the upper surface of said sole plate being sufficient to permit movement of said seat relative to said bolt head whereby said second action bolt is freed from said seat and rockable relative thereto, and both of said cushions are acted upon yieldingly opposing the movement of said action bolts.

6. A skate comprising a shoe plate with trucks carried thereby, each truck comprising a horizontal carriage plate, an axle carried by said carriage plate and disposed intermediate the front and rear end of said carriage plate, a pair of vertical action bolts one of which is disposed on each side of said axle, one action bolt having a connection with said sole plate facilitating rocking movement thereof relative to said sole plate and being fixed to the carriage plate and the other action bolt being fixed to said sole plate, means rockingly connecting said other action bolt to said carriage plate, a pair of parallel vertically disposed cushions arranged between said sole plate and said carriage plate and around said bolts, said connection including a seat carried by said sole plate in spaced relation below an upper surface thereof, said seat having an enlarged bore therethrough, said one action bolt being freely mounted within said bore, a head of said one action bolt being normally seated on said seat, said seat being downwardly movable in response to an application of weight on said sole plate due to the compressing of said cushions, the space between said seat and the upper surface of said sole plate being sufficient to permit movement of said seat relative to said bolt head whereby said one action bolt is freed from said seat and rockable relative thereto, one of said cushions being disposed in advance of said axle and the other being disposed rearwardly of said axle so that a load applied to said sole plate is transmitted vertically through said cushions to said carriage plate.

7. The combination of claim 6 and said action bolts being interchangeable and said sole plate having its upper surface arranged with transverse and longitudinal curvature to accommodate a shoe sole with a transverse and longitudinal curvature.

8. In a skate, a sole plate having a horizontal longitudinal axis and adapted to support a skate shoe, a front and a rear truck secured to the bottom of said sole plate, at least one of said trucks comprising a truck plate having an axle carried thereby and disposed in a plane parallel to said hole plate, a first and a second action bolt, said bolts being vertically disposed and substantially parallel to each other, said first bolt being disposed in advance of said axle and said second bolt being disposed rearwardly of said axle an amount equal to the horizontal distance between said first bolt and said axle, said first bolt being fixed at one end to said truck plate, a seat carried by said sole plate in spaced relation below an upper surface thereof, said seat having an enlarged bore therethrough, said first action bolt being freely mounted within said bore, a head of said first action bolt being normally seated on said seat, said seat being downwardly movable in response to an application of weight on said sole plate due to compressing of said cushions, the space between said seat and the upper surface of said sole plate being sufficient to permit movement of said seat relative to said bolt head whereby said first action bolt is freed from said seat and rockable relative thereto, said second bolt being fixed at one end to said sole plate and means fastening its opposite end to said truck plate for rocking movement, and cushions having said bolts passed therethrough and disposed between said plates to arrest equal amounts of load and shock at two spaced locations of said one of said trucks.

9. In a skate, a single piece frame which includes a shoe plate and a lower flange, a first and a second truck operatively connected with said frame, each truck comprising a first and a second substantially parallel action bolt, a recess formed in said flange and having an insert therein forming a seat, said first action bolt having a head disposed on said insert, said second action bolt being fixed to said flange, a truck plate, a first and a second cushion disposed on said truck plate and engaging said flange, said action bolts being passed through said cushions, said first action bolt being fixed to said truck plate, means fastening said second action bolt to said truck plate for rocking movement, and each of said action bolts having an action lock nut thereon for adjustably compressing said cushions, and an axle carried by said rocker plate and disposed between said action bolts to that the action lock nuts are operative on both sides of said axle.

10. In a skate which includes a sole plate, axles and wheels on the axles, the improvement which comprises a pair of trucks each connecting one axle and two wheels to the sole plate, at least one of said trucks comprising a truck plate supporting one of the axles, a pair of interchangeable action bolts secured to said sole plate and said truck plate, and interchangeable cushions disposed on said action bolts and reacting on said truck plate and said sole plate, one of said pair of action bolts being fixed at one end to said truck plate and arranged for rocking and vertical movement in said sole plate, and the other of said pair of action bolts being fixed to said sole plate and arranged for rocking and vertical movement in said truck plate.

11. In a skate which includes a sole plate, axles and wheels on the axles, the improvement which comprises a pair of trucks each connecting one axle and two wheels to the sole plate, at least one of said trucks comprising a truck plate supporting one of the axles, a pair of interchangeable action bolts secured to said sole plate and said truck plate, and interchangeable cushions mounted on said action bolts between said truck plate and said sole plate with opposite ends of said cushions engaging said truck plate and said sole plate, one of said pair of action bolts being fixed at one end to said truck plate and arranged for rocking and vertical movement in said sole plate, and the other of said pair of action bolts being fixed to said sole plate and arranged for rocking and vertical movement in said truck plate, said pair of action bolts being arranged substantially perpendicular to a horizontal plane passed through said sole plate whereby the body weight of an individual is arrested entirely by said cushions.

12. In a skate, a sole plate having a flange on the bottom surface thereof extending substantially from front to rear of said sole plate, a front and rear truck operatively connected with said sole plate and said flange, each truck including a truck plate with a first and a second action bolt, said first action bolt being secured at one end directly to said flange, said flange and sole plate having a recess, an insert disposed in said recess, and said second action bolt being rockingly disposed at one end on said insert and fixed at the other end directly to said truck plate, said first action bolt being rockingly carried by said truck plate at the end of the second bolt opposite from the end which is fixed to said flange, said action bolts forming a hanger for the truck plate, and interchangeable cushions having said bolts passed therethrough and arranged between said truck plate and said flange.

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