Nov. 7, 1933. A. E. DEKOME 1,933,972

ROLLER SKATE

Filed Nov. 16, 1931 2 Sheets-Sheet 1

Fig-1

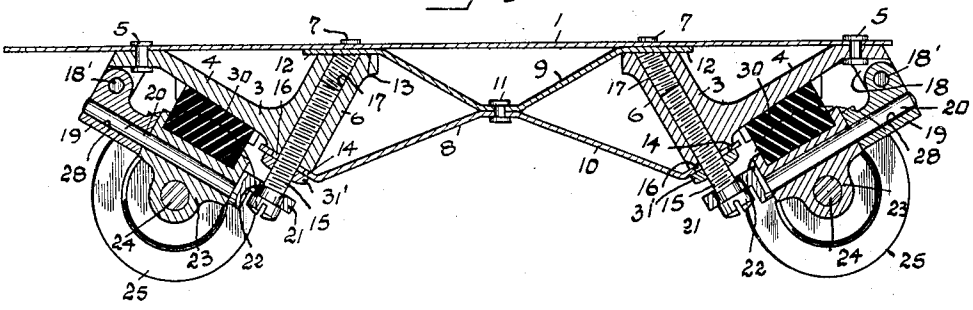


Fig-2

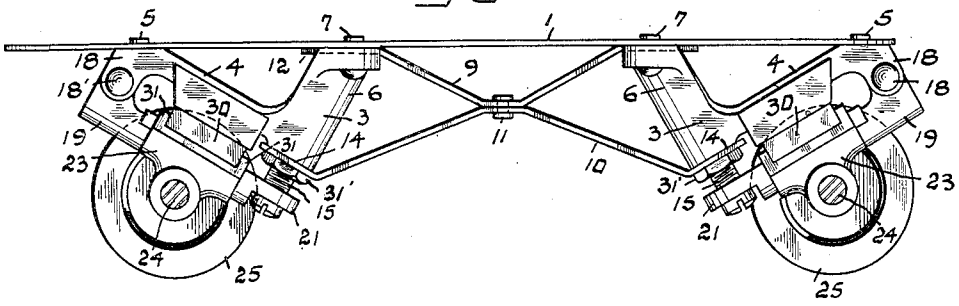
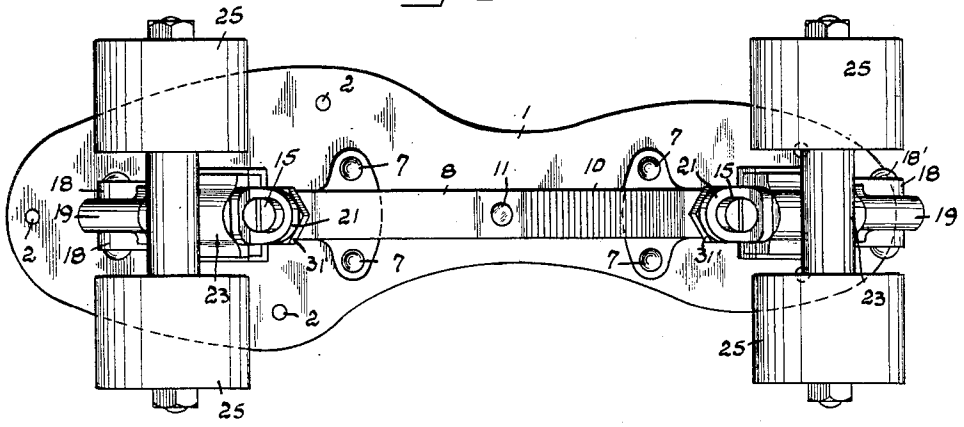


Fig-3



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ROLLER SKATE

Filed Nov. 16, 1931 2 Sheets-Sheet 2

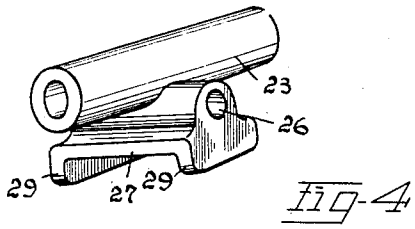

Fig-4

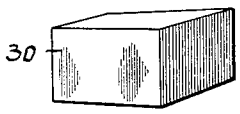

Fig-5

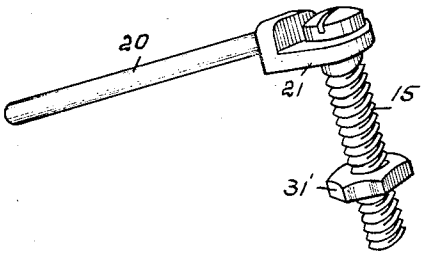

Fig-7

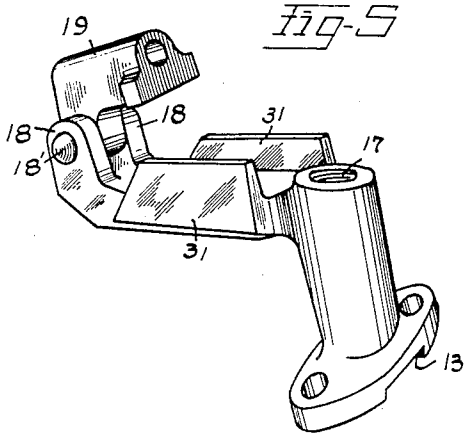

Fig-6

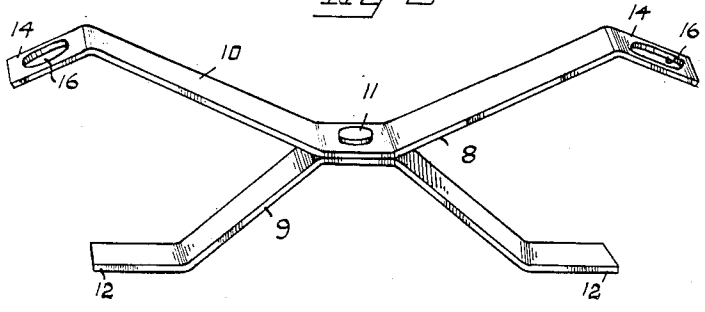

Fig-8

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UNITED STATES PATENT OFFICE

1,933,972

ROLLER SKATE

Arthur E. Dekome, Cleveland, Ohio

Application November 16, 1931
Serial No. 575,374

9 Claims. (Cl. 208—179)

This invention relates to new and useful improvements in roller skates, the primary object of the invention being to provide a mounting for the wheels which will permit of all four wheels remaining in constant engagement or contact with the floor or other skating surface under any inclined position of the body of the skater.

Another object of the invention resides in the provision of efficient shock absorbing means for cushioning the movements of the skate body relatively to the wheels.

A still further object of the invention is to provide an efficient arch brace for the skate plate, and means for mounting the same, whereby it can be easily assembled and disassembled.

Other objects and advantages of the invention will become apparent during the course of the following description.

In the accompanying drawings, forming a part of the description and wherein like numerals are employed to designate like parts throughout the several views;

Figure 1 is a longitudinal sectional view of a roller skate embodying my invention, and Figs. 2, and 3, are side and bottom views of the skate shown in Fig. 1. Figs. 4 through 7 are perspective views of the disassembled parts of the hanger or bracket member supporting the rollers of the skate. Thus, Fig. 4 is a perspective view of the bearing member for the axle, Fig. 5 a perspective view of the cushion member, Fig. 6 a perspective view of the body of the bracket member, Fig. 7 a perspective view of the pin for pivotal mounting of the bearing member shown in Fig. 4, and Fig. 8 a perspective view of the truss for the instep portion of the skate plate.

Referring more particularly to the drawings wherein for the purpose of illustration is shown the preferred embodiment of my invention, the numeral 1 designates a skate plate, preferably formed from a single piece of thin but strong spring sheet metal, cut to conform approximately to the shape of a shoe (not shown) to the sole of which it is suitably attached, as by means of rivets or the like, the plate being provided with holes 2 for this purpose. Secured to the bottom of the respective heel and toe portions of the plate are two substantially V-shaped front and rear hangers or bracket members 3 of identical construction but reversely positioned or oppositely disposed with respect to each other, and consequently a description of one will suffice for both.

Outer arm 4 of the rear bracket 3 is connected to the plate 1 adjacent the rear end of the heel portion thereof by a rivet or other suitable fastening means 5 while the inner arm 6 is attached to the plate adjacent the instep portion by a pair of laterally spaced rivets 7. The arms 4 and 6 of front bracket 3 are connected to the toe portion of plate 1 in the same manner as the rear bracket with the exception that position of the arms is reversed, that is, the arms 6 of the respective front and rear brackets oppose each other. These brackets are interchangeable and consequently no care need be observed in selection by the workman.

A truss 8 extending between the brackets 3 spans and stiffens the instep portion of the plate 1. This truss comprises upper and lower chords 9 and 10 connected intermediate their length by rivet 11, the bent extremities 12 of the upper chord being snugly seated in grooves 13 in the upper ends of the bracket arms 6, while the bent extremities 14 of the lower chord engage the lower ends of these arms. Headed adjusting screws 15, pass through slightly elongated slots 16 formed in the bent ends or extremities 14, of the lower chords 10 and threadedly engage the threaded bore 17 of the bracket arms 6, thus locking the truss in place. A lock nut 31' is employed to clamp the ends of the lower chord immovably to the lower flat face of the inner bracket arms 6.

Each outer bracket arm 4 is provided at its outer end with depending spaced apertured ears 18 connected together by a short pin 18'. Pivotally mounted on the pin 18' for pivotal movement in a fore and aft direction is a sleeve 19, adapted to receive the outer end of a pin 20, the inner end of which is formed with an enlarged apertured head portion 21. The adjusting screw 15, previously referred to passes loosely through the aperture 22 into the threaded bore 17. A tubular bearing member 23 for the axle 24 of the skate rollers 25, is pivotally mounted on the pin 20, between the inner end of pivoted sleeve 19 and the head portion 21 of pin 20. Thus, the pin 20 extends loosely through a longitudinally disposed opening 26 in a transversely disposed cushion support or enlargement 27, mounted upon or formed on the tubular bearing member 23, and seats at its end in the bore 28 of sleeve 19. This enlargement is formed at opposite ends with upstanding flanges 29 for snugly engaging the lower edges of the end walls of a rectangular rubber cushion member 30, seated therebetween. Bracket arm 4 is formed with depending side flanges 31, offset with respect to the flanges 29, which engage the upper edges of the side walls of the member 30, when adjusting screw 15 is screwed home. It will thus be seen that the upper and lower faces of member 30 are tightly clamped between the opposing faces of the arm 4 and enlargement 27 and that the flanges 29 and 31 engage all four sides of the cushion member and prevent the latter from becoming displaced. The shock absorbing action of cushion member 30 can be regulated within a comparatively wide range by screwing or unscrewing adjusting screw

15 to increase or decrease the degree of compression at which the cushion member is normally maintained. The necessary initial adjustment, depends to a considerable extent upon the weight and speed of the skater and his style of skating, but once having been made no further adjustment will be required except perhaps to compensate for wearing of parts. The cushion members are readily replaceable, and should the truss 8 become damaged or broken it is merely necessary to remove one of the brackets or hangers 3 in order to repair or replace the truss.

The dead weight stress of the skater, when the body of the latter is in normal upright position, is normally distributed evenly to each front and each rear skate wheel, with substantially no relative lateral rocking movement between the skate body and wheels, and all jolts and jars will be absorbed by the compensating fore and aft pivotal movement of the sleeve 19, headed pin 20, axle bearing 23 and cushion support 27 mounted thereon. In rounding curves or when deviating from a straight line it is of course necessary for the skater to incline his body to one side at an angle to the perpendicular, thus subjecting the ankles and lower legs of the skater to great strain, unless the body of the skate is free to tilt laterally with the body of the skater, and there will also be a tendency for the wheels on the off side of the skate to be lifted from the floor. Both the strain on the skater, and the liability of the skate wheels leaving the floor are obviated in the present invention by virtue of the universal joint action or movement of the wheels relatively to the wheel plate and bracket members rigidly connected to the plate.

When the body of the skater is swayed to one side the axle bearings 23, axles 24 and the enlargements or cushion supporting members formed on the bearing 23 remain in a fixed plane, but it will be noted that the skate plates 1 and bracket members or hangers 6 rock with the plate 1 about an axis passing through the center of headed pins 20. Bearing sleeves 19 and headed pins 20 move bodily with the bracket members and skate plate due to this tilting of the skater's body, and there will also be a slight turning of the pins about their longitudinal axis, but the axle bearings 23 will always be held in a fixed plane by the weight of the skater. During the tilting movement just described, the cushion members 30 are slightly compressed at one side or the other, depending upon the direction of body sway, thus offering gradually increasing resilient resistance to this movement. This resistance may be increased or decreased by proper adjustment of the headed adjusting screws 15.

What I claim, is:

1. A roller skate comprising a skate plate, a bracket member fixed to said plate, wheel supporting means pivotally secured to said brackets for movement in a vertical plane only, said means including a cushion supporting part having free pivotal movement in a direction at right angles to said plane, a cushion member, and means for clamping said cushion member between said supporting part and said bracket.

2. A roller skate comprising a skate plate, a bracket fixed to said plate, a wheel supporting shaft, a support for said shaft, pivotal connecting means between said support and bracket for free pivotal movement of said support in rectangularly related planes, and means independent from said pivotal means to yieldingly counteract pivotal movement of said support.

3. A roller skate comprising a skate plate, a bracket member having V-shape attached to said plate, an arm pivotally connected with said bracket for swinging movements in a vertical plane, a support for the wheel shaft of said skate pivotally mounted on said arm for swing movement in a plane at right angles to said vertical plane, and means arranged between said bracket and said arm to yieldingly counteract swinging movements thereof.

4. A roller skate comprising a skate plate, a bracket member attached to said plate, a wheel supporting shaft, a support for said shaft, pivotal connecting means between said bracket and said support for pivotal movement of said support in rectangularly related planes, means to yieldingly counteract pivotal movement of said support, and means rectangularly offset with respect to each other to hold the top and bottom of said yielding means in proper position, said means permitting substantial lateral displacement of said top with respect to said bottom in angularly related directions.

5. A roller skate, comprising a skate plate, a bracket member attached to said plate, a wheel supporting shaft, a pivotally mounted support for said shaft, pivotal connecting means between said support and bracket to permit pivotal movement of said pivotally mounted support in rectangularly related planes, said connecting means including an elongated pin pivotally mounted upon said bracket and extending through said support, means arranged between said pin and said bracket to yieldingly counteract pivotal movement of said support and adjustable means to set said yielding means under tension and prevent pivotal movement of said support except under heavy stresses.

6. A roller skate, comprising a skate plate, a pair of bracket members fixed to said plate, a transversely disposed pivot pin and a longitudinally disposed pivot pin carried by said bracket members, a sleeve member mounted on said transverse pivot pin, said longitudinally disposed pin being loosely sealed at one end in said sleeve, the other end of said pin having an apertured head, a wheel axle bearing mounted on said last mentioned pin for pivotal movement around the axis thereof, a resilient cushion member, means on said bearing for seating said cushion member, and an adjusting screw adapted to pass through said aperture in the head of said pin to clamp said cushion member between said bearing and said bracket member.

7. A roller skate comprising a skate plate, brackets attached to opposite ends of said plate, a truss member mounted on said brackets and slidably contacting with said skate plate opposite said brackets.

8. A roller skate comprising a skate plate, brackets having grooved seating surfaces attached to opposite ends of said plate, and a truss member having top and bottom chords interconnecting said brackets with each other, said top chord extending at opposite ends through said grooved portions of said brackets and contacting with the bottom face of said skate plate.

9. A roller skate comprising a skate plate, a pair of longitudinally spaced grooved skate wheel supporting members secured to said plate, a truss comprising upper and lower chords, said upper chord extending at its ends into said grooves in contact with said plate, and means for securing the ends of said lower chord rigidly to said bracket member.

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