April 28, 1936. G. N. EDWARDS 2,039,153

ROLLER SKATE

Filed Aug. 9, 1934

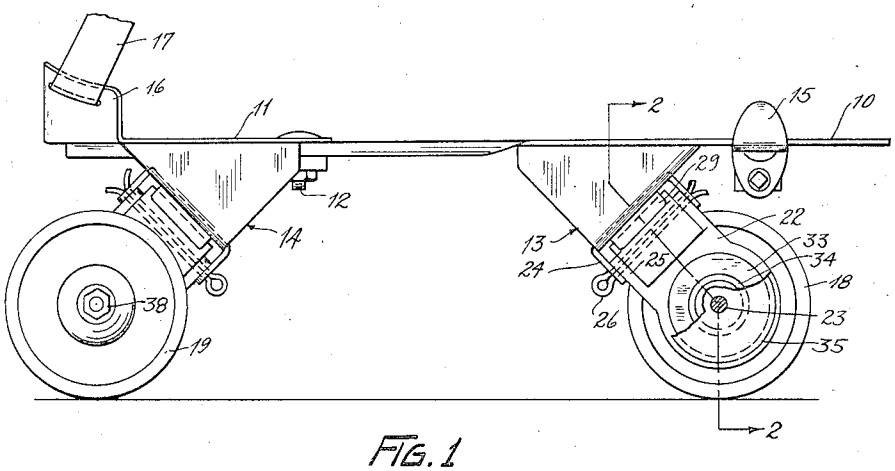

FIG. 1

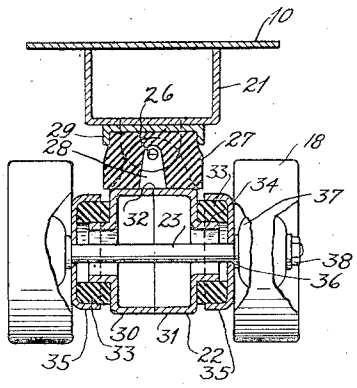

FIG. 2

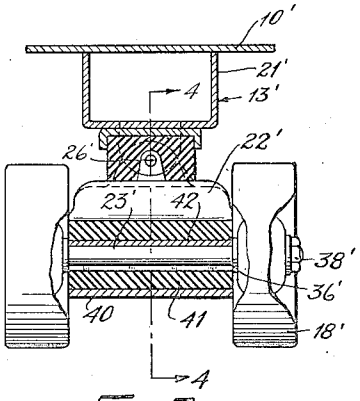

FIG. 3

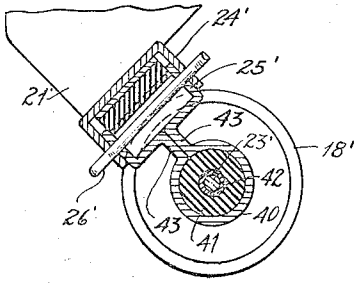

FIG. 4

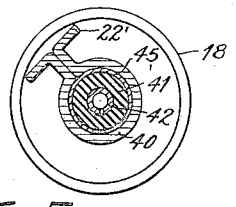

FIG. 5

INVENTOR.

BY GEORGE N. EDWARDS

Kuris, Hudson & Kent

ATTORNEYS

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ROLLER SKATE

George N. Edwards, Willoughby, Ohio, assignor to The Ohio Rubber Company, Willoughby, Ohio, a corporation of Ohio

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4 Claims. (Cl. 208—179)

This invention relates to roller skates and, as its principal object, aims to provide an improved skate construction embodying means for absorbing or deadening wheel vibrations and for preventing the transfer of such vibrations from the wheels to the skate body.

Another object of the invention is to provide an improved wheel mount for roller skates wherein resilient vibration dampening means is arranged to isolate the axles and wheels from metallic connection with the skate body.

A further object of the invention is to provide an improved roller skate structure, wherein the skate body is provided with a wheel mount having a hollow part into which the axle extends, and wherein non-metallic vibration absorbing means is arranged between such hollow part and the axle to isolate the latter from metallic connection with other portions of the skate structure.

Other objects and advantages of the invention will be apparent from the following description and the accompanying sheet of drawing, wherein

Fig. 1 is a side elevational view of a roller skate embodying my invention.

Fig. 2 is a transverse sectional view taken through the skate, as indicated by line 2—2 of Fig. 1.

Fig. 3 is a similar transverse sectional view but showing another arrangement for the vibration absorbing means.

Fig. 4 is a sectional view taken through the wheel mount of Fig. 3, as indicated by section line 4—4 and

Fig. 5 is a view similar to Fig. 4 but showing another construction for the vibration absorbing means.

In the accompanying drawing, to which detailed reference will now be made, I have shown a roller skate embodying the novel vibration absorbing means of my invention. Although in describing my invention detailed reference will be made to the particular structures illustrated in the drawing, it will be understood, of course, that the present disclosure is illustrative only and that the invention may be embodied in various other skate structures than those herein illustrated and described.

In Fig. 1 of the drawing I have shown a roller skate of the type having toe and heel sections 10 and 11 which are adjustably connected together by a clamping screw 12. The toe and heel sections are provided, respectively, with wheel mounts 13 and 14 of a novel construction contemplated by my invention and which will be described in detail hereinafter.

As usual in roller skates of this general type, the toe section 10 may be provided with screw actuated clamps 15 for gripping the edges of the sole of the shoe, and the heel section 11 may be provided with a heel stop 16 and an angle strap 17.

The wheel mounts 13 and 14 connect the respective skate sections 10 and 11 with pairs of rollers or wheels 18 and 19. These wheel mounts are of similar construction, with the exception that the forward wheel mount extends downwardly and forwardly and the rear wheel mount extends downwardly and rearwardly. In view of the similarity of construction of the wheel mounts it will only be necessary to describe the detailed construction of the forward wheel mount 13.

As shown in Figs. 1 and 2 of the drawing, the wheel mount 13 may be constructed with a sheet metal bracket 21, which is riveted or otherwise secured to the toe section 10, and an extension part 22 which is hinged to the bracket 21. The skate structure is supported on the wheels 18 by providing a connection between the extension part 22 of the mount and the axle 23 upon which the wheels 18 rotate.

To provide a hinge connection between the bracket 21 and the extension part 22 these parts may be provided, respectively, with pairs of ears 24 and 25 arranged to present aligned holes through which a hinge pin, such as the cotter key 26, extends. To limit the extent of permissible swinging movement of the wheels relative to the skate structure and to assist in normally retaining the wheels in the desired position, the usual rubber block 27 may be provided between the pairs of cooperating ears.

A recess 28 may be provided in the rubber block to accommodate the hinge pin 26 in such a way that the hinge pin assists in retaining the rubber block in position. A sheet metal clip 29 may also be provided between the bracket 21 and the rubber block to assist in retaining the latter in proper shape and in proper position. As is well understood in this art, the cooperating pairs of ears together with the hinge pin 26 and the rubber block 27, provide a flexible connection such that the pairs of wheels have limited swinging movement relative to the skate body. This limited swinging movement enables the person using the skate to steer the same in the desired direction of travel, and also allows tilting of the skate body, relative to the plane on

which the wheels roll, while a stroke is being made by the skater.

The extension part 22 of the wheel mount may be of any suitable construction and, in this instance, I show this part as being a hollow sheet metal structure formed by two cup-shaped members or stampings 30 and 31 which may be welded or otherwise secured together. These members are so constructed and arranged that portions of the members form the ears 25 and other portions of these members form a bearing surface 32 which is engaged by the rubber block 27.

To provide a vibration absorbing connection between the wheel mount and the axle 23, as contemplated by my invention, I employ one or more resilient members or bushings 33, preferably of rubber, which are arranged so that the skate structure is supported on the axle through these resilient bushings.

In one arrangement which is suitable for the accomplishment of this purpose, (Fig. 2) I provide the members 30 and 31 with oppositely and outwardly extending hollow portions 34 through which the axle 23 extends and which, in turn, extend into the resilient bushings 33. Cup-like members 35 are supported on the axle 23, and extend inwardly from the wheels 18 in telescoping relation around the bushings 33 and the tubular portions 34, so that the bushings form a non-metallic supporting connection between the tubular portions 34 and the cup-shaped members.

The wheels 18 are preferably of the ball-bearing type and are constructed with the inner races 36 of the wheel bearings extending for a short distance inwardly of the wheel hubs 37. The wheels are retained on the axle 23 by nuts 38 which also serve to clamp the inner races 36 against the cup members 35 and to draw the latter against the bushings 33 which surround the tubular portions 34. By adjustment of the nuts 38 the cup members can be pressed inwardly axially of the axle 23 to obtain the desired degree of compression of the bushings 33.

With the arrangement just described it will be seen that the resilient bushings 33 provide a non-metallic connection for supporting the wheel mount upon the axle 23. These bushings thus isolate the wheels and axle from metallic contact or connection with the wheel mount or other metallic parts of the skate, so that the vibrations which are set up by the wheels passing over rough surfaces will be largely absorbed by the bushings and will not be transmitted to the skate structure through the wheel mounts. The absorption of these vibrations by the bushings minimizes objectionable noise by dampening the vibrations substantially at the point where they are produced and before they can be transmitted to the body of the skate. By reason of the resilient connection thus provided between the skate structure and the axles it will be seen that I have produced an improved roller skate which is characterized by smoother and quieter operation than has been obtainable heretofore.

In Fig. 3 of the drawing I have shown a somewhat different arrangement for the vibration absorbing connection between the skate body and the wheels. In this arrangement the wheel mount 13' includes a bracket 21' which is connected to the skate section 10', and an extension part 22' which is connected to the bracket 21' by means of pairs of cooperating ears 24' and 25' and a hinge pin 26'. In this construction the extension part 21' of the wheel mount is formed with a tubular part 40 through which the axle 23' extends. A body 41 of non-metallic resilient material, preferably rubber, is disposed in the tubular portion 40 of the extension part 22' with the shaft 23' extending through such body. A metal ferrule 42 may be provided in the resilient body 41 to serve as a spacer for the wheels 18'. The inner races 36' of the wheels may be clamped against the spacer 23' by means of the nuts 38' which also retain the wheels on the axle. With the arrangement just described it will be seen that the wheel mount of the skate is supported on the axle through the body of resilient material, and that this body will therefore isolate the wheels and axle from metallic connection with the skate body and will absorb and dampen vibrations set up by the wheels passing over rough surfaces.

The body 41 of resilient material may be retained in the tubular portion 40 by being bonded, for example vulcanized, to the inner surface of this tubular part, or it may be retained in the tubular portion by the establishment of a frictional connection between the metal and the resilient body. Such frictional connection can be established by causing the tubular portion 40 to be bent to a closed position with the portions 43 in engagement with each other, as shown in Fig. 4, whereby the resilient body 41 is gripped and retained in place. If desired the resilient body 41 may also be connected to the ferrule 42 by bonding of the rubber with the outer surface of the metal ferrule.

In some instances it may be desirable to provide the resilient body 41 with an outer metal sleeve so as to facilitate the insertion of the resilient body into the extension part 22' of the wheel mount. In Fig. 5 of the drawing I have shown the resilient body 41 provided with such an outer metal sleeve 45 to which the resilient material may be bonded. The resilient bushing of Fig. 5 may be retained in the tubular portion 40 by bending the latter to the closed form in which it grips the metal sleeve.

From the foregoing description and the accompanying drawing it will now be readily seen that I have provided an improved roller skate wherein the axles and wheels are isolated from metallic connection with the skate body by resilient means arranged to absorb and deaden vibrations caused by the wheels passing over rough surfaces. The vibration absorbing connection thus provided between the skate structure and the axles serves to dampen the vibrations substantially at their source, and hence produces a quieter and smoother operating roller skate than has been obtainable heretofore.

While I have illustrated and described the improved roller skate of my invention in a detailed manner, it will be understood, of course, that I do not wish to be limited to the precise details of construction and arrangements of parts illustrated and described, but regard my invention as including such changes and modifications as do not involve a departure from the spirit of the invention and the scope of the appended claims.

Having thus described my invention what I claim is:

1. In a roller skate the combination of a skate body having a hollow part thereon, an axle extending through said hollow part, wheels on said axle, spaced hollow parts supported on the axle adjacent said wheels and extending toward each other to telescope over portions of said hollow body part, and rubber interposed between said

hollow body part and the telescoping portions of said spaced hollow parts.

2. In a roller skate the combination of a skate body, an axle having wheels thereon, said skate body having laterally spaced tubular portions extending substantially coaxially with said axle, laterally spaced individual rubber bushings engaging said tubular portions, and members on the axle laterally outwardly of said tubular portions and having portions supportingly engaging said bushings whereby the skate body is supported on the axle but isolated from metallic connection therewith.

3. In a roller skate the combination of a skate body, an axle having wheels thereon, said skate body having laterally spaced tubular portions extending substantially coaxially with said axle and having an internal diameter substantially larger than the diameter of the axle, rubber bushings engaging said tubular portions, and spaced cup-like members on the axle having tubular portions telescoping the tubular portions of the skate body and engaging said bushings.

4. In a roller skate the combination of a skate body having outwardly extending tubular portions thereon, an axle extending through said tubular portions, wheels on said axle outwardly of the tubular portions, cup-like members on said axle telescoping said tubular portions, and rubber bushings seated in said cup-like members and engaging said tubular portions.

GEORGE N. EDWARDS.