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2,763,490

ROLLER SKATE

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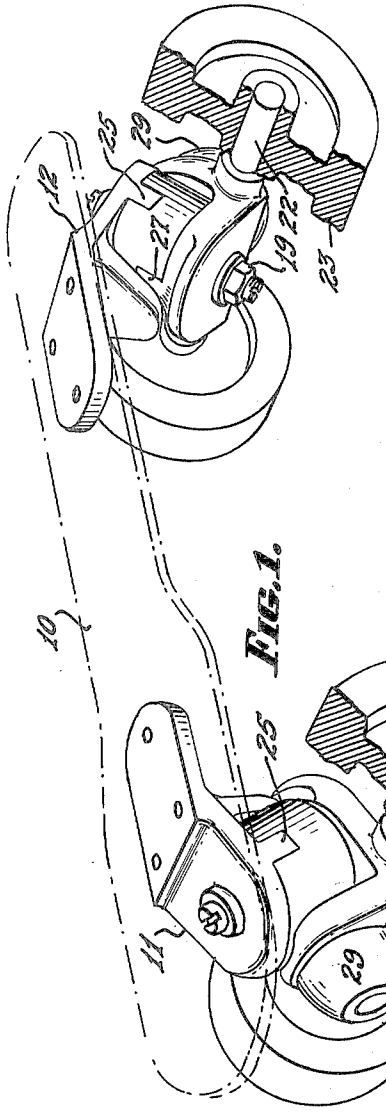


FIG. 1.

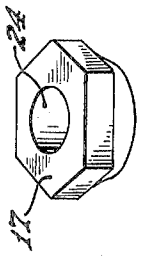


FIG. 6.

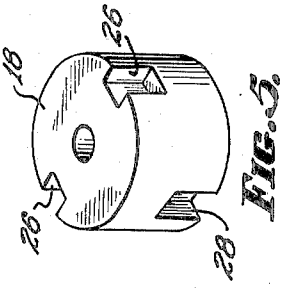


FIG. 3.

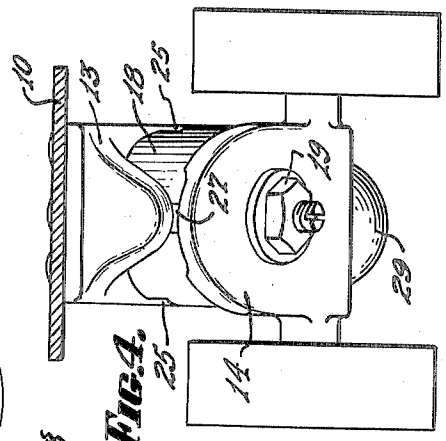


FIG. 4.

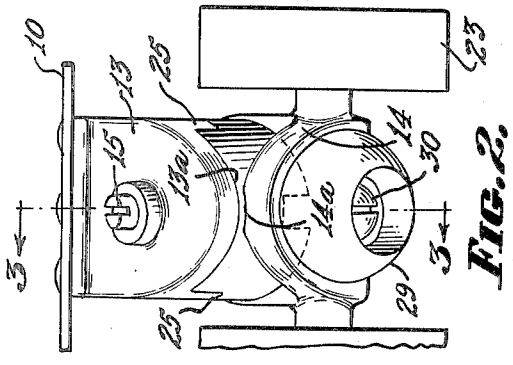


FIG. 2.

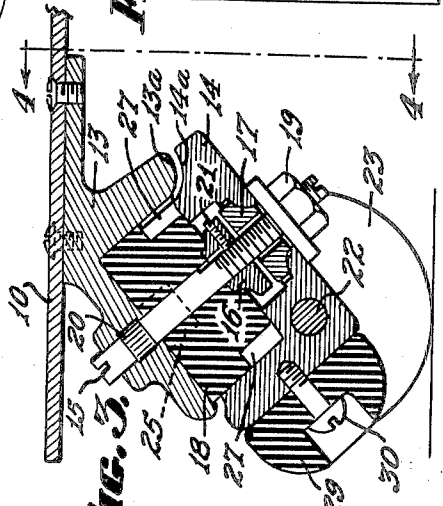


FIG. 5.

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ROLLER SKATE

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My invention has to do with the provision of an improved roller skate which is easier and safer to use, particularly in that turns may be accomplished with all four wheels remaining in contact with the surface being skated upon.

It is an important object of my invention, therefore, to arrange the operating parts of my skate so that a skater may accomplish a turn by shifting his weight so as to cause the shoe plate to tilt or tend to tilt while maintaining the wheels upon the skating surface.

Another object of my invention is to eliminate the hazards which accompany the use of those skates wherein a turn produces careening and the like.

Another object of my invention is to provide an arrangement wherein a special brake construction may be applied to the rear set of wheels to prevent one's feet from being suddenly moved out from under him.

A further object of my invention is to provide improved turning mechanism employing the advantages of what I term a fifth wheel construction.

Another object of this invention is to provide a resilient cushion within the truck members which because of its construction has an unusually long life.

Other objects and advantages of my invention will become apparent during the course of the following description and with reference to the accompanying drawings in which drawings like numerals are employed to designate like parts and in which:

Figure 1 is a perspective view of a skate embodying the features of my invention showing a pair of identical trucks each mounting two of the four wheels employed per skate,

Figure 2 is a front elevation of the left hand or forward truck of Figure 1,

Figure 3 is a section on the line 3—3 of Figure 2,

Figure 4 is a section on the line 4—4 of Figure 3,

Figure 5 is a perspective view of the resilient cushion member employed, and

Figure 6 is a perspective view of the lower half of the fifth wheel arrangement utilized in this invention.

Referring now to the drawings, especially Figure 1, it will be observed that each skate of a pair comprises a shoe plate **10** to which a pair of trucks **11** and **12** is fixed. Since the trucks **11** and **12** are identical I shall describe only one of them; it so happens that the instant description will refer to the front or forward truck **11**.

Each of the trucks comprises an upper member **13**, a lower member **14**, a king pin **15**, fifth wheel mechanism **16** and **17**, a cushion **18** and a lower nut **19**. The king pin **15** is fixed within the member **13** and I have indicated one way of accomplishing this at **20** where the pin is shown as crimped within the member **13**. The upper half **16** of the fifth wheel may be fixed to the king pin **15** at a desired position by means of the set screw **21**. The axle **22** for the front pair of wheels **23** is mounted in the lower member **14**.

The lower half **17** of the fifth wheel arrangement is seated against turning within the lower member **14**. The central opening **24** provided in the member **17** permits the king pin to pass therethrough without contact. Normally, when the skate is not in use, the fifth wheel half **16** is fixed to the king pin **15** so that there is a small space between the wheel halves **16** and **17**. This allows a cushioning effect when the skater is on the skates.

As perhaps best seen in Figure 1 the upper truck member **13** is provided with a pair of lugs **25**. These lugs **25** are received in notches **26** provided in the cushion **18**. The lower truck member **14** is provided with a pair of lugs **27** which are received in notches **28** also provided in the cushion **18**. In the preferred embodiment of my invention the notches **26** and **28** are disposed in the member **18** in the manner indicated in Figure 5 so that a line passing through the center of the notches **28** will be at right angles to a line passing through the center of the notches **26**. Also, I prefer that the lugs are of such height that the notches **26** are wholly within the upper half of the cushion member **18** and the notches **28** are wholly within the lower half of the cushion member **18**. I have found that this construction gives considerable strength to the cushion member **18** and enables it to be used for long periods of time.

The nut **19** serves to hold the parts in assembled condition. Although a certain amount of adjustment may be obtained by the degree to which this nut **19** is tightened, I prefer that the cushion **18** is not compressed very much by the action of this nut.

Generally the cushion **18** provides a resilient relationship between the members **13** and **14** so that in use the upper fifth wheel half **16** will bear against the lower member **17** during a time in which the cushion **18** lends a resilient effect to the assembled parts. Should an undue shock be incurred, such as might happen when the skater jumps or the like, it is contemplated that the members **13** and **14** will abut each other at **13***a* and **14***a* to take up this shock rather than have it transferred wholly through the cushion **18** and the fifth wheel mechanism **16** and **17**.

I have also found it very desirable to position the king pin **15** in the manner illustrated, namely, wherein each of these pins slants downwardly from the end of the skate towards the center portion thereof. This is the reverse of the normal arrangement of such king pin. I find that this particular arrangement provides a skate having better turning qualities than has heretofore been possible.

In addition, the arrangement of the king pin **15** in the manner just described, makes possible the provision of an added safety brake device. This brake device comprises a resilient member **29** which may be fastened to the lower truck member **14** as at **30**. This safety brake device, although shown in connection with the truck of Figure 3, is to be thought of in particular as applied to the rear set of wheels. None of the skate structures known to me has a rear wheel truck assembly which could accommodate, or have attached thereto, a safety member such as the brake **29** proposed in my design. This safety brake device, which is attached to the rear or heel end of the skate, is not to be confused with the so called "stop toe" attachments which are invariably fastened to the toe end or front of the skate. These stop toe arrangements have been provided to improve skating technique by making it easier to perform toe spins and for cushioning the landing when jumps are negotiated. These stop toe arrangements are actually hazardous to the uninitiated for if one is skating rapidly in a forward direction and should he inadvertently raise the rear wheel rollers off the floor, the front end of the skate would press the stop toe arrangement against the floor which sudden re-

silient pressure would jerk the skater and perhaps cause him to fall off balance and be thrown forward.

With my safety brake device which is applied to the rear of the skate, the danger of accidents wherein one's feet are suddenly kicked out from under him is greatly reduced. The purpose of this arrangement is to prevent to a large degree backward falls. Should a skater use his skates without my safety device and suddenly and inadvertently raise the front rollers off the floor, causing his weight to shift to the rear, he would almost be certain to fall backward. A skater in a situation of this kind, however, and using skates equipped with my invention, would at least be saved from a jarring fall for as the front rollers are raised the angle of the skate forces the rear brake resilient matter to press and drag against the floor in the direction in which the skate is rolling, which action checks the speed gradually. Even though the skater were to fall his descent would be gradual without a sudden violent jar.

It is believed, therefore, that one of the improvements of my invention resides in so arranging the rear set of wheels as to make possible the provision of the safety brake device **29**. All other skate structures known to me have rear sets of wheels which are so built as to make it impossible to add a device such as the one I have indicated at **29**.

Another of the important features of the invention resides in the provision of the fifth wheel which I have mentioned. This fifth wheel consists of the two halves **16** and **17**. The upper half **16** is fastened in a stationary manner to the king bolt by means of the set screw **21** or by other suitable means. The lower half **17** of the fifth wheel is free wheeling, i. e., the space between the diameter of the king bolt and the diameter of the hole in the lower half of fifth wheel **17** permits easy rotation of the member **14** without its being jammed by or hung up on the king pin. The hexagon shape of the top of lower fifth wheel half **17** is snugly seated within the hexagon shaped cavity in the lower segment **14** of the truck, thus becoming an integral part of the member **14**. This causes this lower segment **14** to turn with the fifth wheel half **17** as the fifth wheel **16—17** rotates, i. e., as the wheel half **17** moves under the influence of the pressure exerted on it by the wheel half **16**. Space is normally allowed between these members **16** and **17** to permit the extended resilient cushion **18** to give the desired cushioning effect when the skater places his weight on the skate.

The fifth wheel members **16** and **17** fit around the king bolt which runs through the truck at an angle of approximately 40°. The bearing or rotating surfaces, therefore, of the fifth wheel are in an oblique position, and when rotating, the sliding downward pressure caused by tipping the skate forces one end of the axle **22** backwards to the right or left thus causing the skate to turn accordingly.

The primary purpose of the resilient member **18** is to immediately align the wheels in correct position the instant the wheels **23** are raised off the floor or the turn is completed.

I have found that in my arrangement involving the king pin **15** set at the angle as indicated and including the fifth wheel members **16** and **17**, turns may be executed by the skater shifting his weight so as to cause the plate **10** to tend to tilt. When this is done, rather than the wheels **23** at one side of the skate coming off the floor the wheels remain in contact with the floor while the axle **22** shifts due to the pressure of the member **16** against the member **17** and the obliquely disposed location of the mating surfaces of these members.

It will be apparent to those skilled in the art that modifications may be practiced in the teachings of my invention without departing from the scope and spirit thereof. It is also to be understood that while I have shown my invention as embodied in certain structure, I do not intend to be limited to such structure except insofar as it is specifically in the subjoined claims.

Having thus described my invention what I claim as new and what I desired to protect by United States Letters Patent is:

1. A roller skate comprising a shoe plate and a pair of trucks fastened to said plate, each of said trucks comprising an upper member rigidly secured to said plate, a king pin rigidly fixed in said upper member and slanting downwardly from an end of said plate towards the center of said plate, a first fifth wheel member fixed to said king pin, a lower member, a resilient cushion between said upper and lower members, a second fifth wheel member in said lower member, said king pin passing through said second fifth wheel member and free thereof, means on said king pin holding said upper and lower members in engagement with said resilient cushion, and an axle having a pair of rollers fixed in said lower member, said first and said second fifth wheel members normally being disposed out of contact with each other, and said upper and said lower members having adjacent surfaces, said adjacent surfaces when said upper and lower members are held in an engagement with said resilient cushion normally being removed from one another a distance greater than the distance between said first and said second fifth wheel members, whereby when the skate is in use the said fifth wheel members will engage one another before the said adjacent surfaces of said upper and said lower members will engage one another, said adjacent surfaces contacting one another only when the skate is subjected to unusual shock.

2. The skate of claim 1 in which said upper member has a pair of lugs received in notches in said resilient cushion, and said lower member also having a pair of lugs received in said resilient cushion, an imaginary line passing through the upper notches being substantially at right angles to an imaginary line passing through the lower notches, said upper notches lying wholly within the upper half of said resilient cushion, and said lower notches lying wholly within the lower half of said resilient cushion.

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