J. WARNER.

ROLLER SKATE.

APPLICATION FILED AUG. 8, 1910.

995,504. Patented June 20, 1911.

Fig. 1.

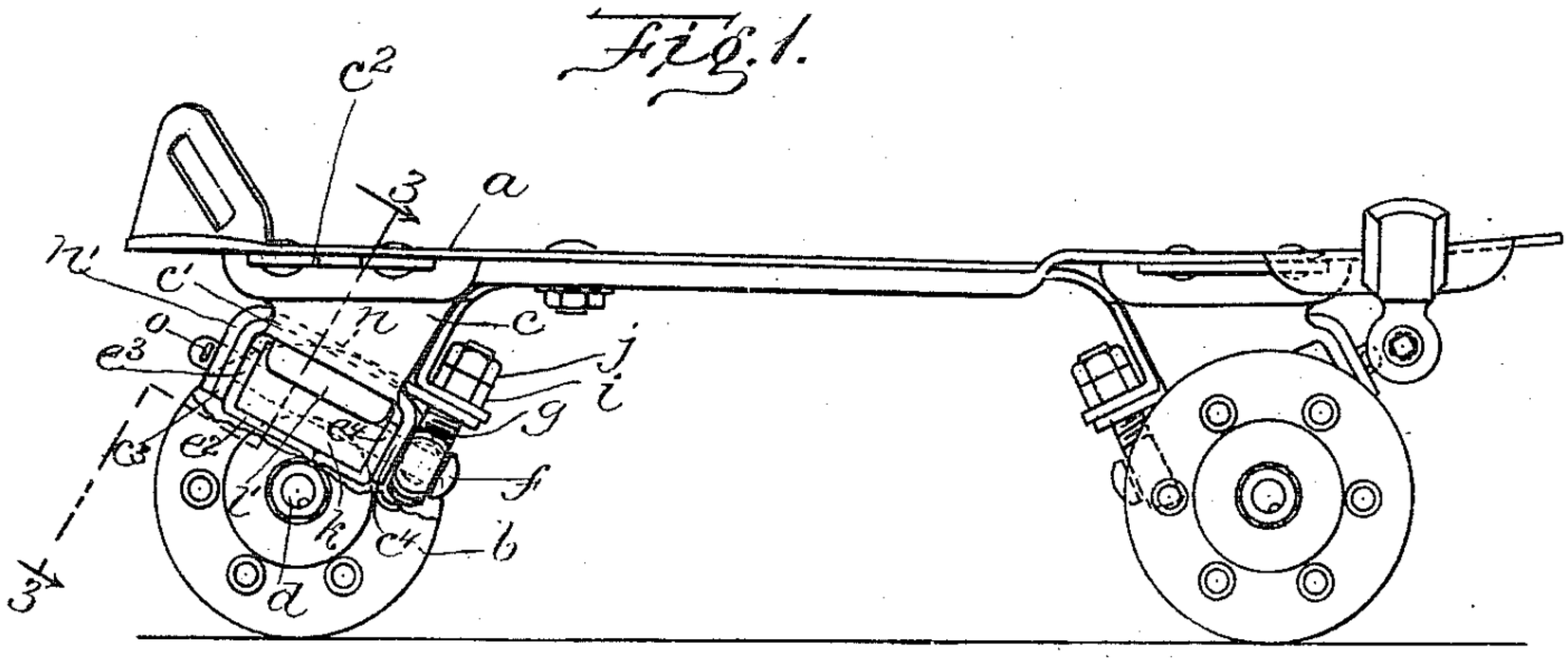


Fig. 2.

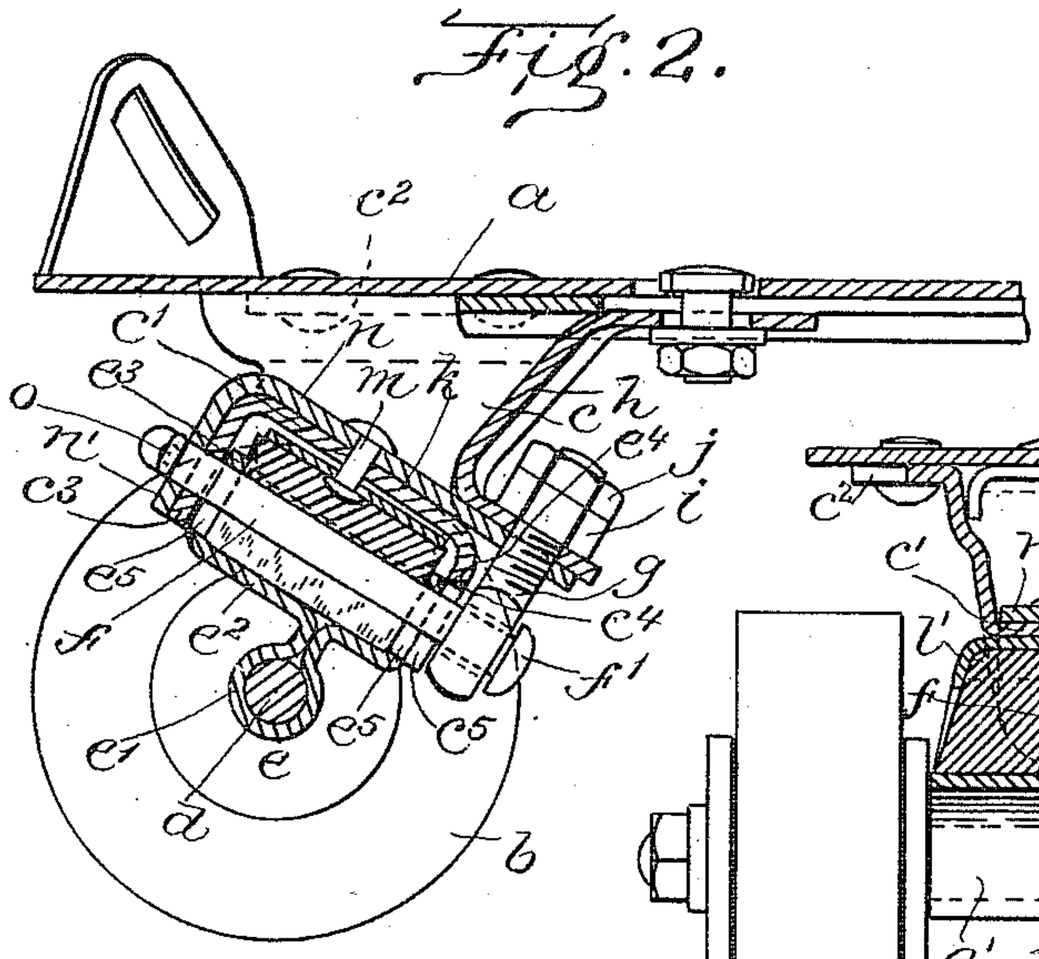
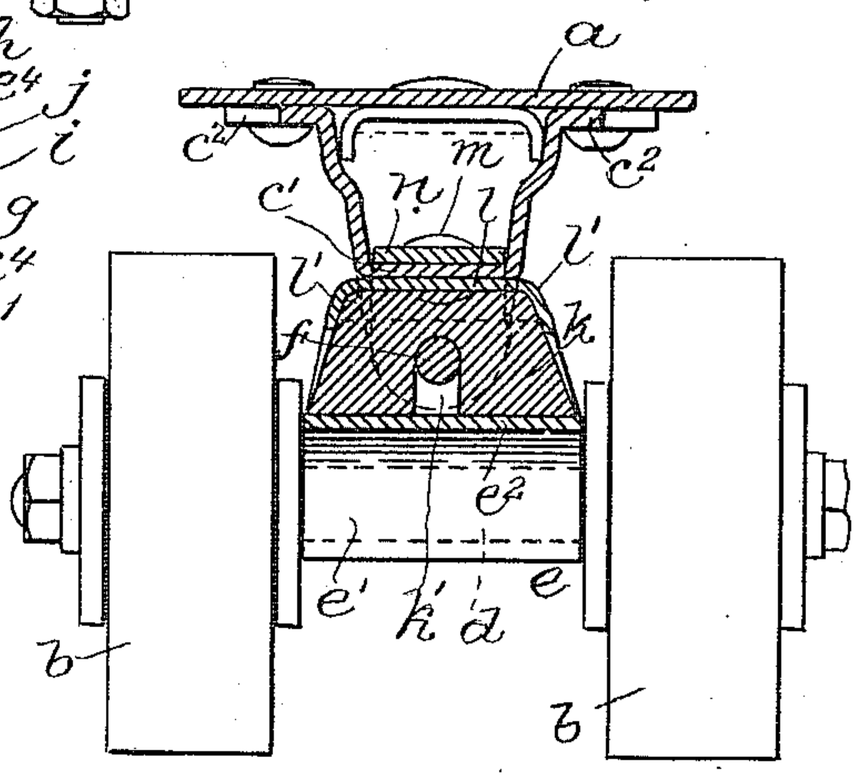


Fig. 3.



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UNITED STATES PATENT OFFICE.

JAMES WARNER, OF BOSTON, MASSACHUSETTS, ASSIGNOR TO AMERICAN SKATE COMPANY, OF BOSTON, MASSACHUSETTS, A CORPORATION OF MASSACHUSETTS.

ROLLER-SKATE.

995,504. Specification of Letters Patent. **Patented June 20, 1911.**

Application filed August 8, 1910. Serial No. 576,067.

To all whom it may concern:

Be it known that I, JAMES WARNER, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Roller-Skates, of which the following is a specification.

This invention relates to roller skates, and has for its object to provide an improvement in the mode of attaching the hangers which carry the rollers to the foot plate of the skate in such a manner as to permit pivotal movement of the hanger against a resiliently yielding resistance for converging the axes of the forward and rear rollers toward a common center in the travel of the skate in a curved path, and for permitting the foot plate of the skate to be tilted toward one side or the other when the weight of the wearer is concentrated on that side, while also enabling all looseness in the skate hanger, with a consequent objectionable noise, to be taken up.

A further object is to provide a construction by which springing or deflection of the foot plate of the skate due to unevenly applied force acts against the yielding resistance of a buffer.

The manner in which I accomplish these objects is set forth in the following specification, in which is described a skate which I have invented for the purpose. The preferred embodiment of this skate is illustrated in the accompanying drawings, in which—

Figure 1 represents a side elevation of the skate, Fig. 2 represents a longitudinal section of one end of the skate, and Fig. 3 represents a cross-section on line 3—3 of Fig. 1.

The same reference characters indicate the same parts in all the figures.

Referring to the drawings, the skate consists of a foot plate *a*, rollers *b* by which the skate is supported, and means for connecting the rollers to the foot plate. There are two sets of rollers at the toe and heel ends of the skate respectively, and as each set is attached to the skate by identical fastening means, a description of one of these fastenings will suffice for both.

Secured to the under side of the foot plate is a piece *c* which I call a base, or base member. This base is preferably made of sheet metal bent into U-shape with a bottom web *c'* and side webs, which latter have ears c^2 secured to the under side of the foot plate by rivets or otherwise. On the opposite ends are lugs c^3 and c^4, the former of which is at a less distance from the foot plate of the skate than is the latter.

In the present embodiment of the invention, the rollers are arranged in pairs, each being mounted on the end of an axle *d* which is secured in a hanger *e*. The hanger is preferably made of sheet metal which is so bent as to provide a cylindrical housing *e'* for the axle, and a bottom portion e^2 which confines the buffer, hereinafter described, on its under side. On the ends of the hanger are lugs e^3 and e^4 which lie between the lugs c^3 and c^4 of the base member. A pivot *f*, which I term a hanger pin, is passed through openings in these lugs, and serves to support the hanger. One end of this pin is supported by the lugs c^3 of the base member, while the other end is supported by an eye bolt *g*, through the eye of which it passes, said bolt being carried through an aperture in the end of a bracket or brace *h*. The upper end of this brace lies along the under side of the foot plate, and its central part lies along the forward side of the base member *c*. The lower end of the brace is bent at a sharp angle to form the perforated bracket through which the eye bolt passes. The relation between the brace and the base member heretofore described refers only to the base member at the heel of the skate. At the toe the relative arrangement of the base member and brace is reversed. Adjusting and locking nuts *i* and *j* are screwed on the end of the eye bolt above the bracket end of the brace.

Between the hanger bottom and the base member is a buffer *k*, which is preferably a block of elastic material such as rubber of proper form. This block is shaped approximately as shown in Fig. 3, having a longitudinal passage *k'* in which the hanger pin *f* is contained. The sides of the block are confined by the lips *l'* of a plate *l*, which is attached to the bottom web *c'* of the base member by such means as, for example, a rivet *m*. The same rivet secures a plate *n*, which lies along the upper side of the base web *c'* and is L-shaped. This L-shaped plate I term the buffer-supporter. Its bent end *m'* lies beside the lug c^3 of the base member, and receives the end of the hanger pin, while its other end lies below the

bracket of the brace *h* and is perforated to receive the shank of the eye bolt *g*. The hanger pin is held in place by a head *f'* on one end, and a cotter pin *o* passing through it near its other end. The openings in the lugs e^3 and e^4 of the hanger through which the pin *f* passes are made in the form of elongated slots e^5, while the opening in the lug c^4 of the base member is a slot c^5 extending to the extreme lower end of the lug. By reason of these slots an adjustment of the pin and hanger by means of the adjusting nuts on the eye bolt is permitted. In taking up this adjustment the end of the pin which lies in the lugs c^3 and *n'* is the fulcrum, and the other end is moved up by the adjusting nuts, against the yielding resistance of the buffer *k*. Such adjustment is made to take up looseness, so that the hanger will be held firmly and rattling or objectionable up-and-down play thereof prevented. At the same time, however, opportunity is given for pivotal motion of the hanger, and the rollers carried thereby, about the pin. This motion is permitted in order that the foot plate may yield to one side or the other according to the manner in which the weight of the skater is applied to the skate. The pivotal mounting of the rollers also accomplishes another result, for as the pivot pin is arranged on a slant, such pivoting causes the axes of the forward and rear rollers to diverge or converge to enable the skater to swing about in a curve by applying his weight to one side of the skate. The accomplishment of this result, however, is not my invention and I make no claim thereto in this application.

My invention consists in the improved means by which these results are secured in a better manner than heretofore, and by which other results not heretofore known are obtained.

One of the novel features of this invention is the pin *e*, which extends entirely through the hanger, is engaged therewith at two separated points, and serves as the means for applying the adjustment of the eye bolt thereto for taking up looseness and governing the degree of resiliency of the buffer.

Another improved feature of the invention resides in the brace *h* by which the pull of the eye bolt is applied to the foot plate. By means of this brace the foot plate is connected in a direct and yielding manner with the hanger, so that when the middle part of the foot plate is deflected it draws against the buffer and the skate is thereby rendered more elastic and resilient. The arrangement of the pin *e* passing through a channel in the buffer, is a feature of value and importance in that it enables the looseness in the hanger to be taken up with less adjustment of the nuts *i* and *j*, and with less loss of resiliency in the buffer than is the case with roller skates heretofore designed. When the adjustment is taken up the pin presses against the portion of the buffer interposed between it and the confining plate *l*, while the sides of the buffer are confined between the lips of this plate. It will be readily apparent that in this way the central part of the buffer may be so compressed as absolutely to prevent looseness and rattling of the hanger, while the side parts of the buffer retain their full degree of resilience.

I claim:—

1. In a roller skate the combination with a foot plate, a base member, and a roller hanger, of a hanger pin engaged with said hanger at separated points near its ends, and with said base member at one end, an elastic buffer interposed between the hanger and base member, and adjustable means engaging the other end of said pin and hung from the foot plate independently of the base member for drawing the same with greater or less force, against the resistance of the buffer toward the foot plate.

2. In a roller skate comprising a foot plate, a base beneath said foot plate, a roll hanger beneath said base, a hanger pin pivotally supporting both ends of the hanger and supported at one end by the base, and being itself pivotally movable up and down about its point of connection with the base, a resilient buffer interposed between the base and hanger having a channel in its under side in which the pin is contained, and adjusting means independent of the base for crowding the pin with more or less force upward against the buffer.

3. In a roller skate comprising a foot plate, a base beneath said foot plate, a roll hanger beneath said base, a hanger pin passing through on an inward and downward inclination overlapping parts at both ends of the base and hanger and supporting both ends of the latter pivotally, a buffer interposed between the base and hanger, and adjusting means supporting the lower end of the pin from the foot plate extending on both sides of, and below, the pin, independently of the base.

4. A roller skate comprising in combination a foot plate a roll-hanger on each end of said plate, and means connecting each hanger independently with said plate, each such means consisting of a base member secured to the under side of the plate near one end thereof and having downwardly projecting lugs at its forward and rear ends, upwardly extending lugs on the hanger lying closely adjacent to said lugs, and all being apertured, a pin passing through all of said lugs, a buffer of elastic material between said hanger and base, and embracing said pin, a brace secured to the foot plate and extending downwardly therefrom be-

side the inner end of the base and having a bracket on its lower end, an eye bolt having a threaded shank passing through said base and having an eye through which one end of said pin passes, adjusting nuts on the shank of the eye bolt above the bracket for taking up looseness of the hanger and compressing the buffer, the lug of the base adjacent the said eye bolt being slotted to permit the necessary movement of the pin, and a plate lying upon the upper side of the bottom web of the brace apertured near one end to receive the shank of the eye bolt and having its other end bent beside a lug of the base, and apertured to receive the end of the pin opposite to that end which is engaged with the eye bolt.

In testimony whereof I have affixed my signature, in presence of two witnesses.

JAMES WARNER.

Witnesses:
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