

[54] **TANDEM WHEELED ROLLER SKATE**
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816,753 8/1937 France 280/11.22

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 [58] **Field of Search**..... 280/11.22, 11.20, 11.23;
 301/5.3; 272/57 D, 70; 188/68

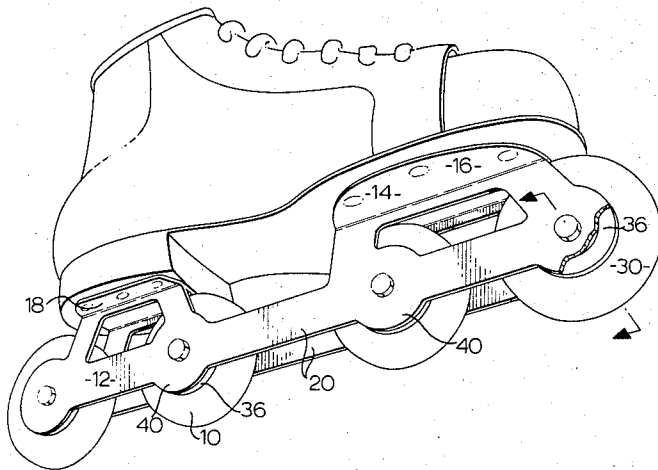
[57] **ABSTRACT**

A roller skate has wheels journalled in tandem and rubber-tired parallel coplanar solid sides for said wheels. The wheels are situated between enlarged annular press-plates stamped out of the wheel supporting structure, and floating friction rings are provided between said solid sides and said pressure plates screw-threaded axles being provided to adjust the rotary resistance of said wheels and thereby provide leg strengthening exercise.

[56] **References Cited**

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1 Claim, 2 Drawing Figures



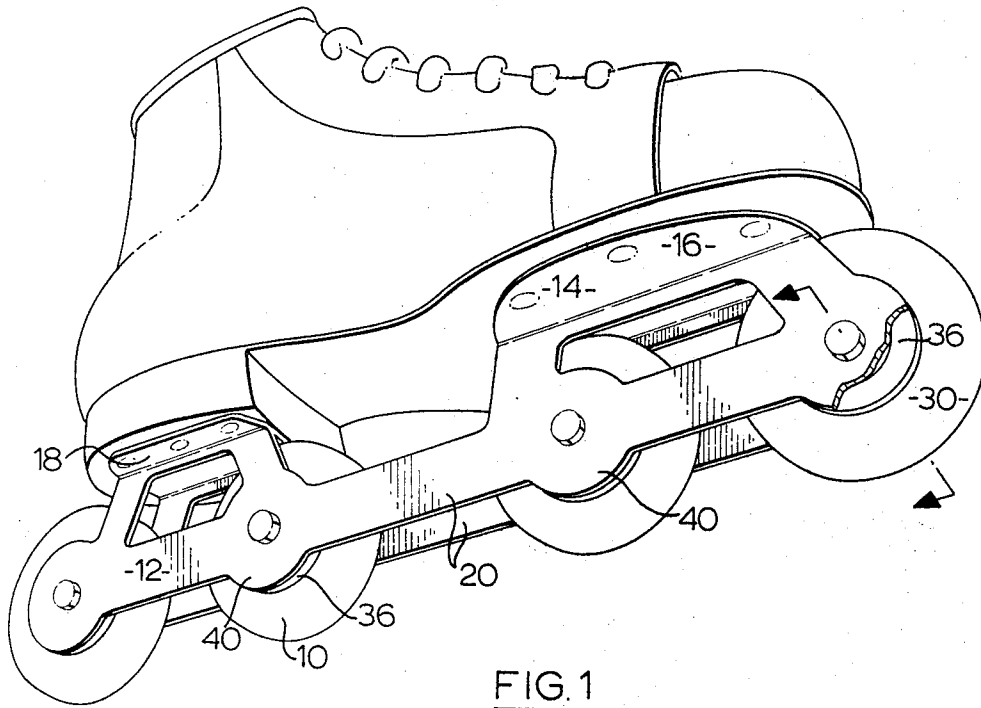


FIG. 1

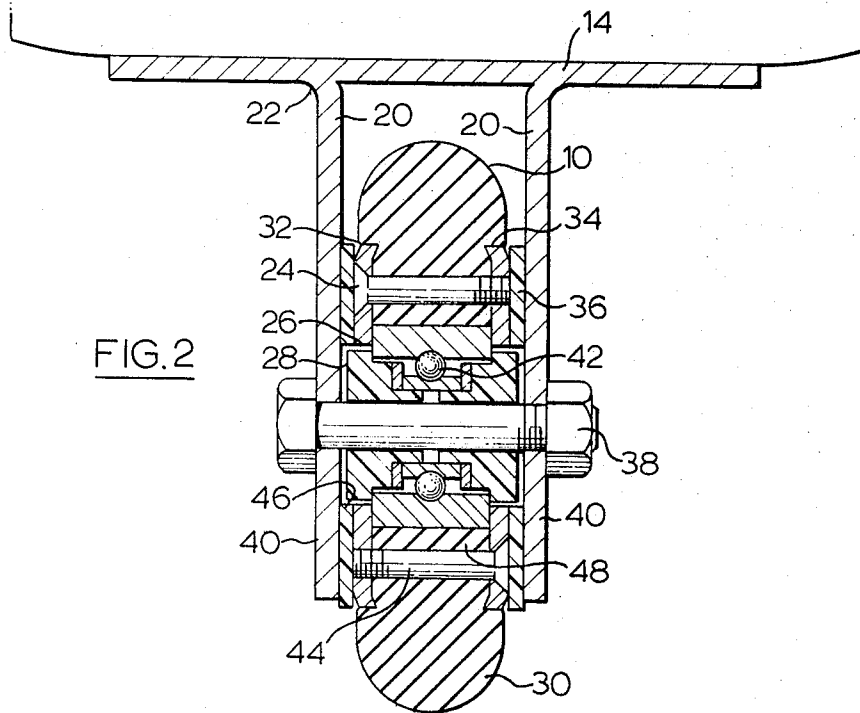


FIG. 2

TANDEM WHEELED ROLLER SKATE

The present invention relates to a tandem wheeled roller skate and the existence of prior tandem wheeled roller skates is acknowledged. However, such prior tandem wheeled roller skates have generally suffered from lack of stability in their construction, defects generally inherent in the design thereof and it has not been possible to use them for exercising and strengthening the legs which is an important consideration in the case of the present invention.

It is accordingly a central characteristic of the present invention to provide in combination with a rigid supporting structure means whereby the resistance to rotation of the wheels or any one of the same may be varied and controlled through the agency of friction washers as will be more fully explained hereinafter, the design being such that whether a bias is inserted against free rotation by the tightening to be explained, or whether the wheels are to be allowed to run free, in either case equal rigidity and precision should obtain to the end that skating may be learned and practised for enjoyment or for exercise with optimum confidence that no loosening, sloppiness or mechanical failure will lessen or interrupt the same.

With the considerations and inventive objects herein set forth in view, and such others as may become apparent from consideration of this disclosure and specification, the present invention consists of and is hereby claimed to reside in the inventive concept which is comprised, embodied, embraced or included in any method, process, construction, composition, arrangement or combination or parts, or new use of any of the foregoing which may herein be exemplified in one or more specific embodiments of such concept, reference being had to the accompanying drawings in which;

FIG. 1 is a perspective view of the skate of the present invention.

FIG. 2 is an enlarged cross-section on the line 2—2 of FIG. 1. In the drawings, like characters of reference designate similar parts in the several figures.

PRELIMINARY STATEMENT

In order first to describe briefly the present invention in terms consonant with those generally consonant with the accompanying claim or claims and to identify the parts defined therein, a tandem wheeled roller skate has been designed wherein the wheels collectively designated 10 are arranged in single file and substantially centrally to the skate, the invention being characterized in combining a supporting structure generally designated 12 consisting of a sole plate generally designated 14 and intended to comprise both the front and rear portions 16 and 18 thereof (FIG. 1) and a pair of spaced parallel wheel-carrying plates generally designated 20 secured as at 22 to the sole plate and projecting substantially at right angles thereto, wheels 10 having a substantially planar annulus 24 on either side thereof centrally apertured as at 26 to surround the hub 28. A tire 30 on each wheel, in rotary axial cross-section is seen (in FIG. 2) to be generally hemi-circular and to have outer surfaces which are generally co-terminous (at 32) and coplanar with the outer rims 34 of said annuli.

There is at least one loose and centrally apertured disc-shaped friction-washer 36 between the outer surface of each wheel annulus and the wheel-carrying

plates, the hub 28 projecting outwardly from both sides of each wheel beyond the plane of the outer surfaces of the wheel annuli but less than the thickness of the friction-washers 36. Each wheel is mounted on a nut and bolt assembly collectively designated 38 projecting through hub 28 and the wheel-carrying plates whereby upon tightening the nut and bolt assembly, resistance to rotation by wheel 10 may be varied and controlled through the agency of friction-washers 36 and the frictional coefficient existing between the surfaces of same and the opposing adjacent wheel and plate surfaces.

The wheel-carrying plates 20 are of flat stock for preference and in side elevation (FIG. 1) are seen to be essentially circular so as to provide pressure plates 40 at the location of wheels 10, such pressure plates being generally of a diameter equal to that of the wheel annuli 24.

MAIN DESCRIPTION

The hubs 28 are each provided with the shown ball bearing assembly 42. The annuli 24 on each side of each wheel are held in tight spaced relationship by means of the screw-threaded set screws 44 in virtue of which the rims 34 of the annuli 24 bite into the rubber of the tire 30 as clearly shown. It is thus to be understood that the entire plane of the wheel when off its hub exhibits a smooth appearance on each side.

Although the friction-washers 36 are loose between the wheel and the pressure plates 40 same remain satisfactorily centered in virtue of the fact that the end extremities of the hub 28 occupies a portion of the thickness of the friction-washers provided by the central apertures 46 therein as clearly shown in FIG. 2. An annular bushing 48 is provided for seating the tire 30 and for centering the same with respect to the ball bearing assembly 42. From all the foregoing it will be apparent that when the nut of the assembly 38 is tightened, the pressure plates 40 will move imperceptibly toward each other to increase the coefficient of friction acting on the annuli 24 through the agency of the friction-washers 36 and such pressure may be varied and controlled considerably according to the extent to which the nut of nut and bolt assembly 38 is tightened.

In this way it will readily be appreciated that the present invention provides means whereby the legs of hockey players may be subjected to highly efficacious strengthening exercise and one which is identical with that for which their leg muscles are being strengthened, namely the playing of hockey on skates essentially similar to that which is illustrated but with blades instead of wheels.

Various modifications may be constructed or performed within the scope of the inventive concept disclosed. Therefore what has been set forth is intended to illustrate such concept and is not for the purpose of limiting protection to any herein particularly described embodiment thereof.

What is claimed is:

1. A tandem-wheeled roller skate wherein the wheels thereof are arranged in single file and substantially centrally relative to the skate, comprising in combination:

- i. a supporting structure of a sole plate, a pair of longitudinally extending spaced parallel wheel-carrying plates secured to said sole plate and projecting downwardly substantially at right angles, and a set of wheels,

- ii. hub assemblies for each wheel,
- iii. a solid tire of deep cross-section on each wheel surrounding said hub assembly,
- iv. a pair of substantially planar annuli on either side of said tire and partially over-lapping the same, said annuli being centrally apertured to accommodate said hub assemblies, and
- v. a pair of disc-shaped friction washers of a diameter approximately equal to that of said annuli between the inner surfaces of said wheel plates and the outer surfaces of said wheel annuli, said wheel-carrying plates being of flat stock and in side elevation seen to be essentially circular providing resiliently yieldable pressure plates at the location of said wheels and also at said location being generally of a diameter equal to that of said annuli, said hub assemblies each embodying a ball-race assembly and having planar end surfaces which project slightly outwards beyond both sides of the plane of the outer surface of said wheel annulus but less than the thickness of said friction-washer, said hub

assemblies each being mounted on a nut and bolt wheel axle assembly projecting through said hub assembly and said wheel-carrying plate, said washers being centrally apertured and loosely mounted upon, and surrounding the projecting portions of said hub assemblies whereby upon tightening said nut and bolt wheel axle assemblies resistance to rotation by said wheel may be varied and controlled by the pressure of said wheel plates against said friction-washers and co-efficient between the surfaces of same and the opposing adjacent inner and outer surfaces of said wheel and carrying plate surfaces transmitted pressure by said friction-washers against said wheel annuli, said annuli being recessed within the flanks of said tires so that in axial cross-section, said flanks are observed to have surfaces which are generally co-terminous and coplanar with the outer rim of said annuli, said tires being frictionally secured to said hub assemblies and said annuli.

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