

April 21, 1936.

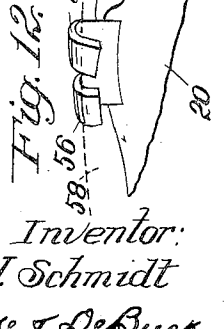
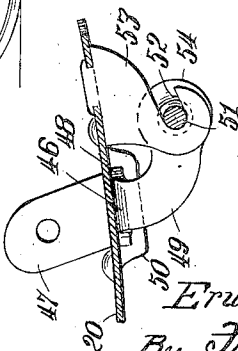
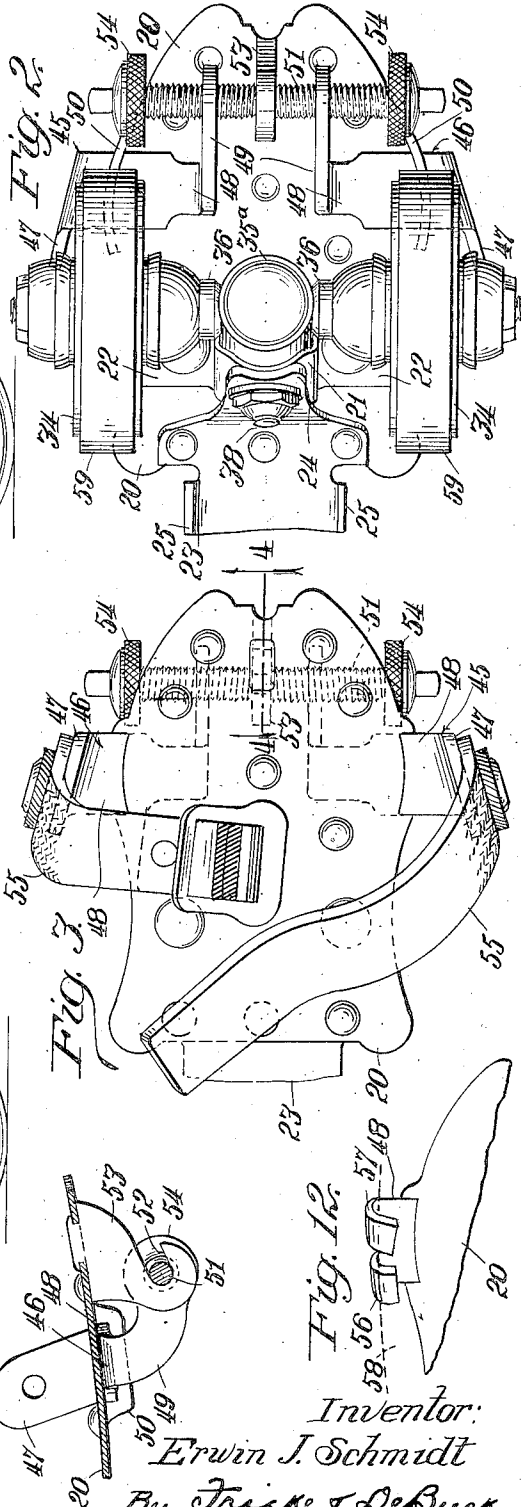
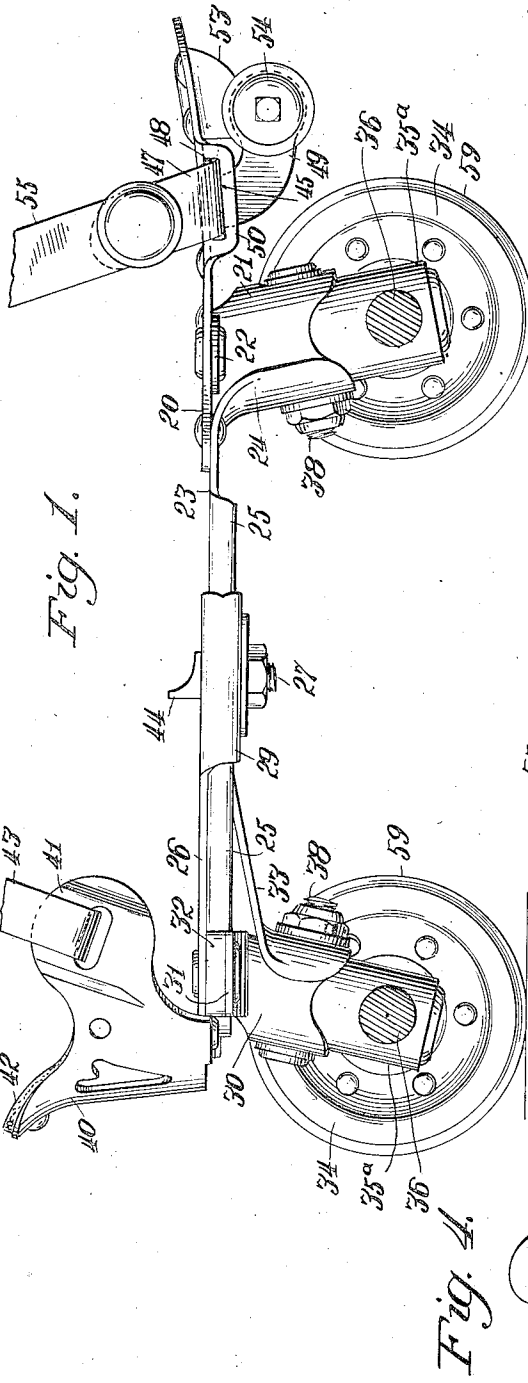
E. J. SCHMIDT

2,038,005

ROLLER SKATE

Filed Dec. 4, 1933

2 Sheets-Sheet 1



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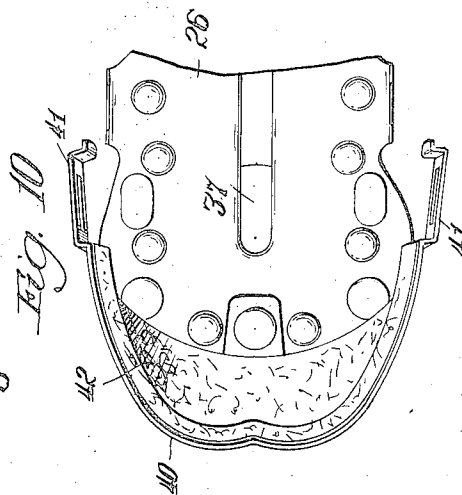
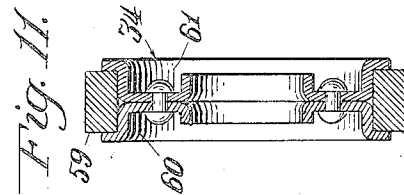
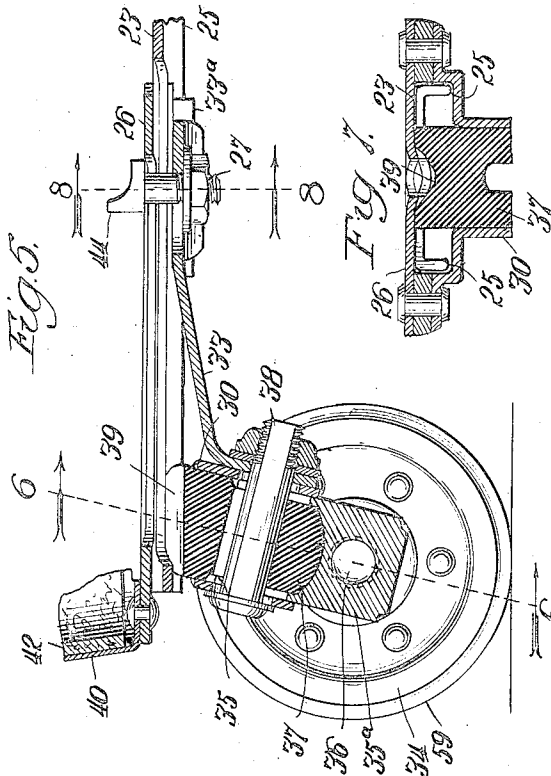
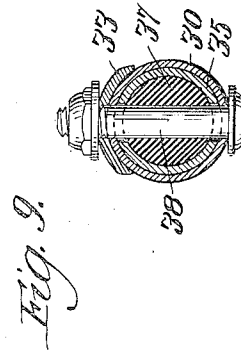
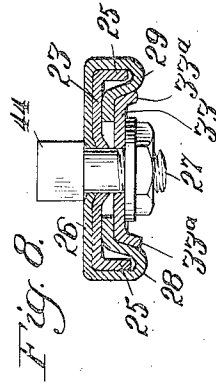
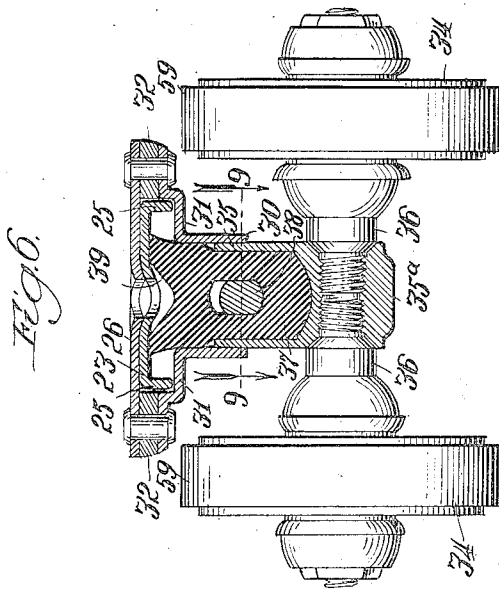
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ROLLER SKATE.

Filed Dec. 4, 1933

2 Sheets-Sheet 2



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UNITED STATES PATENT OFFICE

2,038,005

ROLLER SKATE

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Application December 4, 1933, Serial No. 700,871

10 Claims. (Cl. 208—173)

My invention relates to roller skates and it has for its object the provision of a new and improved form and arrangement of parts by reason of which improved results may be attained in the matter of convenience and enjoyment in their use, by reason of which the danger of falling and the difficulty of turning are very substantially decreased, and by reason of which the expense of keeping a growing child supplied with suitable skates is materially reduced.

It is one of the objects of my invention to provide an improved arrangement which can be produced at a moderate cost and which can be adjusted from time to time to keep pace with the growth of a boy whereby the skate is made very attractive from the standpoint of the purchaser since it increases the period of effective usefulness of the skate to a child and is made very attractive from the standpoint of the merchant who is thus relieved of the necessity for keeping a number of different sizes of skates for sale. In this connection, it is one of the objects of my invention to provide an improved arrangement of clamping means for holding the parts in the position to which they are adjusted.

It is another object of my invention to provide an improved cushioning means interposed between the supporting rollers and the plate of the skate, arranged to yield vertically and to have a limited turning movement laterally while at the same time holding the parts in operative position with the desired firmness. It is another object of my invention to provide an improved form of wheel which may be produced easily and cheaply and which can be repaired by any ordinary mechanic without difficulty.

It is another object of my invention to improve the means for securing the skate on the shoe of the wearer, comprising a heel enclosure part of adjustable effective width; a longitudinally adjustable heel bearing part for holding the skate against movement backwardly with respect to the shoe; an improved form of front clamping means so arranged as to stand clear of the front wheel space whereby wheels of the desired large size may be used; an improved form of clamp operating shaft and means for turning it whereby the necessity for a key may be eliminated; an improved bearing means for the clamp operating shaft whereby the parts shall be kept tight so as to prevent chattering; an improved combination of clamps and securing straps; and an improved form of clamp available for use alternatively without a strap if desired.

It is another object of my invention to improve

devices of this type in sundry details herein-after pointed out. The preferred means by which I have accomplished my several objects are illustrated in the drawings and are hereinafter specifically described. That which I believe to be new and desire to cover by this application is set forth in the claims.

In the drawings,—

Fig. 1 is a side elevational view of my improved skate, with the rear supporting wheels removed 10 for clearness of illustration;

Fig. 2 is a bottom view of the forward end of the skate as illustrated in Fig. 1;

Fig. 3 is a top plan view of the forward end portion of the skate, with the supporting wheels 15 removed;

Fig. 4 is a detail view, being substantially a vertical section taken at line 4—4 of Fig. 3;

Fig. 5 is a central vertical section through the rear end portion of the skate as shown in Fig. 1; 20

Fig. 6 is a transverse sectional view taken substantially at line 6—6 of Fig. 5;

Fig. 7 is a view similar to the upper portion of Fig. 6 but showing a changed position of the parts;

Fig. 8 is a vertical sectional view taken at line 8—8 of Fig. 5; 25

Fig. 9 is a horizontal sectional view taken at line 9—9 of Fig. 6;

Fig. 10 is a top plan view of the rear end portion of my skate, with the securing straps removed; 30

Fig. 11 is a central sectional view through my improved roller or wheel; and

Fig. 12 is a fragmentary view similar to a portion of Fig. 3 but showing a modified form of clamp. 35

Referring to the several figures of the drawings, in which corresponding parts are indicated by the same reference characters, 20 indicates a plate preferably formed of sheet metal having a sleeve 21 secured upon its bottom face by means of arms 22, the sleeve 21 being open at its lower end and having a slight forward trend with respect to the plate 20. At its rear end, the plate 20 is connected with the forward end portion of an extension 23, the extreme end portion 24 of which is turned downwardly for connection with the sleeve 21 as hereinafter described for reinforcing said sleeve. At opposite sides, the extension 23 is provided with downwardly turned flange portions 25, as is best shown in Fig. 8. 40 45 50

A second main plate 26 is connected at its forward end with the extension plate 23 by means of a bolt 27 extending through long registering slots positioned longitudinally of the plates 23 and 26. At its forward end, the plate 26 is provided with 55

arms 28 and 29 which in the arrangement shown are formed integrally with the plate so as to extend downwardly and then inwardly and upwardly about the edges of the flanges 25 of the extension plate 23, as is clearly shown in said Fig. 8.

At its rear end portion, the plate 26 has a sleeve 30 mounted thereon by means of arms 31, the outer ends of the arms 31 being spaced from the plate 26 by means of spacing blocks 32, as is best shown in Figs. 6 and 7. As is clearly shown in said Figs. 6 and 7, the upper end of the sleeve 30 stands in spaced relation to the plate 26 with the space immediately above the sleeve open and clear. An obliquely disposed brace bar 33 is connected at its rear end with the sleeve 30 by means hereinafter described, the forward end of said bar 33 being slotted for mounting upon the bolt 27. At its side edges, the plate 33 is provided with longitudinally extending flanges 33a in angular position corresponding to the inclination of the adjacent portions of the arms 28 and 29. By this arrangement, the plates 29 and 26 are very rigidly connected together, while at the same time they are made very readily adjustable with respect to each other through a considerable distance as determined by the length of the slots in the plate 26 and the extension plate 23. By reason of the arrangement as shown in Fig. 8, when the bolt 27 is tightened in position the parts are held very firmly in the desired position of adjustment.

Within the sleeves 21 and 30, means is mounted for supporting the rollers or wheels 34 in position. This means in connection with each of said sleeves comprises an inside sleeve 35 which has a sliding fit inside of the outer sleeve. At the lower end, the sleeve 35 is in the form of a block 35a serving as a mounting member for the stub axles 36 by which the wheels 34 are mounted in position. Preferably the axles 36 are screw threaded into the block 35a, as shown in Fig. 6, and in such manner that the axles will tend to tighten as the wheels turn in forward movements of the skate. Within the sleeves 35, I have mounted blocks 37 of resilient material, preferably of rubber, bearing at their lower ends against the block portions 35a of the inside sleeves and extending upwardly through and beyond the outside sleeves 21 and 30 so as to engage the plates 29 and 26 upon which said sleeves 21 and 30 are mounted. Bolts 38 are provided extending through suitable openings transversely of the blocks 37 and of the sleeves 35, 21 and 30, the transverse openings through all three of such parts being in the form of slots so as to permit vertical movement of the bolt 38 with respect to such parts. As is best shown in Fig. 5, the lower end of the slot in the cushioning block 37 is located at a higher level than that of the lower ends of the slots in the walls of the sleeves 35 and 30 so as to prevent engagement of the bolt with the lower ends of the slots in the sleeves. The bolt 38 in connection with the construction at the rear end of the skate passes also through an opening in the rear end of the obliquely disposed brace bar 33, and the bolt 38 in the construction at the front portion of the skate passes also through an opening in the vertically disposed plate portion 24 which is formed integrally with the plate 23 as above described. By the use of my improved arrangement, the supporting wheels 34 are yieldingly connected with the plates 29 and 26.

As is best shown in Fig. 6, the bolts 39 are flattened at their opposite sides so as to provide suitable bearings for the bolt in the walls of the

sleeves. As is best shown in Fig. 9, the bolts have a snug working fit in the outside sleeves, and a comparatively looser fit in the inside sleeves, this arrangement serving to provide for the requisite lateral swinging of the supporting wheels 34 with respect to the skate as a whole.

As is best shown in Fig. 8, the plate 23 at its rear end portion is pressed downwardly to provide a downwardly directed rib on its lower face. As is clearly shown in Figs. 5 and 6, the upper end of the resilient cushioning block 37 is provided with a groove 39 extending thereacross longitudinally of the plates 23 and 26. The arrangement is such that the resilient block 37 stands in contact with the plate 26 when the extension plate 23 is drawn forward as shown in Fig. 7 and stands in contact with the plate 23 when the length of the skate is reduced by a backward adjustment of the plate 23 into the position as shown in Figs. 5 and 6. By the provision of the groove 39 across the upper end of the block 37, I have provided an arrangement by reason of which the plate 23 can readily be pushed backwardly from the position as shown in Fig. 7 to the position as shown in Fig. 6, the downwardly directed rib on the plate 23 being adapted by engagement with the groove 39 to force the upper end portions of the block 37 outwardly with respect to each other for permitting the plate 23 to be slid into position as shown in Fig. 6.

The means for securing the rear plate 26 to the heel portion of a shoe comprises a heel enclosure member 40 in the form of a piece of sheet metal secured at its lower edge to the plate 26 at the rear end of the plate and extending thence forwardly and outwardly, terminating at each side of the skate in a forwardly extending arm 41 which is free of the plate 26 except for its connection thereto as above described. The sheet metal of the part 40 is such as to make the arms 41 bendable readily toward and from the heel of the shoe for attaining the desired snug fit of the enclosure device as a whole about the heel. The enclosure member 40 of sheet metal is preferably provided with a lining 42 of felt or other suitable material secured in position in any suitable manner. The arms 41 are provided with straps 43 which are adapted to be secured about the foot in the usual manner serving to hold the arms 41 in snug relation to the sides of the shoes. For assisting in holding the heel in position, the bolt 27 is preferably provided with an upward extension 44 in position to engage the front face of the heel.

The means for securing the plate 20 to a shoe comprises clamps 45 and 46 at opposite sides of the plate 20, such clamps in the arrangement shown being in the form of angles formed from sheet metal. Each of the clamps 45 and 46 comprises an upwardly extending bar portion 47, an inwardly extending bar portion 48, and a forwardly extending bar portion 49, the bar portions 47, 48 and 49 of each clamp being formed integrally with each other. In the arrangement shown, the transversely extending bar portions 48 are slidable inwardly and outwardly with respect to the plate 20 through suitable slots formed in down-turned lugs 50 carried by the plate 20. At their forward ends, the forwardly extending bar portions 49 are adjustably connected to each other by a transversely extending link 51 in the form of a pin which has screw threaded connection with said forwardly extending arms, the arrangement being such that upon rotation in one direction both of the clamps are moved inwardly and upon rotation in the opposite direction the

clamps are moved outwardly with respect to each other. The link or pin 51 is held against transverse movement with respect to the plate 20 by engagement with a notch 52 in the lower end portion of a post 53 depending from the plate 20, the notch 52 being open at its forward end so as to provide a complete bearing for the pin 51 at its rear face at the point where pressure is applied upon the pin in operation. Upon the outer ends of the pin or link 51 I have provided heads 54 which in the arrangement shown are knurled on their outer edges so as to provide for convenient rotation of the pin or link 51, the heads 54 being of sufficient size for effective operation. By reason of the fact that the link or pin 51 is offset forwardly with respect to the position of the clamps 45 and 46, the heads 54 of effective size may be used to advantage. By this arrangement comprising the offset positioning of the parts I am enabled to provide a construction by reason of which the necessity for using a key for turning the shaft 51 is eliminated.

Upon the upper ends of the vertically disposed portions 47 of the clamps, I have provided straps 55 of any suitable type, such straps being connected with the clamps at a very short distance above the level of the plate 20, serving to assist in holding the clamps 45 and 46 in cooperative relation to the sole of the shoe.

In Fig. 12, I have shown a modified form of front clamp in which two jaw portions 56 and 57 are substituted in lieu of the upwardly extending clamp portions 47 of the arrangement before described, such jaw portions 56 and 57 being in spaced relation to each other and being arranged in angular position with respect to each other for effecting the desired clamping relation to the sole of a shoe. In Fig. 12, I have shown a fragmentary portion of the sole of a shoe by dotted lines indicated by the numeral 58.

In Fig. 11, I have shown the form of wheel which I prefer to employ, comprising a section of tubing 59 forming the tread of the wheel or roller, being mounted in position by sheet metal plates 60 and 61 each of which is provided with a circumferential shoulder fitting in one end of the section. In the arrangement shown, the plates 60 and 61 are secured together by means of bolts in the form of rivets but it will be understood that these plates might be rigidly secured together in any other suitable manner, as by spot-welding, for example. By the provision of this form of wheel, repairs can very readily be made in the wheel, for substitution of a new tubing member, if desired, such replacement being readily effected by any skilled mechanic without the necessity for ordering special parts.

By the use of my construction as above described, I have provided an arrangement which is very effective for its purpose. By the provision of my improved means for mounting the supporting wheels, I have provided an arrangement by reason of which skating is made easier and safer as well as more enjoyable. I have found in practice that in the use of my improved construction a skater can proceed with increased confidence, particularly by reason of the freedom and smoothness of turning, this result being attained, I believe, by reason of the freedom with which the wheels can turn to a limited extent with respect to the shoe and to the firmness with which the wheels are held against excessive lateral turning movement.

While I prefer to employ the form of device as shown in the drawings and as above described, it

is to be understood that my invention is not limited thereto except so far as the claims may be so limited by the prior art.

I claim:—

1. In a roller skate, the combination of a plate 5 having a slot extending longitudinally thereof at its forward end portion, a second plate having a slot extending longitudinally thereof at its rear end portion and provided with flanges at an angle thereto along its side edges opposite the slot therein, arms on the forward end of said first named plate extending downwardly and inwardly about the lower edges of said flanges, a third plate underneath said arms having a longitudinal slot therein, a bolt located in the slots of said three plates for securing said plates adjustably together, roller means revolubly mounted on a transverse axis on each of said first named two plates, and means for detachably securing said first named two plates to the sole of a shoe. 20

2. In a roller skate, the combination of a plate having a slot extending longitudinally thereof at its forward end portion, a second plate having a slot extending longitudinally thereof at its rear end portion and provided with flanges at an angle thereto along its side edges opposite the slot therein, arms on the forward end of said first named plate extending downwardly and thence inwardly about the edges of said flanges and thence obliquely upwardly and inwardly, roller means revolubly mounted on a transverse axis on each of said plates, a third plate underneath said arms having a longitudinal slot therein and having its side portions obliquely disposed corresponding to the inclination of said arms, a bolt located in the slots in said three plates for securing said plates adjustably together, the rear end portion of said third plate extending obliquely rearwardly and downwardly and having an operative connection with the roller means on said rear plate, and means for detachably securing said first named two plates to the sole of a shoe. 35

3. In a roller skate, the combination of a plate, means for detachably securing said plate on the heel portion of a shoe, a sleeve secured to said plate with its upper end in downwardly spaced relation to the plate for providing clearance at the sides of the sleeve adjacent to the plate, a mounting member movable upwardly and downwardly in said sleeve, means serving to secure said mounting member movably in position in said sleeve, roller means revolubly mounted on a transverse axis on said mounting member, and a block of resilient material in said sleeve between said mounting member and said plate and provided with a groove across its upper end whereby upon heavy pressure on the block the end portions at opposite sides of the groove are free to spread laterally above the sleeve. 50

4. In a roller skate, the combination of a plate, means for detachably securing said plate to the sole of a shoe, a sleeve depending from the plate, a second sleeve slidable up and down in telescopic relation with said first named sleeve, a resilient block in said sleeve having a fixed bearing at its upper end with respect to said first named sleeve and a fixed bearing at its lower end in said second sleeve for yieldingly supporting the plate, said sleeves and said block having registering slots thereacross, a bolt through said slots for holding the parts in assembled condition, and roller means revolubly mounted on a transverse axis on said second sleeve. 65

5. In a roller skate, the combination of a plate, means for detachably securing said plate to the 75

sole of a shoe, a sleeve depending from the plate, a second sleeve slidable up and down in telescopic relation with said first named sleeve, a resilient block in said sleeves having a fixed bearing at its upper end with respect to said first named sleeve and a fixed bearing at its lower end in said second sleeve for yieldingly supporting the plate, said sleeves and said block having registering slots thereacross but with the lower end of the slot in said block located at a higher level than the lower ends of the slots in the walls of the sleeves, a bolt through said slots serving to hold the parts in operatively assembled condition and held by said block out of engagement with the lower ends of the slots in said sleeves, and roller means revolubly mounted on a transverse axis on said second sleeve.

6. In a roller skate, the combination of a plate, means for detachably securing said plate to the sole of a shoe, a sleeve depending from the plate, a second sleeve slidable up and down in telescopic relation with said first named sleeve, a resilient block in said sleeves having a fixed bearing at its upper end with respect to said first named sleeve and a fixed bearing at its lower end in said second sleeve for yieldingly supporting the plate, said sleeves and said block having registering slots thereacross, a bolt having a snug working fit in the slots of said first named sleeve and a comparatively looser fit in the slots of said second sleeve serving to hold the parts in operatively assembled condition, and roller means revolubly mounted on a transverse axis on said second sleeve.

7. In a roller skate, the combination of a plate, means for detachably securing said plate to the sole of a shoe, a sleeve depending from the plate, a second sleeve slidable up and down in telescopic relation with said first named sleeve, a resilient block in said sleeves having a fixed bearing at its upper end with respect to said first named sleeve and a fixed bearing at its lower end in said second sleeve for yieldingly supporting the plate, said sleeves and said block having registering slots thereacross, a bolt flattened at opposite sides having a snug working fit in the slots in said first named sleeve and a comparatively looser fit in the slots of said second sleeve serving to hold the parts in operatively assembled condition, and roller means revolubly mounted on a transverse axis on said second sleeve.

8. In a roller skate, the combination of a plate, means for detachably securing said plate to the sole of a shoe, a sleeve depending from the plate, a second sleeve slidable up and down in telescopic

relation with said first named sleeve, a block of resilient material in said sleeves having a fixed bearing at its lower end in said second sleeve and bearing at its upper end against said plate and having a groove across its upper end longitudinally of said plate providing normally a clearance between the plate and a substantial portion of the block, and roller means revolubly mounted on a transverse axis on said second sleeve.

9. In a roller skate, the combination of two plates connected together and movable longitudinally with respect to each other, means for detachably securing said plates to the sole of a shoe, a sleeve connected with one of said plates and depending therefrom, a second sleeve slidable up and down in telescopic relation with said first named sleeve, a resilient block in said sleeves having a fixed bearing at its lower end with respect to said second sleeve and adapted to bear at its upper end against the plate upon which said first named sleeve is mounted and provided with a groove across its upper end longitudinally of said plates providing normally a clearance in the groove between the plate and the block for permitting the other plate to be slid into position between said block and the plate on which said sleeve is mounted, and roller means revolubly mounted on a transverse axis on said second sleeve.

10. In a roller skate, the combination of two plates connected together and movable longitudinally with respect to each other, means for detachably securing said plates to the sole of a shoe, a sleeve connected with one of said plates and depending therefrom, a second sleeve slidable up and down in telescopic relation with said first named sleeve, a resilient block in said sleeves having a fixed bearing at its lower end with respect to said second sleeve and adapted to bear at its upper end against the plate upon which said first named sleeve is mounted, the rear end portion of said other plate having a downwardly directed rib on its lower face longitudinally thereof and said block having a groove across its upper end longitudinally of the plates providing normally a clearance in the groove between the plate and the block into which the rib on the plate is adapted to enter so as to spread the upper end portions of the block at opposite sides of the groove for permitting the ready movement of the ribbed plate into position between the block and the plate on which said sleeve is mounted, and roller means revolubly mounted on a transverse axis on said second sleeve.

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