

(No Model.)

2 Sheets—Sheet 1.

J. N. STERLING.
ROLLER SKATE.

No. 346,512.

Patented Aug. 3, 1886.

Fig. 1

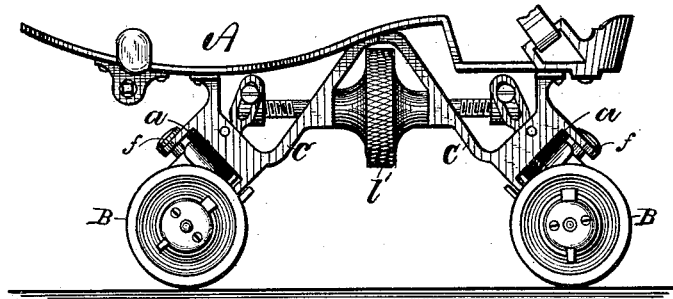


Fig. 2

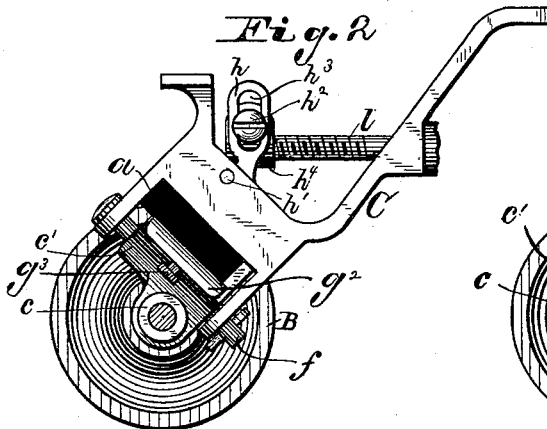


Fig. 3

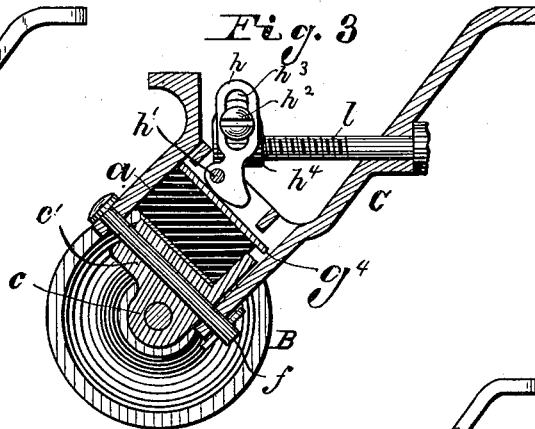


Fig. 4

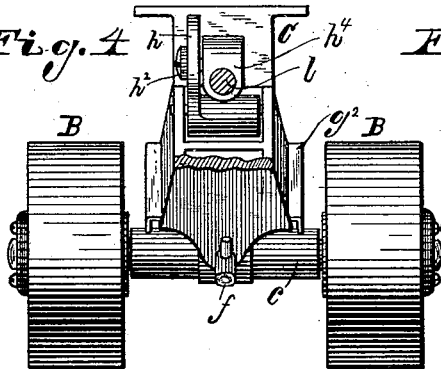
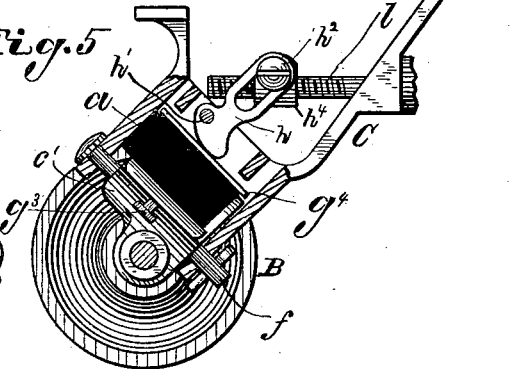


Fig. 5



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Chase Stewart

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(No Model.)

2 Sheets—Sheet 2.

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Fig. 14

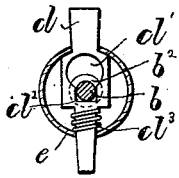


Fig. 6

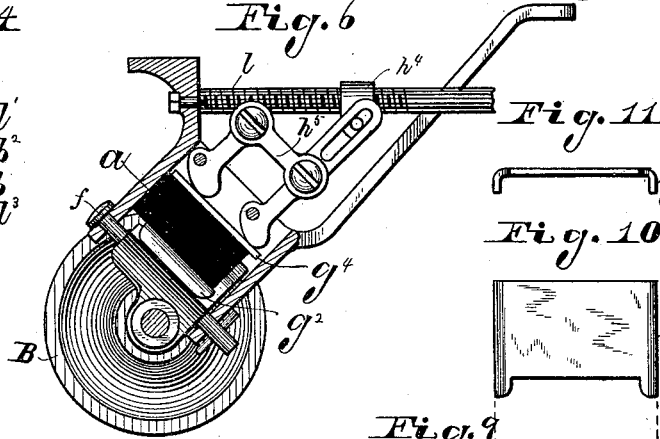


Fig. 11

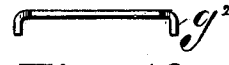


Fig. 10

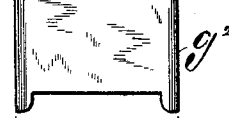


Fig. 9

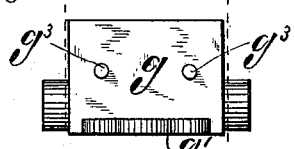


Fig. 8

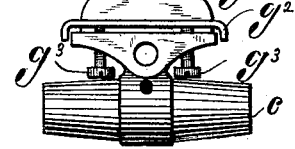


Fig. 12

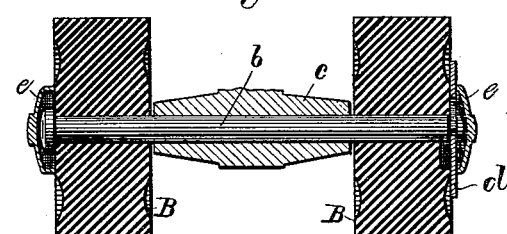


Fig. 13

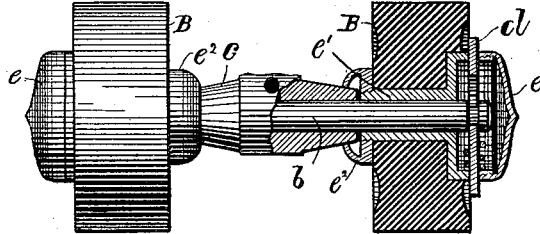


Fig. 7

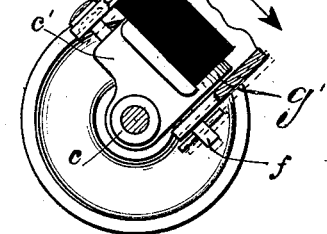
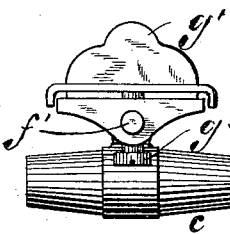


Fig. 15



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Atty

UNITED STATES PATENT OFFICE.

JOSEPH N. STERLING, OF SPRINGFIELD, OHIO.

ROLLER-SKATE.

SPECIFICATION forming part of Letters Patent No. 346,512, dated August 3, 1886.

Application filed January 6, 1886. Serial No. 187,793. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH N. STERLING, a citizen of the United States, residing at Springfield, in the county of Clark and State of Ohio, have invented certain new and useful Improvements in Roller-Skates, of which the following is a specification.

My invention relates to improvements in roller-skates; and the objects of my invention are, first, to provide a novel and simple construction by which the supporting wheels or rollers may be readily detached from the body of the skate for oiling or cleaning; second, to provide a skate in which the tension of the elastic cushion of the front and rear truck may be easily and uniformly adjusted by a common adjusting device, each of said trucks being also capable of an independent adjustment, so that a uniform adjustment may be secured at the same time the different trucks maintain a different tension; and, third, to provide a connection of novel construction between the respective trucks and the foot-piece, whereby the elastic cushion is adapted to form a spring or cushion for the foot-piece without materially affecting the tension of said cushion.

My invention consists in the various constructions and combinations of parts, herein-after described, and pointed out in the claims.

In the accompanying drawings, which form a part of this specification, Figure 1 is a side elevation view of a skate embodying my invention. Figs. 2, 3, and 4 are a side, a sectional, and a rear elevation, respectively, of one of the trucks and its attachments. Fig. 5 is a side elevation view of the same, shown partly in section. Fig. 6 is a sectional elevation of one of the trucks, showing a modification of the adjusting mechanism. Figs. 7 to 11, inclusive, are detailed views of the cushion and connecting mechanism. Figs. 12 to 14, inclusive, are views of the detachable rollers, and Fig. 15 is a detailed view showing a modified form of the independent tension-adjustment.

In the said drawings, A represents the top or foot plate of the skate, and B B the rollers, which are constructed in the usual manner. Each of the trucks is hinged to a frame, C,

at an angle to the foot-plate A, so that an oscillation of the truck in either direction will produce a corresponding variation in the angle of the truck to the foot-plate, the normal position being at right angles. The usual elastic cushion or spring, *a*, is placed between the truck proper and the frame C, to prevent the truck from turning too easily. The wheels B B of each truck are preferably journaled on either end, respectively, of a shaft, *b*, which extends through a bearing, *c*, on the truck. The shaft *b* is preferably provided at one end with a head, *b'*, and is inserted through one of the rollers, then through the bearing *c*, after which the other roller is secured thereon. In order that the rollers and shaft may be readily detached, I provide at one end of the shaft *b* an annular groove, *b''*, with which a spring-catch, *d*, is adapted to engage. This spring-catch *d* is provided with a circular opening, *d'*, having a notch or recess, *d''*, therein. The main portion *d'* of the opening is larger in diameter than the shaft *b*. The notch or recess *d''*, however, is smaller than the said shaft, but is sufficiently large to pass over the neck of said shaft in the groove *b''*. The spring-catch *b* is adapted to extend at each end through a case, *e*, on the roller, which covers the end of the shaft *b*. The catch *d* is reduced at each end where it passes through the said case, and is adapted to slide through the said case, which forms bearings therefor. Around the lower part of the catch *d* is a spring, *d''*, which rests at one end against the case, and at the other against a shoulder on the said catch. Now it will be seen that when the catch *d* is pressed down until the larger portion *d'* of the opening comes opposite the bearing through the roller the shaft *b* may be passed through said catch, after which, upon releasing the said catch, the spring thereon forces it into the groove *b''*, as shown in Figs. 12 to 14, thus holding the said shaft against longitudinal movement through the roller. I have shown a spring-catch at one end of the shaft only, the said shaft being removable from the bearing *c*. It is obvious that the shaft may be made stationary and a spring-catch employed for each roller, if desired. The case *e*, which incloses the spring-catch *d*, I prefer-

ably make of metal, with a backwardly-extending sleeve, e' , as shown in Fig. 13, to form a bushing for the roller. This bushing and case are held in place by a cup-shaped nut, e^2 , the opening or mouth of which is adapted to fit snugly over the end of the bearing c . In this way the bearings of the rollers are completely incased, so that dust and dirt are prevented from entering therein, and the grease or oil from coming out. In Fig. 12 the bushing or sleeve is dispensed with, the case e being secured directly to the face of the roller by screws or otherwise.

Immediately above the bearing c is another bearing, c' , at right angles thereto, through which passes a pin, f , which forms the connection between the truck and the frame C. Each truck is provided, immediately above the bearing c' , with a table, g , on one side of which is a flange or projection, g' . Above the table g is a plate, g^2 , on which the elastic cushion a rests. Extending through the table g from the bottom are adjusting-screws g^3 , which bear against the plate g^2 , and serve to more or less compress the rubber a , and thus adjust the tension of each truck, as desired.

Above the elastic cushion a in the frame C is a thin metallic plate, g^4 , against which bears the lower end of the cam-lever h . This cam-lever is pivoted at h' to the frame C, and is connected at its upper end by a stud, h^2 , passing through a slotted opening, h^3 , to a movable head, h^4 .

Journalled in suitable bearings in the respective frames C C, and held against longitudinal movement therein, is a shaft, l , provided at the center with a suitable hand-wheel, l' , secured rigidly thereon. This shaft is screw-threaded at either end with right and left threads, respectively, and engages with the respective heads h^4 , which are each bored and tapped out to receive the respective screws. It will be seen now that as the hand-wheel l' is turned in either direction the movable heads h^4 will be drawn toward or moved away from each other. This movement of the said heads h^4 turns the cam-levers h down against or moves them away from the plate g^4 , thus compressing or releasing the elastic cushions a . Means are thus furnished for readily and uniformly adjusting the tension of the elastic cushions over each truck of the skate, while by the use of the screws g^3 the tension of the cushion of each truck may be separately adjusted. The cushion a rests at one edge directly against the side of the frame C, while at the other edge it bears against the flange g' on the table g . The bearing c' is made somewhat shorter than the distance between the sides of the frame C to which it is connected, so that a small amount of longitudinal movement of the bearing on the connecting-pin f is permitted. The pin f standing as it does at an angle to the foot-plate A, the weight which comes upon the said foot-plate is supported partly on the said pin and partly on the elastic

cushion a , so that an undue pressure on the foot-plate from a sudden shock or jar causes the frame to move in the direction of the arrow, and as indicated by dotted lines in Fig. 7, thus compressing the cushion a and releasing the strain on the pin f .

It is obvious that the constructions shown and described admit of various modifications. In Fig. 6 I have shown two cam-levers, h , at the top of the cushion a and attached to the head h^4 , the said cam-levers being connected together by a link, h^5 . In Fig. 15 I have shown a single adjusting-screw, g^3 , placed centrally in the table g , for adjusting the tension of the separate cushions. In this construction I preferably employ trunnions, f' , which take the place of the pin f to form the hinged connection with the frame.

Various other modifications, which will readily present themselves to the mind of an ordinary mechanic, may be employed without departing from my invention.

Having thus described my invention, I claim—

1. The combination, with the shaft b , having an annular groove therein, of the roller journaled on said shaft, the case e on the face of said roller, adapted to inclose the end of said shaft, and a spring-catch in said case adapted to engage in said annular groove, said spring catch being provided with projections extending through said case, whereby the catch may be readily depressed to detach the said roller, substantially as set forth.

2. The combination, with the roller and shaft, of the case on the face of said roller, the backwardly-extending sleeve on said case, the cup-shaped nut on the end of said sleeve, and the spring-catch inclosed in said case, substantially as specified.

3. The combination, with the shaft and the roller journaled thereon, said shaft being provided with an annular groove therein, of the case e , having the sleeve e' thereon, a cup-shaped nut on the end of said sleeve, the sliding catch d , having an opening of varying size therein, and a spring, d^3 , substantially as set forth.

4. In a roller-skate, the combination, with the foot-plate or frame and the trucks connected thereto by flexible connections having elastic cushions therein, of independent adjusting mechanism on one side of each of said elastic cushions for varying the tension thereon, and on the other side of said cushions means for uniformly adjusting the tension of both of said cushions, substantially as and for the purpose set forth.

5. The combination, with the main frame and trucks and the flexible connections having elastic cushions between said trucks and frame, of pivoted cam-levers adapted to be moved to or from said cushions, to compress or release the same, and means for uniformly moving said levers, substantially as specified.

6. The combination, with the frame and the

trucks connected thereto, of the elastic cushions over said trucks, pivoted cam-levers over each of said elastic cushions, and a longitudinal shaft having right and left screw-threads at the respective ends thereof, adapted to move said cam-levers simultaneously toward or from each other as the shaft is turned in either direction, substantially as and for the purpose set forth.

7. The combination, with the trucks and frame and elastic cushions between the same, of the independent adjusting-screws under said cushions and the pivoted cam-levers over said cushions, adapted to be simultaneously and uniformly moved by right and left adjusting-screw, substantially as specified.

8. The combination, with the truck attached by a flexible connection to the frame C at an angle thereto, said truck being capable of a slight longitudinal movement on its bearings in said frame, and being provided at the top with a table having a flange thereon, of an elastic cushion between said truck and frame, adapted to rest at one edge against said frame, and at the other against said flange, substantially as set forth.

9. The combination, with the frame C and

the truck provided with the table and flange connected thereto, of an elastic cushion on said table, and bearing on opposite sides against said frame and flange, respectively, a plate between said table and cushion, and an adjusting screw or screws in said table, substantially as specified.

10. The combination, with the truck having the bearings *c* and *c'*, a shaft, *b*, with detachable rollers thereon in one of said bearings, and a connecting-pin, *f*, adapted to connect said truck to the frame C and table, having a flange thereon on said truck, of an elastic cushion between said flange and frame on said table, adjusting-screws in said table, and cam-levers pivoted in said frame over said cushion, said cam-levers being adapted to be moved from or against said cushion to compress or release the same, substantially as and for the purpose set forth.

In testimony whereof I have hereunto set my hand.

JOSEPH N. STERLING.

Witnesses:

CHASE STEWART,
F. WILLIS BAINES.