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SKATE

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The present invention is directed to roller skates and has as its object the provision of improved brake means adapted to be conveniently controlled to adjust the speed of the rear wheels during the course of skating.

Other objects, advantages, and features of the invention will be hereinafter more particularly described and for a clearer understanding of the invention attention is directed to the several embodiments illustrated in the accompanying drawing in which:—

Fig. 1 is a longitudinal elevational view of one embodiment according to the invention, particularly illustrating the rear portion thereof partly broken away to show the braking means adjacent the rear wheels.

Fig. 2 is a vertical sectional view on the line 2—2 of Fig. 1.

Fig. 3 is a horizontal sectional view on the line 3—3 of Fig. 1.

Fig. 4 is an enlarged perspective view of the braking means and associated operating mechanism shown in Figs. 1–3 inclusive.

Fig. 5 is a sectional view similar to Fig. 3 but illustrating a modified form of operating means for actuating the rear swingable brake shoes.

Fig. 6 is a view of another form of operating and control means for actuating the rear brake shoes.

Fig. 7 is a sectional view on the line 7—7 of Fig. 3.

Fig. 8 is a view similar to Fig. 7 illustrating a modified brake shoe.

Fig. 9 is a sectional view taken on the line 9—9 of Fig. 6.

Fig. 10 is a sectional view in elevation of the truck shown in Fig. 5.

Fig. 11 is a fragmentary view of Fig. 5, however illustrating the linkage system shown in an actuated position to apply the brake shoes.

Fig. 12 is an enlarged perspective and exploded fragmentary view of Fig. 4 illustrating the pivotal interconnection between the interconnected pivoted levers and the control lever.

Fig. 13 is a fragmentary view of the longitudinally arranged threaded bolt interposed between the front and rear trucks.

The roller skate 10 comprises front and rear trucks 11 carrying the shoe supporting means broadly denoted 12. Each truck 11 includes shaft means 13 for supporting the rolling wheels 14.

Associated with the front portions of the pair of rear wheels 14 is a braking mechanism generally designated 15. This braking mechanism includes spaced swingable shoes 16, pivoted in-

terconnected levers 17, and the pivoted control lever 18.

Control lever 18 has its intermediate portion pivotally secured at 19 to bracket 20 fastened by pin or rivet 21 to the rear part of the shoe supporting means 12. Control lever 18 is in the form of a bell crank and has its inner portion provided with opening 22 (Fig. 12) receiving depending reduced portion 23 of post 24 secured to and extending upwardly of one of the levers 17. The companion pivoted lever 17 is provided with a forked or bifurcated end 25 defining a gap in which the upper part of post 24 extends, the arrangement being such that if the arcuate arm 26 of the control bell crank lever 18 is moved towards heel guard 27 the walls of opening 22 of the inner end 28 of the control lever 18 is moved forwardly. Thus extension 23 of post 24 also is moved forwardly while post 24 closely straddled by bifurcation 25 drives the latter in a similar direction.

According to the embodiment illustrated in Figs. 1–4, interconnected levers 17 have their intermediate parts each pivotally secured to an offset forwardly projecting extension 29 by a rivet 30 while the front terminals 31 of extensions 29 are fastened to spaced portions 32 of a strap generally denoted 33 having lugs 34 fastened by rivets 35 to the shoe supporting means 12. The central reflexed portion 36 of strap 33 defines a groove within which reduced portion 37 of threaded bolt 38 is rotatably disposed while the front and rear sides of strap 33 severally cooperate with adjacent stop shoulders 39 of the bolt 38 to permit relative displacement of the front and rear parts of the shoe support 12 during rotation of threaded bolt 38 common to the front and rear trucks 11.

As illustrated in Figs. 1–4 it will be observed that the outer ends 40 of the swingable interconnected levers 17 are each arranged in recess or notch 41 in the inner side 42 in each of the brake shoes 16 each of which has a substantially U-shaped cross section having its channel facing forwardly, the intermediate portion or web 44 of each shoe, however, is curved and conforms to the transversely flat although peripherally curved contour of the tread of the rolling wheels 14.

The spaced sides 42 of each brake shoe 16 embodies depending apertured ears 45 pivotally mounted on the transverse fulcrum rod pin 47 carried by sleeves or bearings 48 (Fig. 2) each having an offset arm 49 (Fig. 1) riveted to the lower part of the associated rear truck 11.

By the present arrangement movement of the

rearwardly curved control arm 26 towards heel guard 27 will cause the outer ends 40 of the pivoted levers 17 to move rearwardly, that is, in a direction towards the rear rolling wheels and since the brake shoes 16 are pivotally sustained on fulcrum rod 47, these shoes will be pivotally swung to contact the flat tread of its adjacent wheel, thereby frictionally braking or reducing the speed of the latter for it is apparent that when levers 17, are actuated, terminals 40 thereof about the rear wall of notch 41, causing a respective shoe to swing towards and against its rolling wheel.

Rearward movement of the brake shoes, however, is yieldingly resisted by a spring 50 having its terminals attached to post 46 of one of the swingable levers 17 and to a fixed post 51 attached to the rear truck 11 and with the removal of foot pressure from control arm 26, spring 50 contracts, hence the interconnected inner portions of the pivoted levers 17 automatically move rearwardly and consequently the brake shoes are retracted to be free of and spaced from the rear rolling wheels, and it follows that the control arm 26 is restored to its normal position to be closely spaced from the heel guard 27.

During retraction of the brake shoes 16, the projections or stops 53 thereof about the shoe supporting means 12, hence limiting forward displacement of these shoes and the latter are yieldingly retained in such position by the action of spring 50, until control arm 26 is again actuated. Therefore the brake shoes are prevented from vibrating when not applied to the rolling wheels.

The control arm 26 is disposed at the rear part of the inner side of the skate and is conveniently accessible to permit actuation thereof during skating. In this connection the skater simply brings the heel portion of the skates side by side and in pressural contact with each other, and the reflexed and control means will be operated. To disconnect the braking shoes, the skater merely separates the skates and the brake shoes automatically retract from the rolling wheels. One skate or both skates of a pair may be provided with the herein disclosed braking mechanisms and reflexed control means therefor.

In the form according to Figs. 5 and 10, pivoted levers 17 are of the bell crank type and have their inner ends spaced apart but pivotally connected to the ends of a link 60 and a push rod 61 pivotally is connected to forward portion of link 60 and is fixedly secured to the curved control arm 26. If control arm 26 is actuated, rod 61 is guided in bearing 62 secured to supporting means 12. With the rod 61 moving inwardly, the outer ends of levers 17 as in the case of the embodiment shown in Fig. 4 simultaneously move rearwardly and hence the brake shoes 16 swing against the threads of the wheels however against the resistance of the spring 50 which automatically restores the brake shoes in a spaced position from the rolling wheels when foot pressure is removed from the slightly overhanging control means 26. The non-braking position of the shoes 16 is illustrated in Fig. 5 while in Fig. 11 the linkage system or brake operating means is shown in position for braking the shoes against the rear wheels.

In the form shown in Figs. 5, 10 and 11, the forwardly extending projections 49 are mounted on the associated truck 11 and as in the case of the embodiment illustrated in Fig. 1, these extensions include bearings 48 for retaining the fulcrum pin 47 on which the spaced shoes are

pivotally disposed. Also in the embodiment shown in Figs. 5, 10 and 11, the truck also carries arms 29 on which the bell cranks 17 are pivoted.

According to the form shown in Figs. 6 and 9, the intermediate pivoted levers 17 have their inner ends slotted and superimposed and a driving pin 64 extending upwardly from the offset pusher rod 61 projects into the aligned cam slots 65 of the inner ends of the pivoted levers 17. When control arm 26 is pressed inwardly, pin 64 rides along cam slots 65, thus causing the overlapped ends of the pivoted levers 17 to move forwardly and consequently the outer ends of these levers move rearwardly to throw associated pivoted shoes into braking relation with the rolling wheels as in the case of embodiments hereinbefore disclosed.

The brake shoes 16 are preferably of a suitable metal but if desired the web 44 thereof may be exteriorly alined with leather, or with a suitable durable fabric or the like. For example in Fig. 8, the brake shoe has secured thereto a lining or layer of leather or fabric 70.

While certain preferred embodiments of the invention have been illustrated and described, it is to be understood that the invention is not limited thereby but is susceptible to various changes in form and detail of its scope.

I claim:—

1. In a skate, shoe supporting means, a truck carried thereby, rotatable means carried by said truck, swingable brake means, actuating means operatively connected to said brake means, and pivoted control means for operating said actuating means comprising an arm extending along the inner side of and spaced from the rear portion of said supporting means.

2. In a skate, shoe supporting means, a truck carried thereby, rotatable means carried by said truck, brake means, means pivotally supporting said brake means, displaceable means connected to said brake means, and a lever operatively associated with said displaceable means and having a control arm along the inner side of said shoe supporting means and to the rear thereof, said arm upon displacement thereof towards said side upon application of foot pressure thereto causing said displaceable means to shift said brake means towards and against said rotatable means.

3. In a skate, shoe supporting means, a truck carried thereby, rotatable means carried by said truck, brake means, means pivotally supporting said brake means, displaceable means connected to said brake means, and a lever operatively associated with said displaceable means and having a control arm projecting along the inner side of said shoe supporting means and to the rear thereof, said arm upon displacement thereof towards said side upon application of pressure thereon causing said displaceable means to shift said brake means towards and against said rotatable means, and spring means for yieldingly resisting displacement of said brake means during displacement of said arm towards said side.

4. In a skate, shoe supporting means, a truck carried thereby, rotatable means carried by said truck, brake means, means pivotally supporting said brake means, displaceable means connected to said brake means, a lever operatively associated with said displaceable means and having an arm extending along the inner side of said shoe supporting means and to the rear thereof, said arm upon displacement thereof towards said side upon application of foot pressure thereon caus-

ing said displaceable means to shift said brake means towards and against said rotatable means, and spring means for yieldingly resisting displacement of said brake means during displacement of said arm towards said side, said spring means upon removal of said pressure causing said displaceable means to retract said brake means automatically.

5. In a skate, shoe supporting means, a truck carried thereby, rotatable means carried by said truck, brake means, means pivotally supporting said brake means, displaceable means pivotally connected to said brake means, a lever operatively associated with said displaceable means and having a reflexed arm projecting along the inner side of said supporting means and to the rear thereof and spaced therefrom, said arm upon application of pressure thereon in a direction towards said side causing said displaceable means to shift said brake means towards and against said rotatable means, and spring means for yieldingly resisting displacement of said brake means during displacement of said arm towards said side, said spring means upon removal of said pressure causing said displaceable means to retract to said brake means and move said arm in a direction away from said side.

6. In a skate, shoe supporting means, a truck carried thereby, a pair of rotatable wheels carried by said truck, brake means, means pivotally supporting said brake means, pivoted levers having their outer portions operatively associated with said brake means and their inner portions operatively connected, a pivoted bell crank lever having an arm for displacing said inner portions and a control arm extending longitudinally along the inner side of said shoe supporting means and to the rear thereof, said control means upon application of foot pressure thereto causing said pivoted levers to swing said brake means towards and against said rotatable wheels.

7. In a skate, shoe supporting means, a truck carried thereby, a pair of rotatable wheels carried by said truck, brake shoes, means pivotally supporting said brake shoes, a pair of levers, means for pivotally supporting the intermediate portions of said levers, said brake shoes each having a notch, the outer portion of each lever being disposed in one of said notches, and control means disposed along the inner side of the rear portion of said supporting means upon application of pressure thereon adapted to displace said levers to simultaneously swing said brake shoes against said wheels.

8. In a skate, shoe supporting means, a truck carried thereby, a pair of rotatable wheels carried by said truck, brake shoes, means pivotally supporting said brake shoes, a pair of levers, means for pivotally supporting the intermediate portions of said levers, said brake shoes each having a notch, the outer portion of each lever being in one of said notches, control means disposed along the inner side of the rear portion of said supporting means upon application of pressure thereon for displacing said levers to simultaneously swing said brake shoes against said wheels, and means for automatically retracting said brake shoes upon removal of said pressure.

9. In a roller skate, shoe supporting means, a truck carried thereby, a pair of rear roller wheels carried by said truck, a pivoted brake shoe for each of said wheels, means common to said brake shoes for simultaneously actuating both of the latter, and a pivoted control lever in part extending along and spaced from the inner side of said

shoe supporting means and in part connected to said actuating means for operating the latter.

10. In a roller skate, shoe supporting means, a truck carried thereby, a pair of rear wheels carried by said truck, pivoted brake means for each of said wheels, means common to said brake means and interconnected therewith for simultaneously actuating both of said brake means to permit the latter to be applied to said wheels, and a pivoted bell crank lever having an arm operatively connected to said actuating means and including a control arm extending along the inner side and spaced from the rear portion of said supporting means.

11. In a roller skate, shoe supporting means, a truck carried thereby, a pair of rear wheels carried by said truck, pivoted brake means for each of said wheels, means common to said brake means and interconnected therewith for simultaneously actuating both of said brake means to permit the latter to be applied to said wheels, and a pivoted bell crank lever having an arm operatively connected to said actuating means and including a control arm extending rearwardly along and spaced from the inner side of said supporting means, said control arm being reflexed and having a rear terminal disposed adjacent the rear part of said shoe supporting means.

12. In a roller skate, shoe supporting means, a truck carried thereby, a pair of rear wheels carried by said truck, pivoted brake means for each of said wheels, means common to said brake means and interconnected therewith for simultaneously actuating both of said brake means to permit the latter to be applied to said wheels, a pivoted bell crank lever having an arm operatively connected to said actuating means and including a control arm extending rearwardly of and along the inner side of said supporting means, and means for retracting said brake means and said control arm upon removal of pressure from the latter.

13. In a roller skate, shoe supporting means, a truck secured thereto, a pair of rear wheels carried by said truck, pivoted brake means for each of said wheels, means common to said brake means and interconnected therewith for simultaneously actuating both of said brake means to permit the latter to be applied to said wheels, a bell crank lever comprising an intermediately disposed pivoted portion and having an arm operatively connected to said actuating means and including a control arm adapted to receive skate pressure thereon and extending rearwardly of and along the inner side of said supporting means, means for retracting said brake means and said control arm upon removal of said pressure from the latter, and means to prevent movement of said brake means toward and against said wheels at a time when said control arm is retracted.

14. In a roller skate, shoe supporting means, a truck carried thereby, a pair of rear wheels carried by said truck, a pivoted brake for each of said wheels, means common to said brakes and interconnected therewith for simultaneously actuating both of said brakes to permit the latter to be applied to said wheels, a pivoted bell crank lever having an arm operatively connected to said actuating means and including a control arm extending rearwardly of and along the inner side of the rear portion of said supporting means, and means to prevent movement of said brakes towards and against said wheels at a time when said control arm is retracted, said brakes each

having a projection adapted to cooperate with said shoe supporting means to prevent displacement thereof towards and against said wheels at a time when said brakes are frictionally disconnected from said wheels and at a time when said control arm is retracted.

15 15. In a skate, a pair of roller wheels, a brake shoe for each of said wheels, means interconnecting said brake shoes for moving the latter simultaneously against said wheels, and a pivoted bell crank lever having means extending along and spaced from the inner side of said skate and adapted to be shifted towards said side for actuating said interconnecting means to shift said brake shoes against said wheels.

16. In a skate, shoe supporting means, a pair of roller wheels carried by said supporting means, a brake shoe for each wheel disposed forwardly thereof, means interconnecting said brake shoes for moving the latter simultaneously against said wheels, and a pivoted bell crank lever having means extending along the inner side of said supporting means and spaced therefrom and adapted to be shifted towards said side for actuating said interconnecting means to shift said brake shoes against said wheels, each of said brake shoes comprising a channeled arcuate

member adapted to frictionally contact the tread of an associated roller wheel.

17. In a skate, shoe supporting means, a pair of roller wheels carried by said supporting means, a brake shoe for each wheel disposed forwardly thereof, means interconnecting said brake shoes for moving the latter simultaneously against said wheels, and a pivoted bell crank lever having means spaced from and extending along the inner side of the rear portion of said supporting means and adapted to be moved towards said side for actuating said interconnecting means to shift said brake shoes against said wheels, each of said brake shoes comprising a channeled arcuate member adapted to frictionally contact the tread of an associated roller wheel, each of said shoes having yielding means secured thereto for frictionally engaging the tread of said associated roller wheel.

18. A roller skate having rear roller wheels, a brake for each wheel, means extending along the inner side of the rear portion of said skate upon the application of skate pressure thereon for automatically simultaneously shifting said brakes against said roller wheels, and means for retracting said shoes upon removal of said pressure.

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