

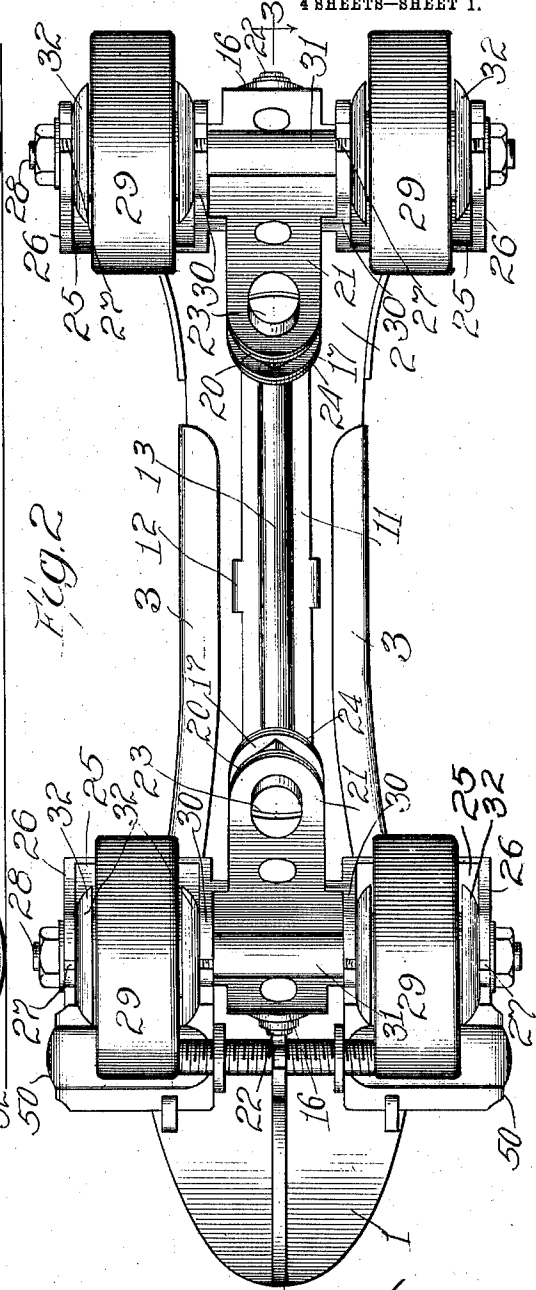
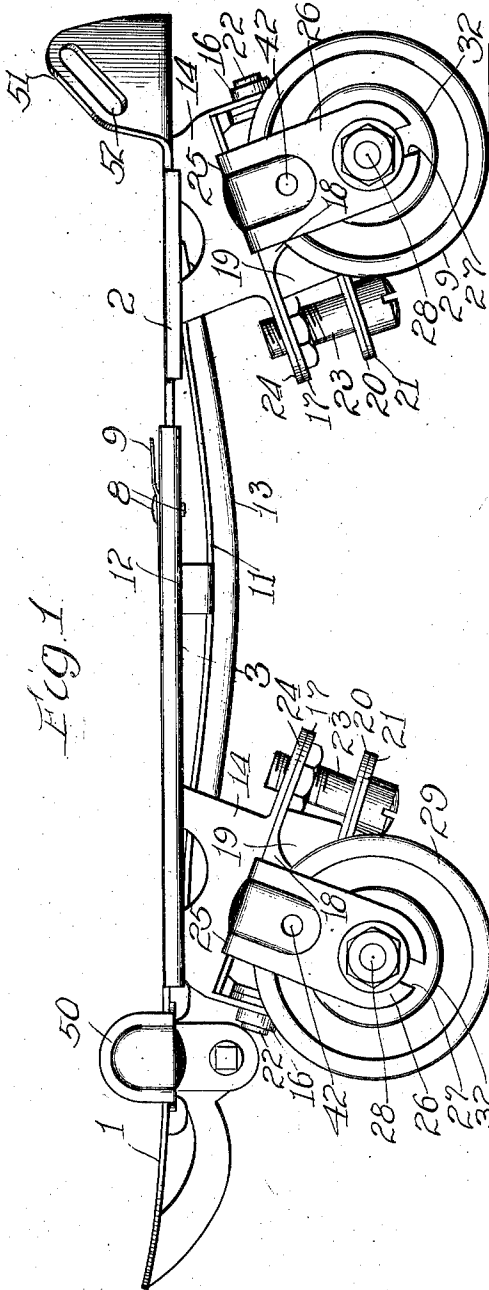
G. F. ECKART.
SKATE.

APPLICATION FILED MAR. 18, 1910.

967,742.

Patented Aug. 16, 1910.

4 SHEETS—SHEET 1.



Witnesses:

H. R. L. White

R. A. White.

Inventor:

George F. Eckart

By *Rudolph M. [Signature]*

G. F. ECKART.

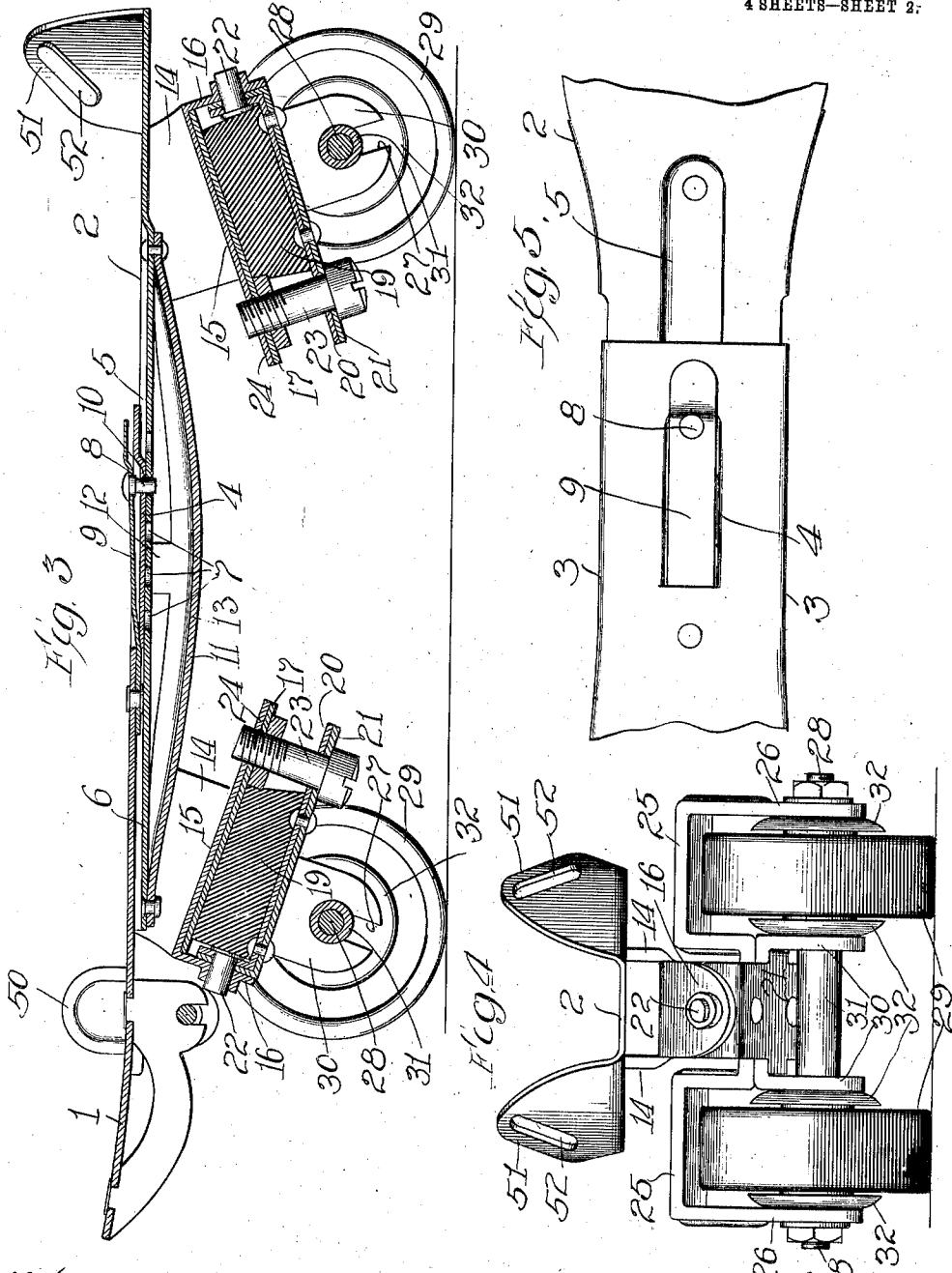
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4 SHEETS—SHEET 2.



Witnesses:
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 By *Charles F. Eckart* Atty.

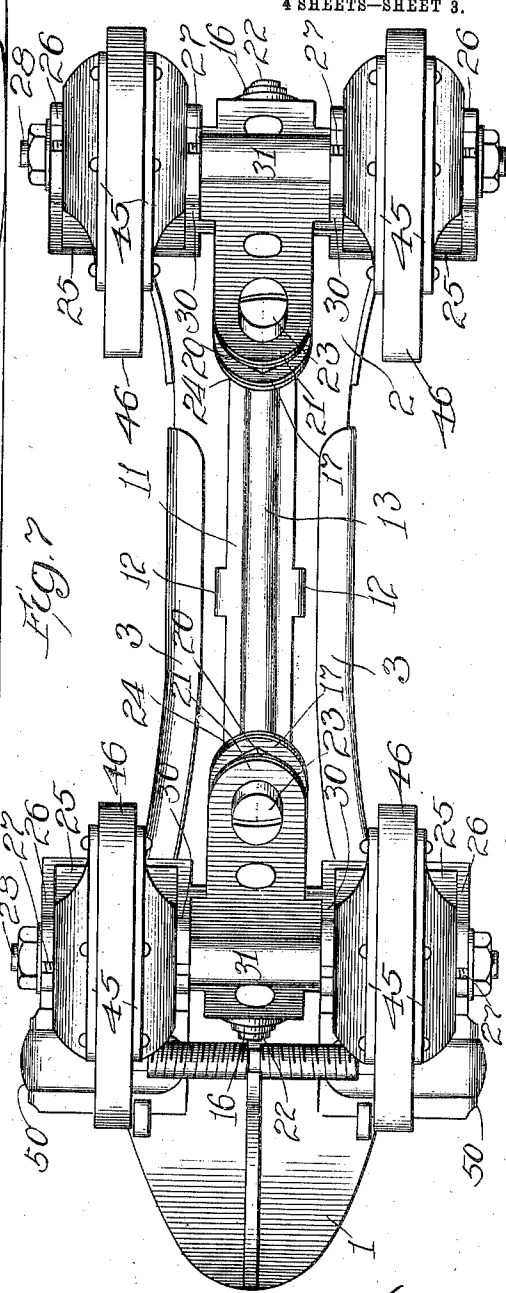
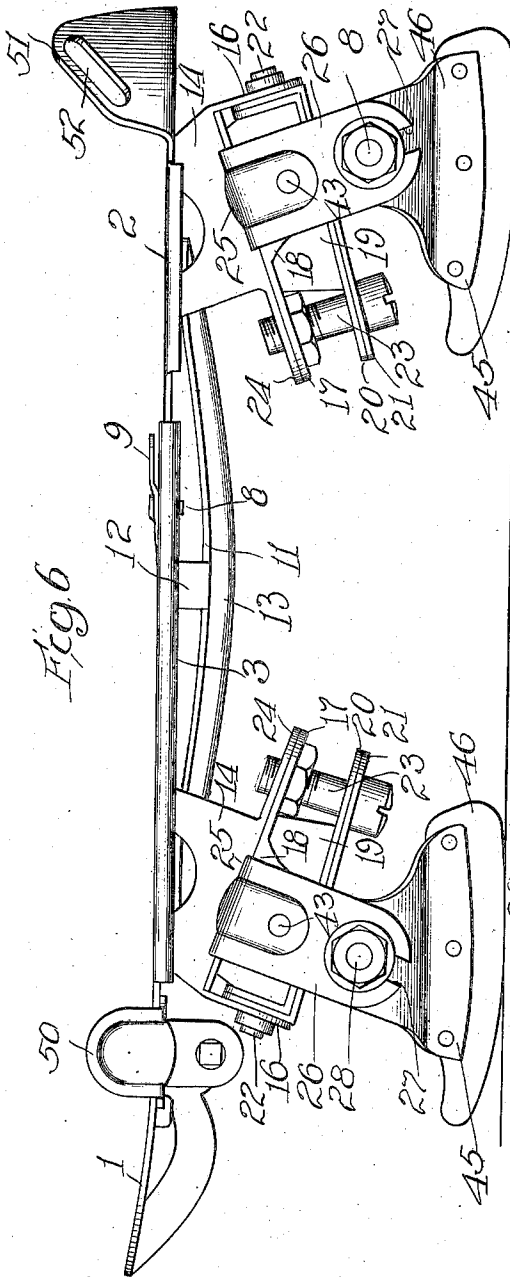
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4 SHEETS—SHEET 3.



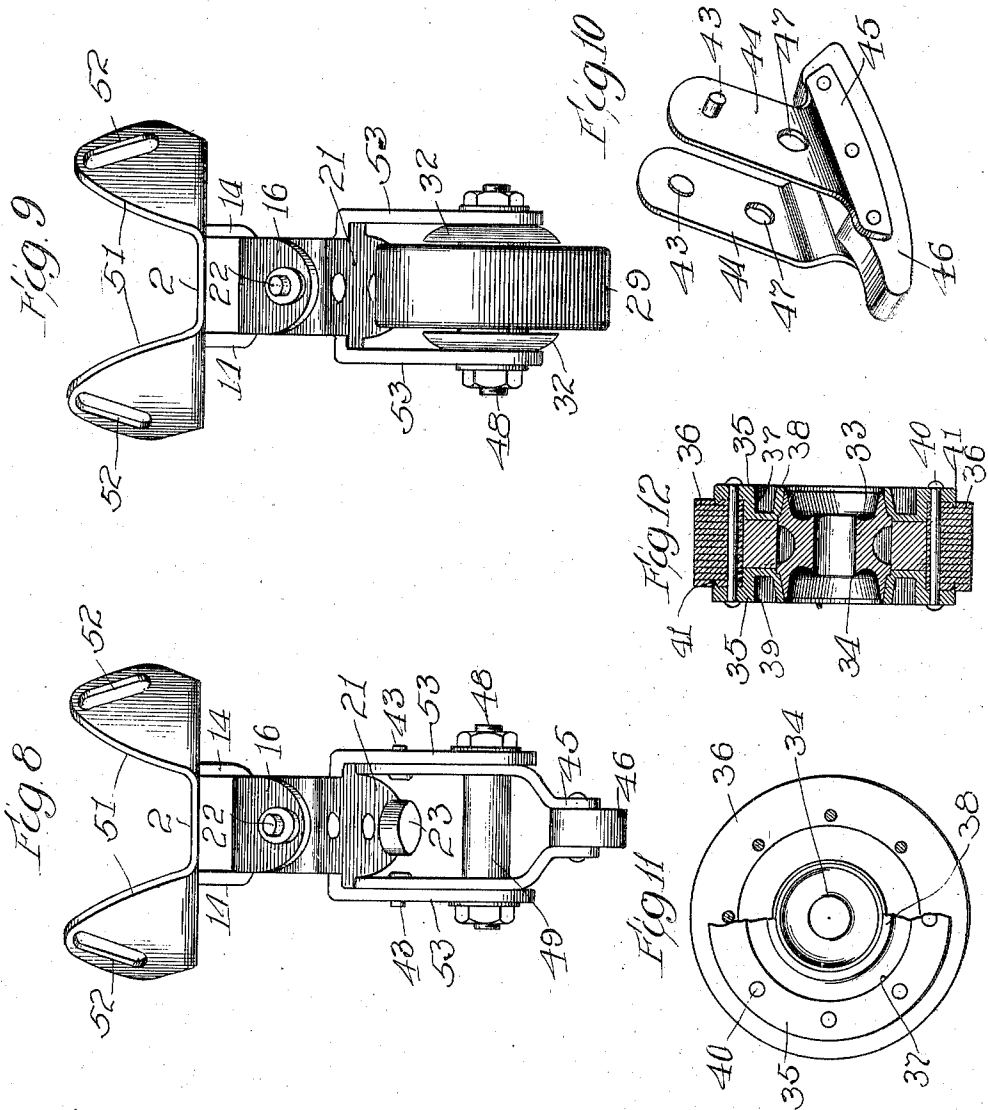
Witnesses:
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Patented Aug. 16, 1910.

4 SHEETS—SHEET 4.



Witnesses
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UNITED STATES PATENT OFFICE.

GEORGE F. ECKART, OF CHICAGO, ILLINOIS.

SKATE.

967,742.

Specification of Letters Patent.

Patented Aug. 16, 1910.

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To all whom it may concern:

Be it known that I, GEORGE F. ECKART, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Skates; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to a novel construction in a skate, the object being to provide a device of this character which is adjustable in length, is very strong and rigid and is convertible from a roller into an ice skate and vice versa, and consists in the features of construction and combinations of parts hereinafter fully described and claimed.

In the accompanying drawings illustrating this invention: Figure —1— is a view in side elevation of a skate equipped with rollers constructed in accordance with my invention. Fig. —2— is a bottom plan view of the same. Fig. —3— is a central vertical longitudinal section of the same. Fig. —4— is a rear end elevation of the same. Fig. —5— is a fragmentary plan view of the same showing the latch for securing the two parts of the skate together against relative longitudinal movement. Fig. —6— is a view in side elevation of the skate equipped with runners in place of rollers. Fig. —7— is a bottom plan view of the same. Fig. —8— is a rear elevation of a modified form of construction in which a single pair of centrally disposed runners are employed. Fig. —9— is a view similar to Fig. —8— showing a roller substituted for the runner shown in the latter. Fig. —10— is a detail perspective view of a runner constructed in accordance with my invention. Fig. —11— is a view in side elevation partly broken away showing a roller constructed in accordance with my invention. Fig. —12— is a diametric section of said roller.

One of the main objects of my invention is to provide suitable means for rendering the skate extensible so as to fit feet of varying lengths.

A further particular object of the invention is to provide means for rendering the skate sufficiently stiff and rigid to withstand the strains to which it is ordinarily subjected.

Further objects of my invention consist

in certain details of construction whereby the same may be easily converted from an ice skate into a roller skate and vice versa.

The skate consists of two parts each consisting of a top plate 1 and 2 respectively, supported upon rollers or runners which latter are mounted thereon in the manner hereinafter described. The said top plates 1 and 2 are telescopically fitted together at their overlapping end portions. To this end the plate 2 is provided with parallel straight side edges at its forward end portion which are received in the guides formed by overturned flanges 3 on the side edges of the plate 1. The latter is provided with an elongated substantially rectangular dished portion 4 adjacent its rear end and midway between its side edges and said plate 2 is similarly provided midway between its side edges with a recess 5 extending longitudinally thereof and in which the said dished or off-set portion 4 of said plate 1 is adapted to be received and guided, said recess 5 of said plate 2 extending throughout the length of the tongue 6 at the forward end thereof. In the bottom of said recess 5 is a series of openings 7 which are adapted to receive the free end portion of a latch pin 8 disposed upon the free end portion of a flat spring 9 secured to the lower face of the plate 1 at one end and extending at its free end into said dished or off-set portion 4 through a slot in one end thereof, the bottom of said portion 4 being provided with an opening 10 for the passage of said latch pin therethrough. Said pin when passed through said last-named opening and one of said first-named openings 7 will obviously serve to lock said plates 1 and 2 against relative longitudinal movement. Said pin is normally held by said spring 9 at the lower limit of its movement in the engaging relation described, said plates being released from relative engagement by raising said pin against the action of the spring carrying the same. Secured at its ends to said plate 1 and the free end portion of said tongue 6 thereof is a bowed stiffening member 11 provided midway between its ends with projections 12 bearing upon the bottom of said plate 2 and provided midway between its side edges with a longitudinal rib 13. Said member 11 constitutes a truss to prevent yielding of said plate 2 to weight imposed thereon, and by the manner of engaging said plate 1 with said plate 2 the stiffening effect

is transmitted to the former in an obvious manner.

Secured to each of said plates 1 and 2 at the free ends of its arms 14 is a U-shaped member, the middle portion 15 of which extends at an incline to the plane of the plate to which it is secured, said members 14—15 of said respective plates being disposed in opposed relation to each other, that is, the middle portions or webs 15 thereof being oppositely inclined. Each of the latter is equipped at its higher end with a downwardly projecting flange 16 provided with an opening. Secured to said webs 15 of said members 14 are plates 17 each of which is provided with side flanges 18 between which a rubber spring 19 is confined. Said spring is further confined between said plates 17 and opposed L-shaped plates 20 and 21 each having a long and a short arm, the long arms thereof being riveted together. The short arms thereof are in contact with each other and are provided with an opening through which a pivot pin 22 passes, the latter projecting through the opening in the flange 16 to pivotally secure said last-named plates to the latter, said pins 22 being held in place by the engagement of the rubber springs 19 with the heads thereof. The other ends of the longer arms of said last-named plates 20 and 21 are secured by means of screws 23 to the projecting end portions 24 of the middle portions 15 of said members 14—15 and said plate 17, said screws serving to draw said last-named plates 20 and 21 toward said middle portions of said members 14 to maintain said springs 19 partially compressed. The said plate 20 is provided with relatively long side flanges 25 bent to inverted U-shaped form, the outermost end portions 26 thereof being provided in their free end portions with recesses 27 in which the shafts 28 of the rollers 29 or bolts for securing the runner frames are received as will be herein-after more fully described. The said plate 21 is provided with relatively short side flanges 30 which are bent downwardly to extend substantially at right angles thereto and parallel with the end portions 26 and are similarly equipped with recesses 27 in their free ends to co-act with the recesses 27 previously mentioned to receive said shafts 28 or bolts as required. Separator sleeves 31 are interposed between the last-named flanges 30 of said lower plates 21 and through said sleeves the said shaft 28 passes. The latter carries cups 32 for the reception of balls which are adapted to run into grooves 33 of the hubs 34 of rollers. The latter consist of side plates 35 between which raw hide or other rims or tires 36 are secured. Each of said plates is provided between its center and its periphery with an annular off-set portion 37, the inner walls 38

of which form annular flanges which engage and confine the said hubs 34. A ring 39 of wood or other suitable material is interposed between said annular off-set portions 37 of said plates and serves to support the middle portion of the rim or tire 36. The rivets 40 securing said plates together pass through said rims or tires 36 to secure the latter. To further hold the same in place the peripheral edges of said plates are provided with annular sharp edges 41 which are adapted to bite into said rims or tires 31 to further securely hold the latter in place.

In the legs of the U-shaped flanges 25 of the upper plates 20 are two opposed openings 42 which are adapted to receive pins 43 adjacent the free ends of flanges 44 of plates 45 between which skate runners 46 are received and secured, said flanges 44 being off-set outwardly from said plates 45 and provided adjacent their lower ends with openings 47 for the passage of bolts 48 by means of which and said pins 43 said runners 46 are secured to said U-shaped flanges in place of the rollers when it is desired to convert the skate from a roller to an ice skate. In mounting said runners in place the said flanges 44 are sprung toward each other in order to enable said pins 43 to pass between the opposing portion of said U-shaped flanges and spring into the opening 42 in the latter. To prevent contraction of said flanges 44 after insertion of the runners in place separator sleeves 49 are interposed between the same through which said bolts 48 pass.

The skates are mounted upon the shoe of the wearer in the usual manner, the plates 1 being equipped with the screw actuated clamping jaws 50 and the plates 2 being equipped with projections 51 having slots 52 for the passage of straps.

In Figs. —8— and —9— I have shown a modified form of construction in which each skate instead of being equipped with two pairs of rollers or runners is equipped with only one pair thereof, the latter being centrally disposed relatively to the side edges of the plates 1 and 2. In this construction only one of said plates 20 or 21 need be employed and the side flanges 53 of the latter bent downwardly in the same manner as the flanges 30 of the plates 20 shown in Figs. 2, 3, 4 and 7. In all other respects the construction of the skates is identical with what is shown in Figs. 1 to 7 inclusive.

The plates 1 and 2 as well as all other parts of the skate are made of sheet steel or other suitable metal which is very light in proportion to its strength as it is obviously desirable to maintain the skates as light as possible consistent with strength, rigidity and durability. To render such a skate extensible without sacrificing the requisite de-

gree of strength of the top plate and without prohibitively increasing the weight of the skate has not to my knowledge been heretofore successfully accomplished. The truss 11 shown and described, has in connection with the side flanges of plate 2 accomplished this result. The tongue 6 of the plate 2 serving to support the plate 1 at its middle portion and being reinforced by said truss 11.

10 The pivotal connection of the plates 20 and 21 at one end with the projection 16 serves to cause the rollers or runners to be deflected relatively to their normal positions in alinement with each other so as to describe an arc in travel. This is, I believe, not novel in the art, but I believe that the specific means employed for readily converting the skate from a roller to an ice skate and vice versa are novel.

20 I claim as my invention:

1. In a skate, a foot plate comprising two relatively movable parts, a tongue on one of said parts extending underneath the other thereof; overturned side flanges on the side edges of the latter forming guides for the reception of the said tongue of the other, a stiffening member secured at its ends to the free end portion of the said tongue and to the body portion of said tongue carrying part respectively, and a latch carried by one of said parts and engaging the other thereof to hold said parts against relative longitudinal movement.

2. In a skate, a foot-plate comprising two relatively movable parts, overturned side flanges on the side edges of one thereof forming guides for the reception of the side edge portions of the other thereof, a longitudinal recess in the last-named part having a series of openings in the bottom thereof, a rib on the first-named part fitting said recess, a flat spring secured at one end to the latter and projecting over said rib, and a pin disposed on the free end portion of said spring and adapted to project through an opening in said rib into one of said openings in the other part to hold said parts against relative longitudinal movement.

3. In a skate, a foot plate comprising two relatively movable parts, a tongue on one of said parts extending underneath and supporting the other thereof, overturned side flanges on the side edges of the latter forming guides for the reception of the said tongue, there being a series of perforations in the tongue carrying part, a spring actuated latch pin carried by said part equipped with overturned side edge flanges and adapted to enter any one of said perforations in the other to hold said parts against relative longitudinal movement, and a reinforcing member secured at one end to the free end portion of said tongue and at its other end to the body portion of the tongue carrying part.

4. In a skate, a foot plate comprising two relatively movable parts, a tongue on one of said parts extending underneath and supporting the other, said tongue and said part carrying the same provided with a series of perforations, overturned flanges on the side edges of the other of said parts forming guides for the reception of said tongue, a spring actuated latch pin carried by said last-named part and adapted to enter any one of said series of perforations in said tongue carrying part to hold said parts against relative longitudinal movement, and a bowed reinforcing member secured at one end to the free end portion of said tongue and at its other end to the body portion of the tongue carrying part, said reinforcing member equipped with projections between its ends bearing upon the bottom of its carrying part.

5. In a skate, a foot plate comprising two relatively movable parts, overturned flanges on the side edges of one of said parts forming guides to receive the side edge portions of the other thereof, a longitudinally offset portion midway between the side edges of the first-named part providing a recess in the upper face thereof and a rib on the lower face thereof, a similar offset portion in the other of the said parts extending from one end thereof to a point adjacent its other end and providing a recess in the upper face of said part adapted to receive the rib of the other part, said respective offset portions serving to stiffen said respective parts and resist relative lateral movement thereof, and a member carried by one of said parts and adapted to pass into the opening in the first-named part and into one of the openings of the other of said parts to hold the same against relative longitudinal movement.

6. In a skate, a foot plate comprising two relatively movable parts, overturned flanges on the side edges of one of said parts forming guides to receive the side edge portions of the other thereof, a longitudinally offset portion midway between the side edges of the first-named part providing a recess in the upper face thereof and a rib on the lower face thereof, there being an opening in said offset portion, a similar offset portion in the other of the said parts extending from one end thereof to a point adjacent its other end and providing a recess in the upper face of said part adapted to receive the rib of the other part, there being a series of openings in said last-named offset portion, said respective offset portions serving to stiffen said respective parts and resist relative lateral movement thereof, and a member carried by one of said parts and adapted to pass into the opening in the first-named part and into one of the openings of the other of said parts to hold the same against relative longitudinal movement.

7. In a skate, a foot plate comprising two relatively movable parts, overturned flanges on the side edges of one of said parts forming guides to receive the side edge portions of the other thereof, a longitudinally offset portion midway between the side edges of the first-named part providing a recess in the upper face thereof and a rib on the lower face thereof, a similar offset portion in the other of the said parts extending from one end thereof to a point adjacent its other end and providing a recess in the upper face of said part adapted to receive the rib of the other part, said respective offset portions serving to stiffen said respective parts and resist relative lateral movement thereof, there being a lateral slot between the offset portion of said first-named member at one end of the former and the body portion thereof, a flat spring secured at one end to the said body portion and projecting through said slot into the offset portion thereof, and a projection on the free end of said spring adapted to pass through an opening in said offset portion of the first-named part and through any one of a series of openings in the offset portion of the other part to hold the same against relative longitudinal movement.

8. In a skate, a foot plate comprising two relatively movable parts, overturned flanges on the side edges of one of said parts forming guides to receive the side edge portions of the other thereof, a longitudinally offset portion midway between the side edges of the first-named part providing a recess in the upper face thereof and a rib on the lower face thereof, a similar offset portion in the other of the said parts extending from one end thereof to a point adjacent its other end and providing a recess in the upper face of said part adapted to receive the rib of the other part, said respective offset portions serving to stiffen said respective parts and resist relative lateral movement thereof, a bowed reinforcing member secured at its ends to said last-named member at the respective ends of the offset portion thereof and engaging the same between its ends, and means for holding said parts against relative longitudinal movement.

9. In a skate, a foot plate comprising two relatively movable parts, overturned flanges on the side edges of one of said parts forming guides to receive the side edge portions of the other thereof, a longitudinally offset portion midway between the side edges of the first-named part providing a recess in the upper face thereof and a rib on the lower face thereof, a similar offset portion in the other of the said parts extending from one end thereof to a point adjacent its other end and providing a recess in the upper face of

said part adapted to receive the rib of the other part, said respective offset portions serving to stiffen said respective parts and resist relative lateral movement thereof, an inverted U-shaped longitudinally bowed member secured at its ends to the last-named part at one end and adjacent its other end, projections between the ends of said member engaging said part between the points of attachment of said member therewith, and means for holding said parts against relative longitudinal movement.

10. A skate comprising a foot plate, projections thereon disposed in parallelism and provided adjacent their free ends with shaft receiving openings and adjacent their other ends with opposed openings, runners equipped with parallel flanges, projections adjacent the free ends of the latter adapted to enter said last-named openings, and a shaft passing through said first-named openings and through openings in said flanges and coacting with said last-named projections to rigidly secure said flanges between said first-named projections.

11. A skate comprising a foot plate, projections thereon disposed in parallelism and provided adjacent their free ends with shaft receiving openings and adjacent their other ends with opposed openings, runners equipped with parallel flanges, projections adjacent the free ends of the latter adapted to enter said last-named openings, and a shaft passing through said first-named openings and through openings in said flanges and coacting with said last-named projections to rigidly secure said flanges between said first-named projections, and separator sleeves interposed between said flanges and over said shaft.

12. In a skate, a plurality of pairs of parallel projections adapted to receive runners therebetween, there being recesses in the free ends of said projections and openings adjacent the other ends thereof, shafts adapted to be received and secured in said recesses against rotation, runners each equipped with parallel flanges adapted to be received between said projections, lugs on said flanges adjacent the free ends thereof adapted to be sprung into said openings, said flanges being provided with openings for the passage of said shafts, and separator sleeves on said shafts interposed between said flanges.

In testimony whereof I have signed my name in presence of two subscribing witnesses.

GEORGE F. ECKART.

Witnesses:

RUDOLPH WM. LOTZ,
WM. BROWN.