E. E. HARDY.

ROLLER SKATE.

APPLICATION FILED JAN. 15, 1920.

1,406,642. **Patented Feb. 14, 1922.**

2 SHEETS—SHEET 1.

Fig. 1

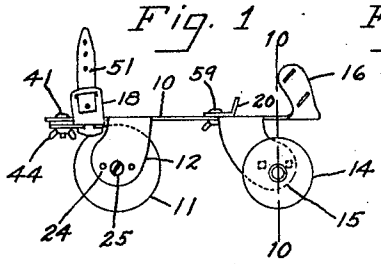


Fig. 2

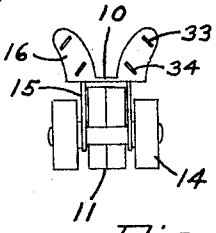


Fig. 3

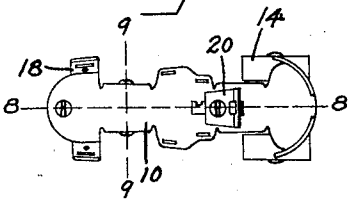


Fig. 4

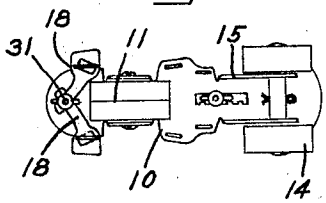


Fig. 5

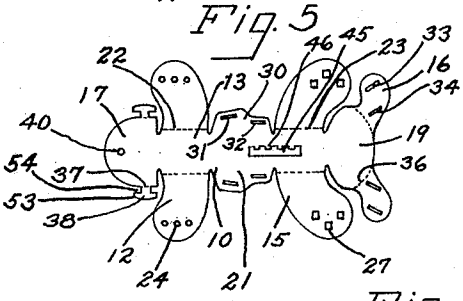


Fig. 6

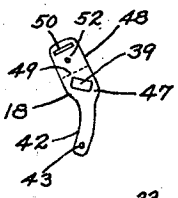


Fig. 7

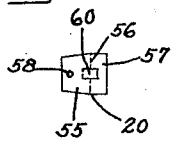
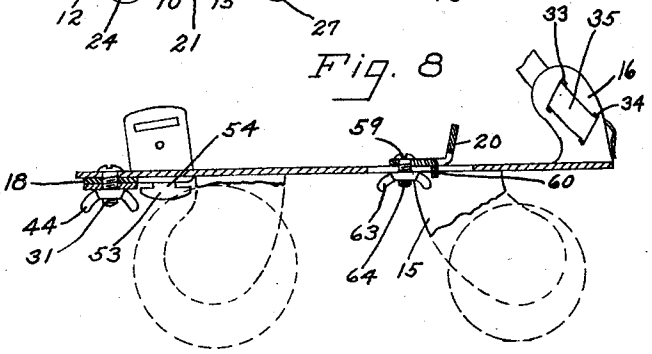


Fig. 8



Inventor

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2 SHEETS—SHEET 2.

Fig. 9.

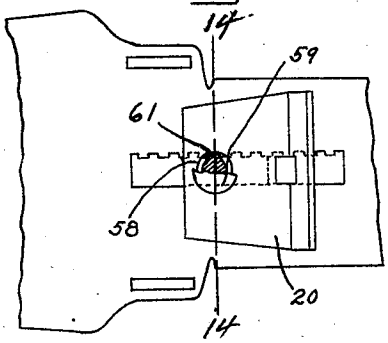


Fig. 10.

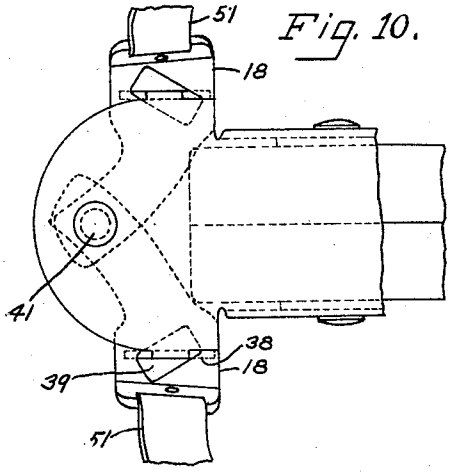


Fig. 11.

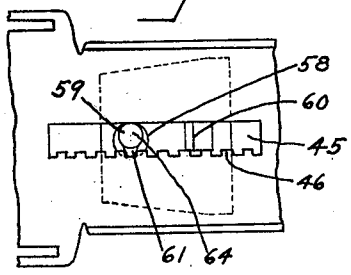
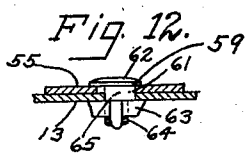


Fig. 12.



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UNITED STATES PATENT OFFICE.

EMERY EASTMAN HARDY, OF BROOKLYN, NEW YORK.

ROLLER SKATE.

1,406,642. Specification of Letters Patent. **Patented Feb. 14, 1922.**

Application filed January 15, 1920. Serial No. 351,580.

To all whom it may concern:

Be it known that I, EMERY EASTMAN HARDY, a citizen of the United States, residing at Brooklyn, in the county of Kings and State of New York, 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 generally of the form shown and described in certain patents already issued to me, to wit:— Nos. 1,152,813, 1,228,111, and 1,276,212, and also in applications filed by me, to wit:—Serial Nos. 351,579, 402,368, and 402,367, and the object of my improvement is simplicity and economy in construction and convenience and efficiency in use.

In the accompanying drawing:—

Figure 1 is a side elevation of my improved roller skate.

Figure 2 is an end elevation of the same.

Figure 3 is a plan view of the same.

Figure 4 is a bottom view of the same.

Figure 5 is a plan view of the blank for the frame member.

Figure 6 is a plan view of the blank for one of the toe clamping members.

Figure 7 is a plan view of the blank for the heel stop member.

Figure 8 is a sectional view on the line 8—8 of Fig. 3 and on an enlarged scale.

Figure 9 is a fragmentary plan view showing the heel stop member and adjacent parts.

Figure 10 is a fragmentary plan view showing the toe clamping members and adjacent parts.

Figure 11 is a bottom view of certain parts shown in Fig. 9.

Figure 12 is a sectional view on the line 14—14 of Fig. 9.

My improved roller skate comprises a frame 10 that is made of one piece of sheet material, is supported at the front end by the front wheel structure 11 by means of a pair of front side arms 12 that are integral with the frame body 13 and at the rear end by a pair of rear wheels 14 by means of a pair of rear side arms 15 that are also integral with the said frame body 13, and has on the rear end of the frame a pair of integral fixed heel lugs 16.

Operatively mounted on the front end portion 17 of the frame 10 is a pair of toe clamping lugs 18 and adjustably mounted on the frame in front of the heel space 19 at the rear end portion is the front heel stop member 20.

Considering the blank for the frame member, shown in Fig. 5, the body portion 13 extends from end to end, comprises at the rear end portion the heel space 19 and at the front end the front end portion 17, already mentioned, and intermediate these parts are the front arms 12 adjacent the front end portion 17, the rear arms 15 adjacent the heel space 19, and between the said arms, and at about the middle is the middle connecting portion 21.

The front arms 12 are connected each along a folding line 22 and the rear arms 15 are connected along a folding line 23.

The arms 12 and 15 have a plurality of pairs of mating holes for the shaft devices for alternative use, for providing a choice for positioning the said devices for changing the length of the wheel tread or base, there being, as shown, three holes in each of the said arms. The holes 24 in the front arms 12 are round, for receiving the shaft screw 25 that holds in place the shaft 26 for the front wheel structure 11, the said shaft 26 being of tubular form and threaded suitably to receive the said screw 25.

The holes 27 in the rear arms 15 are square to provide an operative fit for the square portion 28 of the rear shaft part 29 that is housed therein.

The middle portion 21 may be extended laterally in the form of wings 30 that are provided with slots for the straps, there being, as shown, two such slots in each of the said wings, the slot 31 adjacent the front end being adapted for the toe strap and the slot 32 at the rear for the heel strap.

The rear fixed heel lugs 16 have each a pair of slots for the heel strap, consisting of the slot 33 at the upper and front portion of the lug and the slot 34 at the lower and rear portion thereof, the said slots 33 and 34 being thus disposed along a diagonal line relatively to the frame body 13 for positioning the part of the strap 35 that is rove through said slots 33 and 34.

The said fixed heel lugs are connected to the body portion 13 along the folding line 36.

The front end portion 17 is provided on each side with an integral T-shaped or headed lug 38 that is connected along the folding line 37 that cooperates with a slot 39 in the toe clamping member 18 for positioning and guiding the said member 18, and has at

the longitudinal axis, and positioned appreciably in front of the transverse line connecting the side T-shaped lugs 38, a hole 40 for the toe clamping bolt 41. The toe clamping members 18 have their front and inner end portions 42 overlapping one another and also have each in the overlapping portion a hole 43 for receiving the toe clamping bolt 41.

The bolt 41 is preferably entered from the upper side of the parts and is provided with a wing nut 44 on the lower end.

The body portion 13 is provided in the portion in front of the heel space 19 with a longitudinal slot 45 along the axis, the border edge of which on one side, on the right side, as shown, has a series of teeth 46.

The blank for the frame 10 is bent to form the complete frame, ready for use, by bending upwardly the two rear, fixed heel lugs 16, and bending downwardly all of the other parts that in use are not in the same plane as the body portion 13, comprising the rear arms 15, the front arms 12, and the T-shaped lugs 38.

The toe clamping member 18 is made of sheet material and in the blank, shown in Fig. 6, comprises the body portion 47 that has the slot 39, the front and inner end portion 42 that extends inwardly and forwardly from the said body portion 47 in curved form and has the bolt hole 43, and at the rear and outer end has the wing 48 connected along the folding line 49. The wing 48 has a slot 50 for the toe strap 51 and a hole 52 for the rivet for securing the said toe strap.

In use, the body portion 47 and arm 42 are in sliding engagement or contact with the frame 10, on the under side thereof and the blank is shaped for use by bending the wing 48 upwardly relatively to the body portion 47 along the line 49. The slot 39 is of proper size to admit the head portion 53 of the T-shaped lug 38 so that the reduced portion of connecting neck portion 54 thereof will be positioned therein under operating conditions, and with the head 53 twisted or at an angle to the slot so that the head will serve to hold the toe clamping member 18 in operating relation to the frame 10. The direction of the slot 39 is such as to permit of a swinging or pivotal movement relatively to the bolt hole 43 and the clamping bolt 41 positioned therein, whereby the strap receiving wing 48 may be adjusted to and fro laterally relatively to the frame 10.

The front heel lug member 20 is made of sheet metal and comprises in the blank, as shown in Fig. 7, a body portion 55 that is approximately square and is connected at the rear end, along the folding line 56, with a wing 57 that serves as the front heel lug, being bent upwardly along the line 56 to the position for use. The body portion 55 has adjacent the front end a hole 58 for the heel lug clamping bolt 59, and in the rear of the said hole 58 is an integral lug 60 of rectangular form that extends downwardly from the body portion 55 and in use is positioned in the longitudinal slot 45 in the body portion 13 of the frame 10.

The downwardly directed lug 60 serves to limit the lateral swinging movement of the front end portion of the heel lug member 20 and is sufficiently narrow to clear the teeth 46, and does not serve to position the parts longitudinally, the clamping bolt 59 being of special construction to effect this function, having a lateral projection 61 for engaging with the teeth 46.

The heel lug clamping bolt 59 is entered into position from the upper side, the head 62 engaging with the upper face of the body portion 55 of the heel lug member 20, and a wing nut 63, mounted on the threaded lower end portion 64, engages with the under face of the body portion 13 of the frame 10. Intermediate the head 62 and the threaded portion 64, is a short body portion 65, having a length about the same as or slightly less than the combined thickness of the material of the body portion 20 of the heel lug member 20, and that of frame body 13, the projection or tooth 61 for engaging with the teeth 46 of the slot 45 being in the form of a lateral projection from the said body portion 65.

The clamping bolt 59, as described, is adapted to serve as a positive lock for holding the heel lug member 20 in position longitudinally and generally, in combination with the lug 60, which serves to prevent the heel lug from swinging to one side, as with the clamping bolt as an axis. In other words, there is a two point connection between the parts, one provided by the clamping bolt and the other by the lug.

I claim as my invention:—

1. A roller skate having a frame that is made of sheet material, comprising a body portion and arms extending downwardly from the side edges of the said body portion for connecting with the wheel devices, comprising a pair of arms at the front end for the front wheel structure and a pair of arms at the rear end for the rear wheels, the wheel devices being in each case positioned in holes in the said arms, the said arms having each a plurality of such holes for positioning the wheel devices, for providing a choice for locating the said wheel devices relatively to the said frame, and the said frame being made of a single piece of such sheet material.

2. A roller skate having a pair of toe clamping members operatively mounted on the front end portion of the frame structure, the said members having their inner ends overlapping one another at the under side

of the said frame and pivotally connected together and to the frame by means of a clamping bolt, having their outer end portions overhanging the sides of the frame and provided with means for receiving the ends of the toe straps, and having intermediate the ends a body portion, the said body portion and the opposed part of the frame having cooperating guiding means for permitting of swinging the said outer end portions toward and away from the said sides of the frame, and the parts being constructed and arranged so that the said clamping bolt serves as a fixed pivot while the toe clamping members are being adjusted to the position desired for use.

3. A roller skate comprising a frame body having a longitudinal slot, a heel lug member mounted on the said body, having a lug projecting through the said slot, and having a hole for a clamping screw, the said clamping screw extending through the said hole and slot and having a nut on the under side of the said frame, and positive locking means for the parts being provided comprising a set of teeth along one side edge of the said slot and a laterally projecting lug on the part of the clamping screw that is positioned in the said slot for cooperating with the said teeth.

4. In a roller skate, a frame body formed of a single piece of sheet material; integral, shaft receiving arms connected by their upper ends with side edges of said body comprising a pair of arms for the front shaft and a second pair of arms for the rear shaft; the lower ends of the arms having shaft receiving openings; and said pairs of arms being divergent from the junctions with the body, so that the lower ends will be separated longitudinally by a greater distance than said junctions; whereby, with integral construction of the body and arms the parts of the body connected to the arms can be positioned between the parts of the body that are above the shafts.

5. In a roller skate, a frame, a pair of side arms for receiving wheel supporting devices connected to the said frame, the said frame being provided with a pair of slots for receiving strap devices at the front of the junction of the side arms with the frame and with a second pair of slots for receiving the said strap devices at the rear of the said junction, whereby a crossing of the strap devices will be permitted substantially over the said junction.

6. In a roller skate, a frame having a slot, a heel lug member having the body portion mounted on the said frame and having a hole for a clamping screw, an upwardly directed heel engaging lug connected to the rear edge of the said body portion, and a downwardly directed positioning lug for engaging with the said slot integral with the said body portion, and the said positioning lug being positioned intermediate the said hole and heel engaging lug.

7. In a roller skate, a frame having a plate-like body portion and a heel lug seated thereon, said body portion having a longitudinally directed slot, one of the side edges of said slot having a series of teeth, and said heel lug having a tooth-like lug for being entered into said slot and cooperating with said teeth.

8. In a roller skate as described in claim 7, the said lug being in the form of a tongue, having straight and parallel side edges.

9. In a roller skate as described in claim 7, a clamping bolt passing through the body portion of the said heel lug and through the said slot, and the said bolt having a tooth in the form of a lateral projection on the body for cooperating with the said teeth for positioning the frame and heel lug member.

EMERY EASTMAN HARDY.