

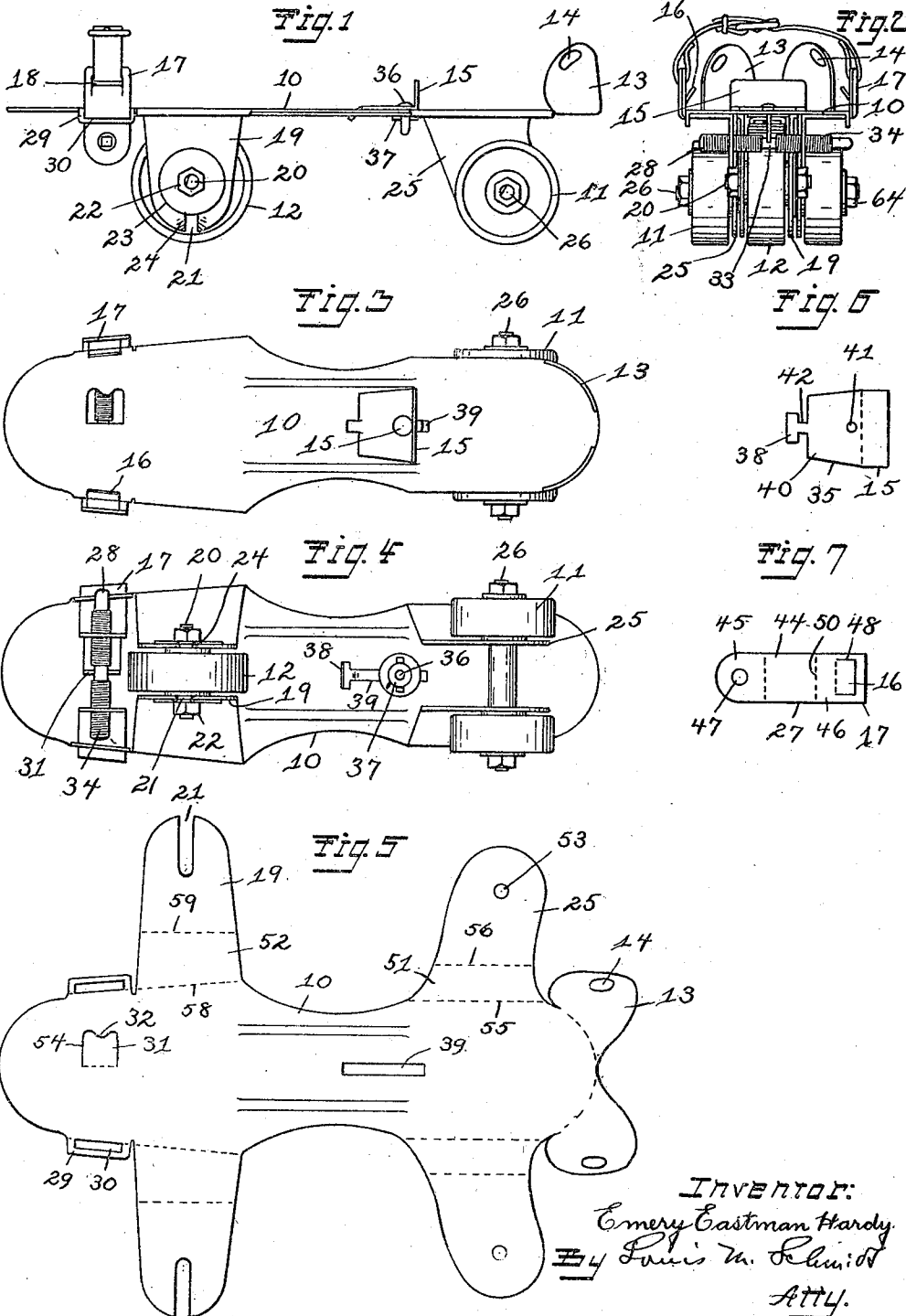
E. E. HARDY.
ROLLER SKATE.

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1,276,212.

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2 SHEETS—SHEET 1.



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1,276,212.



UNITED STATES PATENT OFFICE.

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ROLLER-SKATE.

1,276,212.

Specification of Letters Patent. Patented Aug. 20, 1918.

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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 of the type shown and described in the patents issued to me September 7, 1915, No. 1,152,813 and May 29, 1917, No. 1,228,111, 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.

Fig. 2 is an end elevation of the same.

Fig. 3 is a plan view of the same.

Fig. 4 is a bottom view of the same.

Fig. 5 is a similar view of the blank for the frame.

Fig. 6 is a similar view of the blank for the front heel plate.

Fig. 7 is a similar view of the blank for one of the toe clamp members.

Fig. 8 is a plan view of a blank for a modification of the skate structure.

Fig. 9 is a side elevation of a skate having the frame made from the blank shown in Fig. 8, and having a single front wheel.

Fig. 10 is a similar view of the front part of a skate, having the frame made from the same blank, and having two front wheels.

Fig. 11 is an end elevation of the skate shown in Fig. 10.

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

Fig. 13 is a sectional view on the line 13—13 of Fig. 9.

Fig. 14 is a sectional view on the line 14—14 of Fig. 10.

My improved roller-skate, as shown in Fig. 1, comprises a foot plate 10, supported at the rear by a pair of rear wheels 11 and at the front by a single front wheel 12, having at the rear end a pair of back heel lugs 13 that are provided with a slot 14 for a strap and at a suitable position forward

of the said rear end an adjustable front heel lug 15, and provided at the front end with screw operated toe clamps 16 that are combined with front strap lugs 17, the latter having a slot 18 for a front or toe strap.

The front wheel 12 is positioned between a pair of standards 19, and in the style shown in Fig. 1 is constructed and held in place after the manner shown in the patents mentioned, being mounted on a shaft 20 that is entered in a slot 21 in the standards and held in place by a nut 22 in coöperation with a washer 23 and lugs 24 formed by bending outwardly the lower end portions of the standards 19.

The rear wheels 11 are supported by standards 25 that are in spaced relation, being mounted on the outer ends of a shaft 26, and for these wheels I prefer to use a special construction, to be described.

The toe clamp 16 and toe strap lug 17 are part of a bracket member 27, there being two such bracket members 27, both being operated simultaneously by the screw 28 of the usual form.

In front of the front standards 19, on each side, is a guide lug 29, provided with a slot 30, that serves as a guide for the bracket member 27.

At the middle, just over the screw 28, is a downwardly projecting fin-like lug 31 that has a notch 32 that engages with the cylindrical, reduced middle portion 33 of the screw 28, between the two threaded portions 34, the latter being threaded one right handed and the other left handed.

The front heel lug 15 which is part of a front heel lug member 35, is held in place by a locking bolt 36 and nut 37, and is guided by the said bolt 36 and a positioning lug 38 operating in a longitudinal slot 39 in the foot plate 10.

The said front heel lug member 35 is made of sheet metal and comprises the body portion 40 of approximately square form that lays along the upper side of the foot plate 10, the heel lug proper 15 extending upwardly from the rear end of the said body portion 40, the said body portion having adjacent the said rear end a hole 41 for the locking screw 36, and at the front

end is the guide lug 38 of headed form, being connected to the body portion 40 by a reduced neck 42 that fits in the slot 39.

Thus the front edge of the body portion 40 is opposed to one of the edges of the lug or head 38 and the two opposed edges are connected by the neck 42 that passes through the slot 39, the said edge of the body portion 40 being engaged with the upper face of the foot plate 10 and the opposed edge of the head 38 being engaged with the lower face thereof. The neck 42 is directed at an inclination to the foot plate 10, as shown, at an angle approximately 45 degrees, so that a spring effect is provided in the engagement of the front heel lug member 35 with the foot plate 10, which tends to lift the body portion 40 from the foot plate 10 or tilt the same, the locking screw 36 operating to draw the parts together in opposition to such spring effect. Thus the locking screw serves indirectly to bind the front part of the body portion 40 to the foot plate through the medium of the spring effect mentioned and to hold the rear part by the direct clamping effect.

The bracket member 27 is also formed of sheet metal, being essentially in the form of a strip, and comprises the body portion 44 that is a fit for the slot 30 in the guide lug 29 and lies along the lower face of the foot plate 10 and extends transversely thereof, the said body portion 44 being at the middle, and at the inner end is the downwardly directed branch 45 and at the outer end is the upwardly directed branch 46. The inner branch 45 has the threaded hole 47 for the clamping screw 28. The outer branch 46 is provided with an integral finger 16 that serves as the toe clamp and with the toe strap lug 17 of loop form by slitting the material in a suitable manner to form the finger from a portion of the said material and bending the same inwardly. Thus the slit 48 shown in Fig. 7 comprises two parallel, longitudinal portions cross-connected at the outer end by a cross-slit, leaving the tongue or finger 16 connected by its inner end, along the line 50, so that when the tongue 16 is bent inwardly and brought to the proper shape and position to operate effectively as a toe clamp for engaging with the sole of a shoe there is left a space 18, inclosed by the border wall 17 in the form of a loop, that is suitable for receiving a toe strap.

The guide lug or loop 29 for the bracket member 27 hangs downwardly from the edge portion of the foot plate 10, there being one on each side, and the two loops 29 constitute the only guiding and connecting means for connecting the two bracket members 27 with the foot plate 10, and they are sufficient for this purpose in cooperation with the clamping screw 28, which screw

operates to tie together the opposed downwardly directed branches 45 of the bracket members 27, the said branches 45 serving as connecting ears.

The frame or fixed portion of my skate 70 that supports the operating or moving parts described is formed of a single piece of sheet material, comprising the foot plate 10 at the middle; the rear heel and strap lugs 13 at the back end, each having the strap slot 14; the bracket member guide loops 29, inclosing the slot 30, adjacent the front end, one on each side; the fin 31 with the notch 32 for positioning the clamping screw 28 between the loops 29, formed by slitting and bending a portion of the material between the said loops 29; the foot plate 10 being slotted as shown at 39 for the front heel plate 27; the rear standards 25 adjacent the back end connected to the foot plate in each case by an intermediate or connecting plate 51; and connected in a similar manner by an intermediate or connecting plate 52 to the foot plate 10 are the front standards 19, positioned just back of the loops 17. The rear standards 25 have holes 53 for the rear shaft 26 and the front standards 19 have the slots 21 for the front shaft 20.

The fin 31 extends downwardly from the foot plate 10, is positioned approximately in a vertical and axial or longitudinal plane, is integrally connected by its upper end with the said body plate, has the notch 32 at the lower edge portion, and is formed from the material of which the body plate is formed by means of a slit 54. The said slit 54 is generally U-shaped or of loop form as found in the blank, Fig. 5, and is positioned to one side of the axis, leaving when bent into position for use an open space in the foot plate on one side of the axis.

The rear standard 25 and connecting plate 51 constitute a laterally directed ear that is bent back by a return bend along the line 55 to bring the connecting plate along the under face of the foot plate 10, and the standard 25 is bent downwardly by a right angled bend along the line 56.

Similarly the front standard 19 and connecting plate 52 constitute an ear that is bent along the inner line 58 and the outer line 59, suitably to bring the standard portion 19 to the desired position inwardly from the lateral edge of the foot plate 10.

Considering the rear wheel structure, the shaft 26 is provided at the middle portion with a spacing sleeve 60 that fills the space between the rear standards 25, the rear wheels 11 being mounted on the outer end portions of the shaft. On the said outer end portions of the shaft 26 are mounted sleeves 61 that correspond in length to the depth of the wheels 11 and that serve as the running bearings for the same. At each end of

the bearing sleeves 61 is a washer 62 of sufficient diameter to engage with the inner, hub portion 63 of the wheel 11, suitably to serve as a thrust bearing for positioning the wheel 11 longitudinally on the shaft. As shown, the washers 62 are mounted on the shaft 26, one at each end of the bearing sleeve 61, the inner one being in abutment with the standard 25. A nut 64 engaged with the screw threaded end 65 of the shaft 26 bears against the outer washer 62, the two nuts 64 serving to effect a rigid and positively held union or connection of the intermediate parts and to provide a bearing space between each pair of washers in which the wheel is free to turn.

The wheels 11 are formed of a pair of circular blanks of sheet metal, the hub portions 63 being turned inwardly to provide an opening to fit the bearing sleeve 61, and the peripheral portions being also turned inwardly to provide telescoping flanges, the outer flange 66 serving as the thread and the inner flange 67 being of sufficient depth to effect an operative fit within the outer, tread flange 66.

A similar form of wheel structure may be used for the front end of the skate and adapted for use with the blank shown in Fig. 8. In this blank the front standards 19^a are provided with holes 21^a for the shaft in lieu of the slots 21.

In the style shown in Fig. 9 there is a single front wheel 12^a mounted on a shaft 20^a. In this structure the bearing sleeve 61^a and the thrust bearing washers 62^a are positioned between the standards 19^a and the nuts 64^a are on the outer sides thereof.

In the style shown in Fig. 10 there are two front wheels 12^b, making a four wheeled skate, the wheel structure except for size being precisely the same as for the rear wheel structure already described.

The special form of wheel construction described permits of securely tightening the nuts on the ends of the shaft, there being a positive backing extending continuously from the nut at one end to the nut at the other end, and independently of the wheels, so that such tightening does not affect the free running of the wheels.

The two part wheel described is of simple form, adapted for cheap construction.

The frame is formed without rivets or rigidly connected parts, all fixed parts being made integral by cutting and shaping the blank of sheet metal shown and described.

I claim as my invention:—

1. A roller skate having a frame made of sheet material, and the said frame comprising as integral connected parts a foot plate and front and rear wheel standards and the said standards being each connected to the foot plate through the medium of a connect-

ing plate that serves to position the standard appreciably inwardly from the edge portion of the foot plate.

2. In a roller skate, a foot plate, rear heel lugs at the rear end thereof, clamping bracket guides on the lateral edges thereof, front wheel standards and rear wheel standards on the lower face thereof, the said foot-plate, lugs, guides, and standards being all integral parts of a unitary structure of sheet material and the said standards being connected by means of positioning plates with the said foot plate.

3. In a roller skate, a frame having a longitudinal slot, a front heel lug member supported by the said frame and having a body portion positioned on the upper face of the said frame, adjacent the said slot, a head positioned on the under side of the said frame, a neck passing through the said slot and connecting opposed edges of the said body portion and head, a locking screw positioned in the said slot and in a hole in the said body portion, and the parts being so constructed and arranged that the said locking screw operates indirectly to resiliently bind the said opposed edges to the said frame and to directly clamp the said body portion generally to the said frame.

4. In a roller skate, a frame having a foot plate and a pair of clamping brackets slidably engaged with the said foot plate, clamping lugs extending upwardly and inwardly over the edges of the said foot-plate, slidably to engage with the sole of a shoe, and a toe strap lug also provided as a part of the structure of the said bracket.

5. In a roller skate, a frame having a longitudinal slot, a front heel plate positioned generally above the said frame, having at one end a headed lug extending through the said slot, the head portion of the said lug being engaged with the under side of the said frame, and a clamping screw extending through the said slot and serving to hold the body portion of the said plate to the said frame.

6. In a roller skate, a pair of standards in spaced relation, a wheel positioned between the said standards, a shaft extending through the said wheel and also through each of the said standards and having clamping nuts at the ends, and a sleeve, concentric with the said shaft, serving as the bearing for the said wheel and as a spacer for the said standards.

7. In a roller skate, a pair of wheel standards in spaced relation, a shaft extending through the said standards, and a sleeve fitting over the said shaft and also fitting between the said standards, suitably to serve as a spacer for the said standards and as a bearing for the said wheel.

8. In a roller skate, a rear wheel structure comprising a pair of standards in

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spaced relation, a shaft extending through
the said standards, a spacing sleeve mount-
ed on the portion of the said shaft between
the said standards, a bearing sleeve mounted
5 on each of the end portions of the said shaft,
a washer positioned at each end of the said
bearing sleeves, a pair of clamping nuts out-
side of the outer washers, serving to rigidly

hold the intermediate parts together, and a
pair of wheels operatively mounted on the 10
said bearing sleeves and operatively housed
between the washers at the ends thereof.

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Witnesses:

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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents,
Washington, D. C."