Jan. 12, 1937. L. G. KNAPP 2,067,712

ROLLER SKATE

Filed Oct. 11, 1935 2 Sheets-Sheet 1

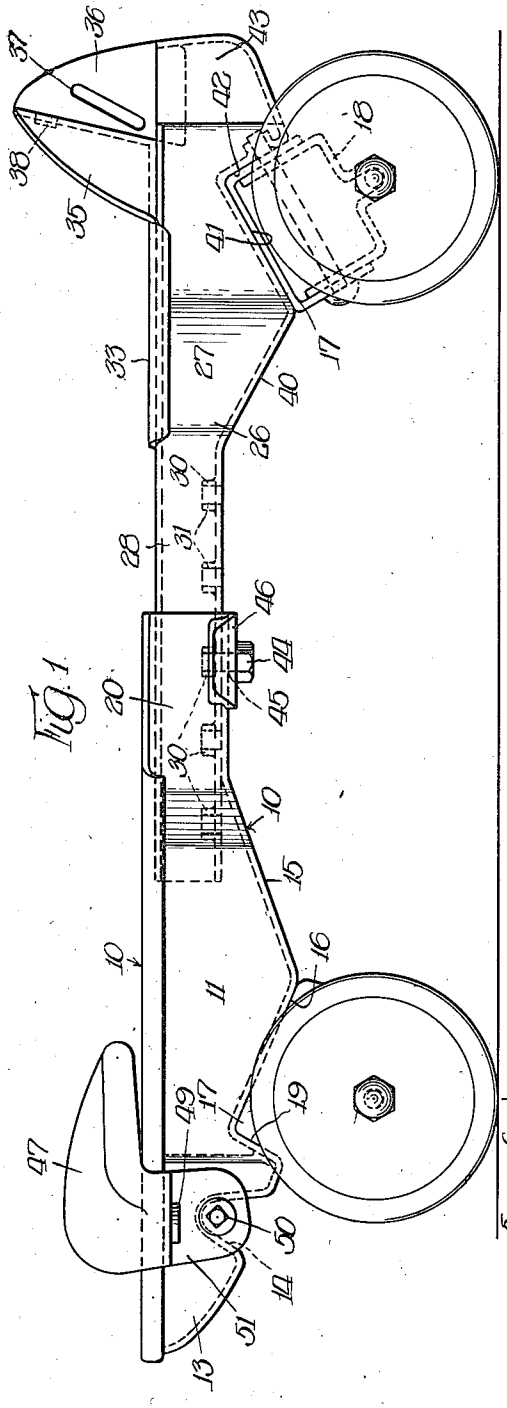


Fig. 1

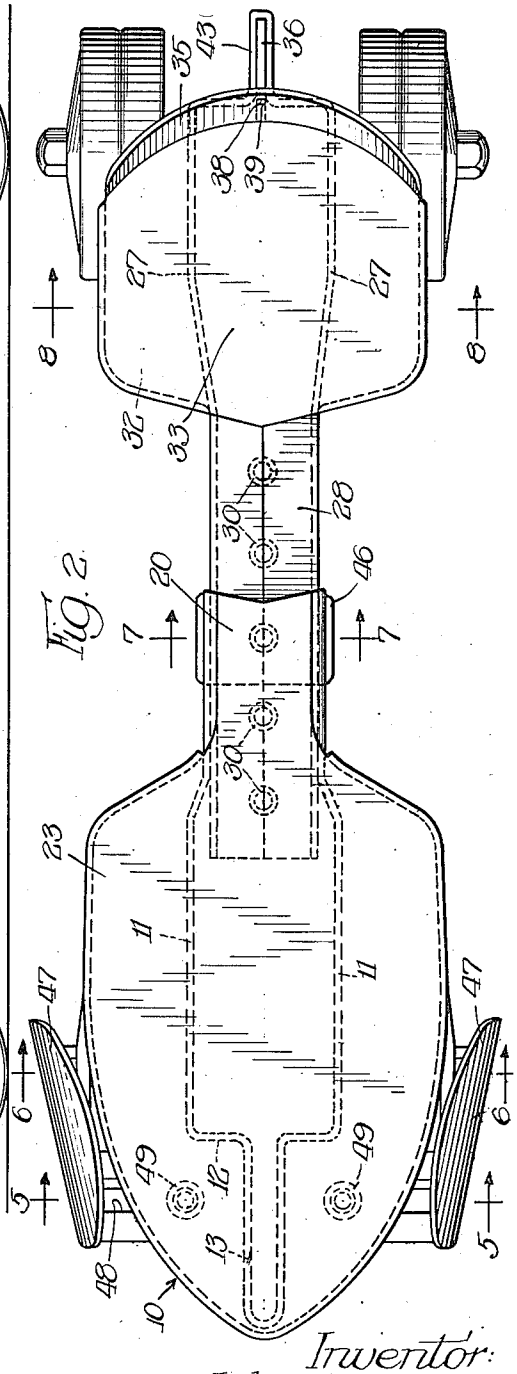


Fig. 2

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ROLLER SKATE

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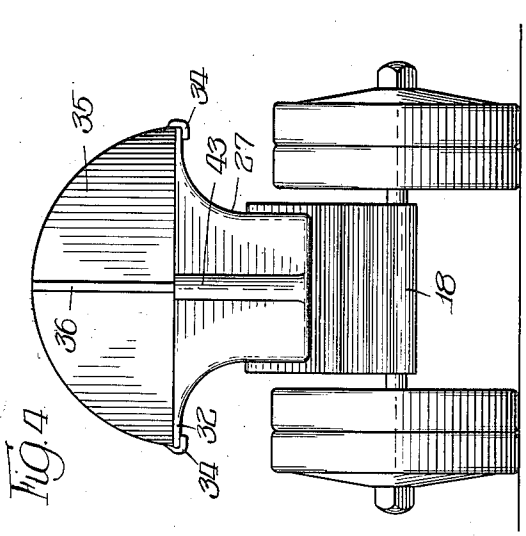


Fig. 4

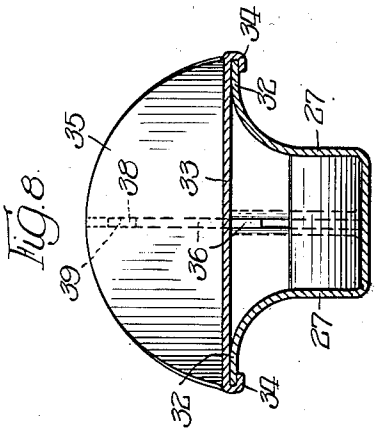


Fig. 8

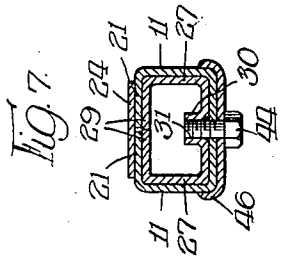


Fig. 7

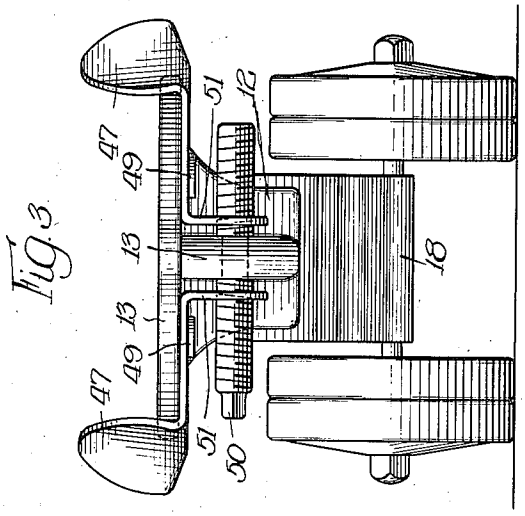


Fig. 3

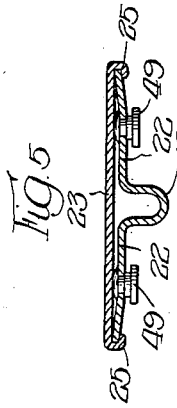


Fig. 5

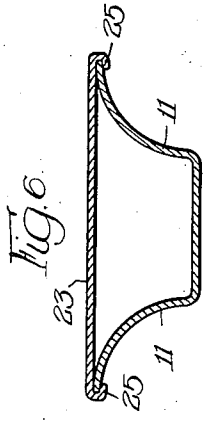


Fig. 6

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UNITED STATES PATENT OFFICE

2,067,712

ROLLER SKATE

Leland G. Knapp, Chicago, Ill., assignor to Montgomery Ward & Co., Incorporated, Chicago, Ill., a corporation of Illinois

Application October 11, 1935, Serial No. 44,481

9 Claims. (Cl. 208—173)

The present invention is related to roller skates of the all-metal type.

Its main and primary object is to provide a skate of this type wherein the parts are so organized and related as to permit their manufacture from sheet metal by stamping or pressing, thereby enabling the skates to be manufactured at minimum expense.

A further object is to provide a skate of the character referred to the construction of which is such as to admit of ready assembly of its elements and maintenance thereof so that the skate may be durable and be possessed of relatively long life.

A further object is the provision of a skate which has attractive and graceful appearance and is designed in such fashion as to present the streamlined effect to which many commodities are directed at the present time.

Other objects and advantages of the invention will appear as the nature of the improvements is better understood, the invention consisting substantially in the novel construction, combination and arrangement of parts hereinafter fully described, illustrated in the accompanying drawings, and finally pointed out in the appended claims.

The form of the invention herein shown and described presents a preferred embodiment thereof, and delineates its adaptation to practical use, but it is to be understood that the present disclosure is to be considered from the illustrative standpoint and not as imposing restriction or limitation on the invention.

In the drawings,

Fig. 1 is a side elevation of a roller skate constructed in accordance with the present invention;

Fig. 2 is a top plan view thereof;

Figs. 3 and 4 are front and rear end elevations, respectively, of the skate;

Figs. 5, 6, 7 and 8 are transverse sectional views, as on the lines 5—5, 6—6, 7—7 and 8—8, respectively, Fig. 2, parts being omitted from the views for clarity of understanding.

As before premised, the hereindescribed skate has its parts formed of sheet metal which are stamped or pressed to the desired configuration characteristic of the invention. The skate includes a distinct toe assembly and a distinct heel assembly joined in adjustable relation so as to be fitted to different sizes of feet, and when so joined the design of the skate is such as to present a streamlined effect.

Referring now in detail to the drawings, and having reference particularly to the toe assembly of the skate, the numeral 10 designates the body of the toe member. It is formed of a single sheet of metal bent to the shape illustrated, and said body may be compared to a supporting sill commonly found in many mechanical structures. In stamping the toe member the sides are folded into relatively parallel side walls 11 which flare upwardly and outwardly, as more clearly shown in Fig. 6. The forward ends of the side walls 11 are contracted, or bent towards each other, as at 12, to provide a relatively narrow nose 13, which nose is formed by compressing the forward extremities of the walls 11, as clearly shown in Fig. 2. At the under edge of the nose 13 a notch 14 is formed, the purpose of which will appear at a later point herein.

The bottom wall of the body 10 is bent to provide two oppositely-inclined or diverging surfaces 15 and 16, the latter constituting a seat for the hanger 17 of a wheel assembly 18. The oppositely-inclined or diverging relation of the surfaces 15 and 16 serves to truss or brace the body 10, and thus greatly strengthens the body so as to enable it to resist strains and stresses imposed thereon. The present invention is not concerned with the particular construction of the wheel assembly. This may be any of the conventional forms commonly found in roller skates. Preferably the hanger 17 is spot-welded to the seat 16, and said hanger also contacts a downwardly-inclined shoulder 19 which is formed at the forward end of the hanger seat 16, and thereby provides for a rigid mounting of the hanger.

The rear end of the body 10 is contracted into a tubular shank 20, which is square in cross section, as more clearly seen in Fig. 7. This shank is formed by bending the edges of the side walls 11 inwardly and downwardly into horizontal planes, thereby providing supporting flanges 21.

The forward ends of the side walls 11 are flared outwardly and bent to form horizontal flanges 22, as more clearly seen in Fig. 5. These flanges are relatively broad, and gradually merge into the rear ends of the side walls, as more clearly seen in Fig. 6. They provide supporting surfaces for a toe plate 23, of the outline shown in Fig. 2, wherein it will be seen that the body of the plate 23 conforms substantially to the shape of the sole of a shoe, and terminates in a narrow rearwardly-extending shank 24 that overlies the supporting flanges 21.

To unite the toe plate 23 upon the body 10 and the flanges of the latter the edges of the plate 23 are crimped into engagement with the edges

of the side walls 11, as at 25, as clearly seen in Figs. 5 and 6, and when so joined the toe plate is fixedly held in engagement with the body 10. This dispenses with the necessity of rivets, screws, spot-welding and similar fastenings, and thereby greatly reduces the expense or cost of production in the manufacture of the skate.

The heel assembly follows in general the construction of the toe assembly. This is formed also of a single sheet of metal stamped or pressed to the desired shape. It comprises a supporting body 26 the side walls 27 of which are bent into parallel relation and terminate in a forwardly-extending shank 28 which shank, as shown in Fig. 7, is square in cross-section. The upper edges of the side walls 27, at the shank 28 are bent downwardly and inwardly to form supporting flanges 29. Within the bottom wall of the shank 28 a series of openings 30 is formed by punching the metal inwardly, resulting in inwardly-extending burrs, and these punched-in portions are screw-threaded as at 31. The purpose of this will be presently explained.

At the rear end of the shank 28 the side walls 27 are flared upwardly and outwardly, as more particularly seen in Fig. 8, thus providing substantially flat supporting flanges 32 at their upper edges. Upon the flanges 32 is seated a heel plate 33, and the edges of this plate are crimped, as at 34, about the edges of the flanges 32. Thus, the heel plate is united to the flanges 32 and fixedly held thereby. The heel plate 33 terminates in an upwardly-extending curved heel rest 35, and located at the rear of said heel rest is a fin 36 which is slotted, as at 37, to receive a strap for fastening the heel of the skate to the foot of the user. This fin has an inwardly-extending fastening lug 38 which is received by an opening 39 in the heel rest 35, the lug being upset or headed in order to hold the fin 36 in engagement with the heel rest.

The bottom wall of the body 26, like the bottom of the body 10 of the toe assembly, is bent to provide two oppositely-inclined or diverging surfaces 40 and 41. The oppositely-inclined or diverging relation of the surfaces 40 and 41, as characterizes the surfaces 15 and 16, also serves to truss or brace the body 26, and thereby greatly strengthens the body to enable it to resist strains and stresses imposed thereon, in a manner similar to the body 10. The surface 41 constitutes a seat for the hanger 17 of the wheel assembly 18, such as employed with the toe assembly. Preferably, the hanger in the heel assembly is spot-welded to the seat 41 and said hanger contacts a downwardly-inclined shoulder 42 which is formed at the rear end of the hanger seat 41, thereby to provide a rigid mounting for the hanger.

The rear extremities of the side walls 27 are bent into parallel relation, the side walls being contracted towards each other at these extremities, so as to provide a fin 43. These extremities of the side walls 27 embrace the lower end of the fin 36. The fin 43 and the fin 36 combine to form a tail piece for the skate, and thereby impart a finish to the rear end of the heel assembly.

The outside diameter of the shank 28 of the rear assembly is less than the inside diameter of the shank 20 of the toe assembly so as to fit within the latter and be slidable therein. This permits longitudinal adjustment of the toe and heel assemblies with respect to each other so that the skate may be fitted to different lengths of shoes. To hold the members in adjusted position the shank 20 is provided with a fastening screw 44 the threaded inner end of which is designed to engage any one of the series of threaded openings 30 formed in the shank 28. The shank of the screw 44 passes through an opening 45 which is formed in the lower wall of the shank 20. This lower wall, at the opening 45, is faced with a reinforcing clip 46 which is suitably fastened to the shank 20, and through which the screw 44 is passed. The reinforcing clip 46 has the effect of thickening the metal at this point, and thereby strengthening the shank 20 against wear due to the adjustment of the screw 44 relation to the shank 28.

That the toe assembly may be held upon the shoe of the user a pair of toe clamps 47 is employed. These toe clamps follow the usual construction of fastening devices of this character. The bodies of the clamps 47 are provided with elongated slots 48, and each of these clamps is fitted to a headed guide stud 49 which is riveted to one of the supporting flanges 22. The stud 49 is received by the slot 48 of the clamp associated with the stud, and this permits the toe clamps to be adjusted laterally of the toe plate 23. To effect that adjustment a right and left-hand screw-threaded adjusting screw 50 is employed, one of the threaded ends of said screw being threadably engaged with a depending flange 51 carried by the adjacent toe clamp 47. The screw 50 is received by the notch 14 of the body of the toe assembly.

From the foregoing it is apparent that both the toe and heel assemblies constitute substantially integral structures the parts of which are stamped or pressed. In crimping the toe and heel plates to their respective supports the use of screws, rivets and like fastenings is eliminated entirely. The structure is rigid and due to the fact that fastenings of the nature referred to are eliminated from the assembly of the parts, the skate is adapted to resist rough usage without liability to separation of the elements.

I claim:

1. A roller skate, comprising a toe assembly, a heel assembly, each of said assemblies formed from a blank to constitute a support including relatively parallel side walls the edges of which terminate in supporting flanges, each of said supports also having a bottom wall including oppositely-inclined portions for bracing the support, toe and heel plates mounted on their respective supports and fixedly connected thereto, and means for adjustably connecting the assemblies.

2. A roller skate, comprising a toe assembly, a heel assembly, each of said assemblies formed from a blank to constitute a support including relatively parallel side walls the edges of which terminate in supporting flanges, each of said supports also having a bottom wall including oppositely-inclined portions for bracing the support, the side walls of the support of each assembly being bent to form shanks adapted to telescope one with the other, toe and heel plates mounted on their respective supports and fixedly connected thereto, and means for adjustably connecting the telescoped shanks of the assemblies.

3. A roller skate, comprising a toe assembly, a heel assembly, each of said assemblies formed from a blank to constitute a support including relatively parallel side walls, the edges of said side walls at one end of each support terminating in outwardly flared supporting flanges, the edges of said side walls at the other end of each

support being contracted to form shanks adapted to telescope one with the other, each of said supports also having a bottom wall including oppositely-inclined portions for bracing the support, toe and heel plates mounted on their respective supports and fixedly connected thereto, and means for adjustably connecting the telescoped shanks of the assemblies.

4. A roller skate, comprising a toe assembly, a heel assembly, each of said assemblies formed from a blank to constitute a support including relatively parallel side walls, the edges of said side walls at one end of each support terminating in outwardly-flared supporting flanges, the edges of said side walls at the other end of each support being bent inwardly to horizontal position to provide supporting flanges and serving with the other portions of the side walls to form shanks, said shanks being adapted to telescope one with the other, toe and heel plates mounted on their respective supports and fixedly connected thereto, and means for adjustably connecting the telescoped shanks of the assemblies.

5. A roller skate, comprising a toe assembly, a heel assembly, each of said assemblies formed from a blank to constitute a support including relatively parallel side walls the edges of which terminate in supporting flanges, toe and heel plates mounted on said flanges of their respective supports, the contiguous ends of the support of each assembly being contracted and forming shanks adapted to telescope one with the other, and means for adjustably connecting the telescoped shanks of the assemblies.

6. A roller skate, comprising a toe assembly, a heel assembly, each of said assemblies formed from a blank to constitute a support including relatively parallel side walls flared upwardly and outwardly and terminating in supporting flanges, toe and heel plates mounted on their respective supports and connected to said flanges, the contiguous ends of the support of each assembly being contracted to form shanks of polygonal cross-section adapted to telescope one with the other, and means for adjustably connecting the telescoped shanks of the assemblies.

7. A roller skate, comprising a toe assembly including a support formed from a blank having relatively parallel side walls flared upwardly and outwardly and terminating in supporting flanges, said side walls being contracted to form a tubular shank, a toe plate mounted upon said flanges, a heel assembly including a support formed from a blank having relatively parallel side walls flared upwardly and outwardly and terminating in supporting flanges, said side walls being contracted to form a tubular shank, a heel plate mounted upon said flanges, said shanks of said assemblies being adapted to telescope one with the other, and means for adjustably connecting the telescoped shanks of the assemblies.

8. A roller skate, comprising a toe assembly, a heel assembly, each of said assemblies formed from a blank to constitute a support including relatively parallel side walls flared upwardly and outwardly and terminating in supporting flanges, toe and heel plates mounted on their respective supports and having their edges crimped into engagement with the edges of said supporting flanges, the contiguous ends of the support of each assembly being contracted to form shanks adapted to telescope one with the other, and means for adjustably connecting the telescoped shanks of the assemblies.

8. A roller skate, comprising a toe assembly, a heel assembly, each of said assemblies formed from a blank to constitute a support including relatively parallel side walls flared upwardly and outwardly and terminating in supporting flanges, each of said supports also having a bottom wall including oppositely-inclined portions for bracing the support, toe and heel plates mounted on their respective supports and having their edges crimped into engagement with the edges of said flanges, the contiguous ends of the support of each assembly being contracted to form shanks adapted to telescope one with the other, and means for adjustably connecting the telescoped shanks of the assemblies.

LELAND G. KNAPP.