

Aug. 17, 1965

R. R. QUICK

3,201,137

ACCESSORY FOR ROLLER SKATES

Filed March 23, 1964

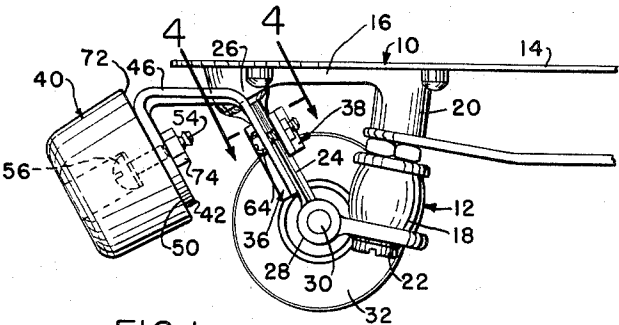


FIG. 1

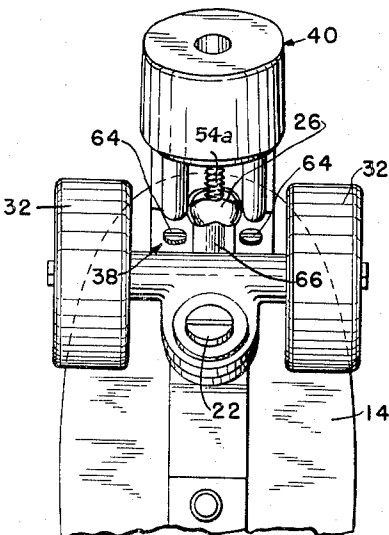


FIG. 2

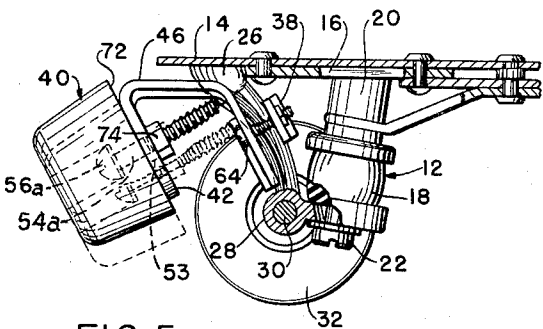


FIG. 3

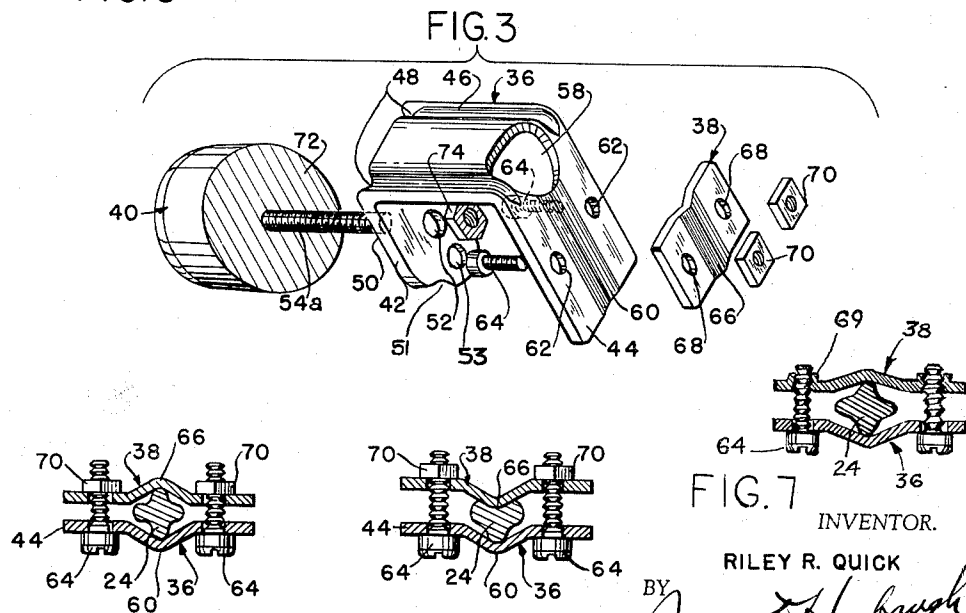


FIG. 4

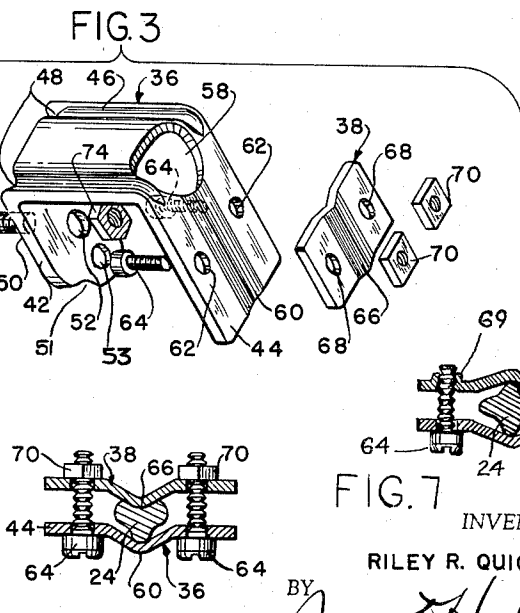


FIG. 5

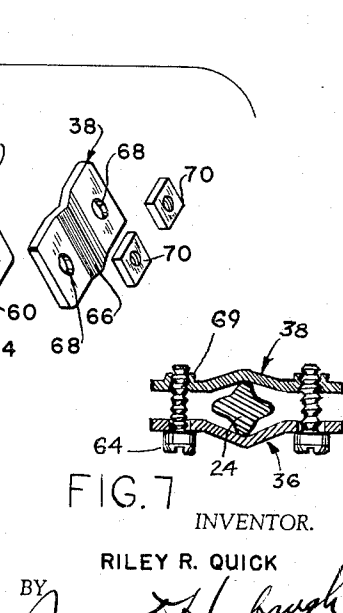


FIG. 6

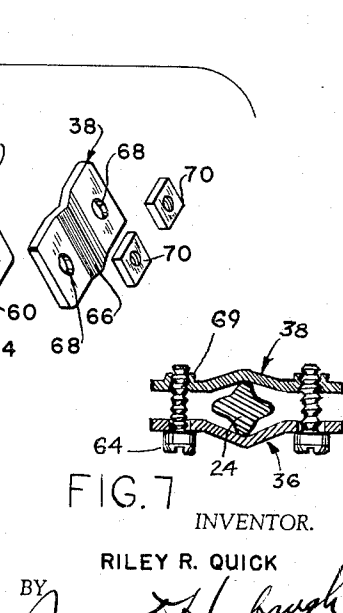


FIG. 7

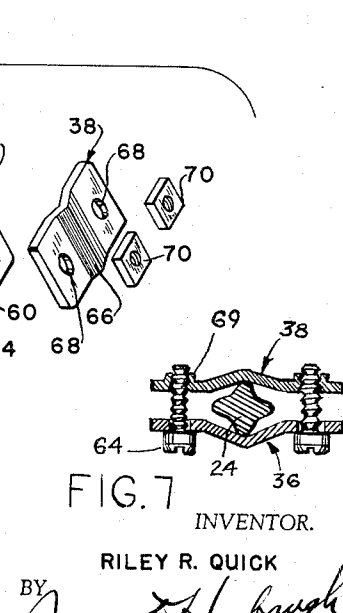


FIG. 8

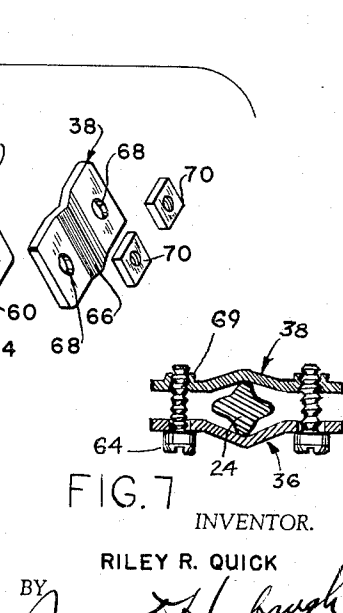


FIG. 9

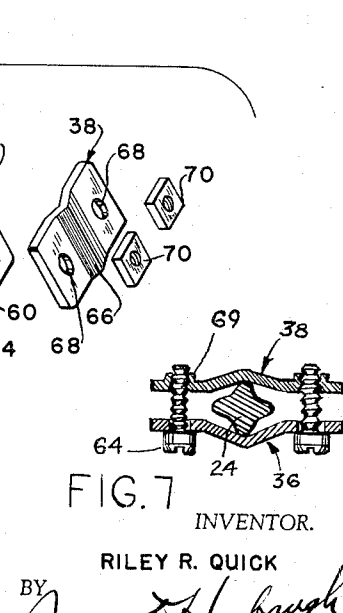


FIG. 10

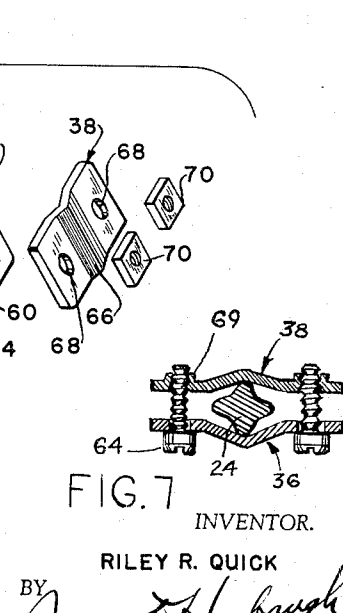


FIG. 11

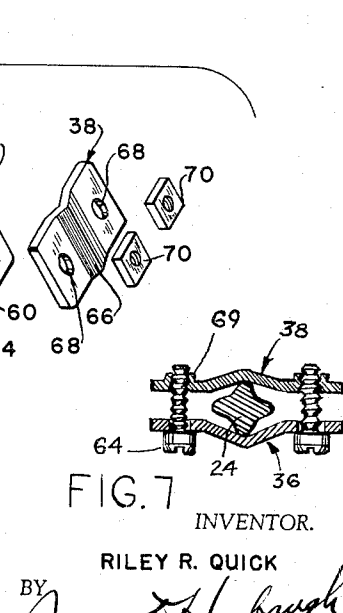


FIG. 12

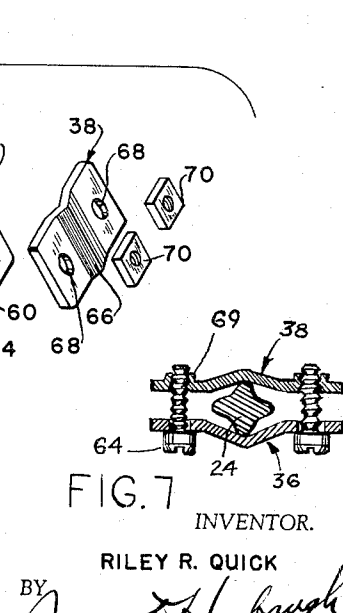


FIG. 13

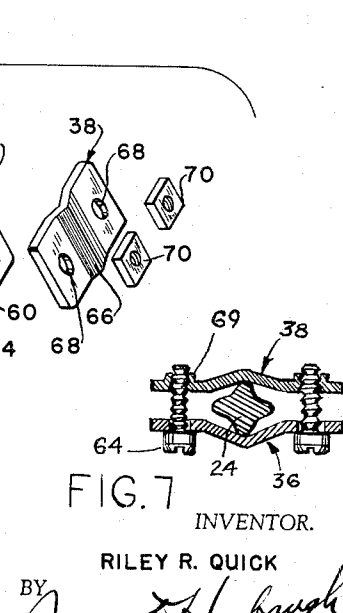


FIG. 14

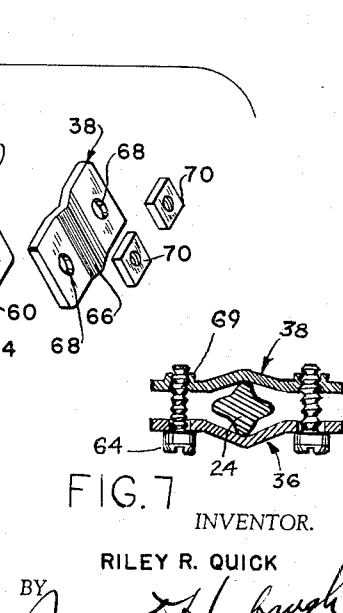


FIG. 15

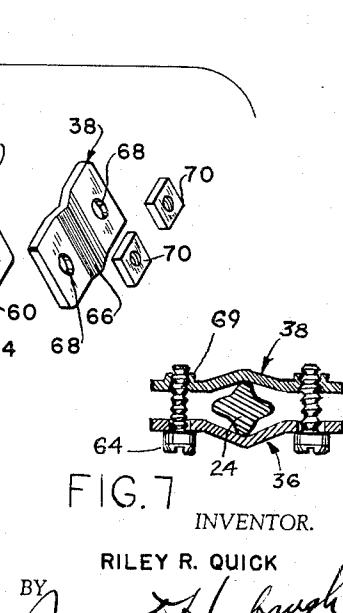


FIG. 16

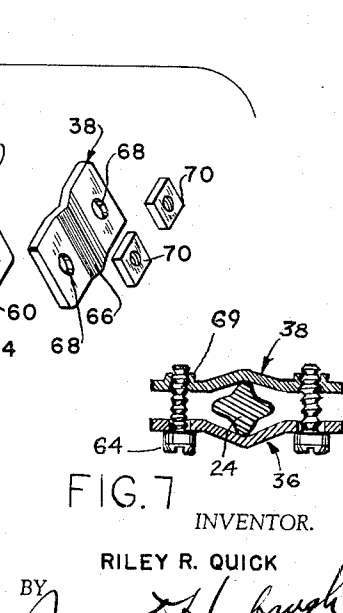


FIG. 17

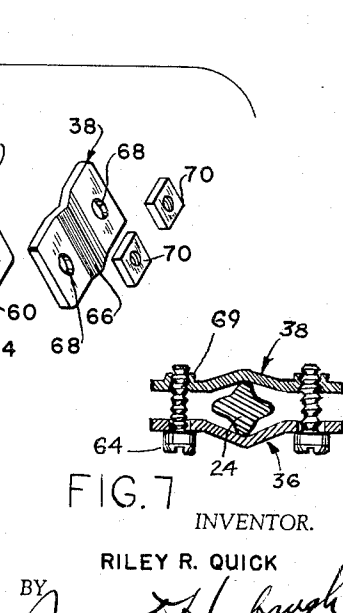


FIG. 18

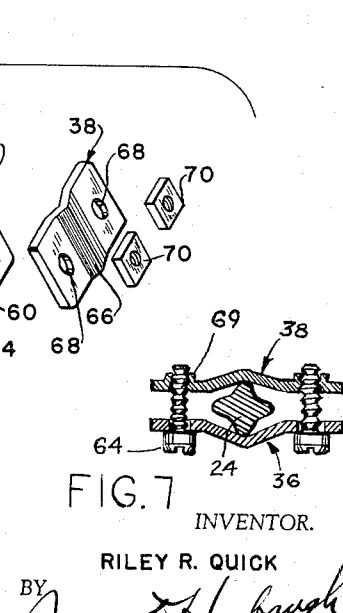


FIG. 19

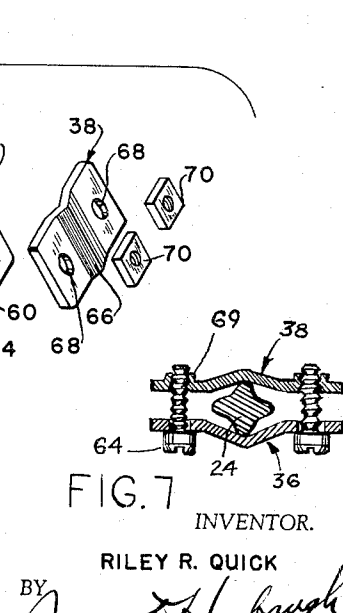


FIG. 20

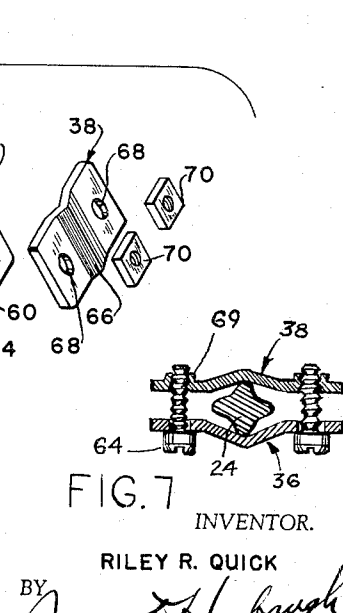


FIG. 21

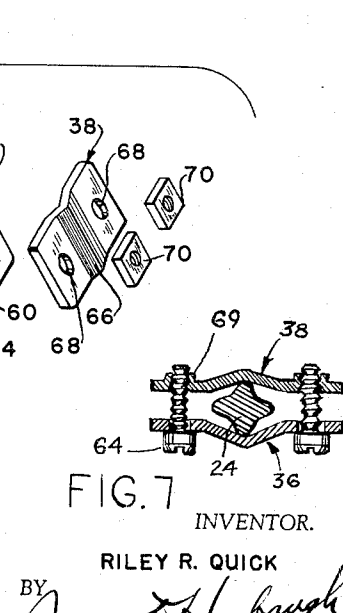


FIG. 22

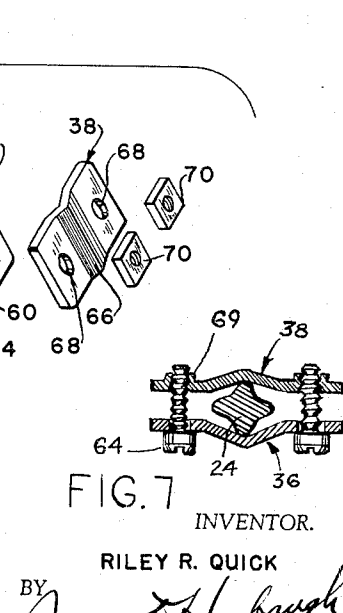


FIG. 23

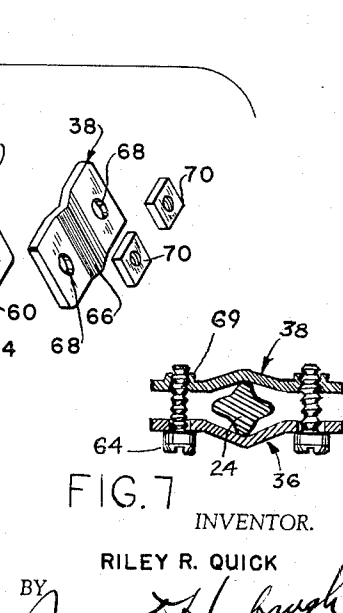


FIG. 24

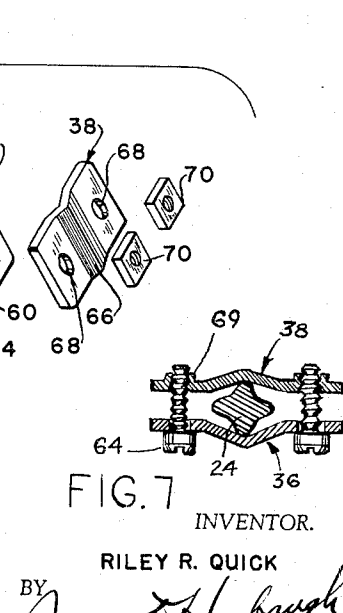


FIG. 25

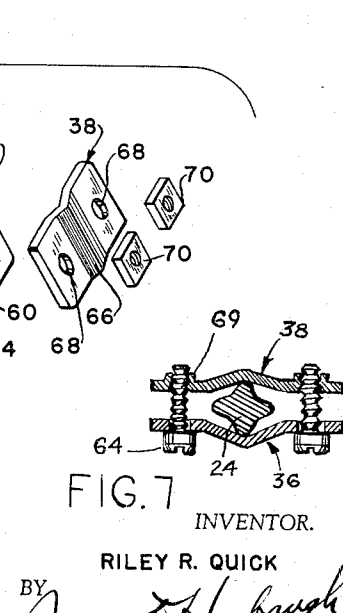


FIG. 26

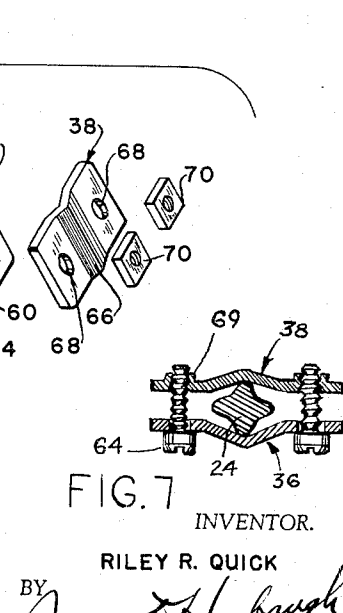


FIG. 27

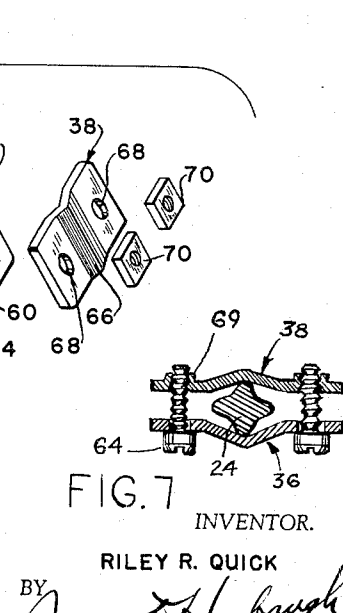


FIG. 28

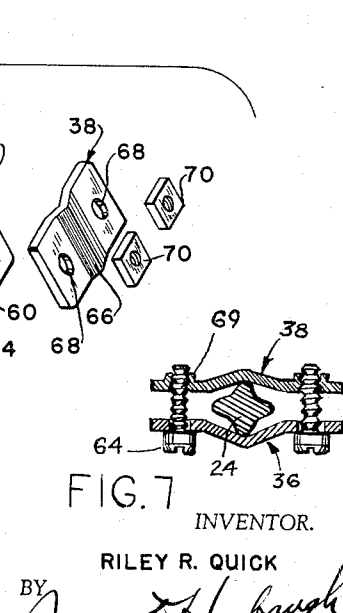


FIG. 29

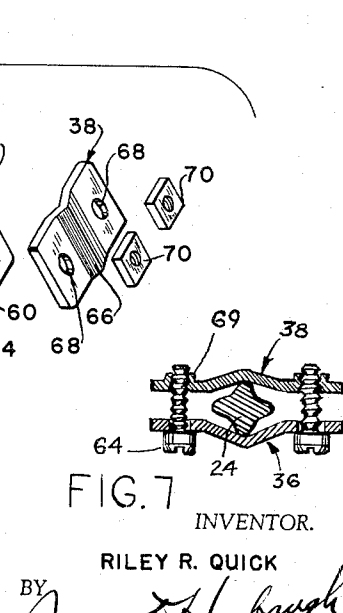


FIG. 30

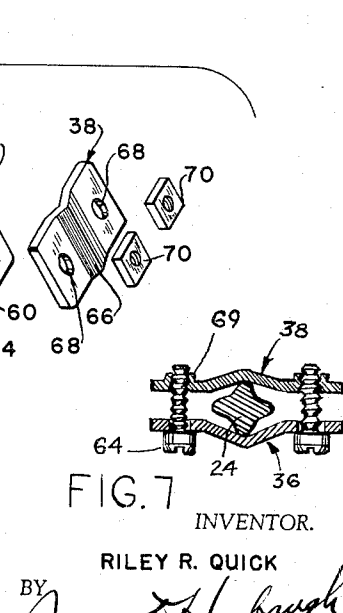


FIG. 31

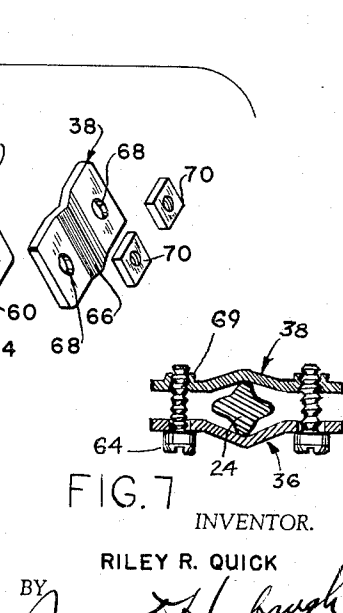


FIG. 32

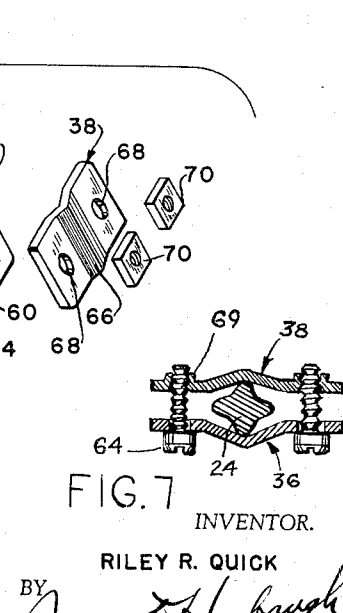


FIG. 33

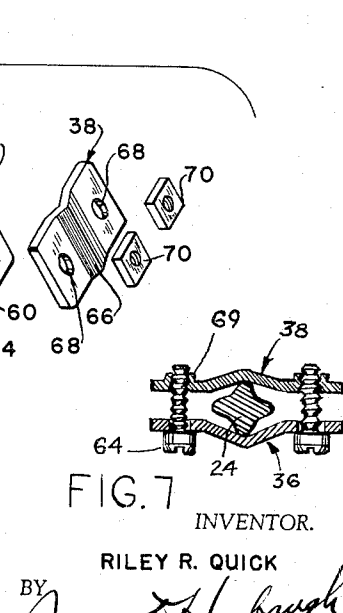


FIG. 34

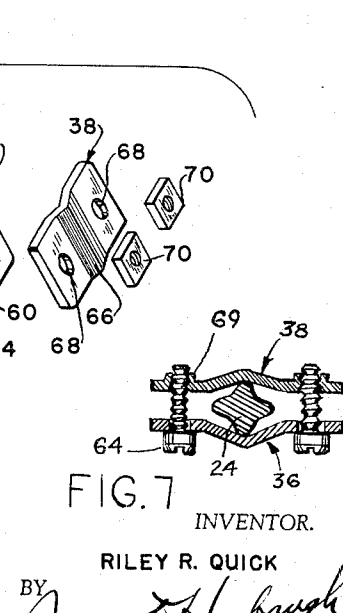


FIG. 35

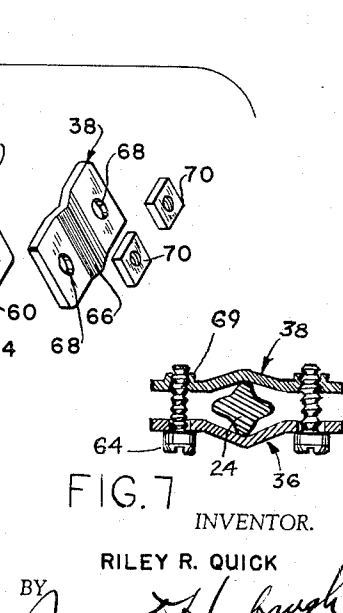


FIG. 36

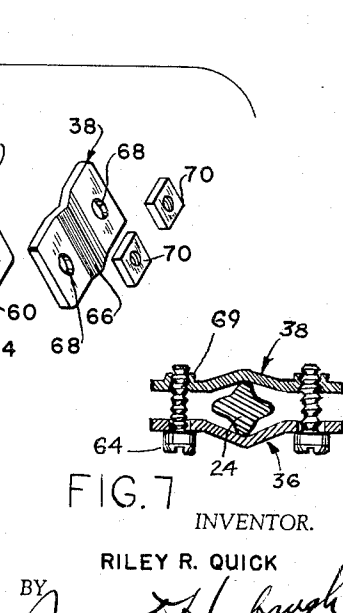


FIG. 37

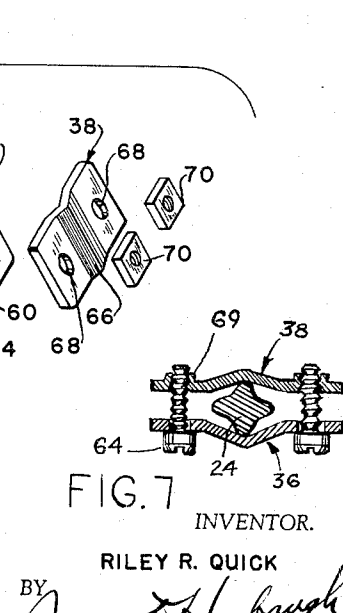


FIG. 38

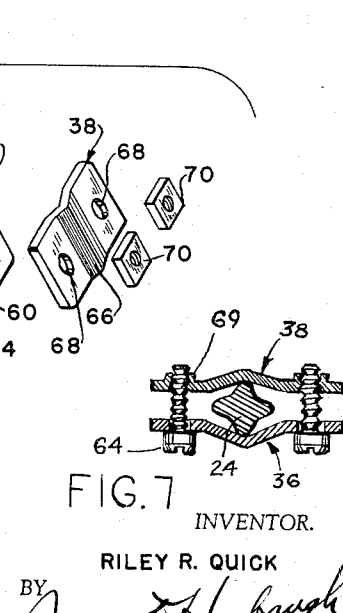


FIG. 39

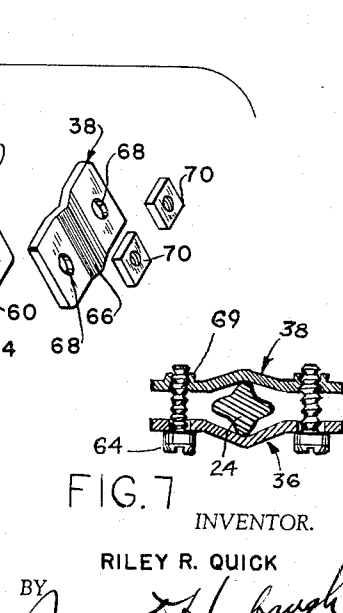


FIG. 40

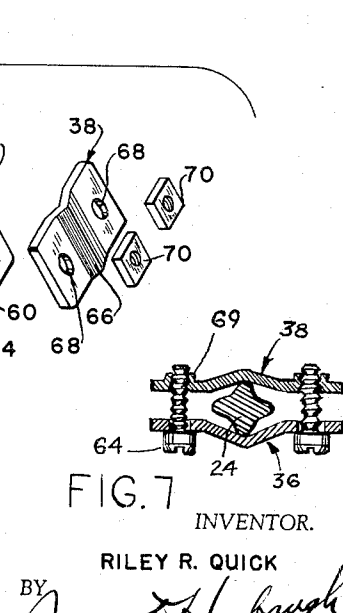


FIG. 41

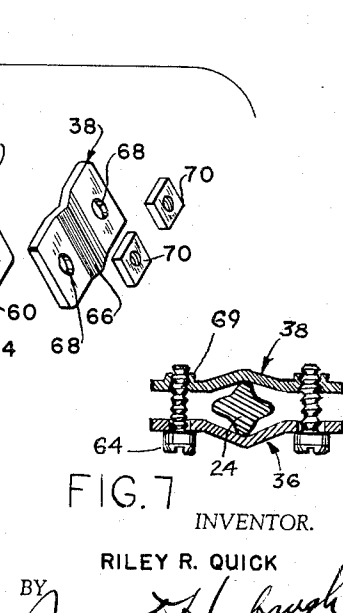


FIG. 42

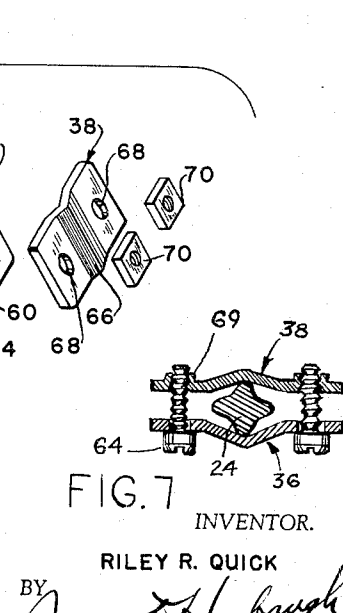


FIG. 43

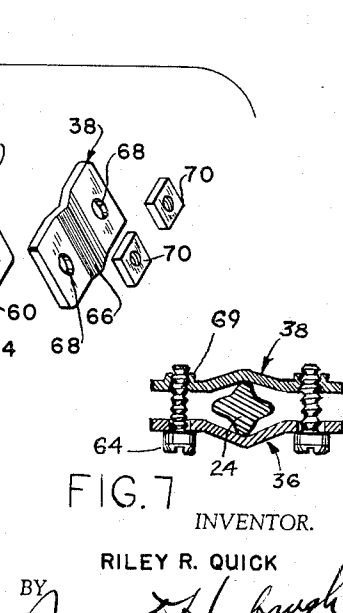


FIG. 44

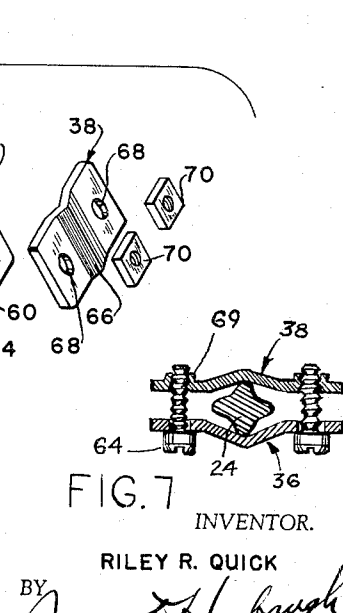


FIG. 45

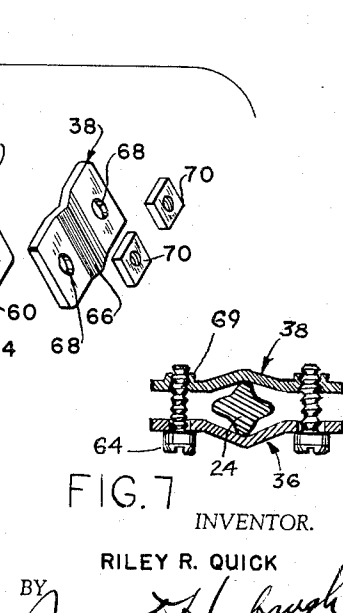


FIG. 46

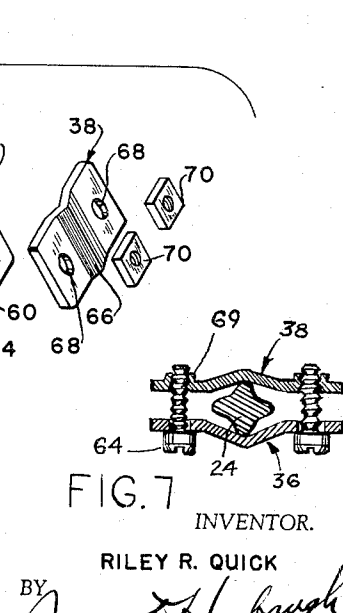


FIG. 47

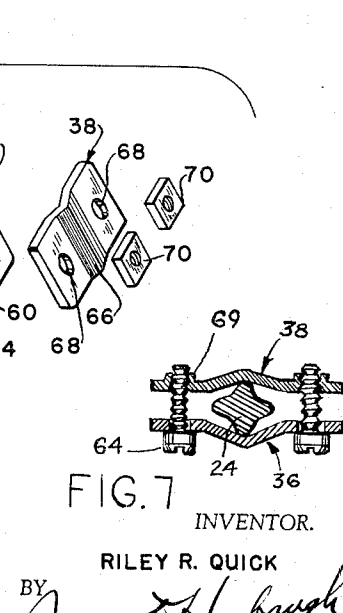


FIG. 48

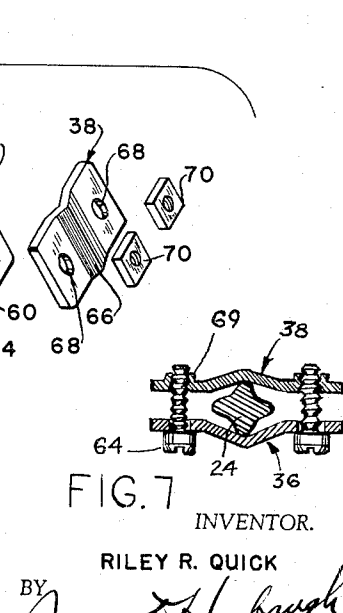


FIG. 49

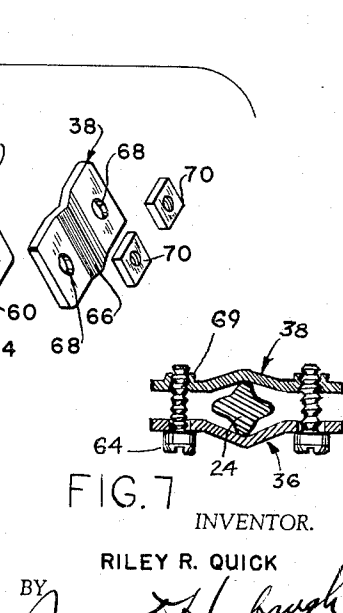


FIG. 50

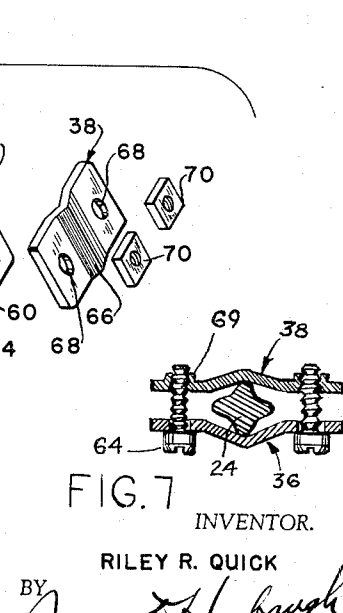


FIG. 51

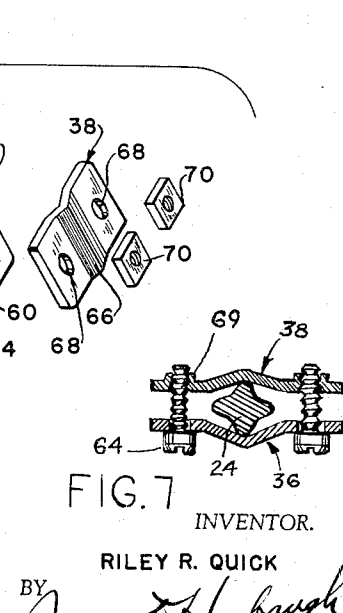


FIG. 52

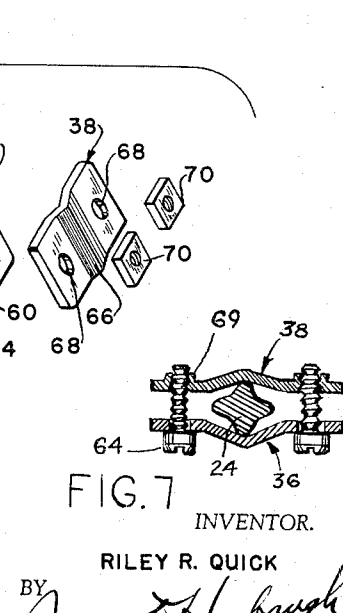


FIG. 53

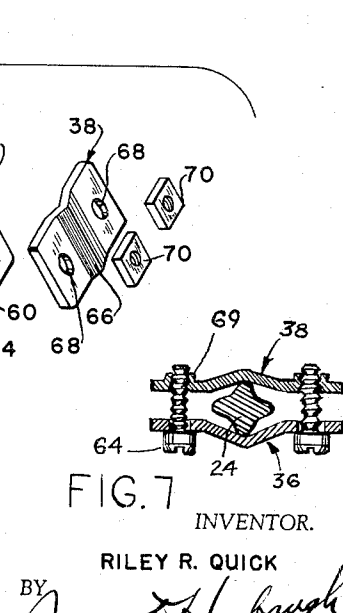


FIG. 54

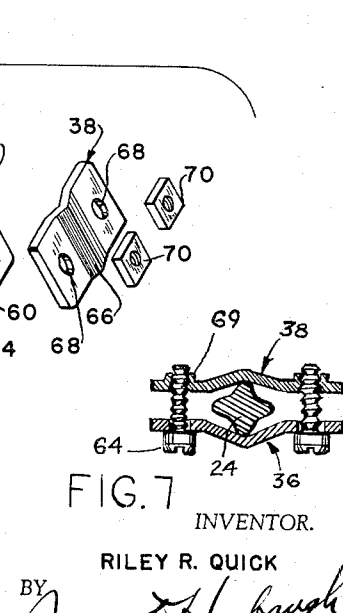


FIG. 55

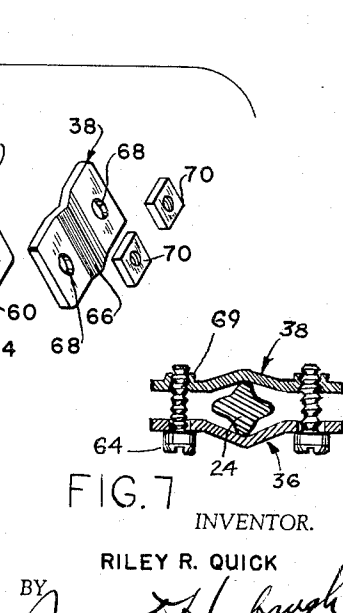


FIG. 56

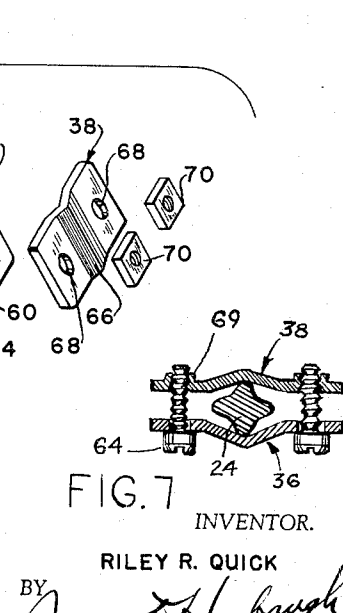


FIG. 57

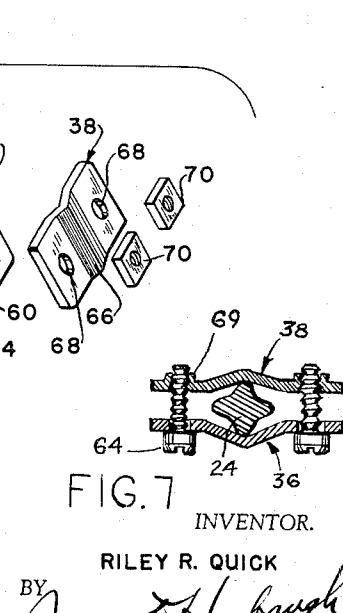


FIG. 58

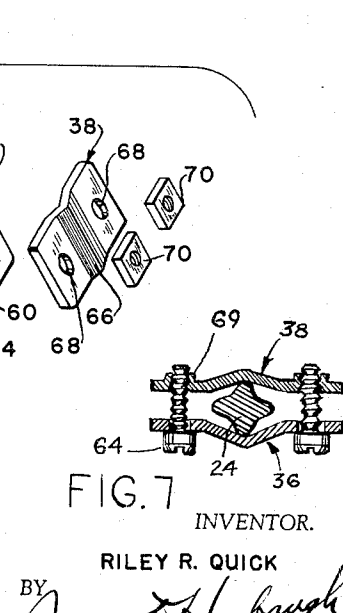


FIG. 59

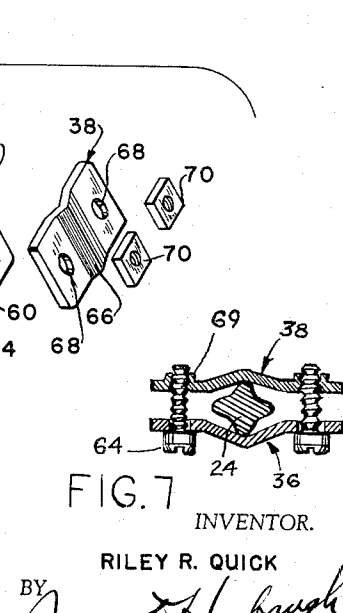


FIG. 60

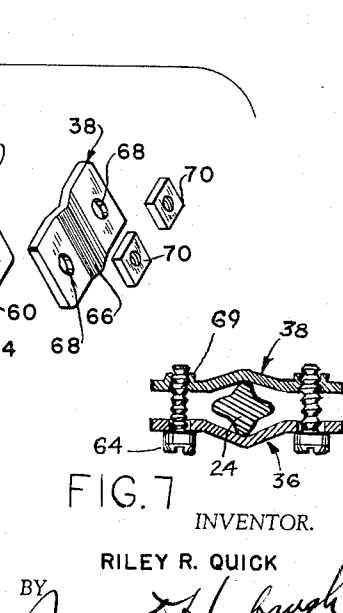


FIG. 61

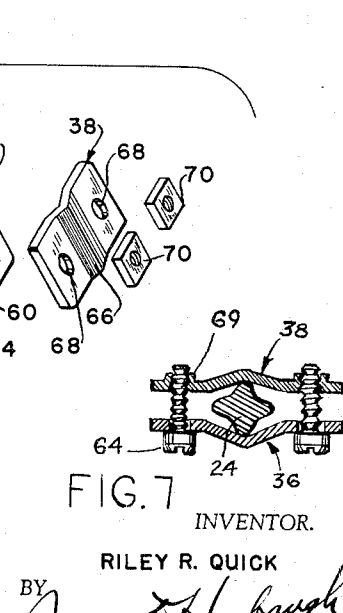


FIG. 62

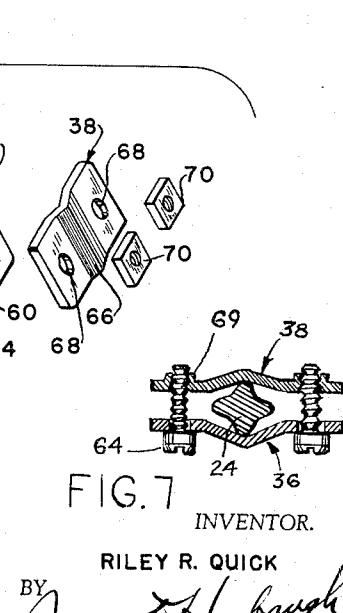
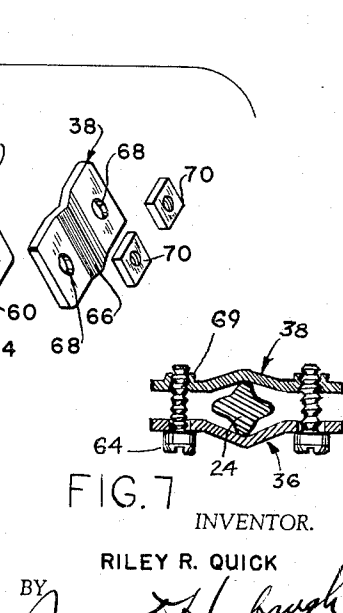


FIG. 63



1

3,201,137

ACCESSORY FOR ROLLER SKATES

Riley R. Quick, Litchfield, Ill., assignor to Roller Derby Skate Corp., Litchfield, Ill., a corporation of Ohio
Filed Mar. 23, 1964, Ser. No. 353,965
6 Claims. (Cl. 280-11.2)

This invention relates in general to roller skates and more particularly to an improved toe stop accessory adapted for use with shoe-type roller skates.

This application is a continuation-in-part of Serial No. 195,032, filed May 14, 1962, and now abandoned.

To assist roller skaters in executing intricate maneuvers, such as dance steps, it is common to attach to the lower, forward portion of the conventional shoe-type roller skate, a braking member or stop. Generally, such accessory brakes or toe stops have been attached to the skate in many different forms and usually require partial dis-assembling of the skate or intricate fastening members for securement to the shoe or the skate structure. Further, prior art devices of this nature usually require special tools and equipment and entail considerable time and effort for proper installation.

Since the entire body weight of the skater is frequently supported by the toe stop itself and the toe stop is frequently subjected to sharp, impact forces during certain sudden stops, take-offs and other intricate figure patterns and steps, the securing portions of the toe stop accessories have been rather large and bulky to provide sufficient rigidity and securement to the skate structure. Although several recent toe stop accessories have been developed which do not require partial dis-assembly of the skate structure for securement, the devices are attached to the lower portion of the wheel truck whereby the impact forces on the stop element are transmitted to the weaker supports or brace members of the wheel truck and such are frequently distorted or fractured.

Accordingly, it is the primary object of this invention to provide an improved toe stop accessory which is extremely light in weight, economical in manufacture, simple in design and provides the utmost in ease in assembly and dis-assembly to the skate structure.

A specific object of this invention is to provide an improved toe stop accessory for roller skates which is releasably secured to the skate structure in stress resistant relationship.

Another object of this invention is to provide an improved toe stop accessory for roller skate structures which is securely clamped to a portion of the skate structure eliminating possible shifting action of the accessory relative to the skate in all directions regardless of the forces and pressures subjected thereto.

A further object of this invention is to provide an improved toe stop accessory which insures rigid securement both for safety and control during intricate figure patterns and acrobatic maneuvers by the skater and is easily assembled and dis-assembled by the skater with a single drive tool.

A still further object of this invention is to provide an improved toe stop accessory having an adjustable securing means adaptable for any conventional shoe-type skate structure.

Another object of this invention is to provide an improved toe stop accessory for roller skates which is releasably clamped to the wheel truck but is in force transmitting surface-to-surface contact with the secured hanger portion of the skate structure to dissipate impact forces on the stop element throughout the skate structure, rather than the wheel truck.

The invention is further characterized by the toe stop floor engaging member being mounted on a bracket which

2

is disposed in close proximity to the wheel truck hanger to dissipate toe stop impact forces to the hanger and being provided with an elongated element between the toe stop itself and the wheel truck or the wheel truck hanger to dissipate impact forces on the toe stop directly to the hanger or wheel truck if desired.

Other objects and advantages of the invention will appear from the detailed description which consists of the features of constructions and combination of parts hereinafter described and claimed and illustrated in the drawings in which:

FIG. 1 is a fragmentary view in side elevation of the forward portion of a conventional roller skate construction having the improved toe stop accessory of this invention assembled thereto;

FIG. 2 is a fragmentary bottom view of the conventional roller skate structure having a modification of the improved toe stop accessory mounted thereon;

FIG. 3 is an exploded perspective view of the improved toe stop accessory components;

FIG. 4 is a sectional view taken along the line 4-4 of FIG. 1;

FIG. 5 is a fragmentary view in side elevation of the forward portion of another conventional roller skate construction having another modification of the improved toe stop accessory of this invention assembled thereto;

FIG. 6 is a sectional view, similar to FIG. 4, illustrating the securement of the clamping members of this invention to an alternate skate structure wherein one of the clamping members is reversed for positive securement; and

FIG. 7 is a sectional view similar to FIG. 4 illustrating the clamping members secured about a portion of the skate structure with the secondary bracket having threaded apertures therethrough for receipt of the clamping bolts.

Referring now to the drawings, specifically FIGS. 1, 2 and 5, a portion of a conventional roller skate structure is indicated generally by the numeral 10 to which the toe stop accessory of this invention is attached. A supporting member 12, conventionally referred to as a wheel truck, is fixedly secured to a sole plate 14 by a hanger member 16. The wheel truck 12 is made up of a shock absorbing element 18 which is fastened to a downwardly depending supporting boss 20 of the hanger 16 by means of a bolt member 22 fastened therethrough and engaging the supporting boss 20. In cooperation with the resilient shock absorbing element 18 and having one end secured thereto is a front supporting member 24 which is pivotally connected at the other end, by a ball and socket assembly 26, to the forward portion of the hanger 16. The front support member 24, adjacent its connection with the resilient absorbing element 18, provides a substantially cylindrical axle housing 28 supporting an axle 30 upon which the roller skate wheels 32 are rotatably supported. The members and their relationship of the skate structure just described are of conventional formation and are described only in illustrating their relationship with the toe stop accessory of this invention.

Referring now more particularly to FIG. 3, the toe stop accessory of this invention, indicated generally by the numeral 34, includes three main components; a primary bracket 36, a secondary bracket 38 and a resilient stop element 40. The primary bracket 36 is preferably fabricated from steel and is easily formed to the desired configuration by a stamping operation and provides a forward leg portion 42 and a rearward leg portion 44 interconnected by an intermediate portion 46, in a U-shaped configuration, with leg portions 42 and 44 substantially parallel to each other. The intermediate section 36 has concave reinforcing ribs 48 formed therein in spaced

apart relationship parallel to the longer dimension thereof with the terminus of the ribs 48 on the legs 44 and 46.

The forward leg portion 42 is provided with a planar outer surface 50 for engagement with the resilient stop element 40. Apertures 52 and 53 are centrally formed therethrough for receipt of the threaded shank portion 54 of a securing bolt 56 to secure the resilient stop element 40 in position, as best seen in FIGS. 1 and 3. The bolt 56 may be short as shown in FIG. 1 or it may be a long one 56a as shown in FIGS. 2 and 5 to terminally engage the hanger 26 or wheel truck front support member 24 depending upon which aperture is used. The apertures 52 and 53d are in spaced apart alignment, one below another, to permit vertical adjustment of the stop element 40 as desired. The lower rounded edge of the planar surface 50 is provided with notched recesses 51 on both sides of apertures 52 and 53 to facilitate engagement of a screw driver with the clamping bolts to be explained.

The rearward leg portion 44 of the primary bracket 36 is provided with an enlarged aperture 58 at the juncture of the intermediate portion 46 with the leg 44 through which is received the outer portion of the ball and socket assembly 26 between the support arm 24 and the hanger 16 as best seen in FIG. 1. Portions of the leading edge of aperture 58, on the intermediate portion 46, are in surface-to-surface contact with the forward surface of the hanger 16. An inwardly facing channel 60 is centrally formed in the leg portion 44 extending the length thereof and terminating at its upper end in the aperture 58 for receipt therein of an angular portion of the support arm 24, as best seen in FIG. 4 and FIG. 6. Adjacent, but below the aperture 58, in spaced apart relationship, on both sides of the channel 60 are apertures 62 for receipt of clamping bolt member 64.

Still referring to FIG. 3, the secondary bracket 38 is preferably formed from identical material as the primary bracket 22 and is provided with an outwardly facing channel 66 centrally formed therein with apertures 68 formed on both sides thereof for alignment with the apertures 62 in leg 44 of the primary bracket 36 when positioned on the skate structure. It is to be understood that the apertures 46 are preferably threaded, as indicated by numeral 69 in FIG. 7, or of blank configuration with the clamping bolt members 64 receiving a mating threaded element 70. The channel 66 may receive therein an angular portion of the support arm 24 as seen in FIG. 4 or when reversed may be received in a cavity of a different support arm configuration, as seen in FIG. 6, to provide surface-to-surface positive securement.

Referring now more particularly to FIGS. 1 and 3, the resilient stop element 40 is of conventional cylindrical configuration and provides an inner planar surface 72 for abutting engagement with the planar surface 50 on the forward leg portion 42 of the primary bracket 36 and may be anchored thereto by means of the bolt 56 having a short shank 54, the head of which is received within the resilient element 40 and the threaded shank portion 54 as previously described, extending through either the aperture 52 or 53 of the forward leg portion 42 and threadedly engaging a mating threaded element 74.

Referring now more specifically to FIGS. 1, 2, 4 and 6, the toe stop accessory is positioned about, and secured to, the front support member 24 with the leading edge of the aperture 58 in the primary bracket 36 engaging the forward portion of the hanger 16. The primary bracket 36, when positioned on the front support member 24 receives an angular portion thereof in the inwardly facing channel 60. In like manner, the outwardly facing channel 66 of the secondary bracket 38 receives an angular portion on the rear portion of the front support member 24 as best seen in FIG. 4 or when reversed is received within the support arm cavity as seen in FIG. 6. The primary and secondary brackets are securely clamped to the front support member 24 by the threaded bolt members 64 and mating threaded elements 70.

The inwardly facing channel 60 and the outwardly facing channel 66 of the primary and secondary brackets, in addition to providing interlocking surface-to-surface contact with the front support member 24 to prevent rotation of the toe stop about the front support member, provide structural reinforcement for the brackets and the outer surface of the outwardly facing channel 66 on the secondary bracket, when assembled on a support arm configuration of FIG. 4, provides a holding surface for the threaded element 70 as the accessory is being assembled.

It is thus readily understood that the toe stop accessory of this invention is quickly and easily assembled to all of the conventional skate structures with only a drive tool needed to tighten the bolts 64. The desired pivotal and rocking action of the wheel truck and ball and socket assembly is not affected by the light physical contact either of the leading edge of the aperture 58 or the bolt 56a with the long shank 54a on the forward portion of the hanger 16, but as force is applied to the stop element 40, the leading edge of aperture 58 or the free end of the bolt 56a is arranged to engage the bracket and is driven into solid contact with the hanger 16 to dissipate the impact forces through the hanger 16, sole plate 14 and the shoe secured thereto. Where the bolt 56a engages the leg portion 44 of the bracket 36 in its alternate position shown in FIG. 5, the forces are also transmitted to the hanger. There is little if any pressure or force directed to the support member and wheel truck to distort or break these weaker members and the long bolt prevents a distortion of the bracket 36 as where a person vigorously kicks the toe stop against a stationary object.

Referring briefly again to FIG. 5, a variation of a conventional shoe-type roller skate structure is illustrated with the toe stop accessory of this invention secured thereto. The primary variation of various skate structures of importance to this invention is the configuration of the front support member 24. The structure of FIG. 5 provides a substantially cylindrical arched front support configuration. The primary and secondary brackets of this invention are secured in identical manner as just described. The edges of the channels 60 and 66, when drawn tightly together by the bolts 64 will partially embed in the matable surface of the front support member eliminating any possible subsequent rotation of the toe stop about the front support member. Additionally, the lower edge of the rearward leg 44 of the primary bracket 36 will be in surface-to-surface contact with the wheel truck at the juncture of the upper surface of the axle housing 28 and the front support member 24.

As previously described, the leading edge of the aperture 58 will be in surface contact with the forward portion of the hanger 16 to dissipate impact forces on the stop element 40 which previously were transmitted to the wheel truck and support member frequently causing distortion or breakage of the lighter skate components.

FIG. 6 shows still another conventional support arm configuration. The toe stop accessory of this invention is readily adapted thereto by merely reversing the secondary bracket 38 whereby the channel 66 is received in the cavity of the support arm as previously described.

FIG. 7 illustrates an embodiment of the brackets secured to the support member 24 where the secondary bracket 38 is provided with threaded apertures 69 for receipt of the bolt members 64. As previously mentioned, the bracket 38 is readily formed by a stamping operation and the apertures 69 may be easily formed by a conventional extruding, piercing and threading method.

To those skilled in the art, it is now readily understood how the objects and advantages of this invention are attained. The toe stop accessory, as described, improves the ease of assembly, is adaptable to all the skate structures now on the market and provides a novel interconnection between the toe stop brackets and the solid frame of the skate structure to dissipate the forces and

5

pressures applied to the stop element rather than to the weaker, lighter weight components of the skate structure. Thus, the toe stop accessory of the present invention compensates for the physical limitations imposed on similar devices of the prior art.

It is to be understood, however, that even though there is herein shown and described, a preferred embodiment of the invention, the same is susceptible to certain changes fully comprehended by the spirit of the invention as defined in the appended claims.

What is claimed is:

1. In combination with a roller skate structure having a sole plate, a hanger secured thereto and a wheel truck assembly including a support member angularly disposed with respect to the sole plate and pivotally engaging the hanger, a toe stop accessory comprising:

a contoured primary bracket member having a forward leg portion and a rearward leg portion having a flat upper part interconnected to the front leg portion by an intermediate portion,

a secondary bracket member,

securing members to retain said primary and secondary bracket members about the support member for pivotal movement therewith,

said flat upper part and intermediate portion having an aperture receiving the hanger portion of the pivotal connection with the front edge of the aperture disposed in slight surface contact with the hanger for free pivotal movement, and

a stop element secured to said forward leg of the primary bracket to sustain and transmit weight through said intermediate portion and contact directly to said hanger in a direction lengthwise of the sole plate.

2. In combination with a roller skate structure having a sole plate, a hanger secured thereto and a wheel truck assembly including a support member angularly disposed with respect to the sole plate and pivotally engaging the hanger, a toe stop accessory comprising:

a contoured primary bracket member having a forward leg portion and a rearward leg portion having a flat upper part interconnected to the front leg portion an intermediate portion,

a secondary bracket member,

securing members to retain said primary and secondary bracket members about the support member for pivotal movement therewith,

said flat upper part and intermediate portion having an aperture receiving the hanger portion of the pivotal connection with the front edge of the aperture disposed in slight surface contact with the hanger for free pivotal movement,

a stop element on said forward leg of the primary bracket for engagement with a skating surface to sustain weight, and

means for securing said stop element on said forward leg portion including an elongated member extending into close proximity to said hanger portion to sustain and transmit weight on the stop element directly to said hanger in a direction lengthwise of the sole.

3. A toe stop accessory for roller skates having a front wheel truck secured to a hanger on a sole plate including an inclined support member for the wheel truck pivotally supported on the hanger, said toe stop accessory comprising:

a primary bracket having downwardly and rearwardly inclined front and rear leg portions interconnected at the top by an intermediate portion,

an enlarged aperture formed in said primary bracket at the juncture of said intermediate portion with said rear leg portion,

said rear leg portion having an inwardly facing channel

6

centrally formed lengthwise therein and terminating at said aperture short of said juncture,

a secondary bracket having an outwardly facing channel centrally formed therein extending the length thereof,

a pair of threaded elements securing the rearward leg portion and the secondary bracket to the support member, said support member being received in the channels of the brackets,

the leading edge of the aperture in said primary bracket being in normally light surface contact with the forward portion of the hanger, and

a resilient stop member secured to the forward leg portion of the primary bracket for engagement with a skating surface to sustain weight and apply pressure at said surface contact to carry the sustained weight directly to the hanger and sole plate.

4. For use with a conventional roller skate having means pivotally mounting a front wheel truck on a sole plate including an inclined support member on the wheel truck pivotally engaging at its upper end in a ball and socket assembly in which the socket is disposed in a boss on the forward portion of a hanger that is secured to the sole plate,

a toe stop accessory comprising a primary bracket having downwardly and rearwardly inclined front and rear leg portions interconnected at their ends by an intermediate portion to form a U-shaped bracket member,

a secondary bracket member,

securing members to retain said primary and secondary bracket members to the support member for pivotal movement therewith,

said primary bracket at the upper end of its rear leg portion overlapping said forward portion and being shaped to provide a shoulder portion following the external contour of the forward surface of said forward hanger portion in normally light surface contact therewith, and

a resilient stop member secured to the forward leg portion of the primary bracket for engagement with a skating surface to sustain weight, and transmit through said intermediate portion and rear leg portion pressure to said forward portion at said surface contact to carry the sustained weight directly to the hanger and sole plate in a direction lengthwise of the sole plate.

5. The combination called for in claim 4 including means for securing said resilient stop to said forward leg portion and extending directly into close proximity to said rear leg portion adjacent to its upper end,

said securing means and said intermediate portion cooperating to transmit pressure upon said stop member to said rear leg portion.

6. For use with a conventional roller skate having means pivotally mounting a front wheel truck on a sole plate including an inclined support member on the wheel truck pivotally engaging at its upper end in a ball and socket assembly in which the socket is disposed in a boss on the forward portion of a hanger that is secured to the sole plate,

a toe stop accessory comprising a primary bracket having downwardly and rearwardly inclined front and rear leg portions interconnected at their ends by an intermediate portion to form a U-shaped bracket member,

a secondary bracket member,

securing members to retain said primary and secondary bracket members to the support member for pivotal movement therewith,

said primary bracket at the upper end of its rear leg portion overlapping said forward portion and being shaped to provide a shoulder portion following the external contour of the forward surface of said for-

7

ward hanger portion in a guided normally light surface contact therewith,
a resilient stop member carried by the forward leg portion of the primary bracket for engagement with a skating surface to sustain weight, and
5 means for securing said resilient stop member in said forward leg portion including an elongated member extending into close proximity to said forward hanger portion to transmit pressure to said forward portion to carry the sustained weight directly to the hanger and sole plate in a direction lengthwise to the sole plate.
10

8

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