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Brown et al.

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[54] **SHOCK ABSORBING CHAIR RAIL ASSEMBLY**

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[73] Assignee: **said Russell L. Brown, by said Lemuel G. Brown**

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[52] **U.S. Cl.** **52/717,** 52/312

[51] **Int. Cl.** **E04f 19/02**

[58] **Field of Search** .....52/716-718, 511, 287, 52/288, 312; 293/54 D, 62, 71 R; 49/490-491, 494-495, 467-469

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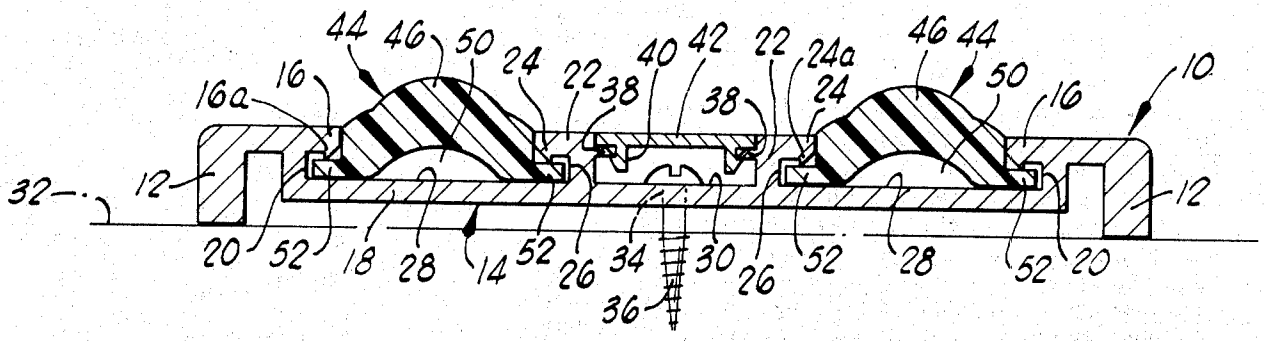
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[57] **ABSTRACT**

A chair rail assembly which includes an elongated rigid supporting member having formed on one side thereof, a pair of bumper strip receiving channels. A pair of elongated flexible and resilient bumper strips are carried by said channels. The chair rail assembly may further include terminal caps secured to the opposite ends of the rigid supporting member and a plurality of fastener elements utilized for securing the assembly to a supporting surface which it is to protect.

7 Claims, 10 Drawing Figures



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SHEET 1 OF 2

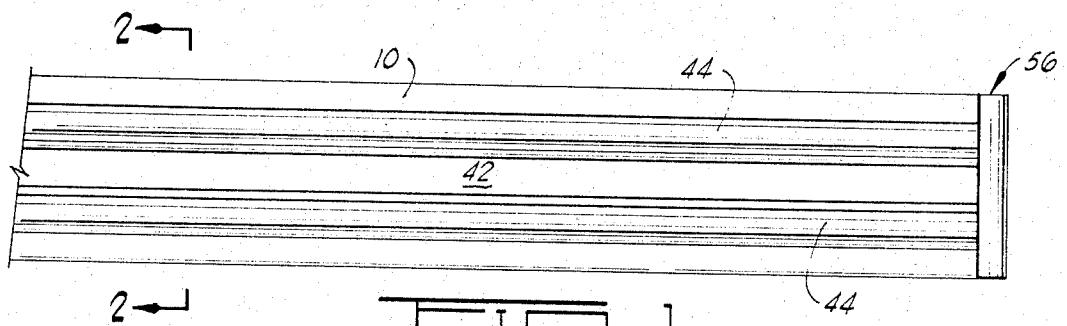


FIG. 1

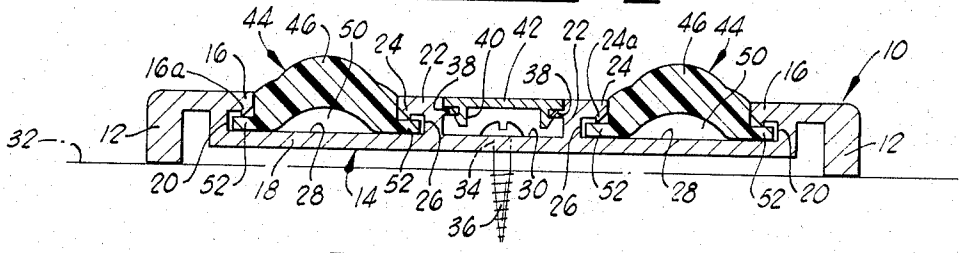
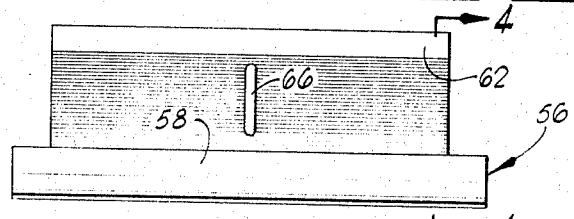


FIG. 2



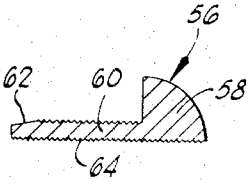


FIG. 3

FIG. 4

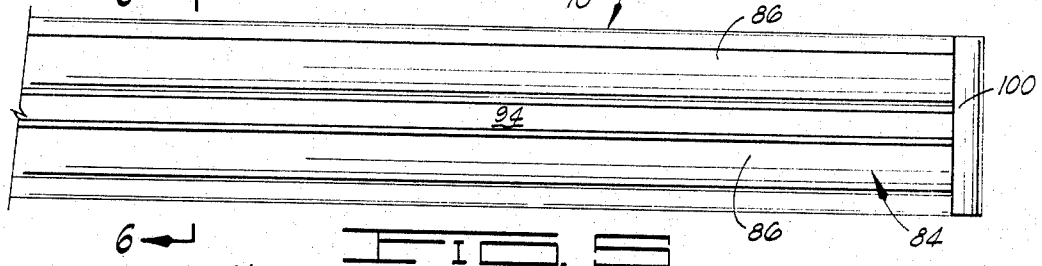


FIG. 5

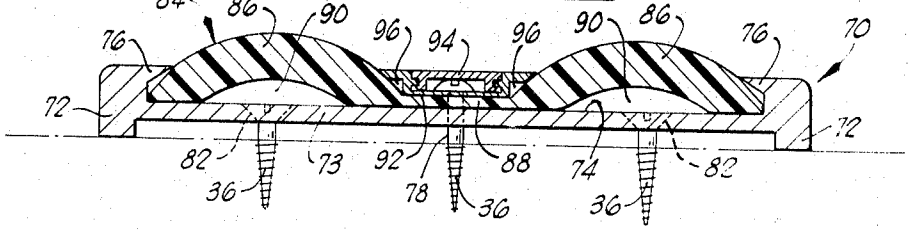


FIG. 6

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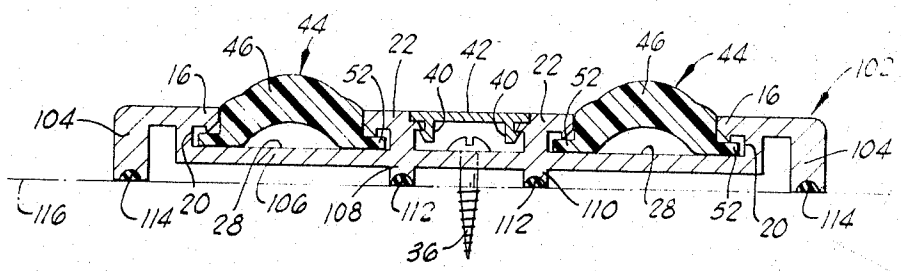


FIG. 8

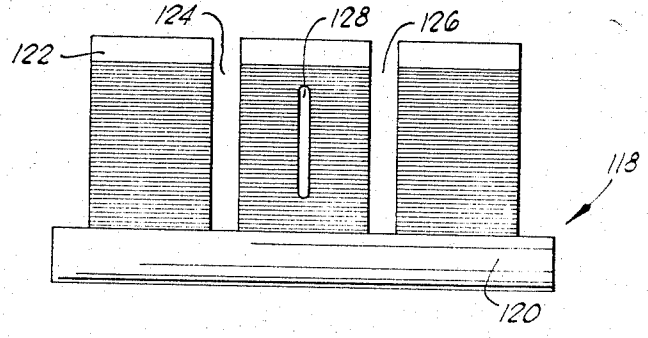


FIG. 9

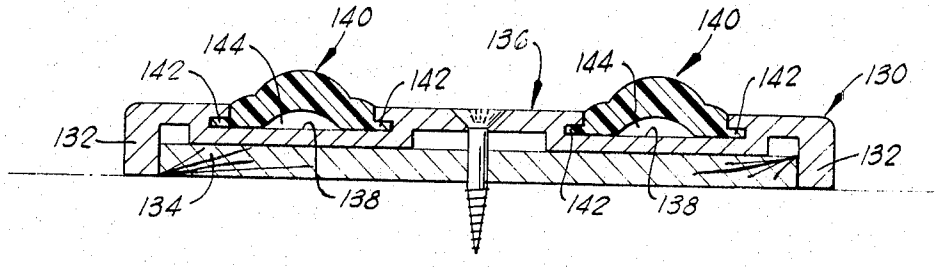


FIG. 10

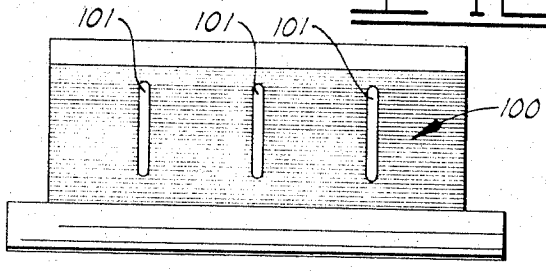


FIG. 7

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SHOCK ABSORBING CHAIR RAIL ASSEMBLY

BACKGROUND OF THE INVENTION

1. Field of the Invention

This invention relates to protective bumper elements, and more particularly, but not by way of limitation, to chair rails adapted for securement to vertical walls to protect the walls from impact by movable articles.

2. Brief Description of the Prior Art

Various types of chair rails and similar protective bumper elements have been heretofore constructed for use in protecting walls and other immovable objects from marring or physical damage by the impact thereon of various types of movable articles, such as chairs and the like. Several criteria have dictated the design and construction of these chair rails and similar structures. Most important is the ability of the chair rail to serve its primary function of protecting the surface upon which it is mounted from physical impact by an object moved into juxtaposition to that surface. The aesthetic appearance of the chair rail has also been a very important consideration since, in most instances, these structures are conspicuously located in a room, hallway or space where the overall decor is important. Finally, chair rails in widespread usage in both new and old building construction should be susceptible to rapid and economic installation.

A great many types of chair rail constructions have been previously proposed, and in varying degree, successfully achieve one or more of the objectives and design criteria described above. Normally, for household installations, the protective characteristics of the chair rail design are of diminished importance since usually a chair or, at most, a table is the heaviest object which will impact the protective chair rail, and a variety of designs are adequate to protect the wall in such circumstances.

A problem has recently been encountered in the installation and use of some chair rails or protective rails mounted on the walls of hospital corridors, which problem has arisen from the inability of the rails in use to withstand the impact forces of certain types of equipment which are, from time to time, propelled into the protective rail with considerable force. Thus, heavy diagnostic equipment and various types of heavily laden carts are at times maneuvered in relatively narrow or confined spaces, and under these circumstances, bump against the chair rails with considerable force. Moreover, this force is frequently concentrated or applied to the rail through a pointed corner or a relatively sharp edge of such carts so that the force applied through a small area crimps the rail, and in some cases have even collapsed the rail against the wall, resulting in damage to the wall. To our knowledge, a chair rail or protective bumper rail which is aesthetic in appearance, economically constructed and easily installed, and which yet can withstand the high impact forces to which it may be subjected in the hostile environments described has not been devised or placed in use.

BRIEF DESCRIPTION OF THE PRESENT INVENTION

The present invention proposes an improved, high impact type chair rail or protective bumper assembly which is made of relatively inexpensive material by well understood processes, and which can be quickly and easily installed in substantially any location on essentially monoplanar surfaces. The chair rail of the invention is constructed to absorb high impact forces without damage to the rail or to the surface upon which it is mounted.

Broadly described, the chair rail structure of the invention comprises an elongated, rigid supporting member which, in a preferred embodiment of the invention, is made of metal, preferably formed by extrusion. The elongated rigid supporting member is provided along its length with a plurality of substantially parallel extending channels which open to one side of the supporting member and are configured to receive therein a plurality of elongated, flexible and resilient bumper strips. The bumper strips are also preferably formed by extrusion. A plurality of suitable fasteners are used to secure the assembled supporting member and bumper strips in a desired location on a supporting surface, such as a wall or the like. At the opposite ends of the rigid supporting member, a pair of aesthetically configured terminal caps are detachably secured in position.

In each of several different embodiments of the invention, the chair rail construction is such that, either the rigid supporting member, or the flexible resilient bumper strips, or both of these elements, can, through flexible yielding and, in the case of the bumper strips, elastomeric deformation, absorb impact forces without transmitting any significant portion of such forces to a localized area of the wall or other surface upon which they are mounted.

An important object of the invention is to provide a chair rail construction capable of absorbing and dissipating within its physical confines, all or a substantial portion of any impact force transmitted to an exposed face of the chair rail structure.

Another object of the invention is to provide a chair rail structure which effectively distributes to a wall or other surface upon which it is mounted, a small fraction of the total impact force which may be imparted thereto by an object moved against one face of the chair rail structure.

A further object of the invention is to provide a chair rail structure which will resiliently deflect objects impinging on the rail.

An additional object of the invention is to provide a mechanically sturdy, aesthetically attractive chair rail structure which can be quickly fitted to spaces of varying size without the necessity for drilling holes through the chair rail, and without the need to use special sawing tools, or to possess special sawing skills.

Another object of the invention is to provide a chair rail construction which can be easily made in several separate parts for convenience of storage and shipment in large quantities, which parts can be quickly and easily assembled to provide the final rail structure for mounting on a wall or the like.

Additional objects and advantages of the invention will become apparent as the following detailed description of the invention is read in conjunction with the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 shows an end portion of a chair rail structure constructed in accordance with the invention. The opposite end portion of the chair rail structure is identical to that depicted in FIG. 1.

FIG. 2 is a sectional view taken along line 2—2 of FIG. 1.

FIG. 3 is an elevation view of a terminal cap used in the chair rail construction of the invention.

FIG. 4 is a sectional view taken along line 4—4 of FIG. 3.

FIG. 5 is a view in elevation of an end portion of a chair rail construction constituting an alternate embodiment of the present invention.

FIG. 6 is a sectional view taken along line 6—6 of FIG. 5.

FIG. 7 is a plan view of a terminal cap used with the structure depicted in FIG. 6.

FIG. 8 is a sectional view similar to FIGS. 2 and 6 showing yet another embodiment of the invention.

FIG. 9 is a plan view of a terminal cap used with the structure depicted in FIG. 8.

FIG. 10 is a sectional view similar to FIGS. 2, 6 and 7 but showing yet another embodiment of the invention.

DETAILED DESCRIPTION OF PREFERRED EMBODIMENTS OF THE INVENTION

Referring to the drawings, an elongated, rigid supporting member **10**, which is preferably constructed of metal and is preferably formed by extrusion, is of the cross-sectional configuration shown in FIG. **2**. The supporting member **10** is thus of generally U-shaped cross sectional configuration, having a pair of legs or flanges **12** at the outer side edges thereof, and having a central web portion, designated generally by reference numeral **14** interconnecting these legs or flanges. The web portion **14** carries a pair of in-turned toes **16** relatively near to the outer side edges thereof, which toes form with a wide base strip **18**, a pair of undercut slots **20**. At the central portion of the base strip **18**, a pair of T-shaped protuberances **22** project upwardly from the base strip and carry a pair of toes **24** defining a pair of undercut slots **26** with the base strip. The toes **16** and **24** each carry a small downwardly projecting lip **16***a* and **24***a*, respectively, and it may be preceived in referring to FIG. **2** that the base strip **18** and the paired toes **16** and **24** define a pair of elongated, substantially parallel channels **28**. A central channel **30** is defined over the base strip **18** between the protuberances **22**.

It will be noted in referring to FIG. **2** that the flanges **12** at the outer side edges of the chair rail assembly project through and beyond the plane of the lower surface of the base strip **18** so that when the chair rail is mounted on a wall or other surface, represented by the dashed line **32**, the base strip is supported in spaced relation to this supporting surface by the flanges **12**. Spaced along the center line of the base strip **18** in the central channel **30** are a plurality of fastener holes or apertures **34** shown in dashed lines in the drawings. The fastener apertures **34** are preferably spaced on **4** inch centers or less for a reason hereinafter described. In mounting the chair rail assembly on a supporting surface, screws **36** or other suitable fastening elements are extended through the fastening apertures **34** and into the supporting structure.

A pair of retainer flanges **38** project from the protuberances **22** into the central channel **30** and are in substantially coplanar alignment with each other. The retainer flanges **38** have a tapered surface on the free outer end thereof to facilitate the engagement therewith of the notched retainer flanges **40** of a cover plate **42**. It will be perceived that the cover plate **42** by reason of this interlocking engagement between the retainer flanges **38** and **40** can be snapped in position between the protuberances **22** to cover the heads of the screws **36** and provide an aesthetic unbroken appearance to the exposed side of the chair rail assembly. The engagement also permits the cover plate **42** to be removed without damaging the structure.

Carried in the channels **28** along the length of the supporting member **10** are a pair of elongated bumper strips designated generally by reference numeral **44**. The bumper strips **44** are made of a flexible, resilient material which is of aesthetic appearance, and is preferably susceptible to being pigmented to impart to the strips the desired aesthetic characteristics. Polyvinyl chloride synthetic resin constitutes a preferred material of construction, and the bumper strips **44** are preferably made by a proces of extrusion.

The bumper strips **44** have the cross sectional appearance depicted in FIG. **2** of the drawings. Thus, each strip **44** has a concavo-convex bead portion **46** which is of greater thickness at the central portion thereof than at the two outer edges thereof. It will be noted that beheath the thickened center of each bumper strip **44**, a space or void **50** is provided between the bumper strip and the upper surface of the base strip **18**. It will also be noted in referring to FIG. **2** that each of the bumper strips **44** carries a pair of aligned, parallel toe flanges **52** which project under the toes **16** and **24** defining the channels **28**, but which terminate, in each case, short of the base of the undercut slots **20** defined by these toes. In other words, it will be perceived in referring to FIG. **2** that the toe flanges **52** carried by each of the bumper strips **44** do not fill the respective undercut slots into which they project, and a substantial void space remains in this slot into which the toe flange received therein may expand when the bumper strip which carried it is impacted in a manner hereinafter described.

It will also be noted in referring to FIG. **2** of the drawings that each of the toes **16** and **24** carries a downwardly and outwardly inclined beveled or tapered surface thereon which faces the adjacent bumper strip **44**. The presence of this beveled surface on the toes **16** and **24** permits the respective bumper strip to slide past the toes as the bumper strip is compressed in one direction and caused to expand transversely of the chair rail assembly.

At one or both ends of the rigid supporting member **10**, a terminal cap **56** may be provided, and this cap occupies the position relative to the supporting member **10** which is shown in FIG. **1**. Of course, a number of the supporting members **10** may be abutted end-to-end in longitudinal alignment along a wall without the location of a temrinal cap at either end of any of these except those at the two opposite ends. Each terminal cap **56** includes a quarter round terminal portion **56** which is secured to, or preferably formed integrally, with an insert plate **60**. The insert plate **60** tapers to a thinner section adjacent its free edge at the opposite side thereof from the quarter round **58**, and the tapered surface is designated in the drawings by reference numeral **62**. On its upper and lower surfaces, the insert plate **60** carries a plurality of serrations or sawtooth ridges **64** which perform a function hereinafter described. The insert plate **60** is at least **4** inches in length as measured from the quarter round **58** to its free edge. At the center of the insert plate **60**, an elongated, fastener receiving slot **66** is provided. The transverse width of the in-

sert plate **60** of the terminal cap **56** corresponds to the distance which separates the flanges **12** of the rigid supporting member **10** so that the insert plate may be passed between these flanges when the terminal caps are mounted in position. The quarter round portion **58** of each terminal cap is equivalent in its transverse dimension to the distance between the outside surfaces of the two flanges **12.**

OPERATION AND USE

In the operation and use of the chair rail assembly depicted in FIGS. **1–4** of the drawings, it will first be assumed that the chair rail assembly is made up in varying lengths with the bumper strips **44** pressed into the channels **28** so as to occupy the positions shown in FIGS. **1** and **2.** With the bumper strips **44** thus mounted on the supporting member **10,** and assuming that a length of rigid supporting member carrying the associated bumper strips is available which will fit the space where it is to be mounted, and will accommodate in such space, securement of two terminal caps **56** at opposite ends thereof, the supporting member **10** is first fitted with a pair of terminal caps **56** by pressing the insert plates **60** thereof into the space defined between the flanges **12** of the supporting member. It may be necessary in many instances to finally entrap or secure the insert plate **60** of each terminal cap **56** in position by placing the rigid supporting member **10** against the wall or other supporting surface upon which the chair rail assembly is to be mounted.

In any event, with the terminal caps **56** in position, the supporting member **10** is placed against the wall or other supporting surface along the line of securement desired, and screws or other fastening members **36** are then extended through the apertures **34** formed through the base strip **18** along the center line thereof. At this time, of course, the central channel **30** is open and the cover plate **42** has not been snapped in place as shown in FIG. **2.** In some architectural specifications, it is required that fasteners be used within **4** inches of the opposed ends of the chair rail in order to assure that the rail will not easily be pulled away from the wall or other supporting surface, and that it can be less easily pried off at the ends by vandals. The placement of the apertures **34** on **4** inch centers or less assures that an aperture will be appropriately positioned in relation to the end of the supporting member **10** to meet such specifications without the necessity to drill additional holes. Moreover, the location of an aperture within this distance of the end of the supporting member **10,** together with the dimension which characterizes the insert plate **60** of each terminal cap **56,** permits the screw **36** or other fastening member in use to be extended through an aperture **34** adjacent the respective end of the supporting member **10** and through the slot **66** formed in the central portion of the insert plate **60.** The length of the slot **66** assures that alignment may be had between some portion of this slot and the overlying aperture **34,** regardless of the distance which the aperture **34** is located from the end of the supporting member **10.**

As the fastening members **36** are screwed into the wall or other supporting surface, the base strip **18** is formed firmly into contact with the serrations or sawtooth ribs **64** on the upper surface of the insert plate **60.** Concurrently, the serrations carried on the lower surface of this insert plate are caused to frictionally engage the wall. Thus, the terminal caps **56** are prevented from sliding out of the ends of the supporting member **10.** When an adequate member of screws or fastening members **36** have been extended through apertures **34** along the length of the supporting member **10,** the cover plate **42** is snapped into position by pressing this plate into interlocking engagement with the retainer flanges **38.** The unsightly screw heads or other portions of the fastening members **36** are thus aesthetically covered.

When the chair rail assembly has been mounted on the wall in the manner described, it affords excellent protection of the wall from high impact forces resulting from heavy objects being inadvertently propelled into the wall. Rather, such objects strike the chair rail structure, and this structure absorbs the impact forces so as to transmit only a small fraction of the total force to the wall, and to distribute that force which is transmitted to the wall over a relatively large surface area.

For the purpose of absorbing the impact forces, the bumper strips **44** are made protuberant with respect to the exposed surface of the supporting member **10.** Thus, in almost every instance, the bumper strips **44** will, either singly or conjointly, be contacted by the moving object, and upon such contact, the bumper strips will be displaced toward and into the channels **28** in which they are mounted. The voids **50** provided beneath the central portions of the bumper strips **44** accommodate the thickened central portion of each bumper strip which is the most protuberant part thereof. At the time the central rotation **46** of each of the bumper strips **44** moves inwardly, the toe flanges **52** of the strips are caused to move divergently and further into the undercut slots **20** and **26** into which the toes project. Concurrently, the exposed under side edges of each bumper strip **44** can move down under the adjacent toe **16** or **24** formed on the supporting member **10** by reason of the tapered surfaces provided on these toes.

At such time as the undercut slots **20** and **26** become completely filled with the flexible resilient material of the bumper strips **44** when the bumper strips are elastically deformed by impact, there remains a small amount of entrapped air in the diminished voids **50** positioned under the thickened central portion **46** of each of these strips. This entrapped air, coupled with the relatively greater thickness of the central bead portion **46** of each bumper strip permits further absorption of impact forces due to the compressibility of the entrapped air, and the resiliency and compressibility of the material of which the bumper strips are constructed.

It should be pointed out that in extreme cases where a very large impact force is delivered to the exposed side of the chair rail assembly, or where, in rare instances, the moving object impinging upon the chair rail strikes the cover plate **42** disposed at the central portion of the rail, the rail structure is constructed so that absorption of the major portion of this force can still be effected by the supporting member itself. Thus, the relatively large span of the base strip **18** between the flanges **12** permits some bending or distortion in elastic deformation of the base strip **18** from its monoplanar configuration. This can occur to absorb a large distorting or bending force without forcing the base strip **18** all the way into contact with the wall on which the chair rail assembly is mounted. In undergoing bending in this fashion, the base strip **18** absorbs and dissi-

pates most of the force of impact, and very little of this force is transmitted to and through the flanges **12.** Thus, most of the impact force does not reach the wall. Such small amount of force as is transmitted thereto is distributed over a relatively large area due to the relatively thick character of the flanges **12.**

It should be pointed out that in addition to the described mode of usage of the chair rail assembly of the invention, in some instances, it may be preferable to manufacture and sell the rail assembly in uniform lengths, which lengths will be selected to accommodate the most common dimensions of the spaces in which the rail assembly is to be used. In this situation, it will often be desirable to provide the bumper strips **44** separately and apart from the elongated rigid supporting member **10** — that is, the packaging, storage and shipment of these elements will be separate. The terminal caps **56** will also be separately provided, as will the cover plate **42.** In such instances, the supporting member **10** can be quickly and easily cut to a required length, and the **4** inch center maximum spacing of the screw apertures **34** will assure that no further drilling of apertures is required in order to meet the most rigid architectural specifications. The bumper strips **44** are also, of course, in such instances cut to length and are then positioned in the channels **28** in either one of two ways. In the first method of mounting the bumper strips **44** in the channels **28,** they may be pinched together so as to permit the toe flanges **52** to snap into the undercut slots **20** and **26** as the bumper strips are mounted on the supporting member. In another method of mounting the bumper strips, the strips may be "threaded" or slid into the open ends of the channels **28** at opposite ends of the supporting member **10.**

The chair rail assembly is aesthetic in its appearance, and the structure adequately protects the wall or other surface upon which it is mounted from marring or damage by impact from moving objects.

A modified embodiment of the invention is illustrated in FIGS. **5** and **6** of the drawings. In this instance, the elongated rigid supporting member is designated by reference numeral **70** and is again generally U-shaped in configuration. The supporting member **70** includes a pair of longitudinally extending legs or flanges **72,** generally similar in shape and function to the flanges **12** shown in FIG. **2,** and a base strip **73** which interconnects the flanges **72.** In the case of the embodiment shown in FIGS. **5** and **6,** a single elongated channel **74** is provided over the base strip **73** and is defined between a pair of inturned toes **76** formed adjacent the side edges of the supporting member **70.** The channel **74** thus extends transversely of the supporting member **70** almost from one side edge thereof to the other. It will be noted that each of the toes **76** has a downwardly and outwardly beveled lower surface which faces generally toward the upper side of the base strip **73.**

To facilitate the securement of the supporting member **70** to a wall or other structure, a plurality of spaced openings **78** or apertures for screws or other fastening members **36** are provided along the longitudinal center line of the base strip **73.** In this embodiment of the invention, there are also provided a plurality of apertures **82** in spaced alignment along the length of the base strip **73** at a location between the center line of the base strip and its line of juncture with one of the flanges **72.** In other words, there are two lines of longitudinally spaced apertures **82** provided on opposite sides of the center line of the base strip **73,** and these accommodate screws or other fastening members **36** in the manner shown in FIG. **6.**

In the embodiment of the invention depicted in FIGS. **5** and **6,** the plurality of bumper strips **44** utilized in the embodiment shown in FIGS. **1** and **2** are replaced by a single bumper strip element **84** which is characterized in having a pair of spaced, substantially parallel concavo-convex bead portions **86** interconnected by a central web portion **88.** At the longitudinal side edges of the bumper strip **84,** the concavo-convex bead portions **86** taper to relatively thin edge portions which fit loosely under the toes **76** are shown in FIG. **6.** It will thus be seen that the outer edge portions of the bumper strip **84** do not completely fill the space which exists between the toes **76** and the base strip **73** in that there is room for expansion or flow of the bumper strip material into the existent voids. It will be noted in referring to FIG. **6** that voids **90** remain beneath the central portions of the concavo-convex beads **86** of the bumper strip **84,** and that the web portion **88** of the bumper strips bears flatly against the central portion of the base strip **73.** The bumper strip **84** map be secured in position on the supporting member **70** by placing a snap-on channel **92** over the web portion **88,** and extending screws or other fasteners through apertures formed through the snap-on channel in registration with the apertures **78** formed along the center line of the base strip **73.**

To complete the assembly, a cover plate **94** is snapped into engagement with the snap-on channel **92** by any suitable interlocking structure so that the screw heads are covered. The channel **92** is preferably shaped so that the upper surface thereof extends to the upper exposed surface of the concavo-convex bead portions **86** of the bumper strip **84,** and so that a space or void **96** exists under the channel **92** for the accommodation of a portion of the bumper strip material during impacting of the bumper strip as hereinafter described.

The end caps **100** utilized with the elongated rigid supporting member **70** of the embodiment of the invention shown in FIGS. **5** and **6** are modified from the terminal caps of the type shown in FIGS. **3** and **4,** in that the insert plate portion of the terminal cap defines three slots to permit the three transversely aligned screws **36** or other fastening devices to pass through and secure the insert plate in position. This construction is shown in FIG. **7.** In other respects, however, each terminal cap **100** is constructed substantially identically to the construction of each terminal cap **56** hereinbefore described.

Another embodiment of the invention is depicted in FIGS. **8** and **9** of the drawings. In this embodiment, the elongated, rigid supporting member is designated generally by reference numeral **102.** The supporting member **102** includes a pair of legs or flanges **104** extending along the side edges thereof, and a base strip **106** extending transversely across the supporting member. Projecting downwardly from the base strip at a central or medial portion thereof are a pair of supporting ribs **108** and **110.** The supporting ribs extend parallel to each other and each leg defines a groove for the reception of a bead **112** of elastomeric material. The flanges **104** are also grooved or slotted to receive beads **114** of elastomeric material. It will be perceived in referring to FIG. **8** that the beads **112** and **114** are in coplanar alignment so that when the supporting member **102** is

forced against a wall **116** or other supporting surface, the beads **112** and **114** are compressed.

In other respects, the chair rail assembly depicted in FIG. **7** is substantially identical to that shown in FIGS. **1** and **2**, and the same reference numerals have therefore been utilized to identify the structurally terminal elements. and

A terminal cap which is provided for use with the chair rail assembly depicted in FIG. **8** is shown in FIG. **9.** It will be noted that the terminal cap **118** includes a quarter rail terminal portion **120,** and an insert plate **122.** The insert plate **122** is constructed similarly to the insert plate shown in FIG. **3** of the drawings, except that the insert plate in the embodiment of the invention depicted in FIGS. **8** and **9** is provided with a pair of slots **124** and **126** to permit this plate to pass the ribs **108** and **110** formed on, an projecting downwardly from, the base strip **106.** The central portion of the insert plate **122** is provided with a slot **128** for the accommodation of a screw **36** or other fastening element.

In FIG. **10** of the drawings, there is illustrated in cross section, yet another embodiment of the invention. In this embodiment of the invention, the elongated rigid supporting member is designated generally by reference numeral **130.** A pair of flanges **132** are provided along the side edges of the supporting member, and in the space between the flanges **132,** a shock absorbing and force distributing panel **134** is located. The panel **134** may be of a relatively soft word, compressible synthetic resin or the like, and in one embodiment of the invention, is a Masonite panel. The panel **134** is terminated short of the opposite ends of the elongated rigid supporting member **130** so as to accommodate insertion in opposite ends of the supporting member of terminal caps **56** of the type shown in FIGS. **3** and **4** of the drawings.

Interconnecting the flanges **132** of the supporting member **130** is a transverse web portion designated generally by reference numeral **136.** The transverse web portion **136** is shaped to define a pair of transversely spaced, longitudinally extending channels **138** which extend over the length of the supporting member and receive a pair of elastomeric, flexible bumper strips designated generally by reference numeral **140.** The bumper strips **140** have thickened central bead portions as hereinbefore described, and are provided with edge flanges **142** at the opposite side edges thereof. The edge flanges **142** of the bumper strips **140** project into undercut slots formed in the web portion **136** of the elongated supporting member **130** to retain the bumper strips **140** in the channels **138.** It will be noted that, as in the other embodiments of the invention, voids **144** are provided beneath the thick central portion of each of the bumper strips **140** and over the underlying web portion **136** of the rigid supporting member **130.**

Where the embodiment of the invention depicted in FIG. **10** is employed, the force of impact imparted to the chair rail assembly by a heavy object striking the assembly is dissipated by absorption in the elastomeric material of the bumper strips **140,** and the shock absorbing capability of the panel **134.** The large surface area of the panel **134** which is in contact with the wall also functions to distribute the impact forces over a large area.

It will be understood that splicing pieces (not shown) similar in shape to the insert plate portions of the terminal caps may be used for aligning sections of the chair rail assembly in end-to-end relation and in interengaging them in this relationship.

Although certain preferred embodiments of the invention have been herein described in order to illustrate the principles of the invention, it will be understood that various modifications and changes can be effected in the described and illustrated structures without departure from these basic principles. Changes and innovations of this type are therefore intended to be contemplated within the spirit and scope of the invention except as the same may be necessarily limited by the appended claims or reasonable equivalents thereof.

What is claimed is:

1. A chair rail assembly comprising:

an elongated base strip constituting a web portion, and having substantially monoplanar, parallel surfaces on opposite sides thereof;

a pair of spaced, elongated, substantially parallel flanges connected to opposite side edges of said base strip at the opposite sides of the substantially monoplanar, parallel surfaces, said flanges each projecting normal to the major plane of said base strip and to said monoplanar, parallel surfaces for supporting said base strip in spaced relation to a substantially monoplanar surface upon which said chair rail assembly is mounted;

a pair of spaced, elongated, substantially parallel protuberances projecting from a central portion of said base strip in a direction opposite from the direction of projection of said flanges therefrom and extending normal to said base strip and to the monoplanar, substantially parallel surfaces thereof, said protuberances defining between them, a central channel extending longitudinally along said elongated base strip, and said protuberances each having a toe projecting therefrom over said base strip and downwardly toward said base strip to define an elongated slot extending longitudinally along said elongated base strip parallel to said central channel and on one side thereof, with the two elongated slots defined by the toes of said pair of protuberances lying on opposite sides of said central channel, each of said toes having a beveled surface thereon which is inclined to the vertical in a downward direction and in an inward direction toward said central channel, said beveled surfaces each terminating in a sharp edge at the entrance to the respective elongated slot to facilitate longitudinal insertion of strips of elastomeric material in the respective elongated slots;

a pair of spaced, undercut, elongated inturned additional toes projecting from said base strip normal thereto adjacent the opposite side edges thereof, and projecting from the opposite side of said base strip from said parallel flanges and extending parallel thereto and parallel to said protuberances, each of said inturned toes being transversely spaced on said base strip from one of said protuberances, and defining therewith an elongated outer channel extending parallel to said central channel, each of said in-turned additional toes carrying a tapered lip projecting toward said base strip and tapering to a sharp elongated edge at its nearest point of approach to said base strip, each of said additional toes defining with said base strip, and elongated ad-

ditional slot disposed on the opposite side of the adjacent outer channel from said central channel and extending parallel to said outer channel and central channel, whereby elongated strips of elastomeric material may be inserted under said tapered lip in said additional slots by longitudinal sliding movement in the respective outer channels;

fastener means in said central channel and spaced therealong for fastening said elongated base strip to a substantially monoplanar supporting surface;

a rigid cover plate covering the fastener means and closing said central channel by interlocking, snap-in engagement with said elongated protuberances, said cover plate extending substantially parallel to said base strip;

bumper strip means carried in said outer channels and including:

a first elongated strip of elastomeric material positioned in one of said outer channels and having a central, relatively thick protuberant bead portion which projects out of said channel in a direction away from said base strip and which has an exposed concave surface outside the respective outer channel in which it is located, said first elongated strip of elastomeric material further having a first relatively thin edge portion on one side of said central bead portion projecting into the slot defined by the toe of one of said protuberances with said base strip, said first edge portion occupying a space less than the entire space defined within said slot, said first strip of elastomeric material further having a second relatively thin edge portion on the opposite side of said central bead portion projecting into one of said additional slots defined by one of said additional toes with said base strip, said second relatively thin edge portion occupying less than the entire space defined within said additional slot, said central protuberant bead portion of said first strip of elastomeric material defining with said base strip, a void air space therebetween, and the thickness of said central protuberant bead portion being greater than the thickness of the underlying void air space as measured from the central protuberant bead portion to the base strip; and

a second elongated strip of elastomeric material positioned in the other of said outer channels and having a central, relatively thick protuberant bead portion which projects out of said other outer channel in a direction away from said base strip and which has an exposed concave surface outside said other outer channel in which it is located, said second elongated strip of elastomeric material further having a first relatively thin edge portion on one side of the central bead portion of said second elongated strip projecting into the slot defined by the toe of one of said protuberances with said base strip, said first relatively thin edge portion of said second elongated strip of elastomeric material occupying less than the entire space defined within said slot into which said first relatively thin edge portion of said second elongated strip projects, and said second elongated strip of elastomeric material further having a second relatively thin edge portion on the opposite side of the central bead portion of said second elongated strip projecting into one of said additional slots defined by one of said additional toes with said base strip, with said second relatively thin edge portion of said second elongated strip of elastomeric material occupying less than the entire space defined within said additional slot into which said second relatively thin edge portion projects, said central protuberant bead portion of said second elongated strip defining with said base strip, a void air space therebetween, and the thickness of said central protuberant bead portion of said second elongated strip being greater than the thickness of the underlying void air space as measured from the bead portion to the base strip; and

a terminal cap secured to opposite ends of said base strip by said covered fastener means whereby said terminal caps cannot be disconnected from said base strip except by first removing said cover plate.

2. A chair rail assembly as defined in claim **1** wherein each of said terminal caps comprises:

a terminal portion; and

a slotted insert plate projecting from said terminal portion between said flanges and along one of the surfaces of said base strip.

3. A chair rail assembly as defined in claim **1** and further characterized as including elongated supporting ribs extending longitudinally along said base strip on the side thereon from which said flanges project and positioned between said flanges.

4. A chair rail assembly as defined in claim **1** and further characterized as including a shock absorbing panel positioned between said flanges and adjacent, and in contact with, said web portion of said supporting member.

5. A chair rail assembly as defined in claim **1** and further characterized as including a terminal cap secured to opposite ends of said elongated rigid supporting member, each of said terminal caps comprising:

a terminal portion; and

a slotted insert plate projecting from said terminal portion between said flanges and under said web portion, said insert plate having a slot therein receiving said fastener means.

6. A chair rail assembly as defined in claim **1** wherein said base strip is further characterized in including a plurality of fastener receiving apertures opening through said base strip along the length of said central channel and spaced from each other by a distance not exceeding four inches.

7. A chair rail assembly as defined in claim **1** wherein said protuberances and said cover plate having cooperating tapered surfaces thereon whereby said cover plate can be snapped into position between said protuberances to cover said central channel.

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