March 15, 1938. S. M. JOHNSON 2,111,533

EDGE STRIP ANCHORAGE MEANS FOR MATS

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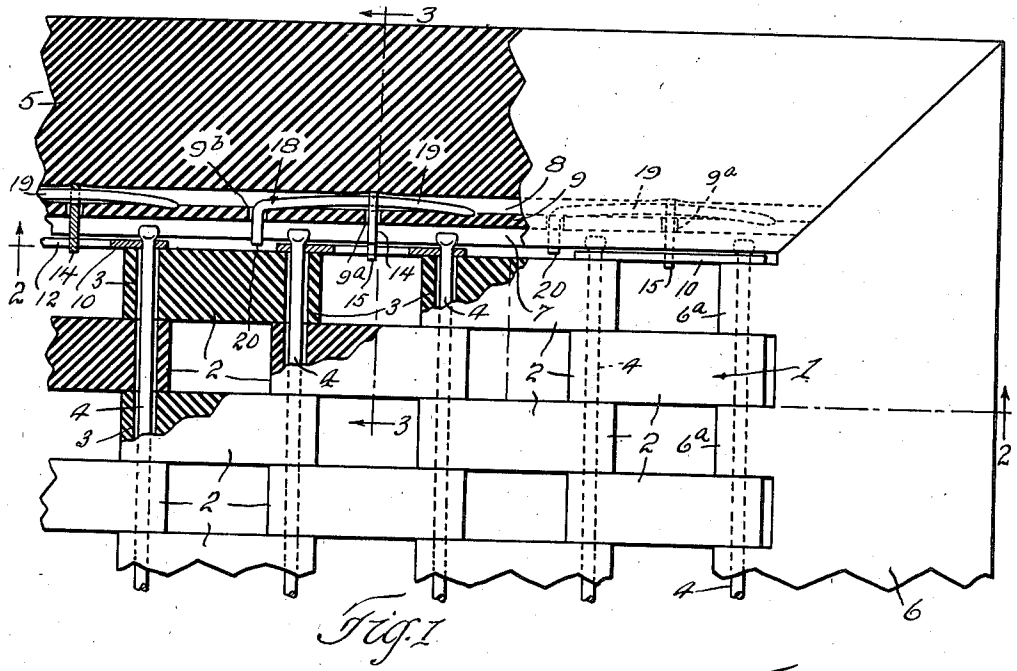


Fig. 1

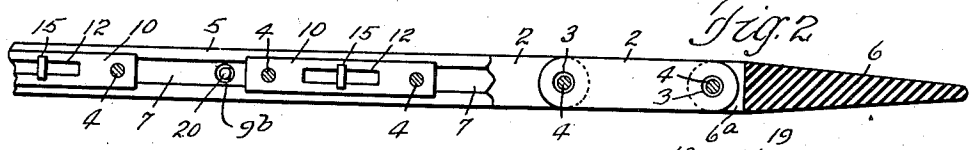


Fig. 2

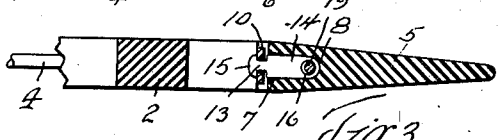


Fig. 3

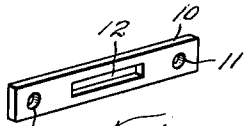


Fig. 5

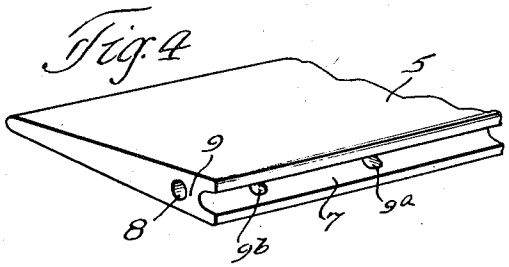


Fig. 4

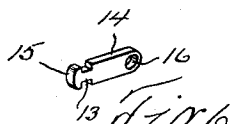


Fig. 6

INVENTOR.

Smith M. Johnson

BY

Hull, Brock & Swan

ATTORNEYS

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EDGE STRIP ANCHORAGE MEANS FOR MATS

Smith M. Johnson, Middlefield, Ohio, assignor of one-half to Earl W. Coble, Middlefield, Ohio

Application March 18, 1937, Serial No. 131,652

13 Claims. (Cl. 20—78)

The present invention resides in improved means for attaching the edge strips or so-called nosing to the body portions of mats, particularly mats of the class described and claimed in Letters Patent No. 1,914,680, granted June 20, 1933 to Francis M. Williams and Earl W. Coble.

In mats of the kind wherewith the invention is concerned, the body portion may consist of a plurality of tread members or links that are connected together by a series of transversely disposed rods, as in the example above. The rod ends project from the lateral edges of the body portion in spaced relation to one another, and it is to these rod ends that the edge strips are connected by my improved attaching or anchorage means.

Objects of the invention are to provide efficient and durable, yet simple and relatively inexpensive means for attaching the edge strips or nosing to the projecting rod ends of the mat bodies; and to provide means of this character comprising elements that are quick and easy of assembly—thus expediting manufacture, and that are equally convenient of disassembly—thus facilitating repairs.

Mats of the class referred to are made in sizes varying from those of small area, like domestic door mats for instance, to ones of considerable size, for use in front of building entrances, or in lobbies, hallways, aisles, etc. It is essential in all cases that the body portions, and especially the nosing, lie flat against the floor so as to avoid obstructions over which persons might trip or such as would interfere with walking. Also, it is important that the mats roll up easily and into compact form, and that they unroll freely.

A further object of my invention, therefore, is to provide a connection between the edge strips or nosing and the mat bodies that will insure, as between said parts, free relative movement, within a limited range, which is essential to the desirable action of the edge strip and body in adjusting themselves to surfaces upon which the mat is placed or when it is rolled up or unrolled.

Other objects and advantages will appear as I proceed to describe the invention in detail by reference to the accompanying drawing wherein Fig. 1 is a fragmentary plan view of a mat incorporating my invention; Figs. 2 and 3 are sections on the respective lines 2—2 and 3—3 of Fig. 1; Fig. 4 is a perspective view of a fragment of an edge strip, and Figs. 5 and 6 are similar views, respectively, of one of the metal links, and one of the connectors.

Turning now to a description of the invention by the use of reference characters, 1 designates, generally, the body portion of the mat which, in the present instance, is made up of tread members 2 arranged in a sort of checker board formation, so to speak. The tread members consist of rectangular blocks of rubber or other suitable material, having transverse bores 3 adjacent their ends, and, to be more specific, they are arranged in spaced relation to one another in longitudinal rows, those of alternate rows being in transverse alignment, and being staggered with respect to those of the intermediate rows; and the tread members are connected together by pivot rods 4 that extend through the transversely aligned bores 3 of the tread members of all rows. To insure freedom of movement of the tread members on the pivot rods, and to permit compression of said members in the regions thereof, the bores 3 are of considerably greater diameter than the rods 4.

A so-called nosing surrounds the body portion of the mat and forms a border therefor, the same comprising opposed edge strips that extend along the lateral edges of the body portion, and end strips that connect the corresponding ends of the edge strips. Where they appear in the drawing, the edge strip is designated 5 and the end strip 6. In cross section, the nosing may be of any suitable shape, but where the mat is intended to lie in a position in which its edge is so exposed that there is liability of its being tripped over, it is preferably wedge shaped in cross section, as illustrated in the drawing, so that when its under side lies flat upon the floor its upper surface practically merges with that of the floor. Spaced along the inner edge of the end strip are lugs 6^a that interfit with the adjacent tread members 2 and are pivotally connected to the end rod 4. My present improvements reside in the means for connecting the edge strips to the protruding rod ends along the lateral edges of the mat body.

The inner edge of the strip 5 is formed with a longitudinal channel 7, and a bore 8 extends parallel thereto throughout the length of the strip and is separated from said channel by a wall 9 having spaced perforations 9^a and 9^b. Applied to the protruding ends of successive pairs of the pivot rods 4 are links 10, one of such links being shown in perspective in Fig. 5. The rod ends pass freely through apertures 11 in the ends of the links and are deformed therebeyond, as by being flattened, so as to prevent withdrawal of the links. Each link has a central slot 12 within which is loosely fitted the neck 13 of a flat connector 14, shown in perspective in Fig. 6. Be-

yond the neck 13 the connector is formed with an elongated head 15 of a thickness sufficiently less than the width of the slot 12 to permit of its being passed through the slot, after which the connector may be turned to dispose the head crosswise of the slot. Thus, to each link 10 is slidably attached a connector 14. The end of the connector remote from the head 15 is provided with an aperture 16, and the apertured end of each connector is adapted to be projected through a hole 9^a in the wall 9 of the edge strip far enough to approximately align the aperture 16 with the bore 8.

Associated with each connector is an anchorage element 18 comprising a relatively long and preferably slightly curved prong 19 and a shank 20 at substantially right angles to the prong. The prong 19 of the anchorage element is adapted to be inserted through a hole 9^b into and along the bore 8 and projected through the aperture 16 of the connector 14 so as to bear at its ends against the wall 9, its curved shape tending to draw the connector into the edge strip as the prong is moved through the aperture of the connector. The shank 20 of the anchorage element is accommodated by the aforesaid hole 9^b. When the mat is assembled, the protruding ends of the shanks 20 of the anchorage elements and the flattened ends of the pivot rods 4 are concealed within the channel 7.

After the mat body has been fabricated to the inclusion of the end strips 6, and the links 10 have been applied to the rod ends and said ends deformed to hold the links thereon, the edge strips 5 may be attached in the following manner: Starting at one end of one of the lateral edges of the mat, as at the corner disclosed in Fig. 1, the head 15 of a connector 14 is interengaged in the manner described with the slot 12 of the end link of the series and the opposite end of the connector is projected through the adjacent hole 9^a to align its aperture 16 with the bore 8. Preferably by means of a pair of pliers or other suitable tool, an anchorage member 18 is grasped by its shank 20 and its prong 19 is entered through the hole 9^b nearest the previously mentioned hole 9^a and is projected longitudinally of the bore 8 and through the aperture 16 of the connector until the element occupies the position shown in the drawing, the operation being facilitated by the fact that the edge strip is capable of being turned and twisted during this time because it is loose from the mat throughout the remainder of its length. The performance above described is repeated in connection with the successive links 10 until the edge strip is attached to the mat throughout its length. To complete the mat, the adjoining ends of the strips 5 and 6 are mitered and vulcanized together.

In case it becomes necessary to replace damaged tread members 2 or to otherwise repair the mat, this may be done conveniently by withdrawing such of the anchorage elements 18 as is necessary to afford access to the pivot rods in the affected region, when the rod ends may be snipped off or otherwise removed or reformed to allow disassembly of the adjacent parts of the mat; and when the repairs have been made the parts may be reassembled in the manner above described (new rods being substituted if necessary), it being understood that the local region of the edge strip will yield sufficiently to permit of the insertion and interlocking of the connectors and anchorage elements.

A further advantage arising out of the present construction is the relative inflexibility of the inner edge portion of the edge strip throughout the region of each link 10, preventing displacement of the rod ends from the channel 7. It will be observed that the anchorage elements 18 are approximately the same in length as the links and, being stiff, they restrict the flexing of the edge strip to the regions between the successive anchorage elements, and consequently between the links 10. As a result, the edge strip cannot bend near enough to the connectors 14 to permit the ends of the rods 4 to withdraw from the channel 7. If it were not for this inflexibility of the edge strip throughout the region of each link, the ends of the rods would be likely to withdraw from the channel when the mat is rolled, and then when subsequently spread out, the rod ends would overlie the adjacent portions of the edge strip and not only present an unsightly appearance, but interfere with the mat lying flat.

Having thus described my invention, what I claim is:

1. In a mat of the class described, in combination with a body portion, an edge strip adjacent the edge of the body portion, the same having a longitudinally extending bore, a connector slidably connected at one end to the body portion for appreciable movement longitudinally thereof and having its opposite end extending into the edge strip and bisecting the aforesaid bore, the vertical dimension of the connector being considerably less than that of the body portion and lying within the central horizontal region thereof, and an anchorage member in said bore having interlocking engagement with the connector.

2. In a mat of the class described, in combination with a body portion, an edge strip adjacent the edge of the body portion, the same having a longitudinally extending bore and a number of laterally directed perforations communicating therewith; a plurality of connectors each having one of its ends slidably attached to the body portion while its opposite end is provided with an aperture, the latter end being extended into the edge strip and bisecting the bore thereof, and a plurality of anchorage elements each entered through one of said perforations into the bore and engaged through the aperture of a connector.

3. In a mat of the class described, in combination with a body portion, an edge strip having a longitudinally extending bore, a plurality of connectors each having one of its ends attached to the body portion and its opposite end projected into the edge strip and bisecting the bore thereof, and an anchorage member in the bore interlocked with the last mentioned end of the connector, the same being so shaped as to exert a pull on the connector as it is interengaged therewith.

4. In a mat of the class described, in combination with a body portion incorporating a series of slotted links adjacent the edge thereof, an edge strip extending along the edge of the body portion, the same having a longitudinal bore, a connector associated with each link and having a head at one end interlocked through the slot of the link while its opposite end is extended into the edge strip and bisects the bore thereof, and an anchorage member in the bore having holding engagement with the last mentioned end of the connector.

5. In a mat of the class described, in combination with a body portion incorporating rod ends projecting from the edge thereof in spaced relation to one another, links mounted on the rod

ends, each link connecting two adjacent ones thereof, an edge strip having a longitudinal bore and a channel in its edge adjacent said bore, the wall between the channel and bore having spaced perforations, a connector associated with each link and having one of its ends slidably engaged with the link and its opposite end projected through one of said perforations so as to bisect the bore of the edge strip, and an individual anchorage member for each connector, the same being inserted through an adjacent perforation and interlocked in said bore with the last mentioned end of the connector, said channel containing the body of the connector and an end of the anchorage element that projects from the perforation.

6. In a mat of the class described, in combination with a body portion incorporating a series of links adjacent the edge thereof, an edge strip having a longitudinal bore in spaced relation to the inner edge of the strip, the wall between the bore and said edge having spaced perforations, a connector associated with each link and having one of its ends slidably engaged with the link and its opposite end projected through one of said perforations so as to bisect the bore of the edge strip, and an individual anchorage member for each connector, the same being inserted through a perforation adjacent the former perforation and interlocked in said bore with the last mentioned end of the connector.

7. In a mat of the class described, in combination with a body portion, an edge strip having a longitudinally extending bore spaced from its inner edge, the wall between the bore and said edge having spaced perforations, a plurality of connectors each having one of its ends slidably attached to the body portion and its opposite end projected through one of said perforations so as to bisect said bore, and an individual anchorage member for each connector, the same comprising a shank and a prong at substantially right angles to each other, the prong being located within the bore where it has interlocking engagement with the last mentioned end of the connector while the shank projects through a perforation adjacent that occupied by the connector.

8. In a mat of the class described, in combination with a body portion, an edge strip having a longitudinally extending bore spaced from its inner edge, the wall between the bore and said edge having spaced perforations, a plurality of connectors each having one of its ends slidably attached to the body portion and its opposite end projected through one of said perforations so as to bisect said bore, and an individual anchorage member for each connector, the same comprising a shank and a prong at substantially right angles to each other, the prong being located within the bore where it has interlocking engagement with the last mentioned end of the connector while the shank projects through a perforation adjacent that occupied by the connector, the prong being curved away from the aforesaid wall where it interlocks with the connector whereby it tends to draw the edge strip and body portion relatively toward each other.

9. In a mat of the class described, in combination with a body portion incorporating rod ends projecting from the edge thereof in spaced relation to one another, links mounted on the rod ends, each link connecting two adjacent ones thereof, an edge strip having a longitudinal bore substantially parallel to the inner edge of the strip, the wall between the bore and said edge having spaced perforations, a connector associated with each link and having one of its ends slidably engaged therewith while its opposite end is provided with an aperture, the latter end being extended through one of said perforations so as to bisect the bore of the edge strip, and an anchorage element consisting of a shank and a prong that are at substantially right angles to each other, the same being adapted to be projected through an adjacent perforation and along the bore of the edge strip and through the aperture of the connector, the shank of said element projecting outwardly through the last mentioned perforation, and flanges on the inner edge of the edge strip concealing the protruding shanks of the anchorage elements and the body portions of the connectors.

10. In a mat of the class described, in combination with a body portion incorporating rod ends projecting from the edge thereof in spaced relation to one another, links mounted on the rod ends, each link connecting two adjacent ones thereof, an edge strip having a longitudinal bore substantially parallel to the inner edge of the strip, the wall between the bore and said edge having spaced perforations, a connector associated with each link and having one of its ends slidably engaged therewith while its opposite end is provided with an aperture, the latter end being extended through one of said perforations so as to bisect the bore and the edge strip, and an anchorage element consisting of a shank and a prong that are at substantially right angles to each other, the same being adapted to be projected through a perforation and along the bore of the edge strip and through the aperture of the adjacent connector, the shank of said element projecting outwardly through the last mentioned perforation, and flanges on the inner edge of the edge strip concealing the protruding shanks of the anchorage elements and the body portions of the connectors, the prong of the anchorage element being curved outwardly between its ends whereby it tends to urge the connector in a direction to draw the corresponding link toward the edge strip.

11. In a mat of the class described, in combination with a body portion incorporating rod ends projecting from the edge thereof in spaced relation to one another, links mounted on the rod ends, each link connecting two adjacent ones thereof and having a longitudinal slot, a connector associated with each link and having a head at one end spaced from its body portion by a neck, the neck being less in breadth and thickness than the width of the slot while the head has a thickness no greater than that of the neck and a dimension at right angles thereto greater than the width of the slot, whereby the head of the connector may be engaged through the slot and the connector turned to slidably attach the connector to the link, the end of the connector remote from the head being adapted to be extended into the edge strip so as to bisect the bore thereof, and an anchorage element in the bore interlocked with the adjacent end of the connector in such manner as to hold the connector against appreciable turning with respect thereto.

12. In a mat of the class described, in combination with a body portion, an edge strip, a plurality of connectors each having one of its ends attached to the body portion and its opposite end projected into the edge strip, the edge strip having a laterally directed perforation spaced from

each connector and a bore bisected by the connector and wherewith said perforation communicates, and an individual anchorage member for each connector, the same being inserted through one of said perforations and contained within the bore and having interlocking engagement with the connector.

13. In a mat of the class described, in combination with a body portion incorporating rod ends projecting from the edge thereof in spaced relation to one another, links mounted on the rod ends and beyond which the rod ends project, each link connecting two adjacent ones of the rod ends, an edge strip extending along the side of the body portion, the edge of said strip adjacent said portion being recessed for the reception of the rod ends, the edge strip having a longitudinal bore, a connector associated with each link and having one of its ends connected thereto and its opposite end provided with an aperture, the apertured end of the connector being extended into the edge strip and bisecting the bore thereof, and a stiff individual anchorage element for each connector, the same being of a length approximating that of a link, said element being contained in said bore and engaged through the aperture of the connector.

SMITH M. JOHNSON.