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MAT

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2 Sheets-Sheet 1

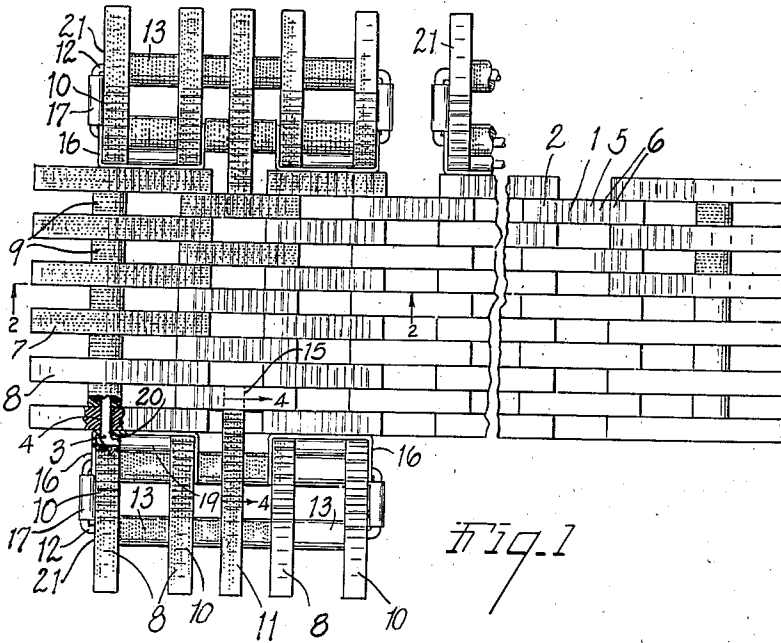


Fig. 1

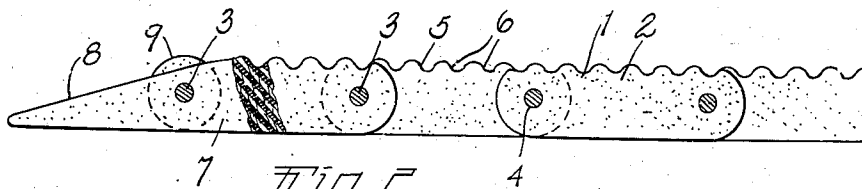


Fig. 2

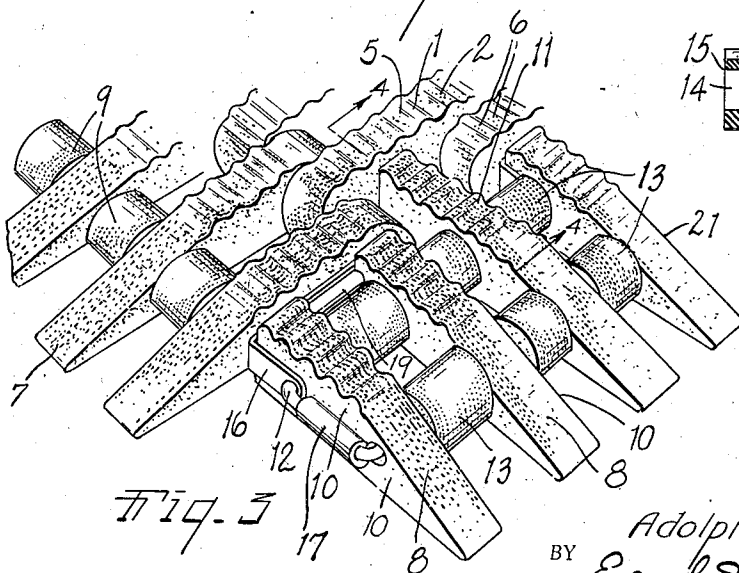


Fig. 3

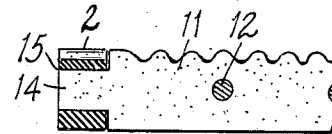


Fig. 4

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MAT

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1 Claim. (Cl. 15—239)

This invention relates to improvements in mats.

The main objects of this invention are:

First, to provide an improved non-slip mat of articulated link construction.

Second, to provide a mat of the type described, which is made of vulcanized rubber having fibrous strands uniformly embedded therein and has improved provisions for presenting an effective scraping surface while at the same time being extremely wear resistant.

Third, to provide an articulated link mat of the type described, the elements of which are formed from pneumatic tire casing stock.

Fourth, to provide a mat having an improved border to minimize the possibility of tripping thereover.

Objects relating to details and economies of the invention will appear from the description to follow. The invention is defined in the claim.

Preferred embodiments of the invention are illustrated in the accompanying drawings, wherein:

Fig. 1 is a fragmentary top plan view of a mat in accordance with the invention.

Fig. 1—A is an enlarged fragmentary plan view partially broken away and in horizontal section illustrating the manner of securing certain of the border elements to the mat in accordance with the preferred embodiment of the invention.

Fig. 2 is a fragmentary view in side elevation and in section along the line 2—2 of Fig. 1, illustrating the material of the link elements and the relation thereof in one direction of the mat, the view being sectioned further to indicate the composition of the links thereof.

Fig. 3 is a fragmentary perspective view more clearly illustrating the mat of the invention and in particular the border portions thereof.

Fig. 4 is a fragmentary view in section on line 4—4 of Figs. 1 and 3.

Fig. 5 is a view in section similar to Fig. 4, illustrating a modified type of border element and the relation thereof to the main body of the mat as contemplated by the invention.

Fig. 6 is a fragmentary top plan view of a modified embodiment of a mat in accordance with the invention, which incorporates a shoe cleaner or scraper attachment on the border thereof.

Fig. 7 is an enlarged fragmentary view in side elevation of the embodiment of Fig. 6.

Fig. 7—A is a fragmentary side view partially

in vertical section more clearly illustrating the embodiment of Figs. 6 and 7, on line 7A—7A of Fig. 6.

Fig. 8 is a fragmentary bottom plan view illustrating the nonskid provisions of the invention applied to the bottom of the mat.

Fig. 9 is a fragmentary top plan view illustrating a still further modified embodiment of the invention.

In the accompanying drawings no attempt has been made to show the parts in their proportion relative to each other or to show a mat in commercial proportions which obviously may and in fact are greatly varied.

Referring to the drawings, the reference numeral 1 designates a mat of the invention the body of which is made up of a plurality of similar link elements 2 articulated at their ends and in laterally staggered arrangement to constitute a flexible mat body. These links are formed of vulcanized rubber having fibrous strands or fibrous fabric embedded therein, being preferably cut or stamped out of discarded pneumatic tire casings, which I have found to be an excellent wear resisting and nonskidding material for the mat of the invention.

The articulating means for the links is preferably in the form of the rectangular wire loops 3, see Fig. 1—A, which extend through openings 4 formed in the laterally spaced and staggered links to hold the same in assembled relation and constitute a flexible mat body.

In order to increase the frictional and cleaning effect of the upper surface 5 of the mat, I form laterally extending corrugations 6 therein, thereby rendering the mat more readily cleaned, more satisfactory for the purpose of scraping snow and mud from the shoes of the user and also increasing the traction afforded by the mat to prevent slipping thereon. The same corrugating provisions are carried out in the border members of the mat which will be hereinafter described. It will be noted that the reinforcing material extends into the ridges or corrugations supporting them and making them very wear resistant or durable.

The mat body has the end links 7 thereof provided with uncorrugated, downwardly inclined or beveled end surfaces 8, these end pieces being maintained in spaced relation by roller elements 9 preferably formed of the casing stock. The roller elements are of sufficient diameter to project substantially above the smooth inclined surfaces 8 to thereby give or yield angularly when struck by the foot of the user, thus coact-

ing with the beveled surfaces in greatly minimizing the possibility of stumbling, scuffing, or tripping over the edges of the mat. The terminal links or end pieces 7 and the spacer rollers 9 are held in assembled relation by means of a rectangular wire loop 3 similar to that articulating the links of the mat body.

The sides of the mat are provided with borders made up of the side pieces or elements 10 and provision is made in the preferred embodiment of the invention whereby these elements are held from vertical displacement relative to the body of the mat. To this end, pairs of the side border elements 10, which, like the end border elements 7, have inclined or beveled surfaces 8, are assembled in the manner clearly illustrated in Figs. 1, 1—A, and 3. I preferably assemble two pairs of the elements 10 with an interposed relatively elongated side border element, designated by the reference numeral 11, and secure these side border elements together by means of an elongated rectangular wire loop 12, interposing spacing rollers 13 similar to the rollers 9 between the border elements of this assembly and arranging the elements in such manner that the inclined surfaces 8 terminate equidistant from the body of the mat, there being a substantial portion of the elongated border element 11 projecting inwardly of the adjacent ends of elements 10. This extension is reduced in dimension at its end 14, as illustrated in Fig. 4, and has a mortise and tenon connection with a link 2 in the second row or course of links from the side of the mat body, which link is apertured at 15 for this purpose.

In order to hold each of the side border assemblies to the mat body, I provide U-shaped couplings or clips 16 of strip metal for each of the pairs of side border elements 10, which pivotally engage the inner elongated side of the rectangular loop 12 and are likewise engaged with the opposite elongated sides of an articulating loop 3 for the body of the mat (see Fig. 1—A). The U-shaped clip 16 fits snugly across the inner ends of the border elements 10, which are recessed at 20 to receive the bight 18 of loop 3, and it also engages the adjacent link 2 of the body of the mat, so as to resist any tendency of the border assembly to swing at the pivotal point of connection of the clips and loop 12. Of course this resistance to looseness or flopping of the side border assemblies or units is further enhanced by the fixed mortised engagement of the elongated intermediate border member 11 with the body of the mat. The sleeves 17 surrounding the narrow ends of the loops 12 serve to maintain the assembly of border elements 10 in compact end-to-end relation as well as conceal and secure the joint at the adjacent ends of the wire strand constituting the loop 12. The end bight 18 of the loop 3 has a similar clip or sleeve 19 encircling the same to space the loop equally at each side of a border unit or assembly.

If desired, the elongated intermediate border element 11 may be modified in form in the manner illustrated in Fig. 5 to lie in simple end abutting relation to the link 2 of the main body of the mat, the mortised joint being omitted. I find that although the connection is not as rigid as that provided by the mortised fit illustrated in Fig. 4, it is nevertheless adequate for the purpose, i. e., to prevent swinging of the border members relative to the main body of the mat.

In practice, there are a plurality of border element units mounted along the sides of the mat in the manner illustrated in Fig. 1, wherein the ref-

erence numeral 21 is used to designate these units generally. The resultant structure is one which, by reason of the corrugated upper surface thereof, provides ample traction for removal of mud and snow adhering to the shoes of a user while at the same time preventing slipping thereon. The beveled side and end border elements and the spacing rollers 9, 13 assembled therewith minimize the likelihood of stumbling or tripping on the mat, while the relatively rigid association of these elements with the main body of the mat prevents their becoming doubled underneath the mat when the same is laid down, to thereby insure that the same will lie flat at all times. At the same time, the border units serve to stiffen the mat as a whole somewhat since it is apparent that it may bend substantially only on transverse lines between successive border units 21. Thus, if there are three such side border units, bending of the mat may occur only at two points along the length thereof.

If desired and as illustrated in the modified embodiment of Fig. 8, the surface corrugations may be provided on the main body and border elements of the mat at the lower side thereof, such corrugations being indicated by the reference numeral 22, to thereby enhance the non-skid quality of the mat with reference to the floor on which it is laid.

The improved mat described above is well adapted to have associated therewith an additional scraping unit, such as I have illustrated in Figs. 6, 7 and 7—A. This unit consists of a plurality of relatively short tapered or round-nosed border elements 23 having a somewhat stubby outline, pairs of these elements being assembled with interposed roller type spacers 24.

The scraper elements are slotted or recessed at 25 at the heel or non-tapered end thereof to accommodate the bight of the wire loop 3 which has a sleeve 26 encircling the same at this point. The loop also passes through the parallel legs 27 of a metal strip 28 which is conformed by bending the same at right angles to and reversely of itself to provide the aforesaid integrally connected clip elements or legs 27 which are disposed at the opposite side of the pairs of scraper elements 23 as illustrated in Fig. 7.

In order to maintain the scraper elements 23 in upright relation relative to the body of the mat, I provide an L-shaped foot or support 29 of wire loop construction as illustrated in Figs. 6 and 7, this loop passing through the upstanding legs 27 of the strip 28 and through the scraper elements. Inasmuch as there is no bight 3 adjacent the intermediate scraper element, particularly designated 231, see Fig. 6, the uppermost reach 30 of the foot support serves as a pivot for this element which is otherwise unrestrained from pivotal movement. The foot support 29 engages the mat supporting surface and prevents outward displacement of the scraper elements from their vertical position. These elements provide useful scraping surfaces for disengaging snow or mud from the shoe of the user, being restrained from excessive inward pivoting or collapse by the engagement of the loop 3 with the notch or slot 25 at the lower or heel end thereof.

In the embodiment illustrated in Fig. 9, I utilize alternating straight parallel and sinuous strips 32, 33 of the fabric reinforced vulcanized rubber described above. The sinuous or wavy strips 33 have spacer blocks or rollers 34 at opposite sides thereof and between the same and the

straight strips 32. The upper surface of the aforesaid strips is corrugated at 35 (the lower surface may also be corrugated if desired) and the strips are held in assembled relation by loops 36 similar to those described above.

I have illustrated and described my improvements in embodiments which are very practical. I have not attempted to illustrate or describe other embodiments or adaptations as it is believed this disclosure will enable those skilled in the art to embody or adapt my improvements as may be desired.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent, is:

A floor mat comprising a plurality of longi-

15 tudinally disposed links of vulcanized rubber tire casing stock having fibrous strands embedded therein, means for pivotally articulating said links in laterally spaced and staggered and longitudinally overlapping arrangement to provide a mat body portion, and border elements connected to said body portion, said border elements terminating at their outer ends in inclined downwardly directed surfaces and having rollers interposed therebetween and projecting above said surfaces whereby to eliminate scuffing or tripping on the edges of the mat, said border elements, rollers, and links being formed of similar stock.

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