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MAT CONSTRUCTION

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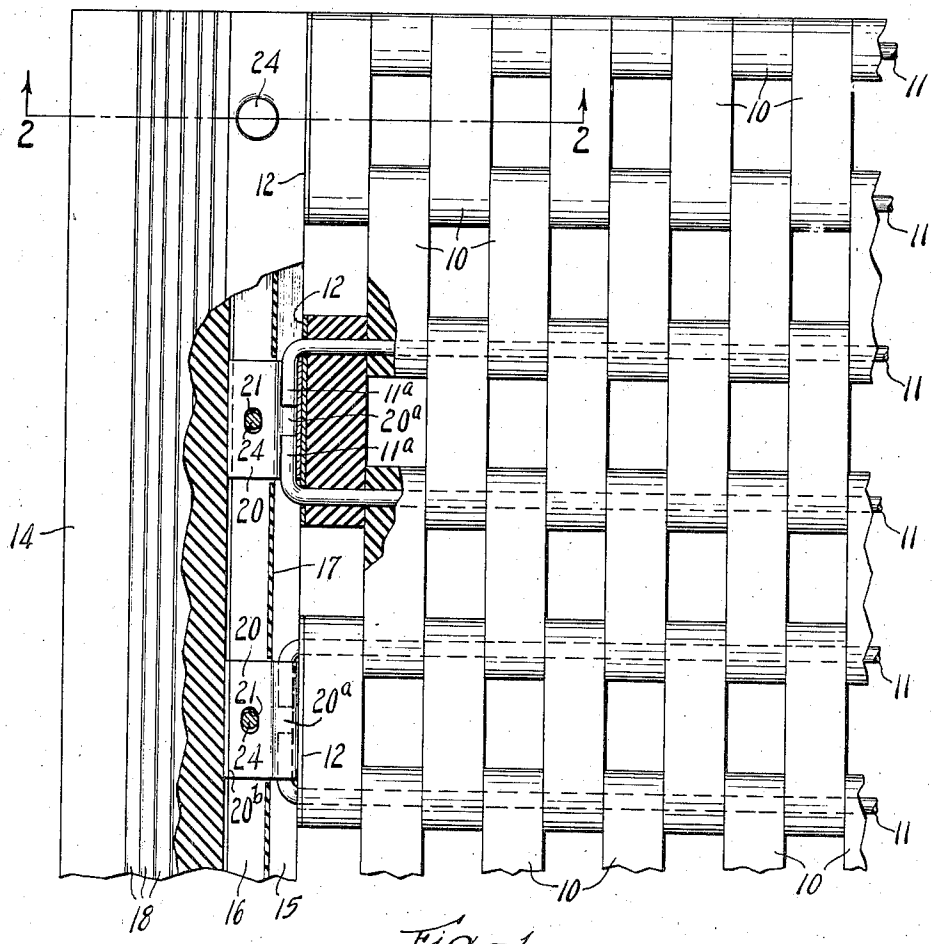


Fig.-1

Fig.-2

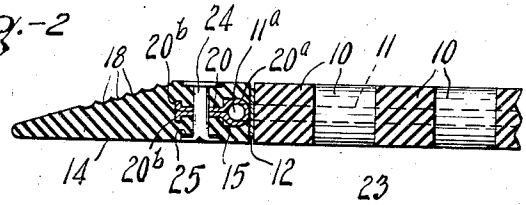
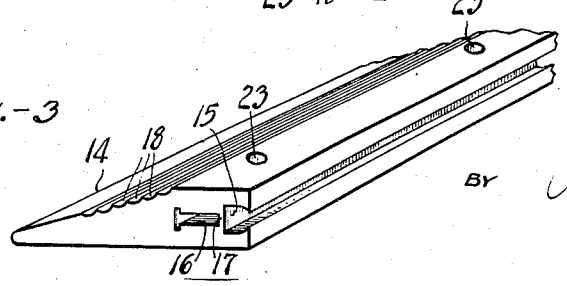


Fig.-3



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MAT CONSTRUCTION

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10 Claims. (Cl. 20—78)

This invention relates to mat construction, and more especially it relates to improved nosing strips such as commonly are applied to one or more margins of flexible, assembled mats, and to improved means for attaching such nosing strips to the mat structure.

Mats of the character mentioned are of the type wherein a multiplicity of blocks of durable material, such as rubber or rubber and fabric, are assembled in laterally overlapped relation and retained in such relation by a framework of wires that extend through the overlapping blocks. The respective end portions of said wires are bent at right angles to the remainder of their structure, and said angular portions are utilized in the attaching of nosing strips to the mat. In one prior construction the angular ends of the frame-wires were inserted through apertures formed in the margin of a nosing strip and into a longitudinal bore formed in the nosing adjacent said margin. In another prior construction, metal clips were clamped upon adjacent wire ends and inserted into the marginal portion of the nosing strip so as to extend into a longitudinal bore therein, and a flexible wire was drawn through said bore and through apertures formed in the respective clips for holding the nosing to the clips. Neither of the aforesaid constructions was entirely satisfactory since in that first mentioned the nosing separated from the mat very easily, and that last mentioned presented considerable difficulty of assembly.

The chief objects of this invention are to provide a mat construction that may be easily assembled; to provide a mat structure wherein the nosing will not readily separate from the body thereof; and to provide an improved nosing for mats of the character mentioned. Other objects will be manifest.

Of the accompanying drawing,

Figure 1 is a fragmentary plan view of a mat embodying the invention in its preferred form, parts being broken away and in section;

Figure 2 is a section on the line 2—2 of Figure 1; and

Figure 3 is a fragmentary perspective view of an improved nosing strip.

Referring to the drawing, the mat comprises a multiplicity of rubber blocks 10, 10 that are arranged in overlapping, laterally abutting relation, and are joined to each other by transversely extending, parallel wires 11, 11, which wires extend freely through apertures formed in the blocks so that the mat is sufficiently flexible to permit it to be rolled up transversely of said wires. At the ends of the mat each block 10 is provided with a metal wear plate 12, and the two wires 11 that extend through each end-block are bent at right angles, toward each other, so as to overlie said wear plates, as shown at 11a, 11a, Figure 1.

Attached to the end of the mat is a nosing strip 14, the construction of which is best shown in Figure 3. As shown, the nosing strip is an elongate structure, preferably of rubber or other flexible composition, that may be made in a continuous strip by extrusion and thereafter cut to length and vulcanized. One lateral marginal portion of the nosing strip is of the same thickness as the blocks 10 of the mat, and has formed therein a longitudinally extending recess or slot 15 that opens onto the adjacent marginal face of the strip. The recess 15 is somewhat undercut as shown, so that the opening thereof on the margin of the strip is of narrower width than the width of the recess rearwardly thereof. Rearwardly of the recess 15 the strip 14 is formed with a T-shaped recess 16, the base of which is separated from the recess 15 by a relatively thin web 17, the transverse leg of the T being at the opposite end of the recess from said web. The other lateral marginal portion of the nosing strip 14 tapers to a blunt nose, and may have its upper face formed with longitudinal fluting 18, if desired.

The nosing strip 14 is attached to the mat structure by means of a plurality of metal clips 20, 20. Each clip 20 consists of a single piece of sheet metal that is bent upon itself to provide double thickness, the closed margin of the clip defining a sleeve-like structure 20a that embraces the adjacent, angularly-bent end portions 11a of two of the frame-wires 11. At the margin of the clip paralleling the sleeve-structure 20a the respective metal plies are bent laterally in opposite directions to form right-angle flanges 20b, 20b. Each metal clip 20 has a centrally disposed aperture 21 that is elongated in the direction that is parallel to the flanges 20b.

In the assembling of the improved mat, after the clips 20 have been mounted upon the wire-ends as shown, the nosing strip is placed beside the mat and the location of the clips spotted upon the strip, and also the location of the apertures 21, if desired. The web 17 of the nosing strip is then slit in those regions thereof where the recesses 15 and 16 are to receive the clips 20. The nosing strip is then assembled with the mat by forcing the flanged margins of the clips

through the slits of the web 17, the flexibility and elasticity of the nosing permitting such distortion thereof as may be required. When completely assembled, the flanged margin of each clip 20 seats snugly within the transverse leg of the T-shaped slot 16, and thus effects a mechanical interlock with the nosing structure that strongly resists separation of the members. In like manner the sleeve portion 20a of each clip 20 is received within the undercut recess 15 and mechanically interlocked with the nosing strip by reason of the relatively narrow marginal opening of said recess. The mechanical interlocking of the nosing and clips at two regions as described usually is sufficient to retain said parts in assembled relation under normal conditions, since the unsevered portions of the web 17 prevent spreading of the slotted marginal portion of the nosing except when intentionally done during the assembling of the mat.

In the event that a stronger union of the mat and nosing is desired, the nosing strip may be bored through, before assembly, at longitudinally spaced points 23, 23, which points are aligned with the elongate apertures 21 of the respective clips 20 after assembly. The bores 23 receive rivets 24 or other suitable retaining means that pass through the apertures 21 of the clips 20 and securely retain the same against removal. If rivets 24 are used, the bores 23 may be counterbored on the under side of the nosing strip to receive respective washers, such as the washers 25, over which the rivets are crimped.

The invention provides a durable mat of neat appearance wherein there is a strong union between the body of the mat and the nosing strip. The structure is flexible so as to permit rolling of the mat longitudinally of the nosing, the mat and nosing are easily assembled, and the other objects set out in the foregoing statement of objects are achieved.

Modification may be resorted to without departing from the spirit of the invention or the scope of the appended claims, which are not limited wholly to the specific construction shown and described.

What is claimed is:

1. In a mat construction, the combination of a mat body including a metal frame, a nosing strip of flexible material formed in one lateral marginal portion with a longitudinally extending undercut groove, and metal clips secured at spaced points to said metal frame and positioned in said undercut groove of the nosing strip, said clips being so shaped as mechanically to interlock with the nosing structure.

2. In a mat construction, the combination of a mat body including a metal frame, a flexible nosing strip formed with a longitudinally extending T-shaped recess therein, which recess is accessible from a lateral margin of the strip, and metal clips secured at spaced points to said metal frame and positioned in said recess, said clips being formed with laterally extended flanges whereby they interlock with the nosing structure.

3. In a mat construction, the combination of a mat body including a metal frame, a flexible nosing strip along a margin thereof, said nosing strip being formed with a longitudinally extending, undercut groove opening onto one of its margins, and a T-shaped recess rearwardly thereof and accessible from said groove, and metal clips secured at spaced points to said metal frame and extending into said groove and recess, said clips being so constructed as mechanically to interlock with the nosing structure in said groove and said recess.

4. A combination as defined in claim 3 including a thin web of material separating the groove and recess of the nosing strip except at regions where the clips extend therethrough.

5. A combination as defined in claim 3 including clip-fastening means extending transversely through the nosing strip, recess, and clip therein.

6. A nosing strip for mats consisting of an elongate structure of flexible material formed with a longitudinally extending, laterally undercut groove in one marginal face thereof, and formed rearwardly of said groove with an internal T-shaped recess, said groove and recess being separated by a thin web of material that is longitudinally slit at spaced regions longitudinally of the strip.

7. A nosing strip for mats consisting of an elongate structure of flexible material formed with a longitudinally extending groove in one marginal face thereof, and formed rearwardly of said groove with an internal, longitudinally extending T-shaped recess, said groove and recess being separated by a thin web of material that is longitudinally slit at spaced regions longitudinally of the strip.

8. In a mat construction, the combination of a mat body including a metal frame, a nosing strip of flexible material formed with a longitudinally extending groove in one marginal face thereof and formed rearwardly of said groove with an internal longitudinally extending recess, said groove and recess being coextensive with the nosing strip and locally connected at spaced intervals by slits through the intervening wall of material, metal clips secured at spaced points to said metal frame positioned in the groove of said nosing strip and having flanges extending into the respective slits, and securing means disposed transversely of the nosing strip and engaging the respective clip-flanges for attaching the nosing strip to the mat body.

9. A combination as defined in claim 8 in which each clip-flange is formed with an elongated aperture for receiving the means that secures the nosing strip to the mat body.

10. In a mat construction, the combination of a mat body including a metal frame, a nosing strip of flexible material formed with a longitudinally extending groove in one marginal face thereof and formed rearwardly of said groove with an internal longitudinally extending recess, said groove and recess being coextensive with the nosing strip and locally connected at spaced intervals by slits through the intervening wall of material, metal clips mounted at spaced points on said metal frame positioned in the groove of said nosing strip and having flanges extending into the respective slits, and securing means disposed transversely of the nosing strip and flanges extending through the latter for preventing removal of said clips from the nosing strip, the under side of the nosing strip being recessed to receive one end of the respective securing means.

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