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(54) Woven mat having a plurality of solid metal warp wires.

(57) A woven mat for ground or embankment covering, mattresses and the like consisting of a tissue of synthetic warp and weft yarns, wherein a few warp yarns are replaced by a solid warp wire of metal, for instance a twined steel cable, and wherein the synthetic binder warps located at the side of the solid metal warp may have a diameter corresponding to said solid metal warp.

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Woven mat having a plurality of solid metal warp wires.

The invention relates to a woven mat for ground or embankment covering, mattresses and the like consisting of a tissue of synthetic warp and weft yarns.

Such a mat is frequently used as a base for ground
5 or embankment covering, in which a ballast or withy is arranged on the mat with the aid of the appropriate binding or bonding means. In view of the ever large units dragged from the homestead or factory to the place of destination the mats must have an ever increasing tensile strength.
10 Attempts have been made to manufacture composite structures consisting of a synthetic mat with metal gauze. The manufacture of such structures is expensive.

The invention has for its object to provide a woven mat of high tensile strenght, which can be made in
15 a simple manner on a loom.

The mat according to the invention is distinguished in that a few warp yarns are replaced by a solid warp wire of metal.

The solid metal warp wire proposed by the invention
20 imparts to the mat the required tensile strength and, in

addition, owing to the greater rigidity as compared with the synthetic resin yarns it directly becomes a solid warp during the weaving operation, that is to say this warp in contrast to the binding warp is not bent in zigzag fashion about
5 the weft yarns and is hardly likely to lengthen.

In a preferred embodiment of the invention the metal warp wire is formed by a twined steel cable. Thus the woven mat maintains a given amount of flexibility so that it can match unevennesses of the ground. The steel cable employed in
10 accordance with the invention may be left- or right-woven and any suitable construction of the steel cable may be used, for example, the Lang's lay cables or regular lay cables.

Particularly for the case of comparatively thick warp wires of metal or thick steel cables the invention further-
15 more proposes to provide the synthetic binder warps located at the side of the solid metal warp in a diameter corresponding to said solid metal warp. This will result in a more gradual change-over from the weft wires from the normal mat tissue to the metal warp, which is at the same time conducive
20 to the density of the mat tissue so that a more uniform permeability of the mat to water is ensured.

In hydraulic engineering woven mats have been employed in which binding or bonding means are woven during manufacture thereof, said binding or bonding means serving for faste-
25 ning withies or other ballast material, for example, cast concrete blocks on the mat.

For such a mat the invention proposes to pass the binding or bonding means along the rear side of the solid metal warp with respect to the ballast side of the mat.
30 Owing to this measure the forces exerted on the withy or the ballast will be substantially directly transferred to the strong metal warp wires.

In a further embodiment of the mat it may furthermore be advantageous in accordance with the invention
35 to cause the solid warp on the ballast side of the mat to float with respect to the mat tissue at regular intervals. These floating steel wire portions may then be used for fastening ballast material by passing bonding means in between the mat and the steel wire.



Irrespective of the above-mentioned features the mat may have any suitable shape and any known weaving technique may be employed for obtaining certain, known
4 weaving structures.

WHAT IS CLAIMED IS:

1. A woven mat for ground or embankment covering, mattresses and the like, consisting of a tissue of synthetic warp and weft wires characterized in that some warp wires are replaced by a solid warp wire of metal.

5 2. A mat claimed in claim 1, characterized in that the metal warp wire is formed by a twined steel cable.

 2. A mat as claimed in claim 1 and 2 characterized in that the synthetic binding warps located at the side of the solid metal warp have a diameter corresponding to said
10 metal warp.

 4. A mat comprising woven binding or bonding means for the arrangement of withies or ballast as claimed in anyone of the preceding claims characterized in that the binding or bonding means extend along the rear side of the
15 metal warp with respect to the ballast side of the mat.

 5. A mat as claimed in anyone of claim 1 to 3, characterized in that the solid warp on the ballast side of the mat is floating with respect to the mat tissue at regular intervals.

20 6. A ground or embankment covering comprising a woven mat as claimed in anyone of the preceding claims.

 7. A mattress comprising a woven mat as claimed in anyone of claims 1 to 5.





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EUROPEAN SEARCH REPORT

0021467

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DOCUMENTS CONSIDERED TO BE RELEVANT			CLASSIFICATION OF THE APPLICATION (Int. Cl. ³)
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	
A	<u>GB - A - 1 066 975</u> (MARTEL-CATALA) * Claims; figure 2 *	1,3	D 03 D 15/02 E 02 B 3/12
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	<u>FR - A - 1 559 879</u> (ROSLER) * Claims; figures *	1	
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	<u>FR - A - 842 050</u> (JUILLA) * Claim 1; figure 1 *	1	
	--		TECHNICAL FIELDS SEARCHED (Int.Cl. ³)
	<u>FR - A - 1 125 539</u> (LAROCHE) * Claim; figure.*	1	D 03 D E 02 B
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	<u>GB - A - 1 475 682</u> (INTRUSION PREPAKT) * Claims; figure *		

			CATEGORY OF CITED DOCUMENTS
			X: particularly relevant A: technological background O: non-written disclosure P: intermediate document T: theory or principle underlying the invention E: conflicting application D: document cited in the application L: citation for other reasons
			&: member of the same patent family, corresponding document
The present search report has been drawn up for all claims			
Place of search The Hague	Date of completion of the search 08-09-1980	Examiner BOUTELEGIER	