WOVEN CONSTRUCTION BELT AND
METHOD TO MANUFACTURE THE WOVEN
CONSTRUCTION BELT

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ABSTRACT
A woven construction belt is fabricated by a method to manufacture said belt and, said belt has a surface, at least one warp, at least two wefts, at least two locking wefts and a binding layer. The method has a preparing step, a weaving step, a dipping step and a fixing step. In the preparing step, warp fibers, at least two wefts and at least two locking wefts are made from tempered fibers. In the weaving step, the wefts are first woven transversely through the warp fibers, the locking wefts are subsequently woven through the warp fibers and the wefts to form a woven belt. In the dipping step, the woven belt is dipped into a macerate tank to apply binding material to the woven belt. In the fixing step, the binding material on the woven belt is cured to form a binding layer and complete the woven construction belt.
PREPARING

WEAVING

DIPPING

FIXING

THE WOVEN CONSTRUCTION BELT

FIG. 2
WOVEN CONSTRUCTION BELT AND METHOD TO MANUFACTURE THE WOVEN CONSTRUCTION BELT

BACKGROUND OF THE INVENTION

[0001] 1. Field of the Invention
[0002] The present invention relates to a construction belt, and more particularly relates to a woven construction belt and a method to manufacture the woven construction belt.
[0003] 2. Description of Related Art
[0004] In the past, metal plates were usually used to form retaining walls to hold concrete and stones used to level construction sites before building a structure. However, metal plates are expensive and increase building costs. Furthermore, the metal plates have smooth surfaces that cannot keep the stones from sliding.
[0005] With reference to FIG. 8, conventional construction belts (60) were developed to replace the metal plates. A conventional construction belt (60) comprises multiple tempered fibers and multiple openings (61). The tempered fibers are glued to each other in a straight line. The openings (61) are formed through the tempered fibers at intervals and increase friction between the construction belt (60) and the stones.
[0006] However, the tempered fibers of the conventional construction belt (60) are connected with glue only and may separate during use, which will influence the strength of the conventional construction belt (60).
[0007] Therefore, the present invention provides a woven construction belt and a method to manufacture the woven construction belt to mitigate or obviate the aforementioned problems.

SUMMARY OF THE INVENTION

[0008] The main objective of the present invention is to provide a woven construction belt that will not separate and a method to manufacture the woven construction belt.
[0009] A woven construction belt in accordance with the present invention is fabricated by a method to manufacture said belt, and said belt has a surface, at least one warp, at least two wefts, at least two locking wefts and a binding layer. Each warp has multiple warp fibers.
[0010] The method to manufacture the woven construction belt in accordance with the present invention comprises a preparing step, a weaving step, a dipping step and a fixing step. In the preparing step, warp fibers, at least two wefts and at least two locking weft are made from tempered fibers. In the weaving step, the wefts are first woven transversely through the warp fibers, and the locking wefts are subsequently woven through warp fibers and the wefts to form a woven belt. In the dipping step, the woven belt is dipped into a macerate tank to apply binding material to the woven belt. In the fixing step, the binding material on the woven belt is cured to form a binding layer and complete the woven construction belt.
[0011] Other objectives, advantages and novel features of the invention will become more apparent from the following detailed description when taken in conjunction with the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

[0012] FIG. 1 is a top view of a woven construction belt in accordance with the present invention;
[0013] FIG. 2 is a flow chart of manufacturing the woven construction belt in FIG. 1;
[0014] FIG. 3 is a top view of a second embodiment of a woven construction belt in accordance with the present invention;
[0015] FIG. 4 is a top view of a third embodiment of a woven construction belt in accordance with the present invention;
[0016] FIG. 5 is a top view of a fourth embodiment of a woven construction belt in accordance with the present invention;
[0017] FIG. 6 is an enlarged top view of a fifth embodiment of a woven construction belt in accordance with the present invention;
[0018] FIG. 7 is an operational top view of the woven construction belt in FIG. 1 used with mounting boards; and
[0019] FIG. 8 is a perspective view of a conventional woven construction belt in accordance with the prior art.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

[0020] With reference to FIGS. 1 to 6, a woven construction belt (10, 10A, 10B, 10C, 10D) in accordance with the present invention is used in construction and is made by a method in accordance with the present invention for manufacturing the woven construction belt (10, 10A, 10B, 10C, 10D).
[0021] With further reference to FIG. 7, the woven construction belt (10, 10A, 10B, 10C) is mounted through rings (51) on parallel frame members (50), is made of tempered fibers and comprises a surface, at least one warp (20), at least two wefts (30, 30A, 30B, 30C), at least two locking wefts (40, 40A, 40B, 40C) and a binding layer. The tempered fibers may be Polyethylene Terephthalate (PET), Polypropylene (PP), Polyethylene (PE) or fiberglass.
[0022] Each warp (20) has two edges and multiple warp fibers (21). The warp fibers (21) are parallel to each other.
[0023] The at least one weft (30, 30A, 30B, 30C) is woven through adjacent warp fibers (21) and may be a single weft (30) or multiple wefts (30A, 30B, 30C) grouped together and parallel to each other.
[0024] The at least two locking wefts (40, 40A, 40B, 40C) are woven through adjacent warp fibers (21) respectively at the edges of each warp (20) and at least two wefts (30, 30A, 30B, 30C), may also be further woven with an adjacent locking weft (40C) and may wrap around the warp (20) after weaving around each weft (30B).
[0025] The binding layer completely covers the surface of the woven construction belt (10, 10A, 10B, 10C) and securely holds the woven at least one warp (20, 20A, 20B, 20C), at least two wefts (40, 40A, 40B, 40C) and at least two locking wefts (30, 30A, 30B, 30C) together.
[0026] The method for manufacturing the woven construction belt (10, 10A, 10B, 10C, 10D) comprises (a) a preparing step, (b) a weaving step, (c) a dipping step and (d) a fixing step.
[0027] The preparing step comprises preparing warp fibers (21), at least one warp (20), at least two wefts (30, 30A, 30B, 30C) and at least two locking wefts (40, 40A, 40B, 40C) from tempered fibers. Furthermore, the tempered fibers can be Polyethylene Terephthalate (PET), Polypropylene (PP), Polyethylene (PE) or fiberglass.
[0028] The weaving step comprises weaving the wefts (30, 30A, 30B, 30C) and the locking wefts (40, 40A, 40B, 40C). The wefts (30, 30A, 30B, 30C) are woven transversely through the warp fibers (21) of the at least one warp (20). The locking wefts (40, 40A, 40B, 40C) are woven through adjacent warp fibers (21) respectively at edges of the at least one
warp (20) and the at least two wefts (30, 30A, 30B, 30C) to connect the at least two wefts (30, 30A, 30B, 30C) with the at least one warp (20) to form a woven belt, may wrap around the at least one warp (20) between adjacent wefts (30B) or may further weave through an adjacent locking weft (40C).

[0029] The dipping step comprises dipping the woven belt in a maceurate tank to apply binding material to the woven belt to completely cover the at least one warp (20), the at least two wefts (30, 30A, 30B, 30C) and the at least two locking wefts (40, 40A, 40B, 40C).

[0030] The fixing step comprises fixing the binding material on the woven belt at a temperature between 100° C. and 200° C. to form the binding layer on the woven belt and complete the woven construction belt (10, 10A, 10B, 10C, 10D).

[0031] The woven construction belt (10, 10A, 10B, 10C, 10D) has the following advantages.

[0032] 1. The woven construction belt (10, 10A, 10B, 10C, 10D) connects the parallel frame members (50) easily and quickly, concrete and stones can be poured between the parallel frame members (50). Furthermore, the surface of the woven construction belt (10, 10A, 10B, 10C, 10D) is rough and uneven by the warps (20), the at least one weft (30, 30A, 30B, 30C) and the at least one locking weft (40, 40A, 40B, 40C). The rough and uneven surface of the woven construction belt (10, 10A, 10B, 10C, 10D) keeps the concrete and stones from slipping. Then, the cement and the stones can be contained between the mounting boards (50) and the woven construction belt (10, 10A, 10B, 10C, 10D).

[0033] 2. The at least one locking weft (40, 40A, 40B, 40C) woven through the at least one warp (20) and the at least one weft (30, 30A, 30B, 30C) keeps the warp fibers (21) from separating. This improves the strength of the woven construction belt (10, 10A, 10B, 10C, 10D).

[0034] Even though numerous characteristics and advantages of the present invention have been set forth in the foregoing description, together with details of the structure and features of the invention, the disclosure is illustrative only. Changes may be made in the details, especially in matters of shape, size, and arrangement of parts within the principles of the invention to the full extent indicated by the broad general meaning of the terms in which the appended claims are expressed.

What is claimed is:
1. A woven construction belt being made of tempered fibers and comprising
   a surface;
   at least one warp, each warp having
   two edges; and
   multiple warp fibers parallel to each other;
   at least two wefts woven through adjacent warp fibers;
   at least two locking wefts woven through two adjacent warp fibers respectively at the edges of each one of
   the at least one warp and the at least two wefts; and
   a binding layer completely covering the surface of the woven construction belt and securely holding the woven
   at least one warp, at least two wefts and at least two locking wefts together.

2. The woven construction belt as claimed in claim 1,
   wherein the tempered fibers are manufactured from Polyethylene Terephthalate (PET).

3. The woven construction belt as claimed in claim 1,
   wherein the tempered fibers are manufactured from Polypropylene (PP).

4. The woven construction belt as claimed in claim 1,
   wherein the tempered fibers are manufactured from Polyethylene (PE).

5. The woven construction belt as claimed in claim 1,
   wherein the tempered fibers are manufactured from fiberglass.

6. The woven construction belt as claimed in claim 1,
   wherein the at least one warp is a single weft.

7. The woven construction belt as claimed in claim 1,
   wherein the at least one warp is multiple wefts grouped together and parallel to each other.

8. The woven construction belt as claimed in claim 1,
   wherein the at least two locking wefts are further woven with an adjacent locking weft.

9. The woven construction belt as claimed in claim 1,
   wherein the at least two locking wefts wrap around the warp after weaving around each warp.

10. A method for manufacturing a woven construction belt that has a surface, at least one warp with multiple warp fibers, at least two wefts, at least two locking wefts and a binding layer, and the method comprising:
   (a) a preparing step comprising preparing the warp fibers, the at least one warp, the at least two wefts and at least two locking wefts from tempered fibers;
   (b) a weaving step comprising weaving the wefts transversely through the warp fibers of the at least one warp; and
   weaving the locking wefts through adjacent warp fibers respectively at edges of the at least one warp and the at least two wefts to connect the at least two wefts with the at least one warp to form a woven belt;
   (c) a dipping step comprising dipping the woven belt in a maceurate tank to apply binding material to the woven belt to completely cover the at least one warp, the at least two wefts and the at least two locking wefts; and
   (d) a fixing step comprising fixing binding material on the woven belt to form the binding layer on the woven belt and complete the woven construction belt.

11. The method for manufacturing a woven construction belt as claimed in claim 10, wherein fixing the binding material on the woven belt is performed at a temperature between 100° C. and 200° C. to form the binding layer on the woven belt.

12. The method for manufacturing a woven construction belt as claimed in claim 10, wherein the locking wefts wrap around the at least one warp between adjacent wefts.

13. The method for manufacturing a woven construction belt as claimed in claim 10, wherein the locking wefts further weave through an adjacent locking weft.

14. The method for manufacturing a woven construction belt as claimed in claim 11, wherein the tempered fibers are Polyethylene Terephthalate (PET).

15. The method for manufacturing a woven construction belt as claimed in claim 11, wherein the tempered fibers are Polypropylene (PP).

16. The method for manufacturing a woven construction belt as claimed in claim 11, wherein the tempered fibers are Polyethylene (PE).

17. The method for manufacturing a woven construction belt as claimed in claim 11, wherein the tempered fibers are manufactured from fiberglass.

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