

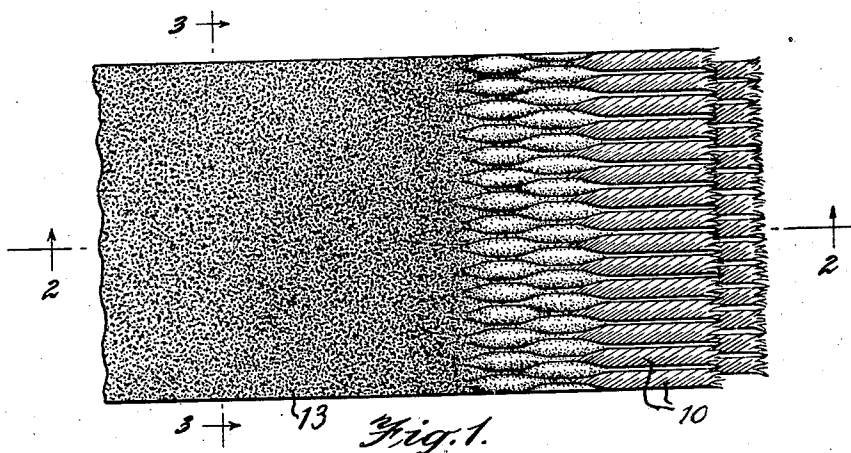
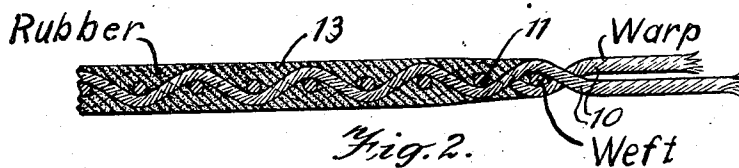
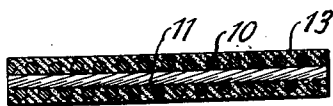
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BELTING

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BELTING

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Our invention relates to belting consisting of a combination of woven textile fabric and rubber or the like, such as is employed in connection with conveyor, elevator or power transmission installations.

In the manufacture of such belting it is the conventional practice to employ a number of plies of woven fabric which are bonded together by an adhesive such as rubber or the like to form layers. The woven textile fabric provides the longitudinal strength of the belt and the principal anchorage means for the fasteners employed for joining together the ends of the belt.

The object of the present invention is to construct belting in which the warp and weft threads of the woven textile fabric provide adequate longitudinal belt strength with considerably enhanced fastener anchorage and which requires less weight of textile material compared with conventional multiply belting.

A further object of the invention is to provide belting with greatly increased flexibility and endurance under flexing compared with that of conventional multiply belting.

According to this invention belting which comprises a single ply of textile fabric woven from comparatively coarse yarns or threads is characterized in that in the ply of woven textile fabric:

(a) The weight of the fabric is not less than 45 ounces per square yard.

(b) There is not more than 420 yards per pound of the warp and weft yarn (maximum resultant cotton count of 0.5's.).

(c) The maximum number of weft threads is six per inch.

Note: The above particulars are ascertained when the textile material is in equilibrium with "Standard Atmosphere" as specified in the British Standards Institution Specification No. 1015/1942.

The yarn from which the textile fabric is woven may be either plied or cabled yarns and may be composed of natural fibres or filaments such as cotton, flax, hemp and silk or synthetic fibres or filaments such as rayon, prolon, nylon and Vinyon or mineral fibres or filaments such as glass, asbestos and metallic wire. The weft may also consist of braided yarns or woven tapes.

The various features of our invention are illustrated, by way of example, in the accompanying drawing in which

Fig. 1 is a face view of a belting embodying a preferred form of the invention;

Fig. 2 is a section on line 2—2 of Fig. 1;

Fig. 3 is a section on line 3—3 of Fig. 1.

In the embodiment illustrated in Figs. 1, 2 and 3 the belting comprises warp threads 10 and weft threads 11, there being approximately twelve or thirteen warp threads per inch and between three and four weft threads per inch. The warp threads are closely laid as indicated in Fig. 1. These threads are embedded in and covered by a rubber composition 13 which binds and holds the threads against displacement and forms a facing for the belting.

A comparison between conventional 5 ply belting and belting made with a single ply of fabric according to the present invention is made in the following table of particulars and test data:

	Belting made with conventional 32 ounce soft type duck British standard 1069/42	Belting made with fabric according to the present invention
20 a. Number of plies.....	5.....	1.
b. Warp threads, total number per inch.....	120.....	12.
25 Count and ply.....	7s/7.....	3.75s/5/5.
Yards per pound.....	840.....	126.
c. Weft threads, total number per inch.....	65.....	3.
Count and ply.....	7s/6.....	8.4s/5/4/4.
Yards per pound.....	980.....	88.
30 d. Weight of single ply of fabric ounces/square yard.....	27.5.....	80.
e. Total weight of fabric in belt ounces/square yard.....	137.5.....	80.
f. Ultimate longitudinal tensile strength of belt...pounds per inch.....	1,800.....	1,900.
g. Load required to pull out fasteners pounds per inch.....	810.....	1050.
35 h. Ratio of load required to pull out fasteners to ultimate longitudinal tensile strength of belt $\frac{g}{f}$	0.45:1.....	0.55:1.
i. Weave.....	Plain.....	Plain.

It will be seen that belting according to the present invention, compared with a conventional 5 ply belt, has one ply instead of 5, has 3 weft threads per inch of belt instead of a total of 65, has a fabric weight of 80 ounces per square yard instead of a total of 137.5 ounces, and has slightly greater longitudinal tensile strength while the load required to pull out the fasteners is 1050 pounds per inch instead of 810 pounds.

In belting according to the present invention considerable saving in weight is effected for a given strength of belt or alternatively a considerable increase in strength can be obtained for a given weight of textile material, as compared with a conventional multiply belt.

The improved fastener anchorage obtained by

the use of the type of fabric described allows the construction of a single ply belt of adequate strength and failures common to conventional multiply belting, due to separation of the plies, are thereby avoided. The greatly increased flexibility of such a single ply belt is of decided advantage and permits the efficient use of belts on pulleys of smaller diameter than is practicable with multiply belt constructions.

Furthermore, the impregnation with rubber or the like is more completely effected in the case of the textile fabric according to this invention and the coarse texture provides a rough or broken surface which results in improved adhesion of cover rubber or the like.

The application of rubber to the single ply of textile fabric may be performed by "spreading," "frictioning" or "topping" in the manner commonly employed and well known in the art of rubber manufacturing processes.

Having described our invention what we claim is:

1. Belting comprising a single ply of woven fabric having not over six weft threads per inch and in which the yards per pound of thread are

not over 420 and the weight of the fabric is not less than 45 ounces per yard, and a coating of rubber composition on said fabric.

2. Belting comprising a single ply of woven fabric having not over six weft threads per inch and in which the yards per pound of thread are not over 420 and the weight of the fabric is not less than 45 ounces per yard, and a rubber composition impregnating said fabric.

3. Belting comprising a single ply of woven fabric impregnated with rubber and having approximately twelve warp threads per inch and approximately three weft threads per inch, the weight of said ply before impregnation being eighty ounces per square yard, and the weft threads having greater weight per yard than the warp threads.

4. Belting comprising a single ply of woven fabric having twelve warp threads per inch and not over six weft threads per inch, the warp threads having 126 yards per pound, said single ply of woven fabric being impregnated with a rubber composition.

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