

[54]	POWER TRANSMITTING BELTING MATERIAL	2,004,479	6/1935	Merrill	161/76
		2,202,013	5/1940	Lougheed	18/59
		2,633,440	3/1953	Scholl	161/76
[75]	Inventor: Josef Hnatek , Hoxter, Germany	2,677,872	5/1954	Teague	161/76
[73]	Assignee: Hoxtersche Gummifaden-Fabrik	3,035,329	5/1962	Cole	161/76
	Emil Arntz KG , Hoxter, Weser, Germany	3,252,833	5/1966	Skobel	117/231
		3,479,245	11/1969	Manock	161/77

[22] Filed: **Apr. 20, 1972**
[21] Appl. No.: **246,084**

Related U.S. Application Data

[63] Continuation of Ser. No. 62,902, Aug. 11, 1970, abandoned.

Foreign Application Priority Data

Aug. 16, 1969 Germany..... 1941821

[52] U.S. Cl..... **74/231 R**, 161/73, 161/77, 161/90, 161/91, 161/92
[51] Int. Cl..... **F16g 1/00**, F16g 5/00
[58] Field of Search..... 74/231 R, 232; 161/73, 161/76, 77, 91, 92

References Cited

UNITED STATES PATENTS

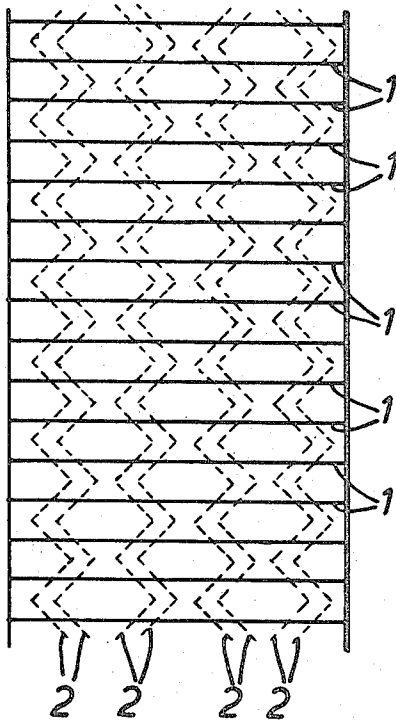
1,823,034 9/1931 Dworsky et al..... 161/76

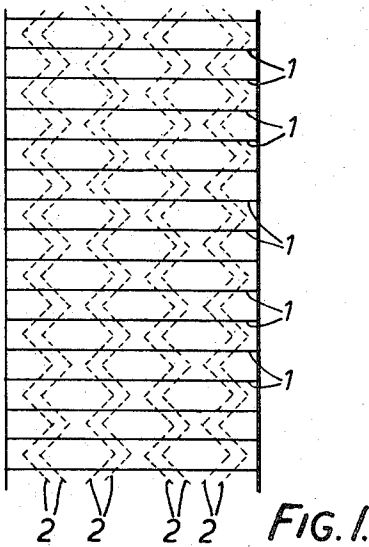
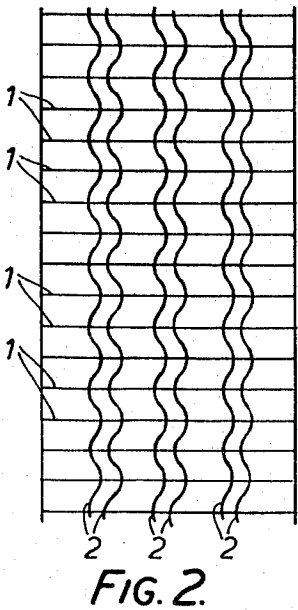
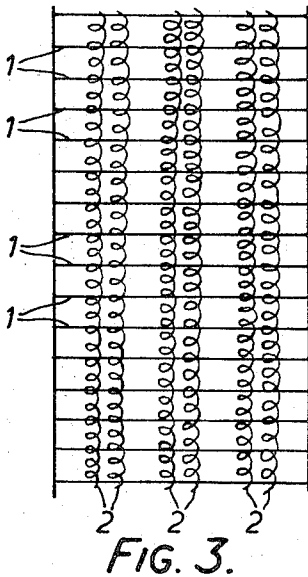
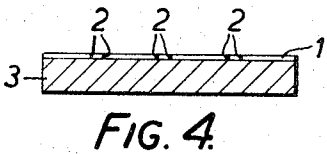
Primary Examiner—George F. Lesmes
Assistant Examiner—James J. Bell
Attorney, Agent, or Firm—Mason, Mason and Albright

[57] **ABSTRACT**

Belting material for power-transmitting flat, or vee-belts includes a strip of woven fabric capable of relatively high elastic elongation along its length accompanied by substantially zero deformation along its width. The weft threads of the fabric are straight, while the warps threads follow either a zig-zagged or sinuous path, or are coiled.

6 Claims, 4 Drawing Figures





INVENTOR
JOSEF HNATEK

BY
Mason, Mason & Allright
ATTORNEYS

POWER TRANSMITTING BELTING MATERIAL

This is a continuation of application Serial No. 62,902, filed Aug. 11, 1970, now abandoned.

BACKGROUND OF THE INVENTION**1. Field of the Invention.**

The present invention relates to belting material for power-transmitting belts.

2. Description of the Prior Art.

It has been proposed to provide both vee-type and flat belting material with a strip of canvas, rubberized and cut on the bias, by way of a protective outer covering. The strip is generally formed from textile material which is cut on the bias after being rubberized, the angle of the strip to the selvage being about 45°.

SUMMARY OF THE INVENTION

According to the invention, there is provided in belting material for a power-transmitting belt, the improvement comprising a strip of woven fabric capable of a relatively high elastic elongation in its longitudinal direction accompanied by substantially zero contraction in its transverse direction.

Further according to the invention, there is provided in belting material for a power transmitting belt, the improvement comprising a strip of woven material in accordance with German Standard DIN 61,632, which is characterized by stretching under load conditions in a longitudinal direction while the width is preserved so that there is no cross contraction.

BRIEF DESCRIPTION OF THE DRAWINGS

Embodiments of the invention will now be described, by way of example only with reference to the accompanying diagrammatic drawing, in which:

FIGS. 1 to 3 are plan views of three different forms of facings for flat belting material in accordance with the invention, and

FIG. 4 is a section through belting material having a facing as shown in FIGS. 1 to 3.

As shown in the Figures, facings are formed from a strip of woven fabric. The weft threads 1 of the fabric are substantially straight and the warp threads 2 of the fabric are crimped in the plane of the fabric so as to be capable of relatively high resilient elongation. The resulting fabric is thus capable of relatively high resilient elongation along its length since, due to the configuration of the warp threads 2, the substantially straight weft threads 1 are not themselves deformed when the fabric is elongated longitudinally. The fabric can be formed from natural or synthetic fibers. In the embodiment shown in FIG. 1, the warp threads 2 of the fabric follow a generally zig-zaged path, and in the embodiment shown in FIG. 2, the warp threads 2 follow a generally sinuous path. As shown in FIG. 3 the warp threads 2 are coiled. The fabric, as shown in FIG. 4, is disposed on the surface of strip material 3 of a type known per se for the production of power-transmitting belting material so that the warp threads 2 of the fabric extend longitudinally of the strip material 3.

In each embodiment the fabric, which is preferably rubberised, is of the type used in elastic bandages for surgical purposes in accordance with the German Standard DIN 61,632. Such bandages through their porous type weave and the use of a crepe twist in the warp are elastic lengthwise. The warp utilizes a yarn number in the *Nm* system of 50 whereas the weft is not finer than

a yarn number in the *Nm* system of 14. The yarn number in the *Nm* system is the length in meters of one gram of the material. A yarn number of *Nm* 14 is equivalent to a 72 tex and a yarn number of *Nm* 50 is equivalent to 20 tex. The yarn number in the "tex" system is the weight in grams of one thousand meters of the yarn. Extensibility of the bandage is measured with a tensile force of one kp cm with the bandage for 1 minute. It must be at least 90% of the original measured length. The fabric may be a leno fabric.

Although the invention has been particularly described in relation to flat belts, it can be applied with equal advantage to vee-belts.

Alternatively, the strip of fabric can be wrapped around the belting material, can be located within the body of the belting material or can form a lamination or laminations of the belting material.

In the belting material described it is not necessary to cut strips on the bias and to stick these strips together to form endless belts. In addition, the waste of woven material inevitable with the previously proposed method is eliminated.

Belts formed from belting material in accordance with the invention have a high flexural strength in both directions. Tests have shown that the angular deformation undergone by vee-belts passing round relatively small diameter pulleys, in relation to the outstretched position of the belt, is less than that of vee-belts formed from the previously proposed material. Because of the reduced strain caused by the reduced angular deformation, belts formed from material in accordance with the invention are not heated as much during use and hence have a longer life.

In a vee-type or flat belt formed from material in accordance with the invention the adjacent ends of the strips of fabric are butted together, and the warp threads thereof are retained by a thread, which can be made as a synthetic reinforcement, extending at right angles to the run of the belt. Thus the thickness of the belt is not increased in the area of the connection between the ends of the strip whereby the belt passes more smoothly over the pulleys. Since the width of the strip remains substantially constant even at maximum longitudinal elongation, the area of the strip increases in proportion to its elongation. In the case of a bias-cut fabric the area is reduced by elongation. This reduction in area, as a belt incorporating the fabric passes round a pulley, has an adverse effect on the effective life of the belt.

What is claimed is:

1. In combination with a molded power transmitting belt structure, a belting material comprising a strip of woven fabric having warp threads extending substantially longitudinally in the belt structure, and weft threads extending transversely in the belt structure, said warp threads being substantially finer than said weft threads and crimped so as to be capable of elastic elongation by at least 90% of its original length whereby the fabric in the belt structure is capable of a relatively high elastic elongation in its longitudinal direction accompanied by substantially zero contraction in its transverse direction.

2. A combination according to claim 1, wherein the weft threads of the fabric are substantially straight.

3

3. A combination according to claim 2, wherein the warp threads of the fabric follow a generally zig-zaged path.

4. A combination according to claim 2, wherein the warp threads of the fabric follow a generally sinuous path.

4

5. A combination according to claim 2, wherein the warp threads of the fabric are coiled.

6. A combination according to claim 1 wherein said fabric is a leno fabric.

* * * * *

10

15

20

25

30

35

40

45

50

55

60

65