

Description

The invention relates to an abrasive belt with a layer of abrasive grains on a support comprising a textile material and with a joining seam extending transversely to the longitudinal direction thereof and which comprises a coupling band in a recess on that side of the support remote from the layer of abrasive grains, wherein a bundle of mutually parallel threads of the textile material extends transversely to the joining seam.

It is known to span the edges of an abrasive belt to be joined together in the vicinity of the joining seam with a coupling band which is cast in situ from hardened material (US-PS 4 125 516) in the recess on the reverse side of the belt or is bonded in as a prefabricated element (FR-PS 928 656). To produce the recess a portion of the support is removed together with the fabric contained therein, thereby weakening the remaining portion. Even if the recess extends only over less than one half of the fabric thickness or if the recess surfaces extend obliquely (US-PS 3 154 897), the fabric threads extending transversely to the seam will inevitably be interrupted or at least weakened in those zones in which, in the vicinity of a bonding point, they pass below the threads extending transversely thereto. Frequently, in order to obviate this weakening, the coupling band is not inserted fully into the recess; however, the disadvantage of this is that the coupling band inconveniently protrudes above the belt surface on the reverse side thereof.

The invention is based on the object of devising an abrasive belt of the type indicated at the beginning, in which the above-mentioned weakening caused by the recess in the joining seam is obviated or reduced.

The object according to the invention is achieved in that the bundle of mutually parallel threads extending transversely to the joining seam forms a non-woven layer which is disposed on that side of the textile material

nearest to the layer of abrasive grains and which is held together by a further layer provided on the side thereof remote from the layer of abrasive grains and in which further layer the recess for the band coupling is situated.

The invention is based on the knowledge that when using a certain type of non-woven textile fabric, which is known per se in abrasive belts (EP-PS 00 45 408; DE-PS 23 33 980), the layered arrangement of the different thread layers in the abrasive belt support offers the possibility of arranging the particular thread layer which is principally responsible for transmitting the longitudinal tensile forces in the abrasive belt in the support layer nearest to the layer of abrasive grains and of providing the recess for the abrasive belt coupling substantially in the other layer of the non-woven textile fabric on the reverse side, thereby wholly or substantially preventing the thread layer responsible for transmitting the longitudinal tensile forces from being weakened by the recess.

Whereas in the context of the invention the textile material must always comprise a layer which has threads extending transversely to the joining seam and which is responsible for transmitting the longitudinal tensile forces of the abrasive belt, there is considerable degree of freedom in choosing the particular layer which holds together the threads of the first-mentioned layer and which is disposed on the rear side thereof. Preferably, however, this layer is formed by a fibrous material, preferably a bundle of threads extending transversely to the threads of the first-mentioned layer, it being possible for the layers to be joined by any means desired but, preferably, in the manner of a stitched fabric (as disclosed, for example, in EP-PS 00 45 408 and the references cited therein).

In abrasive belts of normal width, the warp threads of the textile material extending in the longitudinal direction of the belt can form the bundle of mutually parallel threads; in this case only one joining seam is generally provided.

However, in the case of a wide abrasive belt, the width of which is greater than the manufacturing width of conventional textile webs used for the support [sic], a plurality of joining seams is provided and the bundle of mutually parallel threads extending transversely to the joining seams is formed by the weft threads of the textile material.

The indication to the effect that the threads responsible for transmitting the longitudinal tensile forces extend transversely to the joining seam merely serves to identify them but not to indicate a specific angle between these threads and the joining seam. In particular, it is not necessary for a right angle to exist between these threads and the joining seam. Similarly, there is no need for these threads to extend precisely in the longitudinal direction of the abrasive belt.

The joining seam can extend in any manner desired. It is not absolutely necessary for it to be straight but, for example, it may also be undulating or serrated.

In cross-section the recess can be bounded rectangularly by the seam. However, at either of the two edges to be connected it may also extend obliquely wedge-shaped or in a curve. Advantageously, it is of constant cross-section in the longitudinal direction of the seam; however, the recess may also be composed of a series of consecutively arranged grooves which extend in the longitudinal direction of the belt or in the longitudinal direction of the threads extending transversely to the seam, in per se known manner.

The invention will be described in more detail below with reference to the drawing which illustrates by way of example an advantageous embodiment in schematic cross-section through an abrasive belt joining seam.

The layer of abrasive grains 1 is supported by a flexible support which as a load-bearing textile material comprises a stitched fabric which consists of two layers, of which the upper layer situated directly under the layer of

abrasive grains 1 comprises a bundle of threads 2 which extends substantially in the longitudinal direction of the abrasive belt, whereas the second layer situated thereunder is composed of threads 3 extending transversely to the threads 2. At 4 the abrasive belt comprises a joining seam, extending transversely to the longitudinal direction thereof and transversely to the drawing plane, which seam thus also extends transversely to the direction of the threads 2. The coupling is effected by a coupling band 5 which is inserted into a recess in the edges to be joined together on either side of the seam. The depth of the recess is equal to the thickness of the coupling band 5 so that the latter is wholly contained therein. However, advantageously this is not absolutely necessary in all case.

The depth of the recess is equal to the thickness of the layer formed by the threads 3, so that only the material belonging to this layer has been removed during the formation of the recess, whereas the layer formed by the threads 2 is intact. The tensile forces can be transmitted directly from the threads 2 of one side of the seam to the coupling band 5 and from the latter to the threads 2 of the other coupling side.

The invention provides a seam coupling having high load-bearing capacity and offering a high degree of safety.

The construction of the coupling band 5 and its mode of connection with the abrasive belt may be of known type.



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CLAIMS:

1. An abrasive belt with a layer of abrasive grains (1) on a support comprising a textile material and with a joining seam (4) extending transversely to the longitudinal direction thereof and which comprises a coupling band (5) in a recess on that side of the support remote from the layer of abrasive grains, wherein a bundle of mutually parallel threads (2) of the textile material extends transversely to the joining seam (4), characterised in that the bundle of mutually parallel threads (2) forms a non-woven layer which is disposed on that side of the textile material nearest to the layer of abrasive grains (1) and which is held together by a further layer (3) provided on the side thereof remote from the layer of abrasive grains and in which further layer the recess for the band coupling is situated.
2. An abrasive belt according to Claim 1, characterised in that the textile material is formed by a stitched fabric.
3. An abrasive belt according to Claim 1 or 2, characterised in that the bundle of mutually parallel threads (2) is formed by the warp threads extending longitudinally through the textile material, and a joining seam is provided.
4. An abrasive belt according to Claim 1 or 2, characterised in that it is in the form of a wide abrasive belt with a plurality of joining seams and the bundle of mutually parallel threads (2) extending transversely to the joining seam is formed by the weft threads of the textile material.