July 23, 1940. E. P. DAHLSTROM 2,209,074

WIDE ABRASIVE BELT

Filed March 28, 1938

Fig. 1.

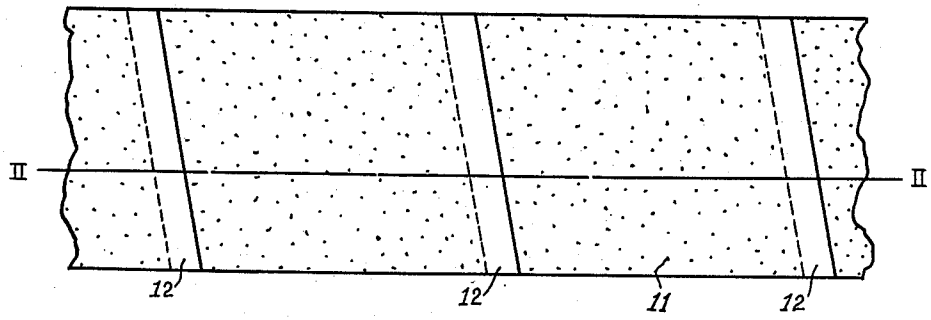


Fig. 2.

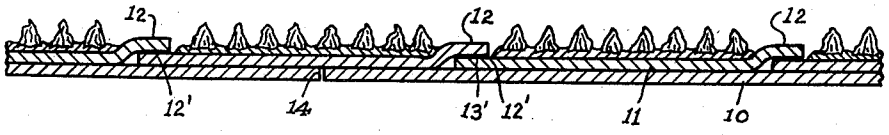


Fig. 3.

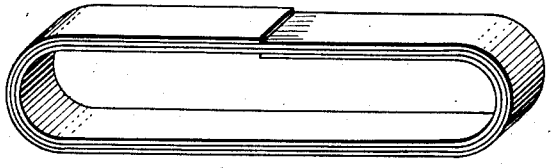


Fig. 4.



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WIDE ABRASIVE BELT

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Application March 28, 1938, Serial No. 198,443

2 Claims. (Cl. 51—188)

The production of steel sheets in widths approaching 100 inches has created a demand for abrasive polishing belts of equal or greater width. Because the coating machines in the abrasive industry are not equipped to coat abrasive sheet material in widths wider than 52 inches, attempts have been made to make polishing belts by mounting together segments of the regular width abrasive sheet material on a liner of heavy cloth. The segments are cut lengthwise from the roll, in lengths corresponding to, or greater than, the width of the finished belt, and are mounted on a liner of heavy cloth in abutting relation. Such a belt is shown in United States Patent No. 2,059,583.

While these belts have been more or less successful, complaints have been received from the trade because of the high cost of such belts and their great weight. In some instances, where the belts have been subjected to hard usage, the segments have come loose from the liner in a short time.

All of this has resulted in a demand for an improved belt and it is accordingly an object of the present invention to provide an abrasive coated polishing belt that is free from the above noted objectionable features.

In the accompanying drawing, like numerals of reference refer to like elements in the following specification.

Figure 1 is a plan view of a fragment of abrasive belt made in accordance with the present invention;

Figure 2 is a sectional view (on an enlarged scale) along the line II—II of Figure 1;

Figure 3 is a perspective view of a modified type of liner as it appears before pressing;

Figure 4 is a fragmentary view (on an enlarged scale) of the liner shown in Figure 3 after pressing.

Referring to the drawing, Figures 1 and 2 illustrate a fragment or section of a composite belt which consists of a liner 10, to which segments 11 of coated abrasive sheet material are cemented by a suitable adhesive. The abrasive segments 11 have had the abrasive particles and glue skived off along two of their edges, as indicated at 12 and 12', and the adjacent edges of adjacent segments are overlapped and cemented together by a suitable cement, as indicated at 13.

The liner 10 is continuous, except for the one joint 14, and may be of cloth, paper or vulcanized fiber. Similarly, the abrasive sheet material 11 may have either a paper or a cloth backing. The choice of material depends upon the use to which the article is to be put.

The abrasive segments 11 are cut in the shape of a parallelogram. The lines of juncture between segments are parallel to each other, but they are not parallel to the axis of the pulleys over which the belt is intended to run. This eliminates "hinging" at the joints during running and consequent failure of the joints. Other shapes of segments other than that illustrated may be used, such as those disclosed in the United States Patent No. 2,059,583, referred to above.

The belt just described is superior in several respects to those of the prior art, especially the belt shown in Patent No. 2,059,583.

The overlapping skived joint strengthens the belt at the joining points of the segments, thereby permitting the use of a relatively thin, light and cheap liner since the strains are not carried entirely by the liner as was the case in the prior art. The overlapping joints do not have the tendency to come loose like butt joints for the reason that the joint itself is a stronger and smoother joint and, because the segments are attached to one another, the liner can not stretch.

Figure 3 illustrates a type of liner that may be used in the belt just described, in place of the liner shown, where extreme strength combined with extreme flexibility is necessary.

The liner shown in Figure 3 is made by winding a sheet of medium weight fabric, or other flexible material of the width desired, in a continuous spiral, and cementing each layer to the adjacent layer. As many layers as are necessary to give the required characteristics may be used.

As shown more clearly in Figure 4, the beginning end of the liner and the finishing end both terminate at a point adjacent one another, but not overlapping. Figure 3 shows the liner before the section adjacent the ends of the fabric is pressed. Figure 4 shows how the material in the vicinity of the joint appears after it has been subjected to the action of a hydraulic press. The beginning end has been forced inwardly and the finishing end has been forced outwardly giving a uniform thickness throughout the entire length of the liner.

Having thus described my invention, I claim:

1. An abrasive belt comprising a continuous one joint liner and a plurality of segments of abrasive-coated sheet material intimately united to a side of the said liner, each of said segments being attached to the adjacent segments by a skived and lapped joint.

2. An abrasive belt comprising a continuous one joint liner having a plurality of segments of abrasive-coated sheet material intimately united to one side thereof, said segments being skived overlapping one another, the overlapping portions of said segments being adhesively secured together.

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