

E. J. BEIN.
JOINING ABRASIVE SHEETS.

APPLICATION FILED JUNE 3, 1907. RENEWED FEB. 12, 1912.

1,037,582.

Patented Sept. 3, 1912.

Fig. 1.

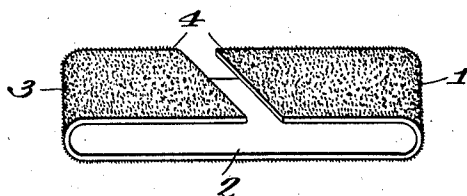


Fig. 2.

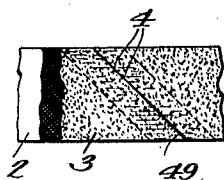
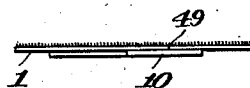


Fig. 3.



Witnesses:

Robert K. R.
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UNITED STATES PATENT OFFICE.

EMILE J. BEIN, OF NEWARK, NEW JERSEY.

JOINING ABRASIVE SHEETS.

1,037,582.

Specification of Letters Patent.

Patented Sept. 3, 1912.

Original application filed April 11, 1907, Serial No. 367,542. Divided and this application filed June 3, 1907, Serial No. 376,962. Renewed February 12, 1912. Serial No. 677,136.

To all whom it may concern:

Be it known that I, EMILE J. BEIN, of Newark, New Jersey, have invented certain Improvements in Joining Abrasive Sheets, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings designating like parts.

This invention relates to devices for grinding, and more particularly to joints in endless belts surfaced with grains of abrasive material and adapted for use in connection with the type of machine illustrated in Letters Patent #561,557, granted to me on the 9th day of June 1896, and also #833,726 granted to me on the 23rd day of October, 1906, although I do not limit myself to the use of my improvements for joining endless belts, but contemplate their utilization in any field for which they are adapted by their nature.

I have devised a joint for the ends of abrasive belts of the above character, or similar abrasive devices, such that the abrasive character of the surface is of continuous efficiency at the joint and in its immediate region, thus obviating a serious drawback to the use of such belts, caused hitherto by the presence upon their surface of glue or other adhesive used in making the joint, which has a tendency to work up from the fabric foundation of the belt and submerge the grains of abrasive material in the region of the joint, making a smooth, non-abrasive spot. This destroys the abrasive character of the belt at the joining, and impairs considerably the efficiency of the belt as a whole.

The essential feature of my invention resides in restraining the glue or adhesive from thus submerging the grains, and this I accomplish by the imposition of an artificial graining at the region of the joint, preferably by means of a "graining member", such as a wire mesh screen pressed against the grain bearing surface of the belt at the region of the joint, at the time of making the same, the wires acting to restrain and compress the adhesive, while permitting the protrusion of the abrasive particles into the meshes, so that in the finished article the particles project as cleanly and sharply at and in the region of the joint as they do at any other portion of the belt.

My present invention relates to the joint

as a product, my application Serial 367,542 filed April 11, 1907; from which this application has been divided, covering the method and apparatus to which reference is made hereinafter as a convenient mode of operation.

The various features of my invention will be illustrated fully in the accompanying drawing and specification and pointed out in the claim.

In the drawing, Figure 1 shows in perspective an abrasive belt in which a joint is to be formed in accordance with my invention; Fig. 2 is a fragmentary plan view of a completed joint; and Fig. 3 is a view in side elevation of the joint shown in Fig. 2.

In the embodiment of my invention selected for illustration and description to enable a ready and complete understanding of my improvements, the reference numeral 1 designates an elongated sheet forming when its ends are joined a belt of a well-known type, capable of use in connection with the sand-papering machine illustrated in my Letters Patent #833,726, above mentioned, the belt comprising a fabric foundation 2, with a surface 3 composed of grains of abrasive material such as "adamite" or "carborundum", or other abrasive material secured to the foundation by a suitable adhesive. The ends 4 of the strip of which the belt is composed are preferably cut on the bias at an angle of 45°, so as to reduce to a minimum the transverse interruption of the grinding surface and to make the joint as strong as possible.

The joint may be completed by any means and in any manner suitable to accomplish the purpose of my invention, as for example by the apparatus and method forming the subject of my application for United States Letters Patent, Serial No. 367,542, to which reference may be made for a complete disclosure of said preferred method and apparatus, and in the completed joint, referring to Fig. 2, the sheet parts 4 lie adjacent to each other preferably with their margins in abutting relation, and the joint preferably has a reinforcing strip 10 of fabric preferably similar to that of the foundation 2, and as thin as may be used consistently with strength, secured beneath the ends 4 as by glue or other suitable adhesive, under pressure and heat.

The heat and pressure ordinarily leave

the surface in a non-abrasive condition adjacent the region of the joint, owing to submergence of the abrasive grains by the adhesive, but in accordance with my invention
5 I provide this surface with an artificial graining as illustrated in the region of the joint at 49 in Fig. 2, so that the individual abrasive particles protrude, as illustrated clearly in Fig. 3, to present a surface of
10 high abrasive quality. Preferably the artificial grain will be blended with the natural grain and the finished joint will be uniform in abrasive effect with the rest of the abrasive surface of the belt.
15 As illustrated in Fig. 2, the completed article presents an appearance of absolute uniformity, the actual joint 49 formed by the abutting ends 4, being scarcely discernible without the closest inspection.
20 Having illustrated and described my invention thus fully, and one suitable embodiment thereof I wish it understood that I do not limit myself to the specific materials

mentioned, nor to the exact details of construction or arrangement of parts illustrated, nor in general otherwise than as set forth in the claim read in connection with this specification. 25

What I claim, and desire to secure by Letters Patent is:— 30

As a new article of manufacture, a jointed abrasive sheet, having a surface of abrasive particles, the adjoining parts being secured by an adhesive having at the region of said joint an artificial graining from which the individual abrasive particles protrude to present a surface of high abrasive quality substantially as described. 35

Signed at Newark in the county of Essex and State of New Jersey, this seventeenth day of May, 1907. 40

EMILE J. BEIN.

Witnesses:

S. R. CAIRNS,
CHARLES E. HILLYER.