(No Model.)

F. W. COY.

ABRASIVE BELT.

No. 299,747. Patented June 3, 1884.

Fig. 1a

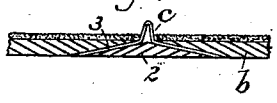


Fig. 1b

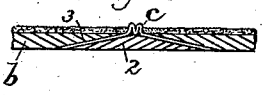


Fig. 1c

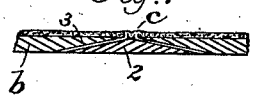


Fig. 1.

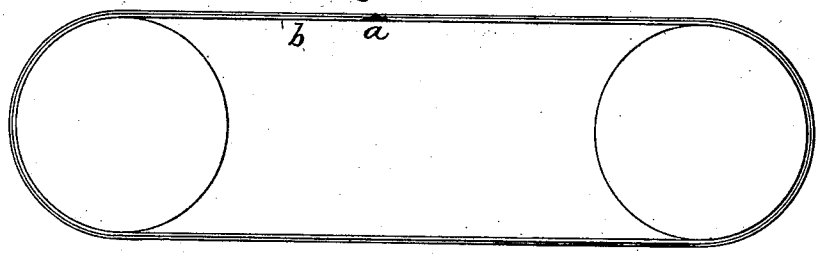


Fig. 2

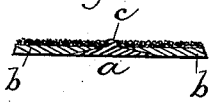


Fig. 4.

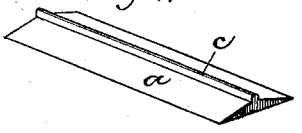


Fig. 3.

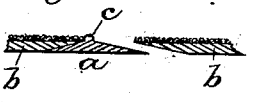


Fig. 9.

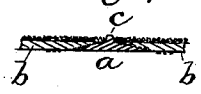


Fig. 8.

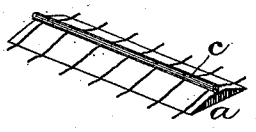


Fig. 5

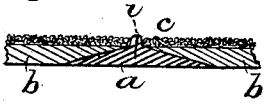


Fig. 6



Fig. 10

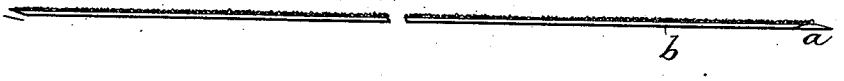
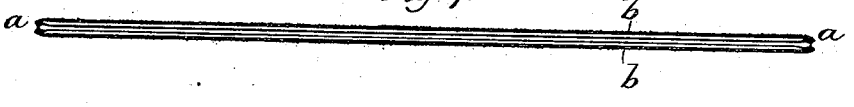


Fig. 7.



Witnesses.
H. Brown.
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F. W. Coy
by Wright Brown
Attys.

N. PETERS. Photo-Lithographer. Washington, D. C.

UNITED STATES PATENT OFFICE.

FREDERICK W. COY, OF BOSTON, MASSACHUSETTS.

ABRASIVE BELT.

SPECIFICATION forming part of Letters Patent No. 299,747, dated June 3, 1884.

Application filed April 12, 1884. (No model.)

To all whom it may concern:

Be it known that I, FREDERICK W. COY, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain Improvements in Abrasive Belts, of which the following is a specification.

This invention has for its object to provide improved means for uniting the ends of a strip of sand-paper to convert it into an abrasive belt.

The invention consists in the provision of a flexible connecting-piece adapted to be cemented to the scarfed ends of a strip of sand-paper, and provided with a central compressible rib, which is interposed between the ends of the abrasive surface of the strip when said ends are connected to the flexible piece, and is adapted to be pressed laterally or upset upon the adjacent ends of the abrasive surface and protect said ends at the joint.

The invention also consists in certain details of construction, and finally in a belt composed of one or more strips of said paper, having its ends connected by my improved connecting-piece, and thereby adapted to be sharply bent or folded at its joint or joints without injury to the abrasive surface, all of which I will now proceed to describe.

Of the accompanying drawings, forming a part of this specification, Figure 1 represents an edge view of an abrasive belt having my improvement, and mounted on supporting-pulleys. Figs. 1ª, 1ᵇ, and 1ᶜ represent enlarged longitudinal sections of the point where the ends of the strip comprising it are united, the connecting device being shown at different stages of its formation. Fig. 2 represents an enlarged longitudinal section of the belt at the point where the ends of the strip comprising it are mounted, showing a differently-constructed connecting-piece. Fig. 3 represents a similar view showing another of the ends of the strip separated from the connecting-piece. Fig. 4 represents a perspective view of one form of connecting-piece. Figs. 5 and 6 represent longitudinal sections of the belt at the joint, showing the connecting-piece partially divided, so that it may be abruptly bent. Fig. 7 represents an edge view of a belt composed of two strips connected by pieces like those shown in Figs. 5 and 6. Fig. 8 represents a perspective view of a differently-constructed connecting-piece. Fig. 9 represents a sectional view of the belt at its joint, having the connecting-piece shown in Fig. 8. Fig. 10 represents an edge view of a strip of sand-paper having a connecting-piece applied to one end and the other end scarfed, ready for application to the connecting-piece.

The same letters of reference indicate the same parts in all the figures.

In the drawings, *a* represents my improved connecting-piece, which may be of leather, paper, or other comparatively-flexible material, and is formed to fit the scarfed inner surfaces of the ends of a strip of sand-paper, *b*. On the side of the piece *a* to which the ends of the strip *b* are applied is a compressible or yielding rib, *c*, extending lengthwise of the piece, and projecting between the proximate ends of the abrasive surface of the strip *b* when said ends are secured to the piece *a*. I prefer to make the connecting-piece and its rib as shown in Figs. 1ª, 1ᵇ, and 1ᶜ, the piece being composed of a scarfed or beveled body of paper, 2, and a covering, 3, of thin cotton cloth or other textile fabric cemented or pasted to the beveled side of the body 2. In applying the covering 3 to the body, I form a V-shaped crease or fold at its center, as shown in Fig. 1ª, said fold projecting between the ends of the abrasive surface of the belt, and being filled with the paste or cement used in securing the covering to the body. I then indent said crease or press its apex inwardly, as shown in Fig. 1ᵇ, by any suitable appliance, causing said crease to completely fill the space between the ends of the abrasive surface and converting it into two sub-creases or folds, which project slightly above said surface. Then by pressure suitably applied I flatten and compress the projecting creases, so as to incorporate or press them laterally into the ends of the abrasive surface, the rib being thus upset or caused to exert a rivet-like action on the abrasive surface, whereby the abrasive material is held and prevented from crumbling or breaking away. The belt is thus adapted to run in either direction, each end of the abrasive surface at the joint being protected against pressure directed against it in either direction lengthwise of the belt.

The rib *c* may be made integral with the piece *a*, as shown in Figs. 2, 3, and 4 particularly when the latter is made of leather; or, it may be a separate piece of any suitable material, such as cord or fibrous material cemented to the piece *a*, as shown in Figs. 8 and 9.

The flexibility of the connecting-piece enables it to be abruptly bent, as shown in Figs. 6 and 7, without injury to the material of which the belt is composed. The flexibility of the connecting-piece may be increased by cutting or dividing the rib, as shown at *i*, Fig. 5, the piece being thus enabled to act as a hinge, as shown in Fig. 6. The construction shown in Figs. 1^a, 1^b, and 1^c accomplishes the same result, the rib being divided or converted into two creases, as above described.

The abrasive belt may be composed of two strips of sand-paper of equal length, connected by two of the pieces *a*. The belt thus constructed may be folded at its joints, as shown in Fig. 7, and thus put in a flat form for packing or transportation without injury to its abrasive surface.

Heretofore in abrasive belts the abrasive surface of the completed belt has been continuous or uninterrupted, so that it is injured by the formation of folds in the material.

When the belt is made of a single strip, one end may be left disconnected from the piece *a*, as shown in Figs. 3 and 10, so that the belt may be rolled or packed in a flat condition, the piece *a* being gummed, so that it can be readily united to the end of the strip.

Figs. 8 and 9 show short cords or threads secured to the surface of the piece *a*, to which the ends of the surface *b* are applied, the dotted line in Fig. 9 showing the position of said cords when the ends of the belt are secured to the piece *a*. These cords strengthen the joint in the direction of the length of the belt.

I do not confine myself to sand-paper as the material for the belt, but may use emery-cloth or any other suitable substitute for sand-paper.

I claim—

1. As a means for securing the ends of a strip or strips having an abrasive coating, a connecting-piece formed to fit the scarfed ends of said strip and provided with a central compressible rib, as set forth.

2. An abrasive belt composed of a strip or strips having an abrasive coating, and a flexible connecting-piece having a rib projecting between the proximate ends of the abrasive coating and incorporated into or upset upon said ends, as set forth.

3. An abrasive belt composed of a strip or strips having an abrasive coating and a flexible connecting-piece interrupting the continuity of the abrasive coating and adapted to be bent or folded, as set forth.

4. An abrasive belt composed of two strips having abrasive coatings and two flexible connecting-pieces interrupting the continuity of the abrasive surface, whereby the belt is adapted to be flattened without injury to its abrasive surface, as set forth.

5. An abrasive belt composed of a coated strip, and a connecting-piece composed of a body, 2, and a textile covering, 3, having its central portion formed into a rib interposed between the ends of the abrasive coating and compressed or upset thereon, as set forth.

6. An abrasive belt composed of a strip or strips having an abrasive coating and a connecting-piece, *a*, secured to the ends of said strip and partially severed or divided to act as a hinge, as set forth.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, this 9th day of April, 1884.

FREDERICK W. COY.

Witnesses:
C. F. BROWN,
A. L. WHITE,