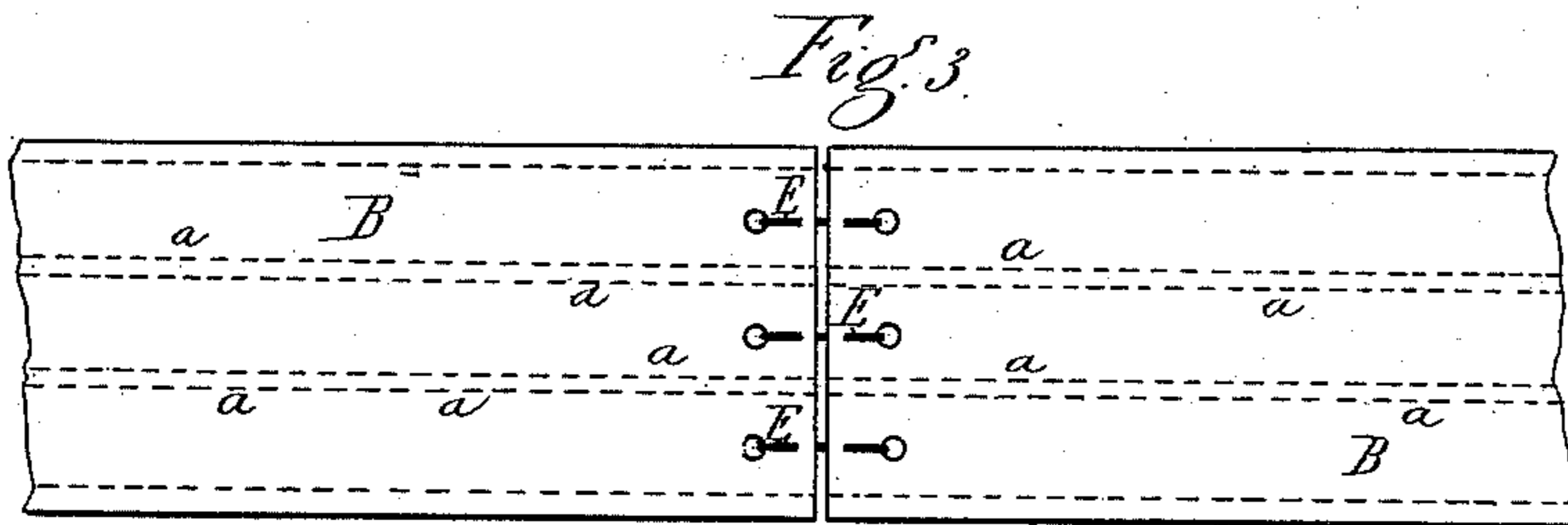
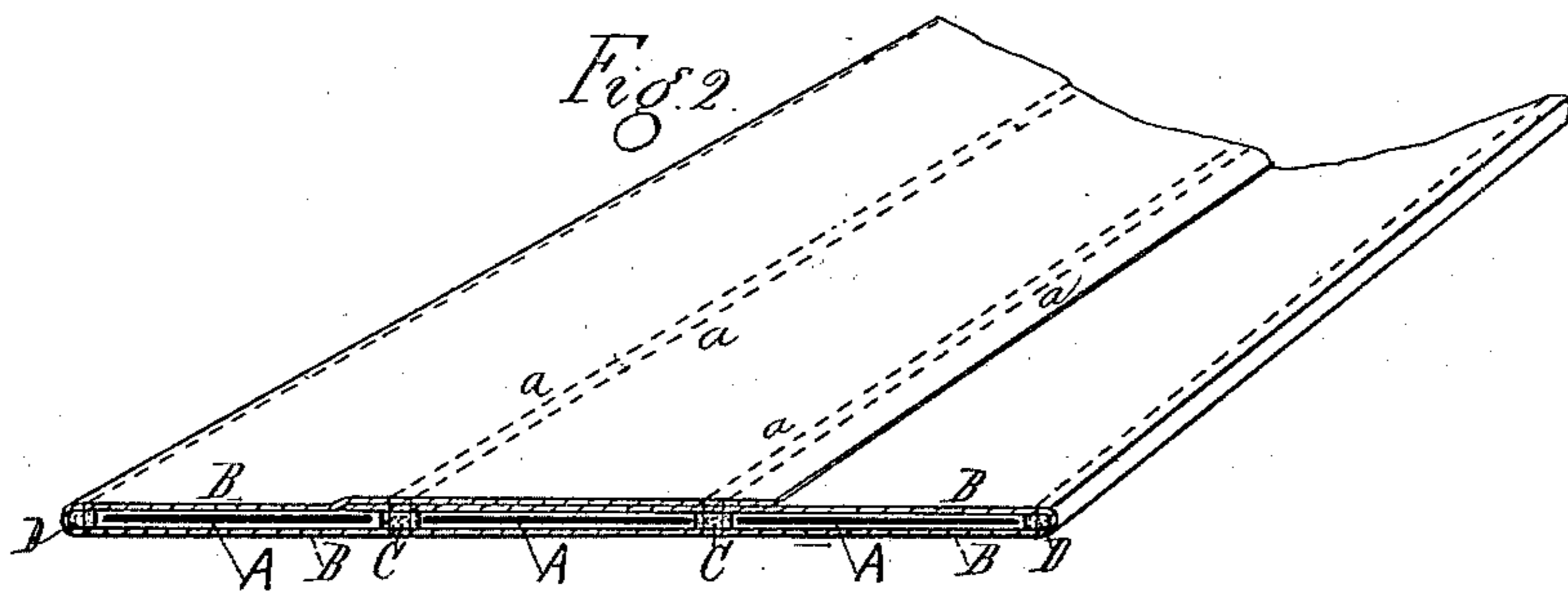
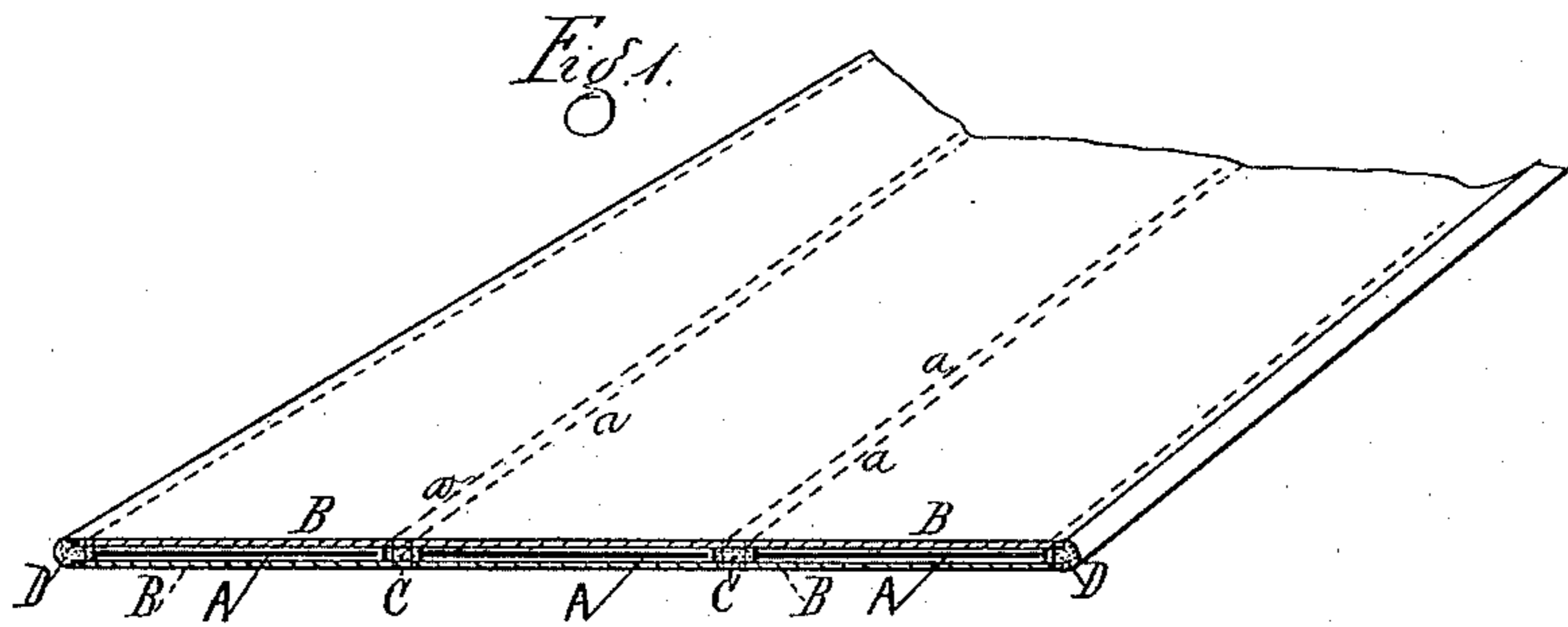


(No Model.)

W. B. TATRO.
BELT FOR MACHINERY.

No. 257,192.

Patented May 2, 1882.



Attest:
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UNITED STATES PATENT OFFICE.

WILLIAM B. TATRO, OF HARTFORD, CONNECTICUT, ASSIGNOR OF ONE-HALF
TO JOHN E. MULFORD, OF NEW YORK, N. Y.

BELT FOR MAGHINERY.

SPECIFICATION forming part of Letters Patent No. 257,192, dated May 2, 1882.

Application filed September 12, 1881. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM B. TATRO, of Hartford, county of Hartford, and State of Connecticut, have invented certain new and useful Improvements in Belts for Machinery, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

My invention has special relation to that class of belts employed in connection with machinery for the purpose of transmitting power, as from one pulley to another; but, as will be readily understood, my improved form of belt may be employed in any situation and for any purpose for which the ordinary belting is applicable.

Among the principal objects of my invention are the production of a belt which shall be incapable of being extended or stretched in the direction of its length, which shall readily and accurately conform to the surface of the pulley, whether the same be large or small and whether flat or crowned, which shall hug the pulleys in such manner as to obviate slipping, and which shall be strong, durable, unaffected by exposure, simple and easy to manufacture, readily spliced or united at the ends by the simplest forms of fastenings, and which shall embody other desirable qualities. To accomplish all of this the invention involves certain novel and useful arrangements or combinations of parts, peculiarities of construction, and principles of manufacture, all of which will be herein first fully described, and then pointed out in the claims.

In the accompanying drawings, forming part of this specification, Figure 1 is a vertical section, showing a fragment of a belt constructed in accordance with my invention, the receding portion of the belt being shown in perspective. Fig. 2 is a similar view, in which the welts at the edges of the belt are enveloped by the covering fabric or material. Fig. 3 is a plan of the adjacent ends of the belts, showing same as united in accordance with my invention. Fig. 4 is a cross-section through the line of perforations in one end of the belt; and Fig. 5, a longitudinal section, showing the manner of

applying the ordinary form of belt-hooks or metallic fastenings. These several figures are chosen to illustrate the character, scope, and principles of my invention, embodying my most approved manner of constructing the belt, and in all like letters of reference, wherever they occur, indicate corresponding parts.

I employ two, three, or any greater number of flat metallic strips, A A, of sufficient strength to withstand the required strain upon the belt. These are made of sheet metal, preferably steel, though any other suitable metal may be employed, and thin enough so that their flexibility will enable them to conform to the surface of the pulley, whether large or small, and wide enough so that each end may be perforated for the reception of the ordinary belt-hooks or other equivalent means of fastening.

The series of flat strips or metallic ribbons are covered with any suitable flexible material, as indicated at B. For this covering a fabric-like canvas is found to answer the desired purposes, though other material may be employed.

By securing the ends of the belt in the manner above described it will be observed that the fastening is independent of the covering fabric. The fabric may be drawn back at the ends and the metallic ribbons riveted or brazed together, and in either case the shrinking or stretching of the cover can in no way affect the length of the belt.

Between the adjacent metallic ribbons I locate a welt of flexible material—such, for instance, as leather—as at C, and the stitches for securing the parts together pass through these welts. For the intermediate welts I prefer to employ a double row of stitches, as shown at *a a*, which pinch the cover closely upon the welts. The purpose of these intermediate welts is threefold: first, to prevent the edges of the separate metallic ribbons from coming in contact with each other as the belt is being used, which would cause wear, heating, and perhaps finally cracking of the ribbons; second, to maintain the ribbons at their proper relative distances from each other; and, third, to keep the ribbons from contact with the stitches, which would otherwise be liable to be cut. The double rows of stitches effectually

prevent the metallic ribbons from entering between the covers and welts. The welts are independent of the metallic ribbons, being attached only to the covering fabric. The cover might of course be turned over the separate ribbons and stitched in place between the adjacent ribbons; but this would leave the stitches exposed to being cut and leave the edges of the belt similarly exposed, as well as liable to be worn and liable to injure the hand of the operator in shifting the belt, particularly when running at a high rate of speed. To obviate all this I employ welts, as at D D, at the edges of the belt. Upon these the cover may be stitched, as in Fig. 1, leaving their edges exposed; or the cover may be made to envelop them, as shown at Fig. 2, and the outer rows of stitches located as indicated.

The cover may be made in two parts, (top and bottom,) as shown in Fig. 1, with or without a selvage, if fabric be employed; or it may be made in one piece, as indicated in Fig. 2, wherein the edges of the covering are shown as lapping by each other, so as to allow the intermediate rows of stitches to pass through both edges. Either form gives a flat, uniform under surface, and generally any irregularities in the stitching, lapping, or other part should be made to fall upon the upper side of the belt.

Pockets for the metallic ribbons might be formed by double-weaving the covering fabric in a manner well understood; but I prefer the stitching, as above explained.

To prevent deterioration or corrosion by exposure to moisture, the cover is saturated, painted, or otherwise coated with a protecting agent, such as water-proof paint, &c.; and this also serves in a measure as a non-conductor of heat. The coating enables me to employ the belting to advantage in exposed situations, as out of doors, and by its use the metallic ribbons are rendered rust-proof, whereby one common objection to ordinary forms of metallic belting is entirely removed.

The construction of the belt in the manner indicated, by use of a number of parallel metallic ribbons united by a flexible covering, makes the belt flexible across its width, and it will therefore readily conform to the surface of the pulley, whether the same be flat or "crowned," or otherwise "out of true."

The improved belt is not extensible in the direction of its length, and this feature insures a uniform movement without danger of slipping, and is otherwise advantageous, as will be readily understood. The use of the flat metallic ribbons enables me to secure adjacent ends of the belt by employing the simplest forms of metallic clips—such as shown at E E—

which enter perforations in the ends of the ribbons and are bent down on the surface of the belt. These expose a minimum obstruction to the movement of the belt over the pulley and obviate the employment of cumbersome clamps, which would interfere with the smooth working of the belt. The belt so constructed is formed to hug the pulley firmly, and to give excellent results in transmitting power, and to answer well the several purposes and objects of the invention, as previously stated. The welts at the edges of the belt may be chamfered off or left flat, as desired.

I am aware that it has heretofore been proposed to employ metallic belting without covering, and also that metallic wires have been woven together with fibrous material, and do not therefore desire to be understood as making any claim to such construction; but,

Having now fully described my invention, what I do claim, and desire to secure by Letters Patent of the United States, is—

1. In a belt of the character herein set forth, two or more flat metallic strips or ribbons held in place by a flexible covering and separated by an intermediate welt or welts, said welt or welts being independent of the metallic ribbons, but secured to the covering fabric, substantially as and for the purposes set forth.

2. The separate welts applied at the edges of the belt, in combination with the adjacent independent flat metallic strips and the flexible covering, substantially as set forth.

3. The combination of the flat metallic strips, the intermediate welt or welts, the welts placed on the edges of the belt, and the flexible cover stitched in place, substantially as set forth.

4. In a belt made up of flat metallic strips and intermediate and edge welts, with the covering fabric for holding them in place stitched and secured as explained, the metallic strips perforated at the ends and combined with the simple belt-hooks or fastenings, substantially as set forth.

5. The herein-described improved belt, composed of the flat metallic ribbons, perforated at or near their extremities, the intermediate and edge welts, the covering fabric stitched upon the independent welts, the whole covered with a protecting paint or compound, substantially as shown and set forth.

In testimony that I claim the foregoing I have hereunto set my hand in the presence of two witnesses.

WM. B. TATRO.

Witnesses:

WORTH OSGOOD,
F. W. HANAFORD.