

E. A. USINA.
BELTING.

APPLICATION FILED SEPT. 29, 1904.

911,855.

Patented Feb. 9, 1909.

FIG. 1.

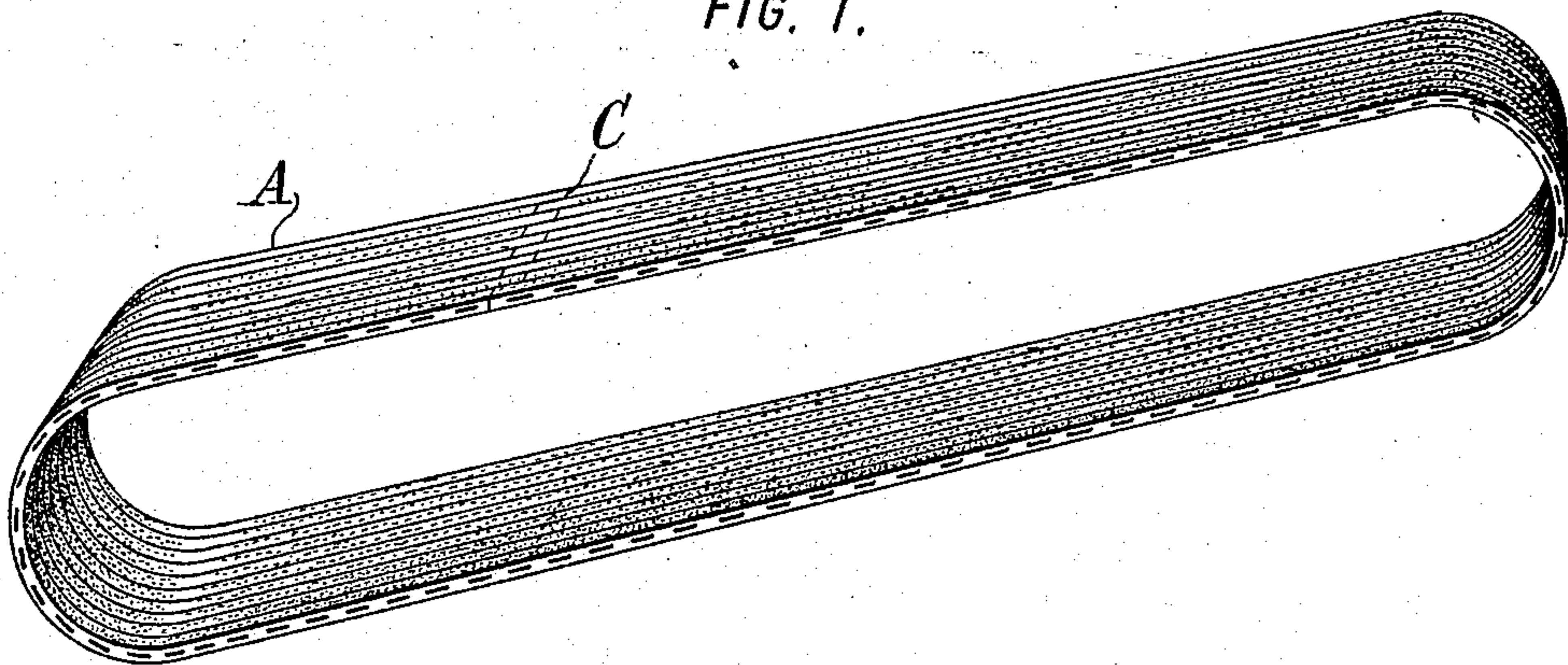


FIG. 2.

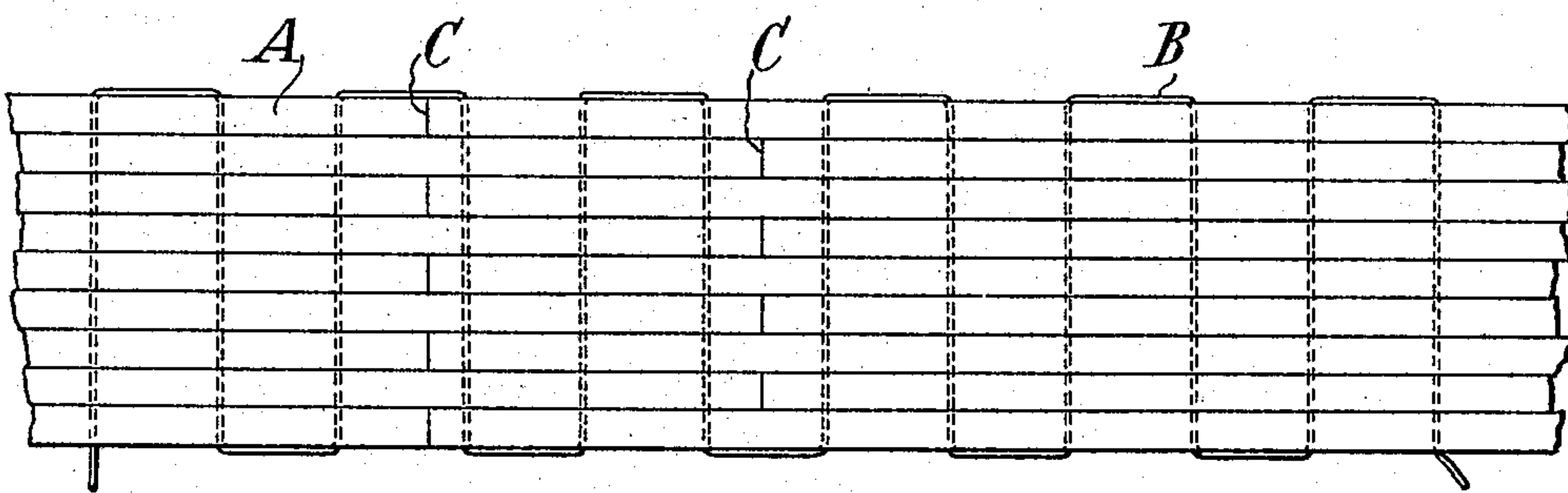


FIG. 5.

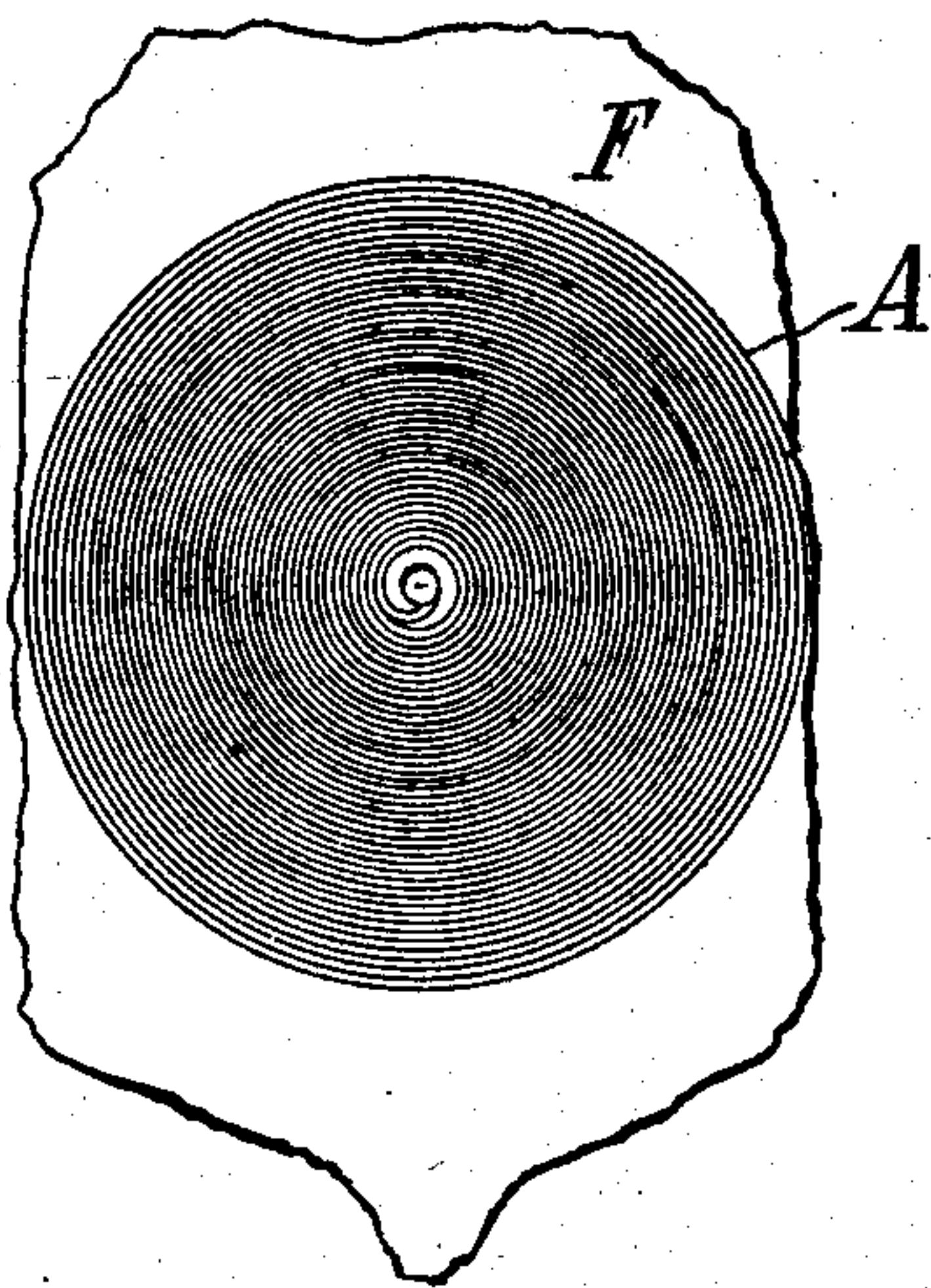


FIG. 3.

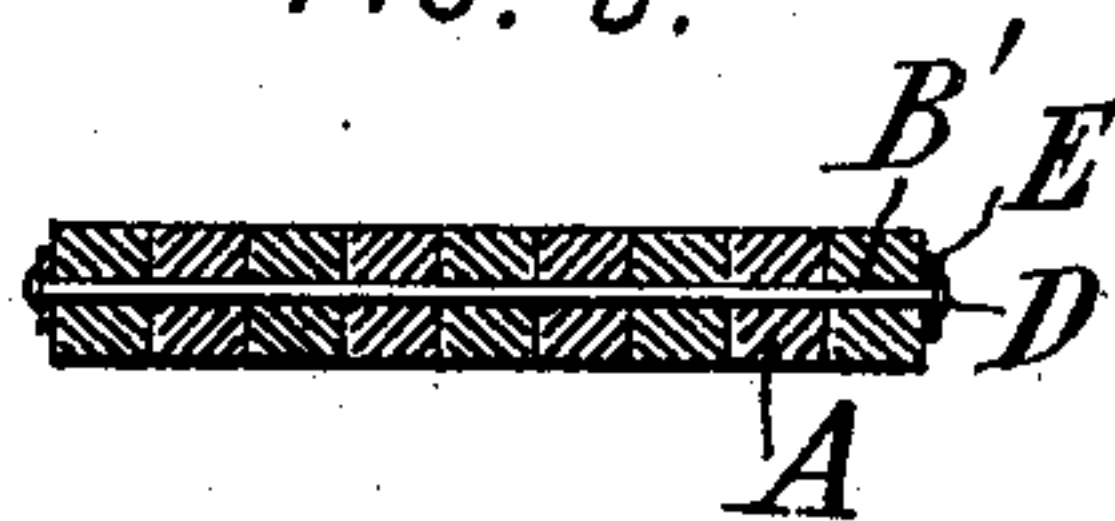
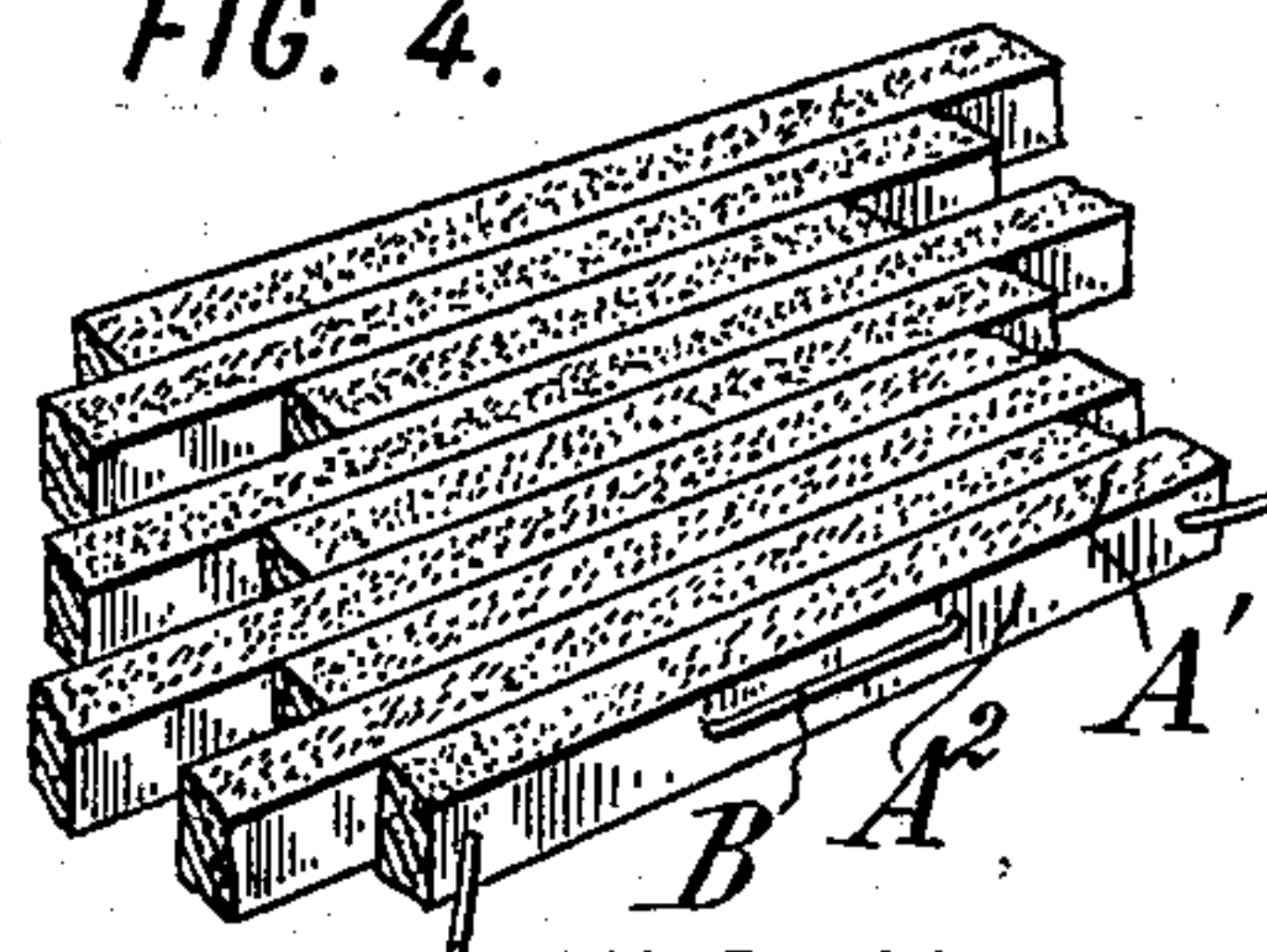


FIG. 4.



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UNITED STATES PATENT OFFICE.

EDMUND A. USINA, OF NEWTONVILLE, MASSACHUSETTS.

BELTING.

No. 911,855.

Specification of Letters Patent.

Patented Feb. 9, 1909.

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To all whom it may concern:

Be it known that I, EDMUND A. USINA, a citizen of the United States, residing at Newtonville, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Belting, of which the following is a specification.

My invention aims to provide certain improvements in belting of the class used in driving machinery and the like, and aims especially to provide an improved laminated leather belting.

The accompanying drawings illustrate an embodiment of the invention.

Figure 1 is a perspective view of a complete belt; Fig. 2 is a plan of a portion of the belt on an enlarged scale; Fig. 3 is a cross-section of the same showing a different method of fastening; Fig. 4 is a perspective view of a portion of the belt showing the preferred arrangement of the strips; Fig. 5 is a plan view of a hide showing the manner of cutting long strips therefrom.

Referring to the embodiment illustrated, the belt is composed of a number of long narrow strips A, each of which may be of the full length of the belt. Or in case of very long belts the strips may be made one-half or one-third, or a less fraction of the total length. They must, however, be so long as to avoid any substantial movement of one strip relatively to the adjacent strips, such as occurs in link leather belting, and to permit of their being fastened by three or more wires or pins or the like for that purpose. The strips may be fastened together by any suitable waterproof fastening. For example in Fig. 2 they are shown as held together by a continuous copper wire B passing back and forth at frequent intervals. Preferably the strips are held together in a hydraulic or other press while the wire B is being introduced, so as to make as close and intimate contact as possible. This method of manufacture results in a belt which is practically as integral as the ordinary one-piece leather belt. The strips A are preferably arranged on edge, that is, with their rough or cut edges A' (Fig. 4) forming the faces of the belt. The thickness of the belt thus becomes the width of the strips, and may be greater or less by simply cutting the strips wider or less wide. The edge of the belt shows the polished or grained face A² of the hide. The strength of the belt is thus independent of the thickness of the hide

from which it is cut. At the same time the rough cut edges of the strips, and the slight inequalities in the widths of the adjacent strips, provide a rough surface for engagement with the pulleys. The belt is very flexible transversely, and therefore adapts itself readily to the usually curved transverse contour of the pulleys. The end C of each strip is staggered or offset relatively to the ends of the adjacent strip or strips a distance sufficient to avoid any substantial strain in the length direction of the belt upon the transverse fastening wires. In Fig. 1 there is shown only a single fastening wire holding the overlapping ends together. Where the strain is great, however, the fastening wires may be arranged closer together between the overlapping joints, or the joints may be arranged farther apart as in Fig. 2, where three transverse wires are interposed between one set of joints and the next. The circumstances of the particular case will determine the arrangement.

Instead of having all the fasteners in the form of a continuous wire, each fastener may be a separate wire or pin such as B' (Fig. 3), with an enlargement such as the head D at each end, and a washer E bearing against the edge of the belt. This fastener is perhaps preferable for ease of repairing the belt. The greatest strain upon the belt, or at least the first evidence of the strain, comes upon the edges, and the facility of substituting new edges is one of the important features of the improved belt. Such repairs can easily be made by removing the enlargement D from the ends of the pins B and withdrawing the strip which forms the edge of the belt and substituting a new strip therefor. Thus a large part of the belt is saved, and only the part which wears most rapidly needs to be renewed.

Fig. 5 illustrates the method of obtaining the narrow strips of any desired length from the hide F, which for ordinary belts yields only sections five or six feet in length. The hide is cut preferably in a spiral, which can be easily accomplished by machines now in general use. Thus very long strips can be obtained, and even endless strips could be obtained by bringing the knife back to the starting point, though this would not be necessary except in special cases. In the manufacture of ordinary belts, not more than fifty per cent. of the hide could be used. The present belt utilizes seventy-five per

cent. or more of each hide. The cutting of the hide is a very simple matter, and by reason of the economy in material the new belt is cheaper as well as more durable than the old style. The cut edges of the hide can be finished to have the same appearance as the surface of the leather if desired. It is of considerable advantage from a manufacturing point of view to use these narrow strips arranged on edge. The tensile strength of the belt may be increased by splitting the hide and using in the belt only the flesh side, which does not stretch or crack or wear nearly as quickly as the outer or grain side. At the same time the grain side being susceptible of the highest finish, and being soft and pliable, is more valuable in other manufactures than in belts. Therefore each part of the leather is used in the art for which it is best adapted.

In belting in which the thickness of the belt depends upon the thickness of the hide there is an extreme variation in thickness in belting made from different parts of the hide; so much so in fact that for first class belting only a very small portion of each hide can be used. Where strips arranged on edge in accordance with the present invention are fastened side by side the thickness of the belt may be made absolutely uniform regardless of the portion of the hide from which the latter is cut. At the same time by reason of the great number of strips in a belt of ordinary width, there is an averaging of the thickness of the individual strips so as to make the width of the finished belt uniform. The use of the flesh side of the hide

only is particularly advantageous in this type of belting in that it not only presents comparatively rough cut edges to make up the faces of the belt, but also secures a strong adhesion of the engaging faces between the adjacent strips.

Though I have described with great particularity of detail certain specific embodiments of the invention, yet it is not to be understood therefrom that the invention is limited to the specific forms described.

Various modifications may be made by those skilled in the art, in detail and in the arrangement and combination of the parts, without departure from the invention.

What I claim is:—

A belt composed of a number of long narrow strips of leather A of uniform width laid side by side and fastened together with their cut edges A' forming the faces of the belt so as to make a belt of uniform thickness regardless of the portions of the hide used, said strips being composed of only the flesh portion of a split hide, so that the engaging faces between the strips are rough and adhere strongly to each other, the outer strips having grained faces A² on the outside to provide a finish at the edges of the belt.

In witness whereof, I have hereunto signed my name in the presence of two subscribing witnesses.

EDMUND A. USINA.

Witnesses:

A. LOUGEE,
GEORGE E. IRVING.