(Model.)

A. E. FOTH.

Belting.

No. 241,132. Patented May 10, 1881.

Fig I,

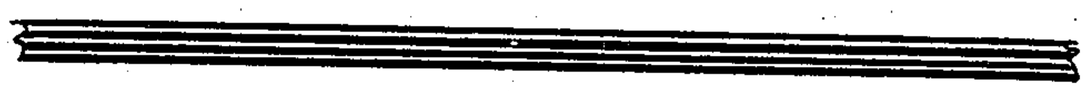
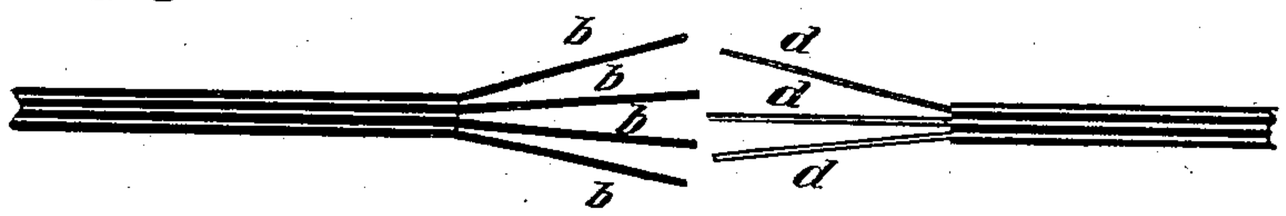


Fig II,



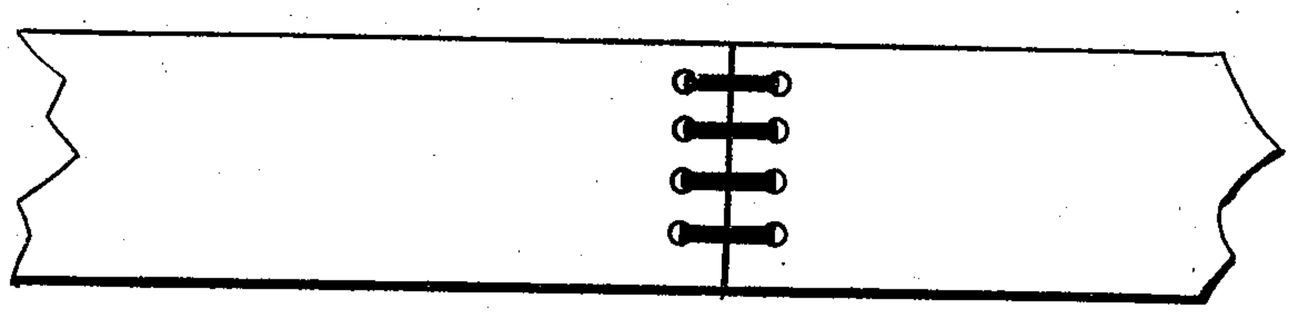


Fig III,

Witnesses,
F. W. Smith
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Inventor
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by R. F. Hyde Atty.

UNITED STATES PATENT OFFICE.

ALBERT E. FOTH, OF SPRINGFIELD, MASSACHUSETTS.

BELTING.

SPECIFICATION forming part of Letters Patent No. 241,132, dated May 10, 1881.

Application filed October 18, 1880. (Specimens.)

To all whom it may concern:

Be it known that I, ALBERT E. FOTH, a citizen of the United States, residing at Springfield, county of Hampden, and State of Massachusetts, have invented a new and useful Improvement in Belting, (for which no patent has been obtained by me in any foreign country, nor by others with my knowledge and consent,) of which the following is a specification.

My invention relates to a new article of manufacture; and it consists in a belting for machinery, formed of a number of alternate layers of sheet-paper and textile fabric intimately united by sizing or glue. The material thus built up possesses qualities differing essentially from those belonging to any material of which belting has heretofore been made, and which give this article of manufacture many important advantages over those now in use, among which are greater flexibility, greater strength in proportion to the weight, more uniformity of strength throughout all of the area of the belt, and a material out of which a belt may be formed of any length in one piece, to have ample strength at the contiguous ends to prevent the lacing or other belt-fastenings from tearing out, or from which an endless belt may be formed by splicing the ends of the layers at what would be the contiguous ends of the belt, while the cost of a belt of this material is only a third of that of a leather one.

In the drawings, Figure I is a view of the edge of a belt constructed of this material, showing the alternate layers of paper and fabric, the black lines indicating the fabric, the intermediate spaces the paper. Fig. II shows the arrangement of the ends of the layers of fabric *b* and sheets of paper *d* in forming a splice for an endless belt, and Fig. III is a view of contiguous belt ends laced together.

The leather belt continues to stretch from the first moment of its use, is affected injuriously by steam, and its strength, as in the case of one made of paper alone or of other homogeneous substance, is only equal to that of its weakest part.

The belt formed of paper alone, though generally strong and free from any tendency to stretch, is so weak at the ends that it is nearly impossible to prevent the lacing or fastenings from tearing out of the holes, so that to obviate these disadvantages, hitherto inseparable from belts, as well as to form a uniform endless belt by splicing at the ends of its constituent layers, I combine a number of layers of preferably thin fabric, such as ordinary cotton sheeting, with an equal, or nearly equal, number of sheets of thin strong paper, such as manila, and unite these layers alternately by glue or sizing. The compound thus formed is of perfect uniform strength and flexibility, will not stretch or be influenced by heat or moisture, and holes punched through its ends to receive the lacing or fasteners will not tear out, while if made in the form of an endless belt it will have a smooth bearing-surface throughout, and be as strong at the splice as elsewhere.

By the employment of a number of layers of textile fabric I obtain a strength and uniformity of strength which could not be obtained by the use of the thickest single sheet of textile fabric combined with one or more layers of paper, as any weakness in any one of the layers of fabric or paper at any point in this material is compensated for by the contiguous laminations of the others; and I have found by experiment that one or two layers of the thickest fabric, such as sail-cloth, will not oppose sufficient resistance to the tendency of the lacing-holes to tear out, nor give near the strength of a less thickness of thin fabric distributed through alternate layers of paper, and while a thick fabric will not give the uniformity of strength, or, if multiplied to do that, will lack a desirable flexibility, as well as unnecessarily increase the bulk, weight, and cost of the belt. Double or three times the number of thin sheets of fabric united to a corresponding number of sheets of paper, and forming together a sheet no thicker than could be built up of one or two layers of the thickest textile fabric, will give ample strength to the lace-holes, as well as in all other respects fulfill all of the conditions required in a belt.

In practice I find four to be the minimum number of sheets of textile fabric combined with paper which will give good results, while from eight to twelve may be used to advantage,

and I prefer to arrange them so that the cloth may form both outside surfaces of the belting material.

This material may be employed to advantage for traces for vehicles.

I am aware that cloth and paper have been combined before in single layers of each, as in paper-collar manufacture, and make no claim, broadly, to the combination of the two; but

What I claim as new, and desire to secure by Letters Patent, is—

As a new article of manufacture for belting, the sheet composed of several alternate layers of textile fabric and paper intimately united by sizing or glue, substantially as shown and described.

ALBERT E. FOTH.

Witnesses:
R. F. HYDE,
T. M. BROWN.