(No Model.)

T. GINGRAS.

BELTING.

No. 419,432. Patented Jan. 14, 1890.

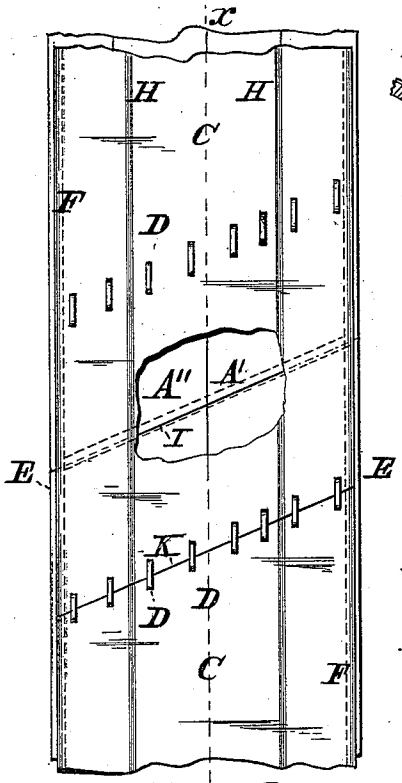


FIG. 1.

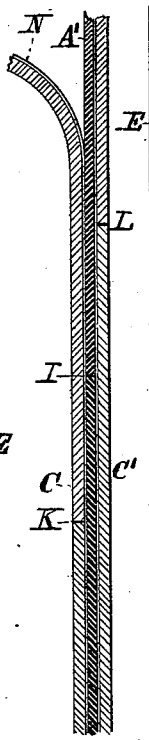


FIG. 2.

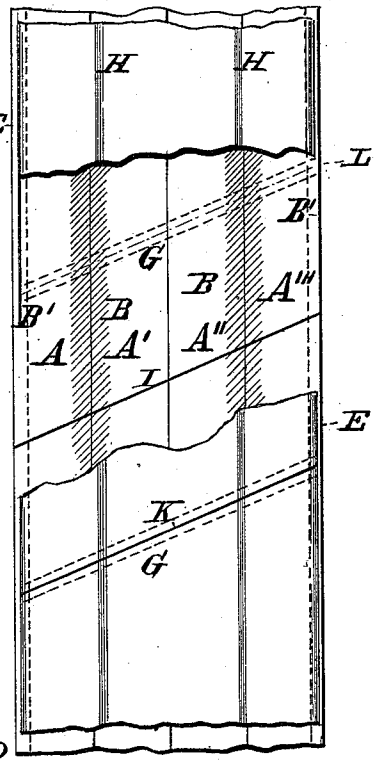


FIG. 3.

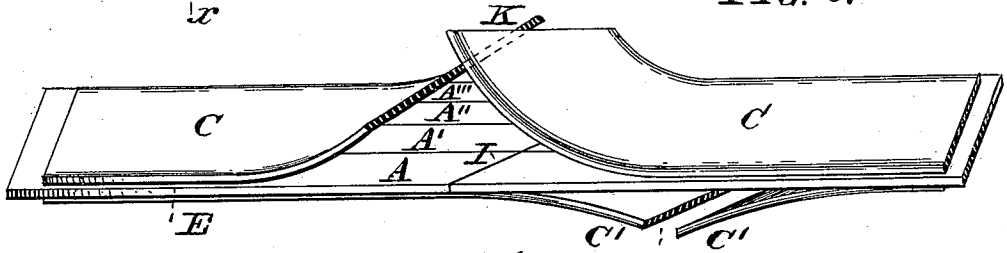


FIG. 4.

Witnesses:

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UNITED STATES PATENT OFFICE.

TIMOTHY GINGRAS, OF BUFFALO, NEW YORK.

BELTING.

SPECIFICATION forming part of Letters Patent No. 419,432, dated January 14, 1890.

Application filed October 13, 1888. Serial No. 287,984. (No model.)

To all whom it may concern:

Be it known that I, TIMOTHY GINGRAS, of Buffalo, in the county of Erie and State of New York, have invented certain new and useful Improvements in Compound Belting; and I do hereby declare that the following description of my said invention, taken in connection with the accompanying sheet of drawings, forms a full, clear, and exact specification, which will enable others skilled in the art to which it appertains to make and use the same.

My present invention has general reference to so-called "cotton belting" and compound cotton and leather belts; and it consists, essentially, in the novel and peculiar combination of parts and details of construction, as hereinafter first fully set forth and described, and then pointed out in the claim.

In the drawings, already mentioned, which serve to illustrate my said invention more fully, Figure 1 is a plan of a portion of a belt constructed in accordance with my said invention. Fig. 2 is an edge view of the same. Fig. 3 is a plan of the same, portions being removed to expose underlying parts. Fig. 4 is a perspective view of a portion of the belt, illustrating the manner of jointing the pieces.

Like parts are designated by corresponding letters of reference in all the figures.

The object of my invention is the production of an efficient and serviceable belt for the transmission of power, &c., or for sand and emery belts.

Heretofore the most serious obstacle to the more general use of cotton belting is their liability to changes in length, owing to the constantly-changing humidity of the atmosphere, thereby never retaining the proper and desirable tension. Another objection to their use is their liability to tear out in the joints or seams. To overcome these objections and others, I construct a cotton belt in the following manner.

I first stretch two pieces of a single or two-ply belt (three or more ply belting may be used, though two-ply, except for very wide belting, will be found sufficient) to the proper tension to which a belt should be stretched to produce the best results in the transmission of power, and then, while so expanded, or as soon after as possible, I apply to one side thereof a coating of liquid cement, paint, or other suitable substance to fill the pores of the said cotton belt for a sufficient depth to cause it to retain its length after the said coating has dried. It will ordinarily be found that a coating that would be sufficient to cement two thicknesses of such belting together will answer very well, after which I allow the said pieces to dry thoroughly. I then re-enforce the cotton belting with a central layer of leather previously pressed, shaved, scraped, or otherwise reduced to practically uniform thickness, and place this leather belt into the center between the two layers of cotton belting, applying a liquid coat of cement to the leather portion immediately prior to cementing the whole together, care being taken that the leather portion is stretched, prior to cementing, as much as the cotton belting, so that there is an even tension between the several portions of which the belting is composed.

In narrow belting I use a single strip or width of the leather belting, but in wider belts I use a series of longitudinal strips or lengths placed close together, as shown in Fig. 3, the several lengths being marked A A′ A″ A‴, respectively. This I do for various reasons, prominent of which are that it is easier and less costly to obtain the narrow strips of leather than the wider ones, and because the narrow strips are more likely to be of the same or nearly the same density and elasticity, thereby producing a belt of a more uniform quality than could otherwise be produced.

It is a fact well understood that there is quite a difference in texture, density, quality, &c., in different portions of a hide, that toward the back being the closest and best, while the quality deteriorates toward the flanks. A leather belt having, therefore, on one edge "back" leather and wide enough to have on the opposite edge "flank" leather would be a very unsatisfactory one, owing to the fact that the latter would stretch more than the former, and thereby produce an almost useless article. In my construction, where I use comparatively narrow strips, I proceed to put flanks or backs toward each other in the lon-

gitudinal seams, so that, though there may be a slight difference in density in the single widths, the whole number thereof is so disposed as to produce a belt of practically uniform texture—that is to say, having flanks or backs always opposite each other. In Fig. 3 I have illustrated the leather portion as being composed of four strips and have cross-hatched at B that portion of the belt from or approaching the flank, there being back leather B′ on both edges of the complete belting and also in the center of the same.

In constructing the complete belting I take care to leave the leather portion A somewhat wider than the cotton C C′, so that the former will project over the edges of the latter, as shown at E E, Figs. 1 and 3. This is desirable whenever a belt is to be used as a shifting-belt, where the belt-shifter, coming in contact with the edges of the cotton, would soon destroy the same. Furthermore, there will be a better union between the leather and the cotton portions when their edges do not coincide; but to make separation of the various thicknesses impossible, I may run a line of stitches F F along the edges, as shown in Figs. 1 and 3.

A belting, as described, cannot well be butt-jointed or laced, but should be made lap-jointed and endless; nor ought the same to be jointed square across, my experience having demonstrated that such a joint will, in the majority of cases, tear or break. I therefore proceed to secure the two ends of the belting by first cutting the same obliquely the full length required, and as much longer as is needed for the lap, and then cut one of the cotton sides and the central leather portion back a suitable distance, as indicated in Fig. 4, so that the joint in the leather is about midway between the two seams in the cotton, after which I cement these two pieces together, and then further secure them by a line of stitching G or by belt-fasteners—such as have heretofore been patented to me by several Letters Patents—such fasteners being shown at D in Fig. 1. The means employed for securing the contiguous ends of the belting depend somewhat upon the purposes for which the belting is to be used, it being stitches when the same is to be employed as an emery or sand belt or a driving-belt, and metal fasteners when the same is to be used for transmission of power only. In the drawings I have designated the oblique seam in the central leather portion by I, the oblique seam in the cotton belt C by K, and the seam in the cotton belt C′ by the reference-letter L.

It will now be readily observed that by constructing a belting as heretofore described I derive advantages not to be obtained by any other methods of construction—viz., a belt constructed of two outside layers of cotton belting having the pores of the inner sides filled, as described, and re-enforced by a belt of leather composed of separate strips aggregating the full width of the cotton belting would be stronger, more durable, and otherwise more satisfactory than any other compound belting with which I am acquainted.

It will be further noticed that in belting where one or the other side is more subjected to wear than the other, and therefore sooner worn out, I can replace such worn side by a new one at much less expense than what a new belt would cost.

In filling the pores of the cotton belt I prefer to use belting-cement—such as is now used for uniting leather belting—though as a matter of fact I may substitute paint and many other substances without detriment to my invention. In the drawings I have designated the coating of cement, as described, by the letter N, Fig. 4. So may I proceed to coat the entire belting with a coating of rubber, paint, or other preservative substance.

I have heretofore described a method of manufacturing belting in which the stretching of two layers of cotton belting, and while in tension the filling of the pores, and, finally, drying the filling before releasing the strain, is set forth. It is evident, however, that but one length may be thus treated, and from this length may be cut off the separate pieces without changing the nature of my invention.

Having thus fully described my invention, I claim as new and desire to secure to me by a patent of the United States—

As an improved article of manufacture, a belt consisting of two external layers of textile fabric woven to the width of the belt, and having the interstices between the woof and warp threads expanded and filled with a suitable filler, while the fabric is under tension to retain said interstices in an expanded condition and an interposed layer of leather, the layers being united together, as and for the purpose set forth.

In testimony that I claim the foregoing as my invention I have hereto set my hand in the presence of two subscribing witnesses.

TIMOTHY GINGRAS.

Witnesses:
MICHAEL J. STARK,
WM. O. STARK.