Jan. 23, 1923. 1,443,310

M. H. COOK.
LEATHER BELTING.
FILED NOV. 11, 1918.

Fig. 1.

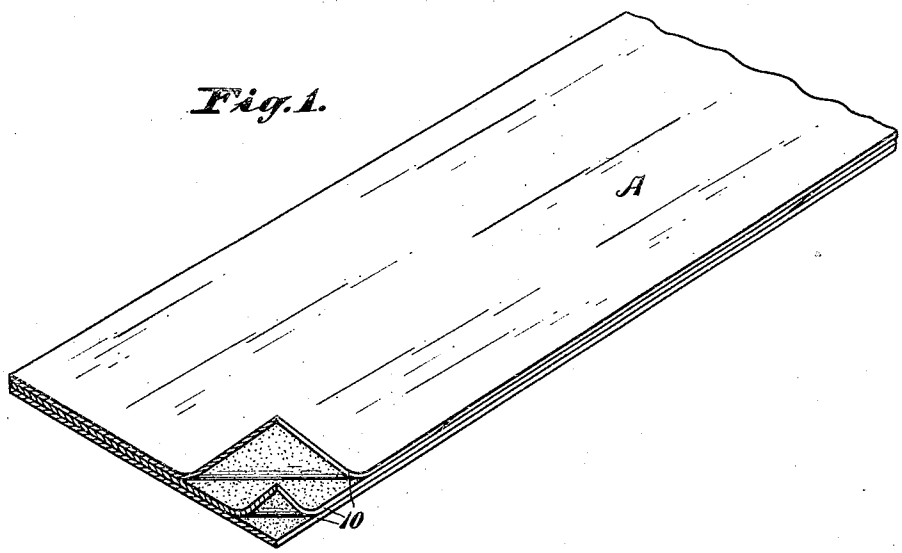



Fig. 2.

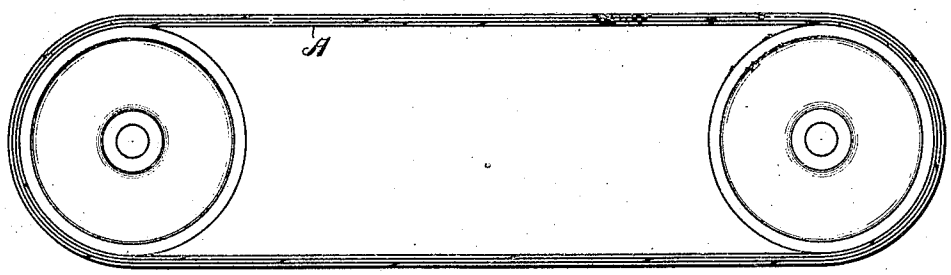
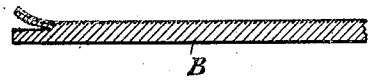



Fig. 3.




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# UNITED STATES PATENT OFFICE.

MILTON H. COOK, OF SAN FRANCISCO, CALIFORNIA, ASSIGNOR TO H. N. COOK BELTING CO., OF SAN FRANCISCO, CALIFORNIA, A CORPORATION OF CALIFORNIA.

## LEATHER BELTING.

Application filed November 11, 1918. Serial No. 261,994.

*To all whom it may concern:*

Be it known that I, MILTON H. COOK, a citizen of the United States, residing at the city and county of San Francisco and State of California, have invented new and useful Improvements in Leather Belting, of which the following is a specification.

This invention relates to an improvement in leather belting and a process for producing same.

It is a well known fact that there is very little strength in the grain or the smooth side of a hide and that the greatest strength is in the flesh or fibrous portion. This has been demonstrated by the fact that leather from which the outer cuticle has been scraped has proven to be as serviceable and reliable as before the buffing and scraping operation took place, that is, when the leather has been tanned without the removal of the cuticle. As this process of tanning requires several months for the liquor or tanning agent to penetrate the grain and to thoroughly saturate the fibers of the hide, this process is objectionable. I have found, however, that portions of the leather from which the grain has been removed during the process of tanning are much stronger than portions of the leather from which the grain has been removed after tanning, the reason for this being that the hides from which the grain has been removed during the process of tanning become open and porous, allowing the tanning liquor to penetrate the fibers before the animal matter of the hide decomposes. It will be readily understood that the less decomposition which takes place during the tanning operation the stronger the hide will be, and, therefore, it is desirable to quickly complete the tanning of the hide and it is therefore preferable to remove the grain prior to tanning.

Leather products made by this process are used by manufacturers for automobile upholstery and other uses which do not require a strong, expensive leather, and yet an examination of this leather stock has proven that these so-called "splits" are very strong. The leather previously referred to is prepared by buffing or scraping the outer cuticle away, while in my process I remove this cuticle completely by splitting the leather at a point just below the outer cuticle and thus expose the fiber to the tanning solution upon both sides of the split.

I find that these splits make an excellent belt, and, although less than half the thickness of ordinary leather, are much stronger and for this reason I am able to build up a belt of different plies which possesses greater strength and more elasticity than the ordinary belt of the same weight. Furthermore, a belt of this description being thinner is more pliable and is less subject to centrifugal force which has a tendency to throw the belt away from the pulley, thereby decreasing the arc of contact and also adding an unnecessary weight or strain on the bearings. As the belt produced by my method has a greater amount of elasticity, a more efficient power transmission will be obtained.

It is the principal object of the present invention to provide a leather belt for power transmission purposes having increased tensile strength and elasticity, at the same time reducing the weight of bulk of the product and thereby obtaining a belt from which a more efficient transmission of power will be derived than is commonly obtained from the ordinary belt. Incidentally, the present invention will enable the manufacturer of leather belting to utilize splits of leather which are of indifferent commercial value at the present moment and will release large quantities of heavy leather required by the Government in the prosecution of the present war, at the same time making it possible for the belting manufacturer to produce a stronger and cheaper belt than he has been able to produce hitherto.

It is another object of the present invention to provide a belt having a renewable surface of leather which may be scraped off when it becomes worn or burnt and may be replaced by other thicknesses of similar leather stock when desired, the various plies of the belt being held together by suitable cement.

Other objects will hereinafter appear.

The invention is illustrated by way of example in the accompanying drawings, in which—

Fig. 1 is a fragmentary view in perspective illustrating a section of belt made according to the spirit of the present invention.

Fig. 2 is a view in diagram disclosing a complete belt mounted upon the pulleys.

Fig. 3 is a sectional view indicating diagrammatically the manner in which a hide

is split to obtain the desired parts in the present invention.

In the drawings, 10 indicates the plies of a belt A. These thicknesses of leather are united by cement, preferably a commercial product known as soluble cotton, which is made from celluloid in solution with acetone. The various layers of the belt are arranged with their joints overlapping, as indicated in Fig. 2, and are formed from the split B of a hide, as shown in Fig. 3.

The hide as split to form the portion B represents substantially the entire fibrous portion of the hide with the cuticle removed, the cut having been made at a point directly beneath the thickness of the cuticle. The splitting operation is performed during tanning so that the body of the leather will be more advantageously exposed to the tanning liquor, thus insuring a more rapid and thorough tanning action. This is in contradistinction to the ordinary method in which the fibrous material is split, thus decreasing its strength by half and thereby weakening any belt made therefrom irrespective of the manner in which the grain of the hide is arranged in the various plies of the belt.

Prior to obtaining this portion of the leather the hide is scoured and stretched on frames ready to be cut into strips. After eliminating the bellies, shoulders and the other weaker portions of the hide, the leather is cut into strips in the same manner generally followed by manufacturers of belting. The strips are cemented together in a continuous form; the second ply being cemented to the first ply in such a method as to break the joints and so on with each consecutive ply. The finished belt is then run through a vat to perform the stuffing operation.

It will be possible by this method to make up the belting into wide widths and to cut them afterwards into smaller sizes because of the uniformity of the material used, making it unnecessary to skillfully grade and match the leather because with the use of the material specified the thickness will be practically uniform.

After the belt has been used its wearing face may be scraped or removed and another ply of leather substituted therefor by the simple operation of cementing the same in position.

Having thus described my invention, what I claim and desire to secure by Letters Patent is:

1. A method of preparing leather belting, which comprises the steps of partially tanning a hide, splitting the hide at a point just beneath the thickness of the cuticle, to expose both faces of the fibrous portion of the partially tanned hide, then cutting the leather into strips and thereafter cementing the strips together with their joints broken to form a laminated continuous belting, then subjecting the belting to a stuffing operation.

2. A method of making belting which comprises the steps of partially tanning a hide, splitting the partially tanned hide to remove the outer cuticle to obtain substantially the entire fibrous portion of the partially tanned hide and expose both faces of the same thereafter completing the tanning operation, then cutting the leather into strips and cementing the strips together with their joints broken to form a laminated continuous belt, then subjecting the belting to a stuffing operation.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

MILTON H. COOK.

Witnesses:
CHARLES W. EDGCUMBE,
J. S. FRANCISCO.