

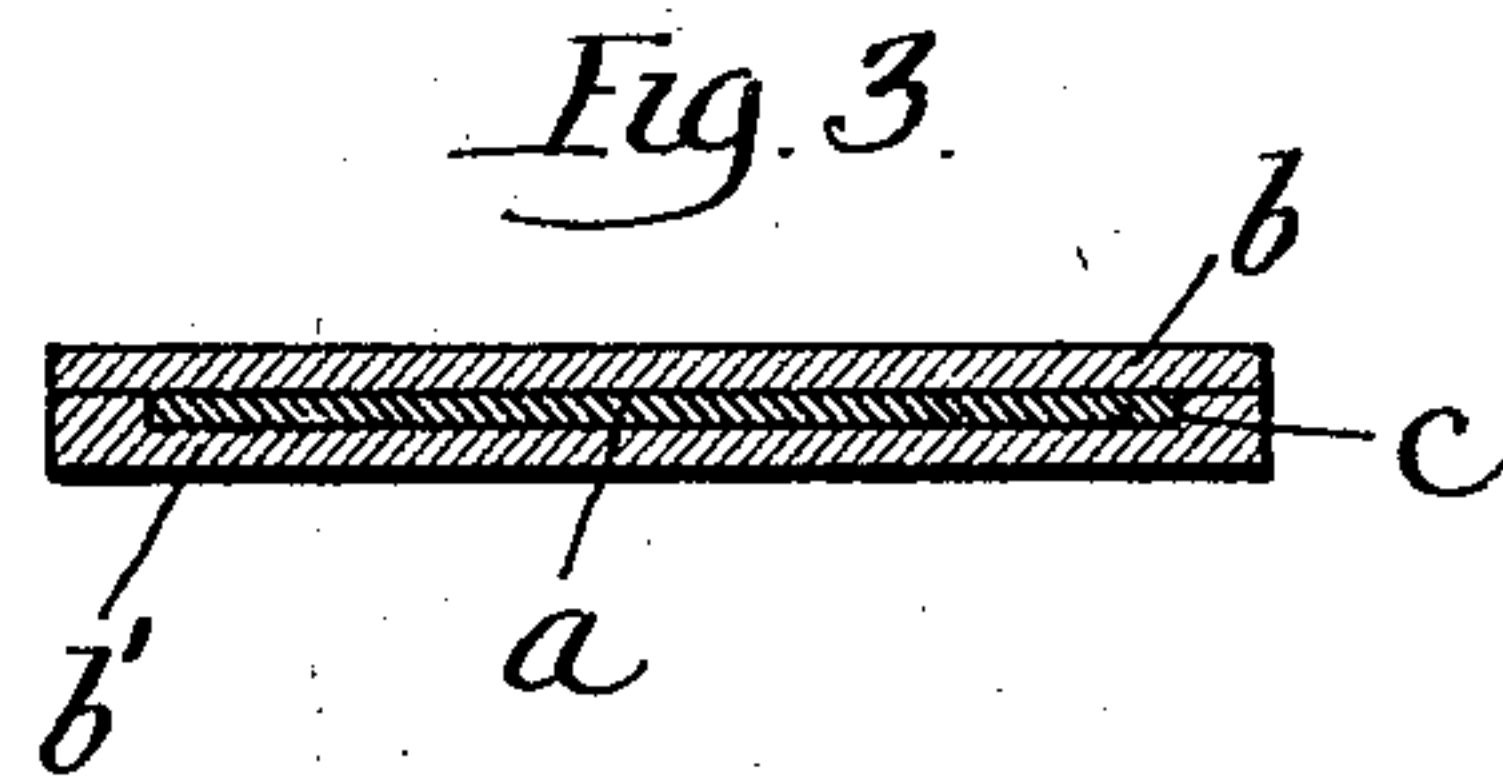
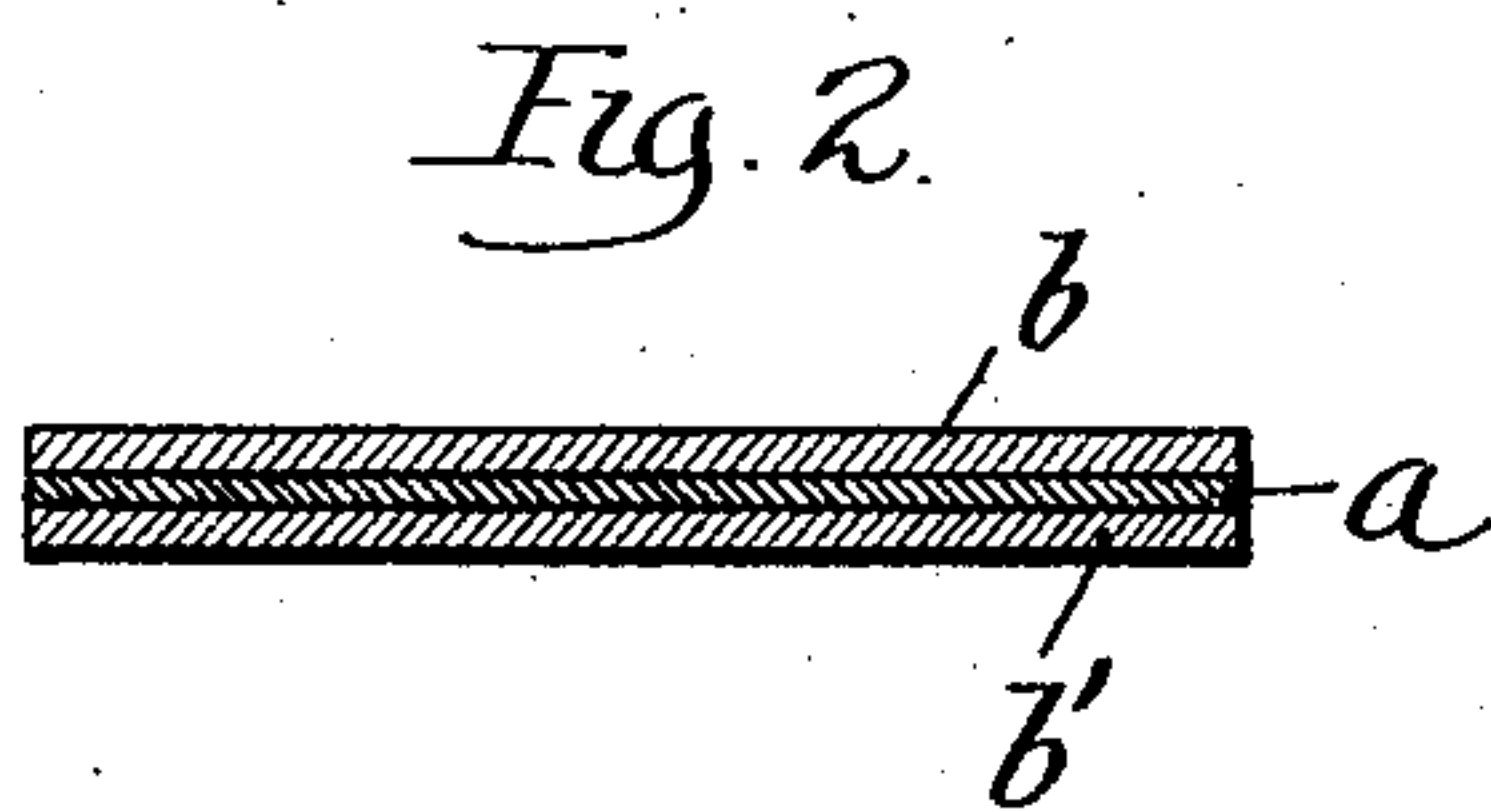
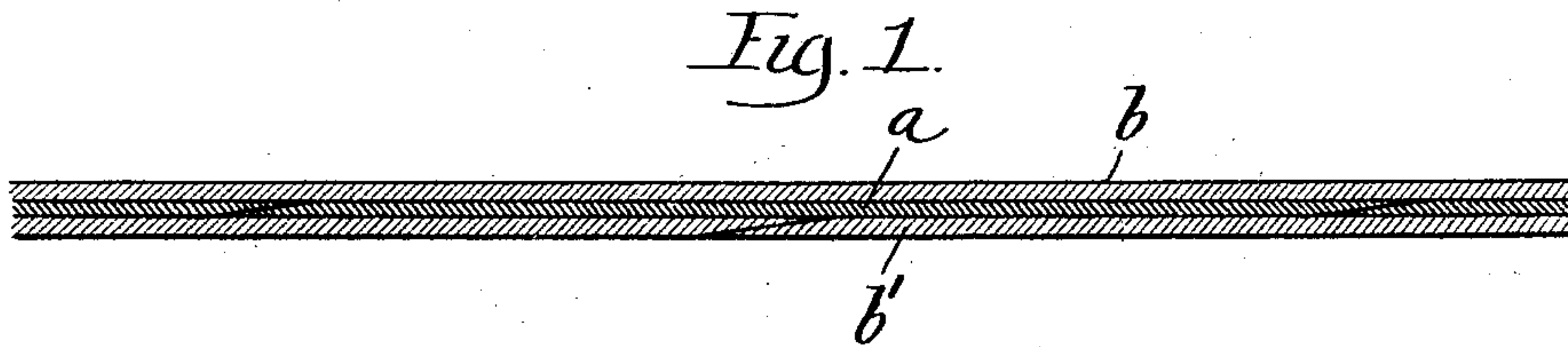
No. 764,831.

PATENTED JULY 12, 1904.

G. O. THOMAS & A. T. SHEAR.  
BELTING AND PROCESS OF MANUFACTURE.

APPLICATION FILED MAY 6, 1903.

NO MODEL.



Witnesses:

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# UNITED STATES PATENT OFFICE.

GEORGE O. THOMAS AND ARTHUR T. SHEAR, OF CHICAGO, ILLINOIS.

## BELTING AND PROCESS OF MANUFACTURE.

SPECIFICATION forming part of Letters Patent No. 764,831, dated July 12, 1904.

Application filed May 6, 1903. Serial No. 155,864. (No model.)

*To all whom it may concern:*

Be it known that we, GEORGE O. THOMAS and ARTHUR T. SHEAR, citizens of the United States, and residents of Chicago, Cook county, State of Illinois, have invented certain new and useful Improvements in Belting and Processes of Manufacture, of which the following is declared to be a full, clear, and exact description.

The invention relates to composite belting having hard dry rawhide as its strain-resisting member and to processes of manufacture thereof.

The invention consists in the method of procedure and the article of manufacture produced thereby, as hereinafter set forth, illustrated in the accompanying drawings, and more particularly pointed out in the appended claims.

In the drawings, Figure 1 is a longitudinal section of the improved belting. Figs. 2 and 3 are cross-sections thereof illustrating modified forms.

As set forth in Letters Patent of the United States No. 723,917, granted to George E. Preston, March 31, 1903, hard dry rawhide—*i. e.*, rawhide which has not been softened or fulled—when combined with a proper surfacing of leather or other suitable material has been found to form strong belting which will not stretch materially; but it has been found that the ordinary dry rawhide, (the strain-resisting member of the composite belting,) particularly if unhaired by the usual lime process, is liable to crack and break under the constant flexing and tension to which the belting is subjected when in use.

The outer portion of the hair side of the rawhide is more or less granular in texture and is technically known as the "grain" and when employed in composite belting the grain first cracks and the cracks thus formed gradually extend through the fibrous body of the rawhide. We have discovered that by removing the grain the preliminary cracking and consequent breaking of the rawhide is avoided. Other improvements upon the method of manufacture and the belting set forth in the above-mentioned Preston patent form part of the present invention.

In accordance with the present invention the hide is fleshed in the ordinary manner, and the grain is removed or split off from the green or dry hide after preliminary wetting, if necessary, with a sharp splitting-knife, either by machine or by hand and in a manner similar to that ordinarily employed for splitting leather.

The hair is preferably removed without the usual preliminary lime treatment, since the latter tends to materially weaken the rawhide and make it brittle and liable to crack. The hair and grain may be removed from the hide together without any preliminary treatment, since in accordance with this invention the grain is split off below the roots of the hair; but the hair may be first removed by the well-known sweating method, which consists in hanging the moist hides in a chamber maintained at uniform temperature until the hair is loosened by an incipient putrefaction and then scraped off with a dull knife. The grain is then split off as before, preferably by mechanical means. This method of procedure preserves the outer layer or grain split intact as a valuable product, which may be tanned to form leather or otherwise utilized, whereas if the grain is split off with the hair by hand it is without value. The wet rawhide from which the grain has been thus removed is then placed in a suitable stretching-frame placed under considerable strain and allowed to dry. This mechanical stretching of the moist hide and the drying under the strain thus produced is an improvement over the ordinary method of drying, since the non-stretching quality of the rawhide, which is particularly valuable in belting, is found to be materially increased thereby. The hard dry rawhide is then cut into strips or sections *a*, which are secured together end to end, preferably by cementing the scarfed ended together, as indicated in the drawings.

This surfacing *b* may be of any suitable material which will protect the rawhide and is adapted to maintain a good frictional grip upon the pulleys to which the composite belt is applied. The surfacing is preferably of leather, but may be of fulled rawhide, rubber,



or duck, and the strip of rawhide is preferably cemented between plies *b* and *b'* of the surfacing material.

The surface of the hard dry rawhide is very smooth or glazed, and in order that it may be securely cemented to the strips of leather or other material the surface of the hard dry rawhide is preferably scored or roughened by any suitable means before the cement is applied. In carrying out the invention, a garnet-wheel, upon which the surface of the rawhide is roughened, has been found satisfactory. Preferably, also, the strip *a* of hard dry rawhide is completely embedded between the plies *b b'* of leather or other suitable material, as illustrated in Fig. 3, so that the rawhide strip is entirely surrounded and protected from atmospheric moisture, oil, grease, and other liquids which would moisten and soften the rawhide so that it could stretch. For this purpose one or both plies of surfacing material is provided with a recess *c*, within which the rawhide strip *a* is embedded, so that the edges of the strip, as well as its sides, are protected and are not exposed.

The improved composite belting thus constructed is very strong, will not stretch, and is particularly useful as a machinery belt, but may be used for other purposes. For example, the strong non-stretching quantities of the belting renders it valuable for use as strengthening-straps commonly employed with the endless canvas belts of harvesting and straw-stacking machines or for other straps where great strength is desirable.

It is obvious that the details of procedure and of the composite belt could be varied without departure from the essentials of the invention.

Having described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. The process of preparing belting which consists in removing the grain from rawhide, drying and cutting the hide into strips and

securing thereto a surfacing of suitable material.

2. The process of preparing belting which consists in stretching and drying the hide, cutting the same into strips and cementing thereto a surfacing of suitable material.

3. The process of preparing belting which consists in removing the hair from the rawhide without preliminary lime treatment, slicing off the grain, stretching and drying the hide and cutting the same into strips and securing thereto a surfacing of suitable material.

4. The process of preparing belting which consists in sweating the hide to loosen the hair, mechanically removing the same, slicing off the grain, drying and cutting the hide into strips and securing thereto a surfacing of suitable material.

5. The process of preparing belting which consists in unhairing the rawhide, drying and cutting the same into strips, roughening the surface of the hard, dry rawhide and cementing thereto a surfacing of suitable material.

6. The process of preparing belting which consists in unhairing the rawhide, drying and cutting the hide into strips and completely embedding the strip between plies of suitable surfacing material.

7. Composite belting consisting of a strip of hard, dry rawhide from which the outer grain has been removed and a surfacing of suitable material.

8. Composite belting consisting of a strip of hard, stretched, dry rawhide and a surfacing of suitable material.

9. Composite non-stretching belting having as its strain-resisting member hard, stretched, dry rawhide from which the grain has been removed.

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