

(Specimens.)

J. P. MADDOX.  
WOVEN FABRIC FOR MACHINE BELTING.

No. 459,082.

Patented Sept. 8, 1891.

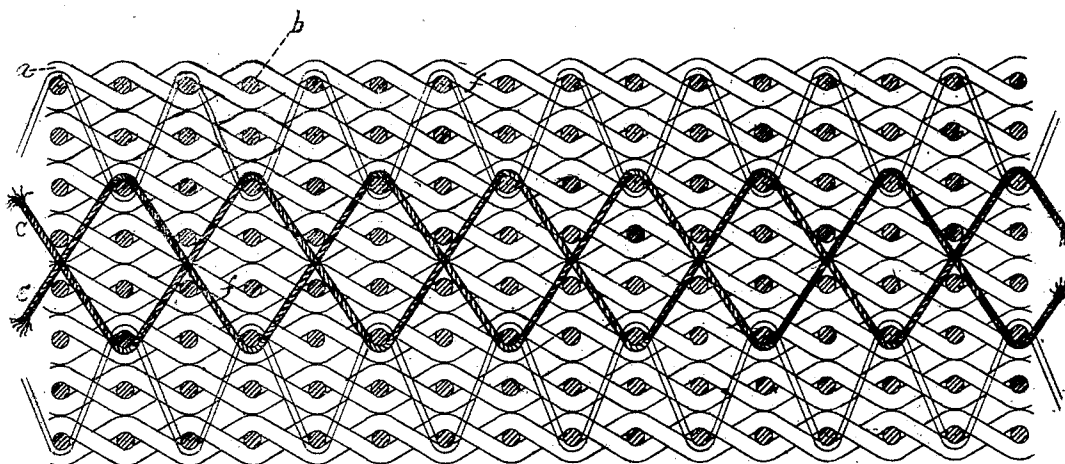


Fig. 1.

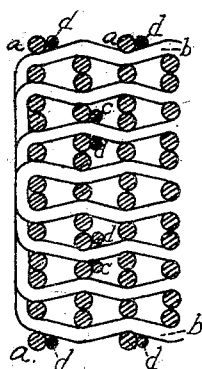


Fig. 2.

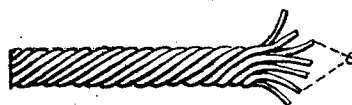


Fig. 3.

Witnesses.

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# UNITED STATES PATENT OFFICE.

JOSHUA P. MADDOX, OF WESTBROOK, MAINE.

## WOVEN FABRIC FOR MACHINE-BELTING.

SPECIFICATION forming part of Letters Patent No. 459,082, dated September 8, 1891.

Application filed September 4, 1890. Serial No. 363,880. (Specimens.)

*To all whom it may concern:*

Be it known that I, JOSHUA P. MADDOX, of Westbrook, in the county of Cumberland and State of Maine, have invented certain new and useful Improvements in Woven Fabrics for Machine-Belting; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

My invention relates to improvements in woven belting.

It consists in weaving in with the main warp and filling a metallic warp, each strand of which is composed of a number of fine wires laid up or twisted together, in attaching facing-plies to the interior plies, each side independent of the other, by fiber binders which do not extend to the center of the belting, and in a new and improved method of weaving in the metallic warp, whereby a uniform tension is secured.

I am aware that woven belting has been made having a wire warp, each strand of which is a single wire, and that facing-plies have been attached to the interior plies by fiber binders passing entirely through the belt or beyond the center thereof.

It is found that in actual use of belting made in the old way above referred to the single wire warp often breaks and the ends soon protrude through the facing-plies, and thus become a source of danger to operators and injury to the machinery, and when the belt is crossed to the belting itself. When the facing-plies are attached to the body of the belting by fiber binders passing entirely through the belting or beyond the center, it is found to be much more difficult to weave in the said binder-threads and that said threads are much more liable to be broken, because of the greater strain to which they are subjected, especially in passing around small pulleys.

In weaving in the wire warp it is found that when the warp-threads are all wound upon a single reel it is impossible to secure a uniform tension, because of the inelasticity of

the wire, inasmuch as some of the threads will unwind faster than others.

To obviate these difficulties is the object of the present invention.

In the drawings herewith accompanying and making a part of this application, Figure 1 represents a longitudinal section of my belting fabric; Fig. 2, a cross section of same, and Fig. 3 a detail showing laid-up or twisted wire warp.

The same letters refer to like parts.

In said drawings, *f* represents the plies, each having a warp *a* and a filling *b*.

*c* represents a metallic warp composed of a number of fine wires *e*, laid up or twisted together to form a strand, cord, or rope, and woven into the interior plies, one or more, as indicated in Fig. 1.

Attached to each side of the main body of the fabric through which the metallic warp is woven is a facing ply or plies, which are bound to said body by a fiber binder, said binder not extending to the center of said body.

A detail of the wire warp is shown in Fig. 3, showing the end as it would appear when broken, with the ends of the fine wires *e* separated so as to catch the fiber warp and filling before said ends can work out through the facing-plies. Thus made, it is found after the severest tests that the metallic warp is effectually prevented from reaching the outside of the fabric and that this result cannot be attained in any other known way.

In weaving in the wire warp it was found that it was necessary to wind each strand upon a separate reel or spool and give to each an independent tension, because, the wire being inelastic, when all the strands were wound upon a single reel they would unwind unevenly, and thus clog and break. In fact it is found to be impossible to weave in an inelastic warp evenly without giving to each a separate independent tension.

Having thus described my invention and its use, what I claim, and desire to secure by Letters Patent of the United States, is—

1. In a woven fabric, the combination, with the main body composed of a fiber warp and weft and a supplementary metallic warp, of

facing-ply bound to said main body by fiber binders, said fiber binders passing into but not entirely through the body part, substantially as and for the purposes set forth.

- 5 2. In a woven fabric, the combination, with a main body composed of a fiber warp and weft and a supplementary metallic warp, said metallic warp passing around every other outer weft of the main body, of facing-ply  
10 bound to said main body by fiber binders pass-

ing into but not entirely through the main body, substantially as and for the purposes set forth.

In testimony that I claim the foregoing as my own I affix my signature in presence of 15 two witnesses.

JOSHUA P. MADDOX.

Witnesses:

ELGIN C. VERRILL,  
FRANK H. VERRILL.