May 26, 1925. 1,539,444

E. J. TRAINOR

BRAKE LINING

Filed Sept. 9, 1921

Fig. 1.

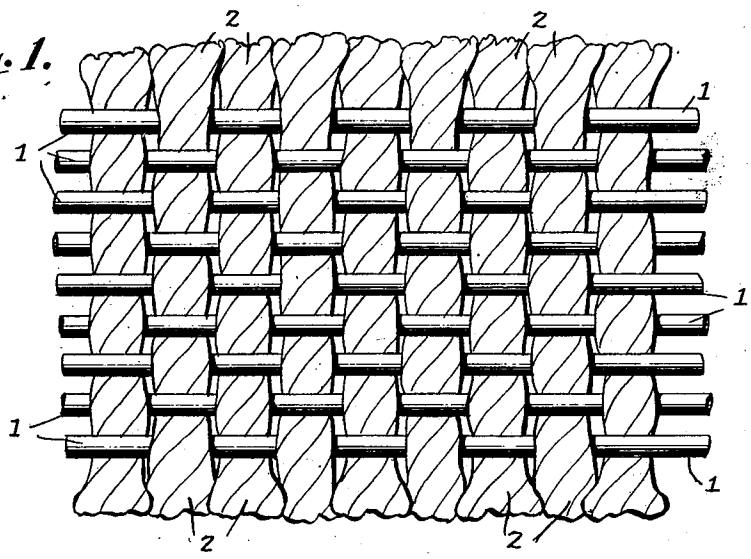
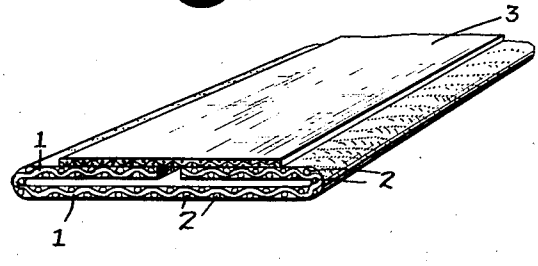


Fig. 2.



Fig. 3.



Edward J. Trainor INVENTOR

Emery, Farney, Blair & Bogert BY

ATTORNEYS

Published by AsbestosClaims.Law
asbestosclaims.law/library/21888/1

Patented May 26, 1925. 1,539,444

UNITED STATES PATENT OFFICE.

EDWARD J. TRAINOR, OF BROOKLYN, NEW YORK, ASSIGNOR TO ASBESTOS SPINNING AND WEAVING CORPORATION, OF NEW YORK, N. Y., A CORPORATION OF NEW YORK.

BRAKE LINING.

Application filed September 9, 1921. Serial No. 499,557.

To all whom it may concern:

Be it known that I, EDWARD J. TRAINOR, a citizen of the United States, and a resident of Brooklyn, county of Kings, State of New York, have invented an Improvement in Brake Linings, of which the following is a specification.

My invention relates to a lining for friction brakes and is particularly applicable to the brake linings used in motor vehicles which operate under extremely adverse conditions of friction, heat and exposure.

My improved brake lining in its preferred form embodies a woven fabric comprising strands of wire interwoven with strands of heat resisting fibrous material such as asbestos which may be impregnated if desired with a suitable substance such as rubber compound, bitumen, etc.

My invention further embodies a brake lining formed of strands of wire interwoven with strands, or ropes of asbestos fiber in such a manner that the ropes of asbestos are compressively held in a hard twisted state, whereby the tensile strength of said ropes is materially increased permitting the elimination of a filler such as cotton fiber or the like.

In the drawings I have shown in—

Figure 1 a front view of a piece of my improved brake lining,

Figure 2 a sectional view thereof and in

Figure 3 a perspective and sectional view showing the method of building up a brake lining from a piece of my improved brake lining fabric.

It will be understood that the fabric comprises a warp of wires 1 which are chosen with reference to the conditions of use of the brake lining and are preferably of a relatively high tensile strength and of a character to resist abrasion. These wires are so related to the weft strands 2 of the fabric as to compress and hold the fibers of each weft strand in intimate contact with one another by clamping the weft strands between adjacent warp wires, it being understood that the weft strands are formed of twisted strands of heat resisting fibrous material such as asbestos and that the fibers of such strands are frequently relatively short. It is the practice in the manufacture of asbestos strands to incorporate in the strands a certain amount of cotton fiber to enable the strands to be spun, but obviously in the use of asbestos for brake linings it is desirable to minimize, so far as possible, the use of the cotton fiber and the compressive clamping action of the wire warp strands resulting in the increase in tensile strength of the asbestos weft strands is therefore a matter of importance since it permits dispensing to a great extent, if not altogether, with the cotton fiber. This method of construction also adds greatly to the strength of the fabric and to its wear as it prevents the fraying of the asbestos fibers upon the surface of the fabric.

In making the fabric into a brake lining I prefer to fold the fabric along the line of the warp wires as shown in Figure 3, covering the folded strip with rubber or other suitable composition and vulcanizing or otherwise attaching to the back thereof a canvas or similar strip 3.

It will be noted that in cutting and folding the fabric into a brake lining accurate cutting dies are unnecessary since the fabric may be cut along the line of the warp wires and when so cut will not fray at the edge. Similarly, in folding the fabric as indicated above the fold is made along one of the warp wires and consequently is certain to be straight and to thereby prevent the possibility of any bias pull being exerted upon the fabric when cut. My improved brake lining presents many advantages over the brake linings used at the present time in addition to those referred to above. For instance, due to the closeness of the weave and to the great uniformity in thickness resulting from the construction described above, the brake lining exerts an effective friction over a greater area and is more certainly and easily attached by means of rivets, there being no danger of the rivets pulling through the lining as they are certain to engage a substantial number of wire warp threads.

My improved brake lining also has a longer life due to the large percentage of wire in the fabric and the high compression of the asbestos and the large bearing surface presented. It presents a great resistance to the pull of the brake drum upon the lining since the pull of the brake drum is in the direction of the warp, that is, the direction of the metallic wires. The asbestos or other heat resisting material be-

Published by AsbestosClaims.Law
asbestosclaims.law/library/21888/2

ing firmly held by the warp wires cannot creep in the direction of rotation of the drum and build up at points about the periphery as in the linings at present used. The lining is stiff and consequently easily handled and applied and if made as described above cannot fray at the edges.

It will be evident that many modifications may be made without departing from the spirit of my invention and I do not wish to confine myself to the precise details shown and described.

What I claim is:

1. A brake lining including interwoven strands of wire and hard twisted strands of a heat resisting fibrous material.

2. A brake lining including interwoven strands of bare wire and asbestos, said strands of wire compressively clamping the strands of asbestos.

3. A brake lining including interwoven strands of bare wire and strands of a fibrous heat resisting material, the wire being so related to the strands of heat resisting material as to hold the fibers thereof in compressive clamping contact with one another, whereby hard twisted ropes of the heat resisting material are formed.

4. A brake lining comprising interwoven strands of wire and heat resisting material folded upon itself along the line of the wires.

5. A brake lining comprising interwoven strands of bare wire and heat resisting fibrous material folded upon itself along the line of the wires, coated with a resilient composition and having attached thereto a fibrous backing.

6. A brake lining comprising a warp of wires, a weft of asbestos, the wires being related to the asbestos weft to hold the fibers thereof in close contact, folded along the line of the warp wires, impregnated with a rubber composition and having attached thereto a backing of canvas.

7. A brake lining comprising a warp of wires, a weft of twisted strands of asbestos, the warp wires being so related to the weft of asbestos strands as to compressively hold the latter in a hard twisted condition, folded along the line of the warp wires, impregnated with a flexible chemical binder, and having attached thereto a backing of canvas.

In testimony whereof, I have signed my name to this specification this 18th day of August, 1921.

EDWARD J. TRAINOR.

Published by AsbestosClaims.Law
asbestosclaims.law/library/21888/3