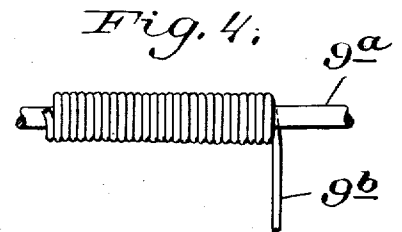
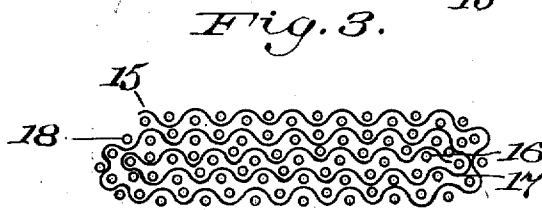
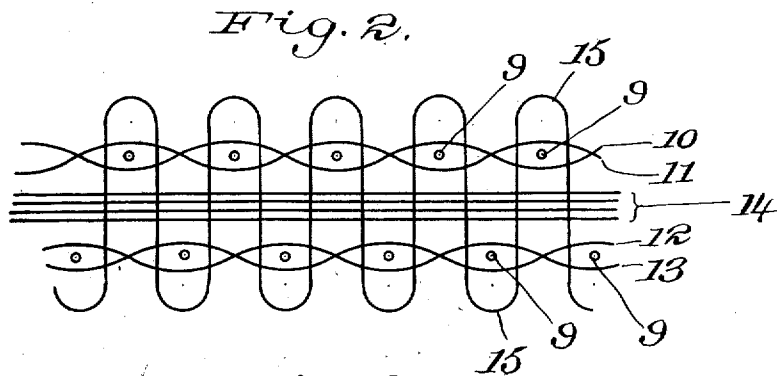
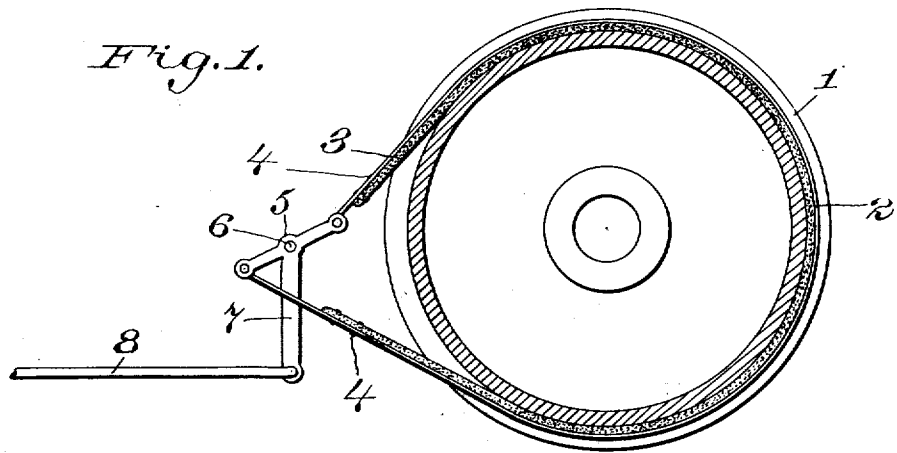


L. R. HOFF.
 ASBESTOS BRAKE BAND.
 APPLICATION FILED NOV. 5, 1909.

1,012,356.

Patented Dec. 19, 1911.



Witnesses:
M. H. Crawford
M. H. Lott

Inventor
Louis R. Hoff
 By his Attorney *A. L. Burkhardt*

UNITED STATES PATENT OFFICE.

LOUIS R. HOFF, OF PATERSON, NEW JERSEY, ASSIGNOR, BY MESNE ASSIGNMENTS, TO
THE ASBESTOS BRAKE COMPANY, A CORPORATION OF NEW JERSEY.

ASBESTOS BRAKE-BAND.

1,012,356.

Specification of Letters Patent.

Patented Dec. 19, 1911.

Application filed November 5, 1909. Serial No. 526,432.

To all whom it may concern:

Be it known that I, LOUIS R. HOFF, a citizen of the United States of America, residing at Paterson, county of Passaic, State of New Jersey, have invented certain new and useful Improvements in Asbestos Brake-Bands, of which the following is a specification.

My apparatus relates to apparatus for checking the speed of revolution of rotating members of various mechanism, as in wheeled vehicles, hoisting machinery and the like, and comprises an improved flexible brake band adapted to be used as a facing for the ordinary metal brake band, and to bear upon the drum or other revolving member when the brake is set.

Heretofore such brake band facings have sometimes been made of hair felt or other animal or vegetable fiber, these being used to give evenness and regularity to the braking action, but these materials burn out and wear out rapidly when heavy brake pressures are used, and do not have a sufficiently high retarding action. I have discovered that if such brake bands are faced with strips of woven asbestos fiber the above recited difficulties are overcome in large part. In order to give the asbestos tape or band additional strength, I incorporate strands of fine wire in the warp in weaving same, as a metallic reinforcement.

The best form of apparatus embodying my invention, at present known to me, is illustrated in the accompanying sheet of drawing, in which:

Figure 1 is a vertical section of one form of brake band and brake drum to which my invention has been applied. Fig. 2 is a cross section of one form of asbestos strip or band for use in such apparatus. Fig. 3 is another form, and Fig. 4 is a detail of one of the asbestos and wire strands used to form the warp.

Throughout the drawings, like reference figures indicate like parts.

1 represents the brake drum and 2 the usual metal band encircling the drum and having its ends connected to the two arms of lever 5. This lever is pivoted at 6 to a fixed pivot and has the bell crank arm 7, to which the brake rod 8 is connected.

3 is the strip of woven asbestos attached at or near either end to the metal band 2,

by any suitable fastening means, 4, 4, and overlying the face of the metal band.

One form of double woven band is shown in cross section in exaggerated form in Fig. 2. This band is composed of a series of warp threads 9, 9, 9, etc. so interwoven with the woof threads that portions 10 and 11 of the woof combine with certain of the warp threads to form a facing for the band. Portions 12 and 13 of the woof combine with other warp threads to form a back portion. Portions 14 pass in between the face and the back to form a stuffing, and portions 15 of the woof intertwine with all the warp threads to bind the parts together in one integral structure. The warp threads are formed by twisting together a fine metal wire 9^a and an asbestos thread 9^b, as shown in Fig. 4, the wire forming a reinforcing metallic strand, practically surrounded by asbestos.

Another form of band is shown in Fig. 3 in which the fabric 15 of wire and asbestos warp, and asbestos woof threads is woven in the ordinary manner and then folded or otherwise formed into a structure of several thicknesses or plies, 16, 17, 18, etc.

The asbestos band, however formed, may be impregnated with a solution of iron oxid, linseed oil, kauri gum and spirits of turpentine, of a consistency approximately that of varnish. This contributes to the lasting qualities of the band by increasing its density and cohesion. Any other combination of drying oil and suitable materials, or a drying oil alone may be used.

A particularly effective impregnating material is formed of the material known as gilsonite dissolved in naphtha. After impregnation the brake band is exposed to the air and the naphtha evaporates, leaving the gilsonite distributed throughout the fabric. This gilsonite not only makes the brake band impervious to moisture but adds to its friction creating qualities.

In operation the asbestos strip is fastened inside of the metal band, as shown in Fig. 1, and when the same is caused to grip the drum by movement of the lever 5, or equivalent means, a high degree of friction is developed between the metal drum and the asbestos, which latter serves to promptly and evenly retard the speed of revolution of the drum.

My invention finds a most useful application in the brake rigging of heavy motor cars.

Any other convenient form of holding means may be employed.

Among the advantages of my invention may be mentioned the high coefficient of friction of asbestos on metal which is much greater than that of metal on metal, or of animal or vegetable fiber on metal; the fact that asbestos being a pure mineral substance will not burn and does not heat so rapidly as other fiber; and that it wears longer and does not disintegrate so readily under the abrasive and heating effects of the brake action.

The particular forms of asbestos band shown are advantageous as possessing great lasting qualities on account of their thickness, and also that compressibility resulting from thickness which enables the braking effect on the two wheels of a motor car to be approximately equalized even if the adjustment of the two brake bands is not quite perfect.

Of course other arrangements of textile fabric formed of asbestos might be employed and these asbestos strips can be used to ad-

vantage in forms of brake rigging other than that here shown and described.

The relative degrees of twist given to the asbestos and wire strands may be varied so as to cause one or the other to form the greater portion of the exterior surface or coating of the strand.

Having, therefore, described my invention, I claim:

1. A brake provided with a liner comprising a layer of asbestos fabric impregnated with a drying oil and having a wire reinforcement.

2. In a brake, the combination with a holding element of a layer of asbestos impregnated with drying oil and having wire reinforcement.

3. In a braking element, a plurality of plies of fabric composed of interwoven, asbestos coated wires, said plies being impregnated with a drying oil.

4. In a braking element, a plurality of plies of wire reinforced asbestos fabric, said plies being impregnated with drying oil.

LOUIS R. HOFF.

Witnesses:

A. G. CUTTING,

J. E. ADELBERG.