

E. B. KNOWLES.
BRAKE LINER FABRIC AND PROCESS OF MAKING SAME.
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1,053,299.

Patented Feb. 18, 1913.

Fig. 1.

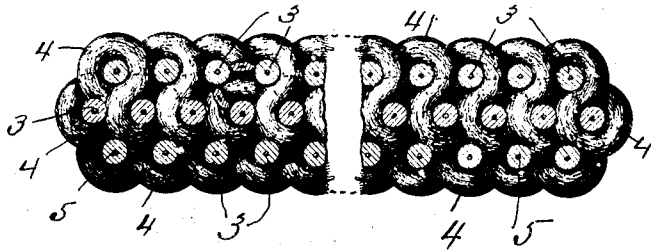
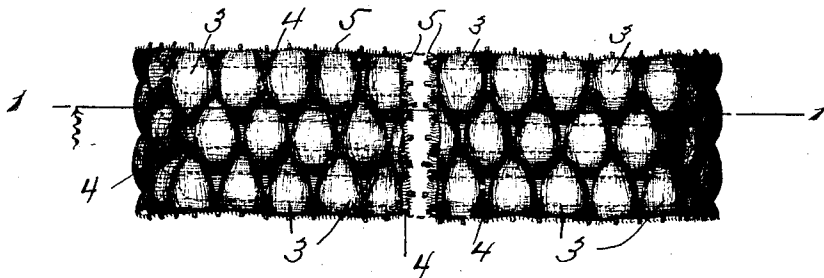


Fig. 2.



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UNITED STATES PATENT OFFICE.

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BRAKE-LINER FABRIC AND PROCESS OF MAKING SAME.

1,053,299.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, EDWIN B. KNOWLES, a citizen of the United States, residing at Bridgeport, in the county of Fairfield and State of Connecticut, have invented or discovered certain new and useful Improvements in Brake-Liner Fabrics and Processes of Making Same, of which the following is a specification.

10 This invention or discovery has for its object to provide a fabric material or product, for use as a lining for machine brakes, or for other purposes, which will be of such a character that, while it will not be expensive to produce, it will afford an unusually high coefficient of friction, will be practically water-proof, and will also be of such a character as to resist the cutting or rotting effects of oil, turpentine or gasoline which might come into contact with it in use.

25 In the accompanying drawing Figure 1 is a broken-out enlarged transverse section of a solid woven asbestos tape suitable for use in accordance with the present invention, and Fig. 2 is a broken-out enlarged plan view of the same, as hereinbefore referred to.

30 The invention is carried into effect by saturating an asbestos fabric, which may be either woven or braided, with a mixture of a fatty oil or oils, such as linseed oil, castor oil, cotton-seed oil, or the like, and a diluent, such as spirits or oil of turpentine, and to which mixture has been added an amount of sulfur suitable to effect a vulcanization of the oleaginous mixture when subjected to heat. The asbestos fabric referred to will preferably be woven from #1 asbestos yarn containing only the necessary amount of cotton to enable the yarn to be properly handled in spinning and weaving, and into this yarn, or into the woven asbestos fabric, there may also be incorporated fine wires, preferably of brass or copper, as is common in the art, to give added strength to the fabric.

50 In order to give a substantial body to the saturating composition above described a filler, consisting preferably of powdered litharge or white lead, may be incorporated into the mixture with which the asbestos fabric is to be impregnated or saturated, and in such case the amount of sulfur in the

mixture should be more than sufficient to 55 vulcanize the oleaginous compound, in order that it may properly vulcanize the mixture when containing the filler. Other fillers, such as red lead or copper oxid, etc., may be employed instead of litharge or 60 white lead, if desired.

The asbestos fabric employed will preferably be in the form of a solid woven or braided tape which may be saturated with the liquid composition above described in 65 any suitable manner, as by dipping or soaking the fabric in the compound, or by passing the tape or a continuous web of the fabric through a tank containing the liquid composition. Also the saturated fabric 70 may be vulcanized by subjecting the same to a proper degree of heat in any suitable manner, as is well known to those skilled in the art of vulcanizing. The use of sulfur in the composition with which the asbestos 75 fabric is saturated, and the vulcanizing process referred to will give it high wearing and frictional qualities.

Referring to the accompanying drawing, which is an enlarged and somewhat diagrammatic illustration in broken-out plan and section, the warp threads 3 are properly alternated or interwoven with the weft threads 4 to form a solid woven tape with selvage edges, and incorporated with these 85 threads 3 and 4 are fine metallic wires 5. The solid tape fabric may be of any proper width, and of any desirable number of plies, a three-ply fabric being illustrated in the drawing. 90

An asbestos fabric prepared in the manner above described will have great density, and while affording a high coefficient of friction, when in use as a brake lining, or as a lining for brake shoes, it will be of 95 such a character as to resist wear, as also to resist the cutting or rotting action of oils or other liquids which might come into contact with it, as hereinbefore stated.

I am aware that brake linings composed 100 of asbestos fabrics saturated with various compounds have heretofore been in use, and I do not wish to be understood as claiming a prepared asbestos fabric brake lining broadly. I am also aware that brake linings 105 comprising facings of rubber and rubber compounds have also been in use, but such rubber or rubber compound linings are

liable to the rotting or cutting effects of oils, and are moreover much more expensive to manufacture than my improved brake lining hereinbefore described.

5 Having thus described my invention I claim and desire to secure by Letters Patent:—

1. A product or material for use as a brake-shoe lining, or the like, consisting of
10 a solid, plural-ply tape asbestos fabric body having selvage edges and impregnated with a vulcanized oleaginous compound which includes sulfur.

2. The herein described process for producing a lining for machine brakes and the
15 like, consisting in saturating a solid-woven asbestos fabric with a mixture of a fatty oil or oils, a suitable diluent, such as turpentine, and an amount of sulfur sufficient
20 to effect a vulcanization of the mixture, and

then vulcanizing the saturated fabric by subjecting the same to the action of heat.

3. The herein described process for producing a lining for machine brakes and the like, consisting in saturating a solid-woven
25 asbestos fabric with a mixture of a fatty oil or oils, a suitable diluent, such as turpentine, a metallic filler, such as powdered litharge or white lead, and an amount of sulfur sufficient to effect a vulcanization of
30 the mixture, and then vulcanizing the saturated fabric by subjecting the same to the action of heat.

In testimony whereof I affix my signature, in presence of two witnesses.

EDWIN B. KNOWLES.

Witnesses:

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C. M. NEVIUS.