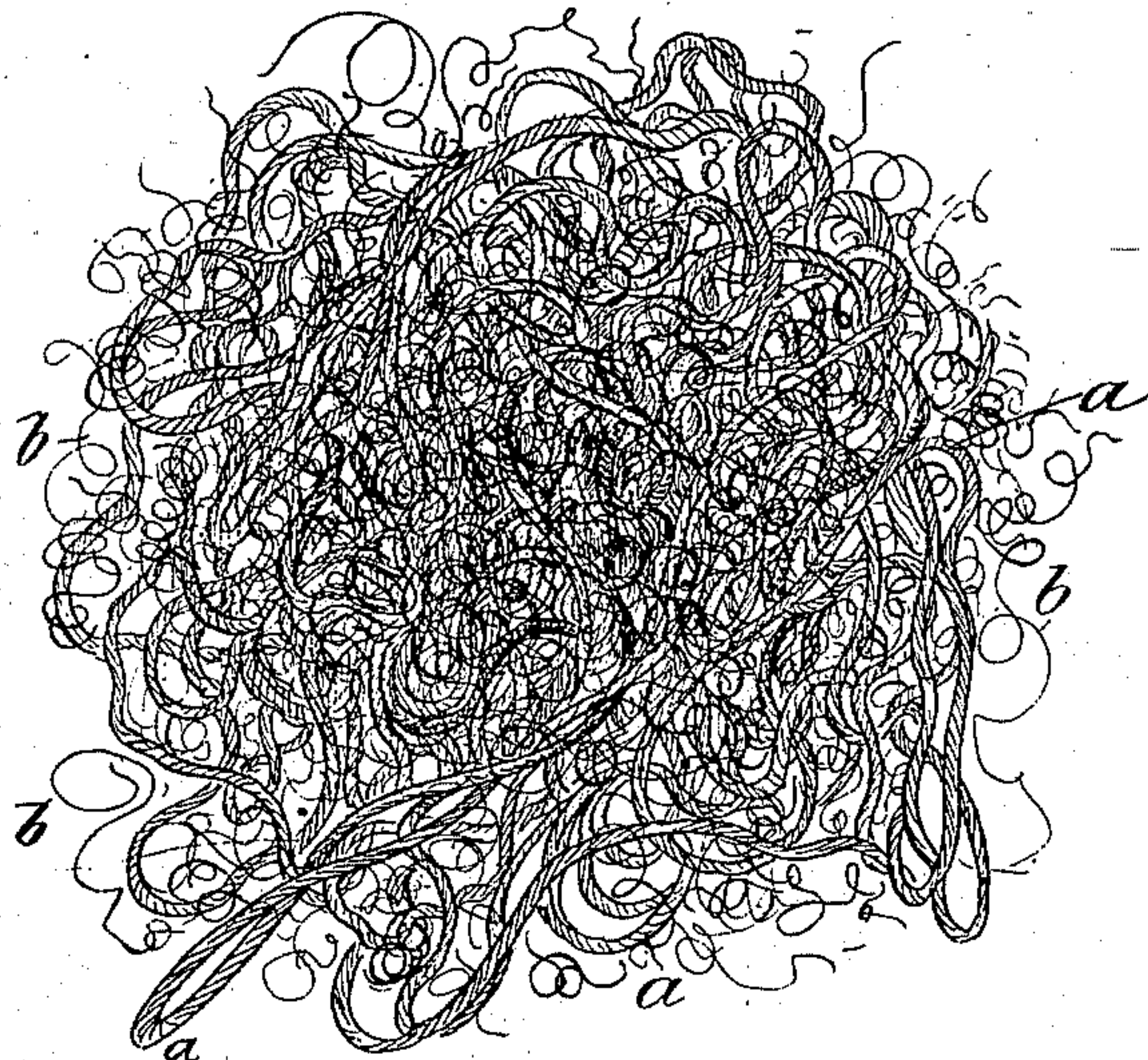


(No Model.)

G. J. CHURCHWARD.
MATERIAL FOR APPLYING OIL TO AXLE BEARINGS.

No. 560,689.

Patented May 26, 1896.



WITNESSES:

Fred White
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INVENTOR:

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UNITED STATES PATENT OFFICE.

GEORGE JACKSON CHURCHWARD, OF SWINDON, ENGLAND.

MATERIAL FOR APPLYING OIL TO AXLE-BEARINGS.

SPECIFICATION forming part of Letters Patent No. 560,689, dated May 26, 1896.

Application filed August 15, 1894. Serial No. 520,349. (No specimens.) Patented in England January 29, 1885, No. 1,247.

To all whom it may concern:

Be it known that I, GEORGE JACKSON CHURCHWARD, a subject of the Queen of Great Britain, residing at Swindon, in the county of Wilts, England, have invented certain new and useful Improvements in Material for Applying Oil to Axle-Bearings, of which the following is a specification.

This invention is the subject of Letters Patent in Great Britain, No. 1,247, dated January 29, 1885.

My invention relates to means for applying oil to the axle-bearings in axle-boxes of railway-cars, locomotives, &c. For this purpose it is customary to stuff the axle-box with so-called "cotton-waste," consisting of loosely-spun threads of cotton or other textile fiber, which absorbs the oil and carries it after the manner of a wick into contact with the bearing-surfaces of the axle. The use of such waste is subject to the disadvantage that by long saturation with the oil it becomes sodden and packs or mats together, thereby not only losing its efficiency as a conductor of oil to the bearing-surfaces, but also preventing the proper movement of grit or dirt to the bottom of the axle-box. It results that after such waste has been used for a considerable time it fails to perform its intended functions, and the bearings by being imperfectly lubricated become heated, causing what is known as a "hot box." Various elastic pads have been proposed with the provision of springs for pressing them against the axle and wicks for drawing up the oil; but they have generally been found too expensive to be practical and more or less imperfect in the feeding of oil to the axle and especially in not affording adequate provision for the separation of dirt or grit and its conduction away from the axle.

According to my invention I employ a combination of curled elastic hair, preferably horsehair, with loosely-spun cotton or woolen threads or waste, the curled hair and the textile threads being closely intermingled, which may be effected by carding or combing the hair and threads intimately together. This improved material is employed loosely or in bulk, a sufficient quantity being stuffed into the axle-box in the same manner as in the employment of cotton or woolen waste as heretofore used.

The accompanying drawing gives an approximate illustration of my oil-applying material on an enlarged scale, *a a* representing the textile threads or yarn, and *b b* the curled horsehairs.

In my combination material the cotton or woolen threads serve to take up the oil by capillary attraction and conduct it to the bearing, the elastic curled hair which is so intimately interspersed with the textile fibers acting as a series of minute springs to keep the threads in close contact with the axle and at the same time to keep the texture of the material sufficiently open to admit of the passage of any grit or dirt through the material to the bottom of the axle-box. The curled horsehair used in this combined material thus prevents the clogging which results in the use of the usual waste and which usually occurs in ordinary pads.

My combined material is particularly adapted for use in the various kinds of axle-boxes which are constructed for lubricating by means of spring-pads or waste packing. With such boxes I simply remove the pads and springs and fill the bottom parts of the boxes tightly with the combined material, feeding the oil to the boxes in the same manner as previously adopted for the pads.

I convert the open-bottom grease axle-boxes for the use of oil by fitting to them a tray or reservoir filled with my combined material.

For locomotives I employ a tray or reservoir filled with the combined material instead of the usual bottom keep, retaining the ordinary means for feeding the oil on the tops of the axle-boxes.

The use of my invention has been found in practice to almost entirely prevent the occurrence of hot boxes, thereby avoiding the serious losses and disadvantages arising from such occurrences. In addition my improved oil-distributing material has a greater life and continues for a longer time to efficiently supply the oil than the waste commonly used.

I am aware that a mixture of cotton-waste and elastic hair has been employed in the form of a lubricating-pad inclosed in a cloth cover and pressed by springs against the axle; but I am not aware that any such mixture has been used in bulk or loosely as a lubricating material, wherein it has important prac-

tical advantages over such pads. Nor am I aware that curled hair has been so used, which alone possesses the qualities necessary to carry out the principle of my invention.

5 What I claim, and desire to secure by Letters Patent, is—

The improved material for applying oil to axle-bearings consisting of closely-intermingled curled elastic hair and loosely-spun absorbent threads of textile fiber, substantially

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as described, used in bulk in an open loose condition, as distinguished from an inclosed pad.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses. 15

GEORGE JACKSON CHURCHWARD.

Witnesses:

JOSEPH STUMPER,

CHARLES JOHN JEFFERIES.