

(No Model.)

J. DE S. BROWN.
MACHINERY BEARING.

No. 484,993.

Patented Oct. 25, 1892.

Fig. 1.

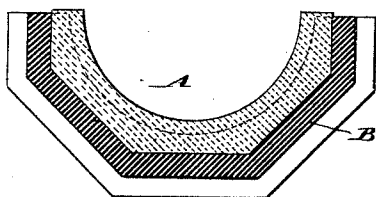


Fig. 2.

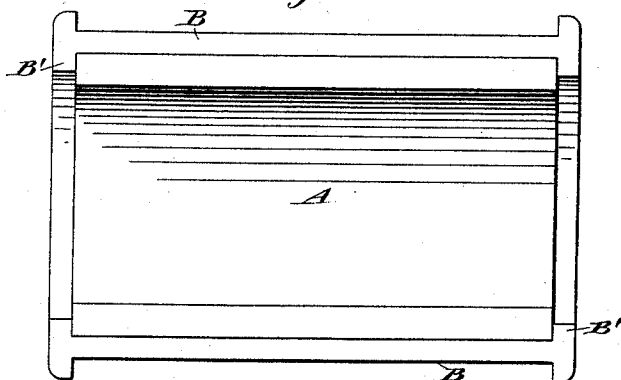
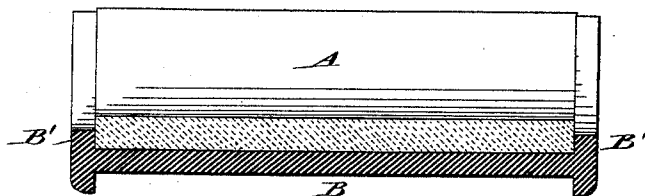


Fig. 3.



Witnesses:

Charles H. Searle.
Jose L. Fingleton.

Inventor:

Jam. de Selding Brown
By his attorney
Thomas Drew Peterson

UNITED STATES PATENT OFFICE.

JAMES DE SELDING BROWN, OF PHILADELPHIA, PENNSYLVANIA.

MACHINERY BEARING.

SPECIFICATION forming part of Letters Patent No. 484,993, dated October 25, 1892.

Application filed March 29, 1892. Serial No. 426,860. (No model.)

To all whom it may concern:

Be it known that I, JAMES DE SELDING BROWN, a citizen of the United States, residing in the city and county of Philadelphia, State of Pennsylvania, have invented a certain new and useful Improvement in Machinery Bearings, of which the following is a specification.

I will describe it as applied to journal-boxes.

The improvement lies in the materials employed and the process of manufacture. I produce the boxes in molds of any required form and size. The entire box may be of my composition. I prefer manufacturing only the lining-pieces of my composition and fitting them in supporting-boxes of iron or other metal, and will describe the invention as thus carried out.

The invention may apply to all sizes and characters of journal-boxes.

I take one hundred pounds of wood pulp, made by mechanical process, in which the material preserves its original condition, except that it is divided into fine and short fibers. With this I intimately mix two hundred pounds of what is known as "Scheel-lac" and eight hundred pounds of finely-divided graphite, which latter has been previously separated from all foreign matter, especially gritty material, by the well-known process of "floating." The mixing is made very intimate and thorough by grinding in a burr-mill or other mill, the process being conducted so slowly as to avoid materially raising the temperature. This dry material may be stored for any period. When it is to be used, it is tumbled through a revolving inclined pipe kept at a sufficient heat, or is otherwise uniformly raised in temperature to about 250° Fahrenheit, and then subjected to strong compression in molds of the proper size and form and kept under pressure until cooled to about 100° Fahrenheit.

For bearing-boxes for two-inch shafts—such as are extensively used for the line-shafting of cotton and other mills—my material may be about three-eighths of an inch thick and of a form adapted to match in corresponding recesses in the metal boxes. The pressure should be from one thousand to one hundred thousand pounds per square inch. The hydraulic

or other press employed should be adapted to follow and maintain the pressure as the material yields. After removal from the press my molded bearings or linings therefor are detached from their molds and embedded in ground sulphate of lime or analogous neutral supporting material, which will aid them to keep their shape and subject them thus conditioned to a temperature of from 300° to 400° Fahrenheit and maintain this for a period of from one hour upward, according to the thickness of the box or lining therefor. For the boxes of line-shafting of the character described (about three-eighths of an inch thick) this final heating should be continued from one to two hours. After this heating it may be allowed to cool either slowly or rapidly, and is ready for use.

The material can be dressed by tools. I prefer for most uses to manufacture the linings a little large and reduce them subsequently. The surplus material may be removed by any ordinary cutting or abrading treatment.

The supporting-boxes of metal should be cast or otherwise produced in the proper form with the recess having a depth nearly but not quite equal to the thickness of the lining.

One important quality due to the use of Scheel-lac is a higher degree of conductivity of heat in the bearings, and consequently less disposition to overbearing by friction than is obtained with the use of shellac or other ordinary material.

The accompanying drawings form a part of this specification.

Figure 1 is a cross-section of a box with my lining in position. Fig. 2 is a plan view, and Fig. 3 is a longitudinal section of the same.

Similar letters of reference indicate corresponding parts in all the figures where they appear.

A is my lining, and B the inclosing-box, of metal. A lip B' extends across each end; but it is of less height than the thickness of my lining A.

When in use, sperm-oil, lard-oil, or any of the ordinary lubricants may be applied, either sparingly or liberally, without involving difficulties; but I prefer for most purposes that no lubricant shall be used. My box or lining will work satisfactorily under all ordinary

pressures and at all ordinary speeds, either with or without lubrication or alternately in the two conditions.

5 The Scheel-lac described is purchasable in the market in any quantities under that name. It is low-priced, only from four to four and a half cents per pound. It is of no appreciable effect in the mixture at ordinary temperatures; but at the high temperatures at which I com-
10 press it gives a strong and uniform adhesive quality to the finely-disintegrated dry material which I use. My boxes or linings therefore possess great strength with a slight degree of elasticity. When carrying a rapidly-
15 revolving shaft under heavy pressure, the friction engendered raises the temperature; but the heat is communicated to the surrounding atmosphere or conducted away as rapidly as it is generated by the very slight friction
20 experienced, so that there is no heating above 90° to 110° Fahrenheit.

I can use the ordinary hard gums known as "stick-lac," "seed-lac," or "shellac," instead of the Scheel-lac described, but the first-
25 mentioned materials are much more expensive and not as good. My material similarly made and molded in proper shape may be also used for packings, gibs for cross-heads, and for machinery bearings generally.

In bearings for light work I can omit the 30 fiber. In such case I could use a larger proportion of the Scheel-lac, say, three hundred pounds of Scheel-lac to eight hundred pounds of graphite.

On commencing the manufacture the molds 35 should be warmed sufficiently to take off the chill.

I claim as my invention—

1. A machinery bearing composed of Scheel-lac combined with plumbago and fiber in the 40 manner and substantially the proportions herein specified.

2. The process described of producing machinery bearings, which consists in intimately mixing dry fiber, pulverized Scheel-lac, and 45 pulverized graphite, compressing at a temperature of from 200° to 300° Fahrenheit, holding under pressure until cool, and subsequently releasing it and raising it uncompressed to between 300° and 400° Fahrenheit, all sub- 50 stantially as herein specified.

In testimony that I claim the invention above set forth I affix my signature in presence of two witnesses.

JAMES DE SELDING BROWN.

Witnesses:

CHARLES R. SEARLE,
JOSE L. FINGLETON.