

# UNITED STATES PATENT OFFICE.

ELIZA D. MURFEY, OF NEW YORK, N. Y.

## IMPROVEMENT IN PREPARATIONS FOR BEARING-SURFACES FOR SPINDLES.

Specification forming part of Letters Patent No. **166,886**, dated August 17, 1875; application filed March 4, 1875.

### CASE B.

*To all whom it may concern:*

Be it known that I, ELIZA D. MURFEY, of the city, county, and State of New York, have invented a new and useful Improvement in the Preparation of Bearing and Wearing Surfaces for Spindles and other Purposes; and I do hereby declare that the following is a full, clear, and exact description of the same.

This invention relates to bearing and wearing surfaces for different purposes, such as the bolster and steps of spindles, the lining of axle-boxes and journal-boxes, the packings of stuffing-boxes, the guides of machinery, and pickers for looms, such bearing or wearing surfaces being made of paper, paper-pulp, and other soft and fibrous or filamentary material or materials. It is also applicable to journal boxes and axle-boxes made entirely of such materials.

The invention consists in a hardening compound or solution made up of alum and water, with or without other ingredients, applied to the paper or equivalent material of which the bearing or wearing surface is composed, in order that the material, when pressed into shape, shall retain its firmness, or the more readily hold its density, as it were.

The invention is more particularly designed to be applied to that description of self-lubricating bearings for which numerous Letters Patent have been granted me, including Letters Patent No. 121,804 and 121,805, both dated December 12, 1871, and in which the paper or materials composing the bearings is impregnated with a lubricating compound of which plumbago is an ingredient, and first

formed into a sheet, which is pressed and rolled into the required shape of the bearing; but the invention is more particularly intended to be applied to a bearing or wearing surface compressed in direction of its axis, for which I have recently made application for Letters Patent. In all of such cases I apply the hardening compound or solution to the paper of which the bearing or wearing surface is composed before compressing the same, such application of the hardening solution being made either by immersing the paper in a bath of said solution, or by otherwise saturating it therewith.

While not restricting myself to any precise proportions for the ingredients of this hardening solution or compound, I find that about two ounces of alum dissolved in one pint of water forms a good hardening solution for the purpose; likewise, that about two ounces, equal parts, of alum and borax, dissolved in two quarts of water, is very efficient; also, a solution in which silex is used with the alum, in the proportion of about two ounces of each in two quarts of water.

I claim—

The preparation of paper bearing and wearing surfaces for spindles and other purposes by the treatment of the paper with a hardening solution composed of alum and water, with or without other ingredients, substantially as specified.

ELIZA D. MURFEY.

Witnesses:

KATE S. VAN FOSSEN,  
MICHAEL RYAN.