

UNITED STATES PATENT OFFICE.

P. S. DEVLAN, OF ELIZABETHPORT, NEW JERSEY.

IMPROVEMENT IN JOURNAL-BOXES.

Specification forming part of Letters Patent No. 30,128 dated September 25, 1860.

To all whom it may concern:

Be it known that I, P. S. DEVLAN, of Elizabethport, county of Union, in the State of New Jersey, have invented a new and useful Composition for Journal-Boxes; and I do hereby declare that the following is a full and exact description thereof.

My invention relates to a novel composition for boxes or bearings of all kinds of journals, and has for its object a substitute for the metallic bearing-boxes now in use, which shall be more durable, create less friction, and the production of which shall cost less than any of the materials now in use.

Previous to my present invention boxes for the journals of car and other axles, and for journals of all kinds of shafts in the various branches of machinery, have been composed of different kinds of metals and alloys, the most generally used being of brass and of Babbitt metal, and forming different combinations of metal when considered in connection with the shaft or journal—as, for instance, a steel spindle-journal is generally run in a Babbitt-metal box, while a wrought-iron shaft-journal is generally run in a brass box—the desideratum always being to have the combination of metals such that the surfaces coming into contact will be composed of those metals the particles of which are so arranged as to enable the two surfaces to slide on each other with the least amount of friction.

I have discovered that paper-pulp, when cast or pressed into a mold or box, will form an excellent bearing-box for the journal of a shaft or axle to run in, and also that for many purposes an addition of a small proportion of plumbago to the paper-pulp will improve it for purposes of bearing or journal boxes; and my invention consists in the application of any of the pulps employed in making paper to the formation of boxes for journals of axles and shafts of all kinds.

To enable those skilled in the art to make and use my invention, I will proceed to describe it and the modes in which I have practiced it successfully.

I take about ten pounds of paper-pulp and one pound of plumbago, or plumbaginous substance, and mix well together, adding in the mixture about two ounces of gum-shellac, or other gum, and of this composition I form a box by pressing the material hard in molds and letting it become dry. The composition may be compressed around the journal which

is to run in the box, or around a mandrel of the proper diameter.

The most desirable way of molding the boxes is to press the composition into the stands or iron boxes of the machine, and around the journals, after the fashion generally followed in casting Babbitt-metal boxes, and when following this method of pressing the composition boxes into the cavities where they are to remain, the utility of the gum is obvious in assisting to fasten the composition in place, as well as in causing the particles of the composition to adhere to each other with greater tenacity.

The plumbago I have found to be of advantage to the paper-pulp in making the grain of the composition finer and lessening the friction, although the paper-pulp alone will form an excellent box, much more durable and creating less friction than metal, in combination with the paper-pulp and plumbago. I have employed a small proportion of gum-tragacanth. I have also used in connection with the paper-pulp, in lieu of plumbago, about the same proportion of plaster, which I have found to unite well together with the pulp and form an admirable composition for boxes; but it will be understood that the paper-pulp is the essence of the composition, and, in fact, when used without any other ingredients, forms a box for journals of all kinds which is more durable, runs easier, and costs less than any kind of box in use previous to my invention. I do not therefore wish to limit myself, in the protection of my invention by Letters Patent, to the proportions of the materials mixed as I have hereinbefore described, or even to the combination of any other material or materials in any proportions with the paper-pulp. Neither do I wish to limit my invention to the use of any particular kind of paper-pulp, as any pulp formed of any of the vegetable substance fibrous and capable of forming paper will answer the purposes of my invention.

What I claim as of my invention, and desire to secure by Letters Patent, is—

The employment of paper-pulp to form boxes for bearings of journals of shafts and axles, substantially as hereinbefore described.

In testimony whereof I have hereunto set my hand this 20th day of August, 1860.

Witnesses:

P. S. DEVLAN.

HUMPHREY JACKMAN,
J. M. ROPES.