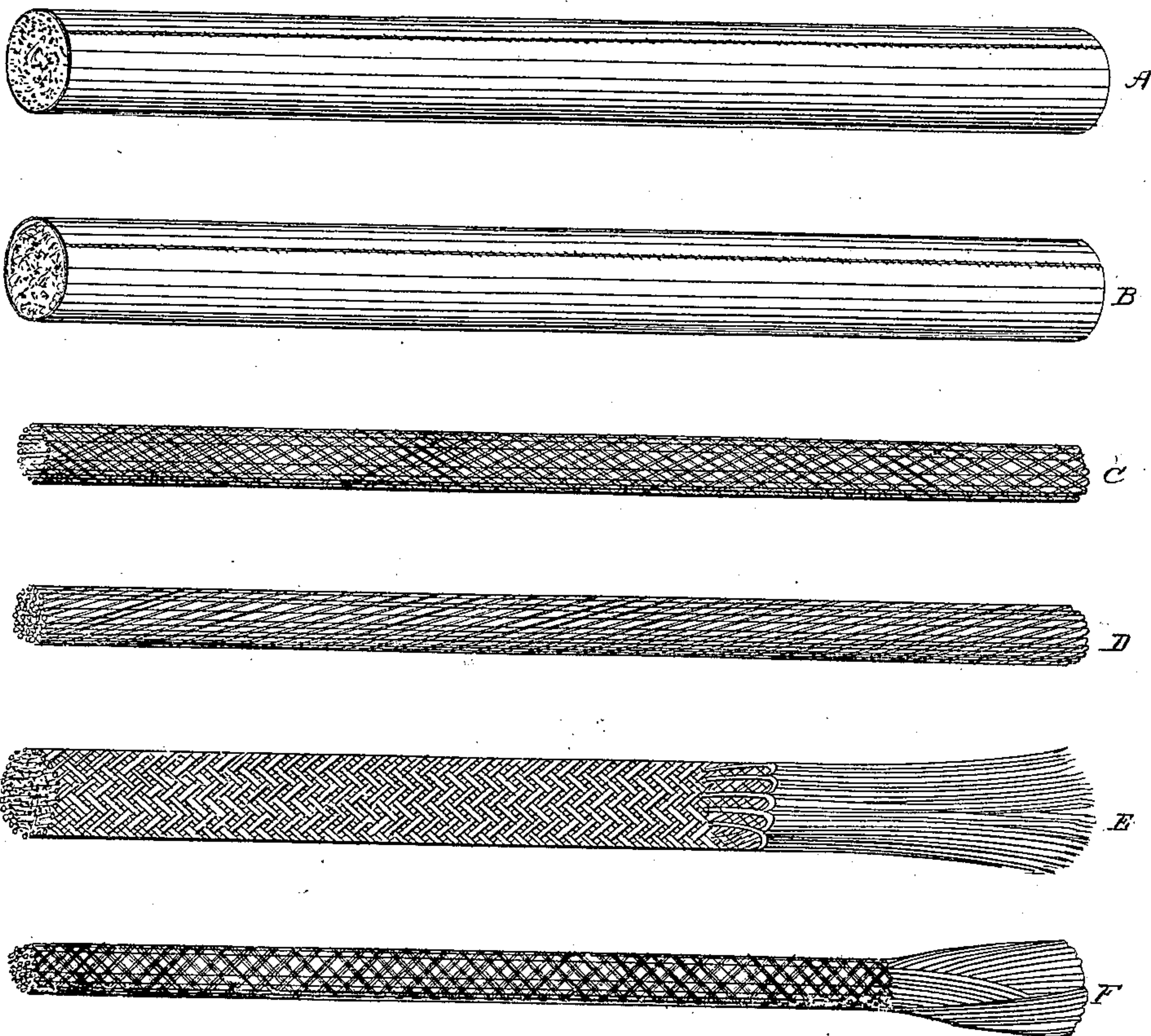


I. B. & W. H. Miller,

Piston Packing.

N^o 47,119.

Patented Apr. 4, 1865.



Witnesses;

*John B. Shuman
E. W. Miller*

Inventor

Iron. Bruce Miller & William Hartley Miller.

UNITED STATES PATENT OFFICE.

IVON B. MILLER AND WILLIAM H. MILLER, OF PHILADELPHIA, PA.

IMPROVEMENT IN THE MANUFACTURE OF PACKING FOR PISTONS.

Specification forming part of Letters Patent No. 47,119, dated April 4, 1865.

To all whom it may concern:

Be it known that we, IVON BRUCE MILLER and WILLIAM HARTLEY MILLER, of the city of Philadelphia, in the county of Philadelphia, in the State of Pennsylvania, have invented a new and Improved Mode of Making Packing for Steam-Engines, Pumps, &c.; and we do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

The nature of our invention consists in the use of fibrous material and dry powdered substances, combined in such a form and in such proportions as will make a packing suitable for use in the stuffing-boxes of a steam-engine, for instance.

To enable others skilled in the art to make and use our invention, we will proceed to describe its construction and mode of operation.

We use any of the known fibrous material and of the powdered sawdust, soapstone, plumbago, whiting, zinc-paint, white-lead, resin, or resinous substances, flaxseed-meal, &c., such proportions as are suitable to the required form and size, and may be used in the proportion of two pounds of powdered substance to one pound of fibrous material—as, for instance, two pounds of soapstone, resin, or plumbago to one pound of cotton, hemp, flax, wool, silk, or jute; but in order to secure the combination of dry powdered and dry fibrous material without the use of paste or liquid substance, we sew two edges of a muslin strip three inches wide, more or less, and about twelve feet long, thus making a fibrous tube or cover for the powdered or combined fibrous and powdered substance.

A represents a section of this tube or cover with the powdered substance inside as filling.

B represents the same tube or cover with the combined fibrous and powdered substance.

C represents a section of the fibrous tube or cover as made on an ordinary braiding-machine.

D represents the combination of the powdered substance with the fibrous material before the cover is applied, the fiber being saturated thoroughly with the powdered substance before it is twisted into yarn.

E represents the braided cover, made of soft durable fiber and the filling made of coarse fiber—one cotton, the other jute.

F represents a section of packing with the braided cover and filling of the same material.

When coarse fiber with seeds or sticks in it that would flute a rod is covered with more pliable material of a given thickness—for instance, one-eighth of an inch thickness of cover to one inch inside diameter of filling—then the wear comes upon the cover alone. So, too, of sawdust inside the braided case or cover; but where it is desirable to use this cover for the sole purpose of making the several sizes or diameters it is not necessarily so thick, and heavy, light, loose or close woven muslin or duck may be used, or heavy or light yarn. We in general use the powdered soapstone and resin in proportions of twenty pounds of resin to one hundred pounds of soapstone.

The object in combining the powdered and fibrous material in the manufacture of packing is, first, to lessen friction; second, to preserve the fiber from decay, and thus retain the powdered substance in its place; third, the combination will not become hard, but will, on the contrary, be flexible.

We in general make sixteen different diameters, as one-fourth of an inch, one-half, three-fourths, and so on. The packing may be cut in sections and formed in separate rings around the rod, flange, piston, man-hole, or pipe-joints, or several layers or rings or a coil, as the case requires, may be used. We sometimes use metallic thread braided over the packing in place of the fibrous material—as annealed copper wire, for instance.

What we claim as our invention, and desire to secure by Letters Patent, is—

1. The application of dry powdered substances to fibrous material for the manufacture of packing, in the manner above described, or any other substantially the same and which will produce the intended effect.

2. The fibrous braided cover as applied to packing, in the manner and for the purpose above described, or any other substantially the same and that will produce the intended effect.

3. The application of powdered substance to the fiber before it is made into yarn, as

above described, or any other substantially the same and which will produce the intended effect.

4. The use of the cover made of one kind of fiber and the inside or filling made of another kind without the use of powdered substance, as above described, or any other substantially the same and which will produce the intended effect.

But we do not claim the application of the

above-described braid or cover to fibrous material saturated with liquid or paste, as described in the application and allowed patent of Wm. Hartley Miller.

IVON BRUCE MILLER.
WILLIAM HARTLEY MILLER.

Witnesses:

E. W. MILLER,
JOHN R. SHEAIN.