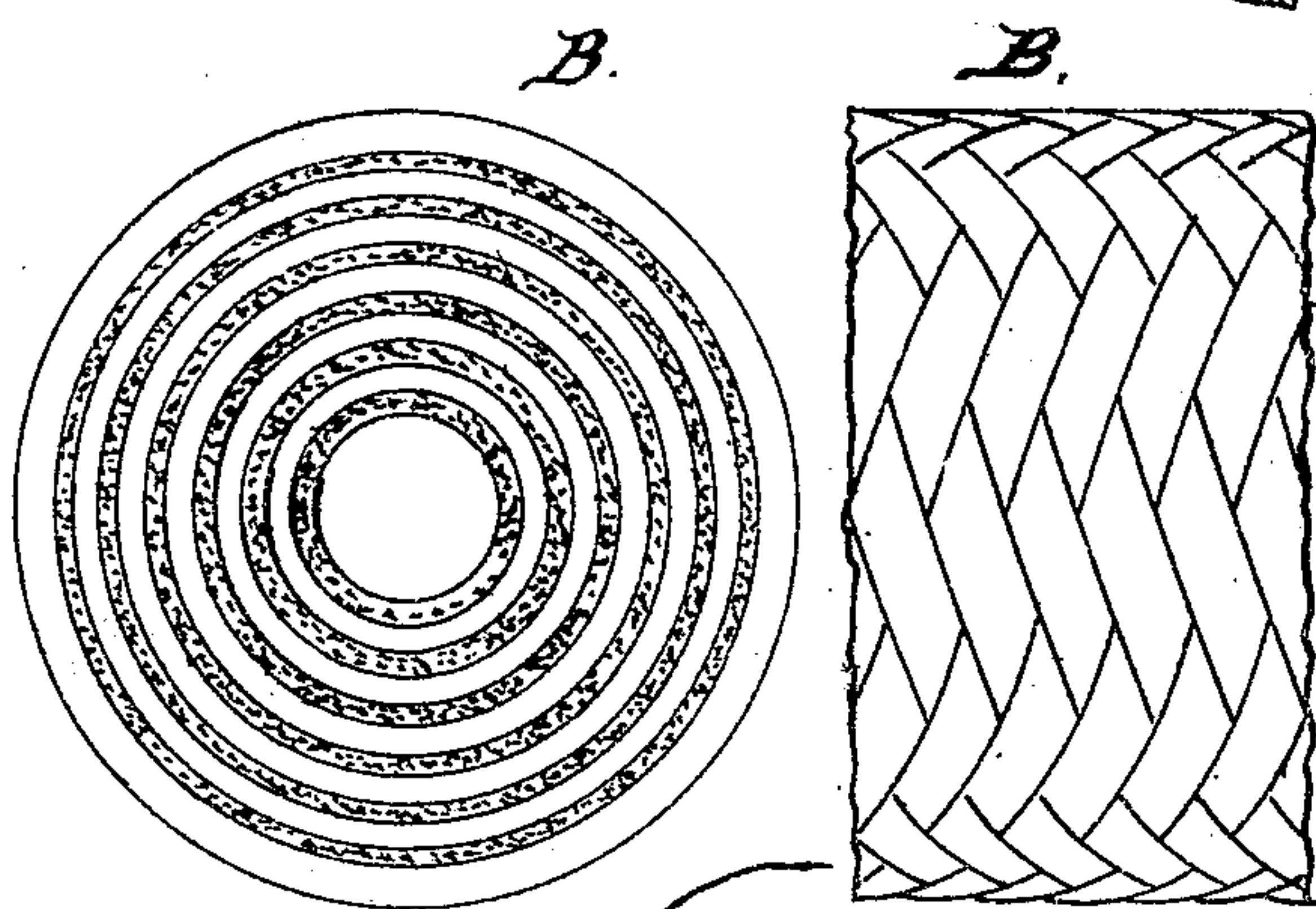
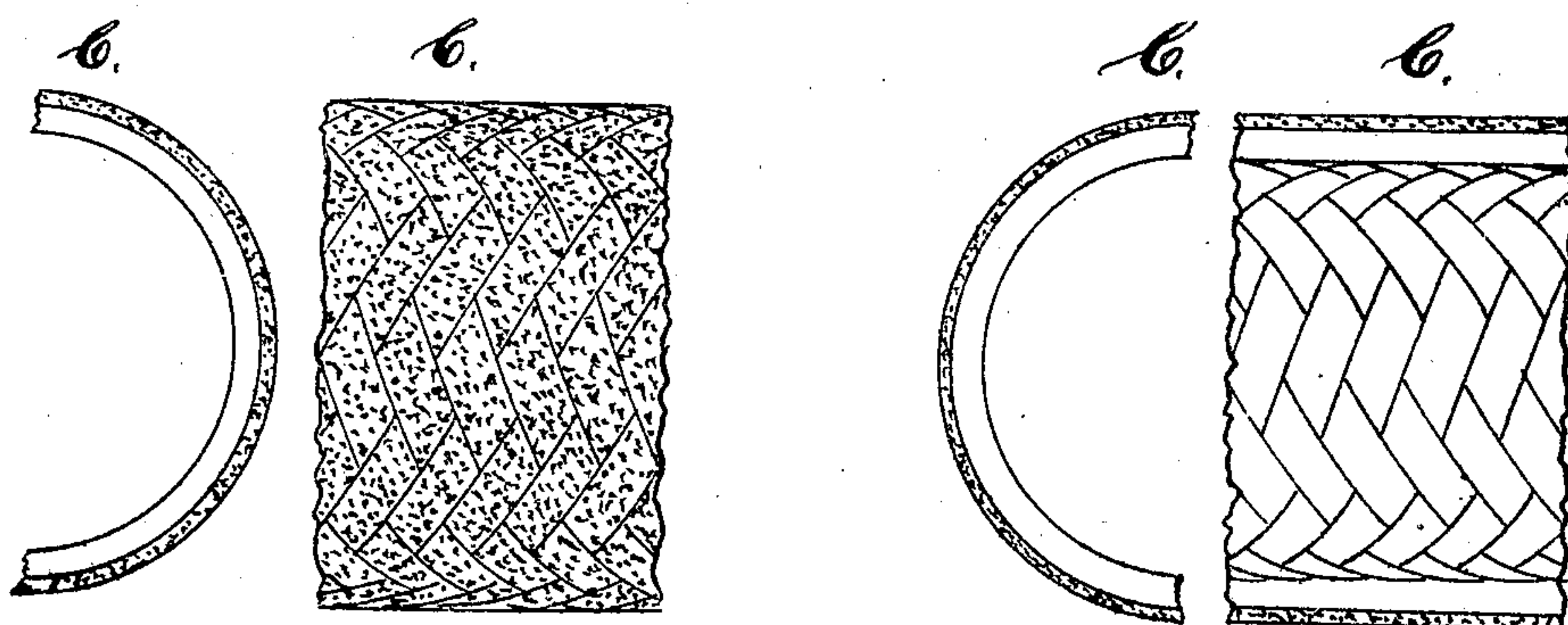
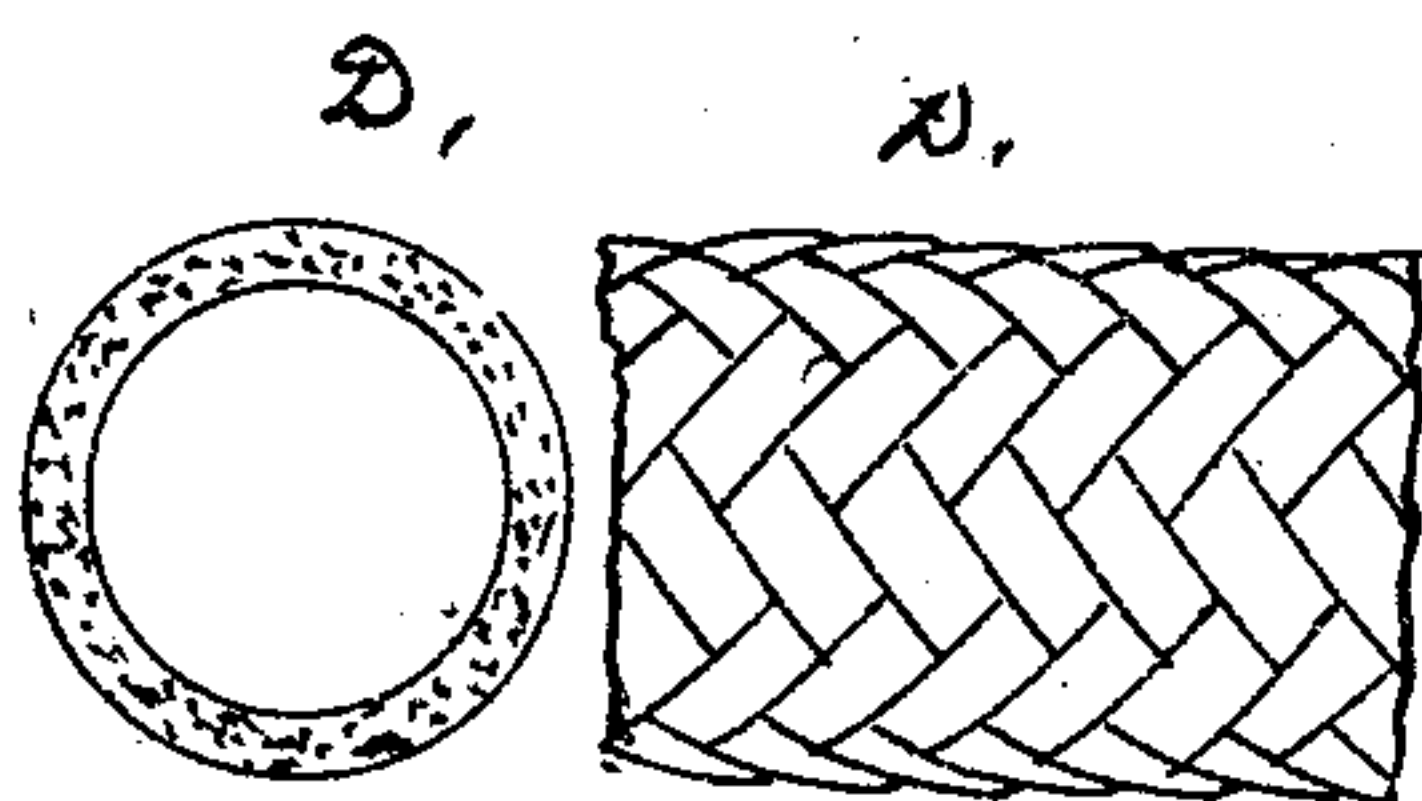
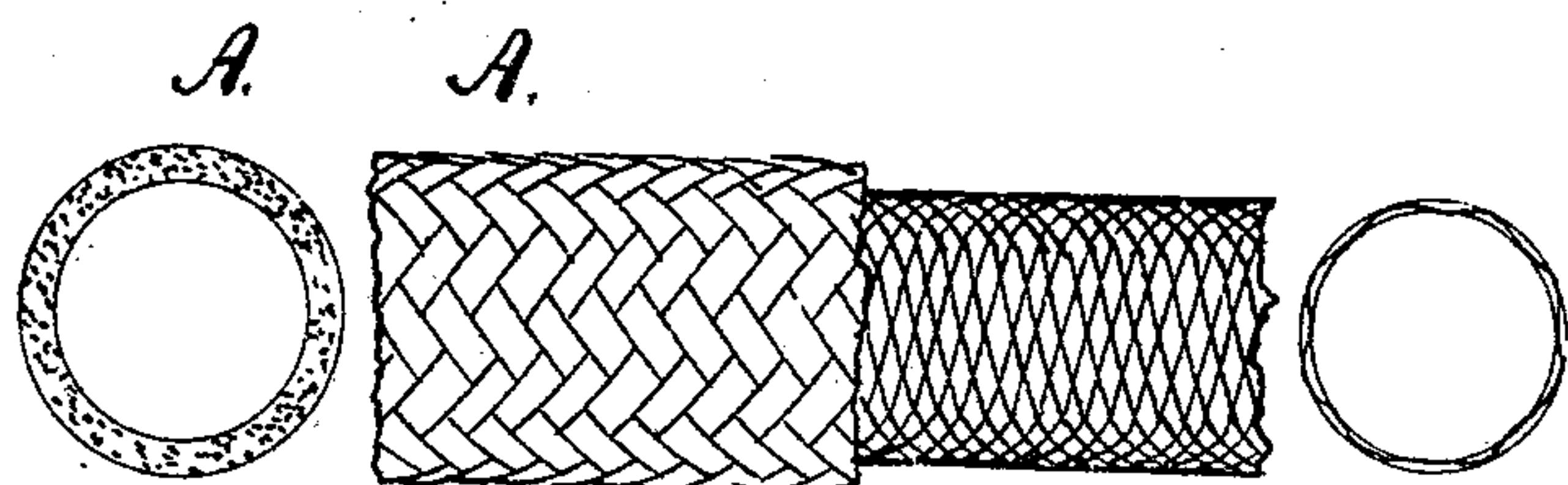


W. H. Miller
Imp^d Piston-Rod Packing.
 N^o 73454 Patented Jan. 21, 1868.



Inventor
 Wm. H. Miller
 Attest
 Amos. T. Tamm
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United States Patent Office.

WILLIAM HARTLEY MILLER, OF PHILADELPHIA, PENNSYLVANIA.

Letters Patent No. 73,454, dated January 21, 1868.

IMPROVEMENT IN PISTON-ROD PACKING.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, WILLIAM HARTLEY MILLER, of the city of Philadelphia, in the county of Philadelphia, and State of Pennsylvania, have invented a new Article of Manufacture for the Stuffing-Boxes of Engines and other Machinery, and for other joints of the same, including pipe and steam-chest joints, &c.; and I hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, making part of this specification.

The nature of my invention consists in the use or manufacture of a fibrous or metallic (or a combination of fibrous and metallic) tube, tubes, layers, or plies, placing one within the other, or interweaving, interbraiding them, &c., to form a pliable, elastic, and durable packing, of the required size, form, and quality.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation.

I make a metallic or fibrous tube, or metallic and fibrous tube, for packing, consisting of a single tube, as at D; a tube within a tube, as at A; or any required number of tubes to make a given diameter, as at B, in which seven tubes make a diameter of two and a quarter inches. By varying the thickness of the tubes, unequal diameters will be made with an equal number of tubes, one within or upon another. By adding successive layers, or by braiding or weaving successive tubes, any required diameter can be attained; and where these tubes are laid one upon another, in the process of manufacture, the tension upon the thread has a tendency to compress the inner tube until the combined tubes or layers have the appearance of a rope or cord, as at B.

This packing-tube or cord is used as ordinary packing is applied to stuffing-boxes or other joints.

A represents a longitudinal view of my improved packing, composed of metallic and fibrous material. Another combination of fibrous and metallic tube consists of the tube being composed of fibrous threads, in connection with metallic threads woven together.

B represents a piece of my improved packing, and shows its construction to consist of successive layers, plies, or tubes of fibrous material, interlaid with lubricating substance.

D represents a longitudinal view of a piece of my improved packing-tube, consisting of a single fibrous braid. This braid may be made of various thicknesses, and may be saturated with suitable lubricants.

Other letters of reference indicate corresponding views of my improved packing.

These tubes are most conveniently made on a braiding-machine, and tube after tube can be applied by repassing them through the machine. Other methods of manufacture will produce similar tubes for the purpose.

I use suitable lubricants by saturation, or as shown at B and at C.

I do not limit myself to the use of any particular kind of metallic or fibrous material or lubricant in common use.

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

The above-described packing-tube, tubes, layers, or cord, or their equivalent, substantially as shown, as a new article of manufacture.

WILLIAM HARTLEY MILLER.

Witnesses:

AMOS TRUMAN,
E. W. MILLER.