

(No Model.)

H. W. JOHNS.
NON-CONDUCTING COVERING.

No. 433,472.

Patented Aug. 5, 1890.

Fig. 1.

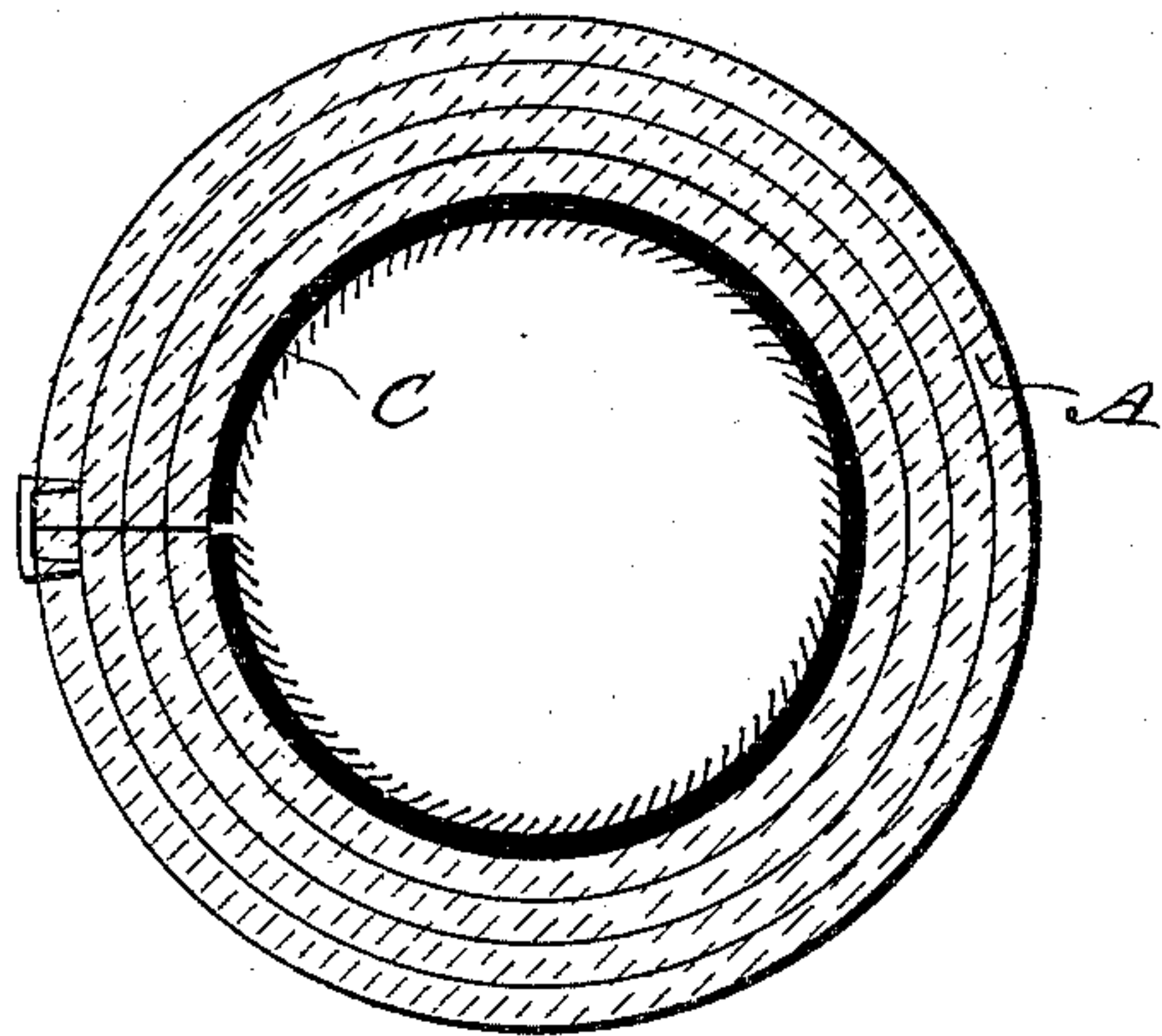


Fig. 4.

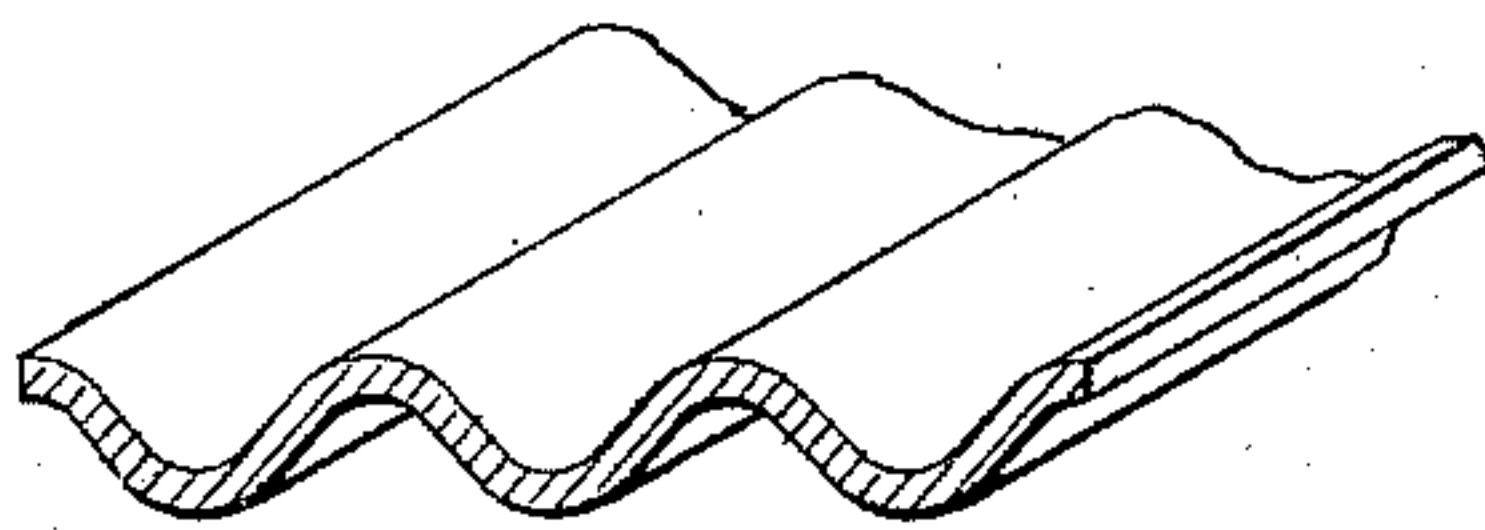


Fig. 2.

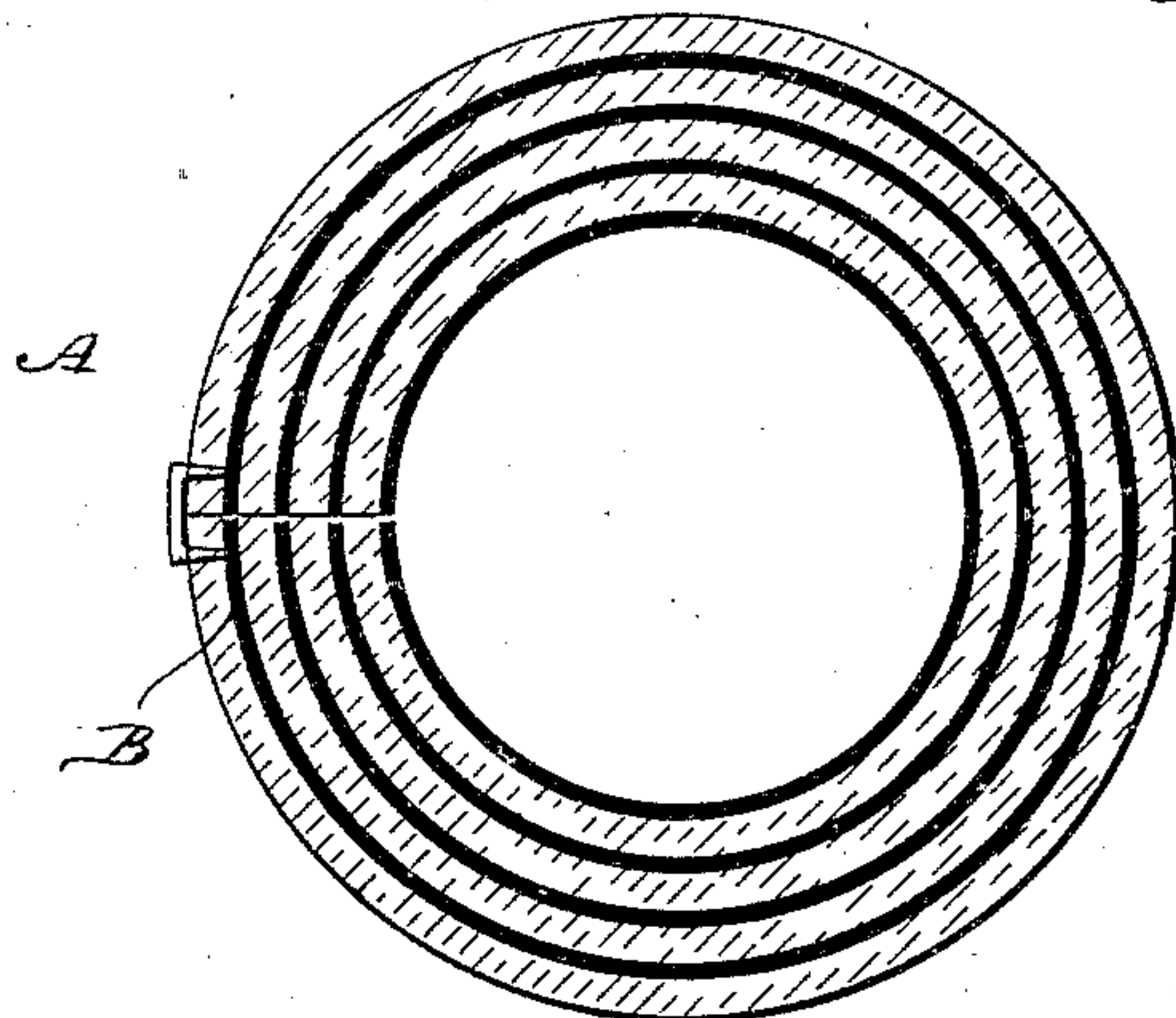


Fig. 5.

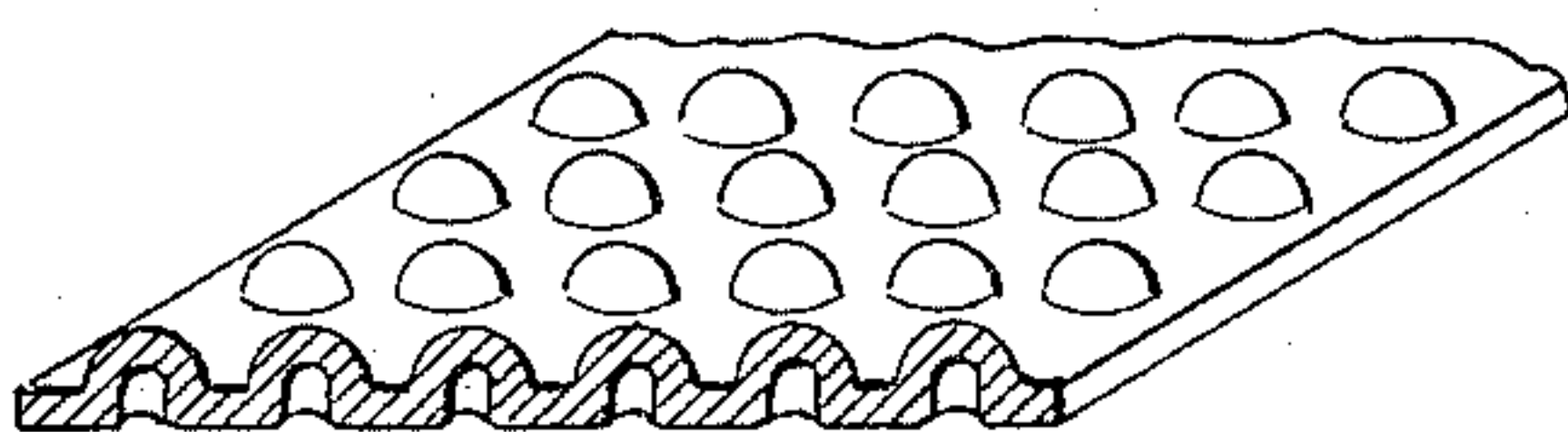
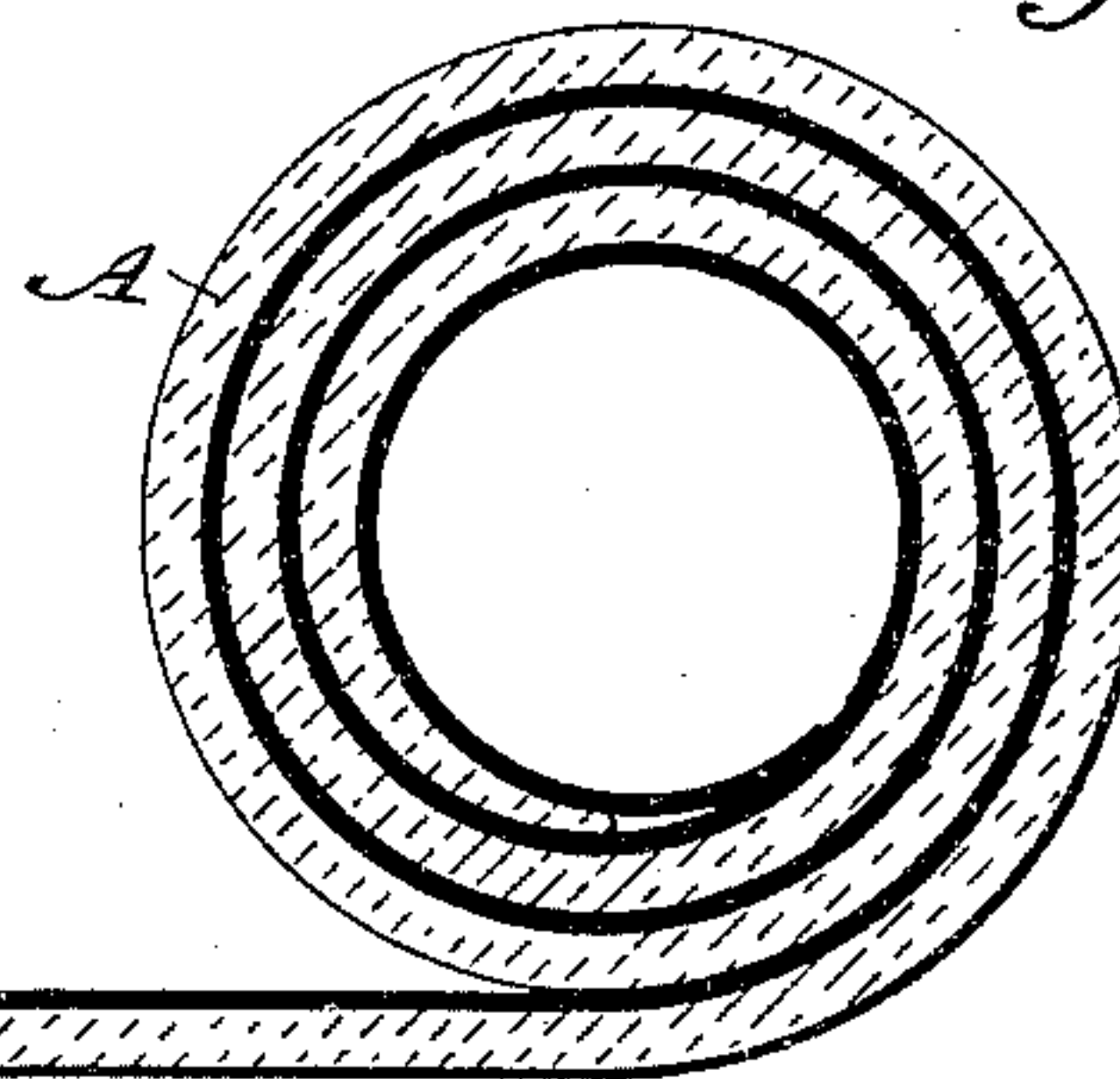


Fig. 3.



WITNESSES:

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UNITED STATES PATENT OFFICE.

HENRY W. JOHNS, OF NEW YORK, N. Y.

NON-CONDUCTING COVERING.

SPECIFICATION forming part of Letters Patent No. 433,472, dated August 5, 1890.

Application filed February 12, 1890. Serial No. 340,165. (No model.)

To all whom it may concern:

Be it known that I, HENRY W. JOHNS, a citizen of the United States, and a resident of New York city, in the county of New York and State of New York, have invented certain new and useful Improvements in Non-Conducting Coverings, of which the following is a specification.

My invention relates to a new and useful non-conducting covering for pipes, boilers, and other heated surfaces; and it consists in making the covering from successive layers of soft, compressible, and exceedingly-porous sheets or slabs of wood pulp, which are to be fireproofed and preferably waterproofed.

In the drawings, Figure 1 illustrates one form of my invention, in which I show a section of pipe-covering formed of a plurality of layers of fireproofed wood pulp. Fig. 2 illustrates the same as shown in Fig. 1, there being also present an interlayer of asbestos or other fire-proof sheet or cement. Fig. 3 illustrates a pipe-covering in process of coiling. Figs. 4 and 5 illustrate corrugated and indented sheets or slabs.

In making my improved covering I first form the wood pulp into sheets or slabs A, of such thickness as may be preferred, by a felting or pulping process, whereby I secure a product possessing great porosity and softness. This sheet is then subjected to a treatment in any preferred manner with fireproofing materials, preferably in liquid form, and preferably using the fireproofing compound of borax and boracic acid, with or without zinc, for which I applied for Letters Patent of the United States January 7, 1890, the said application being Serial No. 336,196. When the sheet has been moistened by its absorption of the liquid fireproofing material, it may be easily rolled into cylindrical forms upon a suitable mandrel of substantially the diameter of the pipe to which the covering is to be applied, and when dry it may be sawed or cut into halves for easy application to the pipes; or instead of first making the sheets or slabs and then treating them with the fireproofing liquid, they may be treated therewith while yet in the plastic state, and then before the sheets have dried they

may be rolled or otherwise formed into cylindrical or other desired shape.

In Fig. 2 I illustrate a covering the same as that shown in Fig. 1, excepting that there is applied to the sheet A, before it is rolled into cylindrical form or otherwise shaped, a sheet, layer, or coating B of fire-proof substance, which will be rolled up with the sheet, thus forming an interlayer or alternate layer with it in the completed covering. I prefer to use a sheet of asbestos paper or a layer of asbestos cement for this interlayer B; but any other suitable fire-proof or practically fire-proof material may be used instead. I also prefer, especially if the interlining sheet B is not used, to line the interior or surface of the covering with a layer or sheet C of pure asbestos when the covering is to be used on very hot surfaces.

In Fig. 3 I illustrate a sheet of the fireproofed pulp with interlayer as seen after having been rolled up on a mandrel. I also sometimes treat my sheets or slabs either before they are formed into the desired shape, or afterward, as preferred, with any suitable waterproofing material, and this treatment may extend throughout all the layers forming the covering or be applied to certain ones only.

My covering, as I believe, possesses certain advantages over any other known. It is very light in weight, quite smooth in exterior surface, very inexpensive, very easy to manufacture and apply, very clean, and it possesses innumerable air-spaces, partly in the body of the material and partly in the spaces between contiguous sheets, which render it a superior non-conductor. Moreover, my coverings, being composed of wood pulp, are when dry (in which form I prefer to treat them with the fireproofing compound) more easily, economically, and thoroughly impregnated with the fireproofing liquid than any other material suitable for the purpose.

The exterior of my covering may be covered with canvas, paper, or such other exterior jacket or binder as may be preferred, and it may be decorated with paint or other suitable substance.

I illustrate my coverings as made into cylindrical forms only; but they may be flat or

of such other shape as desirable to fit the surface to be protected, in which event the sheets with or without an interlayer will be cut into smaller sheets and superposed one upon the other.

These separate sheets or slabs may be indented or corrugated, as shown in Figs. 4 and 5, or the interlayer or interlayers may be indented or corrugated to increase the number of air cells.

The several sheets, layers, or coils of the same sheet or the ends thereof may be confined in place by any suitable adhesive material or by metallic bands, staples, or rivets, or by sewing, nailing, or otherwise.

I claim—

1. A non-conducting covering composed, essentially, of superposed layers of soft porous wood pulp fireproofed, substantially as set forth.

2. A non-conducting covering composed, essentially, of superposed layers of soft porous wood pulp fireproofed, and an interlayer or interlayers of practically fire-proof material, substantially as set forth.

3. A non-conducting covering composed, essentially, of superposed layers of soft porous wood pulp fireproofed, and an interior lining of fire-proof material, substantially as set forth.

Signed at New York, in the county of New York and State of New York, this 29th day of January, A. D. 1890.

HENRY W. JOHNS.

Witnesses:

PHILLIPS ABBOTT,
JOHN W. HIGHFIELDT.