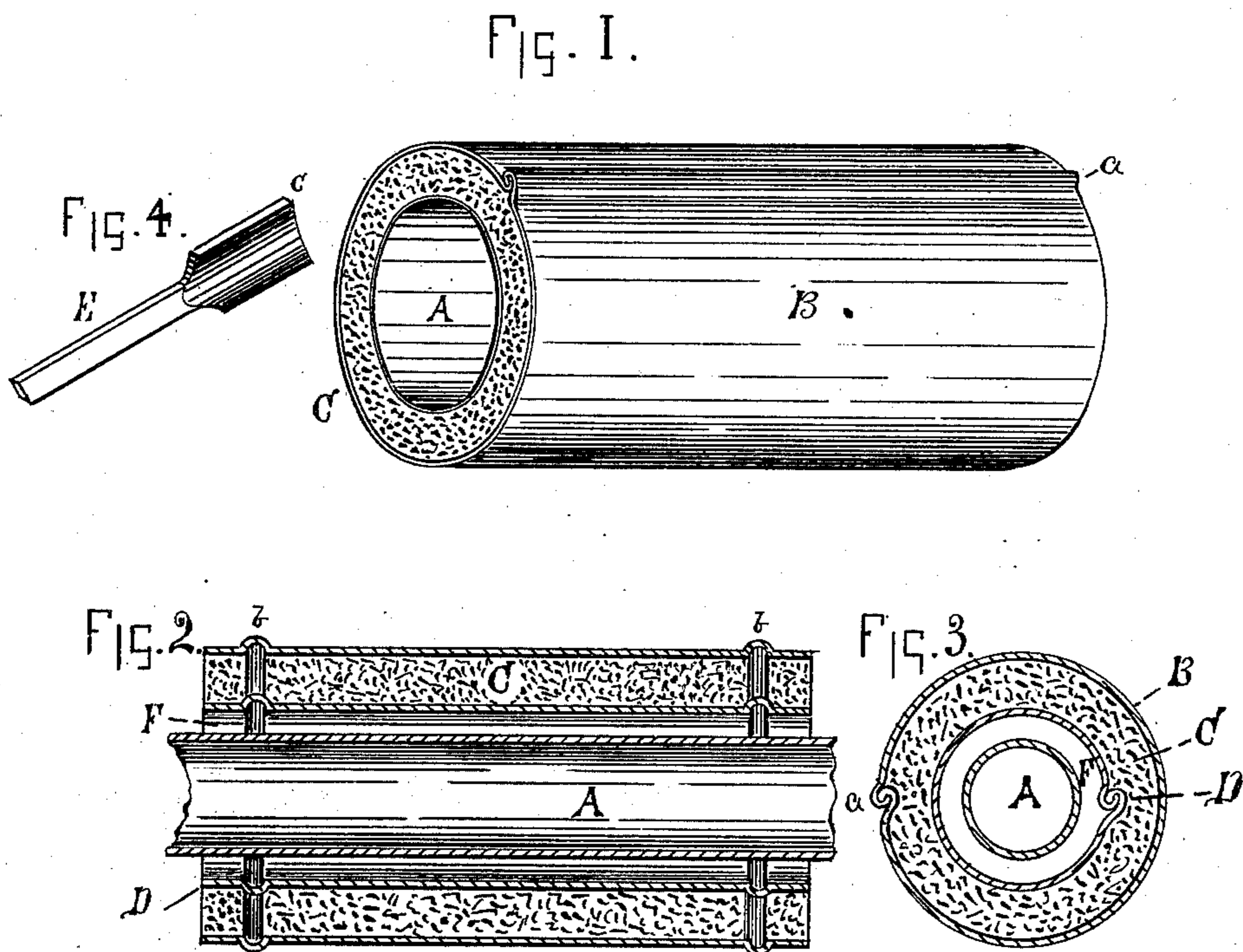


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Covering for Steam and Hot-Air Pipes.

No. 223,695.

Patented Jan. 20, 1880.



WITNESSES:
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ANDREW B. BATTELLE, OF BELLAIRE, OHIO.

COVERING FOR STEAM AND HOT-AIR PIPES.

SPECIFICATION forming part of Letters Patent No. 223,695, dated January 20, 1880.

Application filed June 13, 1879.

To all whom it may concern :

Be it known that I, ANDREW B. BATTELLE, of Bellaire, in the county of Belmont and State of Ohio, have invented certain new and useful Improvements in Coverings for Steam and Hot-Air Pipes; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

My invention relates to an improved covering for steam and hot-air pipes to prevent the radiation of heat; and to this end it consists in the application to steam-pipes of a filling of raw cotton-seed hulls, applied in the manner hereinafter described; and, further, in the general construction and arrangement of the metallic casing and the non-conducting filling, all as fully hereinafter set forth.

The advantages of using cotton-seed hulls as a covering for steam and hot-air pipes are numerous; but I will state a few of the most important:

First, the covering is very light, and does not weigh down the pipes.

Second, it can be readily removed for repairs of the pipes and again replaced without loss of material.

Third, it is, when used in bulk, a cellular non-conductible material, and, in connection with an air-tight outer covering, it confines the dead-air around the steam and hot-air pipe, and thus adds to the efficiency of the cotton-seed hulls to prevent radiation of heat, as the confined air is in itself one of the best non-conductors known to science.

Fourth, it prevents the rusting of the pipes from steam leaks or other well-known causes by virtue of the natural oil contained in the seed.

Fifth, it is exceedingly elastic, and conforms at once to the contraction and expansion of the pipes without damage from cracking or scaling, as is usual with plastic coverings. On account of its great elasticity it is very desirable for steam-pipes on steamships, where there

is more or less movement of the pipes when the vessel is in motion.

Sixth, it is practically non-combustible in connection with steam and hot-air pipes and in combination with an air-tight casing.

Seventh, it also possesses advantages of cheapness, durability, and ready adaptability to circumstances not found in other coverings.

Having set forth the advantages of cotton-seed hulls as a steam and hot-air pipe covering, I will now proceed to describe the mode of applying the same to the pipes, reference being had to the drawings, in which—

Figure 1 is a perspective view of the covering applied direct to a steam-pipe; Figs. 2 and 3, sectional views of steam or hot-air pipe surrounded with a double casing, in which the hulls are packed; Fig. 4, view of tool used to pack the covering material.

Like letters of reference refer to like parts.

In Fig. 1, the letter A represents the steam-pipe; B, an outer casing of thin sheet metal, having a longitudinal grooved seam or joint, *a*, formed by grooving the edges of the metal, so that they will hook into each other; *b b*, bead or corrugation near end of pipe, similar to that in general use for pipe-joint connections. C is a filling of cotton-seed hulls placed in direct contact with the steam-pipe.

In Figs. 2 and 3 I show an inner casing, D, removed from the surface of the steam-pipe, so that there is an intervening air-space, F.

In Fig. 4, E represents a tool for packing the cotton-seed hulls between the pipes. The blade *c* has a broad curved face, made to conform approximately to the space between the pipe and casing.

In applying the covering to the pipes I first take the sheet-metal casing, which is usually in short lengths, about thirty inches long, and spring it apart at the seam sufficient to permit it being placed over the steam-pipe. With the aid of two or more clips on the end of the casing I secure a uniform annular space between the casing and steam-pipe, which I fill with cotton-seed hulls, tamping the same around the pipe with the tool E, made for this purpose. The elasticity of the metal and pressure of the covering material holds the

casing together at the joint *a*. When it is desired to remove the casing the sides are compressed near the joint sufficiently to unhook the edges, when the casing can readily be taken off.

The mode of application of the double casing is practically the same, the inner casing having metal projections on its surface to keep it from direct contact with the pipe. When the covering is to be put on while the pipes are being placed in position the double casing can be first packed and slipped over the pipes in sections. As the work progresses each section of pipe joins with the other at the ends in the same manner as sheet-metal pipes in general.

When desired to close the end of the cylinder, I cut a round piece of sheet metal a little larger than the cylinder, turn a rim on the edge, cut out a central opening the size of the steam or hot-air pipe, cut the ring thus formed through one side, and spring it over the steam-pipe and slip it on the end of the cylinder containing the covering. If required, a drop of solder will secure it in position.

In large pipes additional security can be obtained by means of bands of wire being placed at short distances apart along the cylinder.

For hot-air pipes the double casing is pecu-

liarily adapted, as it removes the covering material from direct contact with the hot-air pipe, and thus prevents any possible charring of the material from undue heat.

Another advantage of the double casing is, that it can be made separate from the steam or hot-air pipe, and transported in sections wherever desired, thus making a light portable covering of great value.

Having described my invention, what I claim, and desire to secure by Letters Patent, is—

1. As a covering for steam-pipes, raw cotton-seed hulls, applied in the manner substantially as set forth.

2. A covering for steam and hot-air pipes, composed of an outer casing of metal having its edges bent so that they may be hooked together, and an interposed non-conducting filling of cotton-seed hulls, all constructed and arranged substantially as described.

In testimony that I claim the foregoing as my own I hereunto affix my signature in presence of two witnesses.

ANDREW B. BATTELLE.

Witnesses:

J. V. L. RODGERS,
E. L. GOODRICH.