C. TOOPE.

Coverings for Steam-Boilers.

No. 218,340. Patented Aug. 5, 1879.

Fig. 1.

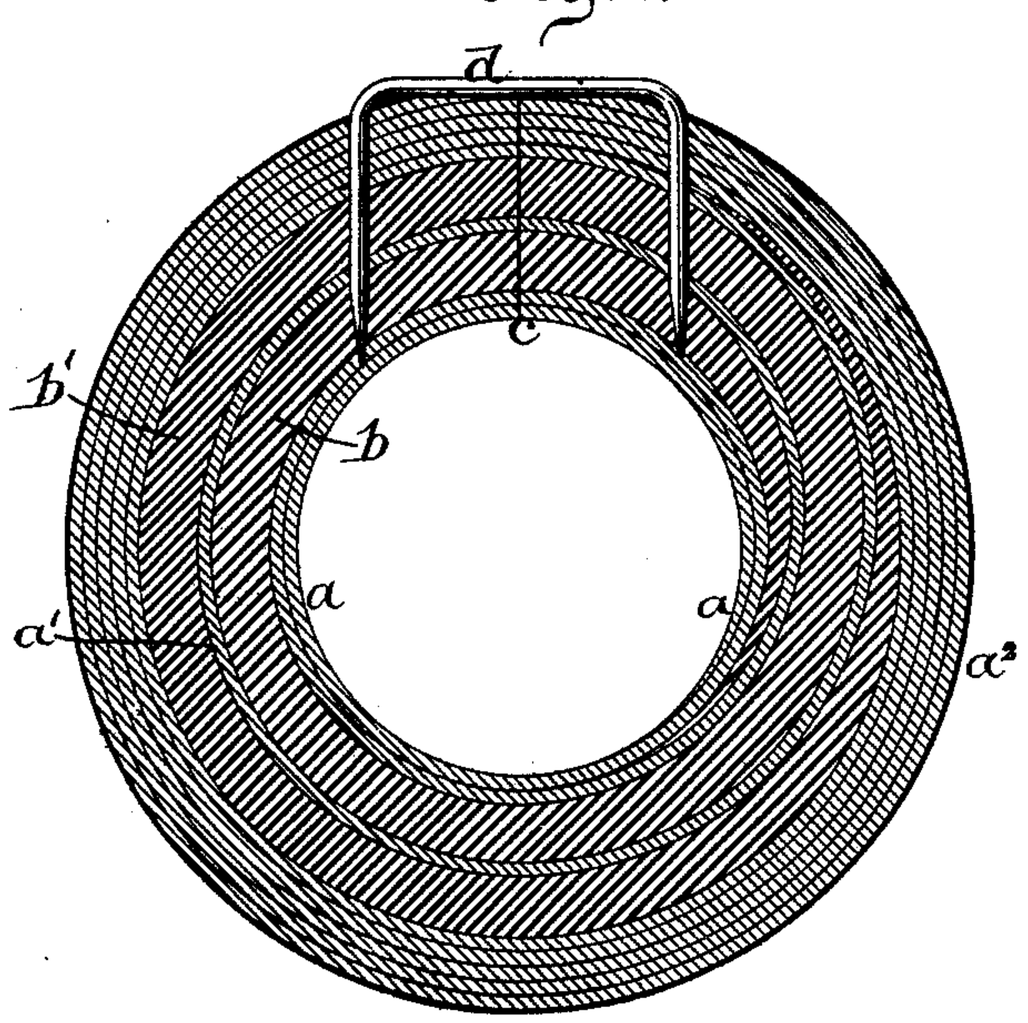
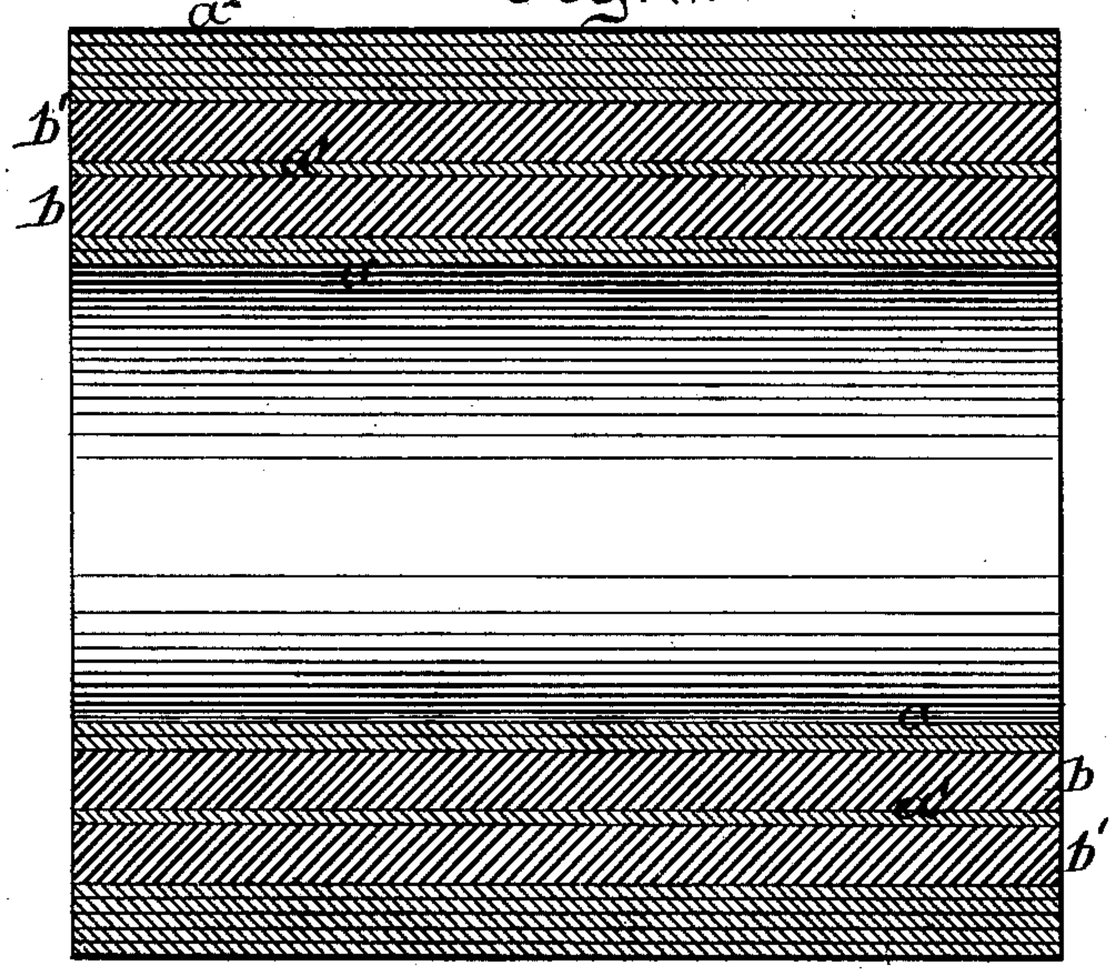


Fig. 2.



Witnesses
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UNITED STATES PATENT OFFICE.

CHARLES TOOPE, OF LONDON, ENGLAND.

IMPROVEMENT IN COVERINGS FOR STEAM-BOILERS.

Specification forming part of Letters Patent No. **218,340,** dated August 5, 1879; application filed March 12, 1879; patented in England, April 6, 1878.

To all whom it may concern:

Be it known that I, CHARLES TOOPE, of London, England, have invented a new and useful Improvement in Coverings for Steam-Boilers, Steam-Pipes, or other Articles, which invention is fully set forth in the following specification, reference being had to the accompanying drawings, in which—

Figure 1 represents a cross-section of a covering embodying my invention. Fig. 2 is a longitudinal section of the same.

Similar letters indicate corresponding parts.

The object of this invention is to provide an efficient covering for steam-boilers; and consists in a cylindrical multiple-layer paper and felt covering, composed of an inner layer of two or more coils of sheet-paper surrounded by a thick layer of paper and felt coiled together and an outer layer composed of one or more coils of paper, being formed of the same continuous sheet, and the coils of felt being also formed in one piece, all of which will be fully hereinafter set forth in detail.

In the drawings, the letter *a* designates the inner sheath of my covering, consisting of paper preferably, but not necessarily, lined or interwoven with asbestus, and *b b'* are layers of hair felt or mineral wool surrounding said inner layer, the same being separated by an intermediate layer, a^1, of paper, which is coiled up therewith, while a^2 is the external sheath, consisting of paper.

The inner and outer layers, *a* a^2, are made somewhat thicker than the intermediate layer, a^1—that is to say, said inner and outer layers are made of more than one sheet of paper, and the outer layer, moreover, is preferably covered with water-proof material. The paper used by preference is that known as mill-wrappers.

The best method which I have hitherto devised of constructing my covering is as follows: For steam-pipes and other cylindrical bodies, a roll of paper of a width equal to the length of covering to be made is mounted in a suitable frame, and the strip of paper from said roll is led over guide-rollers and through paste-troughs, whereby it is coated with paste on both sides, and is thence led to a roller or mandrel, also arranged to revolve in said frame.

I first, by preference, but not necessarily, paste a strip of asbestus mill-board or asbestus paper on one side of the paper at the end thereof, this asbestus being of a length equal to the width of the paper, and of a width depending on the number of coils or sheets of asbestus desired. I then coil the two (paper and asbestus) together upon the mandrel, and afterward continue to wind on the paper alone until the inner layer, *a*, is formed, the superposed sheets of paper being united by the paste. I then lay upon the paper a sheet of hair felt or mineral wool, or otherwise arrange this sheet so as to be wound up together with the paper upon the mandrel one or more times, according to the thickness of the sheet of hair felt or mineral wool and the required thickness of the covering, and this done I continue to wind the paper alone several times around the hair felting, so as to form a strong external sheath or wrapper, which latter is then covered with one or more sheets of water-proof paper to preserve it from the effects of moisture.

The cylindrical covering thus obtained is slit longitudinally, as at *c*, to permit the same to be applied to the desired article upon which it is fastened by means of staples, as at *d*.

When the asbestus is omitted, I first simply coil a sufficient length of paper on the mandrel to form the layer *a*, and then add the felt and coil it and the paper together, as above explained.

It will be seen that by the layers of paper a firm or substantial support is obtained for the felt or wool, and inasmuch as both materials are bad conductors of heat or cold, a very effective covering is formed thereby; and, moreover, since the lining is composed of a fire-proof material, the covering is not liable to be destroyed by contact with a hot surface.

I am aware that paper, canvas, and other fabrics have been wound on steam pipes and boilers, and upon mandrels to form coverings for pipes and boilers, and that the coils thereof have had fibrous material arranged between them; but I am not aware of a continuous sheet of paper being made to form a portion of the covering, and to hold in position the coils of a continuous sheet of felt, as shown and described by me.

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

The cylindrical multiple-layer paper and felt covering herein described, consisting of an inner layer composed of two or more coils of sheet-paper surrounded by a thick layer of paper and felt coiled together, and an outer layer composed of one or more coils of paper, being formed of the same continuous sheet, and the coils of felt being also formed in one piece, substantially as described.

In testimony that I claim the foregoing I have hereunto set my hand and seal.

CHARLES TOOPE. [L. S.]

Witnesses:
JOHN GONYM,
W. STONE.