

No. 639,523.

Patented Dec. 19, 1899.

W. G. CHAPIN.
NON-CONDUCTING COVERING FOR PIPES.

(Application filed Feb. 25, 1899.)

(No Model.)

Fig. 1

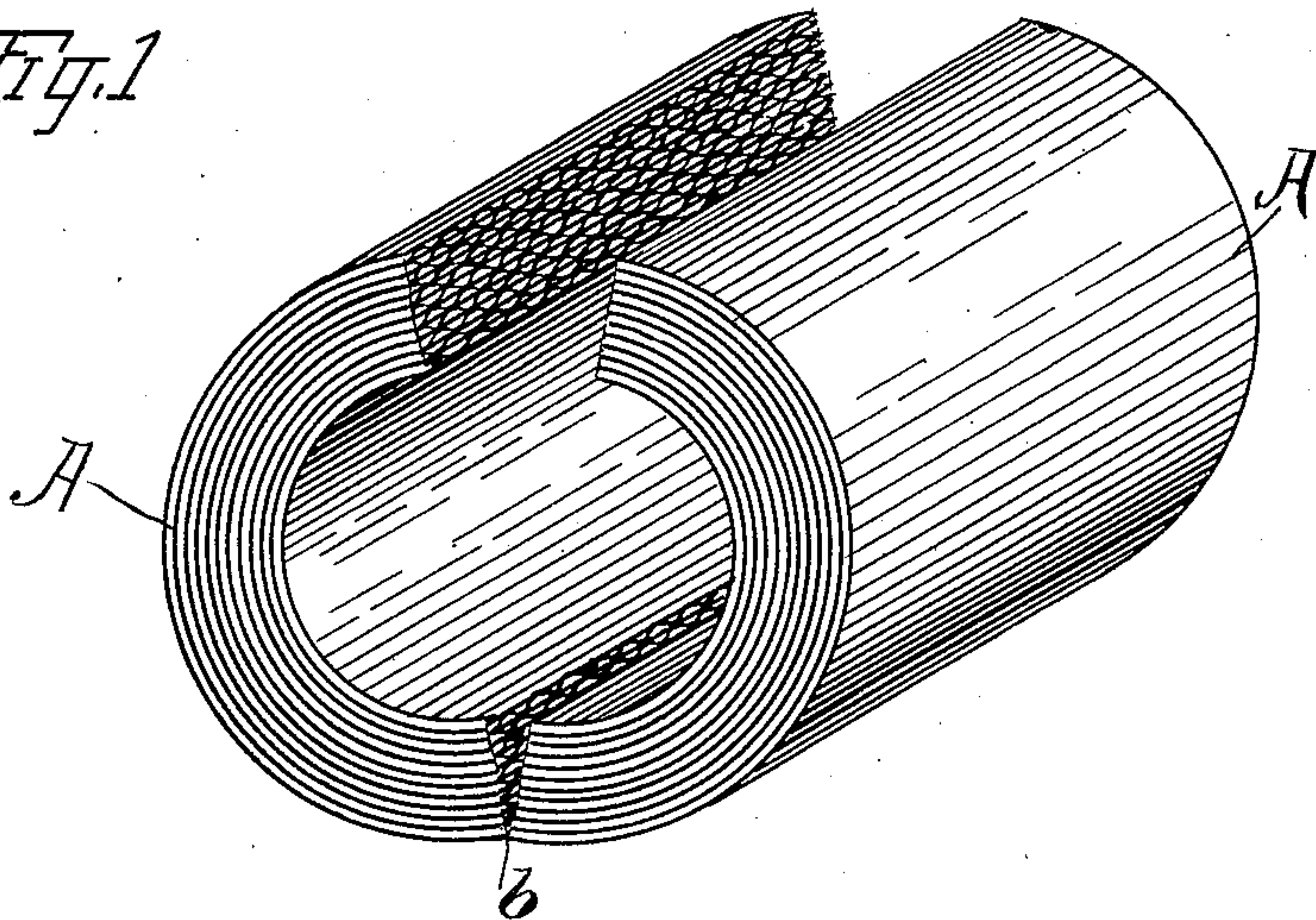


Fig. 2

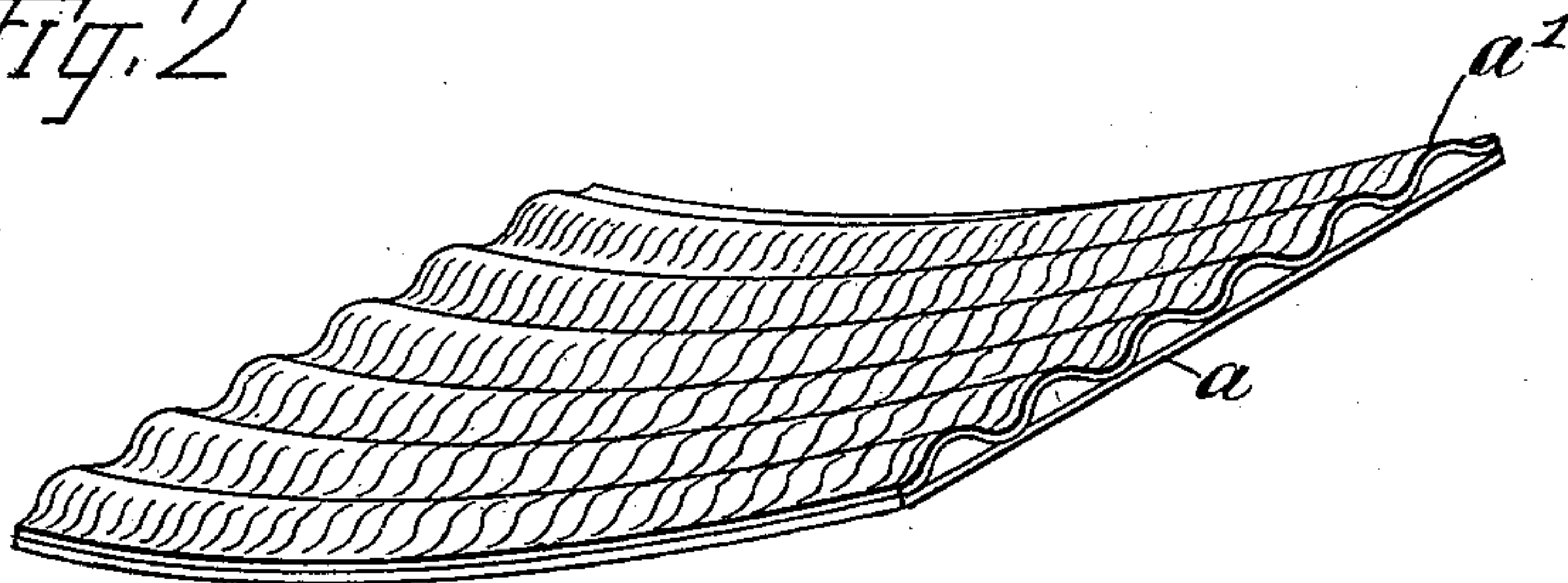


Fig. 3

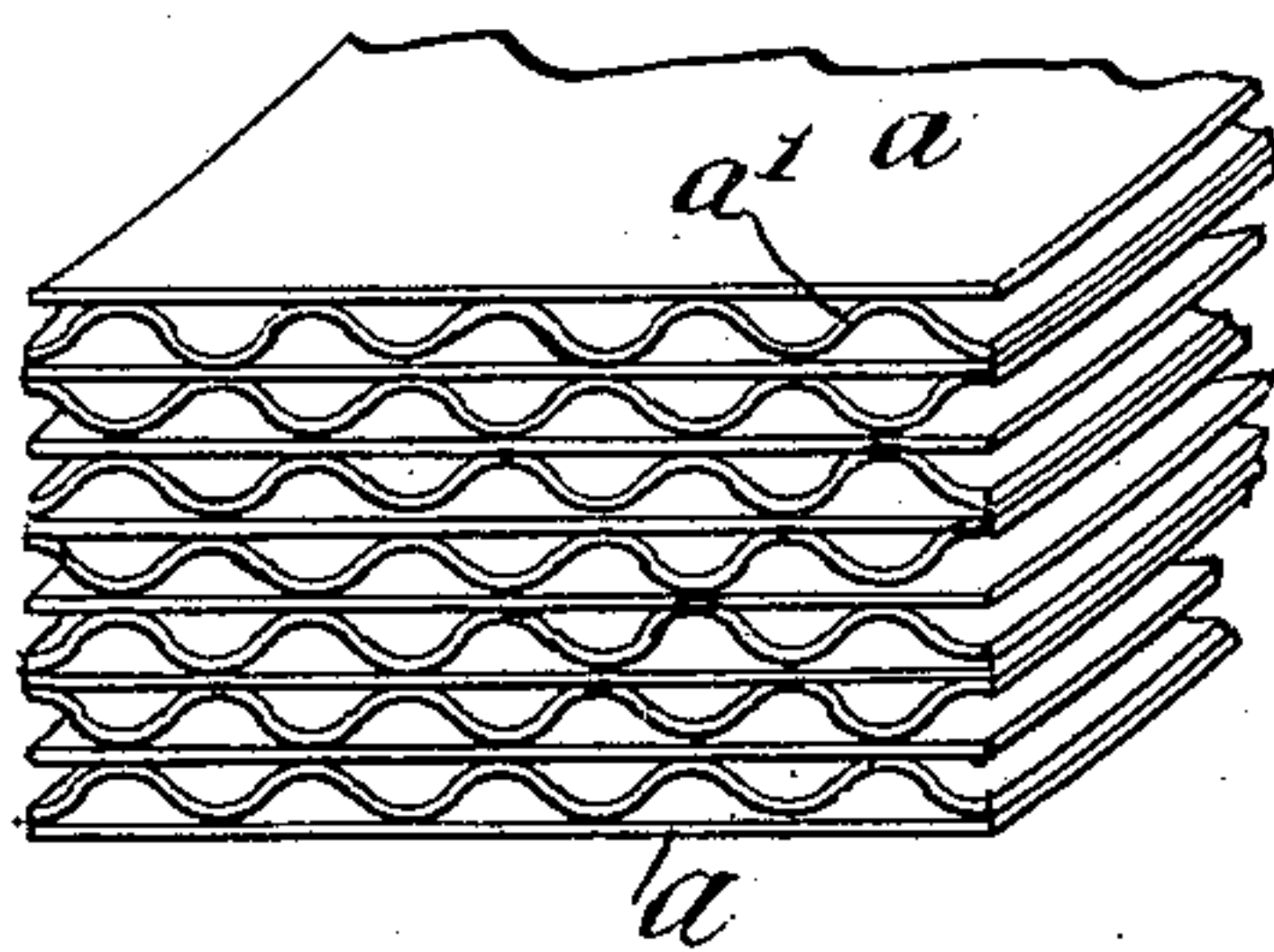
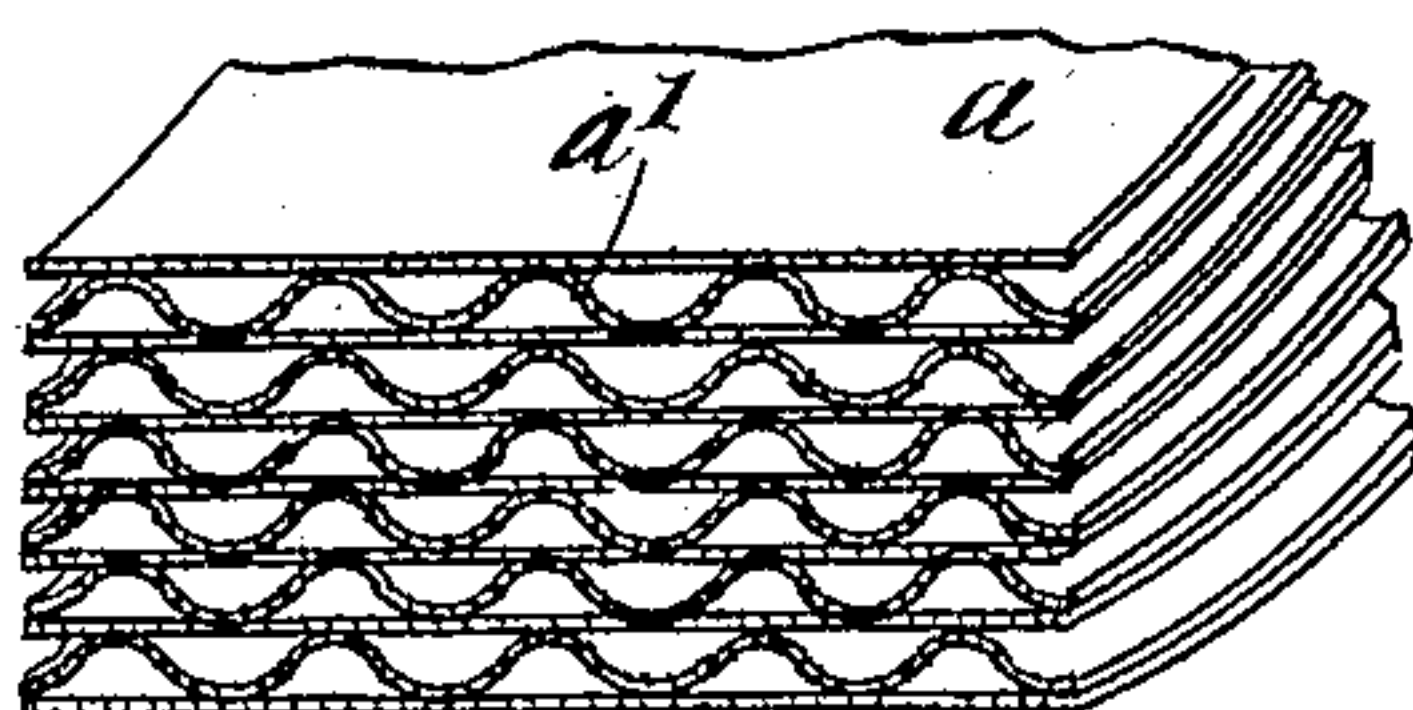


Fig. 4

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NON-CONDUCTING COVERING FOR PIPES.

SPECIFICATION forming part of Letters Patent No. 639,523, dated December 19, 1899.

Application filed February 25, 1899. Serial No. 706,798. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM G. CHAPIN, a citizen of the United States, residing in the city of New York, borough of Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Non-Conducting Coverings for Pipes, of which the following is a specification.

10 This invention relates to non-conducting coverings for steam and other pipes, and in order that the invention may be readily understood it will be proper to state that heretofore it has been a common practice to cover
15 steam-pipes with a non-conducting covering of two semitubular sections of asbestos material hinged together by a woven fabric. The asbestos material of this covering is formed of superposed and alternating plain and cor-
20 rugated sheets of asbestos paper, the plies of which are held together near their edges by wire staples. In this packing the corrugations extend longitudinally or parallel with the axis of the tubular covering and of the
25 covered pipe.

The present invention has for its objects to avoid a circulation or flow of air longitudinally of the pipe through the channels in the mass formed by the corrugations and to produce a covering that will be rigid and not sag
30 by gravity away from the covered pipe and one that will retain its perfect form without lamination, whereby it may be subjected to rough handling without danger of disintegration.

35 In the accompanying drawings, which illustrate an embodiment of the invention, Figure 1 is a perspective view of a section of the improved covering. Fig. 2 is a perspective view of a fragment of the compound paper
40 from which the covering is made. Figs. 3 and 4 are views, on a somewhat larger scale than Fig. 1, showing the covering in cross-section, the sections being taken parallel to the axis of the tubular covering.

45 Where the covering is to be applied to very hot pipes, the material used should be either asbestos paper or a paper treated with fire-proofing materials; but the substance of the paper or similar material used in the cover-
50 ing is not essential to the present invention.

In Fig. 1, A A are the two semitubular sec-

tions of a non-conducting covering constructed according to this invention. This tubular covering is made conveniently by tightly wrapping a compound sheet, such as that
55 represented in Fig. 2, about a mandrel of suitable size until the proper thickness is obtained, some cementing material being applied to secure the plies together as they are wound. This compound sheet (seen in Fig. 60
2) consists of a plain sheet *a* and a corrugated sheet *a'*. These two sheets may be secured together by a cement of some kind primarily, or they may be cemented together as they
65 are being wrapped about the mandrel. After the covering is thus formed of the desired thickness it is slitted longitudinally, as seen in Fig. 1, by means of a saw or the like, and the two sections A A are then hinged to-
70 gether at *b* for convenience in handling the covering and placing it on the pipe. It is not material to this invention just how this hinging is effected. It may be done by pasting over the joint a flexible hinging fabric, or the slitting-saw may be made to cut through
75 all but the outer ply of the material, leaving said ply for a hinge. The manner of securing the covering on the pipe is not material to this invention. The severed edges may be brought together and a strip of fabric pasted
80 over the joint, or bands may be put about the covering after it is in place.

One important feature of the invention is the arrangement of the corrugations in the sheet *a'* to extend roundwise instead of lon-
85 gitudinally of the tubular covering. This manner of arranging the corrugations has several very important advantages. It imparts great rigidity to the structure and enables it to maintain its perfect cylindrical form, and
90 it obviates wholly the flow of air along the pipe longitudinally through the channels formed by the corrugations. This flow or circulation is deemed very prejudicial by engineers. The cementing of the plies together
95 adds to the rigidity of the covering-tube and prevents lamination or separation of the plies in handling. The cement used may be a soluble silicate.

Fig. 3 is a section of the material taken
100 transversely of the corrugations and showing the arrangement of the corrugations in the

several superposed sheets when the material is wrapped or wound slightly helically about the mandrel or in a manner to bring the crowns of the corrugations in one sheet over the crowns of the corrugations of the next adjacent sheet. This construction adds stiffness to the structure and enables somewhat lighter material to be used. Fig. 4 is a section of the covering similar to Fig. 3, showing the arrangement of the corrugations when these latter extend about the axis in planes at right angles thereto.

When the corrugations extend roundwise and the sheet is rolled up about the mandrel, the series of air-cells formed by the corrugations will be substantially in tiers or strata and ring-like, and these tiers will be cut across transversely in slitting the tube.

In Fig. 4 the corrugations are represented as they appear when the arched crown of a corrugation in one sheet or ply comes directly under the inverted arch of the depression between the corrugations in the next adjacent outer ply.

I am aware that it has been proposed to paste rectangular flat pieces of felt or the like on a strip of paper in such a manner as to leave pockets to be filled with non-conducting material or be left empty at will and to roll up such a strip so as to form a non-conducting pipe-covering. This I do not claim. My pipe-covering is light and very

rigid, owing to the thin side walls of the corrugations, which are bent somewhat edgewise in forming the covering, and the annular corrugations form a cellular structure peculiarly well fitted for the purpose intended.

Having thus described my invention, I claim—

1. As an improved article of manufacture, a tubular pipe-covering having tiers of annular air-cells extending roundwise of the tube, said cells being produced by superposed plies of corrugated paper material, the corrugations of which extend roundwise of the tube, substantially as set forth.

2. As an improved article of manufacture, a tubular pipe-covering composed of alternate plies of plain and corrugated paper material, the corrugations extending roundwise of the tube, substantially as set forth.

3. As an improved article of manufacture, a tubular pipe-covering of asbestos paper, said paper being in alternate plain and corrugated sheets, rolled and cemented together, the corrugations extending roundwise of the tube, substantially as set forth.

In witness whereof I have hereunto signed my name, this 10th day of February, 1899, in the presence of two subscribing witnesses.

WILLIAM G. CHAPIN.

Witnesses:

MARTIN H. DAY,

GEORGE J. RIEGLER.