

(No Model.)

O. P. HURFORD.  
NON CONDUCTING LINING.

No. 412,507.

Patented Oct. 8, 1889.

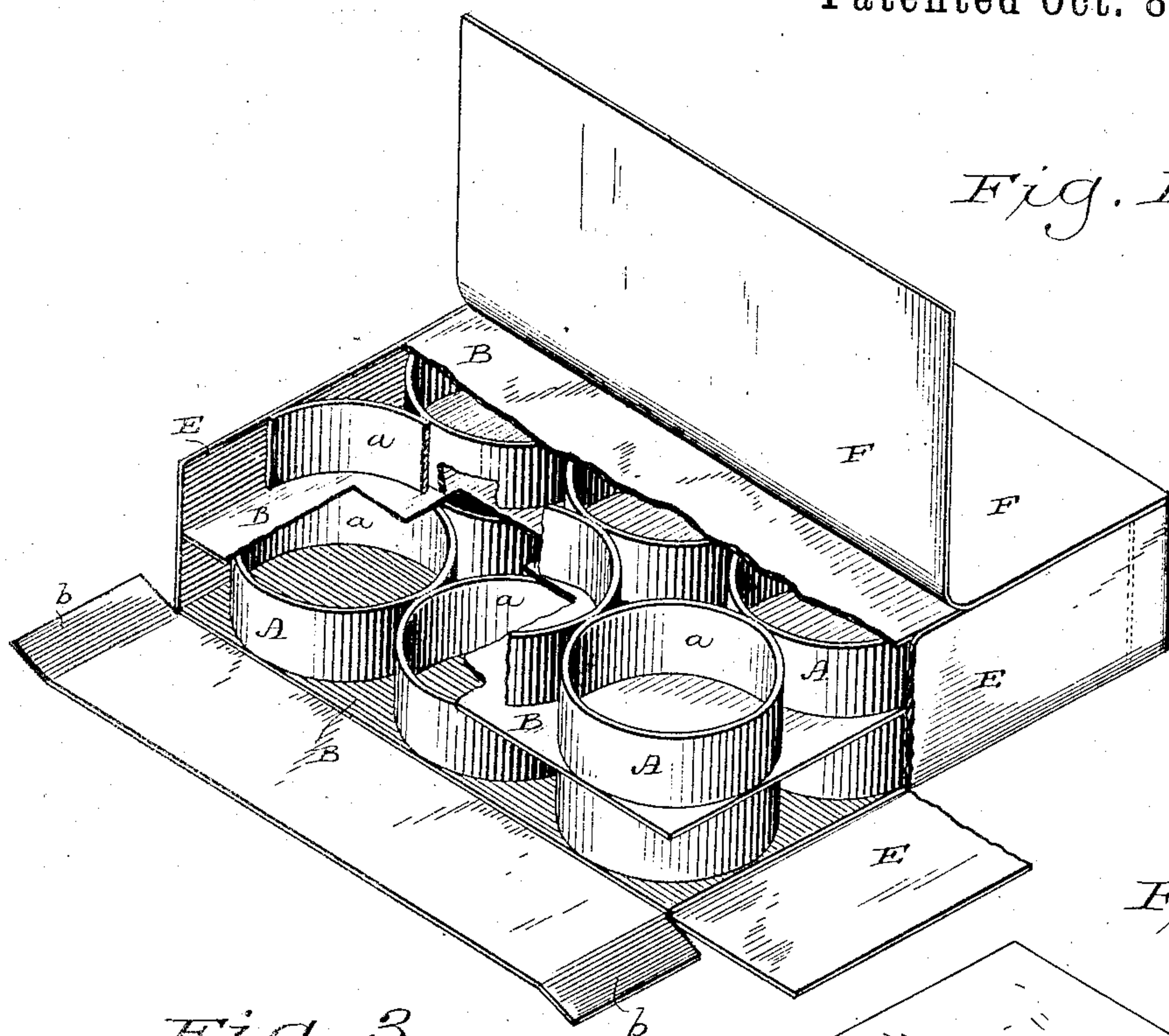
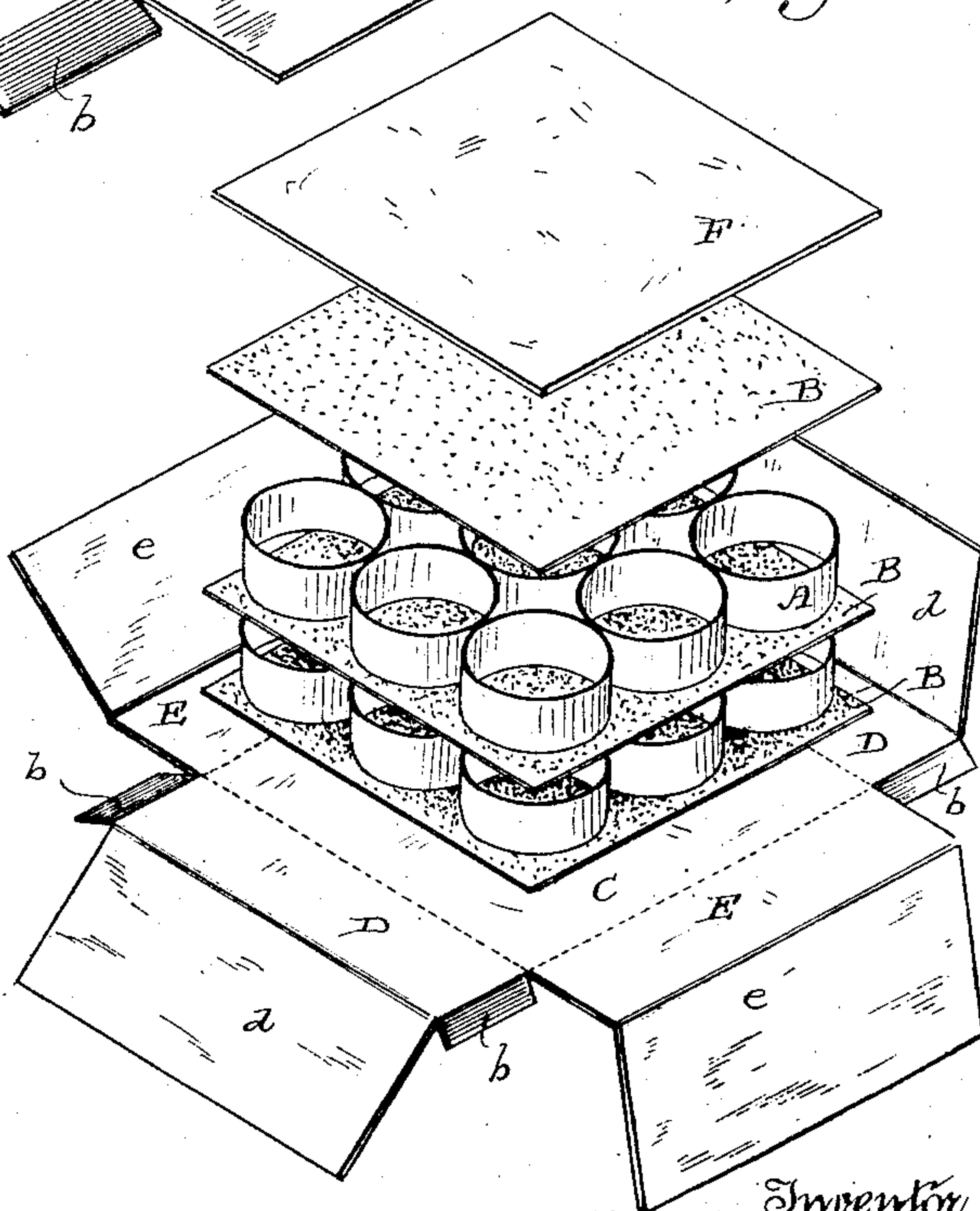
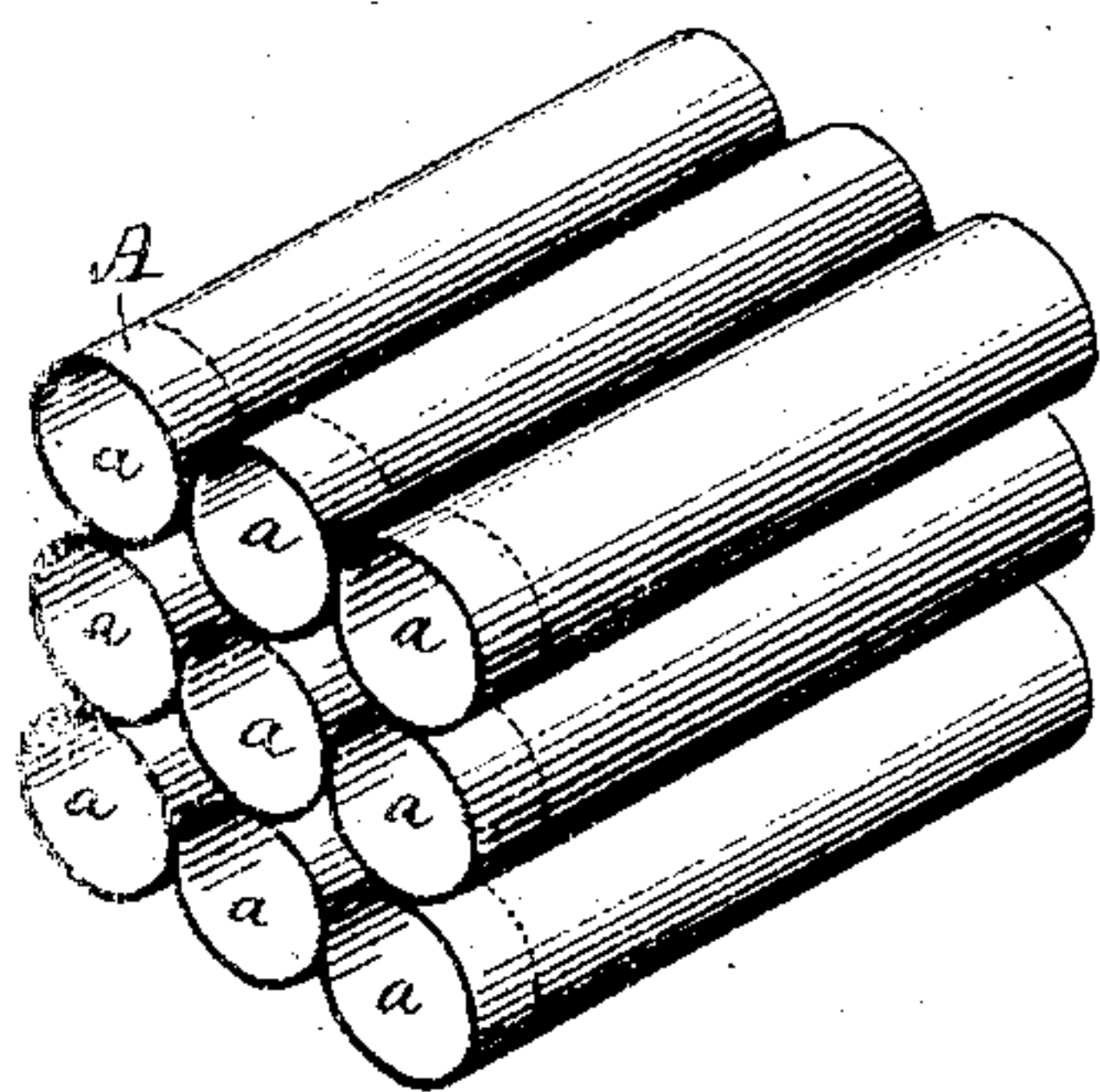


Fig. 1.



*Fig. 2.*

Witnesses

Geo. W. Young.

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# UNITED STATES PATENT OFFICE.

OLIVER PERRY HURFORD, OF CHICAGO, ILLINOIS, ASSIGNOR TO JAMES P. BLACK, OF SAME PLACE.

## NON-CONDUCTING LINING.

SPECIFICATION forming part of Letters Patent No. 412,507, dated October 8, 1889.

Application filed May 31, 1889. Serial No. 312,747. (No model.)

*To all whom it may concern:*

Be it known that I, OLIVER PERRY HURFORD, of Chicago, in the county of Cook, and in the State of Illinois, have invented certain new and useful Improvements in Non-Conducting Fillings or Linings; and I do hereby declare that the following is a full, clear, and exact description thereof.

My invention relates to non-conducting fillings or linings for the prevention of the transmission of heat, cold, or sound through floors, walls, or partitions; and it consists in certain peculiarities of construction, as will be fully set forth hereinafter and subsequently claimed.

In the drawings, Figure 1 is a perspective view of my improved device, partly broken away and with the outside covering partly opened or turned back, to better illustrate the construction. Fig. 2 is another perspective view of my device, showing it with its several parts in position for union, but separate; and Fig. 3 is a perspective view illustrating a step in the process of construction.

My present device is an improvement on the patent granted to George Kelly, dated September 13, 1887, and numbered 369,796, and is designed to perfect the same, to subdivide the cellular system illustrated in said patent, and insure complete isolation of said subdivided cells and prevent any circulation of air from one side or end of said fillings or linings to the other.

In constructing my linings I take a number of tubes of any suitable material, preferably of ordinary paper-board or straw-board, and arrange them, as shown in Fig. 3, with their contiguous surfaces united by any suitable adhesive substances, silicate of soda being found particularly useful; but any good water-proof glue which is not of animal origin will give good results. In the illustration given I have shown nine of these tubes arranged in vertical and horizontal sets of threes; but the number and arrangement of the tubes are dependent upon the size and shape of the block which I wish to make. When the said tubes are cemented together, so as to be a practically single body, I saw or cut off slices of cells therefrom, (as indicated

by the dotted lines in Fig. 3,) the said slices being similarly united as before, and there being as many united cells *a a a* in the slice A as there were united tubes in the body. I next cut flat pieces or plates B of similar material, and coat the same with the said silicate of soda, (or other water-proof adhesive substance,) and place on top of one of said coated plates B a slice A of cells *a a a*; and then I take another piece B and coat both sides of it, and place this on top of said slice of cells and put another slice of cells on top of this, and, if I am making a two-strata block, as shown in the drawings, I then coat another plate and put on top of this; but it is obvious that I may make as many layers or strata of these cell-slices A as is desired, taking care to separate each two adjacent slices by the plates B, and to put similar plates above the top slice and below the bottom slice. The size of these plates is just sufficient to receive the slices of cells without any projection, and as all are coated wherever there is any contact with the silicate of soda, or other adhesive water-proof substance, the whole mass of plates and cells firmly adhere together. I next inclose the said cemented series of plates and cell-slices in a closed block, as follows: I take a piece of preferably somewhat thicker but softer paper-board—such as “felt” paper—and mark out thereon for the center a portion C just the size of one of the plates B, for the bottom of the said block and cut the said sheet as much larger than the said marked-out place as will suffice to form a covering for the sides and ends of the mass of plates and cell-slices when the edges D E of the said bottom piece C are turned up to place, (which end and side pieces may rise just to the height of the upper strata and covering-plate, as in Fig. 1, or be of sufficient size to partially lap over the same, as indicated by the increased relative width *d e* of the parts D E in Fig. 2,) each corner being cut out, but portions *b b* being left on the end pieces D, at said corners, to turn in and receive the cementing substance (preferably silicate of soda, as before) on the inner surface of the ends of the side pieces E. The bottom part C of this outer



covering is also similarly coated on the inside to cause it to tightly adhere to the under side of the lower plate B, and finally over the upper plate B (and the overlapping portions *d e* 5 of the end and side edges D E of the bottom part C, if such there be on top of the top plate B) there is placed a top piece F, of the same material as the parts C D E, and united by silicate of soda or other analogous substance 10 directly to the plate or plates and overlapping edges beneath.

In the devices shown in the said Kelly patent, hereinbefore named, there was no obstruction to the passage of air from one side 15 of his device to the other, his cells being continuous tubes or boxes, and if by any accident a puncture was made (as by driving a nail through the closed end of one of his cells) it no longer became a "dead-air" cell, and 20 hence its usefulness as an insulator was liable to become impaired, which cannot happen with my construction, in addition to which the hermetic sealing is a decided advantage.

Having thus described my invention, what 25 I claim as new, and desire to secure by Letters Patent, is—

1. As an improved article of manufacture, a series of cell-slices each consisting of a number of independent cells united at their con- 30 tiguous external surfaces, arranged between

and hermetically sealed by series of flat separating-plates, and the whole inclosed in and hermetically sealed by an outer covering forming a non-conducting block or section, substantially as set forth. 35

2. As an improved article of manufacture, the described non-conducting block or section, consisting of an outer covering of felt paper or analogous material and inner alternate layers of flat plates of straw-board or 40 analogous paper-board coated with silicate of soda or analogous adhesive substance, and cell-slices of similar material, each slice consisting of a number of independent cells united together at their contiguous external 45 surfaces by the said water-proof adhesive substance, and hermetically sealed by the said coated plates, the outer covering being coated at all points of contact with the inner series of plates and cell-slices with the said 50 water-proof adhesive substance, substantially as set forth.

In testimony that I claim the foregoing I have hereunto set my hand, at Chicago, in the county of Cook and State of Illinois, in 55 the presence of two witnesses.

OLIVER PERRY HURFORD.

Witnesses:

WALTER F. ABBS,

PHILIP H. GREENE.