

E. T. GOULD.  
Flues for Buildings.

No. 141,219.

Patented July 29, 1873

Fig. 1.

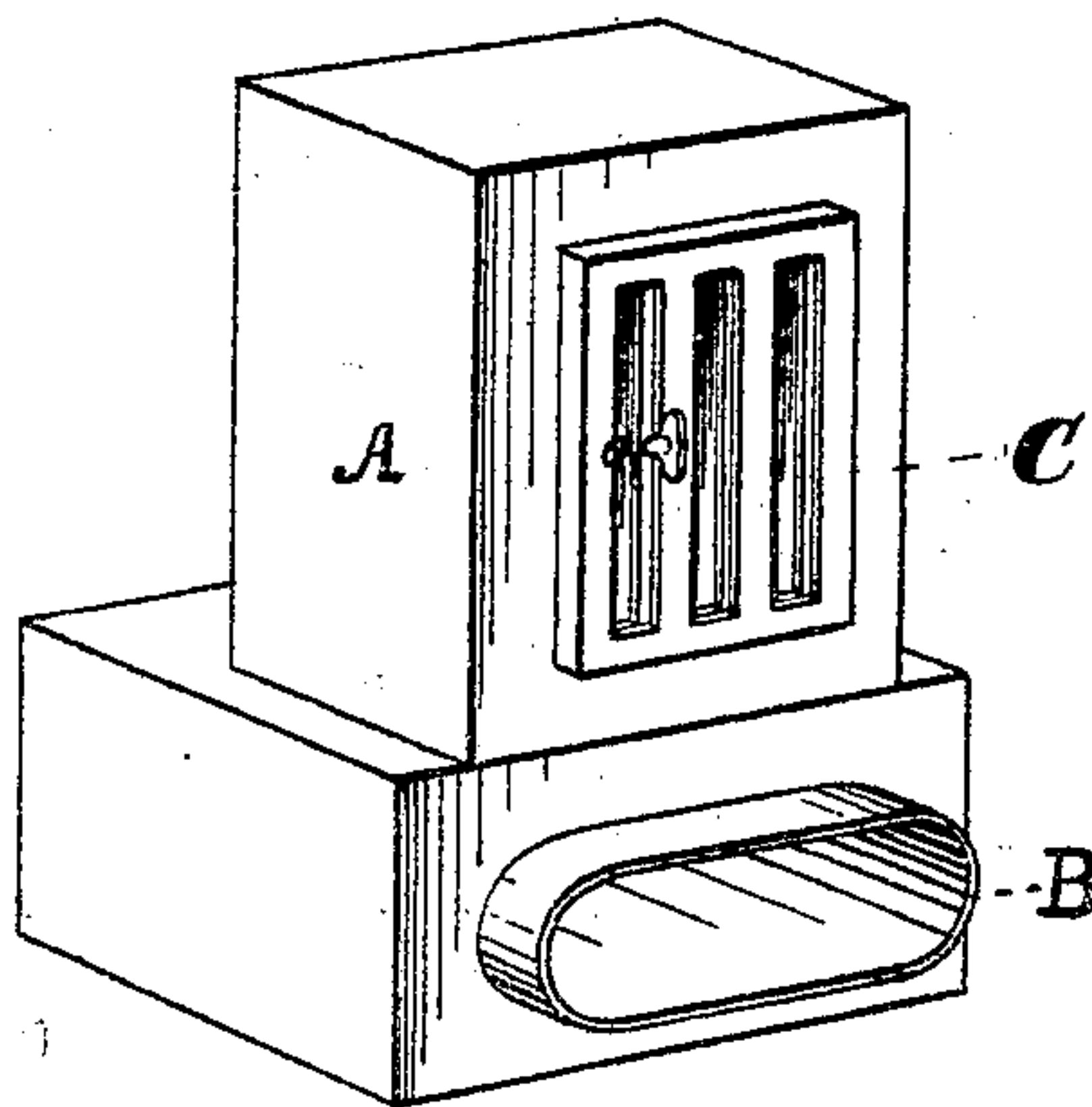


Fig. 2.

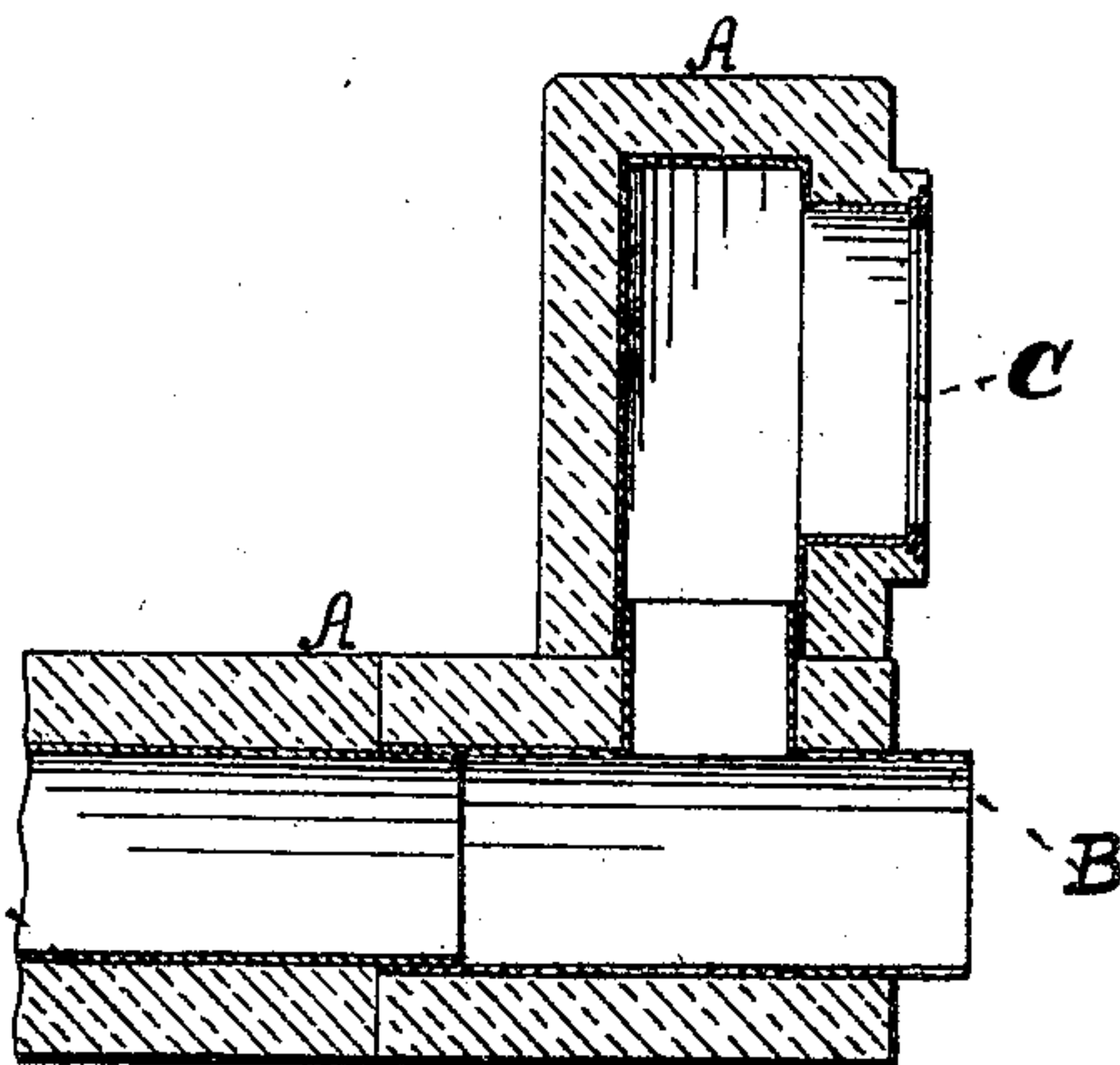


Fig. 3.

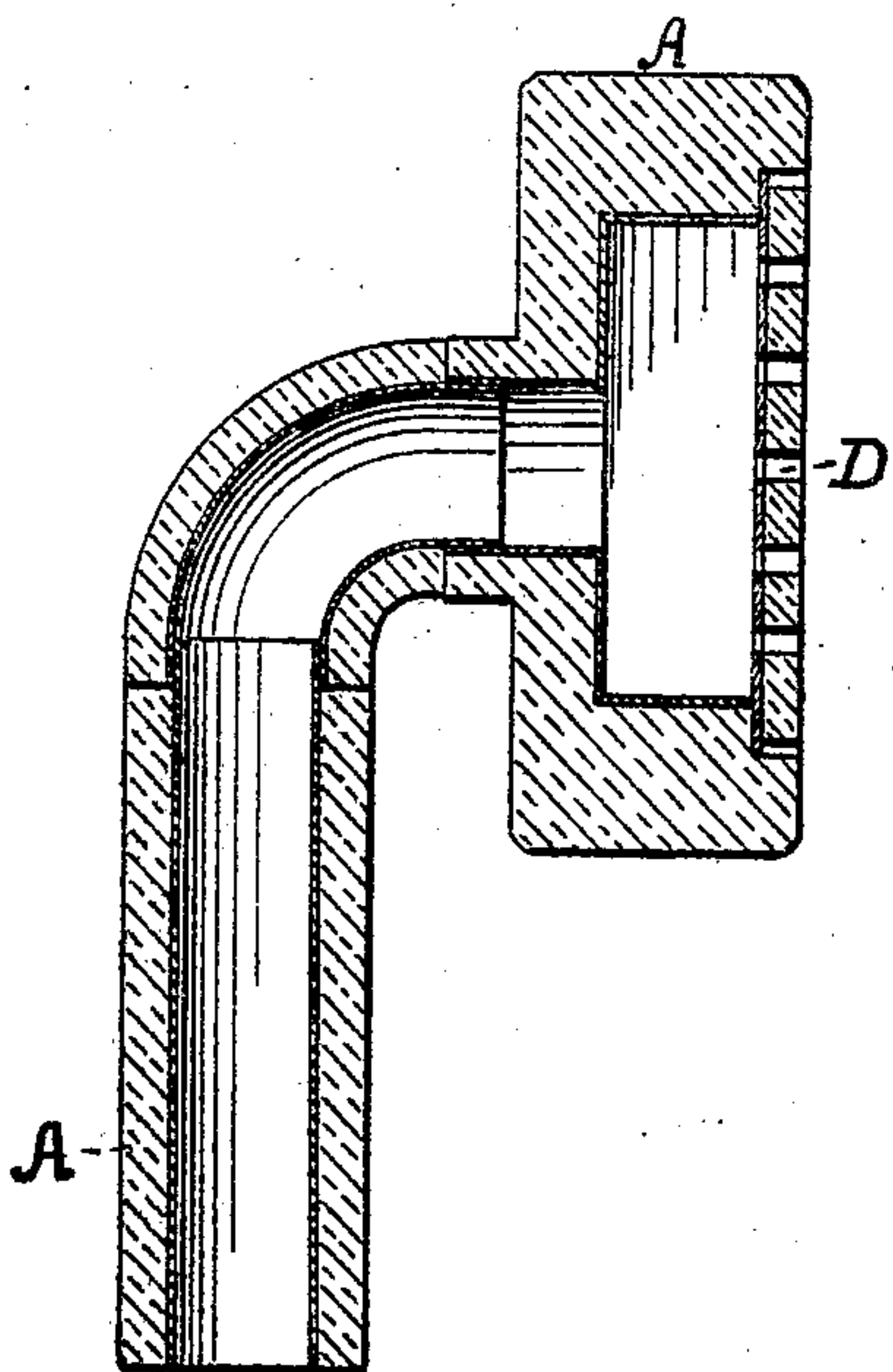
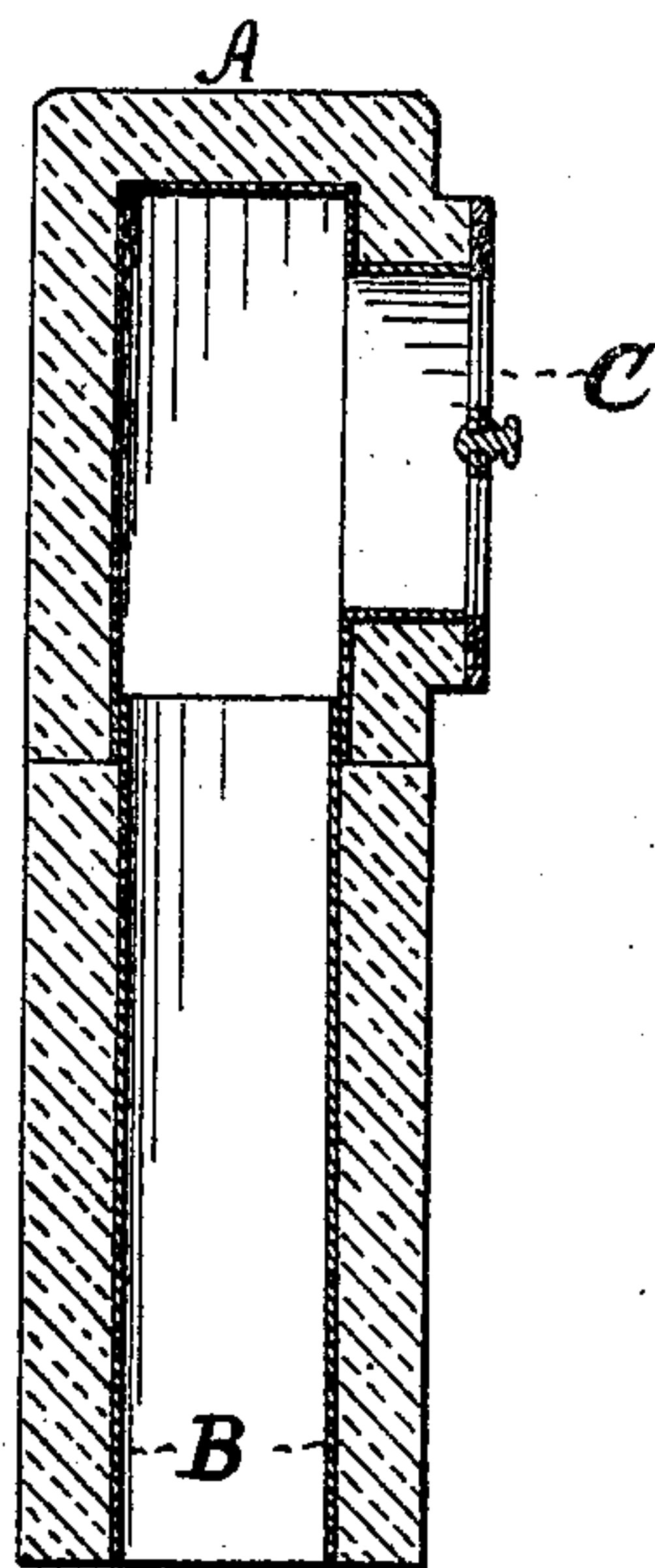


Fig. 4.



Witnesses.

Inventor.

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# UNITED STATES PATENT OFFICE

EDGAR T. GOULD, OF MONT CLAIR, NEW JERSEY.

## IMPROVEMENT IN FLUES FOR BUILDINGS.

Specification forming part of Letters Patent No. **141,219**, dated July 29, 1873; application filed February 20, 1873.

*To all whom it may concern:*

Be it known that I, EDGAR T. GOULD, of Mont Clair, in the county of Essex and State of New Jersey, have invented certain Improvements in the Manufacture of Hot-Air Flues, of which the following is a specification:

This invention relates to the combination of sheet-tin tubes or conduits with plaster of Paris, in such manner that the sheets of tin shall form the lining of the manufactured article when completed. The object of this invention is to provide, as articles of completed manufacture for the market, composite conduits of any desired shape of section, and of any desired dimensions consistent with the nature and character of the materials employed, for the purpose of conducting and distributing heated air only, not the products of combustion, from furnaces or other sources throughout buildings or other structures.

Sheet-tin and plaster of Paris are practically the best substances for securing the above-mentioned object, the bright surface of the tin presenting an excellent radiating or non-absorbing surface, and the plaster of Paris being an excellent non-conductor of heat. The tin used may be either rolled block-tin or the ordinary sheet-tin of commerce—that is, sheet-iron coated with tin—the intention being to secure a reflecting-surface of metallic tin for the lining of the plaster coat.

In order to accomplish the object of this invention, the articles are manufactured as follows: A mold is first made of any suitable material, and of proper size and shape; the desired article, either a register-box or a section of a flue, or both, is then made of proper size and into shape of sheet-tin, either for vertical or horizontal use, and placed in the mold; the plaster of Paris, of a proper consistency, is then poured or worked around the article so shaped of tin, and set in the mold, as above mentioned, as a core or lining for the plaster, which is left in the mold for a short time, until the plaster becomes “set” or hard. The composite article thus formed is taken from the mold and placed in a kiln to be dried, when, after drying sufficiently, it is ready for transportation and use.

The design and arrangement of hot-air flues having been determined upon, and running

in any direction among joists or any other wood-work of any structure, any number of sections of these composite conduits can be molded in the manner above described, and united together in the building, whether in the course of construction or an old structure, the joints where the sections abut being connected by freshly prepared plaster of Paris. A neat, durable, and cheap hot-air flue will thus be formed. In a flue thus made of tin and plaster of Paris solely, the greatest economy of heat is obtained through non-loss by radiation before delivery to the desired point, and absolute protection is at the same time secured from excessive drying of any wood with which the conduit may be in contact, and the charring and ultimate ignition of such wood rendered—so far as the hot-air flue is concerned—an utter impossibility.

In the drawing forming part of this specification, Figure 1 is a perspective view of my composite register-box, showing an ordinary hot-air register attached thereto. Fig. 2 is a geometrical section of the register-box shown in Fig. 1, in which the shape of the tin lining in transverse section is that of a flattened cylinder. Fig. 3 is a geometrical section through a cylindrical flue composed of one section of my composite tubing united by an elbow of the same material to a register-box, also of the same material. Fig. 4 is a geometrical section in a vertical direction through a section of my composite flue and register-box, directly united each to the other.

In the figures, A is the exterior casting of plaster of Paris; B, the interior tin lining thereof. C is an ordinary register for hot air inserted in a recess molded in the register-box for its reception, as is shown in Fig. 3; or the register may be attached to the face of the box in any suitable manner. D is a perforated cover of sheet-tin and plaster of Paris—a convenient method of covering the box, and yet of allowing the hot air to escape without the use of a register or regulator.

It will be observed that the tin lining of each section or of alternate sections of these flues projects beyond its plaster case; this is done in order that the sections of tin lining may slide or “telescope” into each other, and thus form a continuous tube or flue. The plaster



covering each section forms a square shoulder or surface, and when these surfaces abut, a flue of smooth and uniform exterior is presented to the eye. Should the plaster casting be damaged while the sections are being put together or after their erection, the plaster can at any time be removed as readily and neatly as is done in repairing a plaster wall; or, in case certain sections of the entire flue be broken in the structure in which they are built, they can be rebuilt by constructing a new tin tube, and building a mold around the said tube, when, by pouring plaster in the mold around the tin, the flue will become again complete, and may also be by the same means indefinitely extended.

I do not claim flues or sections thereof as conduits for the products of combustion from furnaces or other sources; nor do I claim flues

or sections of flues made of any other materials than sheet-tin and plaster of Paris, in the manner hereinbefore fully described; but, as my invention,

I claim—

As articles of manufacture, composite sections of hot-air flues composed of an interior lining of sheet-tin and an exterior casing of plaster of Paris, combined in the manner substantially as described, said sections being adapted for, and so constructed as to form when joined each to the others, a continuous tube or flue, in the manner substantially as described, for the purposes set forth.

EDGAR T. GOULD.

Witnesses:

OLIVER DRAKE,  
DAVID COLLINS.