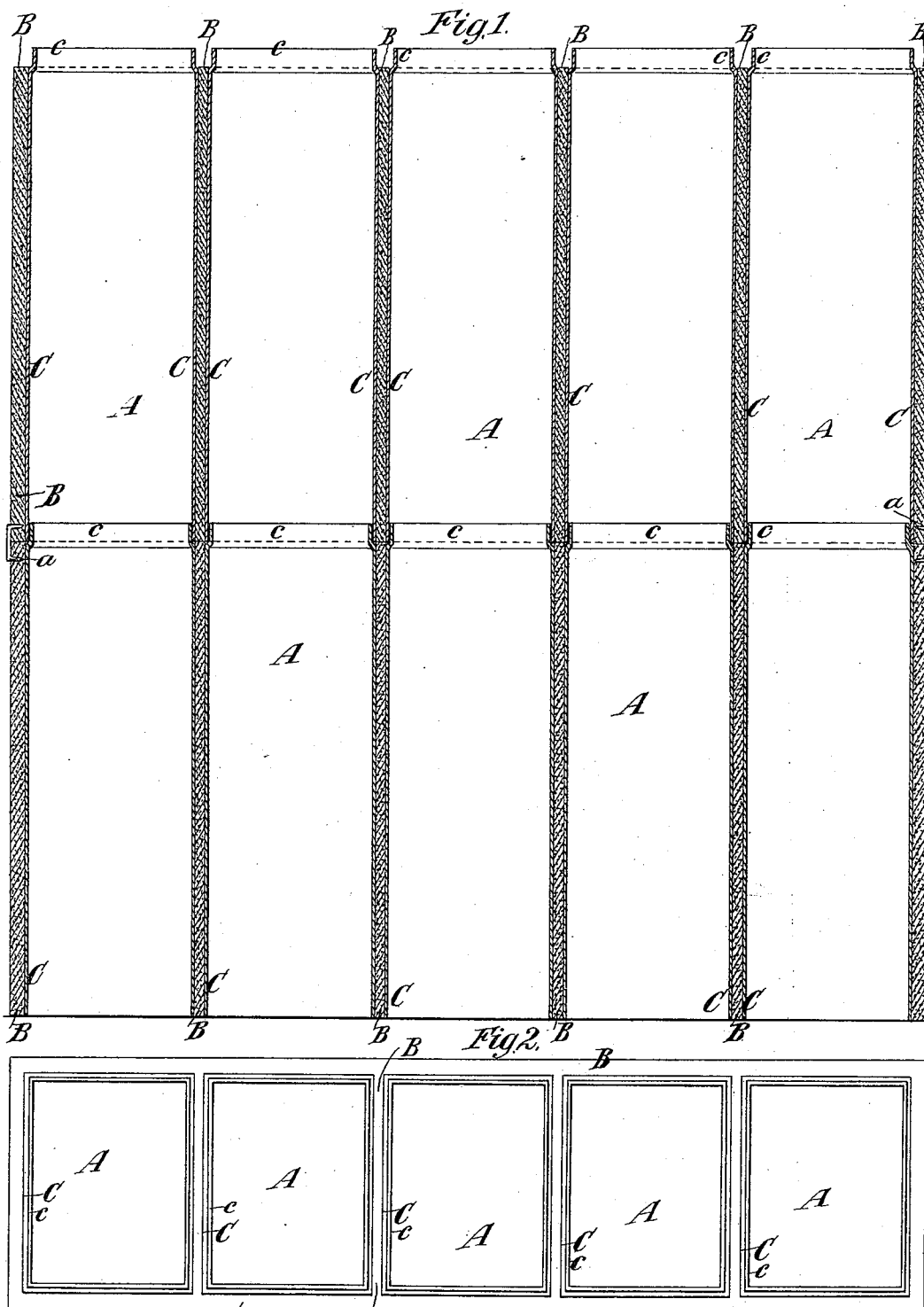


(No Model.)

J. M. SINCLAIR.
FIRE PROOF FLUE STRUCTURE.

No. 345,000.

Patented July 6, 1886.



Witnesses: B. B.
Ernst P. B. B.
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UNITED STATES PATENT OFFICE.

JAMES M. SINCLAIR, OF NEW YORK, N. Y.

FIRE-PROOF-FLUE STRUCTURE.

SPECIFICATION forming part of Letters Patent No. 345,000, dated July 6, 1886.

Application filed January 28, 1886. Serial No. 190,139. (No model.)

To all whom it may concern:

Be it known that I, JAMES M. SINCLAIR, of the city and county of New York, in the State of New York, have invented a new and useful
5 Improvement in Fire-Proof Multiple-Flue Structures, of which the following is a specification.

My invention, although applicable generally to flues which are built into the walls and partitions of buildings, is more particularly intended for hot-air flues for heating purposes. As usually constructed, hot-air flues are formed of tin or sheet metal; and although a number of flues may be built into one wall and near
15 together side by side, each flue is usually entirely separate and constructed separately from all the others, and such flues are therefore expensive. Moreover, the fire regulations in most cities prohibit the arrangement of such
20 flues in lath-and-plaster partitions, and require that they be built into brick walls because of the liability of the metal becoming overheated and setting fire to the surrounding wood-work.

The object of my invention is to provide multiple-flue sections, which are to be superposed one on another, and each of which comprises a number of flue-passages or flues proper, all combined in one integral structure.

30 In what I now consider the most approved form, the compound or composite flue-sections each consist of a number of sheet-metal tubes or linings, which are embedded in a composition casing or shell, which may be composed
35 of wood pulp and plaster-of-paris, the tubes or linings being separated from each other and collectively surrounded by such composition. I also prefer to form the tubes or linings of each section with a portion of reduced size
40 projecting beyond the composition at one end of the section, so that the tubes or linings of each section shall at one end enter the tubes or linings of the next section on one side thereof, and at the other end shall receive the
45 projecting portions of the tubes or linings of the adjacent section on the other side thereof. The male and female joints thus formed between the sections hold them securely together.

50 In the accompanying drawings, Figure 1 is a sectional elevation of two sections of my

improved compound or composite flue structure, and Fig. 2 is a plan of one of such sections.

Similar letters of reference designate corresponding parts in both figures.

A designates the individual flues, five of which I have here shown as combined or formed in one flue structure; but it will be obvious that the structure may be made with
60 any number of flues greater or less than five. The flue-sections each consist of a shell or casing, B, of composition, which is preferably of a more or less fire-proof character, and linings or tubes C, forming the individual flues,
65 and which may be made of sheet-tin or other suitable metal or material. The composition of which the shell or casing B is composed may be composed of wood pulp and plaster-of-paris, the pulp being employed to give the
70 structure lightness, and the plaster being used for its fire-proof qualities. The linings or tubes C are embedded in the composition shell or casing B, preferably in the process of manufacture.

75 To form the sections I may employ a mold box or flask of proper shape, and within this the linings or tubes C are set in their proper positions, and the composition is then poured in around and between them to form the shell
80 or casing, and then allowed to dry. When the section is removed from the mold, the linings or tubes C will be embedded in the composition which is between and around them, and will, with the casing or shell B, form one
85 structure.

I have shown the linings or tubes C as projecting slightly beyond the shell or casing B at one end of the section, and reduced in size, as shown at c, so that when the sections are
90 superposed one on another the linings or tubes C of each section will at one end enter the linings or tubes of the next adjacent section above, and at their other end receive the linings or tubes of the next section below. The
95 male and female joints thus formed between the sections hold them securely together, and preserve the continuity of the flues in case of the building settling; and, if desired, a small quantity of the composition may be applied
100 in these joints, to make them as tight as possible. If desirable, double-pointed tacks or

staples *a*, as shown in Fig. 1, or other fastening devices, may be employed to connect the sections.

The flue structure above described has many advantages over the separate flues ordinarily used and composed solely of metal. It may be built into lath-and-plaster partitions without danger of firing the wood-work, and a number of flues of a given size will occupy much less room in a wall than will an equal number of flues separated from each other by the width of a brick.

The fire-proof composition may be light, and adds but very little to the cost of the individual metal flues, and the cost of molding the shell or casing *B* is not increased by the insertion of the linings or tubes *C* therein, as the linings or tubes take the place of the wood or other cores, which would be otherwise necessary.

I am aware that it is not new to provide tubular sections of fire-clay which are arranged end to end and built into a wall, so as to form a single flue. I do not desire to include in my invention such a flue or a number of such separate flues built into a wall side by side.

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

1. The multiple-flue structure herein described, composed of molded sections to be superposed one on another, and each section

comprising a number of individual flues extending side by side and formed in one integral structure, the transverse partitions in said structure, each forming the side wall of two adjacent flues, substantially as herein set forth.

2. The multiple flue structure herein described, composed of sections to be superposed one on another, and each section consisting of a number of metal linings or tubes embedded in a shell or casing of composition, which surrounds the linings or tubes collectively and forms transverse partitions between them, the whole forming one integral structure, substantially as herein described.

3. The multiple-flue structure herein described, composed of sections to be superposed one on another, and each consisting of a number of metal linings or tubes, and a shell or casing of molded composition, which surrounds the linings or tubes collectively and forms transverse partitions between them, said linings or tubes having portions of slightly-reduced size extending beyond the section at one end, to enter the linings or tubes of the adjacent section, substantially as herein described.

JAMES M. SINCLAIR.

Witnesses:

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