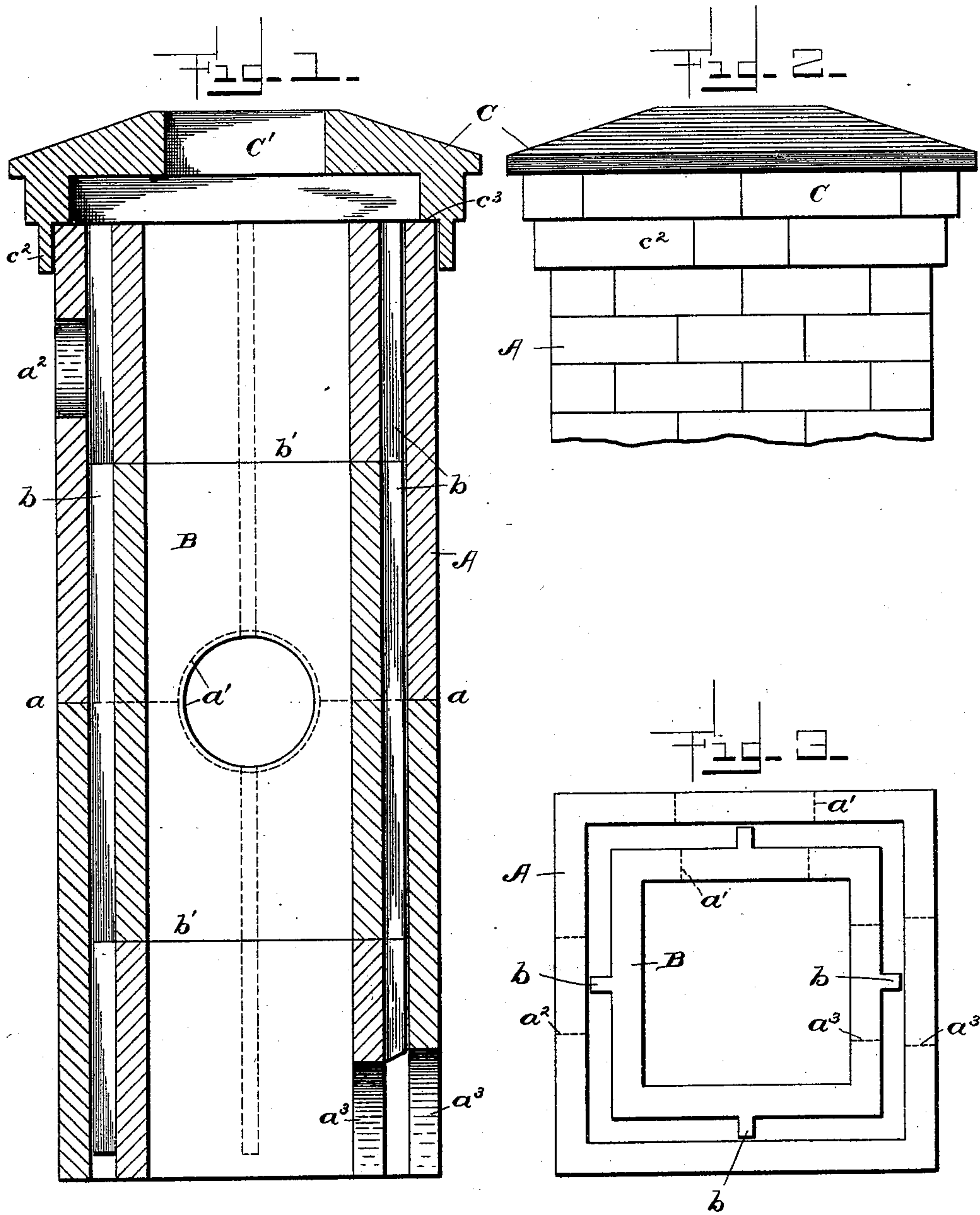


(No Model.)

H. J. McKNIGHT.
TILE FLUE OR CHIMNEY.

No. 539,536.

Patented May 21, 1895.



Witnesses:

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UNITED STATES PATENT OFFICE.

HENRY J. MCKNIGHT, OF SHELBURNE FALLS, MASSACHUSETTS.

TILE FLUE OR CHIMNEY.

SPECIFICATION forming part of Letters Patent No. 539,536, dated May 21, 1895.

Application filed April 21, 1894. Serial No. 508,469. (No model.)

To all whom it may concern:

Be it known that I, HENRY J. MCKNIGHT, a citizen of the United States, and a resident of Shelburne Falls, county of Franklin, and State of Massachusetts, have invented a new and useful Improvement in Tile Flues or Chimneys, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, making
10 part of this specification.

My invention relates to that class of chimneys or smoke and air flues formed of hollow tiles and consists in a novel construction and arrangement of the tiles, of which the flue is
15 formed, the same consisting of hollow shells or tile sections, an inner and an outer one, each complete in itself, the inner ones having laterally projecting, longitudinal ribs on their outer faces or sides, over which the outer tiles
20 or shells fit and are placed and which serve to form an air space or flue between the inner tiles, forming the smoke flue, and the outer tiles or inclosing shell, the inner shell or tiles being arranged with its joints intermediate
25 those of the outer ones or so as to "break" joint therewith; and it further consists in certain details of construction and arrangement of the flue cap and openings, in connection with the double shell of the flue, as herein-
30 after described and claimed.

In the accompanying drawings, Figure 1 represents a vertical section through so much of a tile-flue as is necessary to show my improvement. Fig. 2 is a side elevation of a
35 part of a flue projecting above a roof, showing it ornamented to imitate brickwork. Fig. 3 is a plan view of the flue with the cap removed, showing the openings in dotted lines.

A indicates the outer or casing shell, formed
40 of hollow tiles, of suitable lengths, and, preferably, in the rectangular form shown, and B the inner shell, the sections of which are also made in hollow rectangular form and provided on their outer faces or sides, each, with ver-
45 tical ribs b , extending from end to end of the tile and having a lateral projection sufficient to practically reach the inner, adjacent sides of the inclosing shell A as indicated in Fig. 3, thus forming an air space or spaces between
50 the outer and inner tiles, as shown.

The tiles thus formed and placed relatively

to each other are also arranged to break joints, the joints b' , of the inner tiles, being about midway intermediate those of a , of the outer, inclosing tiles or shell, thereby adding greatly
55 to the strength of the flue, when the sections thereof are properly joined and cemented or otherwise united.

This manner of forming and arranging the tiles, which may be made of any usual length,
60 provides, also, for the unequal expansion of the inner and outer tiles owing to the differences in temperature, to which they may be subjected and to differences in length of the tiles themselves, due to unequal burning, and
65 adapts each series to be made with close fitting joints or ends, which would be impracticable, if the inner and outer tiles were formed together, in one piece, thereby preventing the escape of smoke or gas and the eating out of
70 the mortar, by the gases, where mortar is used in joining the sections and the joints are open or not close fitting, as they would be if the inner and outer shells were formed to-
75 gether.

Another advantage in making the inner and outer hollow tiles separate is that the openings for the admission of smoke pipes ventilation, &c., can be cut where required
80 and frequently this cannot be determined, with certainty, until the flue is being formed, whereas, if the inner and outer shell sections were formed together, the pipe holes or open-
85 ings would, necessarily, have to be formed therein before the tile is burned, as it would be impracticable to cut through both shells, without breaking them.

A stove pipe opening is indicated at a' , that through the outer shell being, preferably, somewhat larger than the perforation through
90 the inner shell, as indicated by the dotted lines in Figs. 1 and 3.

a^2 indicates a ventilating opening, penetrating only the outer shell and communicating with the air space between the inner and outer
95 shells, and a^3 , indicates a hand-hole at the bottom of the flue, penetrating both shells and giving access to the bottom of the flue, for removing ashes, soot, &c., therefrom.

The ventilating openings a^2 , may be located
100 at any desired points, preferably near the ceilings of the rooms to which the flue is applied,

and the air space of the flue being affected by the heat of the inclosed smoke flue, a draft is created thereby, which serves effectively to draw off the impure air of the rooms connected
5 with said flue.

Both the inner and outer shells are open at their upper ends, terminating in a recessed cap C, having a central opening C', through which the smoke, gases and impure air pass
10 into the outer atmosphere. This cap conforms to the shape of the outer shell in horizontal section, and is provided with a pendent flange c², or rabbet c³, which fits snugly over the upper end of the top section of tile of the outer
15 shell, as shown, and is cemented or otherwise united thereto. It may be of any desired ornamental configuration, on its exterior. I prefer to line or mark it, as also the upper part of the flue, projecting above the roof, to
20 imitate an ordinary brick flue, as indicated in Fig. 2. Where the flue is applied to the outside of a house, as is frequently done, the whole exposed surface of the outer shell tiles, may be lined in like manner, if desired.

By the arrangement of the cap C, as described, an open space is left above the inner flue, within the recessed cap through which vitiated air, passing up through the air duct, can pass over the top of the smoke duct or
30 flue, and, uniting with the smoke and other products of combustion, will be carried out therewith through the central opening C', into the outer atmosphere, the smoke duct, by said arrangement, creating a suction upon or draft
35 through the ventilating duct, which greatly improves its ventilating capacity as compared with one which has its outlet separate from and independent of the smoke duct. Further, by this arrangement, the ventilating duct is
40 covered and protected from rain, &c., by the top of the cap and its outer wall or shell is

not liable to become saturated, and so injure the surrounding wall or plastering.

By the arrangement of the outer tiles to fit snugly over the ribs of the inner tiles and to
45 break joints with the latter, the lateral displacement of the tiles of one shell or flue, relative to those of the other, is prevented and a strong, durable and close jointed flue is obtained, as explained. 50

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

1. In a tile flue or chimney, an inner, hollow tile, provided with laterally projecting, 55 integrally formed ribs, and the separately formed, outer, hollow tile, surrounding said inner tile and forming therewith an intermediate ventilating duct, in combination with the centrally perforated cap, recessed above 60 the ventilating and smoke flues, secured to the outer tile and serving to unite the ventilating and smoke flues in a common outlet, substantially as described.

2. The combination in a tile flue or chimney, of the inner hollow tiles, made rectangular, in form, in cross-section, and having the integrally-formed, laterally-projecting ribs midway of their flat sides, the outer, hollow tiles, also rectangular in form, made separate 70 from and arranged to break joints with the inner tiles and to form in connection therewith an intermediate air-flue, and the recessed cap covering said air-flue and uniting it with the inner, smoke flue, in a common 75 discharge outlet, substantially as described.

In testimony whereof I have hereunto set my hand this 19th day of April, A. D. 1894.

HENRY J. MCKNIGHT.

Witnesses:

W. H. ASHMAN,

O. E. KELLYER.