Dec. 7, 1948. C. C. DROEGER 2,455,570

CHIMNEY CONSTRUCTION

Filed May 1, 1946

Fig. 1.

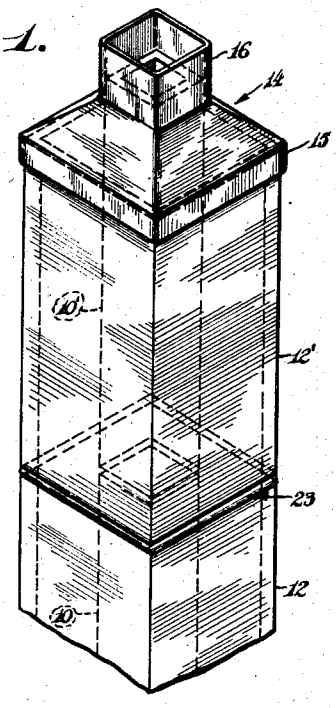
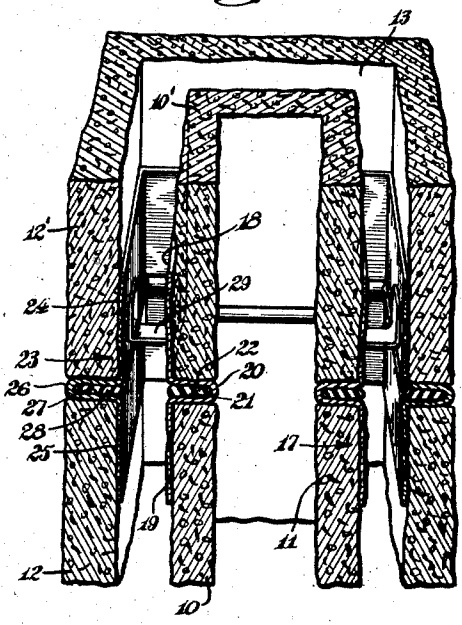


Fig. 2.



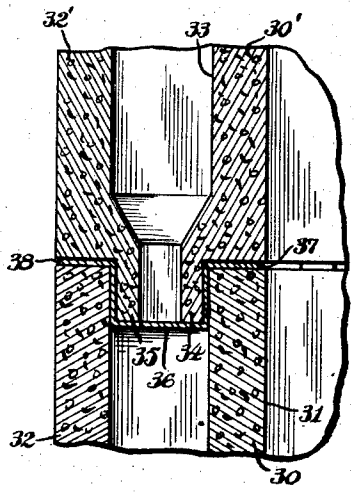


Fig. 3.

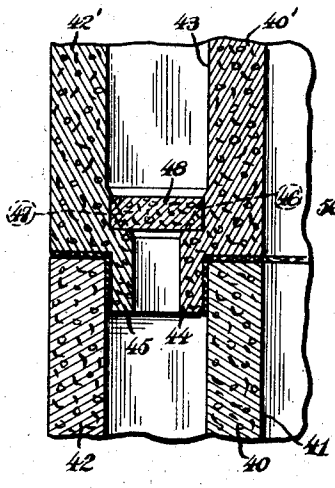


Fig. 4.

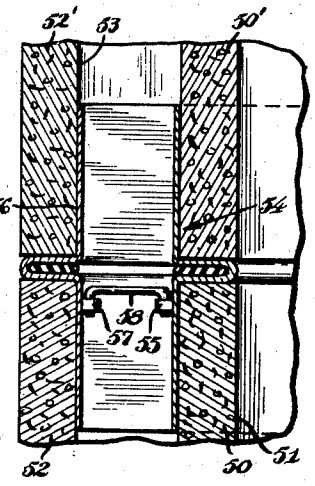


Fig. 5.

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CHIMNEY CONSTRUCTION

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5 Claims. (Cl. 72—94)

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The primary object of the present invention is to provide an improved chimney or flue construction. The invention is primarily concerned with chimneys of the double-wall type in which a main flue, comprising a column of superposed sections, is surrounded and enclosed by a second column of superposed tubular sections, perimetrally spaced from he first column to provide an insulating chamber which may or may not be packed with a heat insulating material. While I recognize the fact that the broad idea of such chimneys is not new, I have provided various details of construction which facilitate erection, or improve stability, or reduce the cost of such devices, or result in a combination of such advantages.

To the accomplishment of the above and related objects, my invention may be embodied in the forms illustrated in the accompanying drawings, attention being called to the fact, however, that the drawings are illustrative only, and that change may be made in the specific constructions illustrated and described, so long as the scope of the appended claims is not violated.

Fig. 1 is a fragmentary perspective view of the upper end of a chimney constructed in accordance with my invention;

Fig. 2 is a fragmentary, isometric section of a portion of a chimney embodying my invention;

Fig. 3 is a fragmentary vertical section of a constructional detail; and

Figs. 4 and 5 are views similar to Fig. 3 but showing further modified structures.

Referring more particularly to Figs 1 and 2, it will be seen that I have shown portions of two superposed tubular sections 10 and 10', arranged to define a main flue 11. Surrounding the column of sections 10 and 10' is a second column of sections, of which fragments of sections 12 and 12' are shown. The two columns define therebetween a chamber 13 which may constitute a dead air space, or which may be packed with any suitable insulating material, or which may be arranged to provide for a flow therethrough of cooling air.

The inner column will be of slightly greater height than the outer column, and I have shown one suitable form of cap fitting 14 which includes a base portion 15 adapted to sleeve over the upper end of the uppermost section of the outer column and a reduced portion 16 adapted to sleeve over the upper end of the uppermost section of the inner column, although the details of cap construction are unimportant to the present invention.

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Suitably associated with the sections of the inner column are provided joint elements indicated generally by the reference numeral 17. If desired, one of these elements 17 may be associated with each adjacent pair of sections of the column, or the elements 17 may be associated with selected spaced adjacent pairs of flue sections.

Each element 17 comprises a collar which may be continuous, or which may be made up of separate plates individually associated with the separate walls of the sections. Each part of each collar includes an upper portion 18 adapted to engage snugly the outer wall of the lower end of a section, for instance 10'; a coplanar portion 19 adapted to engage snugly the outer wall of an immediately subjacent section, for instance 10; and an intermediate, inwardly reversely bent portion 20, projecting substantially perpendicularly from the common plane of the portions 18 and 19, and defining an outwardly opening channel 21. The intermediate portion 20 of each part of the element 17 is imprisoned between the adjacent ends of the associated column sections; and preferably the channel 20 will, in each instance, receive a filler 22 of suitable compressible material. It will be clear that the elements 17 will act as expansion joints.

A similar joint element 23 is associated with adjacent sections of the outer column. Each element 23 comprises an upper portion 24 snugly engaging the inner wall of one section, for instance 12', of the outer column; a coplanar portion 25 snugly engaging the inner wall of an immediately subjacent section of that column, for instance 12; and an intermediate, outwardly reversely bent portion 26 defining an inwardly opening channel 27. The portion 26 is imprisoned between the adjacent ends of the sections 12 and 12', and the channel 27 preferably receives a filler 28 of suitable compressible material.

For mutually bracing the inner and outer columns of tubular sections, I may provide saddle elements 29, suitably fixed to the elements 17 and 23.

In Fig. 3 I have shown a modified form of sections. The inner flue is made up of a series of superposed tubular sections such as 30 and 30', defining a flue 31; and said inner column is surrounded by an outer column made up of sections 32 and 32', said two columns defining therebetween an insulating chamber 33. Each section of the inner column (save the bottom section) is formed at its lower end with an outwardly offset terminal

flange 34 adapted to sleeve snugly over the upper end of the immediately subjacent section. Each section of the outer column (save the bottom section) is formed at its lower end with an inwardly offset terminal flange 35 adapted to telescope snugly within the upper end of the immediately subjacent section of said column.

A tie collar 36, which may be perimetrally continuous or which may be made up of a plurality of sections, is provided with a portion 37 intended to be imprisoned between the adjacent ends of the sections 30 and 30', and with a portion 38 intended to be imprisoned between the adjacent ends of sections 32 and 32'.

The chamber 33 may, if desired, be packed with any suitable insulating material, or may be filled with poured concrete.

The structure of Fig. 4 is quite similar to that of Fig. 3. Sections 40 and 40' are stacked to define the main flue 41, and sections 42 and 42' are similarly stacked in surrounding relation to the inner column, to define the chamber 43. The sections of the inner column are formed at their lower ends with outwardly offset terminal flanges 44, while the sections of the outer column are formed with inwardly offset terminal flanges 45. Any suitable form of separator may be interposed between the ends of adjacent sections.

For mutually bracing the two columns, the outer walls of the sections 40' may be notched at perimetrally spaced points, as at 46, while the inner walls of the sections 42' may be notched at registering points, as at 47; and tie blocks 48 may be received, and suitably secured, in the registering pairs of notches.

In Fig. 5, I have shown sections 50 and 50' corresponding to the sections 10 and 10' and defining a primary flue 51; and sections 52 and 52' corresponding to sections 12 and 12' and defining, with the sections 50 and 50', a chamber 53. Now the elements, indicated generally by the reference numerals 54 and 56, correspond closely to the elements 17 and 23, except that the element 54 is provided, at spaced points about its perimeter, with outwardly projecting eyelets 55 providing substantially vertical openings, while the element 56 is provided, at registering points, with inwardly projecting eyelets 57 providing vertical openings. Tie bars 58, formed with downturned terminal portions adapted to be received in the eyelets 55 and 57, respectively, provide means for mutually bracing the two columns.

I claim as my invention:

1. A chimney construction comprising a column of superposed tubular sections, a second column of superposed sections surrounding and perimetrally spaced from, but enclosing, said first column, perimetrally continuous means having a portion gripped between adjacent surfaces of adjacent sections of said first-named column, said means having portions telescopically engaged with a perimetral surface of each of said sections, perimetrally continuous means having a portion gripped between adjacent surfaces of adjacent sections of said second column and having portions telescopically engaged with a perimetral surface of each of said sections of said second column, and tie means connecting said first-named means with said second-named means.

2. A chimney construction comprising a column of superposed tubular sections, a second column of superposed sections surrounding and perimetrally spaced from, but enclosing, said first column, and reinforcing means for said construction, associated with certain of said column sections, each such reinforcing means providing a perimetrally continuous band externally embracing the perimetrally outer surface of a section of said first column, a perimetrally continuous plate fixed relative to said band and gripped between adjacent surfaces of the embraced section and an adjacent section in said column, a perimetrally continuous band internally engaging the perimetrally inner surface of a section of said second column, a perimetrally continuous plate fixed relative to said last-named band and gripped between adjacent surfaces of the engaged section and an adjacent section in said second column, and means extended between said bands and providing a bracing connection therebetween.

3. A chimney construction comprising a column of superposed tubular elements, a perimetrally-continuous member having a portion resting upon the upper end of one of said elements, the superjacent element resting upon said member portion and clamping the same in place, and a second column of superposed tubular elements surrounding and perimetrally spaced from, but enclosing, said first column, said member having a portion resting upon the upper end of one of the elements of said second column, and the superjacent element of said second column resting upon said last-named member portion and clamping the same in place, said member further perimetrally engaging a section of each of said columns.

4. A chimney construction comprising a column of superposed tubular sections, perimetrally-continuous means sleeved upon one of said sections and having a portion resting upon the upper end of said section, the superjacent section resting upon said portion of said means to clamp the same in place, a second column of tubular sections surrounding and perimetrally spaced from, but enclosing, said first column, and perimetrally-continuous means telescoped within one of said sections of said second column and having a portion resting upon the upper end of said last-named section, the superjacent section of said second column resting upon said portion of said last-named means to clamp the same in place, said perimetrally-continuous means being joined to brace said two columns.

5. A chimney construction comprising a column of superposed tubular sections, a perimetrally-continuous metal tube having a reversely bent intermediate portion projecting substantially perpendicularly out of the general planes of the perimetral walls of said tube and defining an open-mouthed channel, said reversely bent intermediate portion being imprisoned between the adjacent ends of two sections of said column and the perimetral walls of said tube projecting oppositely from said intermediate portion lying in snug contact with the outer walls of said two sections, respectively, a second column of superposed tubular sections surrounding and perimetrally spaced from, but enclosing, said first column, a second metal perimetrally-continuous tube having a reversely bent intermediate portion projecting substantially perpendicularly out of the general plane of said plate and defining an open-mounted channel, said reversely bent portion of said second tube being imprisoned between the adjacent ends of two sections of said second column and the perimetral walls of said second tube projecting oppositely from said in-

termediate portion lying in snug contact with the inner walls of said two sections of said second column, respectively and tie means connecting said two metal tubes to provide a bracing connection between said columns.

CARL C. DROEGER.

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