April 8, 1952 J. ALTMANN 2,591,906

CHIMNEY STRUCTURE

Filed Feb. 18, 1948 2 SHEETS—SHEET 1

Fig. 1

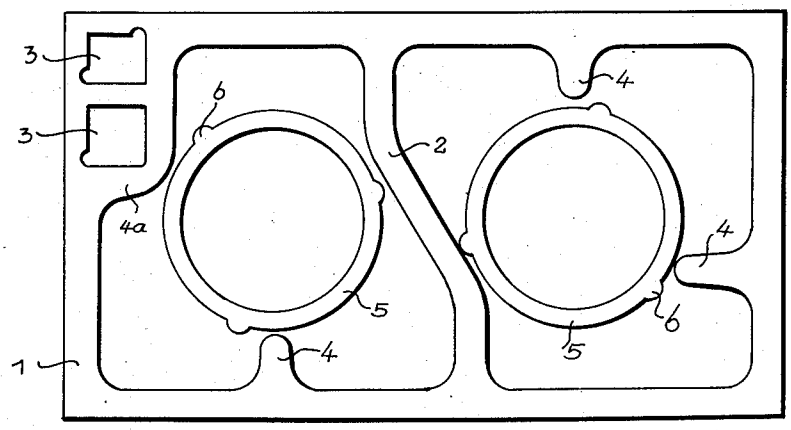
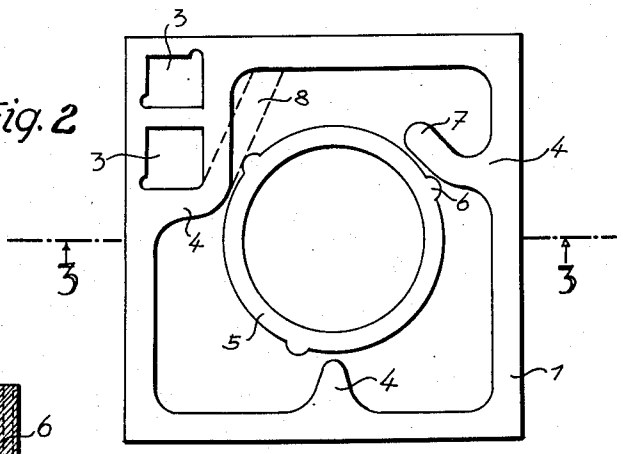


Fig. 2



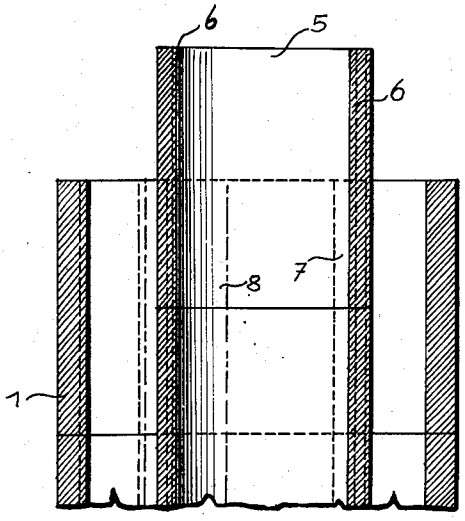


Fig. 3

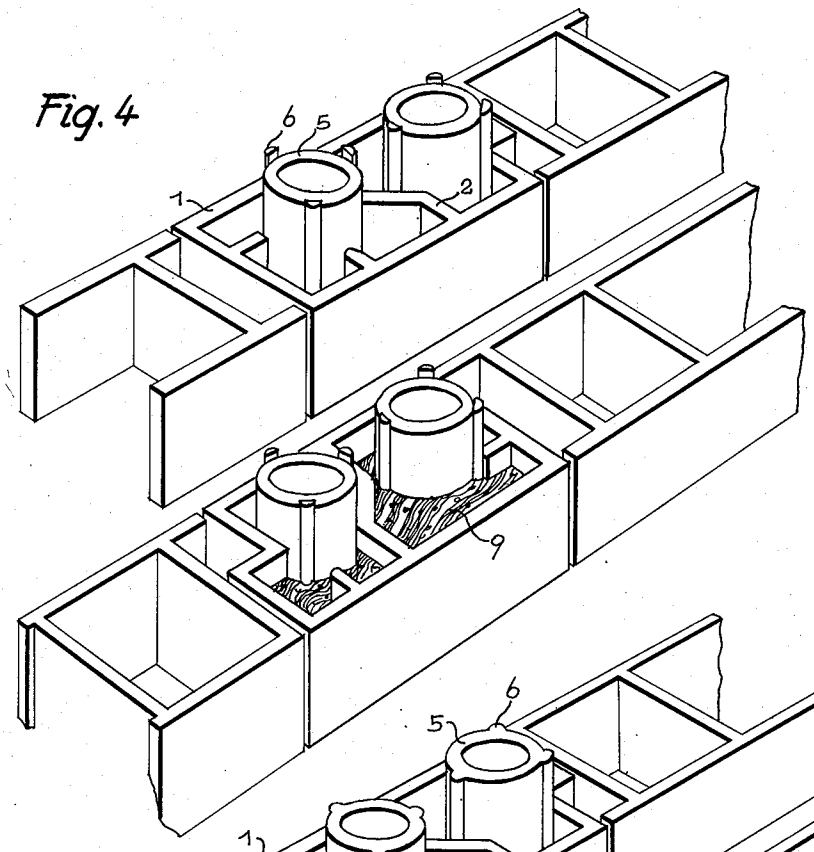
INVENTOR.
Josef Altmann
BY
Robert E. Burns
ATTORNEY

April 8, 1952 J. ALTMANN 2,591,906

CHIMNEY STRUCTURE

Filed Feb. 18, 1948 2 SHEETS—SHEET 2

Fig. 4



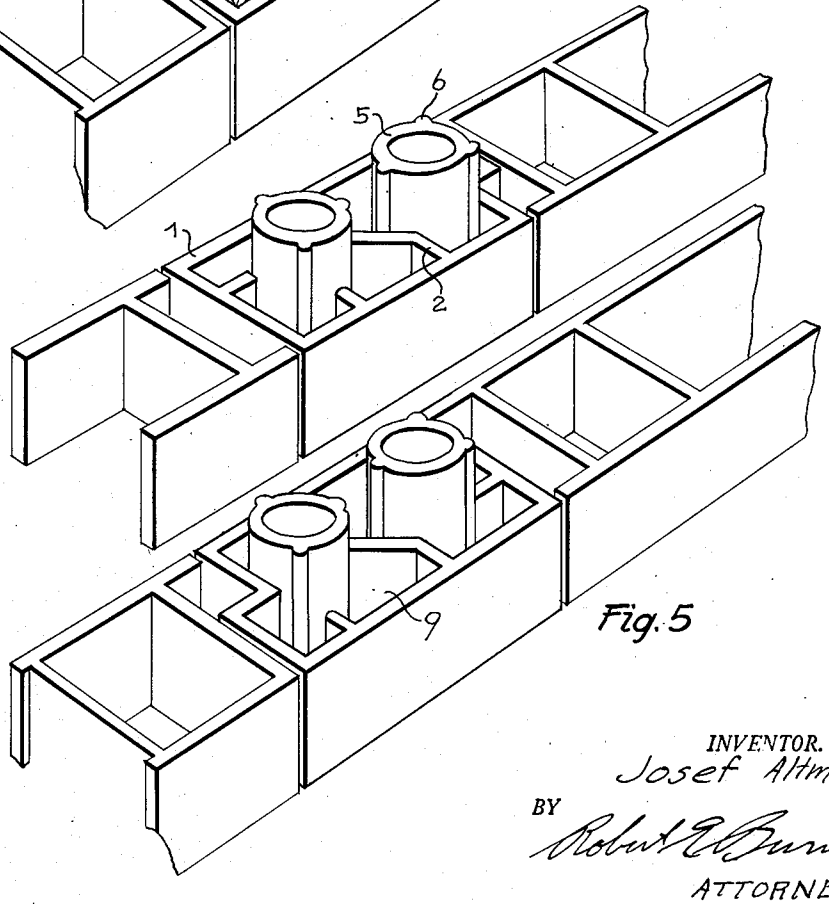


Fig. 5

INVENTOR.
Josef Altmann
BY
Robert E. Burns
ATTORNEY

Patented Apr. 8, 1952

2,591,906

UNITED STATES PATENT OFFICE

2,591,906

CHIMNEY STRUCTURE

Josef Altmann, Salzburg, Austria

Application February 18, 1948, Serial No. 9,212
In Austria March 19, 1946

Section 1, Public Law 690, August 8, 1946
Patent expires March 19, 1966

7 Claims. (Cl. 72—94)

1

This invention relates to improvements in chimneys, which may be constructed of flues and surrounding hollow blocks of a plastic material such as cement or concrete, and one of the objects of the invention is to provide a solid connection between the hollow block and the flue, so that in case of fissures and cracks opening in the pipe or flue walls the chimney fire cannot penetrate into the hollow of the blocks and eventually provoke a conflagration.

Another object of my invention is to provide a chimney building block having a construction which enables to lodge therein a plurality of flues.

A further object of my invention is to provide means whereby the chimney building block will be connected with the adjacent portions of the wall.

Other and further objects of my invention will be pointed out hereinafter, indicated in the appended claims, or will be obvious to one skilled in the art upon an understanding of the present disclosure. For the purpose of this application I have elected to show herein certain forms and details of building blocks and wall structures representative of my invention; it is to be understood, however, that the embodiments of my invention herein shown and described are for purposes of illustration only, and that therefore they are not to be regarded as exhaustive of the variations of the invention, nor are they to be given interpretations such as might have the effect of limiting the claims, short of the true and most comprehensive scope of the invention in the art.

In the accompanying drawing:

Fig. 1 is a plan view of a chimney building block embodying my invention and designed to lodge therein two pipes or flues;

Fig. 2 is a similar view of a block designed to lodge herein but one pipe or flue;

Fig. 3 is a vertical sectional view taken on the line 3—3 of Fig. 2;

Fig. 4 is a perspective view of one embodiment of a partly fabricated chimney made from a number of blocks illustrated in Fig. 1;

Fig. 5 is a similar view of another embodiment of a chimney.

In the embodiment according to Fig. 1 the frame 1 of the chimney building block is crosswise divided by a partition wall 2. From the walls of the frame 1 webs 4 are made to protrude into the interior. At least one corner is—combined with the web 4a—formed into a single or double chamber 3. These projections and insets 2, 4 are so arranged that a cylindrical pipe

2

or flue 5 is easily insertable therebetween in each of the frame parts. The smoke pipe or flue 5 is provided on its outer surface with at least one protuberance 6, arranged longitudinally in regard to the latter. After the insertion the pipe or flue is turned about its axis until one of the protuberances is fixed by clamping on the partition wall 2 provided with an oblique running-up face, so that the outer surface of the pipe or flue is pressed against the webs 4. In this manner the hollow block may be made suitable for housing as many smoke pipes or flues as desired. If the block is only to lodge one pipe or flue the partition wall 2 is replaced by an oblique projection 7 of one of the webs 4, tangentially located with respect to the outer circumference of the pipe or flue, or by providing the chamber 3 with an oblique inner wall (vide Fig. 2).

The double chamber serves for connecting the chimney building block with the brickwork. For this purpose its outer wall is—according to the thickness of the brickwork—broken off entirely or to one half whereby the brickwork is continued into the chamber. According to Fig. 4 in the superimposed row, next in order, the special block is laid inversely, so that the chamber is thereby connected to the continuation of the brickwork on the other side of the pillar formed by the hollow blocks. In the third row the hollow block is again laid in the same manner as in the first etc. The meshing between the hollow blocks pillar and the brickwork resembles a double-sided toothing. The intermediate walls 2 are made to cross from row to row. If then the hollow space 9 in the blocks, round the column of the smoke discharge pipes or flues 5 is filled with concrete, same is operative in constituting a monolith from bottom to top of the pillar owing to the partition walls 2 being arranged crosswise. If, however, the hollow blocks are to be used for ungrouted hollow brick chimneys similar to the so called "Schofer"-chimneys, according to Fig. 5 the blocks are located on top of each other without turning same. The webs, the intermediate wall and the chambers will correspond in this case, and are all connected with mortar just as the frames.

The smoke pipes or flues 5 are inserted into the hollow bricks 1 only so far that one half remains in the lower block (vide Fig. 3) while the other half projects into the upper block, the joints corresponding to the middle of the height of the hollow blocks. This feature increases the security against the spreading of chimney fires, as the flames, eventually issuing from a joint of the

pipes or flues, do not strike against a joint of the blocks, but hit the solid wall which is better qualified to withstand the effect of the fire.

The protuberances 6 may be made to slightly project beyond the end face of the smoke pipes or flues 5, thus rendering possible the centering of the pipes or flues, without said end parts being provided with grooves or the like.

The hollow building blocks constituting the present invention may be made from either concrete or other suitable material.

Having described my invention, what I claim is:

1. A chimney building element comprising at least one tubular cylindrical flue element provided with at least one longitudinal rib projected radially from its outer wall surface, and a hollow one-piece building block completely surrounding said flue element and receiving said flue element with some play, said hollow block comprising a peripheral wall and at least one inner wall surface forming a clamping surface for said rib, said surface being positioned approximately tangentially to the circumference of said flue element and at a distance from the center of said flue element which is greater than the radius of the latter and smaller than said radius plus the radial thickness of said rib, whereby turning said flue element about its axis causes said rib to engage said clamping surface with a camming action to firmly wedge said flue element in said block.

2. A chimney building element comprising at least one tubular cylindrical flue element provided with at least one longitudinal rib projecting radially from its outer wall surface, and a hollow one-piece building block completely surrounding said flue element and receiving said flue element with some play, said hollow block comprising a peripheral wall and three web-like portions projecting inwardly from its peripheral wall, at least one of said webs forming a camming surface for said rib, which surface is disposed approximately tangentially to the circumference of said flue element and at a distance from the center of said flue element which is greater than the radius of said element and smaller than said radius plus the radial thickness of said projecting rib, whereby turning said flue element about its axis causes said rib to engage said camming surface to firmly wedge said flue element between said three webs.

3. A chimney building element comprising a plurality of tubular cylindrical flue elements, each provided with at least one longitudinal rib projecting radially from its outer wall surface, and a hollow building block comprising a continuous outer wall and at least one partition wall subdividing its interior into a plurality of chambers each receiving one of said flue elements, said partition wall being set at an oblique angle to the outer walls of said block and forming camming surfaces for the ribs of the flue elements on both sides thereof, each of said surfaces being approximately tangential to the circumference of a flue element and being located at a distance from the centers of said flue element which is somewhat greater than the radius of the element and somewhat smaller than said radius plus the radial thickness of said projecting ribs, whereby turning a flue element about its axis causes its rib to engage one of said camming surfaces to firmly wedge said element in said block.

4. A chimney structure composed of a plurality of superposed tubular cylindrical flue elements, each of said elements being provided with at least one longitudinal rib projecting radially from its outer wall surface, and a plurality of superposed hollow building blocks receiving said flue elements, each block surrounding the upper part of one flue element and the lower part of an adjacent flue element, and each block comprising a continuous peripheral wall and at least one inner wall portion forming a camming surface for said ribs of the flue elements inserted in the block, said surface extending approximately tangentially to the circumference of the flue elements and at such a distance from the center thereof that rotation of a flue element about its axis brings its rib into engagement with said camming surface with a cam action to firmly wedge said element in said block.

5. A chimney structure composed of a number of parallel flues each comprising a plurality of superposed tubular cylindrical flue elements, each element provided with at least one longitudinal rib projecting radially from its outer wall surface, and a plurality of superposed hollow building blocks receiving said flue with each hollow block surrounding the upper part of one set of parallel flue elements and the lower part of an adjacent set, and said blocks comprising outer walls and partition walls subdividing their interiors into a plurality of chambers, one for each flue, said partition walls being set at an oblique angle to the outer walls of said blocks and forming camming surfaces being located at such a distance from the respective centers of the flues that rotation of a flue element about its axis causes its rib to engage a camming surface to firmly wedge said element in said block.

6. A chimney structure composed of a plurality of superposed tubular flue elements, each of said elements provided with at least one longitudinal rib projecting radially from its outer wall surface, a plurality of superposed hollow building blocks surrounding said flue elements, each of said blocks comprising a peripheral wall and three web-like portions projecting inwardly from its peripheral wall, at least one of said webs forming a camming surface for said rib extending approximately tangentially to the circumference of the flue elements and at such a distance from the center thereof that rotation of a flue element about its axis causes its rib to engage said camming surface to firmly wedge said element between said three webs, said hollow building blocks being placed on each other in alternately inverted ways so that the webs in one block are out of coincidence with the webs of two adjacent blocks so as to provide a single continuous space between said aligned flue elements and the peripheral walls of said blocks, and a concrete material poured into and completely filling said space.

7. A chimney structure composed of a number of parallel flues each comprising a plurality of superposed tubular flue elements, each element provided with at least one longitudinal rib projecting radially from its outer wall surface, a plurality of superposed hollow building blocks receiving and surrounding said flue, said blocks comprising outer walls and partition walls subdividing their interiors into a plurality of chambers, one chamber for each flue, two web-like portions in each chamber projecting inwardly from the outer walls of said block, said partition walls being set at an oblique angle to the outer walls of said blocks and adapted to form camming surfaces for the ribs of said flue elements

on both sides thereof, said camming surfaces being located at such a distance from the respective centers of said flues that rotation of a flue element about its axis causes its rib to engage one of said camming surfaces to firmly wedge said element between said surface and said two webs, said hollow building blocks being placed on one another in an alternately inverted way so that the webs in one block are out of coincidence with the webs of the two adjacent blocks and partition walls of adjacent blocks cross each other at an angle so as to provide a continuous space between said flue elements and the outer walls of said blocks, and a concrete material poured into and completely filling said space.

JOSEF ALTMANN.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
41,498	Fryer	Feb. 9, 1864
861,481	Poston	July 30, 1907
1,395,176	Close	Oct. 25, 1921
1,649,367	Reagan	Nov. 15, 1927

FOREIGN PATENTS

Number	Country	Date
77,630	Switzerland	May 16, 1918
88,876	Switzerland	1921
591,060	France	1925
37,875	France	1930
145,073	Switzerland	1931
123,882	Sweden	1948