(No Model.)

A. BOETTCHER.

CONSTRUCTION OF CHIMNEYS.

No. 456,109. Patented July 14, 1891.

Fig. 1.

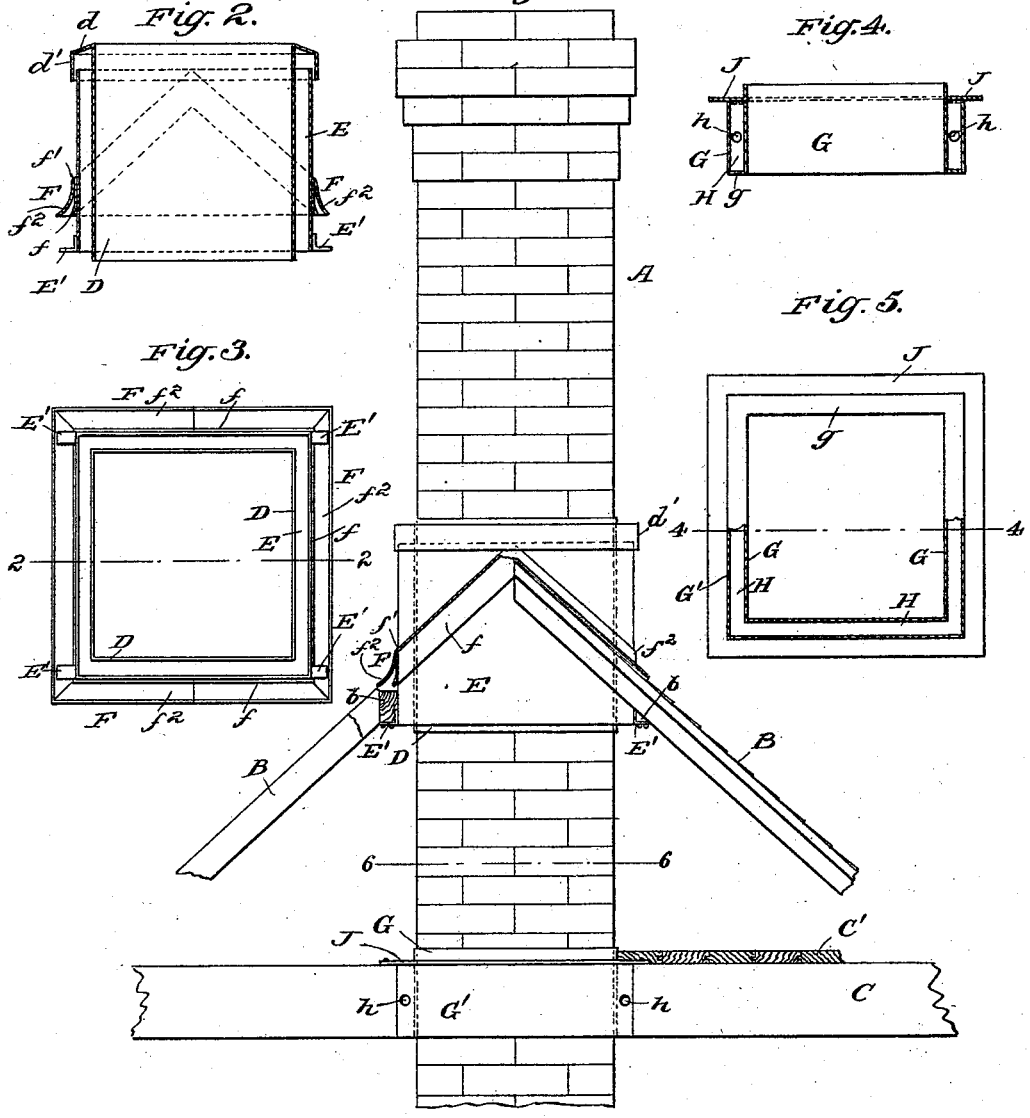


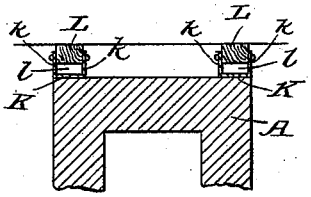
Fig. 2.

Fig. 3.

Fig. 4.

Fig. 5.

Fig. 6.



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CONSTRUCTION OF CHIMNEYS.

SPECIFICATION forming part of Letters Patent No. 456,109, dated July 14, 1891.

Application filed September 27, 1890. Serial No. 366,347. (No model.)

To all whom it may concern:

Be it known that I, ADOLPH BOETTCHER, of South Stillwater, in the county of Washington and State of Minnesota, have invented a new and useful Improvement in the Construction of Chimneys, of which the following is a full, clear, and exact description.

My invention relates to improvements in the construction of chimneys; and the object of my invention is to produce certain attachments for chimneys which when applied thereto will effectually prevent the wood-work adjacent to the chimney from being overheated and taking fire, and which will also permit the chimney to settle without breaking or cracking, thus preserving the chimney in a fire-proof condition.

To this end my invention consists in certain features of construction and combinations of parts, which will be hereinafter fully described, and then pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a broken side elevation, partly in section, showing a chimney built up through a floor and roof of a building and with the protecting attachments in position thereon. Fig. 2 is a detail view in vertical section of the attachment which is applied to the chimney at the point where it penetrates the roof of a building, the section being taken on the line 2 2 of Fig. 3. Fig. 3 is an inverted plan of said roof attachment. Fig. 4 is a detail sectional view on the line 4 4 of Fig. 5, showing the attachment which is placed around the chimney when it passes through a floor. Fig. 5 is an inverted plan of said attachment, a portion being broken away to show the air-space therein; and Fig. 6 is a broken transverse section of the chimney, showing the attachments which protect the adjacent studding from heat.

The chimney A is of the usual construction, and is built up between the floor-timbers C and through the floor C′ and roof B in the ordinary way, except that said floor, roof, and adjacent studding are protected by the attachments described below. A plate D encircles the chimney A at the point where the chimney penetrates the roof B, and said plate is bent outwardly at an acute angle, as shown at *d*, thus forming a top to the attachment and giving to it the necessary pitch, and the outer extremity of said plate is again bent at an angle, as shown at *d′*, thus forming a depending flange which is parallel with the body of the plate D, which rests firmly against the chimney.

A shorter plate E encircles the chimney outside of the plate D, the plate E being enough larger than the plate D to form an air-space between the two plates, and at the lower end of the plate E are projecting flanges or angle-irons E′, which are secured to beams *b* beneath the timbers of the roof, so that the plate E is held securely in place, but is entirely independent of the plate D. The top of the plate E is a little higher than the lower edge of the flange *d′*, but does not extend to the top *d* of the plate D, so that when the chimney settles, as chimneys usually do after being built, the top *d* of the plate D may descend somewhat, and the chimney will thus settle bodily without interfering with the adjacent portions of the building, so that it will not be cracked or broken. It will be observed, too, that the bend *d* of the plate D affords a tight top or covering for the air-space between the two plates D and E, so that no water can enter the building between the plates.

A plate F is fixed to the outer plate E and extends around the same at a point adjacent to the top of the roof B, the general direction of the plate being made to conform with the pitch of the roof, and the plate is attached at the rear flat portion *f*, the plate being doubled upon itself at its upper extremity *f′*, thus forming a depending and outwardly-extending apron f^2, which may be closed down upon the roof B, and which effectually excludes water from between the roof B and the plate E.

A plate G encircles the chimney at a point opposite the floor-beams C and floor C′, the plate being doubled twice at a right angle to form the bottom *g* and the outer sides G′, which extend parallel with the body G, which rests firmly against the chimney, an air-space H being thus formed between the body portion G of the plate and the outer sides G′. The sides G′ are penetrated by holes *h*, which thus permit a free circulation of air through

the air-space H, so that heat from the chimney cannot pass through the two walls of metal and the intervening air-space. The sides G′ do not extend quite as high as the body portion G of the plate, but should be made to extend to a point flush with the upper surface of the floor-beams C. The top portion of the sides G′ is united to the body portion of the plate by a flange J, which thus closes the top of the air-space H, and the flange is made to project beyond the sides G′, so as to rest upon the floor-beams C, and the flooring C′ may be laid upon the flange, so as to abut against the body G.

In Fig. 6 I have shown the means of protecting the studding which may be adjacent to the chimney, and in this case a plate K is placed firmly against the chimney and is bent twice at right angles, so as to form the outwardly-extending and parallel flanges *k*, which are closed upon and fastened to the studding L, an air-space *l* being thus formed between the studding and the back portion of the plate K, so that the studding is securely protected from heat. It is obvious that as many of the plates K may be used as are necessary to correspond with the height of the studding.

In carrying out my invention it is desirable that the various attachments described above should be made of sheet metal, although they may be made of any metal suitable for the purpose.

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

1. The combination, with the inner tubular plate D, adapted to fixedly encircle a chimney and having an annular outward and downward extending flange, of an outer tubular roof-plate E, of greater diameter than the plate D, wholly disconnected therefrom and extending at its upper end under the said flange, whereby when the said plates are secured in place the plate D may move downward upon the settling of a chimney without affecting the outer or roof plate, substantially as set forth.

2. The combination, with the inner tubular plate D, adapted to fixedly encircle a chimney and provided with an outward and downward projecting flange around its upper end, of the outward tubular roof-plate E, of greater diameter than the plate D, wholly disconnected therefrom and extending at its upper end under said flange, and the apron f^2 around the outer sides of the plate E and conforming to the pitch of the roof to close the joint between the same and the sides of the tubular plate E, whereby the roof-plate will not be affected upon the settling of the chimney, substantially as set forth.

3. The combination, with the annular chimney-plate D, having an outward and downward projecting flange around its upper end and adapted to fixedly encircle a chimney, of the outer tubular roof-plate E, of greater diameter than the chimney-plate and extending at its upper edge under the flange thereof, angle-irons or flanges E′, projecting from the lower edges of the plate E to engage the roof-timbers, and the plate F, surrounding the plate E and bent upon itself at f' to form the outward-projecting apron f^2 to overlap the adjacent portions of the roof, whereby the chimney may settle without affecting the roof-plate E, substantially as set forth.

4. In the construction of chimneys, the annular chimney-encircling body-plate G, doubled twice at a right angle to form the bottom *g* and outer spaced sides G′, parallel with the plate G and of less height, and the flange J, closing the space H between the body and outer sides G′ and projecting beyond the latter, substantially as set forth.

5. In the construction of chimneys, the combination, with the chimney and the abutting floor-joists, of a plate K for each stud or joist, bent twice at right angles to form the vertical parallel flanges *k*, secured to the sides of the said abutting ends, an air-space *l* being formed between the end of each joist and the plate thereon, substantially as set forth.

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