(No Model.)

F. B. & E. G. WISDOM.

FLUE.

No. 527,256. Patented Oct. 9, 1894.

FIG. 1.

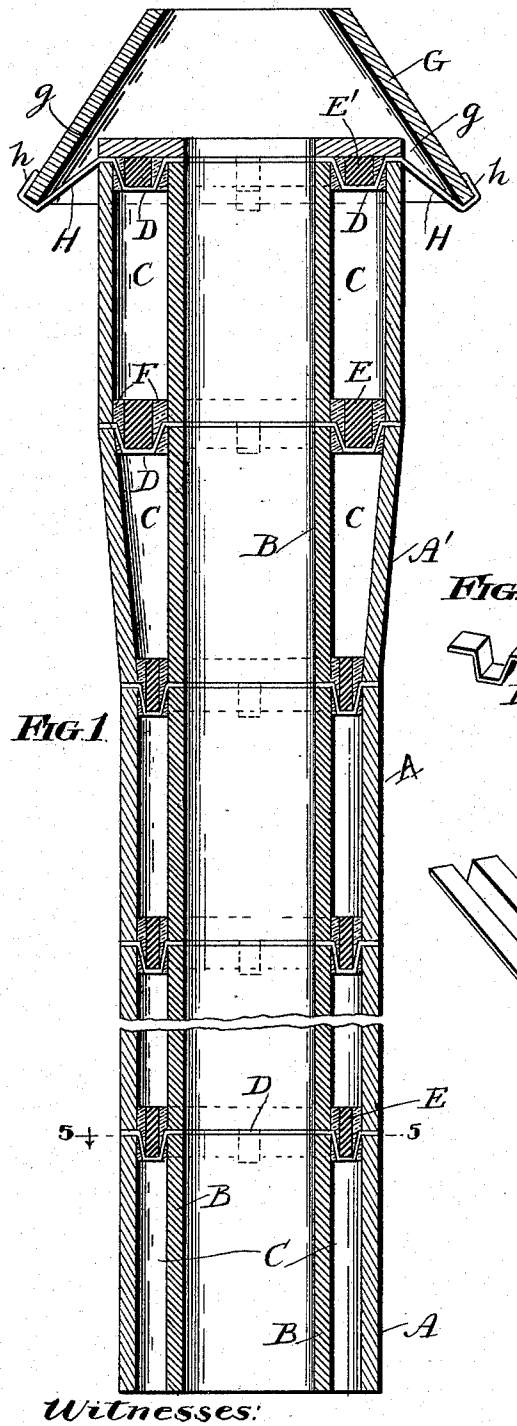


FIG. 2.

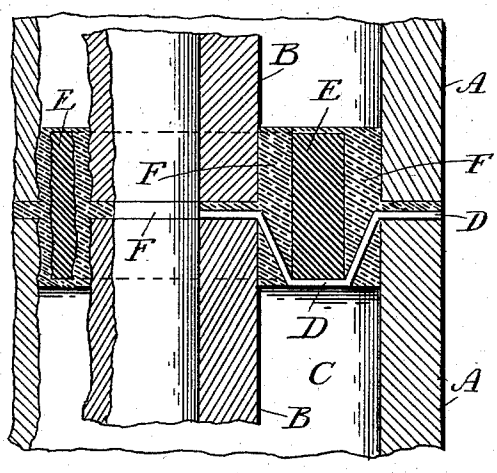


FIG. 3.

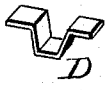


FIG. 6.

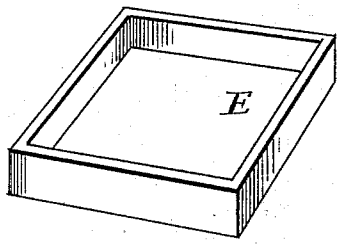


FIG. 4.

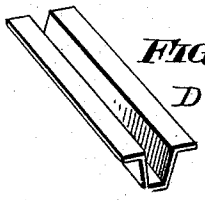
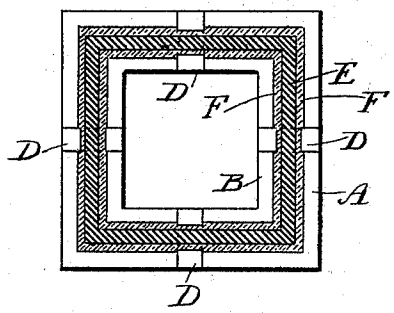


FIG. 5.



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UNITED STATES PATENT OFFICE.

FRANCIS B. WISDOM AND EDWARD G. WISDOM, OF CHICAGO, ILLINOIS.

FLUE.

SPECIFICATION forming part of Letters Patent No. 527,256, dated October 9, 1894.

Application filed April 30, 1894. Serial No. 509,489. (No model.)

To all whom it may concern:

Be it known that we, FRANCIS B. WISDOM and EDWARD G. WISDOM, citizens of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Flues, of which the following is a specification.

The flue which forms the subject of the present invention may be used either in the identical form shown in the drawings, or under a modified form for chimneys, or for conveying hot air through a building for heating purposes, or for any other purpose for which flues are used. The flue is, however, designed more especially for use as a chimney, and the following description will be confined to a flue embodying the invention and used for this purpose, it being understood that the claims are not to be considered as so limited, excepting where they include features that are strictly peculiar to chimneys.

One of the objects of the present invention is to provide a flue which may be constructed more quickly and at a less expense than the brick flue of ordinary construction, and another object of the invention is to provide a flue which is superior to a brick flue of the ordinary construction, in that it more effectually prevents the heat and products of combustion passing through it from igniting the wood-work of the building.

To these ends the invention consists in the features of novelty that are particularly pointed out in the claims hereinafter, and in order that it may be fully understood we will describe it with reference to the accompanying drawings, which are made a part of this specification, and in which—

Figure 1 is a vertical section of a flue embodying the invention and used for the purpose of a chimney, an intermediate portion of the flue being broken away to indicate indefiniteness in length. Fig. 2 is a vertical section of a portion of said flue on a somewhat larger scale. Figs. 3 and 4 are perspective views of two forms of a part hereinafter called a bridge. Fig. 5 is a horizontal section on the line 5—5, Fig. 1. Fig. 6 is a perspective view of one of the "rings."

The improved flue is constructed of double walls A and B, located at such distance apart as to leave between them an air-space C. In the drawings we have shown a flue of rectangular shape in horizontal cross-section, but it will of course be understood that this is not essential, and that a flue of circular or any other shape in horizontal cross-section is within the scope of the invention and is the full equivalent of what is shown. The rectangular shape is shown simply because, for the purposes of this application we prefer to illustrate our invention as embodied in a chimney, and in order to avoid the prejudice that a chimney differing in shape from chimneys of ordinary construction would inevitably meet, we prefer to make our improved chimney as near like a brick chimney, in appearance, as possible. To this end it is our intention to contruct so much of the improved chimney as extends above the roof of pipes molded to simulate brick.

Each wall of the flue is constructed of a number of sections of pipe, placed one upon another and preferably so arranged that the courses or lifts of the two walls correspond, bringing the joints of one wall directly opposite the joints of the other wall. Upon the top of each lift is placed a number of parts D, hereinafter called bridges, each of which rests upon both walls and spans the space between them. These bridges are preferably constructed of metal, and may be constructed either of narrow strips of metal, as shown in Figs. 1 and 3, or of wide strips of metal, as shown in Fig. 4, in which latter case four bridges are used at each lift, each extending along one side of the flue. We prefer to construct them as shown in Figs. 1 and 3, and to use four of them where the flue is square and of small size, one located in the center of each of its sides. The object of these bridges is to support at each joint of the flue a ring E, which is of such size that a space is left between it and each of the walls of the flue, the bridges being bent downward between the walls in order to bring the ring directly opposite the joint, so that the ring and pipes of which the flue is constructed break joints. Other objects in bending the bridges down-

ward in this manner are to make them self-centering, to make them center the pipe sections of which the inner wall is built up, and to make them center the rings E.

The spaces between the meeting ends of the several sections of pipe of which the walls of the flue are built up, and the spaces between said walls and the ring E are filled in with mortar or other similar material, as shown at F, and in this way the parts are all securely bound together and the joint closed against the escape of heat or smoke. In addition to this the air space between the walls of the flue is divided up horizontally into a number of separate dead-air chambers. Dead air being a poor conductor of heat, and the joints between the several sections of the flue being effectually closed, it follows that there is no chance for heat or the products of combustion passing through the flue to reach and ignite the wood-work of the building.

A flue constructed in accordance with the invention, and of given internal dimensions, will be smaller in its external dimensions than a flue of the same internal dimensions constructed of brick in the ordinary manner, and in order that the projecting portion of the chimney may resemble a chimney constructed of brick in the ordinary manner as nearly as possible, in size as well as in other things, we provide means for enabling the use, in constructing this projecting portion of the chimney, of pipe which is larger than that used for constructing that portion of the chimney which passes through the building. To this end, just before the level of the roof is reached, we insert in the outer wall of the flue a section of pipe (shown at A′) which flares upward, its lower end being of the same dimensions as the pipe used for constructing the lower portion of the outer wall of the flue, and its upper end being of the dimensions which it is desired the projecting portion of the chimney shall be.

It is desirable to make that portion of the chimney which passes through the building as small as possible, in external dimensions, not only because of the economy in material incident thereto, but also because of the economy in space within the rooms of the building through which the chimney passes.

Over the top of the chimney is arranged a wind-guard G, which is preferably of the same shape in horizontal cross-section as is the flue, and flares downward, the opening at its upper end being preferably of the same size as the passage through the flue, while the opening at its lower end is of sufficient size to enable it to project downward past the top of the flue and leave sufficient space, as shown at *g*, for the passage of air. This wind-guard is supported by means of brackets H, which are formed of the same strips of metal as are the bridges D, said brackets forming continuations of the said bridges, and being provided at their outer ends with hooks *h* which engage the lower edge of the wind-guard. In other respects these bridges are similar to the bridges already described, and support a ring E′ which is similar to the rings E, except that it does not extend above the top of the pipe sections which support it. When secured in place by mortar, or other suitable means, this ring effectually prevents the weight of the wind-guard from displacing the bridges.

Having thus described our invention, the following is what we claim as new therein and desire to secure by Letters Patent:

1. A flue, having double walls with an intervening air-space, said walls being built up of a number of separate sections of pipe placed end to end, and means dividing said air space into separate dead-air spaces substantially as set forth.

2. A flue, having double walls with an intervening air-space, bridges supported by the walls and spanning the air-space, and means supported by the bridges and dividing the air-space into separate dead-air chambers, substantially as set forth.

3. A flue, having double walls with an intervening air-space, each of said walls being built up of a number of separate sections of pipe placed end to end and arranged so that the joints of one wall are opposite the joints of the other wall, bridges supported by the walls and spanning the space between them, and rings supported by the bridges and breaking joints with the sections of pipe of which the walls are built up, substantially as set forth.

4. A flue, having double walls with an intervening air space, said walls being built up of a number of separate sections of pipe placed end to end and so arranged that the joints of one wall are opposite the joints of the other wall, bridges supported by the walls and spanning the air-space, said bridges being bent to form shoulders which engage the walls and center the pipe sections of which the inner wall is built up, substantially as set forth.

5. A flue, having double walls with an intervening air-space, said walls being built up of a number of separate sections of pipe placed end to end, bridges supported by the walls and spanning the air-space, rings supported by the bridges, and mortar or similar material filling the joints between the several parts, substantially as set forth.

6. A flue, having double walls with an intervening air-space, said walls being built up of a number of separate sections of pipe placed end to end and so arranged that the joints of one wall are opposite the joints of the other wall, bridges supported by the walls and spanning the air-space, rings supported by the bridges and breaking joints with the sections of pipe of which the walls are built up, and mortar or similar material filling the

spaces between the walls and ring, substantially as set forth.

7. A flue, having double walls, bridges resting upon the top of the flue and having portions bent downward between said walls, a ring supported by said bridges, brackets formed in continuation of said bridges, and a wind-guard supported by said brackets, substantially as set forth.

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