A. G. SCHERER.

DOUBLE WALL HOT AIR CONVEYER OR STACK.

APPLICATION FILED NOV. 16, 1911.

1,085,303. Patented Jan. 27, 1914.

Fig. 1.

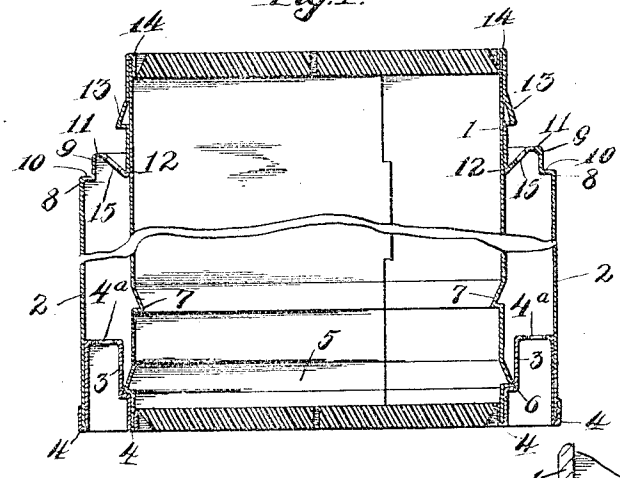


Fig. 2.

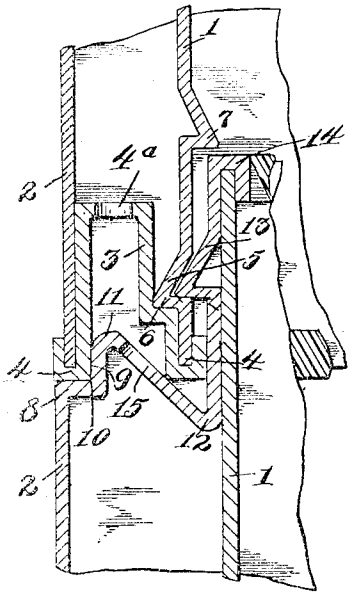
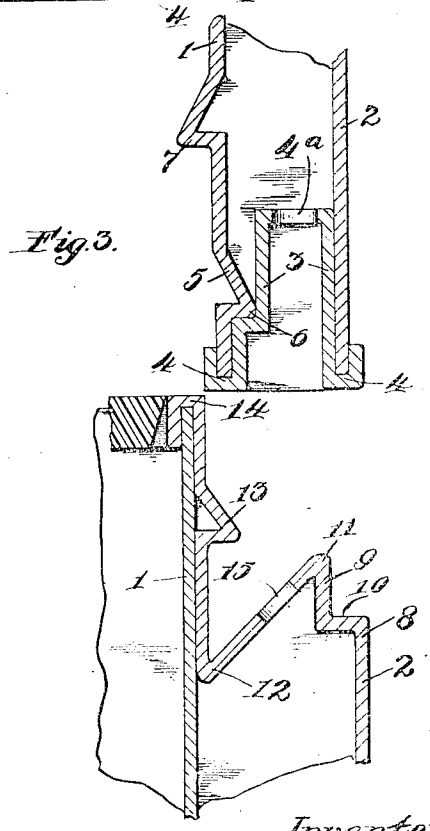


Fig. 3.



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UNITED STATES PATENT OFFICE.

ALBERT G. SCHERER, OF CHICAGO, ILLINOIS, ASSIGNOR TO THE EXCELSIOR STEEL FURNACE COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

DOUBLE-WALL HOT-AIR CONVEYER OR STACK.

1,085,303. Specification of Letters Patent. Patented Jan. 27, 1914.

Application filed November 16, 1911. Serial No. 660,663.

To all whom it may concern:

Be it known that I, ALBERT G. SCHERER, a citizen of the United States, and a resident of Chicago, in the county of Cook and State of Illinois, have invented a new and useful Double-Wall Hot-Air Conveyer or Stack, of which the following is a specification.

My present invention relates to improvements in double wall hot air conveyer or stack. In such stack the two walls are kept separate so as to form an air space between the inner wall inside of which the hot air from the furnace passes, and the outer wall which contacts with portions of the building in which the stack is installed. This arrangement is for the purpose of keeping the outside wall as cool as possible, and thereby minimizing the possibility of heating the outer wall to such a point as would cause it to ignite the portions of the building with which it comes in contact.

Double wall stack requires special machinery for its manufacture, and for that reason it is made in the factory in sections which are put together on the job. Carelessness in installing the stack, some accident, or the settling of the building may occasion the separation of such sections, in which case the hot air direct from the furnace would escape from the stack, and come directly in contact with unprotected portions of the building, which not only occasions a serious loss in efficiency but materially increases the fire hazard.

The objects of my present invention are, first, the provision of means in such double wall stack for securely locking the respective sections together, and, second, the improvement of the structure so that it is both stronger, and simpler to manufacture than heretofore.

I secure the above objects by the structures illustrated in the accompanying drawing, in which—

Figure 1 is a transverse section through a length or section of double wall hot air stack embodying my invention; Fig. 2 is an enlarged detail section showing the manner in which the walls of one length engage those of another length; and Fig. 3 is a view similar to Fig. 2 in which the walls are in position for engagement, but not engaged.

Similar reference characters refer to similar parts throughout the several views.

The reference numeral, 1, designates the inner wall of a double wall hot air conduit, and 2 the outer wall thereof. The ends of the inner and outer walls lie in the same plane at what may be termed the bottom of the section. A piece 3 of substantially U-shaped cross-section is inserted between these walls and the edges thereof are bent over the inner and outer walls at 4, to secure it in position. The bottom of the piece, 3, is provided with a series of apertures, 4^a, so that the inclosed space between the outer and inner walls of one length or section will have communication with the similar space in the adjacent sections.

The inner wall near its lower end has formed therein a crease or depression 5, which is of angular cross section and disposed so that it forms a right angle shoulder, 6, with the lower end of the said wall. A part of the piece, 3, is conformed to the lower portion of this depression, 5, which reinforces the metal at that point, and strengthens the said shoulder, 6. Above the depression, 5, the metal of the inner wall is again creased, but, this time the crease is made so as to form a shoulder, 7, extending in the opposite direction from the crease, 5, and into the inner or hot air carrying channel. This shoulder, 7, is to form a stop which, with a stop to be hereafter described for the outer walls, receives the thrust of the adjacent section when the sections are assembled.

In order to assemble and lock with the bottom of the section, formed as just described, the top of the section is made as follows:— Some distance below the termination of the inner wall, 1, the outer wall, 2, is bent inwardly at 8, and upwardly at 9, to form the shoulder, 10, for receiving the thrust of the outer wall of the adjacent section. A short distance above the point, 9, the outer wall is again bent at 11 downwardly and inwardly, and where it reaches the inner wall, 1, it is bent upwardly at 12 so as to extend upwardly in contact with said inner wall. Before it reaches the upper end of the inner wall, however, it has formed therein an angular projection, 13, so located as to extend into the depression, 5, in the inner wall, when two sections are assembled. After the formation of the projection, 13, the wall, 2, is carried to the upper end of the inner wall, 1, and seamed down upon it at 14 to secure the parts in assembly.

The wall, 2, between the bends at 11, and

12, is provided with apertures, 15, similar to and for the same purpose as the apertures 4.

By giving the wall, 2, between the points 11 and 12 the angular direction, as clearly seen in Figs. 2 and 3, means are provided for directing the inner wall of the adjacent section against the projection, 13, so as to cause the projection to enter the depression, 5, and to maintain it in that position after the parts are assembled.

The above described and illustrated form of double wall stack is simple to manufacture, rigid, so that the outer and inner walls are not liable to be collapsed or forced together, and forms a lock between the respective sections which will prevent their accidental disengagement.

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

1. In a length of double wall hot air conduit, comprising an inner and an outer wall, means at one end thereof for maintaining the spaced relation of said walls, the inner wall at said end having a channel or depression therein; at the other end the outer wall of said conduit being formed into a shoulder to receive the outer wall of an adjacent length, then bent downwardly at an angle to receive the inner wall of the said adjacent section then carried upwardly against the inner wall, and turned over said wall, and a projection formed in said upwardly extending portion adapted to enter the depression in the inner wall of an adjacent section when two sections are in assembly.

2. A length of double wall hot air conduit, comprising an inner and an outer wall, a spacer of substantially U-shaped cross section between the inner and outer walls thereof at one end, said inner wall at said end having a channel or depression therein, the outer wall at the other end thereof being formed into a shoulder to receive the outer wall, and an angular recess to receive the inner wall of an adjacent section, said outer wall being then formed to enter the inner wall of an adjacent section and having a projection formed therein to enter the channel of the inner wall of such section.

3. A length of double wall hot air conduit, comprising an inner and an outer wall, at one end a spacer between the inner and outer walls, the inner surface of the inner wall having a channel of angular cross section, and a shoulder back of said channel; at the other end, the outer wall having formed therein a shoulder and an angular depression to receive respectively the outer and inner walls of an adjacent section, the said outer wall being further formed to enter the inner wall of said adjacent section, with a projection to enter the channel in such inner wall.

4. A double wall section of hot air conduit, comprising an inner and an outer wall, the outer wall at one end thereof being formed with a shoulder to receive the opposite outer wall of an adjacent section, a downwardly slanting portion and a vertical portion, said portions forming a depression to receive the opposite inner wall of such section; said vertical portion having a transverse projection therefrom, whereby when two sections are assembled the thrust of the inner wall of one section against said slanting portion will hold it against said projection.

In testimony whereof I have hereunto set my hand in the presence of two witnesses.

ALBERT G. SCHERER.

Witnesses:
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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."