





# UNITED STATES PATENT OFFICE.

JOHN WM. ZUCH, OF MARSHALLTOWN, IOWA, ASSIGNOR TO THE LENNOX FURNACE CO., OF MARSHALLTOWN, IOWA, A CORPORATION OF IOWA.

## HOT-AIR WALL-PIPE.

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Specification of Letters Patent.

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*To all whom it may concern:*

Be it known that I, JOHN WILLIAM ZUCH, a citizen of the United States of America, and a resident of Marshalltown, in the county of Marshall and State of Iowa, have invented certain new and useful Improvements in Hot-Air Wall-Pipes, of which the following is a specification.

This invention relates to an improvement in hot-air wall-pipe, or, more particularly speaking, to wall-pipe made in joints or sections whose opposite ends slightly telescope and whose walls are made double with an intervening air-space, to and from which air-space suitable perforations or passage-orifices are provided, and the object of the present invention is to provide each of such partially-telescopic sections in two independent corresponding L-shape members having rigid angles or corners and that freely interlock along two of their respective longitudinal edges and are thus adapted for use either with or without soldering or riveting and, also, adapted in a separated or knock-down manner for packing and shipping in compact form and, also, adapting the several members of each section to be readily replaced or repaired in the event of indenting or other similar injury, which latter is reduced to a minimum owing to said compact form of packing.

Other features of the invention will be fully hereinafter described and particularly pointed out in the claims.

In the accompanying sheet of drawings, illustrating my invention, Figure 1 is a view partly in section and partly in elevation, but mostly in elevation, showing a series of four joints or sections of pipe connected together in horizontal array (to accommodate this figure sidewise on the sheet,) the interlocking parts of the two joints at the right end of the view being shown, the interlocking parts of the second and third joints being shown broken away and in section, and the interlocking parts between the third and fourth sections to the left being also shown broken away and in section at one corner to show the manner of interlocking said parts; Fig. 2, a perspective view of one of the joints or sections of wall-pipe comprising my invention, the two independent separable members thereof being shown closed or connected together ready for use in connection with other similarly closed joints or sec-

tions; Fig. 3, a perspective view similar to Fig. 2, but showing both of the said independent separable members of the joint or section thrown apart; Fig. 4, a sectional elevation taken on the line *a, a*, of Fig. 1, showing fragmentary parts of two connecting joints or sections of my wall-pipe; Fig. 5, a cross-section taken on the line *b, b*, of Fig. 1, showing a section of wall-pipe made up of two independent corresponding members with such members connected together in accordance with my invention herein; Fig. 6, a diagraphic view showing fragmentary portions of the two independent members of a pipe-joint at one of its separably-united corners, this view bringing more clearly to view the two connecting edges comprising the separable corner of my pipe-joint the walls of which are made double with an intervening air-space and such double-wall form being shown in the previous views; Fig. 7, a diagraphic view similar to Fig. 6, but showing my pipe joint or section as it appears when made up of single sheet walls and, also, showing the same kind of connection (as seen in Fig. 6) between the edges of said independent separable members at one of the longitudinal connecting corners thereof; and Fig. 8, a diagraphic view showing the manner in which the independent separated members of the pipe sections or joints are nested for packing and shipping.

In these views, it will be seen that each pipe joint or section is made up of two independent members, each member being L-shape in cross-section and each member thus having a body portion 1 with an integral side portion 2, the latter lying at a rigid right-angle to said body portion.

I have shown in all the views, except the last two (Figs. 7 and 8) the several independent members of each joint or section as being made double-walled with an intervening air-space between the sheets forming such double walls. The outer wall of such double walls forms the main shells of the several members or sections, the inner sheets of such double walls forming auxiliary shells for such sections, and it will be seen that the single wall or sheet form seen in Fig. 7 is practically the same in construction, so far as this invention is concerned, as said outer sheets of the double-wall construction.

I will first describe in detail the construc-



tion of each of the single wall members of the pipe-joint herein and then take up the construction of the double-wall form that includes the inner sheets duly spaced from the outer sheets.

I have referred above to the body portion 1 having the lateral side portions 2 and comprising each of the several independent members of each pipe-joint. Such members being each L-shape in cross-section, each of the lateral side portions 2 is made flat or plane and its inner longitudinal edge is bent or folded on itself inwardly at 3, and then again bent outwardly at 4 with a space 5 intervening said bends 3 and 4 and said part 4 extending beyond the edge of its first bend that forms the part 3, as best seen in Fig. 7. I have shown in said Fig. 7 but one of the sides of a joint or section, the other side being similar thereto and a shallow bend or flange 6 being made in the metal sheet along the other edge of the body portion 1, opposite to that of the side portion 2. In assembling the two independent members comprising my joint or section of pipe the shallow bent edge or flange 6 is inserted in the space or slit 5 between the bends 3 and 4 of the side portion 2, such space 5 being just sufficient to comfortably or snugly receive said flange 6 and frictionally-hold the two members together. Said frictional-engagement of the flange 6 is sufficient for ordinary purposes in setting up the pipe in place in walls or elsewhere, but in the event the pipe is to be used in a place where the two members are apt to separate, owing to extraordinary conditions, solder can be very readily applied, with a drop thereof at several points between the opposite ends of each joint, on the longitudinally interlocking parts comprising the bends 3, 4 and 6.

In the double wall form of pipe-section, the parts 1, 2, 3, 4, 5 and 6 are practically the same as those just described in connection with the single wall form, except that the part or bend 4 in the metal along the part 2 does not extend beyond the line of the edge of the first bend that forms the part 3, but instead thereof, the said first bend in the part 2 extends beyond the line of the edge of said part 4, all as best seen in Fig. 6. The parts thus far named comprise the outer sheets or shells of the several members forming a part of the double wall form, the inner shell or wall of such double wall form having a body portion 7 with an integral lateral extension 8 at one end thereof and a shallow lateral extension 9 at the other end thereof, the extension 8 projecting in a direction opposite to that of the extension 9. The shallow extension 9 is disposed at a right-angle outwardly from the body portion 7 and abuts the inner face of the part 6 on the body portion 1 of the outer shell with its outer edge resting in the corner resulting from the bend

in the metal in constructing the part 6 on the part 1. The extension or bent part 9 thus spaces the body portion 7 from the wall 1 and forms an air-chamber between said parts 1 and 7 in each of the several independent members forming my pipe-joint. The part 8 at the other end of the part 7 of the inner sheet or shell is bent along its outer edge so as to provide an extension 10 parallel thereto and spaced away therefrom sufficient to leave a space between the parts 2 and 8 of the same width as that between the parts 1 and 7, such space forming an air-chamber along the narrow sides of the double form of pipe-section. The part 10 is inserted in the space between the parts 3 and 4 and is brought snugly up against the part 4 with a space intervening between it (part 10) and the part 3, such space forming the longitudinal interlocking receptacle for the portion of part 6 that extends beyond the face of part 7 all as best seen in Fig. 6.

The opposite ends of the several members forming my double pipe section are closed by means of shouldered parts 11 and 12, part 11 being a shouldered one facing outwardly and forming the upper end of the joint and part 12 facing inwardly and forming the lower end of the joint, such shouldered parts telescoping or engaging each other, as best seen in Fig. 4, wherein two sections of pipe are united in standing position for use. Shouldered parts 12, at both ends of the several members of my pipe-joint, are provided with a series of perforations 13, such perforations registering when joints are connected together and permitting a circulation of air in the hollow walls of the double form of pipe-joints. The air space in my double form of pipe-joint provides a suitable insulation for the wall-pipe and prevents the radiation of heat and cold to and from the hot air passage in the wall-pipe, as customary.

The separable two-part knock-down form of wall-pipe sections above described and shown in the drawings is particularly efficacious in the convenience afforded for storage and shipping, saving of crating the goods, economizing in rates for freighting and in the facility of repairing the sheets in case of damage by shipping or other handling.

It is quite obvious, without resorting to illustration in the drawings or extended description herein, that the wall-pipe can be made of two semicircular members instead of L-shape ones, each semicircular member having a plane flange along one longitudinal edge and a channeled or guttered flange along its other longitudinal edge for separable interlocking engagement. The cylindrical pipe resulting from the use of separable interlocking members can be of any suitable diameter for the purposes intended, hot air wall-pipe and stove-pipe being included in



such purposes. The sections of piping being thus separable when made on my two corresponding, independent member form, especially when used as stove-piping, each member of a section or joint can be very readily separated from the other and cleaned or replaced without affecting the other corresponding members.

I claim:—

10 1. As a new article of manufacture, a pipe-joint composed of two independent and interchangeable corresponding members each of L-shape or right-angle cross-section and with a rigid or integral corner or angle  
15 and adapted to be longitudinally-interlocked and freely engagable and separable laterally along their outer or free edges to and from each other.

20 2. A pipe-joint comprising two independent corresponding members each L-shape in cross-section and longitudinally-interlocking and separable, each L-shape member having a longitudinal plane flange-edge and a longitudinal channeled or guttered flange-edge,  
25 the plane flange-edge of one member separably-interlocking lengthwise with the chan-

neled or guttered flange-edge of the other member.

3. Wall-pipe comprising joints or sections whose opposite ends interlock or telescope 30 and each of which joints is composed of two independent corresponding members each L-shape in cross-section and having plane and grooved longitudinal flange-edges that respectively and separably interlock length- 35 wise.

4. Wall-pipe comprising separable joints or sections each such joint being composed of two independent corresponding members that are each L-shape in cross-section and 40 that separably interlock lengthwise and are each provided with plane flanges along one longitudinal edge and channeled or guttered flanges along the other longitudinal edge, such plane flanges engaging the channeled 45 portions of said guttered flanges for said separable lengthwise-interlocking engagement.

JOHN WM. ZUCH.

Witnesses:

W. J. HEALD,

THEO. JOHNSTON.