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R. KLOMPARENS

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ADJUSTABLE BOOT

Filed Dec. 8, 1930

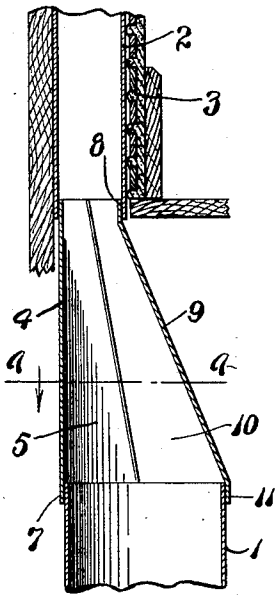


Fig. 1.

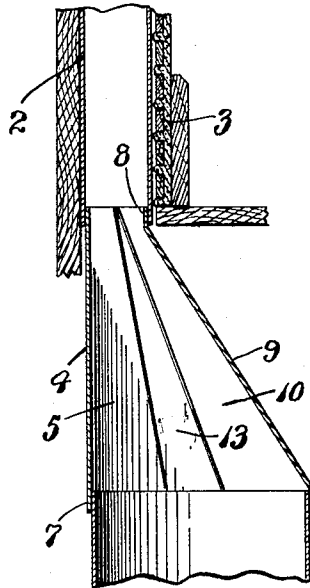


Fig. 2.

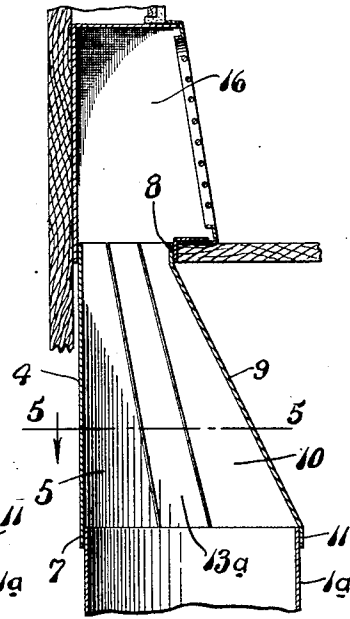


Fig. 3.

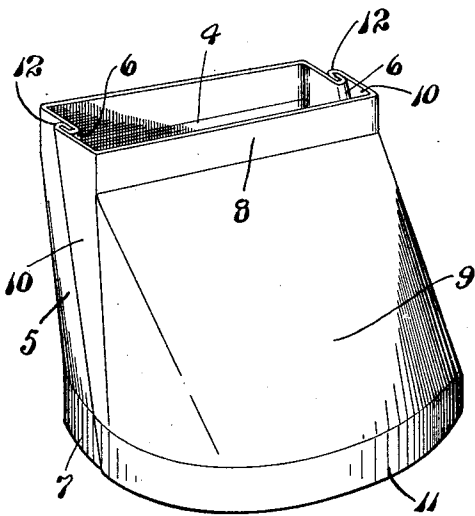


Fig. 6.

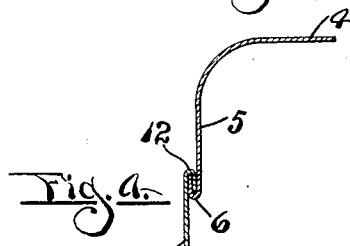


Fig. 4.

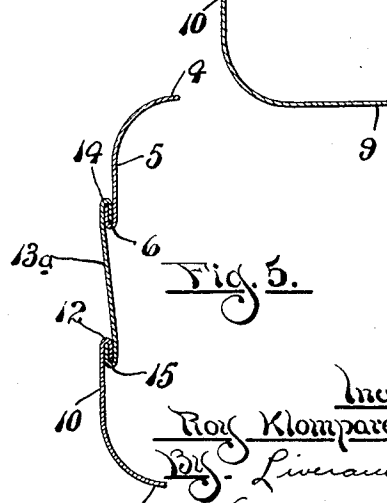


Fig. 5.

Inventor
Rog Klomprens
By - Liverance and
Van Antwerp
Attorneys

UNITED STATES PATENT OFFICE

ROY KLOMPARENS, OF PROVIDENCE, RHODE ISLAND

ADJUSTABLE BOOT

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This invention relates to boots of the character used to make connections between the warm air pipes of furnaces and either stacks or register casings. Stacks are used in furnace installations for carrying the warm air from the warm air pipes to floors above the first story in a house or building and are of rectangular form in cross section, being located within the walls of the building. The furnace registers direct the warm air into a room and are usually mounted in a wall of the room immediately above the floor and the register casing has a rectangular opening in its lower side.

The furnace pipes are of cylindrical form and with the different sizes of furnaces, or even in the same furnace, may be of different diameters. The boots used are to make a proper carrying conduit for warm air between the ends of the cylindrical warm air pipes and the lower ends of stacks of rectangular cross section, and also between the cylindrical end of pipes and the register casings having rectangular openings for the boots to associate therewith to carry the warm air to said casings.

The openings in the register casings are of a different size than of the opening at the lower end of a stack, that is, the width is different even though the length of the opening be the same in the stack. It has been previous practice to provide a size of stack or furnace casing opening which might be provided for receiving the upper end of the boot. Therefore, there have been many different sizes of boots previously required for furnace installations; and in many cases for the same furnace installation in a building several different sizes of boots have been necessary.

It is the primary object and purpose of the present invention to provide a boot construction of a universal character and one which can be adjusted by use of fillers or expanding members to make the same larger, so that a far less number of parts for the production of the boots used in furnace installation is attained, and there will be no danger of furnishing wrong sizes in boot constructions to the furnace installer when a furnace is to be installed in a house or building. A

further object of the invention is to make a universal boot construction which is simple and easy to produce and of a relatively inexpensive nature.

An understanding of the invention for the attainment of the ends stated may be had from the following description, taken in connection with the accompanying drawing, in which,

Fig. 1 is a vertical section illustrating the use of the boot of my invention between a stack and a furnace pipe of the smallest size used.

Fig. 2 is a like vertical section showing the boot adjusted for use between a stack of the same size as that shown in Fig. 1 and a furnace pipe of a larger size.

Fig. 3 is a like section illustrating the boot adjusted for use between a furnace pipe of the same size as shown in Fig. 2 and a furnace register casing in which the opening is of greater size than at the lower end of the stack.

Figs. 4 and 5 are horizontal sections taken, respectively, on the planes of line 4—4 of Fig. 1 and of line 5—5 of Fig. 3, and

Fig. 6 is a perspective view of the furnace boot, as in Fig. 1, without the use of fillers to enlarge it for other conditions of installation.

Like reference characters refer to like parts in the different figures of the drawing.

The furnace pipe 1 is of cylindrical form and of the smallest size which is used in standard furnace construction. There may be several of these pipes of the same or larger sizes leading from a furnace casing to carry warm air to different rooms. The stack 2 of sheet metal is of rectangular form and located vertically in the wall 3 of a house or building. The stack of rectangular form has an opening at its lower end which is of considerably greater length in one dimension than in the other.

The universal boot construction which I have invented is made of two separable parts which may be either directly joined together or joined together with the insertion of expanding fillers between the same so as to enlarge the boot for larger sizes of furnace

pipes or openings into which the boot at its upper end is inserted.

One part of the boot comprises a vertical back 4 of thin sheet metal from which sides 5 are bent to lie at substantially right angles and the edges of said sides are formed with U-shaped lips 6 bent outwardly and then back upon each of said sides 5, while the lower end portion of this part of the boot is shaped substantially in the arc of a circle, as indicated at 7. The upper end of this section of the boot has the sides 5 turned from the back 4 at right angles as shown in Fig. 6, while below the bends may be of a rounded character as indicated in Fig. 4.

When a larger furnace pipe, such as indicated at 1a in Fig. 2, is to have the boot connection made between it and the end of a stack, such as 2, a filler 13, also made of sheet metal, is used and located between the sides 5 and 10 of the two parts of the boot. This filler is formed at one edge with an inturned U-shaped engaging lip to interlock with a lip 6, and at its other edge with an outturned U-shaped lip to engage with an inturned lip 12. The filler 13, as shown in Fig. 2, is of triangular form, coming to a point at its upper end, as the enlargement of the boot is to be at the lower end to connect with the large furnace pipe 1a, while the upper end of the boot is the same size to fit within the same size of stack 2.

When the boot is used with a large furnace pipe, such as pipe 1a, to carry warm air from it to a furnace register, as 16 in Fig. 3, the opening in the bottom of the furnace register is of greater width than the opening in a stack 2, and a filler 13a is correspondingly widened at its upper end but otherwise there is no difference in the construction. The widening of the filler strips 13a at their upper ends makes the boot at its upper end wider so as to correspond to the opening in the furnace casing made to receive it. The filler strips 13a have lips 12 and 14, which interlock with the lips 15 and 6, respectively.

The filler strips 13 and 13a may be of several different characters as to shape for different conditions to be met. For instance, if the register casing 16 and a smaller furnace pipe like that shown in Fig. 1 are to be joined together by a boot the filler strip used would come to a point at its lower end.

This construction of universal boot for furnace installation is a very practical one. The two principal parts of the boot are the same in all cases and there need be only the use of the proper fillers 13 or 13a, or any other filler which may be designed for a different condition; and in installing a furnace a sufficient number of the principal or major parts of the boots required in the installation may be sent together with a large number of the different varieties of fillers, so there will be no question but that all of the re-

quired materials are at hand for the proper installation of a furnace. The invention reduces the number of boots required to be manufactured and kept on hand in the factory, with a great saving of space for storage, inasmuch as the two major parts of a boot are readily nested with others and the filler members 13 and 13a occupy little or no space. The invention has proved of great practical merit. It is defined in the appended claims and is to be considered comprehensive of all forms of structure coming within their scope.

I claim:

1. A furnace boot including, two members each having sides adapted to extend toward the sides of the other member and formed at their free edges with means to interengage with like means on the edges of the sides of the other members, and filler strips located between the free edge portions of the sides of said boot members, and likewise formed with cooperating interengaging means at their edges to engage with said means at the free edges of the sides of the boot members; whereby the boot may be assembled by joining the two members with the filler strips between them.

2. A boot for furnaces comprising, two members made of sheet metal, one of said members having a back with spaced sides extending therefrom, and the other of said members having a front with spaced sides extending therefrom toward the sides of the first members, interengaging means at the free edges of the sides of said members adapted to be positioned together to form an interlocking engagement, said boot members being so formed that when joined together there is provided a rectangular opening at one end of the boot and a circular opening at the opposite end and a filler strip having engaging means along both edges whereby it may be inserted between adjacent edges of one set of the sides.

3. A furnace boot including two members of thin sheet metal, each having spaced sides, the sides of said members extending toward each other, and filler strips wider at one end than at the other, also of sheet metal, disposed between the free edge portions of said sides of the boot members, means at the edge portions of the filler strips and complementary means to engage therewith at the free edge portions of the sides of the boot members adapted to have interlocking engagement, for the purposes specified.

4. A furnace boot comprising, two main boot members and a pair of filler strips, said boot members having sides adapted to extend toward each other and the filler strips being adapted to be located between said sides to adjust the size of said boot, said sides of the boot members at their free edge portions and said filler strips at their edge portions being formed with complementary engaging means,

whereby furnace boots of a plurality of sizes may be produced.

5 5. A furnace boot comprising, two main boot members and a pair of filler strips, said filler strips being located between said main members at their edges to adjust the size of said boot, said edges of the boot members and said filler strips being formed with complementary engaging means.

10 6. In a furnace boot having a longitudinal parting at one side of the combination of a tapered filler strip adapted to slidably engage the edges of said parting for the purpose described.

15 In testimony whereof I affix my signature.
ROY KLOMPARENS.

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