Sept. 4, 1962 W. A. CONRAD 3,052,230

EXTENSIBLE FLUE PIPE ASSEMBLY

Filed Dec. 28, 1959

Fig. 1.

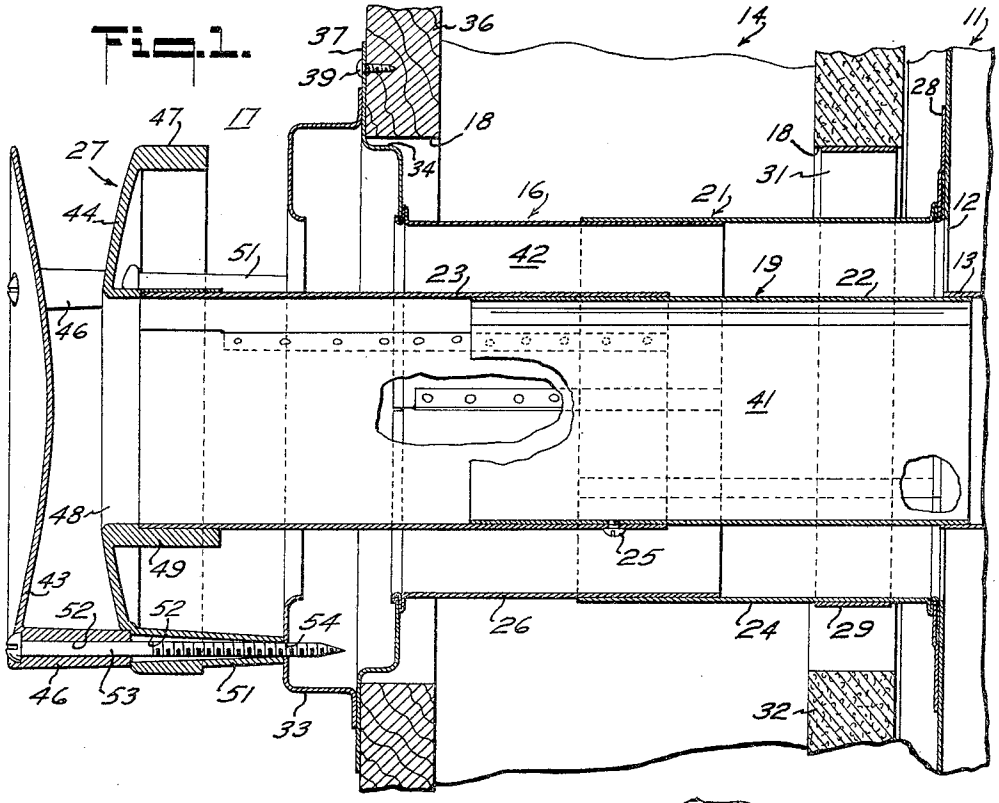
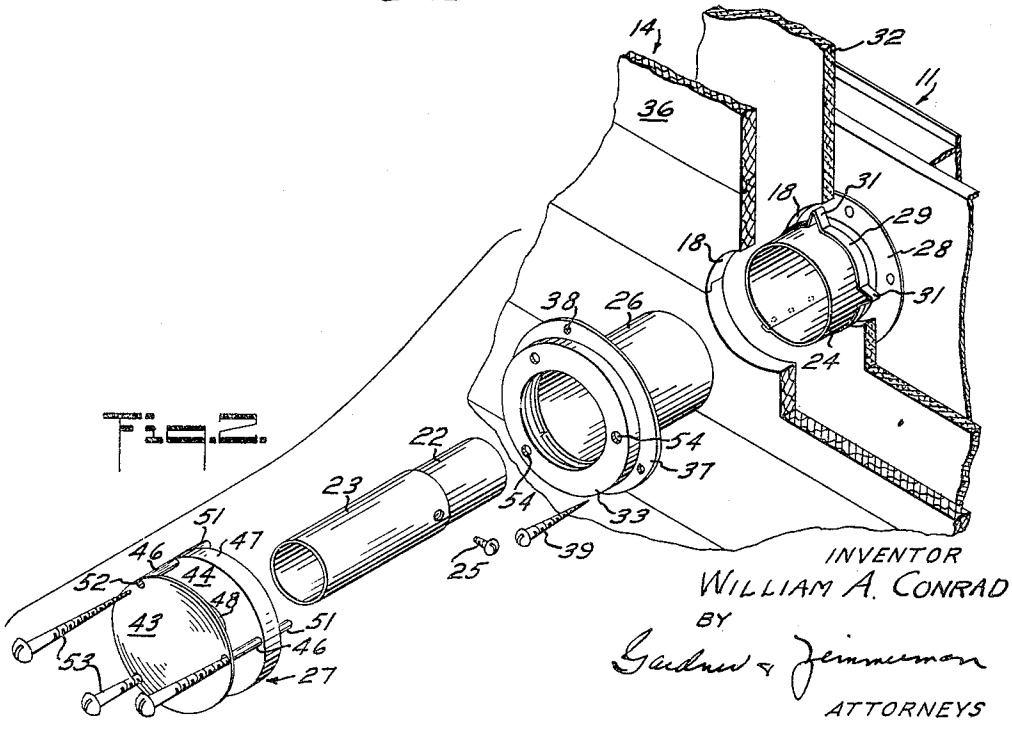


Fig. 2.



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3,052,230

Patented Sept. 4, 1962

3,052,230

EXTENSIBLE FLUE PIPE ASSEMBLY

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Filed Dec. 28, 1959, Ser. No. 862,274
3 Claims. (Cl. 126—307)

The present invention relates generally to flue pipe structures for venting gas heaters and the like and is particularly directed to a telescoping coaxial flue pipe assembly.

A variety of wall heaters are available which utilize coaxial flue pipes to admit air to the combustion chamber and at the same time exhaust the dangerous combustion products therefrom to the external atmosphere. Such wall heaters are commonly positioned against an exterior wall of the dwelling in which employed and the flue pipe extended from a coaxial inlet and outlet fitting at the rear of the heater directly through the wall to the outside. Inlet air then enters the heater through, for example, the outer annular passage through the coaxial flue pipe and the combustion gases are exhausted from the heater through the central passage of the pipe. Inasmuch as the wall thickness of different dwellings may vary considerably coaxial flue pipes of a number of different lengths have been required to insure wall heater installation in all locations. This is of course disadvantageous from the standpoints of economy of manufacture as well as merchandising.

It is therefore a principal object of the present invention to provide a wall heater coaxial flue pipe assembly that will fit walls of substantially any thickness.

Another object of the invention is the provision of a telescoping coaxial flue pipe assembly that may be extended to any desired length within practical limits of wall thickness.

It is still another object of the invention to provide a coaxial flue pipe assembly of the class described that is easy to install.

A further object of this invention is to provide a universal coaxial flue pipe for wall heaters with an attendant reduction in manufacturing cost compared to existing coaxial flue pipe structures.

The invention possesses other objects and features of advantage, some of which, with the foregoing, will be set forth in the following description of the preferred form of the invention which is illustrated in the drawing accompanying and forming part of the specification. It is to be understood, however, that variations in the showing made by the said drawing and description may be adopted within the scope of the invention as set forth in the claims.

FIGURE 1 is an elevational section view of the coaxial flue pipe assembly in assembled condition with an exterior wall.

FIGURE 2 is a disassembled perspective view with portions broken away illustrating the interrelation of the elements of the assembly in its installation with an exterior wall.

Referring now to the drawing there is seen to be provided a conventional wall heater 11 provided with the usual inlet port 12 in the rear wall of the combustion chamber thereof and an exhaust stub 13 projecting into the combustion chamber in coaxial relation to the port. The heater is positioned adjacent an exterior wall 14 and a coaxial flue pipe assembly 16 in accordance with the present invention is connected to the inlet port and exhaust stub. The flue pipe assembly is arranged for extension to the outside atmosphere as indicated generally at 17 through a hole 18 cut into the wall 14. The flue pipe assembly serves to convey air from the outside atmosphere to the inlet port 12 and to convey combustion gases from the exhaust stub 13 to the outside atmosphere.

Heretofore coaxial flue pipes for the foregoing purpose had to be provided in a number of different lengths, cut to appropriate length, or otherwise adapted to the thickness of a given exterior wall. In accordance with the flue pipe assembly 16 of the present invention, however, the assembly may be readily adjusted to a length conforming to substantially any thickness of the wall 14 prior to installation. To this end, the assembly includes coaxial inner and outer extensible tubular members 19 and 21 which may be extended to substantially any desired length. Preferably, the extensible member 19 is formed of telescoping sections 22, 23 whereas the member 21 is similarly formed of telescoping sections 24 and 26. Sections 22 and 23 may be secured in any suitable extended position as by means of a set screw 25. In order that the inner extensible member 19 be fixed in coaxial position within the outer member 21 in the final assembly, the interior end of member 19 is adapted for tight fitting insertion into the exhaust stub 13 of the heater 11. Support at the exterior end of member 19 is provided by means of a cap 27 secured coaxially between the inner member and outer member 21, which latter member is in turn secured to the wall 14 and heater 11 in a manner subsequently described.

More specifically, it is to be noted that telescoping section 22 of inner member 19 preferably fits into the end of the stub 13. Telescoping section 24 of outer member 21 is provided with a flange 28 to facilitate end connection to the rear wall of heater 11 in circumscribing relation to inlet port 12. A spacer collar 29 having circumferentially spaced projecting ears 31 is disposed about section 24 to space same from the interior siding 32 of the wall in the region thereof surrounding the hole 18.

Telescoping section 26 of outer member 21 is slidably disposed within the end of section 24. Section 26, moreover, is formed with a hollow enlarged open exterior end portion 33 having an inwardly stepped annular shoulder 34 at its inner face for insertion into the portion of hole 18 that extends through the exterior siding 36 of wall 14. Attachment of the outer member 21 to siding 36 is then facilitated by a flange 37 extending radially outward from the enlarged end portion 33 at the step that forms shoulder 34. More particularly the flange is provided with circumferentially spaced holes 38 through which wood screws 39 or equivalent fasteners may be inserted and screwed into the siding 36, thus rigidly securing the outer member 21 to the wall.

Considering now more particularly the cap 27 that facilitates exterior end support of inner member 19 coaxially within outer member 21, it should be noted that the cap also provides for the communication of the inner and outer passages 41 and 42 defined by the coaxial members with the outside atmosphere. More particularly the cap includes opposed indented discs 43 and 44 secured in spaced relation as by means of spacers 46 disposed at circumferential intervals thereabout. The disc 44 is formed with an outwardly turned rim 47 and a central aperture 48 of a diameter substantially equal that of inner member 19. In addition a second outwardly turned rim 49 is provided in circumscribing relation to the aperture 48 and is arranged to receive the end of section 23 of inner member 19. The disc 44 is then spaced from the enlarged end portion 33 of outer member 21 by means of spacers 51 in respective registry with spacers 46. Bores 52 extend through the respective sets of spacers 46 and 51 for receiving machine screws 53 or the like. Registering holes 54 are correspondingly provided in the face of enlarged end portion 33 to receive the tips of the machine screws 53 as extended through the bores 52. The machine screws may

hence be tightened to secure the cap 27 to the enlarged end portion of the outer member 21. It is particularly important to note that with the foregoing arrangement of cap 27, the inner passage 41 communicates with the outside atmosphere through the space between discs 43 and 44. The outer passage 42 similarly communicates with the outside atmosphere through the space between disc 44 and enlarged end portion 33 of outer member 21.

To install the coaxial flue assembly 16, the hole 18 is first cut through the exterior wall 14 at a point in registry with the inlet port 12 of the wall heater 11. The inner member 19 is then extended to a suitable length to conform to the particular thickness of the wall 14 and the set screw 25 tightened. The end of telescoping section 22 is placed upon the exhaust stub 13 of the heater and telescoping section 24 of the outer member 21 is secured by means of flange 28 to the rear wall of the heater in coaxial relation to inlet port 12. The heater may now be placed against the wall with inner member 19 and section 24 of outer member 21 extending through the hole 18, the spacer collar 29 having been first placed upon section 24 and appropriately positioned in the hole. Telescoping section 26 of the outer member is next inserted through the hole 18 from the exterior side of the wall and over telescoping section 24. The section 26 is urged into the hole until the shoulder 34 engages the edge of the hole and the flange 37 is flush with the exterior siding 36. The wood screws 39 are now employed to secure the flange fast to the siding. The rim 49 of cap 27 is then urged over the end of inner member 19 to a location where the spacers 51 bear against the face of enlarged end portion 33 of outer member 21. Finally the machine screws 53 are inserted into the bores 52 and screwed into the holes 54 to thus tightly secure the cap to the coaxial members 19 and 21 and complete the assembly.

What is claimed is:

1. A flue pipe assembly adapted for connection to an inlet port and coaxial exhaust stub of a wall heater and extension through a hole in an adjacent exterior wall of substantially any thickness and attachment to the exterior siding of the wall, said assembly comprising inner and outer tubular members disposed in radially spaced coaxial relation, each of said members formed of telescoping sections, said inner member to be connected to the exhaust stub of said heater and to extend through the hole in the wall, said outer member to extend through said hole and having a flange a its inner end to be secured to said heater in circumscribing relation to the inlet port, said outer member having an enlarged external end including an inwardly stepped shoulder for engaging the edges of said hole and a flange to be secured to the exterior siding of the wall, a centrally apertured indented disc having outwardly turned inner and outer rims circumscribing the aperture and periphery thereof with the inner rim engaging the exterior end of said inner member, said disc having bored spacers projecting into engagement with the enlarged external end of said outer member, a second indented disc disposed in spaced opposition to said first disc, bored spacers projecting from said second disc into engagement with said first disc at points of registry with the spacers projecting therefrom, and fastener means extending through registering sets of said bored spacers into attachment with the enlarged external end of said outer member.

2. A flue pipe assembly according to claim 1, further defined by a spacer collar disposed about said outer member to engage the edge of the hole through the wall to radially space the outer member therefrom.

3. In combination with a wall heater having a combustion chamber with an inlet port in the rear wall thereof and an exhaust stub projecting coaxially through the port into the interior of the chamber, and an exterior wall adjacent the rear wall of said combustion chamber with a hole in registry with said port, a flue pipe assembly comprising inner and outer radially spaced coaxial tubular members each formed of telescoping sections, one of the sections of, said outer member secured at one end to the rear wall of said combustion chamber in circumscribing relation to said port and one of said sections of said inner member coaxially end secured to said stub, said members telecopically expanded to extend through the hole in said exterior wall to the outside atmosphere, the other of said sections of said outer member having a flange at its outer end secured to said wall, an indented disc having a central aperture circumscribed by an outwardly turned rim engaging said outer end of the other of said sections of said inner member, said disc having bored spacers projecting longitudinally into engagement with said flange, a second indented disc disposed in longitudinally spaced opposition to said first disc, said second disc having bored spacers projecting longitudinally into engagement with said first discs at points of registry with the spacers projecting therefrom, and fasteners extending longitudinally through the respective registering sets of bored spacers into securance with said flange.

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