Nov. 15, 1932. K. BOHN 1,887,575

DRAFT HOOD

Original Filed Oct. 24, 1929 2 Sheets-Sheet 1

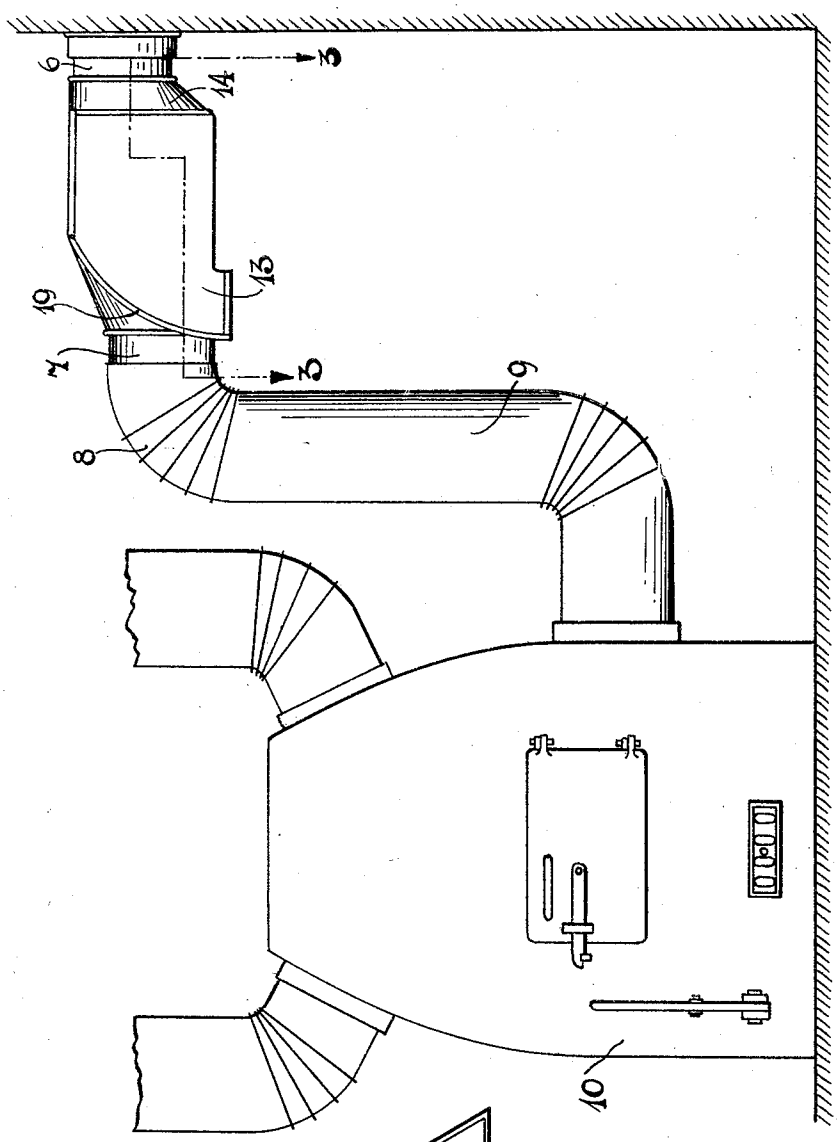


Fig. 1.

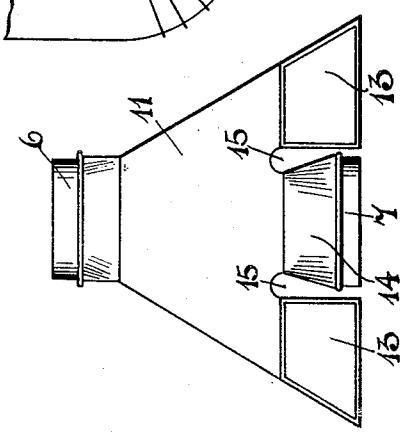


Fig. 2.

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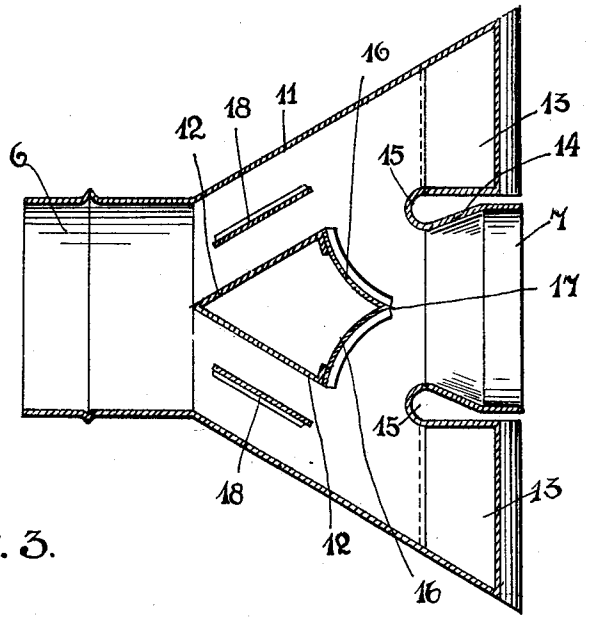


Fig. 3.

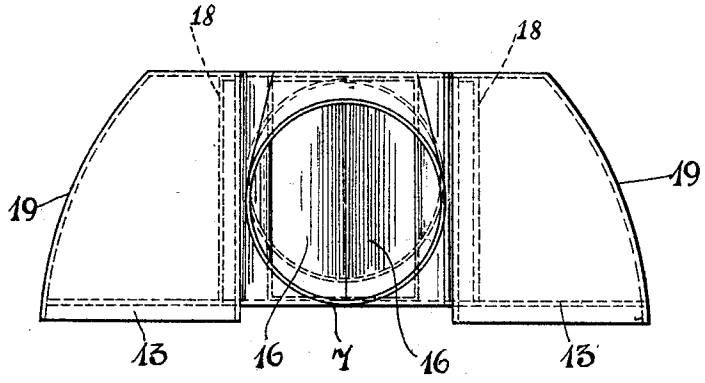


Fig. 4.

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UNITED STATES PATENT OFFICE

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DRAFT HOOD

Application filed October 24, 1929, Serial No. 402,292. Renewed August 22, 1932.

The invention relates to draft hoods and more especially to that type of draft hoods, which are used in connection with the smoke pipes leading from a furnace equipped with a gas burner to the flue.

By using draft hoods known heretofore, it was necessary to arrange the hood in the pipe line in such a manner, that the hood was standing vertically and this was a great disadvantage especially in cases where furnaces, that had been equipped with a heating apparatus for coal or the like, were changed so that they could be heated by means of a gas burner, built into the furnace and replacing the old heating equipment. In such cases the installation of a draft hood is an absolute necessity and it occurs frequently that the space for the arrangement of a hood in vertical position is so small, that it is hardly possible to install said hood.

The object of the present invention therefore is to provide a draft hood overcoming this disadvantage by being adapted to be installed in the pipe line in any desired angle from the horizontal to the vertical.

Other objects of the invention not specifically mentioned may be easily ascertained and understood from the following description in connection with the accompanying drawings forming a part thereof. It is however to be noted, that the invention is not to be limited or restricted to the exact construction and formation shown in the drawings and described in the specification, but that said invention is only to be limited by the scope of the claims appended hereto.

In the drawings illustrating a preferred embodiment of the invention:

Fig. 1 illustrates a hot air furnace in the flue of which a draft hood according to the present invention is inserted.

Fig. 2 is a bottom view of said hood.

Fig. 3 is a sectional view taken on line 3—3 of Fig. 1.

Fig. 4 is an end view of the hood, seen from that part of said hood which connects with the flue proper.

The hood according to the present invention has like other known hoods two tubular or pipe like portions, one of which 6 is adapted to be connected directly with a flue. The other pipe like portion 7 is according to Fig. 1 connected with an elbow 8 from which a pipe line 9 leads to the fire chamber of a furnace 10. It is however to be understood, that the tubular portion 7 may be connected directly with any kind of a horizontal or vertical part of a pipe line communicating with said fire chamber or with a part of such a pipe line extending in any other angle.

Between the two pipe like portions the hood has a frusto-pyramidal body 11, the smaller end whereof is connected to the tubular portion 6 while the pipe like portion 7 communicates with the larger end of the body 11.

The two tubular portions are arranged in such a manner, that they have a common axis. Inside of the body 11 a pair of baffle plates 12 are arranged in such a manner, that they extend parallel to a pair of oppositely arranged side walls of the body 11 and that they abut with one of their ends forming a wedge like body, the apex whereof is located approximately in the plane in which the first mentioned tubular portion 6 ends and communicates with the body 11.

On the larger end of the body 11 and arranged at both sides of the tubular portion 7 two exit channels 13 are provided and the inner side walls of said channels are connected with the side walls of a portion 14 interposed between the tubular portion 7 and the pyramid proper. The connecting part between the walls of the channels 13 and the connecting part 14 are preferably shaped semicircular as indicated at 15 in Figs. 2 and 3.

On those ends of the baffle plates 12 extending toward the larger part of the body 11, a pair of curved baffle plates 16 are attached, which abut with their other ends with each other as indicated at 17 in Fig. 3. The point at which these two curved baffle plates meet is also located on the common axis of the two tubular portions and preferably the two baffle plates 16 are curved so, that they form an arc being concentric with the semi-circular portion 15.

Between the first mentioned baffle plates 12 and the walls of the body 11 extending parallel to said baffle plates another pair of baffles 18 is arranged and extends parallel to said side walls and is preferably located so that each of said plates is positioned half way between a baffle plate 12 and the body 11 extending parallel thereto.

The outer wall of each of the two channels 13 may be curved downwardly as indicated at 19 in Figs. 1 and 4. The line on which these curved walls join the wall of the body 11 is also the line on which the center point for the semicircular shape of the connecting parts 15 is located and while the hood according to the present invention may be arranged between the pipe line and the flue at any desired angle, it is to be noted, that this connecting line should be kept always as nearly as possible horizontally for a reason which will appear later on.

The hood according to the present invention operates as follows:

When the furnace 10 is being heated the gases of combustion will travel through the pipe line 9 and the elbow 8 into the tubular portion 7 and through the connecting part 14 into the body 11. When entering the body 11 the gases of combustion will meet an obstacle in the shape of the curved baffle plates 16, so that the draft in the flue, with which the tubular portion 6 communicates cannot exert an overstrong sucking force on said gases of combustion. Said gases will be deflected by the curved baffle plates 16 and will then flow outwardly through the channels formed by the walls of the pyramid 11 and the baffle plates 12 arranged in the form of a wedge. In this manner the flame of the burner in the fire chamber of the furnace 10 is protected against the effects of an overstrong draft. If it should happen, that a reverse flow of air will travel through the chimney this current of air will meet the wedge formed by the baffle plates 12 and will be deflected thereby in such a direction, that it will not enter the connecting part 14 and the tubular portion 7 leading toward the fire chamber, but will be directed toward the exit channels 13. These exit channels communicate with the atmosphere so that cold air descending the chimney will not enter the fire chamber, but will be directed directly into the atmosphere. In order to increase the safe action of the baffle plates 12 the additional baffles 18 are arranged and will help to deflect a cold current of air entering the tubular portion 6 toward the exit channels 13.

Having described my invention and how the same is to be performed, I claim as new, and desire to secure by Letters Patent:

1. A device of the class described comprising in combination, a tubular portion adapted to communicate with a chimney, a second tubular portion adapted to communicate with a fire chamber of a furnace, and a frusto-pyramidal body arranged between said tubular portions, a pair of exit channels arranged laterally of said second tubular portion and communicating with the larger end of said frusto-pyramidal body, a pair of plates forming a wedge-shaped baffle, the apex of which points toward the first-mentioned tubular portion and is on a diameter thereof, and a pair of curved baffle plates having abutting ends and being at their other ends attached respectively to the separated ends of said first-named plates.

2. A device of the class described comprising in combination, a tubular portion adapted to communicate with a chimney, a second tubular portion adapted to communicate with a fire chamber of a furnace, and a frusto-pyramidal body arranged between said tubular portions, and communicating with the same, a pair of exit channels arranged laterally of said second tubular portion and communicating with the larger end of said frusto-pyramidal body, the inner walls of said exit channels being connected with the walls of the second tubular portion by semi-circular walls a pair of curved baffle plates having abutting ends, and arranged inside the body, the curve of said baffle plates being concentric with the semi-circular walls, a second pair of baffle plates extending parallel to a pair of walls of the frusto-pyramidal body and forming a wedge and being with their separated ends attached respectively to the separated ends of the curved baffle plates, the two corresponding pairs of baffle plates abutting with each other on lines parallel to each other and to a diameter of the adjacent tubular portions.

3. A device of the class described comprising in combination a tubular portion adapted to communicate with a chimney, a second tubular portion adapted to communicate with a fire-chamber of a furnace, and a frusto-pyramidal body arranged between said tubular portions and communicating therewith, a pair of exit channels arranged laterally of said second tubular portion and communicating with the larger end of the body, semi-circular walls connecting the inner walls of said channels with the walls of the second tubular portion a pair of curved baffle plates arranged inside the body and having abutting ends, said baffle plates being curved concentrically with the semi-circular walls, the abutting ends of said plates being located adjacent the second tubular portion, a pair of plates forming a wedge-shaped baffle, the separated ends of said second pair of plates being attached respectively to the separated ends of the curved plates, and a third pair of baffle plates extending parallel to the second pair of baffle plates and arranged between these baffle plates and the corresponding walls of the body.

4. A device of the class described comprising in combination a tubular portion adapted to communicate with a chimney, a second tubular portion adapted to communicate with a fire chamber of a furnace, a body arranged between said two tubular portions, a wedge shaped deflecting body arranged in said first named body and the apex of which points toward the first mentioned tubular portion and is on a diameter thereof, a second wedge shaped deflecting body arranged in the first named body and pointing into the opposite direction of the first named wedge shaped body, and a pair of exit channels connecting with the first named body and arranged laterally of said second tubular portion.

5. A device of the class described comprising in combination a tubular portion adapted to communicate with a chimney, a second tubular portion adapted to communicate with a fire chamber of a furnace, a body arranged between said tubular portions and communicating with the same, a pair of exit channels arranged laterally of said second tubular portion and communicating with said body, a deflector body arranged inside the first named body and having the general outline of a diamond, two opposite edges of said deflector body being on a diameter of the first and second tubular portion respectively.

In witness whereof I affix my signature.

KARL BOHN.