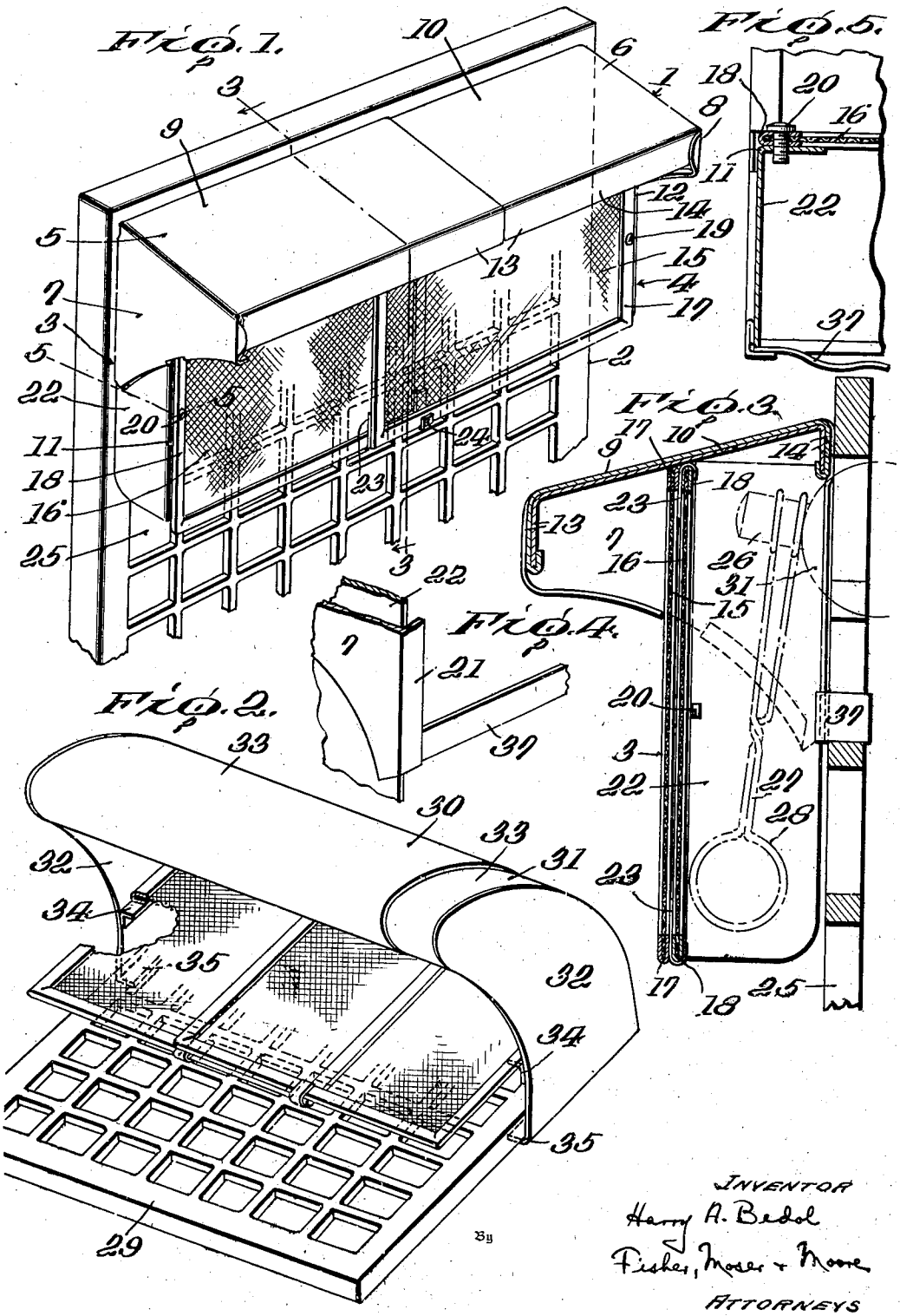
July 15, 1941. H. A. BEDOL 2,249,308

AIR FILTERING AND SHIELD ATTACHMENT

Filed Feb. 24, 1940



Patented July 15, 1941 2,249,308

UNITED STATES PATENT OFFICE

2,249,308

AIR FILTERING AND SHIELD ATTACHMENT

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Application February 24, 1940, Serial No. 320,657

1 Claim. (Cl. 98—108)

This invention relates to combined hood or shield and air filtering attachments for hot air furnaces.

The general object of the invention is to provide a simply constructed and efficient device which can be easily and quickly attached to the floor or wall register of a room for deflecting air away from adjacent walls and for excluding dust and other impurities from entering the room.

Other objects and advantages of the invention will be apparent as the specification is considered in connection with the accompanying drawing, in which

Figure 1 is a perspective view of my improved attachment adapted for use with a wall register, part of the grill being broken away;

Figure 2 is a perspective view of a slightly different design of attachment adapted for use with a floor register;

Figure 3 is a section on the line 3—3 of Figure 1;

Figure 4 is a fragmentary detail showing the inturned flange and fastening clip on the side walls of the shield member; and

Figure 5 is a section taken on the line 5—5 of Figure 1.

Referring more particularly to the embodiment illustrated in Figure 1 of the drawing, 1 denotes the attachment as a whole shown installed on the grill 2 of a hot air wall register of conventional form. The grill 2 which is positioned over the flue opening in the wall of the room, not shown, is recessed in a register frame, also not shown.

The attachment 1 comprises a body portion or shield 3, preferably of sheet metal, and a screen or filter portion 4, so constructed and assembled that simultaneous longitudinal adjustment can be conveniently effected to accommodate for registers of different width. Thus the shield or body portion consists of two sheet metal telescoping sections 5 and 6 having side walls 7 and 8, and top or end walls 9 and 10, respectively. The interfitting top or end telescoping walls 9 and 10 are provided with similar flanges 13 and 14, formed on their front and rear edges respectively, the edges of the flanges of the outer or left hand section 6 being rolled or bent upon themselves for receiving and guiding the flanges 13 and 14 of section 6. It will be seen that the respective walls of the sections 5 and 6 together with the flanges 13 and 14 tend to guide and deflect the hot air emerging from the flue opening away from the adjacent walls of the room.

The screen 4 comprises inner and outer superposed rectangular sections 15 and 16 of foraminous material such as wire mesh or equivalent material, and where wire mesh is employed the edges of the respective wire panels or sections are protected and reinforced by metal borders 17 and 18. Secured to the inner faces of the side walls 7 and 8 of the shield sections 5 and 6, as by welding, are a pair of angle brackets 22 which provide ledges 11 and 12, upon which the screen sections rest. Any suitable fastening means such as sheet metal screws 19 and 20 secure the side edges of the respective panels to the top faces of these ledges, and as the screws make their own threads in the flanges, assembly operations are greatly simplified. The angle brackets 22 form an extension of the side walls 7 and 8 of the shield sections and prevent the escape of dust from beneath the outer side edges of the screen sections. Being coextensive in length with the depth of the screen sections, the ledges 11 and 12 of the bracket members also serve to support the screen sections throughout their entire depth.

The ledges 11 and 12 lie above and parallel with flanges 21 formed on and extending inwardly from the inner edge of the side walls 7 and 8, thus leaving ample space for the manipulation of a pair of inwardly and oppositely extending sheet metal flexible fastening clips or fingers 37. These clips, which are suitably attached to the ends or front extremities of the inner or bottom flanges 21, as by riveting or the like, serve to snugly secure the combined shield and screen to the register 2, when the clips are inserted in appropriate grill openings and then bent or hooked around the grill in an obvious manner. Due to the fact that the fingers 37 can be bent in substantially any direction, assembly can be conveniently made on round or variously shaped registers.

The inner top wall 10 and its flanges 14 are snugly but slidably received within the confines of the top wall 9 and its flanges 13 for adjustment as to length in order to permit one size of shield to fit different sizes of registers. During this telescopic movement of the shield sections the screen sections 5 and 6 will be correspondingly adjusted, the latter sections being maintained in close sliding contact with each other by means of guide lugs 23 and 24. Thus the lugs 23 formed on the inner ends of the side margins of the outer screen section 5 are bent rearwardly and inwardly to tightly but slidably embrace the side margins of the inner screen section 6, while the lugs 24 on the inner screen section 6 are bent outwardly around the side margins of the outer

section 5, in tight sliding engagement therewith.

Most registers are provided with dampers 31 for regulating the flow of hot air therethrough. Heretofore considerable difficulty has been encountered by users of register shields and/or screens because of the inaccessibility of the damper operating lever or button 26 after the shield and/or screens have been secured in place. The space 25 between the top of the grill 2 and the bottom of the screen sections 15 and 16 is not sufficient for convenient insertion of the hand even though the danger of burning the hand on the hot grill did not exist. To overcome this objection the damper lever 26, located according to common practice at the side or adjacent one end of the grill, is provided with an auxiliary removable elongated operating stem 27, of such length that its handle portion 28 lies adjacent the open end of the shield and screen where it can be conveniently grasped without danger of burning the hand. Movement of the operating stem and handle inwardly or outwardly in the opening 25, imparts corresponding movement to the damper lever or button 26 and causes the damper to rock on its pivot to either open or closed position according to the direction in which the stem is moved.

The mounting of the screen sections on the ledges 11 and 12 close to the bottom edges of the side walls of the shield and in very close proximity to the grill 2, insures against the escape of dust at the sides of the screen sections and at the same time provides a very shallow space for the reception of damper lever. The bracket members on which the ledges 11 and 12 are formed, in addition to constituting, in effect, extension of the side walls 7 and 8, tend to strengthen and brace these side walls of the shield sections thus permitting the use of relatively light sheet metal stock. By virtue of this construction and mounting practically no dust can escape between or around the screen sections.

In Figure 2 an embodiment of my invention is shown as applied to a shield or hood for a floor register. As this embodiment differs only slightly from the Figure 1 embodiment a very brief description should suffice. The grill 29 in the register is shown in the horizontal position assumed when installed on a floor grill. The shield or hood comprises two telescoping parts 30 and 31 and each part includes a flat side wall 32, substantially curved top wall 33 as distinguished from the flat side and flat top walls of the Figure 1 embodiment of my invention. Angle brackets 34, for supporting the screen sections, are spaced above the flanges 35 extending inwardly from the lower or inner edges of the side walls 32, but because of the relatively greater depth of the side walls 32, and the fact that the attachment is mounted in a vertical, as distinguished from the horizontal position of the Figure 1 embodiment, it is not necessary to extend the brackets 34 beyond the ends of the side walls. Instead of employing the flexible fastening clips or fingers 37 previously described, the modified form of attachment is assembled by lifting the grill slightly from its casing so that the flanges 35 can be inserted beneath the side edges of the latter. This method of attachment would not be possible with conventional curved or bulging wall grills.

Having thus described my invention, what I claim is:

In an attachment for a hot air register, a shield comprising a pair of telescopically arranged members adapted to deflect warm air rising from a register, said members having side walls, a pair of angle brackets attached to and bracing said side walls, said angle brackets having ledges thereon, said angle brackets projecting beyond and constituting extensions of said side walls, a pair of air filtering members fixed at their outer ends to the ledges of said angle brackets, the inner ends of said filtering members arranged in sliding superimposed relationship to each other for simultaneous movement with said first named members, inwardly extending flanges on the inner ends of said side walls for engagement with said register and said angle brackets serving to space the air filtering members from said flanges to provide a pocket between the top face of the register and the bottom face of the screen member.

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