

1

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AIR DUCT HEADER

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4 Claims. (Cl. 138-89)

This invention relates to headers, and is particularly directed to adjustable sheet metal headers or baffles for return air ducts ordinarily used in hot air heating systems in houses and buildings.

It is normally the practice to use a pair of adjacent wall or floor joists as the side walls of a return air duct and to provide headers of wood or sheet metal at desired locations between such joists to close the ends of such ducts. This requires the fabrication of the headers on the job and is time consuming due to the variation in the spacing of the joists requiring accurate measuring and fitting of the header to properly enclose the duct.

An object of the present invention is to provide a simple, inexpensive and easily fabricated header of the type that can be adjusted to fit ducts of various sizes during installation without the necessity of measuring the duct section and making a specific header to fit each duct section.

Another object of the invention is to provide a prefabricated, adjustable baffle or header with upper and lower telescoping flanges for attachment to the top and bottom walls, respectively, of the duct, as well as side flanges for attachment to the confronting sides of the joists forming the sides of the duct.

Another object of the invention is to provide a sheet metal header that is laterally adjustable in the space between the joists to compensate for both intentional and unintentional variations in such spacing, as well as to permit its use with different width joists, such as 8 inch or 10 inch joists, merely by changing the angle of inclination of the header.

Generally speaking, the header of the present invention consists of two telescoping sections, both of which may be cut or stamped from sheet metal and each provided with a uniplanar body portion having three flanged edges. One flange of each section is preferably perpendicular to the plane of the body portion while the other flanges extend at obtuse angles from the plane of the body in opposite directions therefrom, one such flange on each section being bent back upon itself to form a channel for the reception of the adjacent plain flange of the companion section and thereby provide a telescoping connection for the sections.

FIG. 1 is a vertical sectional detail view illustrating the return air duct of a hot air heating system in the floor of a building and showing the baffles or headers of the present invention at opposite ends of the duct;

FIG. 2 is a bottom plan view of the baffle or header shown at the left side of FIG. 1 taken along line II—II, as this header is installed between a pair of adjacent joists and further illustrating in broken lines the extensibility of the header;

FIG. 3 is a sectional detail view taken substantially on a line III—III of FIG. 1 showing an inner side view of one of the headers;

FIG. 4 is an enlarged perspective view of the baffle or header with the sections separated to illustrate details of construction; and

FIG. 5 is an enlarged sectional detail view taken substantially on a line V—V of FIG. 4.

Referring to the drawings, FIG. 1 illustrates a typical hot air heating system return air duct 10 utilizing a pair of adjacent floor joists 12 of a building as the side walls of the duct 10. In such structures, flooring 14 provides the top wall of the duct 10 while a strip of sheet metal 16 may be used as the bottom wall thereof bridging the space

2

between adjacent joists 12. Prior to the present invention, the ends of the duct 10 were ordinarily closed by means of vertical headers of wood or sheet metal. In such cases, to secure a tight fit, the space between the joists is measured and the header cut to fit.

By means of the header 20 of the present invention, which is prefabricated and adjustable, and inclined with respect to the vertical when installed, it becomes unnecessary to measure the spacing of the joists and cut the header to fit. Such is the case whether the joists be so-called 8 inch or 10 inch joists, most frequently used to support the flooring 14.

As particularly shown in FIG. 4, the header 20 comprises two rectangular plates or sections 21 and 22 having co-planar body portions 23 and 24 adapted to overlap when assembled. Section 21 is flanged at 25 and section 22 flanged at 26, the flanges 25 and 26 being perpendicular to the body portions 23 and 24 and serve as means by which the opposite ends of the baffle 20 may be attached to the opposed inner faces of the joists 12 such as by screws or nails 27. One and the lower edge of section 21 as shown in FIG. 4 and the other, or upper edge of section 22, are flanged at 29 and 30, the flanges 29 and 30 extending in opposite directions from the planes of the respective body portions 23 and 24, and at obtuse angles with respect thereto. The other or upper edge of section 21 in FIG. 4 and the one or lower edge of section 22 are also flanged, but these flanges 31 and 32, respectively, are bent back upon themselves to provide inwardly open channels 33 and 34 (see FIG. 5) to receive flanges 30 and 29, respectively, of sections 22 and 21, which sections are thus provided with telescopic edge portions.

Due to the angularity of the upper and lower edges, the header 20 may readily be installed in an inclined position with respect to the vertical, as shown in FIG. 1, by locating the flanges 29 and 32 against the lower surface of the flooring 14 and the flanges 30 and 31 to the end of the metal sheet 16 such as by an S flange on the end of sheet 16 or an S joint strip as shown at the right in FIG. 1. When the duct 10 has a trunk duct 37 connected thereto, as in FIG. 1, the upper edge 38 thereof may be formed to interlock with the lower flanges 30 and 31 of the header 20.

The opposite ends of flanges 25 and 26 may be bevelled at 39, as may be the ends of flanges 29, 30, 31 and 32 adjacent the flanges 25 and 26 to facilitate handling and installation of the header 20. Punch marks 40 (see FIG. 4) may be provided along the fold lines for the flanges to facilitate nailing or otherwise fastening the header in place.

As more clearly shown in FIG. 5, the obtuse angle flanges 30 and 31 on one edge, such as the upper edge, extend in the opposite direction to that of the right angle flanges 25 or 26, while the obtuse angle flanges 29 and 32 on the other edge, such as the bottom edge, extend in the same direction as the right angle flanges. By changing the angle of the obtuse angle flanges during installation, the header is readily adapted to different width joists, such as for 8 inch or 10 inch joists.

While there is described above the principles of this invention in connection with specific apparatus, it is to be clearly understood that this description is made only by way of example and not as a limitation to the scope of this invention.

What is claimed is:

1. An air duct for heating systems and the like comprising:

- (A) a pair of spaced substantially parallel side walls,
- (B) top and bottom closures fixed to said side walls,
- (C) at least one header adjustable telescopically lon-

itudinal to fit between said side walls to provide an end closure for said duct, said header comprising; two complementary telescoping overlapping rectangular plates having co-planar body portions, each plate having;

- (a) an integral right angled attaching flange along one edge thereof,
- (b) means for attaching said right angled flange to said side walls,
- (c) a first obtuse angled flange along an adjacent edge of said plate projecting from the plane of said plate in the same direction as said right angled flange, 10
- (d) a second obtuse angled flange along the other adjacent edge of said plate projecting from the plane of said plate in the opposite direction from said other flanges, 15
- (e) one of said first and second obtuse angled flanges on each plate having a reverse bent portion for retaining and guiding the second and first obtuse angled flanges of the other plate, respectively, in the telescopic movement between said plates, and 20
- (f) said first and second obtuse angled flanges abutting their adjacent said top and bottom closures of said duct. 25

2. An air duct according to claim 1 wherein said side walls are spaced joists.

3. An air duct according to claim 1 wherein the ends of all of said flanges of said header are bevelled.

4. An air duct according to claim 1 including means for connecting at least one of said first and second angled flanges adjacent said bottom closure to said bottom closure.

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