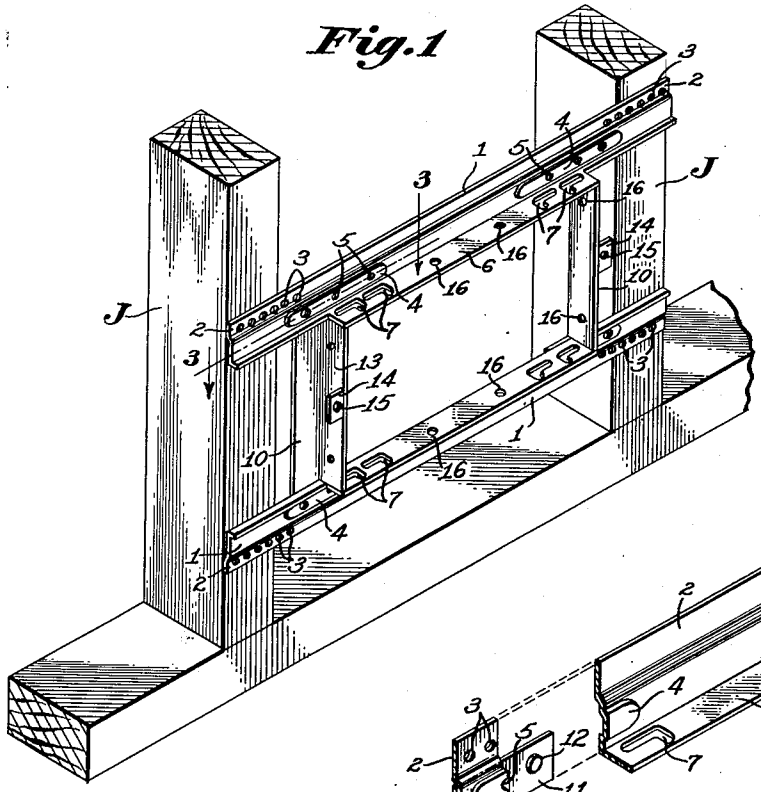
Dec. 8, 1953 R. C. LINGELBACH 2,661,677

REGISTER FRAME

Filed Sept. 3, 1948

Fig. 1



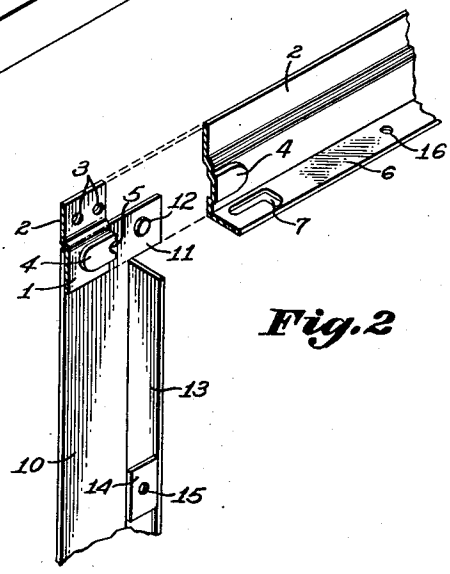


Fig. 2

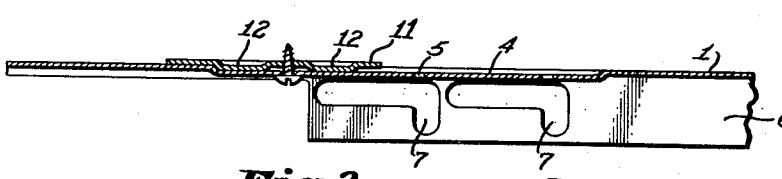


Fig. 3

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REGISTER FRAME

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2 Claims. (Cl. 98—114)

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This invention relates to frames for securing the ends of air conduits with respect to the walls or ceilings of a building.

In modern air conditioning work metal conduits of substantially rectangular cross section are extensively used, these conduits being made of sheet metal and frequently in a single installation several different sizes of such conduits are employed, depending upon the size of the room and its distance from the heating or cooling plant, and the volume of air required.

It is essential that the mouths or ends of these conduits be secured rigidly with respect to the wall or ceiling so as to permit the application of a grating or grill, and properly position the conduit in the wall or space.

For this purpose the present practice is to use rigid frame devices which can be secured to adjacent joists or beams and having suitable portions to be secured to the conduit and also to the grill.

The chief objection to such frames is that a large variety must be carried in stock to accommodate the different sizes of conduits, and to adapt them to particular locations of the joists or other structural elements in the building.

An object of the present invention is to provide an improved and simplified construction of such a frame which will be adapted to accommodate various sizes of conduits and in a large variety of locations, without the use of tools and with an assurance that the adjusted frame will be perfectly rectangular so as to conform to the proper shape of the conduit and grill.

Further objects will more particularly appear in the course of the following description.

The invention consists in the novel construction, arrangement and combinations of parts hereinafter more particularly described and claimed.

One sheet of drawings accompanies this specification as part thereof, in which like reference characters indicate like parts throughout.

In the drawings:

Figure 1 is a fragmentary perspective view of a part of a wall structure showing the improved frame applied between two adjacent joists;

Figure 2 is a fragmentary exploded perspective showing the corner construction of the improved frame; and

Figure 3 is a fragmentary cross section taken on line 3—3 of Figure 1.

In accordance with the present invention and referring to the drawing which discloses a practical embodiment of the same, it is proposed to

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use a plurality of standard frame members 1 preferably made of a length to span the larger joist spacings used in a wall, or floor construction. In connection with such horizontal frame members 1 it is proposed to use vertical or transverse frame members 10 adapted to span two of the horizontal frame members 1 to form a rectangular frame, and these vertical or transverse frame members 10 will be provided in a plurality of lengths corresponding to the width of standard air conduits commonly in use. In this manner it will be apparent that on any job it will only be necessary for the mechanics to have on hand a stock of the longitudinal members 1 sufficient for all of the conduit members and a reasonable variety of lengths of the transverse frame members 10 which can be selected as desired to form rigid frame members to accommodate any size conduit.

The structure of these frame members is essential in securing a satisfactory frame, and as herein illustrated, the longitudinal or horizontal standard frame members 1 are preferably formed of L-cross section, each having a horizontally disposed flange 6 and a vertically disposed flange 1 which vertically disposed flange 1 is formed with a longitudinally extending bend defining an offset portion 2 adjacent its edge, which is adapted to contact the front face of the supporting joist, thus placing the remainder of the flange 1 in a slightly offset position to accommodate a flange on the transverse members 10. Adjacent each end of the portion 2 of the members 1 are provided a plurality of spaced holes 3 to accommodate the securing nails or screws with which these horizontal members are secured to the joists in the wall.

Also, adjacent the ends of the offset portion of the flanges 1 are longitudinally extending offset grooves 4 extending parallel with the horizontal flange 6. In the bottoms of these grooves 4 are formed holes 5 adapted to receive a bolt, screw or rivet, by means of which the transverse members are connected.

Adjacent each end of the horizontal flange 6 are provided a plurality of spaced weakening cuts 7 herein shown as L-shaped cut-outs, by means of which end portions of the horizontal flange 6 can be readily removed by hammer blow to leave a portion of the horizontal flange 6 of suitable length for the particular conduit to which the frame is being adjusted.

The vertical or transverse frame members 10 are, as previously indicated, of various lengths corresponding to the standard widths of the air

conduits on the market, and each of these transverse frame members 10 is formed of L-cross section, having in addition to the principal flange 10 an offset flange 13, and the principal flange 10 is formed of U-shape having at each end an offset portion 11 at right angles to the frame member, this offset portion 11 being formed with aligned lugs 12 adapted to seat in the groove 4 of the horizontal frame members 1.

The offset flange 13 is further provided with a medial offset lug 14 having a through-threaded orifice 15 to receive a screw or bolt to secure to the frame a grill or grating, not shown in the drawing.

Both the horizontal flange 6 and the offset flange 13 of the vertical or transverse members 10 are provided with holes 16 adapted to receive rivets, screws or the like, securing these flanges to the walls of the conduit when positioned therein.

By reason of the structure thus described it will be apparent that rigid frame members of predetermined shape and size can be readily assembled on the job by a mechanic to suit any particular size of conduit, and thereby eliminating the necessity for a large variety of such frames in varying sizes, as heretofore required.

Various modifications of the precise construction of the parts will readily suggest themselves to those skilled in the art, but within the scope of the present invention as claimed.

Having thus described my invention, I claim:

1. Conduit frame comprising independent side and end elements all of rigid right angle cross section, the side elements having the edge portion of one flange offset with respect to the inner portion and the latter portion formed adjacent each end with depressed longitudinally extending guideways, the other flange of said side elements formed with spaced weakened breakoff slits, the end elements each having one flange formed of U-shape with aligned guiding studs formed in its end parts, said studs adapted to seat in the guideways of the side elements and arranged to maintain said side and end elements in predetermined angular relationship, the other flange of the end elements formed with offset lugs to provide a seat for a grill plate.

2. A conduit frame comprising independent side and end elements in the form of angle irons, the side element having a longitudinal bend in one flange thereof with the portion on opposite lateral sides of said bend extending in opposite directions and offset by the thickness of a flange of said end elements, said side elements having means for coupling a portion of each of said end elements thereto at a plurality of spaced points lengthwise of said side elements to dispose one flange of each of said side and end elements in a common plane, and means on said side elements associated with each of said spaced points for receiving another portion of said end elements spaced from said first mentioned portion for positively maintaining said end elements at right angles to said side elements, the other flange of said side and end elements projecting outwardly from said common plane and the projecting flanges of said side elements having spaced weakened break-off slits disposed along the length thereof to permit said projecting flanges of said side elements to be broken off into lengths corresponding to the spacing between the end elements.

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References Cited in the file of this patent

UNITED STATES PATENTS

Number	Name	Date
1,211,182	Kruse	Jan. 2, 1917
1,523,268	McColl	Jan. 13, 1925
1,790,031	Vaughn	Jan. 27, 1931
2,011,797	Covell	Aug. 20, 1935
2,130,839	Conners	Sept. 20, 1938
2,276,139	Anderson et al.	Mar. 10, 1942

OTHER REFERENCES

Publication—"Prefabricated Duct and Fittings Series 600 Installation Manual" (Copy Div. 52—Class 138), Pat. Off.