

July 21, 1931.

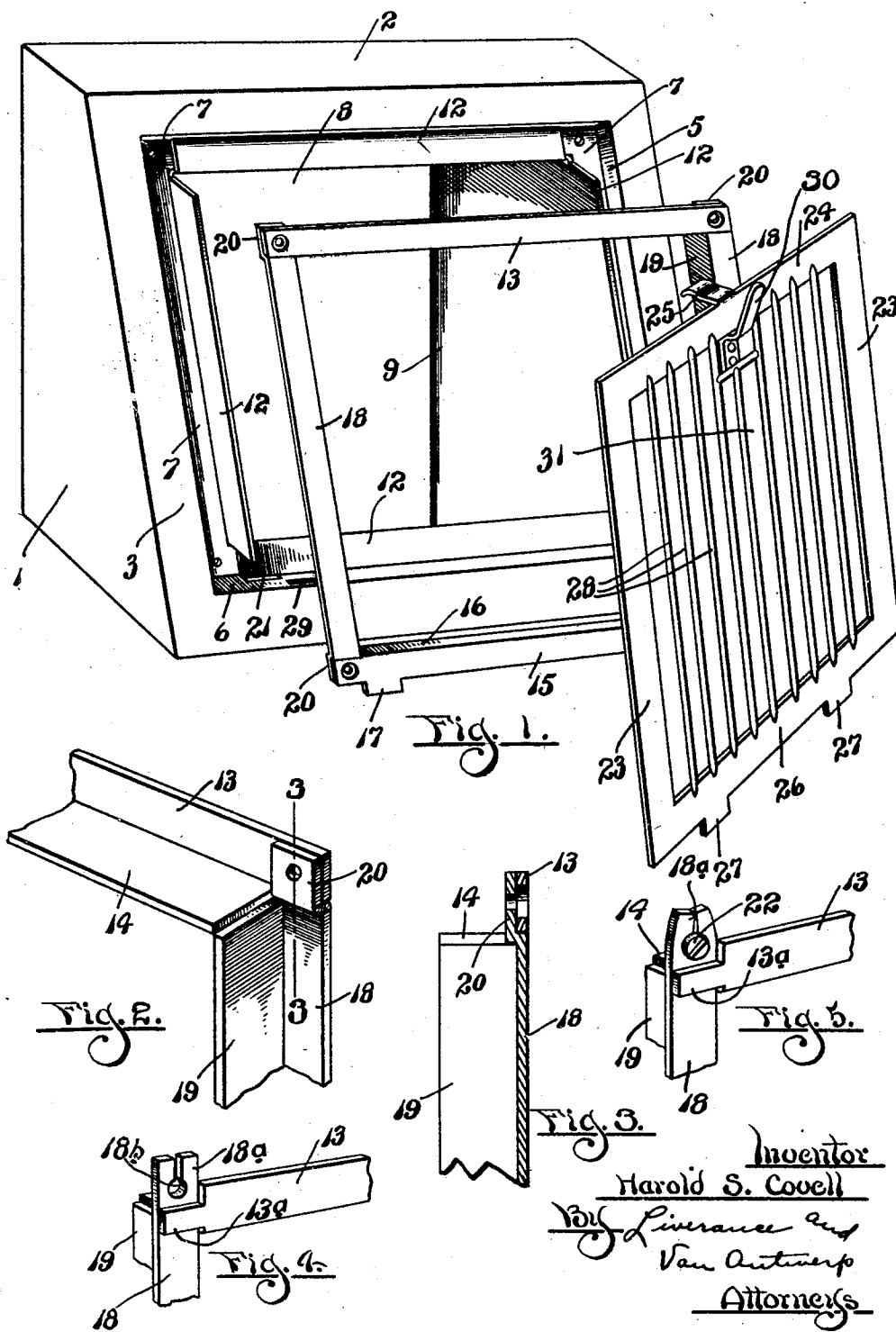
H. S. COVELL

1,815,346

FURNACE REGISTER

Filed July 7, 1930

2 Sheets-Sheet 1



July 21, 1931.

H. S. COVELL

1,815,346

FURNACE REGISTER

Filed July 7, 1930

2 Sheets-Sheet 2

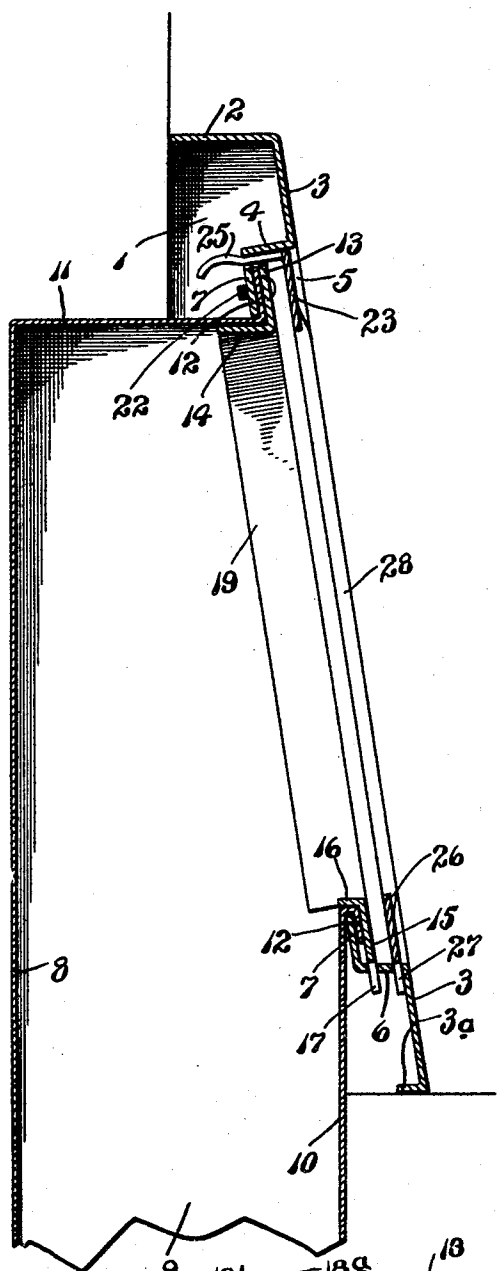


Fig. 6.

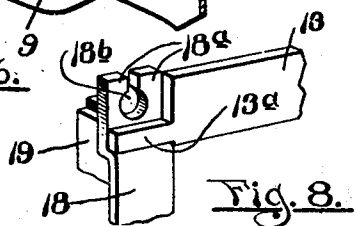


Fig. 8.

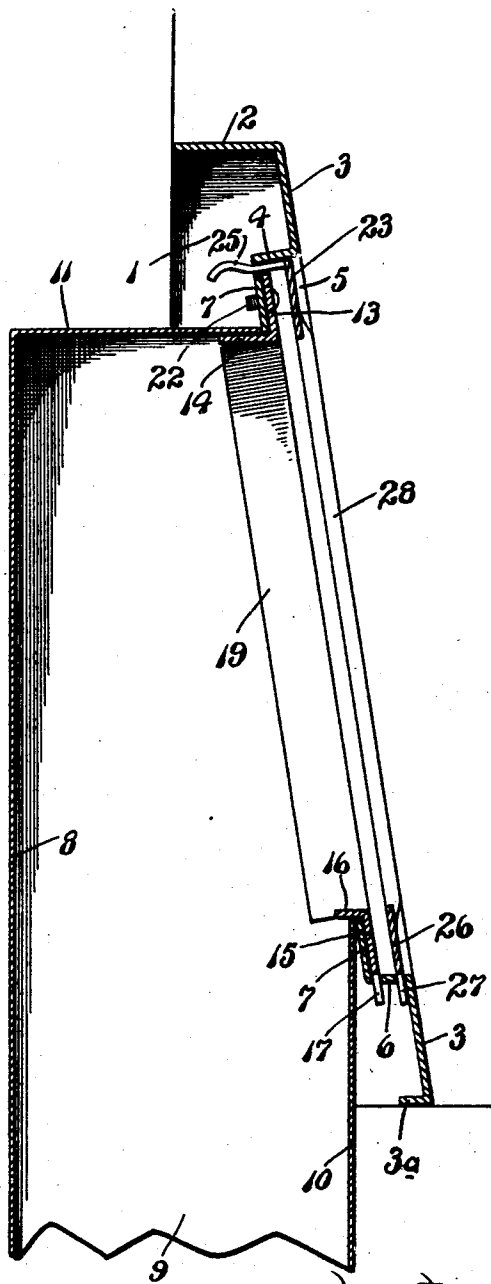


Fig. 7.

Inventor
Harold S. Couell

By Liverance & Van Antwerp
Attorneys

UNITED STATES PATENT OFFICE

HAROLD S. COVELL, OF HOLLAND, MICHIGAN, ASSIGNOR TO HART & COOLEY MANUFACTURING COMPANY

FURNACE REGISTER

Application filed July 7, 1930. Serial No. 466,014.

This invention relates to furnace registers and is more particularly concerned with a novel construction of mounting for furnace registers, in which the register is universally applicable to different types of warm air stack and register casing assemblies and in any of which installations escape of air back of the register and against the wall above the register is obviated, thereby eliminating the danger of streaking or otherwise discoloring the wall as at times occurs. In addition, with the construction which I have devised, the appearance of the register is enhanced and with it the register face is readily and easily removable and replaceable yet when in place is securely held against accidental disengagement.

Many objects and purposes other than those stated will be apparent upon understanding of the invention had from the following description, taken in connection with the accompanying drawings, in which,

Fig. 1 is a perspective view showing the register casing, the intermediate backing frame and the register grating in separated relation.

Fig. 2 is a fragmentary perspective view taken from the rear at one corner portion of said intermediate frame.

Fig. 3 is a section substantially on the plane of line 3—3 of Fig. 2.

Figs. 4 and 5 are fragmentary perspective views showing a different and preferred form of corner construction for the backing frame.

Fig. 6 is a vertical section through a stack, and register construction made in accordance with my invention in their assembled relation, and

Fig. 7 is a view similar to that shown in Fig. 4 illustrating a modification in the manner in which the stack and the register casing are assembled.

Fig. 8 is a perspective view illustrating a modification of corner construction for the backing frame.

Like reference characters refer to like parts in the different figures of the drawings.

The register casing, as best shown in Fig. 1, is of sheet metal open at the back, having vertical ends 1 of trapezoidal form, a hori-

zontal top 2 and a front 3 at the lower edge of which it is turned rearwardly to make a ledge 3a to rest on the floor, as shown in Figs. 6 and 7. The front 3 of the casing has a relatively large rectangular opening there- through and around it the sheet metal of the front is pressed inwardly to provide a recess in which the register grille may be located. The recess at its upper edge has an inwardly extending upper side 4, at its vertical side edges it has inwardly extending sides 5 and at its lower portion an inwardly extending horizontal ledge 6; and from the inner edges of the parts 4, 5 and 6, flanges 7 extend inwardly parallel to the plane of the front 3 of the casing.

In practice the register casing may be installed against a wall and above the floor of a room with its open rear side against the wall so as to cover the part of the vertical stack which carries the warm air from the furnace pipe to the register and which extends into the room. The stack, as shown in Fig. 6, has a vertical back 8, sides 9 and a front 10 and from the upper edge of the back 8 a top 11 extends horizontally forward. The upper front portion of the stack where it comes into the register casing is cut away and from the sides 9, the top 11 and the front 10, wings 12 of sheet metal integral with said parts of the stack extend through the opening in the front side 3 of the register casing, which wings are bent to engage against the outer sides of the flanges 7 previously described; and in Fig. 1 the upper and lower wings 12 are shown after they have been bent and pressed into place while the side wings 12 have not yet been bent outwardly against the flanges 7.

In other instances, as shown in Fig. 7, the wings 12 are eliminated and the edges of the stack around the opening therein bear against the inner sides of the flanges 7, as shown, and no connecting portions such as shown at 12 in Fig. 1 are used.

With my invention an intermediate open frame of rectangular shape to fit in the depressed recess around the opening at the front of the register casing is used. It comprises an upper bar of angle form having a

front side 13 from the lower edge of which a flange 14 extends rearwardly. A lower horizontal bar having a front side 15 and a flange 16 bent rearwardly from its upper edge parallels the upper bar and the front leg 15 of the lower bar is formed with downwardly extending tongues 17, one adjacent each end thereof. The frame is completed by two side bars disposed between the ends of the upper and lower bars. Each of the side bars has a front flange 18 and a rearwardly extending flange 19 bent from its inner edge. In all of the bars the rearwardly extending flanges 14, 16 and 19 terminate a distance from each end of the respective bars so that the end portions of the front legs of said bars may overlap; and the side bars of the frame at each end are offset rearwardly, as indicated at 20, so that when the bars are secured together to make the rectangular frame their outer sides are flush and all lie in the same plane. The parts of the frame are securely welded together at the corners of the frame.

These frame bars are located against the parts 12 of the stack which have been bent back against the flanges 7, as in Fig. 6, or directly against the flanges 7, as in Fig. 7, and the tongues 17 previously described on the lower horizontal bar pass through slots 21 cut in the lower ledge 6. The frame bars are secured to the register casing by screws 22 which pass through suitable openings at the corners of the frame and thread through openings in the flanges 7 at their corners, and in practice, as shown in Fig. 3, the openings in the outer sides 13 and 15 of the upper and lower bars are large enough to receive the heads of the screws so they will not unduly project beyond the outer surfaces of the parts 13 and 15. The flanges 14, 16 and 19 of the frame extend into the stack around the opening therein and cover any and all joints both in the form of installation shown in Fig. 6 and that shown in Fig. 7, so that the warm air passing from the stack must pass through the register at its front opening, and warm air will not be carried through breaks and joints between the stack and the register casing and thence to the rear edge of the top 2 where it comes against the wall, and pass upwardly between said top 2 and the face of the wall to discolor the wall. It is evident also that with the securing wings 12 from the stack bent against the flanges 7 the corners in the recess at the ends of said wings 12 are suitably filled by the offsets 20 described when the intermediate frame is secured in place.

The register is completed by inserting the register grille in the recess of the casing and over the intermediate frame described. The grille comprises a rectangular frame of flat metal, having vertical sides 23, a horizontal upper side 24, from which a tongue 25 is

bent rearwardly substantially at its middle and at its upper edge, and a lower bar 26 from which two spaced apart tongues 27 extend downwardly at its lower edge. Suitable spaced apart grille bars 28 extend between the upper and lower members 24 and 26 of the frame. The lower ledge 6 on the register casing construction has other slots 29 therein to receive the tongues 27, while at the upper part of the recess around the opening in the front of the register casing a slot is made through which the tongue 25 may be pressed. Said tongue is curved upwardly and then downwardly adjacent its free rear end, providing a spring tension which yieldingly resists its passage through said opening and which resists removal of the grille after the tongue 25 has once passed through the opening.

The register will have the usual forwardly and upwardly extending operating handle 30 on the back plate 31 pivotally mounted back of the register grille, all of this being old and well known so that its specific construction need not be entered into herein.

While one means is shown for holding the grille in place, it is no important feature of the present invention and many ways may be devised for securing the grille either detachably or permanently to the register casing or directly to the open frame. And my invention is to be in no sense restricted or limited to the grille attachment shown and described.

In Figs. 4 and 5, a different form of corner construction is provided wherein the projecting end of the front flange 13 of the upper bar, and likewise the same ends of the flange 15 of the lower bar, will be cut away partly to provide tongues 13a lying over the adjacent flanges 18 of the side bars of the frame and permanently secured thereto by welding or equivalent connection. The upper and lower projecting ends 18a of the flanges 18 of the side bars will each have a keyhole slot 18b therein; and the screw 22 may be passed through the larger portion of the keyhole slot and then the parts at each side of the slot bent or pressed toward each other to thus grip the shank of the screw and hold it against accidental disengagement. It is of course apparent that the parts 18a of the flanges 18 may be off-set the same as the parts 20, as shown in Figs. 2 and 3, and for the same purpose if it is so desired. Such construction is shown in Fig. 8.

The construction described is one of great utility and of value in furnace installations. It is economical to produce, very quick and easy to install and the desirable result of snug and leak-proof installation is secured with the register construction described under all conditions of register installation. The openings at joints between the stack and the register casing which previously have permitted

upward passage of air to the interior of the register casing and thence escaping along the face of the wall to discolor it are all taken care of and closed. This is a very desirable result. The quick and ready installation of the frame and, thereafter, of the grille over it by the simple means shown and described is a very meritorious feature of the invention.

The invention is defined in the appended claims and is to be considered comprehensive of all forms of structure coming within their scope.

I claim:

1. In combination, a register casing having a front opening and inwardly extending recessed portions around said opening having flanges in a plane parallel to the front of the casing, an open rectangular frame located in said recess against the flanges and secured thereto, and a grille located in said recess over the frame secured in place.

2. A construction containing the elements in combination defined in claim 1, combined with a vertical stack of sheet metal open at one side and having wings therefrom extending through said opening in the front of the register casing bent back against said flanges over which said rectangular frame is positioned.

3. In combination, a register casing of sheet metal having a rectangular opening in its front, the metal of said front being pressed inwardly to provide a recessed portion around the opening and with flanges around said opening lying in a plane back of and parallel to the front of the casing, a rectangular frame formed of angle bars having one leg of each located over said flanges and the other legs thereof extending inwardly through the opening in the front of the casing, means for releasably securing the frame in said recess, a grille located in said recess over the frame, and means for securing the grille in place.

4. In combination, a furnace register casing of sheet metal having a front with a rectangular opening therethrough, the metal of said front around the opening being recessed to provide inwardly extending upper and lower ledges and vertical sides terminating in inturned flanges in a plane parallel to the front of the register casing, said lower ledge having spaced part openings therethrough, an open rectangular frame of angle bars located in said recess against said flanges and having legs of the angle bars extending through the opening, tongues extending from the lower bar of said open frame into the openings made in said lower ledge, screws connecting the upper portions of said frame with the adjacent flange, and a grille held in said recess over said open rectangular frame.

5. A construction containing the elements in combination defined in claim 4, said grille at its lower edge having downwardly extending tongues, and said lower ledge of the re-

cess having openings to receive the tongues, and an additional yielding tongue turned inwardly from the upper edge of the grille, the upper flanges in said recess having an opening for the passage of said yielding tongue.

6. In combination, a register casing having a front opening therethrough, a rectangular frame of angle bars having inwardly extending legs passing through the opening, means for securing the frame to the front of the casing, a grille, and means for securing grille over said opening frame.

7. In combination a register casing having a front opening therethrough, a rectangular frame of angle bars having inwardly extending legs passing through the opening, said frame comprising upper and lower horizontal bars and vertical side bars, said side bars having projecting end portions and screws passing through and held by the projecting end portions for connecting the frame to the casing.

8. In combination a register casing having a front opening with an inwardly extending recessed portion around said opening, having inwardly extending flanges in a plane substantially parallel to the front of the casing, an open rectangular frame of angle bars located in said recess with one leg of each of said angle bars bearing against said flanges and the other legs of the angle bars extending through said opening, and means for securing the frame to the casing.

In testimony whereof I affix my signature.

HAROLD S. COVELL.