W. H. HESS.

GRATING.

APPLICATION FILED APR. 30, 1921.

1,428,230.

Patented Sept. 5, 1922.

2 SHEETS—SHEET 1.

Fig. 1

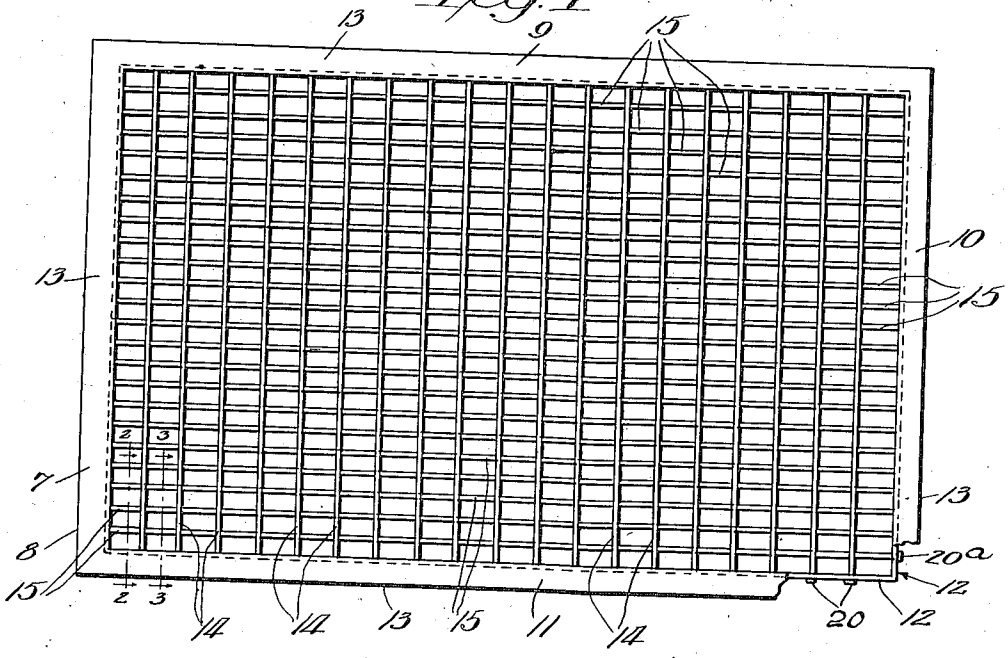


Fig. 2

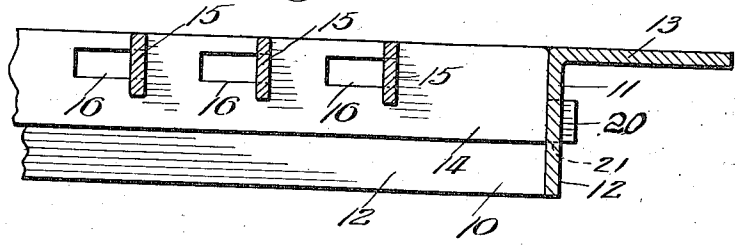
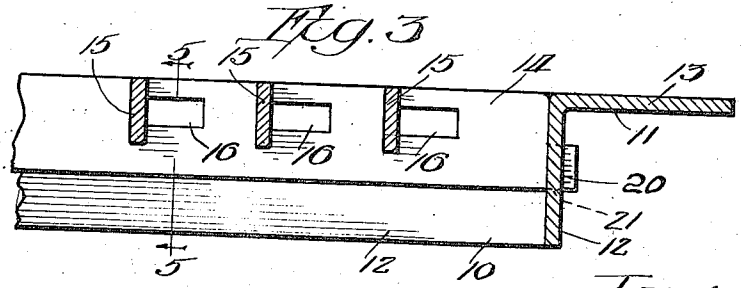


Fig. 3



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2 SHEETS—SHEET 2.

Fig. 4.

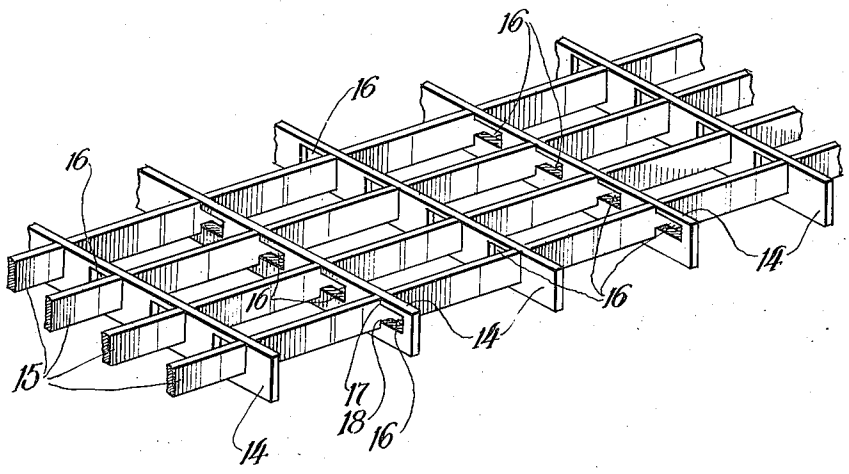


Fig. 5.

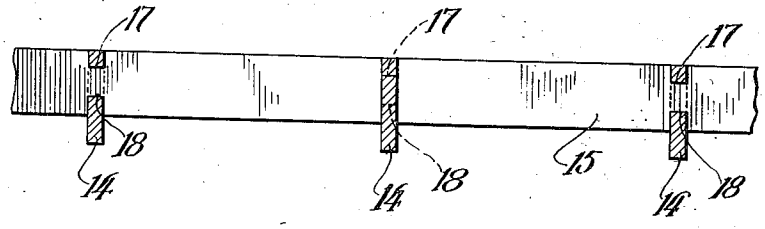
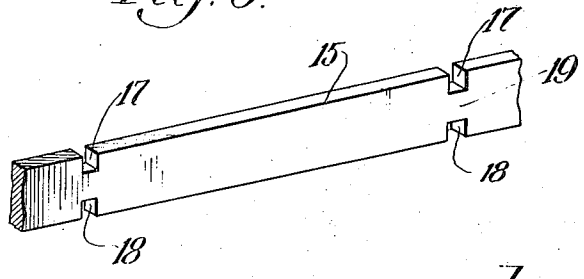


Fig. 6.



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UNITED STATES PATENT OFFICE.

WILLIAM H. HESS, OF CHICAGO, ILLINOIS.

GRATING.

Application filed April 30, 1921. Serial No. 465,653.

To all whom it may concern:

Be it known that I, WILLIAM H. HESS, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Gratings, of which the following is a specification.

My invention relates more particularly, though not exclusively, to improvements in registers formed as a part of hot-air furnace installations, and more especially to registers which are located in floors and wherein it is desired that the upper surfaces of the various portions of the register extend in the same plane, my primary object being to provide a novel, simple and economical construction of grating, the parts of which may be readily assembled to form the finished structure.

Referring to the accompanying drawing:

Figure 1 is a plan view of a register constructed in accordance with my invention, one corner portion of the surrounding frame thereof being broken away. Figure 2 is an enlarged broken section taken at the line 2—2 on Fig. 1 and viewed in the direction of the arrows. Figure 3 is an enlarged, broken, section taken at the line 3—3 on Fig. 1 and viewed in the direction of the arrows. Figure 4 is a broken perspective view of the intersecting bars forming the body of the grating. Figure 5 is an enlarged section taken at the line 5—5 on Fig. 3 and viewed in the direction of the arrows; and Figure 6, a broken perspective view of one of the similar bars forming one of the sets thereof.

In the particular construction illustrated the register is formed of a frame 7 shown as of general rectangular shape and made from four bars 8, 9, 10 and 11, each of angle shape as represented in Figs. 2 and 3 to provide the depending portion 12 and the horizontally-extending portion 13, the ends of the frame members referred to being preferably mitered together at the corners of the frame, as for example by welding them. Located within the opening in the frame 7 is a series of bars 14 shown as extending parallel with each other and to the frame sides 8 and 10 and spanning the space from the members 9—11, these bars being preferably equidistantly spaced apart, and a second series of bars 15 shown as extending at right angles to the bars 14 and into intersecting relation therewith, from the frame member 8 to the frame member 10. The bars 14 are relatively wide as compared with the bars 15, as illustrated, each of the bars 14 containing openings 16 shown as elongated in the direction of the length of these bars, and as equidistantly spaced apart. The bars 15, which are narrower than the bars 14, contain, in their upper and lower surfaces, notches 17 and 18, respectively, these notches being directly opposed, as shown, and spaced apart to conform to the spacing of the bars 14 from each other, the heights of the portions of the bars located between opposing ones of the notches 17 and 18, these portions being represented at 19, being slightly less than the height of the slots 16, and the dimension of the slots 16 in a direction lengthwise of the bars 14 being slightly longer than the longest cross-sectional dimension of the bars 15, in order that the parts may be assembled as hereinafter explained.

The bars 15 extend through the slots 16 and thus in intersecting relation to the bars 14, the adjacent portions of the bars 14 above and below the slots 16 therein extending into the upper and lower notches 17 and 18 of the bars 15, the notches 17 being of such depth that the upper surfaces of the bars 15, by preference, extend in the same plane as the upper surfaces of the bars 14. The opposite ends of the bars 14 and 15 are provided with lugs represented at 20 and 20^a, respectively, these lugs extending through slots in the bars 9 and 11, one of said slots being indicated at 21, and through similar slots (not shown) in the bars 8 and 10, respectively, their outer, protruding, ends being bent back against the outer surface of the frame 7 to securely hold the bars 14 and 15 in fixed position.

In accordance with the showing in the drawings, more particularly Fig. 4, the slots 16 of the alternate ones of the bars 14 are arranged in staggered relation relative to the slots 16 in those of the bars 14 alternating therewith. The purpose, in accordance with the preferred illustrated embodiment of my invention, is to provide such an arrangement that the bars 15 will extend at one side closely adjacent to the end walls of the slots 16 in alternate ones of the bars 14, and at their opposite side adjacent the end walls of the slots of the ones of the bars 14 alternating therewith, whereby the bars 15 are held against lateral deflection. This feature of the invention is clearly brought out in Figs. 2, 3 and 4 wherein it will be noted

that the bars 15, shown in Fig. 2, extend, at their right hand sides, against the right hand end walls of the slots 16 of one bar 14, and in accordance with the showing in Fig. 3 extend at their left hand sides against the left hand end walls of the slots 16 in the next adjacent one of the bars 14.

The parts of the grating are assembled by threading the bars 15 through the bars 14 and lining up the latter so that they extend in the plane of the notches 17 and 18, and thereupon rotating the bars 15 on the bars 14 to cause the bars 15 to straddle the bars 14 at the notched portions 17 and 18, as shown in the drawings. The bars 14 are then shifted, alternate ones in opposite directions, crosswise of the bars 15 to the position shown in Fig. 4, in which all of the bars extend in the proper position for application thereto of the members forming the frame 7 which is then assembled with the bars to hold them in proper position and form therewith a unitary structure.

A grating constructed in accordance with my invention not only possesses a high degree of strength, stiffness and durability for any given amount of metal employed, but also may be constructed very economically by reason of the fact that the assembling of the bars with each other does not require the working of the metal at the intersection between these bars after the bars have been positioned in intersecting relation and does not require any fastening devices at these points, the bars becoming interlocked in the desired position by merely adjusting them relative to each other to the positions as stated.

While I have illustrated and described a particular construction embodying my invention, I do not wish to be understood as intending to limit it thereto as the same may be variously modified and altered without departing from the spirit of my invention.

What I claim as new, and desire to secure by Letters Patent, is:

1. A grating formed of a plurality of series of bars extending in intersecting relation, the bars of one series containing apertures and the bars of the other of said series extending through said apertures, said last-referred-to bars containing notches along one edge, said apertures being of such size and shape as to permit of the insertion therein of said notched bars and the rotation of the latter therein at said notched portions and the movement of said apertured bars lengthwise relative to each other after rotation of said notched bars, said apertured bars presenting portions which extend adjacent the opposite faces of said notched bars in the positioning of the bars as stated and resist lateral movement of said notched bars, said portions of some of said apertured bars being located at one side of said notched bars and said portions of the others of said bars being located at the opposite side of said notched bars.

2. A grating formed of a plurality of series of bars extending in intersecting relation, the bars of one series containing apertures and the bars of the other of said series extending through said apertures, said last-referred-to bars containing notches along one edge, said apertures being of such size and shape as to permit of the insertion therein of said notched bars and the rotation of the latter therein at said notched portions, and the movement of said apertured bars lengthwise relative to each other after rotation of said notched bars, said apertured bars presenting portions which extend adjacent the opposite faces of said notched bars in the positioning of the bars as stated and resist lateral movement of said notched bars, said portions of alternate ones of said apertured bars being located at one side of said notched bars and said portions of the other of said apertured bars being located at the opposite side of said notched bars.

3. A grating formed of a plurality of series of bars extending in intersecting relation, the bars of one series containing apertures and the bars of the other of said series extending through said apertures, said last-referred-to bars containing notches along opposite edges, said apertures being of such size and shape as to permit of the insertion therein of said notched bars and the rotation of the latter therein at said notched portions and the movement of said apertured bars lengthwise relative to each other after rotation of said notched bars, said apertured bars presenting portions which extend adjacent the opposite faces of said notched bars in the positioning of the bars as stated and resist alternate movement of said notched bars, said portions of some of said apertured bars being located at one side of said notched bars and said portions of the others of said bars being located at the opposite side of said notched bars.

4. A grating formed of a plurality of series of bars extending in intersecting relation, the bars of one series containing apertures elongated in the direction of the length of said bars, and the bars of the other of said series extending through said apertures, said last-referred-to bars containing notches along one edge, said apertures being of such size and shape as to permit of the insertion therein of said notched bars and the rotation of the latter therein at said notched portions, and the movement of said apertured bars lengthwise relative to each other after rotation of said notched bars, said apertured bars presenting portions which extend adjacent the opposite faces of said notched bars in the positioning of the bars as stated and resist

lateral movement of said notched bars, said portions of some of said apertured bars being located at one side of said notched bars and said portions of the others of said bars being located at the opposite side of said notched bars.

5. A grating formed of a plurality of series of bars extending in intersecting relation, the bars of one series containing apertures and the bars of the other of said series extending through said apertures, said last-referred-to bars containing notches along one edge, said apertures being of such size and shape as to permit of the insertion therein of said notched bars and the rotation of the latter therein at said notched portions and the movement of said apertured bars lengthwise relative to each other after rotation of said notched bars, said apertured bars presenting portions which extend adjacent the opposite faces of said notched bars in the positioning of the bars as stated and resist lateral movement of said notched bars, said portions of some of said apertured bars being located at one side of said notched bars and said portions of the others of said bars being located at the opposite side of said notched bars, and means for holding said apertured bars against longitudinal movement.

6. A grating formed of a plurality of series of bars extending in intersecting relation, the bars of one series containing apertures and the bars of the other of said series extending through said apertures, said last-referred-to bars containing notches along one edge, said apertures being of such size and shape as to permit of the insertion therein of said notched bars and the rotation of the latter therein at said notched portions and the movement of said apertured bars lengthwise relative to each other after rotation of said notched bars, said apertured bars presenting portions which extend adjacent the opposite faces of said notched bars in the positioning of the bars as stated and resist lateral movement of said notched bars, said portions of some of said apertured bars being located at one side of said notched bars and said portions of the other of said bars being located at the opposite side of said notched bars, and a frame surrounding said series of bars and with which the ends of said bars are connected.

7. A grating formed of a series of bars, a second series of bars intersecting therewith, said first-referred-to series of bars containing apertures and said second series of bars extending through said apertures, said apertures being of such size and shape as to permit of the insertion therein of said second series of bars and the rotation of the latter therein and the movement of said apertured bars lengthwise relative to each other after rotation of said second series of bars, said apertured bars presenting portions which extend adjacent the opposite faces of said second series of bars in the positioning of the bars as stated and resist lateral movement of said second series of bars, said portions of some of said apertured bars being located at one side of said second series of bars and said portions of the others of said apertured bars being located at the opposite side of said second series of bars.

8. A grating formed of a series of bars, a second series of bars intersecting therewith, said first-referred-to series of bars containing apertures and said other bars extending through said apertures, said apertures being of such size and shape as to permit of the insertion therein of said second series of bars and the rotation of the latter therein and the movement of said apertured bars lengthwise relative to each other after rotation of said second series of bars, said apertured bars presenting portions which extend adjacent the opposite faces of said second series of bars in the positioning of the bars as stated and resist lateral movement of said second series of bars, said portions of alternate ones of said apertured bars being located at one side of said second series of bars and said portions of the others of said apertured bars being located at the opposite side of said second series of bars.

9. A grating formed of a series of bars, a second series of bars intersecting therewith, said first-referred-to series of bars containing apertures elongated in the direction of the length of said bars, and the bars of said second series extending through said apertures, said apertures being of such size and shape as to permit of the insertion therein of said second series of bars and the rotation of the latter therein and the movement of said apertured bars lengthwise relative to each other after rotation of said second series of bars, said apertured bars presenting portions which extend adjacent the opposite faces of said second series of bars in the positioning of the bars as stated and resist lateral movement of said second series of bars, said portions of some of said apertured bars being located at one side of said second series of bars and said portions of the others of said apertured bars being located at the opposite side of said second series of bars.

WILLIAM H. HESS.