W. H. HESS.

GRATING.

APPLICATION FILED FEB. 10, 1921.

1,426,736.

Patented Aug. 22, 1922.

2 SHEETS—SHEET 1.

Fig. 1

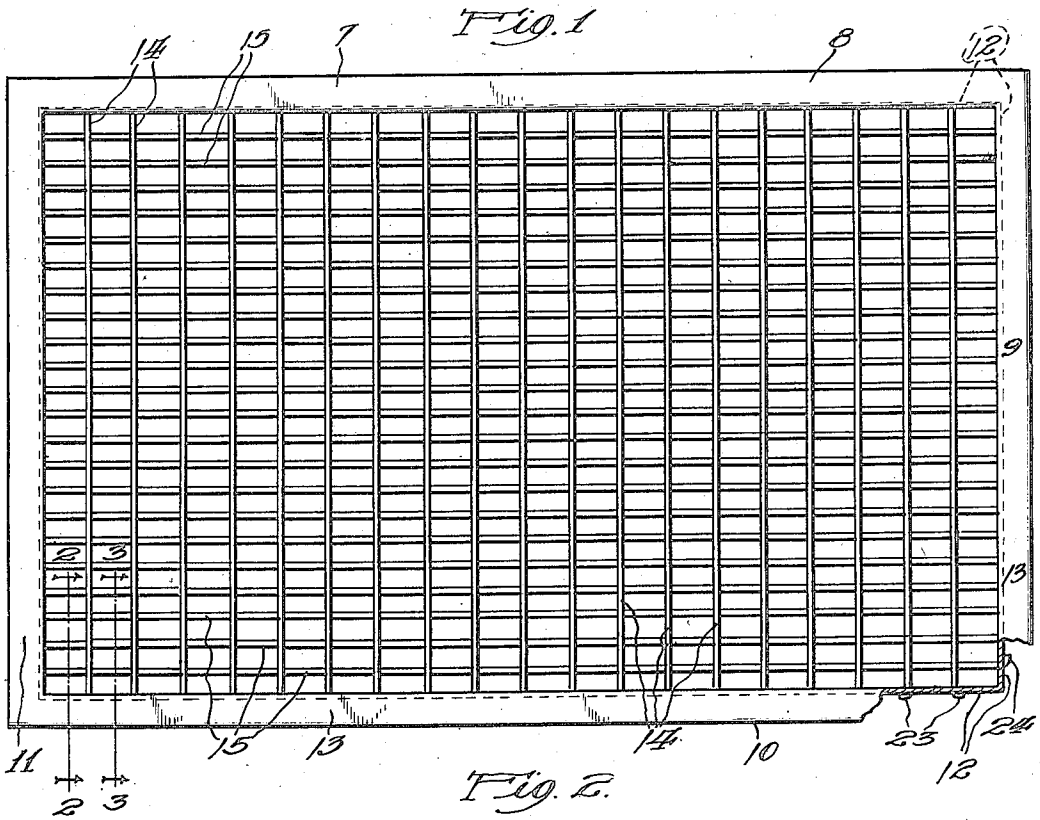


Fig. 2.

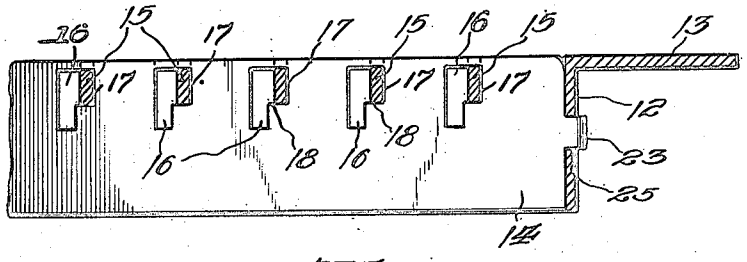
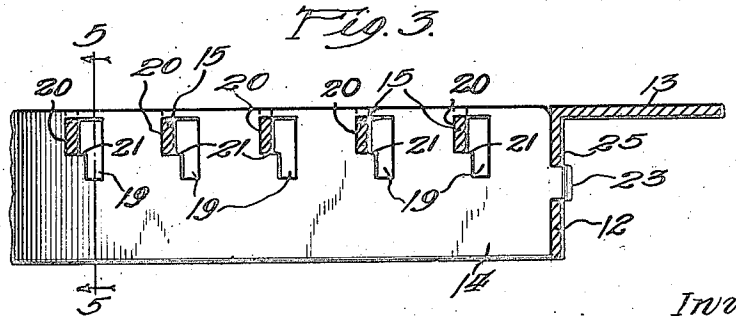


Fig. 3.



Witness:

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2 SHEETS—SHEET 2.

Fig. 4.

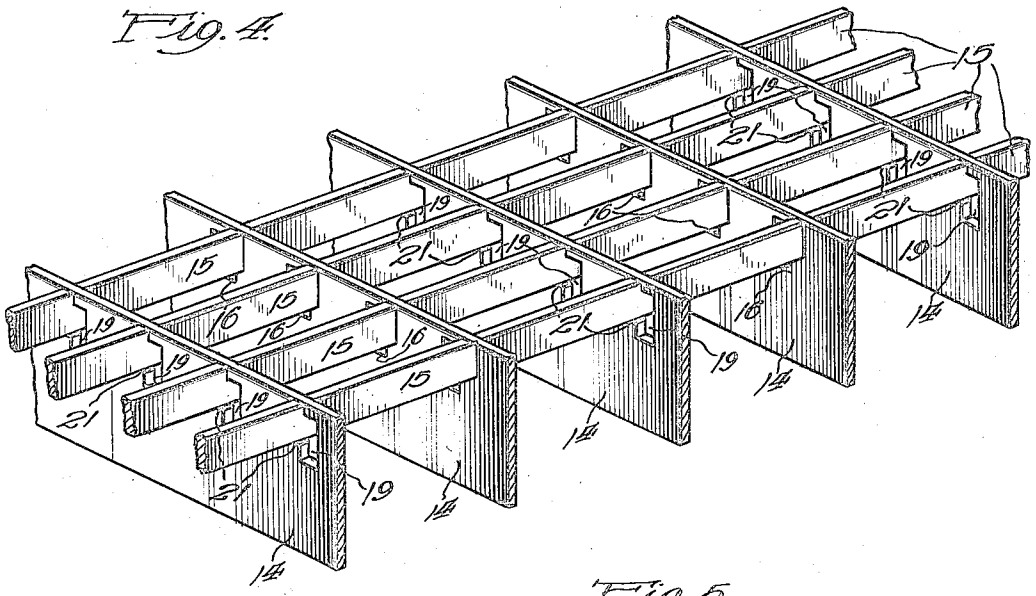


Fig. 5.

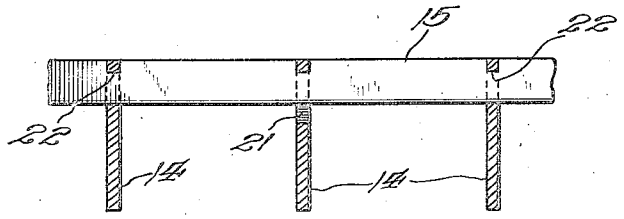
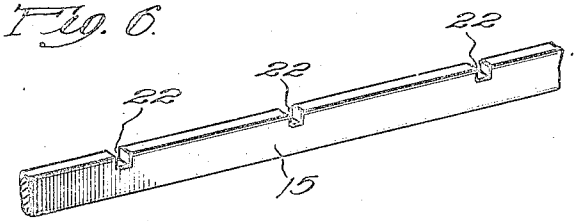


Fig. 6.



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UNITED STATES PATENT OFFICE.

WILLIAM H. HESS, OF CHICAGO, ILLINOIS.

GRATING.

1,426,736. Specification of Letters Patent. Patented Aug. 22, 1922.

Application filed February 10, 1921. Serial No. 443,896.

To all whom it may concern:

Be it known that I, WILLIAM H. HESS, a citizen of the United States, residing at 5824 Harper Avenue, 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; and my primary object is to provide a novel, simple and economical construction of grating, the parts of which may be quickly assembled to form the finished structure, and which will be durable and serve its purpose in a highly satisfactory manner.

Referring to the accompanying drawing:

Figure 1 is a plan view of a register constructed in accordance with my invention. Figure 2 is an enlarged, broken section taken at the line 2—2 on Fig. 1 and viewed in the direction of the arrows, and Figure 3 is a similar view taken at the line 3—3 on Fig. 1 and viewed in the direction of the arrows. Figure 4 is an enlarged perspective view of a portion of the register construction of Fig. 1. 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 a portion of one of the similar bars of which the structure is formed.

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 Fig. 2 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 9 and 11 and spanning the space from the members 7 to 10 these bars being preferably equidistantly spaced, 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 9 to the frame member 11. The bars 14 are relatively wide as compared with the bars 15 as illustrated, each alternate bar 14 containing a series of openings 16 preferably of general rectangular shape as shown, with offset portions represented at 17 and forming shoulders 18, the shoulders 18 being located at the same side of each opening 16 as shown. The other ones of the bars 14 are similarly recessed as represented at 19 with offset portions represented at 20 and forming shoulders 21, these shoulders being located at the same sides of the openings 19 but opposite to the sides at which the shoulders 18 are located. The openings 16 and 19 are shown as of such size as to permit the bars 15 to be threaded therethrough, and the shoulders 18 and 21 are so located that these shoulders will extend into alinement with each other in the finished structure, so that the bars 15 may, in straight condition, be supported from these shoulders as shown. The bars 15, which are narrower than the bars 14, contain in their upper surfaces notches 22 which are spaced apart the same distance that the bars 14 are spaced apart and are so proportioned that when the bars 15 are positioned to seat on the shoulders 18 and 21, the upper portions of the strips 14 at their recessed portions extend into the notches 22, whereby the upper surfaces of the bars 14 and 15 extend in the same plane. The opposite ends of the bars 14 and 15 are provided with lugs represented at 23 and 24 respectively, these lugs being located between the upper and lower edges of the bars and extending through slots 25 in the bars 8 and 10 and through similar slots (not shown) in the bars 9 and 11, respectively, their outer ends being bent back against the outer surface of the frame to securely hold the bars 14 and 15 in fixed position.

The parts of the grating are assembled by threading the rods 15 through the openings 16 and 19 of the bars 14 and raising the bars 15 and shifting the bars 14 and 15 relative to each other in crosswise direction, to cause the bars 15 to extend across the shoulders 18 and 21, with the upper portions of the bars 14 extending into the recesses 22. After assembly of the bars 14 and 15 as stated, the separate frame members 8, 9, 10 and 11 are applied thereto, the lugs 23 and 24 of these bars extending through the openings in the frame members provided therefor, and the lugs thereupon upset and the frame mem-

bers united together to form a solid frame structure.

It will be noted that in the particular illustrated embodiment of my invention the bars 15, by reason of the arrangement of the shoulders 18 and 21 at opposite sides of the openings 16 and 19, as hereinbefore explained, are held against accidental displacement on the shoulders, and furthermore the upper surfaces of the bars 15, may be caused to extend in the same plane as the upper surfaces of the bars 14.

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 may also 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 intersections 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 seat the bars 15 on the shoulders 18 and 21.

If desired the notches 22 may open downwardly instead of upwardly in which case the upper edges of the bars 15 would extend below the upper surfaces of the bars 14, or, if desired, in addition to the upper opening notches 22 downwardly opening notches (not shown) in vertical line therewith may be provided.

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 presenting shoulders, said shoulders being located between the upper and lower ends of said apertures and the bars of said other series being inserted through said apertures into intersecting relation with the bars containing said apertures and extending across said shoulders, and means for holding said bars in said intersecting relation.

2. A grating formed of a plurality of series of bars extending in intersecting relation, the bars of one series containing apertures, said apertures being of enlarged width at portions thereof between their upper and lower ends and presenting shoulders and the bars of said other series being inserted through said apertures into intersecting relation with the bars containing said apertures and extending across said shoulders, and means for holding said bars in said intersecting relation.

3. A grating formed of a plurality of series of bars extending in intersecting relation, the bars of one series containing apertures presenting shoulders, said shoulders being located between the upper and lower ends of said apertures and the bars of said other series being inserted through said apertures into intersecting relation with the bars containing said apertures and extending across said shoulders and containing notches into which the portions of said apertured bars beyond said shoulders extend, and means for holding said bars in said intersecting relation.

4. A grating formed of a plurality of series of bars extending in intersecting relation, the bars of one series containing apertures presenting shoulders between their upper and lower ends, the shoulders of certain said bars being located at the sides of the openings therein opposite to the sides at which the shoulders at the openings in the others of said bars are located, and the bars of said other series being inserted through said apertures into intersecting relation with the bars containing said apertures and extending across said shoulders, and means for holding said bars in said intersecting relation.

5. A grating formed of a plurality of series of bars extending in intersecting relation, the bars of one series containing apertures presenting shoulders between their upper and lower ends, the shoulders of alternate ones of said bars being located at the sides of the openings therein opposite to the sides at which the shoulders at the openings in the others of said bars are located, and means for holding said bars in said intersecting relation.

6. A grating formed of a plurality of series of bars extending in intersecting relation, the bars of one series containing apertures presenting shoulders between their upper and lower ends, the shoulders of alternate ones of said bars being located at the sides of the openings therein opposite to the sides at which the shoulders at the openings in the others of said bars are located and containing notches into which the portions of said apertured bars beyond said shoulders extend, and means for holding said bars in said intersecting relation.

7. A grating formed of a plurality of series of bars extending in intersecting relation, the bars of one series containing apertures presenting shoulders between their upper and lower ends, the shoulders of certain of said bars being located at the sides of the openings therein opposite to the sides at which the shoulders at the openings in the others of said bars are located, and the bars of said other series being inserted

through said apertures into intersecting relation with the bars containing said apertures and extending across said shoulders and containing notches into which portions of said apertured bars extend, and means for holding said bars in said intersecting relation.

8. 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 said other series being inserted through said apertures into intersecting relation with the bars containing the said apertures, and means for holding said bars in said intersecting relation, said apertures being wider than the thickness of the bars extending therethrough, adapting of lengthwise movement of said apertured bars relative to the other bars in assembling said bars.

9. A grating formed of a plurality of series of bars extending in intersecting relation, the bars of one series containing apertures, the apertures of adjacent bars being arranged in staggered relation, the bars of said other series being inserted through said apertures into intersecting relation with the bars containing said apertures, said apertures being wider than the thickness of the bars positioned therein, and means for holding said bars in said intersecting relation.

10. A grating formed of a plurality of series of bars extending in intersecting relation, the bars of one series containing apertures, the apertures of adjacent bars being arranged in staggered relation, the bars of said other series being inserted through said apertures into intersecting relation with the bars containing said apertures, said apertures being wider than the thickness of the bars positioned therein, and means for holding said bars in said intersecting relation, those of the bars which extend through said apertures containing notches in their upper surfaces into which the bars with which they intersect, extend.

11. 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 said other series being inserted through said apertures into intersecting relation with the bars containing said apertures, said apertures presenting surfaces opposing the bars extending therethrough and resisting lateral movement of the last-referred-to bars, said surfaces of adjacent bars opposing opposite sides, respectively, of the bars extending through said apertures, and means for holding said bars in said intersecting relation.

12. A grating formed of a series of bars, a second series of bars intersecting therewith, said first-named series of bars containing apertures and said second series of bars extending at portions thereof into said apertures, the dimensions of said apertures lengthwise of the bars containing them being greater than the thickness of said second series of bars, all of the apertures in certain of said apertured bars being so disposed that said second series of bars extend adjacent the end walls of said apertures at the same ends thereof and all of the apertures in the others of said first-referred-to bars and alternating therewith, so disposed that the said second series of bars extend adjacent the end walls of said apertures at the same ends thereof, but opposite to those end walls as above mentioned.

13. 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 at portions thereof into said apertures, said apertured bars presenting portions which extend adjacent the opposite faces of said second series of bars and resist lateral movement of the latter, 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.

14. 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 at portions thereof into said apertures, the dimensions of said apertures lengthwise of the bars containing them being greater than the thickness of said second-named bars, said apertured bars presenting, at their apertured parts, portions which extend adjacent the opposite faces of said second series of bars and resist lateral movement of the latter, 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.

15. A grating formed of a series of bars, a second series of bars intersecting therewith, said first-named series of bars containing apertures and said second series of bars extending at portions thereof into said apertures, the dimensions of said apertures lengthwise of the bars containing them being greater than the thickness of said second series of bars, all of the apertures in certain of said apertured bars being so disposed that said second series of bars extend adjacent the end walls of said apertures at the same ends thereof and all of the apertures in the others of said first-referred-to bars and alternating therewith, so disposed that the said second series of bars extend adjacent the end walls of said apertures thereunder at the same ends thereof, but op-

posite to those end walls as above mentioned, said second series of bars being provided with means resisting lateral movement of said first-referred-to series of bars.

16. 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 at portions thereof into said apertures, said apertured bars presenting portions which extend adjacent the opposite faces of said second series of bars and resist lateral movement of the latter, 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, said second series of bars being provided with means resisting lateral movement of said first-referred-to series of bars.

17. A grating formed of a series of bars, a second series of bars intersecting therewith, said first-named series of bars containing apertures and said second series of bars extending at portions thereof into said apertures, the dimensions of said apertures lengthwise of the bars containing them being greater than the thickness of said second series of bars, all of the apertures in certain of said apertured bars being so disposed that said second series of bars extend adjacent the end walls of said apertures at the same ends thereof and all of the apertures in the others of said first-referred-to bars and alternating therewith, so disposed that the said second series of bars extend adjacent the end walls of said apertures thereunder at the same ends thereof, but opposite to those end walls as above mentioned, said second series of bars containing notches into which portions of said first-referred-to series of bars extend and by which lateral movement of the latter is resisted.

18. 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 at portions thereof into said apertures, said apertured bars presenting portions which extend adjacent the opposite faces of said second series of bars and resist lateral movement of the latter, 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, said second series of bars containing notches into which portions of said first-referred-to series of bars extend and by which lateral movement of the latter is resisted.

WILLIAM H. HESS.