

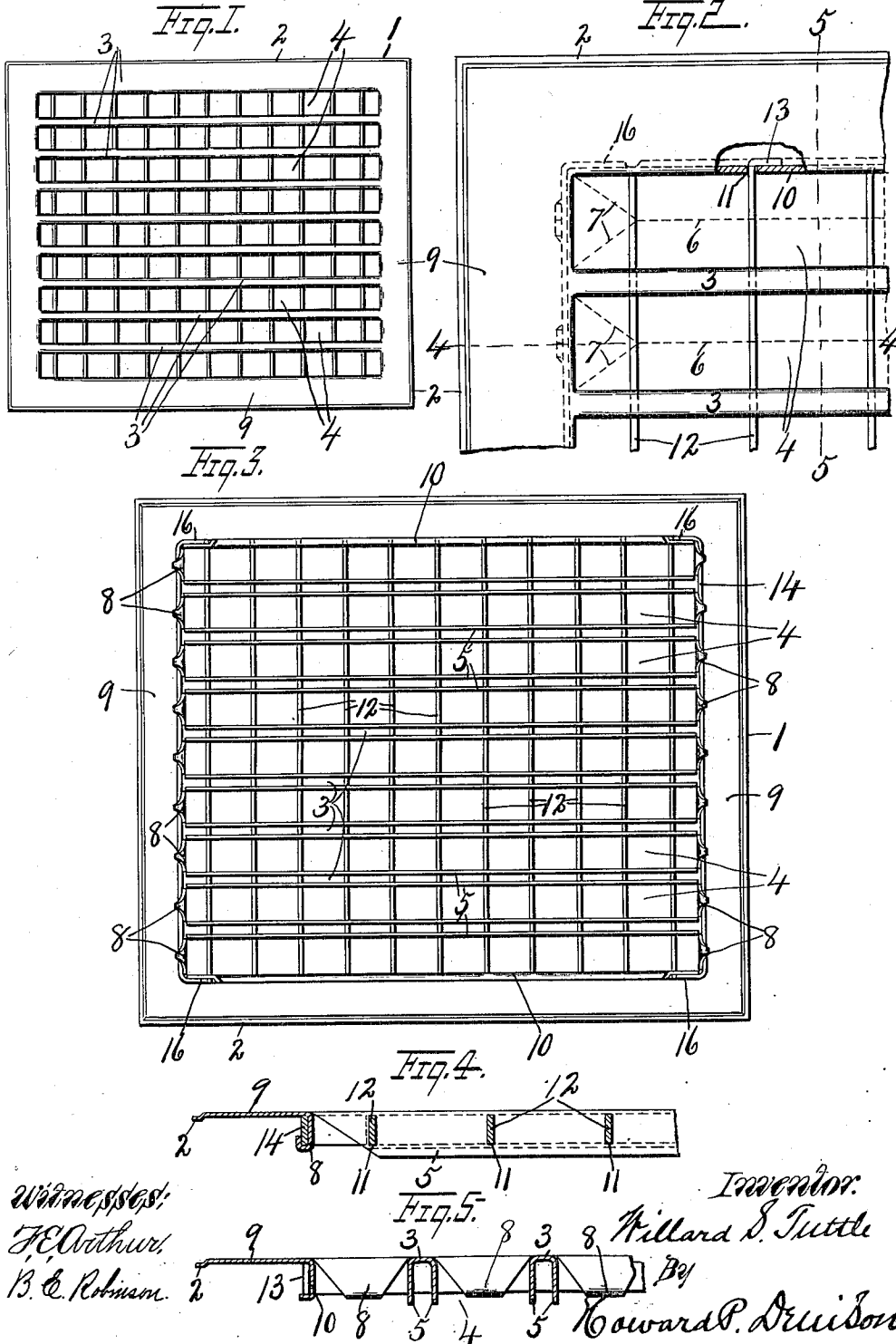
No. 812,158.

PATENTED FEB. 6, 1906.

W. S. TUTTLE.
GRILLE PLATE.

APPLICATION FILED APR. 26, 1904.

2 SHEETS—SHEET 1.



Witnesses:
J. E. Arthur
B. C. Robinson

Inventor:

Willard S. Tuttle

By

Howard P. Driscoll

Attorney.

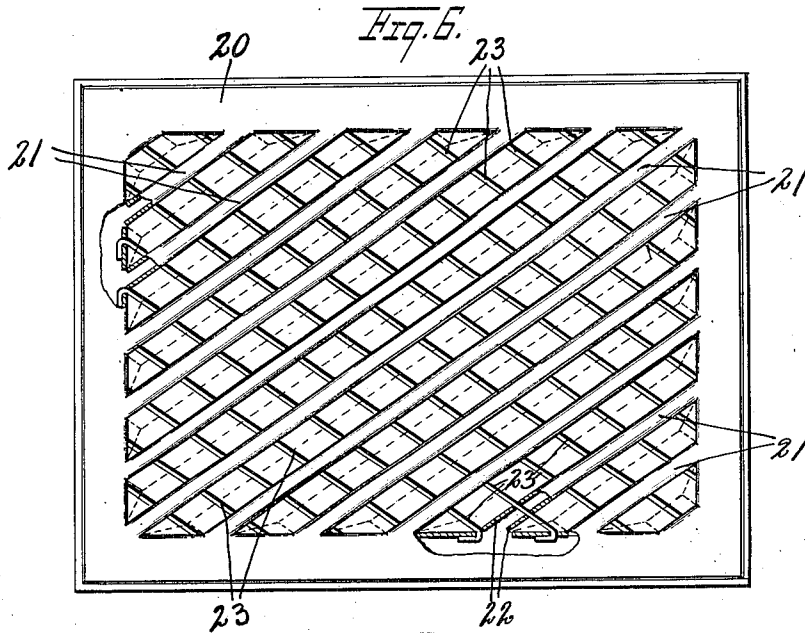
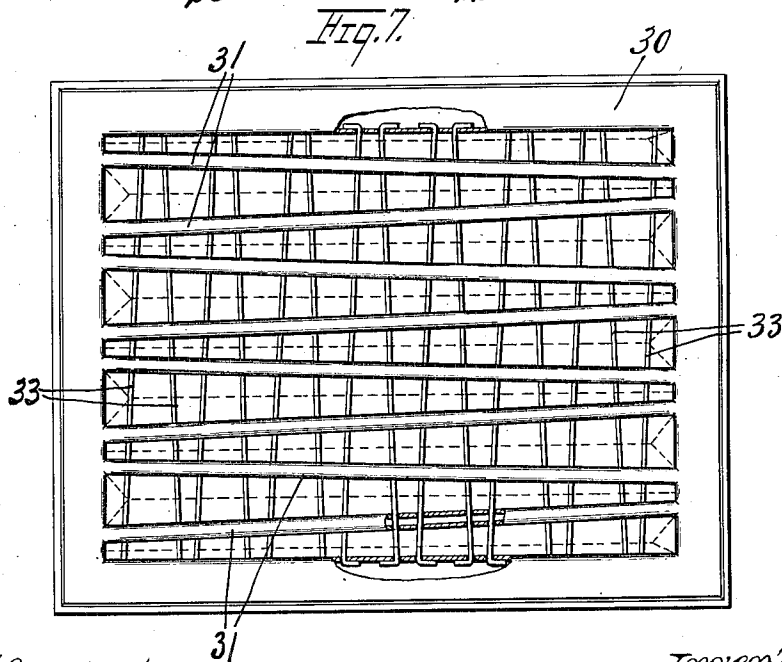
No. 812,158.

PATENTED FEB. 6, 1906.

W. S. TUTTLE.
GRILLE PLATE.

APPLICATION FILED APR. 26, 1904.

2 SHEETS—SHEET 2.



Witnesses:
J. E. Oathwaite
B. E. Robinson.

Inventor:
Willard S. Tuttle.
By
Howard P. Grison
Attorney.

UNITED STATES PATENT OFFICE.

WILLARD S. TUTTLE, OF BROOKLYN, NEW YORK, ASSIGNOR TO TUTTLE & BAILEY MFG. COMPANY, OF BROOKLYN, NEW YORK, A CORPORATION OF NEW YORK.

GRILLE-PLATE.

No. 812,158.

Specification of Letters Patent.

Patented Feb. 6, 1906.

Application filed April 26, 1904. Serial No. 204,995.

To all whom it may concern.

Be it known that I, WILLARD S. TUTTLE, of Brooklyn, in the county of Kings, in the State of New York, have invented new and useful
5 Improvements in Grille-Plates, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

This invention relates to improvements in
10 sheet-metal grille-plates, and while it is particularly applicable for use as a face-plate for hot-air registers it may be used as a cover for any wall or floor opening—such, for instance, as ventilating-flues or cold-air openings.

15 My object is to produce a light, strong, and durable grille-plate from comparatively thin sheet metal in which portions of the main body of the plate are cut and pressed inwardly to form reinforcing-ribs to strengthen the
20 plate and to utilize these ribs for supporting and retaining additional reinforcing-bars.

Other objects and uses will appear in the following description.

In the drawings, Figure 1 is a top plan of a
25 grille-plate embodying the features of my invention. Fig. 2 is an enlarged top plan of a portion of the plate seen in Fig. 1. Fig. 3 is an inverted plan of the plate seen in Fig. 1, though somewhat enlarged. Figs. 4 and 5
30 are sectional views taken on lines 4 4 and 5 5, Fig. 2. Figs. 6 and 7 are top plan views of modified forms of grille-plates.

In carrying out the objects stated a rectangular sheet-metal plate 1 has its marginal
35 edge slightly depressed at 2 to form a wall-bearing surface, while its central portion is provided with a series of parallel bars 3 and intervening parallel spaces 4, the bars 3 being spaced a uniform distance apart and have
40 their opposite longitudinal edges bent inwardly to form parallel flanges 5. In forming these bars and flanges the central portion of the plate is cut in parallel lines at regular intervals at 6, (shown by dotted lines, Fig. 2,) and at the ends of these straight parallel incisions the plate is cut in diverging lines 7,
45 (also shown by dotted lines, Fig. 2.) The portions of the plate at opposite sides of the parallel incisions are then bent inwardly at substantially right angles to the plate to form
50 the parallel flanges 5 of the bars 3, and the portions of the plate between the diverging incisions 7 are also bent inwardly at substan-

tially right angles to the plate to form retaining lugs or flanges 8 at the ends of the
55 spaces 4. It now appears that the plate is formed with a series of parallel bars 3, which are substantially of an inverted-U shape in cross-section, and that the spaces 4 produced by forming these bars are of substantially the
60 same length as the bars, thus leaving a substantially flat margin 9 of sheet metal at the ends and sides of the spaces 4, with the ends of the bars integral with the end margins 9, while the inner edges of the side margins are
65 also provided with inturned flanges 10. These flanges 5 and 10 are provided with transverse apertures 11, which are arranged at regular intervals and receive transverse reinforcing-
70 bars 12, the apertures being so arranged that when the bars 12 are inserted therethrough from side to side the latter, Figs. 1 to 5, are disposed in parallel planes at substantially
75 right angles to the bars 3, and their opposite ends are bent laterally at 13, Fig. 2, against the outer faces of the flanges 10 to lock said
80 bars 12 in their operative positions against endwise movement. Similar transverse bars 14, Figs. 3 and 4, are arranged at opposite
85 ends of the recesses 4 against the outer faces of the inturned flanges 8, with their outer edges resting against the inner faces of the end margins 9, and the inner ends of the lugs
8 the bars 14 for securing them in place, while
85 the opposite ends of each bar 14 are bent laterally at 16 upon the outer faces of the adjacent ends of the flanges 10 and serve to lock
90 the bars 14 from endwise displacement. The inner edges of the flanges 10 are also bent laterally under the inner edges of the extensions
95 13 to form lengthwise ledges for the purpose of reinforcing the flanges and engaging the extremities 13 to hold the transverse bars 12 from rocking movement in the apertures 11,
95 although the bars 12 are flat and the apertures 11 are of substantially the same cross-sectional area, so that the bars fit snugly in these apertures.

It is evident from the foregoing description
100 that a grille-plate of this construction is light, strong, and durable and may be manufactured at a minimum cost.

The bars 12 are also formed of comparatively thin sheet metal and are disposed edge-
105 wise at substantially right angles to the face

of the grille-plate; but it is evident that the arrangement of the bars 3 and 12 may be otherwise without departing from the spirit of my invention—as, for instance, in Fig. 6 I have shown a sheet-metal grille-plate 20 having bars 21 running diagonally of the plate, with their ends integral with the margin and their edges bent inwardly to form reinforcing-flanges 22 similar to those seen in Figs. 1 to 5, inclusive. These flanges are also perforated at intervals, as shown in Fig. 4, to receive separate transverse bars 23, which also run diagonally in lines intersecting the flanges 22 and are secured at the ends in substantially the same manner as seen in Fig. 2.

In Fig. 7 I have shown a still further modified form of sheet-metal grille-plate 30, having integral bars 31, which diverge in one direction and converge in the opposite direction, and the edges of these bars are also bent inwardly and have suitable apertures which receive transverse bars 33, the manner of securing these bars being similar to that seen in Figs. 1 to 6, inclusive.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. A sheet-metal grille-plate having a substantially flat marginal flange and alternate bars and slots running from the margin at one side to the margin at the opposite side, the bars having longitudinal reinforcing-flanges provided with transverse apertures, and additional bars running transversely and through the apertures of the first-named bars.

2. A sheet-metal grille-plate having a substantially flat margin and its central body provided with a series of bars and intervening slots both running continuously from the margin at one side to the margin at the opposite side, each bar having parallel reinforcing-flanges depending from its longitudinal edges, said flanges being provided with transverse apertures, and additional straight bars running transversely of the first-named bars and through said apertures.

3. A grille-plate consisting of a sheet-metal body having its central portion provided with parallel bars and intervening parallel spaces, the bars having reinforcing-flanges provided with transverse apertures, and additional bars inserted transversely through said apertures.

4. A grille-plate consisting of a sheet-metal body having its central portion provided with a series of lengthwise bars and intervening lengthwise slots, the portions of the plate at the ends of the slots forming retaining-lugs projecting from the plate, and transverse bars resting in the retaining-lugs.

5. A grille-plate consisting of a sheet-metal body having its central portion provided with a series of lengthwise bars and intervening lengthwise slots, reinforcing-ribs projecting from the longitudinal edges of the bars and provided with transverse apertures, transverse bars running through said apertures, and laterally-projecting shoulders on the transverse bars to prevent their endwise displacement.

6. A grille-plate consisting of a substantially flat margin and a series of bars having their ends united to opposite sides of the margin and their intermediate portions spaced apart to form intervening spaces, said bars having reinforcing-ribs projecting from their longitudinal edges and provided with transverse apertures, transverse bars running through said apertures, additional transverse bars at the ends of the first-named bars, and means for securing the additional transverse bars to the plate.

7. A sheet-metal grille-plate having a series of bars and intervening spaces of substantially the same length as the bars, each bar having a depending flange at each longitudinal edge and of substantially half the width of the adjacent space, said plate having integral retaining-lugs at the end of the spaces, and transverse bars held by said lugs.

8. A sheet-metal grille-plate having lengthwise bars and intervening spaces of substantially the same length as the bars, reinforcing-ribs united to the longitudinal edges of said bars, additional bars running transversely at the ends of the first-named bars, said plate having integral lugs at the ends of said spaces and engaging said additional bars to hold them in place.

In witness whereof I have hereunto set my hand this 19th day of April, 1904.

WILLARD S. TUTTLE.

Witnesses:

H. N. MEEKER,
W. R. ESPENSCHIED.