

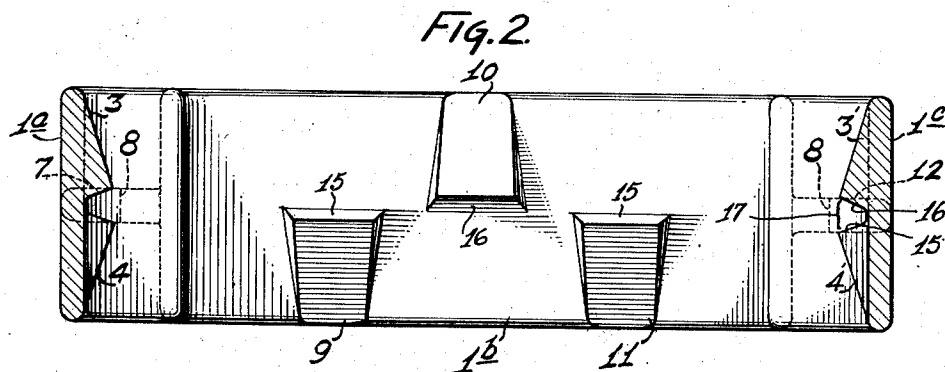
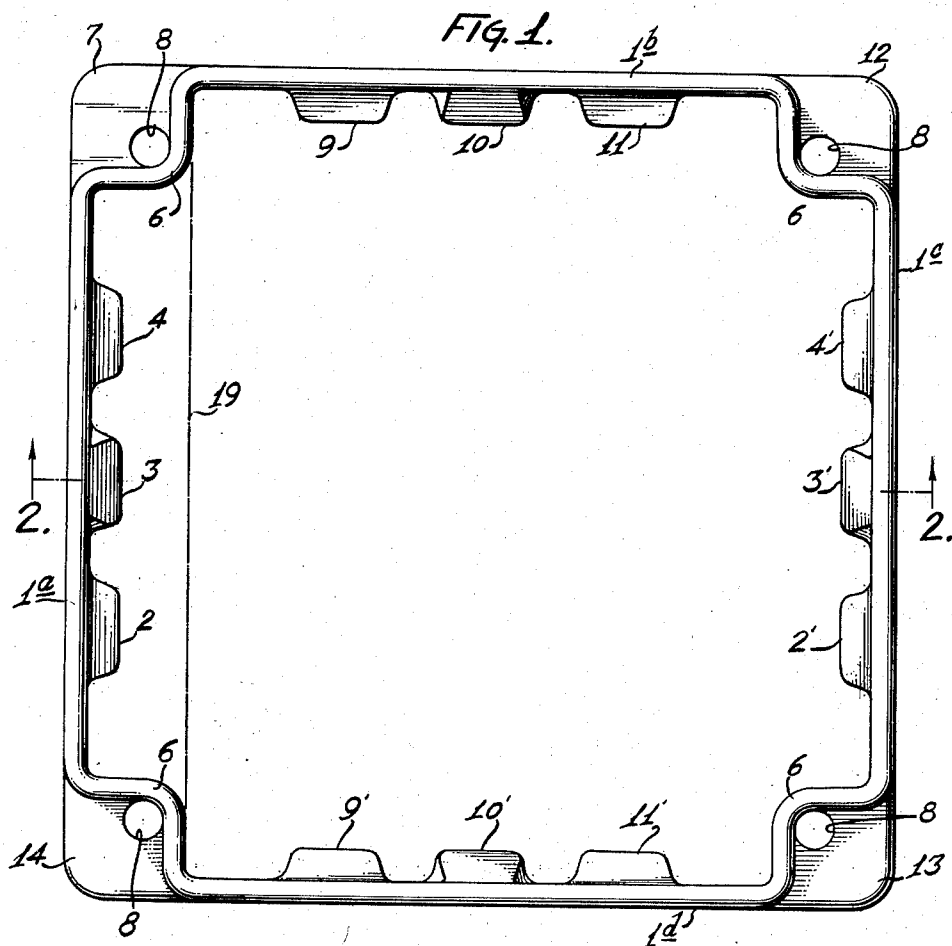
Sept. 17, 1957

G. BROBERG  
FRAME FOR FASTENING VENTILATING GRILLES  
AND SIMILAR ELEMENTS

2,806,420

Filed June 23, 1954

2 Sheets-Sheet 1



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FIG. 3.

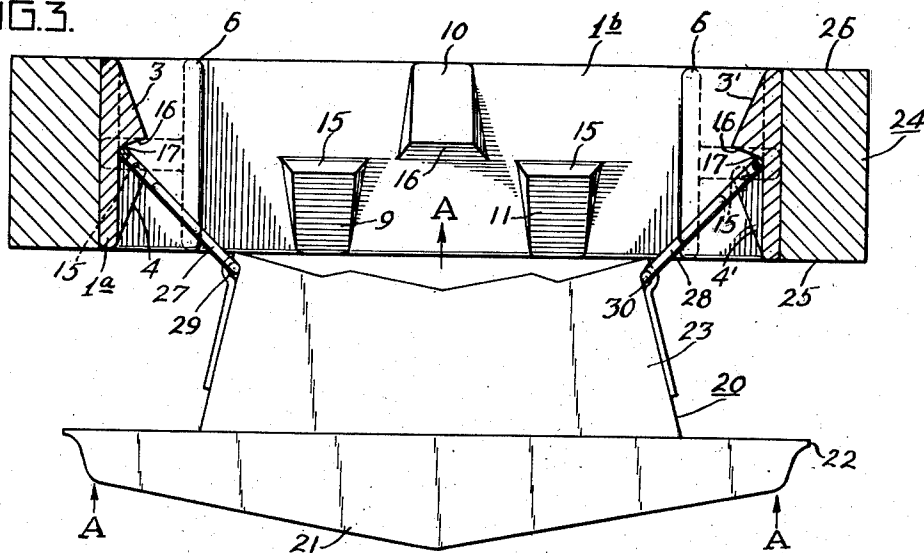


FIG. 4.

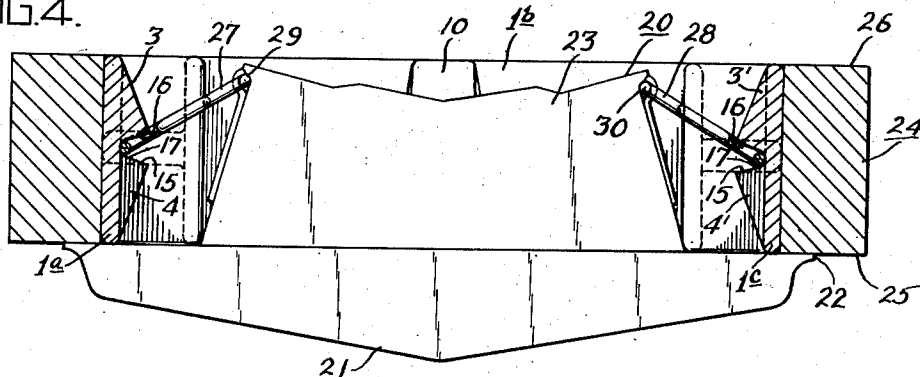
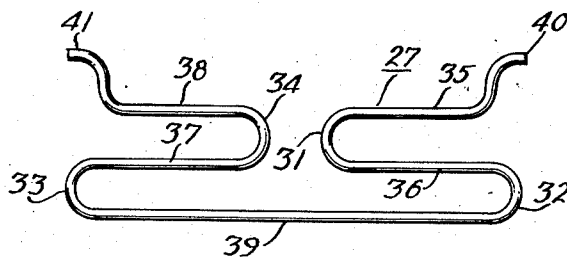


FIG. 5.



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FRAME FOR FASTENING VENTILATING GRILLES  
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Application June 23, 1954, Serial No. 438,741

Claims priority, application Sweden June 29, 1953

2 Claims. (Cl. 98-114)

The present invention relates to a frame structure for supporting or mounting a ventilating grille or like member and having at two or more of the opposite inner surfaces of its side walls a plurality of studs which are provided for the purpose of securing the grille or like member in the frame.

Frames of this type frequently are castings. Prior to the present invention the manufacture of cast frames having studs of the type usually required the use of separate core members in addition to the usual mold boxes and in the case of objects which must be manufactured in large numbers at low cost, this is a disadvantage not only from the standpoint of the added cost but also the increased manufacturing time required to produce the core members.

With the foregoing in mind, it is the principal object of the present invention to provide a frame structure which may be produced by conventional casting procedures without the use of complicated and expensive core members.

In the present instance this object is attained by providing a frame structure having a plurality of inwardly projecting studs on the inner surface of two or more of the opposite side walls and arranged in two opposing series with the studs in one series offset or staggered peripherally of the frame with respect to the studs in the other series. Furthermore, the studs in both series are of progressively increasing height inwardly from the respective opposite edges of the frame side walls and terminate at their inner ends in angularly disposed faces which cooperate and define therebetween a groove-like space or recess for the reception of a ventilating grille or like member that is mounted in the frame. By this construction the outer edgewise portions of the studs are of the same thickness as the side walls of the frame so that the latter can be produced by customary casting procedures using only upper and lower mold boxes without a complicated and expensive core member.

These and other objects of the invention and the various features and details of construction thereof are herein-after fully set forth and described with reference to the accompanying drawing, in which:

Fig. 1 is a top plan view of a frame structure made in accordance with the present invention;

Fig. 2 is a sectional view on line 2-2 of Fig. 1;

Fig. 3 illustrates a grille body in a preliminary position before being mounted in the frame;

Fig. 4 illustrates the grille body in its final mounted position; and,

Fig. 5 shows one of the spring fastening elements illustrated in Fig. 3.

Referring now to the drawing, in the embodiment of the invention shown, reference numerals 1a, 1b, 1c and 1d designate the four side walls of the frame structure, the respective side walls 1a, 1c and 1b, 1d being disposed in oppositely related parallel relation to provide a frame structure of quadrilateral configuration. At each of its four corners the side walls of the frame structure are

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projected inwardly substantially at right angles to the wall and form with the portions of adjacent side walls an intumed corner 6 directed diagonally of the frame as shown in Fig. 1 of the drawing. In addition, at each exterior corner of the frame there is provided an ear which lies in the median plane of the frame and is designated by the reference numerals 7, 12, 13 and 14, respectively. These ears are each provided with an opening 8 therethrough for fastening means to secure the frame in position.

Cast integrally with the frame structure and projecting inwardly thereof from the side walls 1a, 1b, 1c and 1d are two series of studs each comprising a plurality of studs arranged so that the studs in one series are peripherally staggered or offset with respect to the studs of the other series. The studs of one series are designated by the reference numerals 2, 4, 9, 11, 2', 4', 9' and 11' and the studs of the other series are designated by the reference numerals 3, 3', and 10, 10', respectively. The studs in the respective series are of progressively increasing height inwardly from the opposite edges of the side walls of the frame and terminate at their inner ends substantially at the median plane of the frame structure in surfaces or faces 15 and 16, respectively, disposed in angularly divergent relation relative to one another as shown in Fig. 2 of the drawing so that the studs in both series cooperate to define therebetween a groove or recess 17 for reception of the fastening elements of a ventilating grille or like member mounted in the frame.

The space existing between the side edge of an inserted ventilating grille or like member designated, for example, by the broken line 19 in Fig. 1 of the drawing, and the adjacent side wall 1a, affords clearance for the use of well-known spring fastening elements or the like which may be employed to releasably retain a ventilating grille or like member within the frame structure of the present invention with the end portions of the grille body bearing against the intumed corners 6, 6. Furthermore, as will be apparent from the drawing, the frame structure is designed entirely symmetrically so that one and the same frame structure can be used for the horizontal or vertical mounting of a ventilating grille or like element.

In using the frame, a ventilating grille body 20 may be mounted as shown in Figs. 3 and 4. The front surface of the grille body is designated 21 and the body portion extending from the surface is designated 23. Around the extending part 21 there is a flange 22.

The grille body is adapted to be mounted in the frame in a wall 24 having an outer surface 25 and an inner surface 26. For mounting the grille body in the wall opening, in the illustrated embodiment of the invention; the walls 1a, 1b, 1c, and 1d of the frame closely fit the wall opening.

The grille body 20 is mounted in the frame by means of spring elements. The spring elements are designated 27 and 27a and are pivotally mounted on the body at points 29 and 30, the opposite ends of the spring elements 27 and 27a engaged in the groove 17 as indicated. As is evident from Fig. 5 which shows the element 27, each spring element consists of a wire symmetrically doubly bent at the points 31, 32, and 33, 34 respectively. The intermediate legs are designated 35, 35', 37, and 38, and the central leg is designated 39. The opposite ends 41, 41' of each spring element are axially aligned and are adapted to be inserted in corresponding ears at the point 29 for the spring element 27 and the point 30 for the spring element 28.

The operation of the device is as follows: As shown in Fig. 3, the extending body portion 23 of the grille body 21 with the outstanding spring elements 27, 28 directed against the groove 17 in the sides of the opening, is inserted into the opening. The body is then pressed downwardly as indicated by the arrows A, A, A. Inward dis-

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placement of the grille element 21 causes the spring elements 27 and 28 to pass an unstable position when the points 29 and 30 are in the same plane as the groove 17. At this point, the spring elements reach their maximum compression. As soon as this unstable position has been passed during the inward movement towards the inner surface 26, the spring elements tend to revert to their original form. This means, as shown in Fig. 4, that the spring elements tend to secure their flange 22 of the body flush against the flat outer surface 25 of the wall.

The grille body and assembly is described in greater detail and claimed in my copending application, Serial No. 429,613 filed May 13, 1954.

While a particular embodiment of the present invention has been herein illustrated and described, it is not intended to limit the invention to the precise disclosure, but changes and modifications may be made therein and thereto within the scope of the following claim.

What I claim is:

1. A quadrangular frame structure for mounting ventilating grilles and the like comprising oppositely related spaced parallel side walls, two series of studs integral with the frame side walls and projecting inwardly of the frame from the inner surfaces of at least two of said side walls, each series of said studs comprising studs arranged in spaced relation along the interior of said two opposite side walls of the frame with the studs of one series staggered with respect to the studs of the other series, and the studs of both series being of progressively increasing height and thickness inwardly form the respective opposite edges of the side walls and terminating at their inner ends substantially at the median plane of the frame in angularly disposed faces which cooperate to define between the two series of studs a recess for reception of the fastening elements of a ventilating grille.

2. A quadrangular frame structure for mounting ventilating grilles and the like, comprising oppositely related spaced parallel side walls having their opposite end por-

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tions at the four corners of the frame projected inwardly substantially perpendicular to the respective side walls and forming with the inwardly projected end portions of the adjacent side walls an inturned corner, said inturned corners being operable to engage the end portions of the body of the ventilating grille inserted in said frame, two series of studs integral with the frame side walls and projecting inwardly of the frame form the inner surfaces of at least two of said side walls, each series of said studs comprising studs arranged in spaced relation along the interior of said two opposite side walls of the frame with the studs of one series staggered with respect to the studs of the other series, and the studs of both series being of progressively increasing height and thickness inwardly form the respective opposite edges of the side walls and terminating at their inner ends substantially at the median plane of the frame in angularly disposed faces which cooperate to define between the two series of studs a recess for reception of the fastening elements of a ventilating grille, and the exterior corner portions of the frame having ears projecting from the side walls substantially in the median plane of the frame and having openings there-through for fastening means to secure the frame structure.

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