Dec. 27, 1955 M. V. NOECKER 2,728,388

CONSTRUCTION FOR MOUNTING A PAIR OF PANELS AND A GRILL IN A METAL DOOR

Filed Jan. 21, 1953

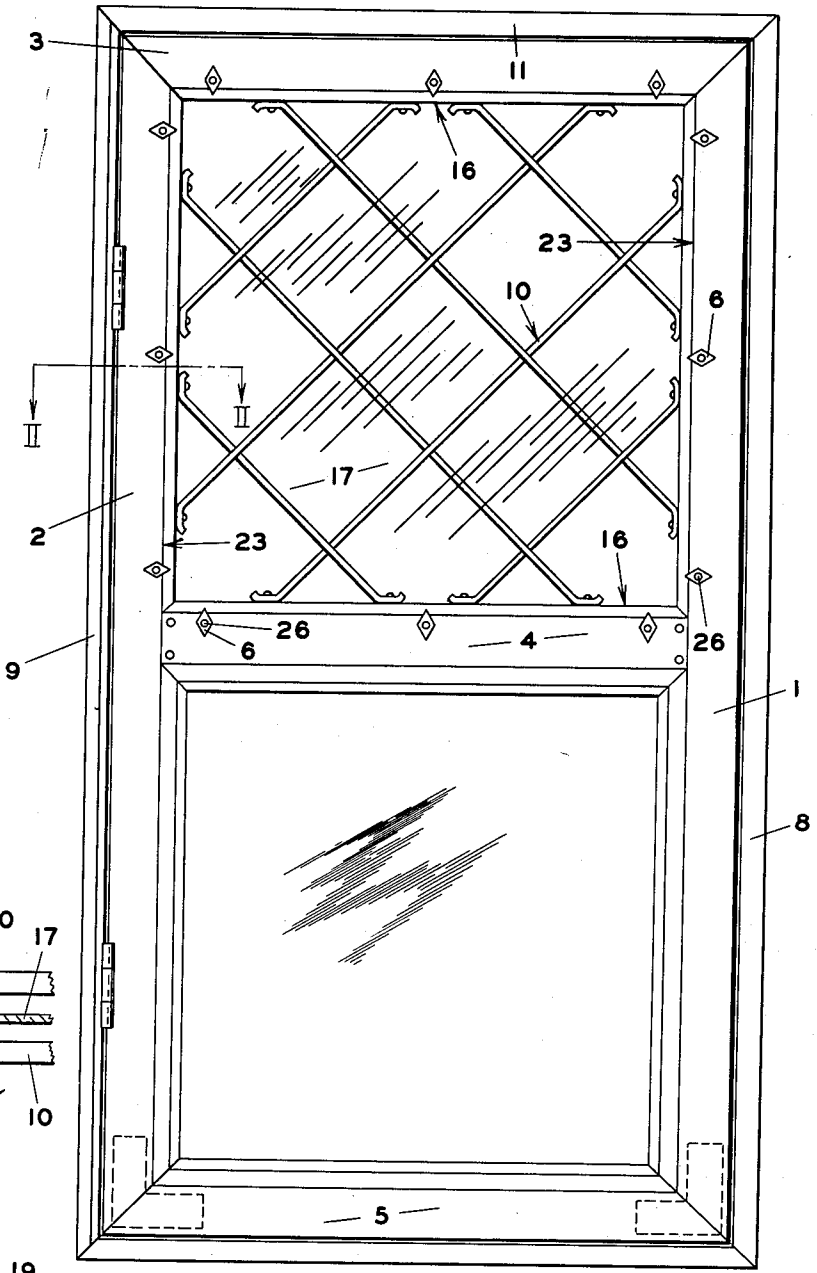


Fig. 1

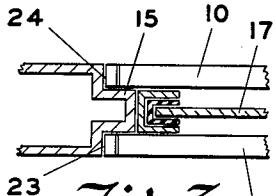


Fig. 3

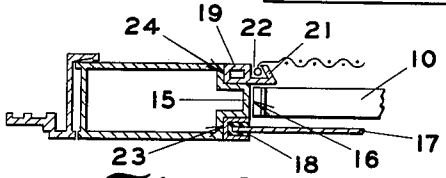


Fig. 2

INVENTOR.
MARSHALL V. NOECKER
BY
ATTORNEY

United States Patent Office

2,728,388

Patented Dec. 27, 1955

2,728,388

CONSTRUCTION FOR MOUNTING A PAIR OF PANELS AND A GRILL IN A METAL DOOR

Marshall V. Noecker, Grosse Pointe Farms, Mich., assignor to Kaufmann Corporation, Detroit, Mich., a corporation of Michigan

Application January 21, 1953, Serial No. 332,246

2 Claims. (Cl. 160—182)

This invention relates to a construction by which panels are affixed to an all metal door, particularly of the storm door type, and it relates especially to a construction for mounting a pair of panels and a grill simultaneously within a desired portion of said door.

In the construction of storm doors, it has been common for many years to provide such doors with interchangeable panels for summer and winter use, respectively, wherein the winter panel constitutes a glass panel and the summer panel constitutes a screen panel. In a variety of places of use, however, inasmuch as the screen panels and/or the glass panels normally constitute a large proportion of the total area of such doors, it has also been customary to apply a protective grill over said panel, which grill is customarily made into a variety of forms and frequently takes the form of decorative metal work in a variety of shapes and patterns.

In a conventional construction of metal doors of the type above indicated, it has been customary to affix glass or screen panels thereto by a variety of means and it has also been customary to affix grills thereto by a variety of means. However, in such conventional construction such means have taken a number of forms which require various special items separate from the door for fastening said parts thereto and said means have often not been easily adaptable for inter-changing said panels with respect to each other or for mounting a grill in a selected position with respect to either panel. Particularly, such structures have often not normally been readily adaptable for mounting both panels and the grill simultaneously in an operative position.

Accordingly, it has for a long time been desirable to provide a construction by which an all metal door would be enabled simultaneously but removably to mount any one of, or all three of, a storm panel, a screen panel and a grill.

Therefore, a major object of the invention has been to provide structure by which an all metal door would be enabled to mount a storm panel, a screen panel, and a grill within a single opening.

A further object of the invention has been to provide structure by which an all metal door would be enabled to mount a storm panel, a screen panel, and a grill, said panels and said grill being mounted simultaneously.

A further object of the invention has been to provide construction as aforesaid, in which each of said panels are independently removable.

A further object of the invention has been to provide a construction as aforesaid, in which either of said panels can be placed inwardly or outwardly of the door with respect to said grill.

A further object of the invention has been to provide a construction as aforesaid, in which either of said panels can be mounted in place or removed without affecting the operating position or effectiveness of either the other of said panels or of said grill.

A further object of the invention has been to provide construction as aforesaid, which by slight modification

can be readily adapted to supporting a grill or a pair of grills, one positioned on either side of a glass or screen panel.

A further object of the invention has been to provide construction as aforesaid, which will be extremely simple and therefore of low cost in both construction and assembly.

A further object of the invention has been to provide structure as aforesaid, which is of sufficient simplicity that said screens and/or said panels can be removed, replaced and interchanged readily and with the expenditure of a minimum of time and effort.

A further object of the invention has been to provide construction as aforesaid of sufficient simplicity as to require relatively little maintenance.

Another object of the invention has been to provide structure as aforesaid which will be adaptable to manufacture from aluminum.

Other objects and purposes of the invention will be apparent to persons acquainted with apparatus of this general sort upon reading the following specification and inspecting the accompanying drawings.

In the drawings:

Figure 1 represents a view of my improved door taken from the outside thereof.

Figure 2 represents a section taken on line II—II of Figure 1.

Figure 3 represents a modification of my door shown by section similar to that appearing in Figure 2.

In the following description, for purpose of convenience in illustration and not with any thought of limitation, the following terminology will be used: the terms "inner" and "outer," and derivatives thereof, will be used to denote directions inwardly and outwardly of the building with which the door of the invention is being used and the terms "central" and "peripheral," and derivatives thereof, will denote directions toward and away from the geometric center of the door.

In general, my invention contemplates providing a centrally extending ridge along the stiles and rails defining the opening which said panels and said grill are to occupy, positioning such ridge equally between the inner and outer surface of said door and mounting said panels and said grill on said ridge and on either side thereof.

Referring now to the drawings, there is shown in Figure 1 a door construction comprising identical sections made in any convenient manner, such as by extrusion from aluminum, and including stiles 1 and 2 and rails 3, 4 and 5, and having a centrally extending ridge 15 as shown in Figure 2.

In this particular embodiment, the central ridge 15 is of rectangular construction but this is a matter of preference. The central cross-bar 4 of said door has ridges on both its upper and lower edges, the top ridge thereof cooperating with the ridges of the members 1, 2 and 3 above mentioned and the downwardly extending ridge cooperating with other similar ridges in the lower portion of the door for supporting a kick-plate as set forth in more detail in my application entitled "Kick-Plate for a Metal Storm Door," Serial Number 332,244, filed January 21, 1953.

The grill 10 is preferably made of a plurality of metal strips, which may be bent or twisted together in any desired form but which provide at their extremities a series of flat surfaces, which surfaces are capable of engaging the centrally facing surfaces 16 of the several ridges. Said grill may then be readily affixed to the centrally facing surfaces of said ridges by any convenient means, such as screws, as shown.

The window panel 17 (Figure 2) is seated in a metal frame, here a U-shaped frame, and is conveniently held therein by resilient material 18, as tape, in a known

manner. The screen panel is mounted in a similarly rectangular frame of conventional form such as one having a rectangular body portion 19 and a screen engaging portion 21 in which the screen is held by a spline 22. Said window and screen panels are of equal thickness with respect to each other and both are of substantially the same thickness as the steps 23 and 24 on either side of the several ridges 15.

With the grill 10 in position, either or both of the screen and window planes may be located and fastened into position on either side desired, or they may be located on both sides of the grill, and fastened into position by the plates 6 which are in turn held in place by the screws 26.

It will be readily understood in view of the foregoing that either the screen or the window panel may be placed on the inward or outward side of the grill with respect to the building with which the door is being used and that either the window or the screen panel may be removed from its position within the door without affecting the positioning of the other of said panels.

Likewise, in view of the foregoing, it will be recognized that in certain situations it will be possible to mount the window or screen panel in position, as shown in Figure 3, on the ridge 15, and hold same in place by plates, if desired, similar to those shown at 6 in Figure 1, and mount a pair of grills in the steps 23 and 24 on either side of said panel and hold same in place by screws similar to those shown in Figure 1.

Thus, in special cases where it is desired to protect a window or a screen panel on both sides thereof, it will be possible to do so without altering in any respect the construction of the door itself with merely a slight variation in the length and width of the grill and panel members. Inasmuch as said grill and panel members will normally be made in several sizes anyway in usual manufacturing operations, many, if not all, of these sizes can be supplied as standard items.

Accordingly, a construction has been illustrated and described capable of attaining the objects and purposes above outlined.

While the invention has been illustrated in terms of two specific embodiments thereof, it will be recognized that a number of other variations may be made from the specific devices shown and the hereinafter appended claims will include such variations excepting as said claims by their own terms expressly limit otherwise.

I claim:

1. In an all metal door construction, the combination comprising: a pair of stile members and a pair of rail members, each of said stile and rail members having an inwardly projecting ridge with a flat, inwardly facing surface intermediate the front and rear surfaces thereof, said ridge defining a step on either side thereof; means for holding said stile and rail members together to define a door structure having a central opening, with said ridges and said steps of said stile and rail members being aligned; a grill member mounted on said inwardly facing surfaces of said ridges and being of a depth not greater than the depth of said ridges, the entirety of said grill lying between the front and rear edges of said inwardly facing surfaces; a first panel, mounting structure for said first panel positioned in the steps on one side of said aligned ridges, said mounting structure occupying the full depth of said steps on said one side of said aligned ridges and having an outer surface co-planar with an adjacent surface of said assembled stile and rail members, said first panel being secured to said mounting structure, and extending across said central opening spaced from said grill; a second panel, mounting structure for said second panel positioned in the steps on the other side of said aligned ridges, said mounting structure for said second panel occupying the full depth of said steps on said other side of said aligned ridges and having an outer surface co-planar with an adjacent surface of said stile and rail members, said second panel being secured in said second panel mounting structure and extending across said central opening spaced from said grill.

2. The combination of claim 1 and including peripherally extending flanges formed at the end of the grill bars and defining a shape similar to, and receivable snugly but removably within, said central opening and means for securing said flanges to said ridges.

References Cited in the file of this patent

UNITED STATES PATENTS

834,968	Christenson	Nov. 6, 1906
1,512,853	Lower	Oct. 21, 1924
1,715,208	Micklin	May 28, 1929
1,800,800	Kerby	Apr. 14, 1931
2,132,217	Nerrendorf	Oct. 4, 1938
2,216,332	Wahl	Oct. 1, 1940