

June 10, 1930.

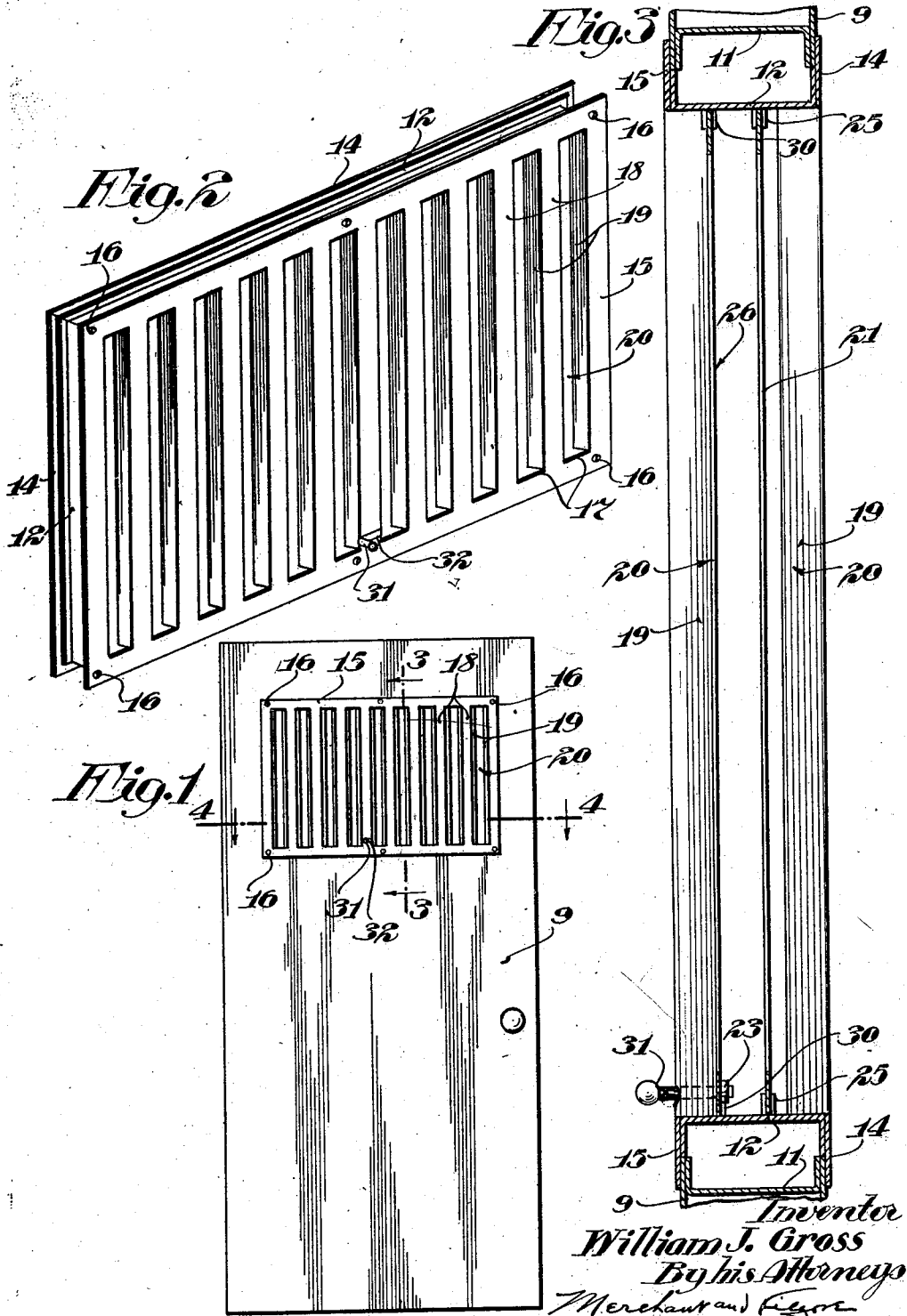
W. J. GROSS

1,762,223

LOUVER

Filed Sept. 7, 1928

3 Sheets-Sheet 1



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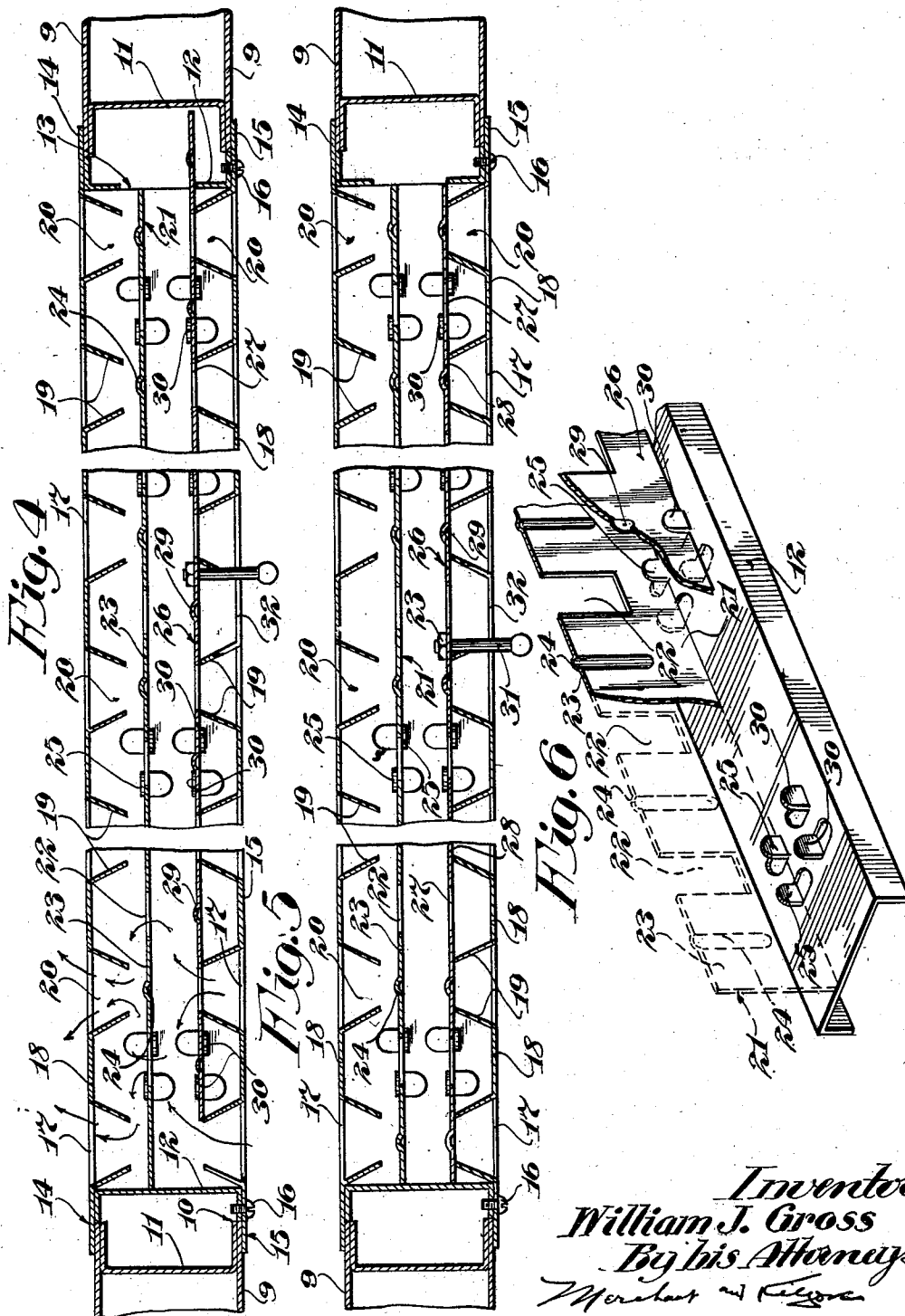
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3 Sheets-Sheet 2



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3 Sheets-Sheet 3

Fig. 7

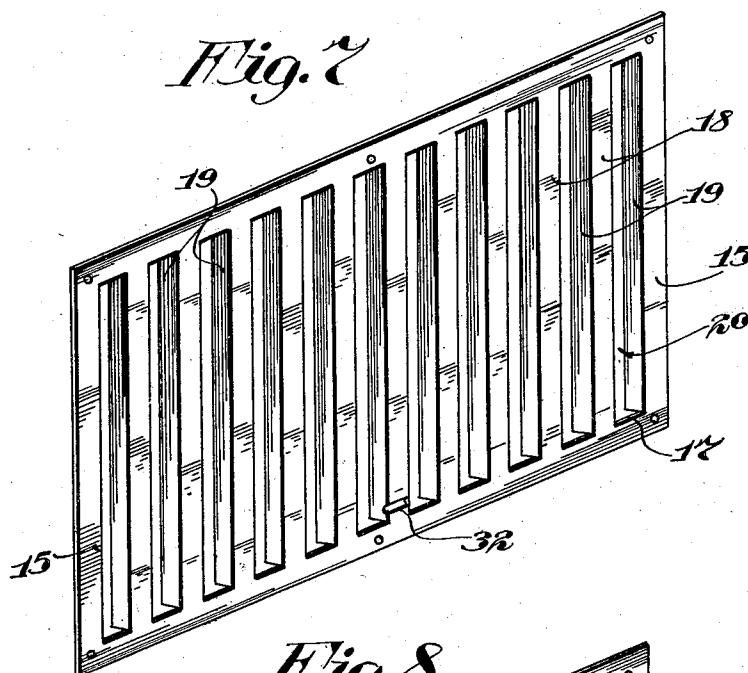
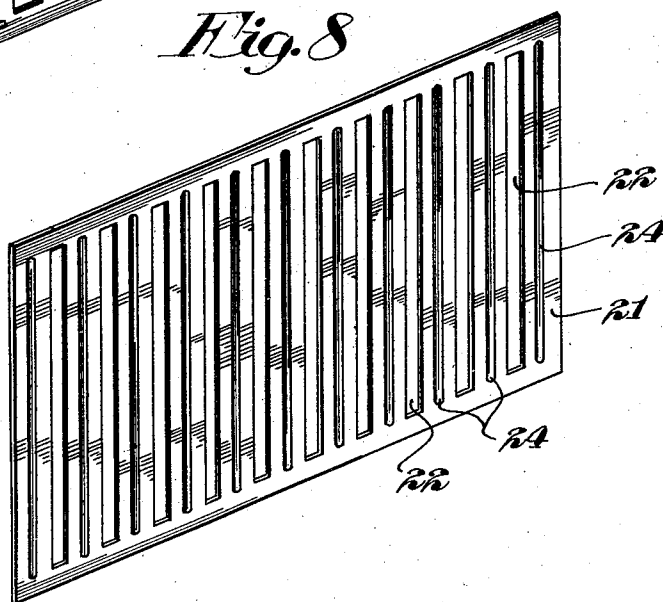


Fig. 8



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Mercant and Figure

UNITED STATES PATENT OFFICE

WILLIAM J. GROSS, OF ST. PAUL, MINNESOTA, ASSIGNOR, BY MESNE ASSIGNMENTS, TO
TRUSSBILT STEEL DOORS, INC., OF ST. PAUL, MINNESOTA, A CORPORATION OF DELA-
WARE

LOUVER.

Application filed September 7, 1928. Serial No. 304,469.

My present invention has for its object to provide a simple and highly efficient louver intended for general use as a ventilator and especially well adapted for installation in a door, a wall or over a door to take the place of a transom.

In the preferred form of the louver, it is designed as a self-contained unit adapted to be installed in an opening in a door or other place prepared to receive the same without having to fit or alter the louver in any manner whatsoever, and in which the louver is self secured in position. This louver is so designed as to prevent a view therethrough from either side thereof but at the same time, permits a free circulation of air through the louver which may be controlled or entirely cut off, at will.

To the above end, generally stated, the invention consists of the novel devices and combinations of devices hereinafter described and defined in the claims.

In the accompanying drawings, which illustrate the invention, like characters indicate like parts throughout the several views.

Referring to the drawings:

Fig. 1 is a side elevation of a hollow sheet metal door having the improved louver embodied therein;

Fig. 2 is a perspective view of the louver removed from the door;

Fig. 3 is a view in vertical section taken on the line 3—3 of Fig. 1, on an enlarged scale;

Fig. 4 is a fragmentary view in horizontal section taken on the line 4—4 of Fig. 1, on an enlarged scale, with the damper open;

Fig. 5 is a view corresponding to Fig. 4 with the exception that the damper is closed;

Fig. 6 is a fragmentary perspective view of the lower frame member of the louver, the baffle plate and the damper plate, said baffle plate being partly indicated by means of broken lines;

Fig. 7 is a perspective view of one of the face plates removed from the louver; and

Fig. 8 is a perspective view of the baffle plate removed from the louver.

The numeral 9 indicates a hollow sheet metal door having near its top a rectangular louver opening 10. The structure of this

door 9 includes a channel frame 11 surrounding the opening 10, snugly fitted between the side plates of said door and rigidly connected thereto by spot welding. Said channel frame 11 has its flanges turned inward in respect to the plane of said frame and with its outer marginal edge portions of its flanges substantially flush with the edges of the door side plates at the opening 10.

The improved louver includes a rectangular frame 12 which snugly fits within the opening 10 and is made up of channel bars with the exception of one of its end members and with the flanges of said channel bars turned outward toward the frame 11. The other end member of the frame 12 is formed from two angle bars having two of their flanges turned outward toward the frame 11 and their other two flanges are turned toward each other and spaced apart to leave an opening 13 therebetween for a purpose that will presently appear. The transverse width of the frame 12 is such that the outer faces of the sides thereof are flush with the outer faces of the side plates of the door 9. A pair of face plates 14 and 15 are applied one to each side of the frame 12 with the former rigidly secured thereto by spot welding and with the latter detachably secured thereto by screws 16.

It is important to note that the edge portions of the face plates 14 and 15 extend outward of the frame 12 and overlap the side plates of the door 9 and thereby rigidly and self secure the louver to the door 9 within the opening 10. Each face plate 14 and 15 is provided with a plurality of vertically extended openings 17 and intervening bars 18 and which openings and bars extend the full internal height between the top and bottom members of the frame 12. On the longitudinal edges the bars 18 at each opening 17 is a pair of inward projecting and converging flanges 19 which form air passages 20 in the face plates 14 and 15. In forming the opening 17 the face plates 14 and 15 are vertically cut at the transverse centers of said openings and horizontally cut at the ends of said vertical cuts in opposite directions and the stock in the plates 14 and 15 at these cuts is pressed in-

wardly to form the flanges 19. Both face plates 14 and 15 are alike and made from the same die. The openings 17 in the two face plates 14 and 15 are directly opposite each other and to prevent a view therethrough, there is a baffle plate 21 mounted in the frame 12. This baffle plate 21 is of the same size as the opening in the frame 12 and is provided with vertically extended openings 22 and intervening bars 23 which have medial longitudinally extended reinforcing ribs 24 pressed therefrom. Said baffle plate 21 is held in position within the frame 12 and laterally spaced from the flanges 19 of the face plate 14, for the free circulation of air through the louver, by guide lugs 25 arranged in upper and lower pairs. These guide lugs 25, as shown, are cut and pressed from the webs of the top and bottom channel bars of the frame 12 and the lugs of said pairs are laterally spaced to receive the baffle plate 21 therebetween by an edgewise sliding movement through the opening 13. In sliding the baffle plate 21 into the frame 12 through the opening 13 and between the pairs of guide lugs 25 the same engages the channel end bar of said frame opposite the opening 13 which forms a stop and limits the movement of said baffle plate into the frame 12 and properly positions the same with its bars 22 directly between the aligned opposite pairs of air passages 20 in the face plates 14 and 15.

It will be noted that the bars 23 of the baffle plate 21 are materially wider than the opening 17 so as to entirely cut off the view therethrough from either side of the louver, but at the same time, permit the free circulation of air through the air passages 20 in the face plates 14 and 15 and the openings 22 in the baffle plate 21. The guide lugs 25 of each pair are so spaced that they frictionally engage opposite sides of the baffle plate 21 under sufficient pressure to securely hold said baffle plate in position in the frame 12.

To vary the volume flow of the air through the louver or for completely closing the same, there is provided a damper plate 26 having vertically extended openings 27 and intervening bars 28 having medial longitudinally extended reinforcing ribs 29. The baffle plate 21 and damper plate 26 are, as shown, alike and made from the same die. This damper plate 26 is slidably mounted in the frame 12 between pairs of guide lugs 30 formed and arranged in the same manner as the guide lugs 25. The pairs of guide lugs 30 are so arranged as to receive the damper plate 26 therebetween by an endwise sliding movement through the opening 13. The end channel bar of the frame 12 also affords a stop to limit the movement of the damper plate 26 into the frame 12 and positions the same with its bars 28 extending across the air passages 20 in the face plate 15 and just out of contact with the inner vertical edges of the

respective flanges 19 so as not to scrape thereon. In opening the damper 26 the same moves through the opening 13 and into the space formed between the two channel frames 11 and 12, see Fig. 4.

To operate the damper 26 the same is provided with a finger piece which, as shown, is in the form of a knob equipped stem 31 rigidly secured to said damper plate and extending outward through a short horizontal slot 32 in one of the bars 18 of the face plate 15 and the connected flanges 19.

As one way of attaching the finger piece 31 to the damper plate 26 after the face plate 15 is in position, there is applied to said damper plate a fixed nut 33 with which the finger piece 31 has screw-threaded engagement. The opening 27 in the damper plate 26 are of substantially the same width as the contracted inner portions of the air passages 20 in the face plate 15 and when the damper plate 26 is open, they register with said air passages. Obviously the damper plate 15 may be adjusted by a sliding movement to completely close the air passages 20 in the damper plate 26 or partially close the same to any desired volume flow of air there-through.

The assembling of the different parts of the louver which is a self contained structure is an extremely simple and easy matter as it is only necessary to attach the face plate 14 to the frame 12 by spot welding and then insert the baffle plate 21 and damper plate 26 through the opening 13 and slide the same into the frame 12 and between the respective pairs of guide lugs 25 and 30. The frame 12 is then placed in the opening 10 in the door 9 and the face plate 15 secured to said frame by the screws 16. The finger piece 31 is then inserted through the slot 32 and screwed into the nut 33. The overlapping engagement with the marginal edge portions of the face plates 14 and 15 with the side plates of the door 9 securely hold the louver in the door without additional fastening means and at the same time, covers the joints between the louver and the door thus giving the entire structure a neat and finished appearance. Preferably both sides of the baffle plate 21 are finished in the same manner as the balance of the louver so that when viewing the same through the air passages 20 from either side of the door, the same has a finished appearance. The vertically extended air passages 20 and the termination of the slots 17 flush with the lower channel member of the frame 12 makes it an extremely easy matter to keep the louver clean and free from dust and dirt.

What I claim is:

1. A louver comprising a frame, a face plate applied to each side of the frame and having openings and intervening cross bars and also having on the longitudinal edges of

its bars at each opening a pair of inwardly projecting and converging flanges forming an air passage therebetween, a fixed baffle mounted in the frame and having cross bars covering the air passages in one of the face plates and spaced therefrom, and a sliding damper mounted in the frame for movement to and from a position in which it closes the openings in the other face plate.

2. A louver comprising a rectangular frame, a pair of face plates secured one to each side of the frame, one of the face plates being detachably secured to the frame, the marginal edge portion of the face plates being extended outward of the frame, each face plate having opening and intervening cross bars, a baffle mounted in the frame and having bars which cover the openings in one of the face plates and spaced therefrom, and a damper mounted in the frame for movement to and from a position in which it closes the openings in the other face plate.

3. A louver comprising a rectangular frame, a pair of face plates secured one to each side of the frame and having openings and intervening cross bars, a baffle plate and a damper plate mounted in the frame and each having openings and intervening cross bars, guides on the frame which hold the baffle plate with its bars covering the openings in one of the face plates and spaced therefrom, and other guides on the frame which hold the damper plate for sliding movement to and from an operative position in which its bars close the openings in the other face plate, said baffle plate and damper plate being insertable into the frame and between their respective guides by sliding movement through an opening in one of the members of the frame.

4. The structure defined in claim 3 in which the guides are in the form of lugs cut and pressed from certain of the members of the frame.

5. The structure defined in claim 3 in which the baffle plate and damper plate have reinforcing ribs pressed from certain of the bars of said plates and extending longitudinally thereof.

6. A louver including a rectangular frame comprising channel bars forming the upper, lower and one of the end members thereof with their flanges turned outward and a pair of angle bars forming the other end member of the frame with one of their flanges turned outward and their other flanges turned toward each other and spaced to form an opening therebetween, a pair of face plates secured one to each side of the frame with their marginal edge portions extending outward of the frame, one of said face plates being detachably secured to the frame, each face plate having upright openings with intervening cross bars and also having on the longitudinal edge portions of the cross bars at each open-

ing a pair of inwardly projecting and converging flanges forming an air passage therebetween, and a baffle plate and a damper plate insertable into the frame through the opening in its said end member, said baffle plate and damper plate each having upright openings and intervening cross bars, said baffle plate being held in the frame with its cross bars covering the air passages in one of the face plates and laterally spaced therefrom, said damper plate being slidably mounted in the frame for movement to and from a position in which its cross bars close the air passages in the other face plate.

7. A louver including a rectangular frame comprising channel bars forming the upper, lower and one of the end members thereof with their flanges turned outward and a pair of angle bars forming the other end member of the frame with one of their flanges turned outward and their other flanges turned toward each other and spaced to form an opening therebetween, a pair of face plates secured one to each side of the frame with their marginal edge portions extending outward of the frame, one of said face plates being detachably secured to the frame, each face plate having upright openings with intervening cross bars and also having on the longitudinal edge portions of the cross bars at each opening a pair of inwardly projecting and converging flanges forming an air passage therebetween, and a baffle plate and a damper plate insertable into the frame through the opening in its said end member, said baffle plate and damper plate each having upright openings and intervening cross bars, and two series of guides on the upper and lower frame members, each of said series comprising pairs of laterally spaced ears, said baffle plates and damper plates being insertable into the frame through the opening in said end member and engaging the channel end member as a stop to position the baffle plate with its cross bars closing the air passages in one of the face plates and spaced therefrom and with the damper plate in a closed position in which its cross bars close the air passages in the other face plate, the series of guide lugs for the baffle plate frictionally holding said plate in position, the series of guide lugs for the damper plate permitting sliding movement thereof to and from a closed position, said damper when open extending outward through the opening in said frame end member.

8. The structure defined in claim 5 in further combination with a finger piece attached to the damper and extending through a slot in one of the cross bars of the respective face plates.

9. A louver comprising a frame, a pair of face plates one on each side of the frame and having openings and intervening cross bars, a baffle plate and a damper plate mounted in

the frame and each having openings and intervening cross bars, guides on the frame which hold the baffle plate with its bars covering the openings in one of the face plates and spaced therefrom, and other guides on the
5 frame which hold the damper plate for sliding movement to and from an operative position in which its bars close the openings in the other face plate.

10 In testimony whereof I affix my signature.
WILLIAM J. GROSS.

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