Sept. 8, 1942. L. W. WELCH 2,295,145

REGISTER ASSEMBLY

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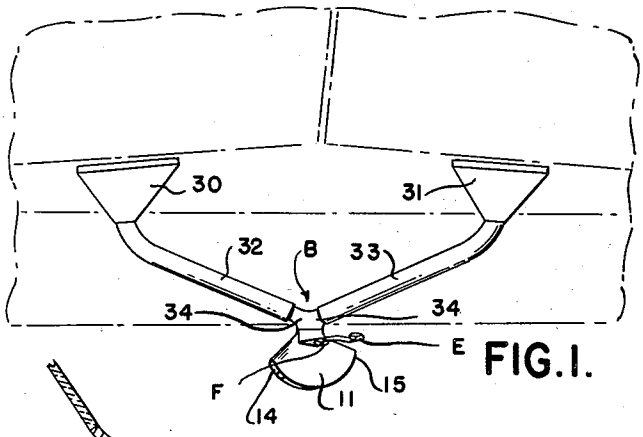


FIG. 1.

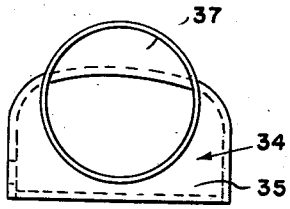


FIG. 9.

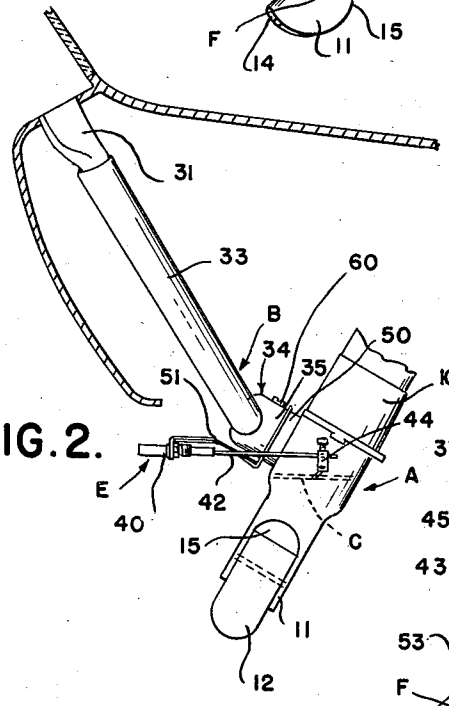


FIG. 2.

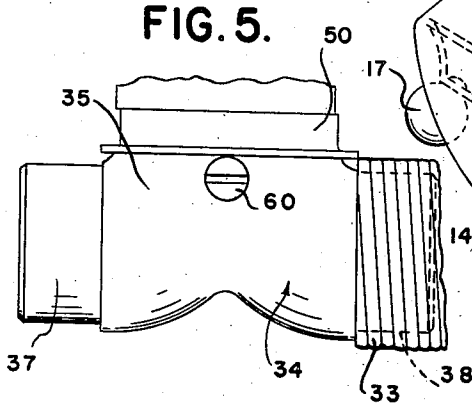


FIG. 5.

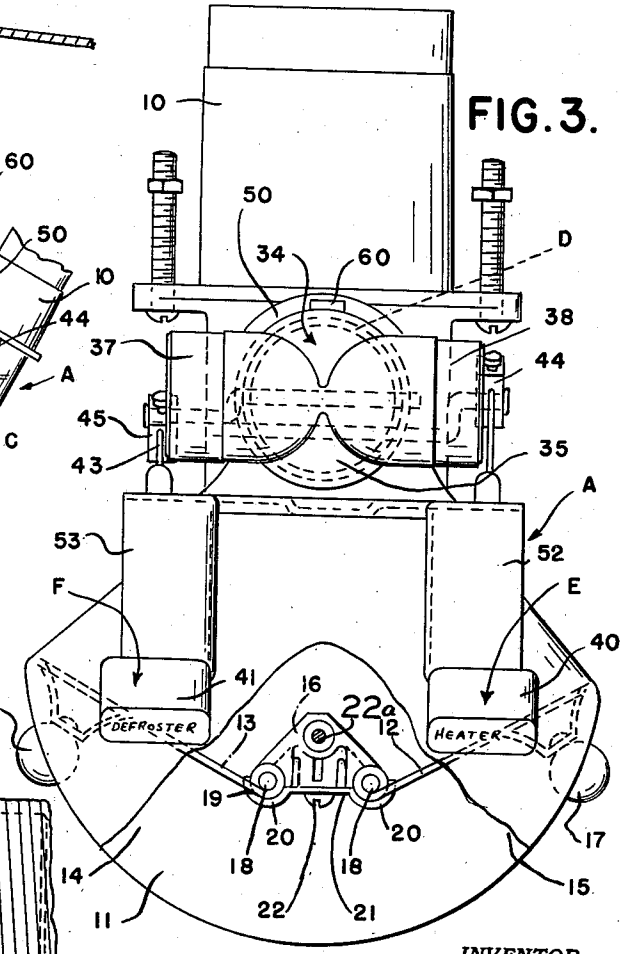


FIG. 3.

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REGISTER ASSEMBLY

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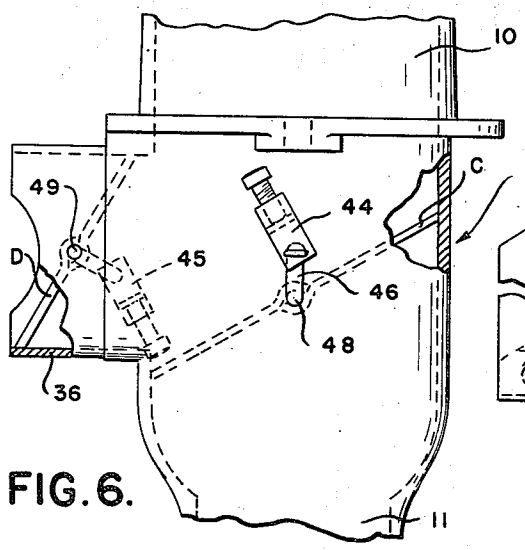


FIG. 6.

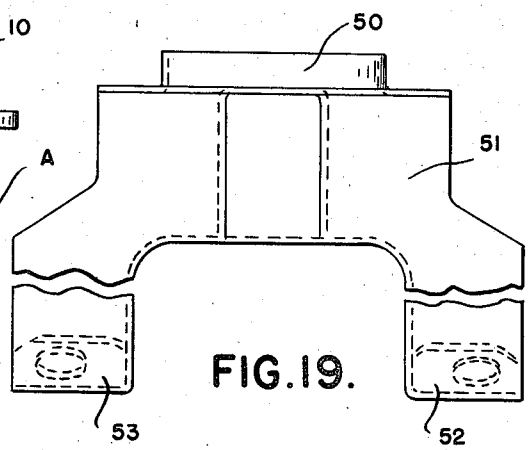


FIG. 19.

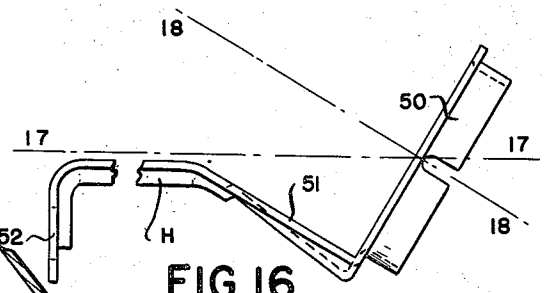


FIG. 16.

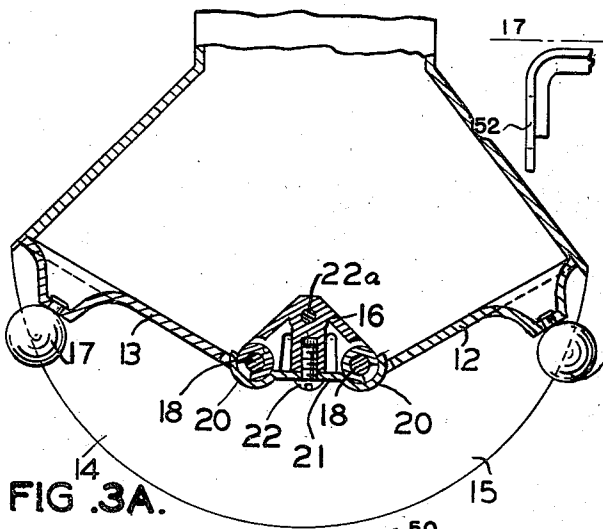


FIG. 3A.

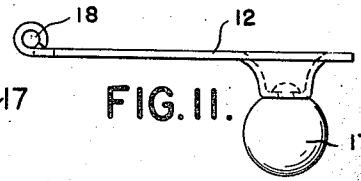


FIG. 11.

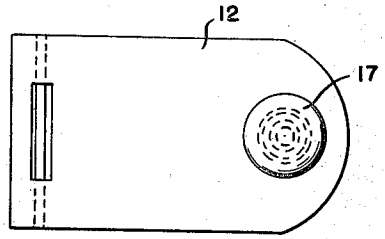


FIG. 12.

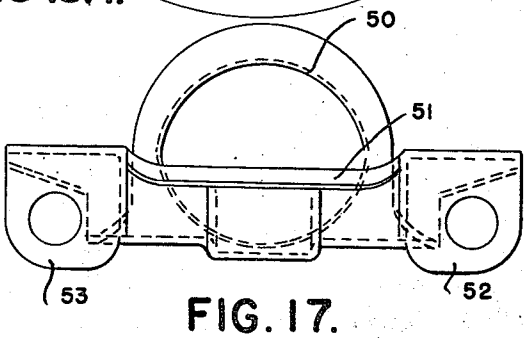


FIG. 17.

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FIG.14.

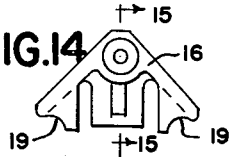


FIG.15.

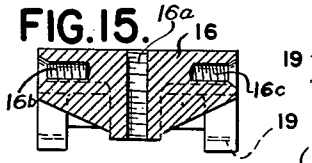


FIG.13.

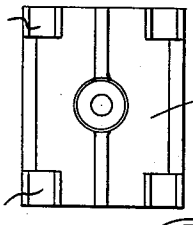


FIG.4.

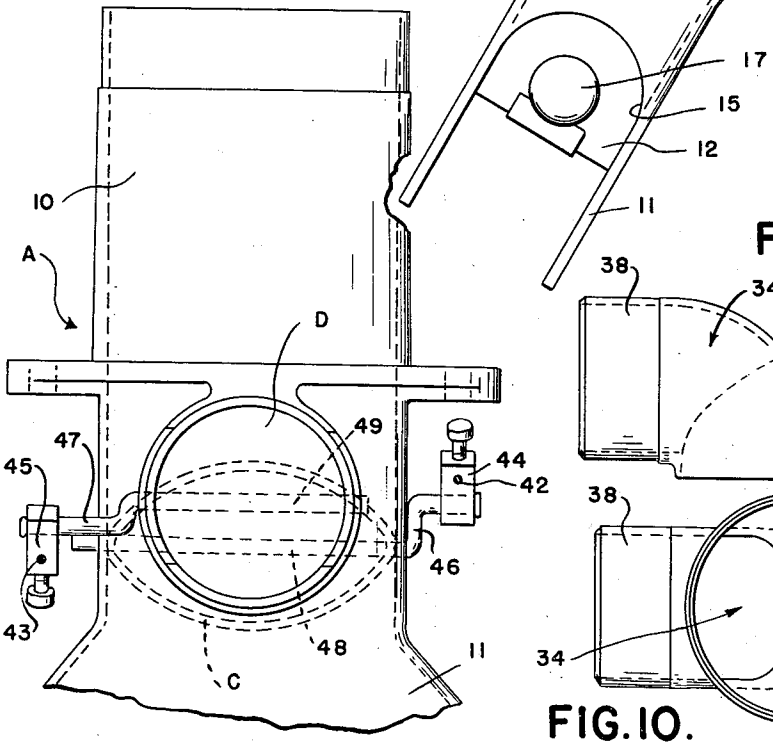
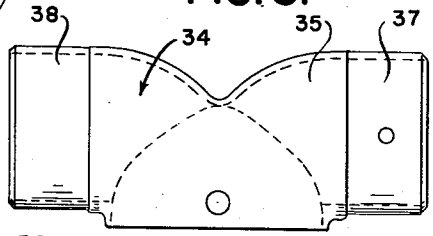


FIG.7.

FIG.8.



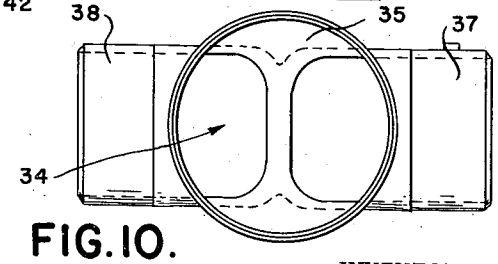


FIG.10.

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Patented Sept. 8, 1942

2,295,145

UNITED STATES PATENT OFFICE

2,295,145

REGISTER ASSEMBLY

Lewis W. Welch, Detroit, Mich., assignor to Novi Equipment Company, Novi, Mich., a corporation of Michigan

Application December 18, 1939, Serial No. 309,913

11 Claims. (Cl. 98—2)

This invention relates generally to register assemblies of heating apparatus for motor vehicles.

One of the essential objects of the invention is to provide a register assembly wherein provision is made for directing toward either or both the driver and adjacent passenger of the vehicle the warm air that is received from a suitable heater of the apparatus.

Another object is to provide a register assembly wherein provision is made for adjustably holding in the respective positions desired the directing means aforesaid of the register.

Another object is to provide a register assembly wherein a defroster for the windshield of the vehicle is carried by and receives its supply of warm air from the body of the register.

Another object is to provide a register assembly wherein the flow of warm air to the register outlets and to the defroster is controlled by individually operable valves carried by the body of the register.

Another object is to provide a register assembly wherein the operating means for the valves are carried by a bracket mounted on the body of the register.

Another object is to provide a register assembly wherein the body of the register, defroster supply fitting and bracket just mentioned are constructed and arranged in such a way that they may be held together by a single screw.

Other objects, advantages and novel details of construction of this invention will be made more apparent as this description proceeds, especially when considered in connection with the accompanying drawings, wherein:

Figure 1 is a perspective view of a register assembly embodying my invention;

Figure 2 is a side elevation of the structure shown in Figure 1;

Figure 3 is a top plan view of a portion of the register assembly, showing the upper wall of the flaring outlet broken away and illustrating the details of the mounting means for the doors;

Figure 3—A is a horizontal sectional view through the doors and mounting means therefor and showing adjacent portions of the register in elevation;

Figure 4 is a side elevation of the structure illustrated in Figure 3;

Figure 5 is a fragmentary top plan view thereof;

Figure 6 is a side elevation of the register body, with parts broken away and in section;

Figure 7 is a plan view of the structure illustrated in Figure 6;

Figure 8 is a plan view of the defroster supply fitting;

Figure 9 is an end elevation of the fitting illustrated in Figure 8;

Figure 10 is an elevation of the fitting illustrated in Figures 8 and 9;

Figure 11 is a detail view of one of the pivotally mounted doors;

Figure 12 is an elevation of the door illustrated in Figure 11;

Figure 13 is a bottom plan view of the body insert;

Figure 14 is an end elevation of the insert illustrated in Figure 13;

Figure 15 is a sectional view taken substantially on the line 15—15 of Figure 14;

Figure 16 is a side elevation of the control supporting bracket;

Figure 17 is a front elevation taken on the center line 17—17 of Figure 16;

Figure 18 is a front elevation of the bracket taken on the center line 18—18 of Figure 16;

Figure 19 is a top plan view of the bracket.

Referring now to the drawings, A is the register body, B is the defroster for the windshield, C and D, respectively, are the air control valves for the body and defroster E and F, respectively, are the controls for operating the valves C and D, and H is the supporting bracket for the controls of an assembly embodying my invention.

As shown, the body A of the register has a tubular inlet portion 10 and a segmental or fan-shaped outlet portion 11. Any suitable means such as a tube or hose (not shown) may be used to conduct warm air from a heater of suitable heating apparatus to the tubular inlet portion 10 of the register, while two pivotally mounted doors or deflectors 12 and 13, respectively, are preferably used to control the flow of air from the outlet portion 11. In the present instance there are two laterally spaced outlets 14 and 15, respectively, in the curved edge of the outlet portion 11 of the register. The door 12 controls outlet 15, while the door 13 controls outlet 14. Preferably these doors are pivoted at their inner ends to a substantially triangular-shaped block or insert 16 in the body and are provided at their outlet ends with knobs or finger pieces 17 by which they may be manipulated.

By referring to Figures 3, 13 and 14 it will be noted that the pivot portions 18 of the doors turn in vertically spaced semi-circular grooves 19 in the block 16 and are held therein by semi-circular portions 20 of a retainer plate 21. An adjusting screw 22 extends through this plate 21 at the

center thereof and threadedly engages the block 16, while other screws 22a extend through the top and bottom of the body A of the register and threadedly engage the block 16. A threaded opening 16a is provided in the block 16 for the screw 22 while threaded sockets 16b and 16c, respectively, are provided for the screws 22a. Thus, when the adjusting screw 22 is loose, the doors 12 and 13 may be swung about their pivot points as desired. Upon tightening the adjusting screw 22, the doors 12 and 13 will be held in adjusted positions.

The defroster for the windshield preferably comprises two substantially triangular-shaped heads 30 and 31, respectively, adapted to be located upon the inner side of the vehicle windshield at the base thereof so as to open upwardly toward the glass thereof, branch air supply tubes 32 and 33 for said heads, and a T-fitting 34 for said tubes. As shown, the stem portion 35 of the fitting is sleeved upon a laterally projecting tubular part 36 of the register body A, and the branch supply tubes 32 and 33 are sleeved upon the lateral arms 37 and 38, respectively, of the fitting.

The air valves C and D, respectively, for the register and defroster are carried by the body A. Preferably the valve C is pivotally mounted in the tubular portion 10 of the body adjacent the laterally projecting tubular part 36 of the register body, while the valve D is pivotally mounted in the laterally projecting part 36 of the register body.

The controls E and F for operating the valves C and D consist of horizontally slidable finger pieces 40 and 41 having forwardly extending shanks 42 and 43 adjustably connected to binding posts 44 and 45 carried by crank portions 46 and 47 of the valve pivots 48 and 49.

The supporting bracket H for the controls E and F has a circular portion 50 sleeved on the laterally projecting part 36 of the register body between the latter and the T-fitting 34 and has a rearwardly projecting arm portion 51 provided at its rear end with laterally spaced depending flanges 52 and 53. Bushings 54 for the shanks 42 of the slidable finger pieces are anchored in the depending flanges 52 and 53.

Inasmuch as the bracket H is sleeved on the laterally projecting tubular part 36 of the register body between the latter and the T-fitting 34, it will be apparent that a single screw such as 60 fastening the T-fitting 34 to said tubular part 36 of the register body will suffice to maintain the fitting 34 and bracket H in assembled relation with the register body A.

In use, the control F may be operated to open the valve D so that warm air received by the inlet portion 10 of the register will flow through the fitting 34 and tubes 32 and 33 to the windshield defroster heads 30 and 31. Likewise, the control E may be operated to open the valve C so that warm air received by the inlet portion 10 of the register will flow to the outlet portion 11 thereof. Manipulation of the doors 12 and 13 will control the flow of warm air from the register outlets 14 and 15 to the interior of the vehicle body. For example, the doors 12 and 13 may be operated so that warm air will be discharged through outlet 14 only, or through outlet 15 only, or through both outlets 14 and 15, as desired. The adjusting screw 22 may then be tightened to hold the doors 12 and 13 in adjusted position.

What I claim as my invention is:

1. An air register having a body provided with an air inlet portion, an air outlet portion, and a laterally projecting tubular portion constituting another air outlet, means including a fitting carried by the laterally projecting portion for conducting air to a vehicle windshield, a bracket also carried by said laterally projecting portion, valves carried by the body for controlling the flow of air from the inlet portion to the outlet portion and laterally projecting portion, and operating means for said valves carried by said bracket.

2. An air register having a body provided with an air inlet portion, an air outlet portion, and a laterally projecting tubular portion constituting another air outlet, means including a fitting sleeved upon the laterally projecting portion for conducting air to a vehicle windshield, a bracket sleeved upon said laterally projecting portion between the register body and fitting, valves carried by the body for controlling the flow of air from the inlet portion to the outlet portion and laterally projecting portion, operating means for said valves carried by said bracket, and a single fastener engaging the fitting and laterally projecting portion and serving to hold the fitting and bracket in assembled relation with the register body.

3. A warm air register having a hollow body provided with an inlet and two outlets, individually operable valves for the respective outlets for controlling the passage of air therethrough, individually operable controls for said valves, and a common supporting bracket for said controls sleeved on one of said outlets.

4. A warm air register having a hollow body provided with an air inlet and two air outlets, individually operable valves for said outlets for controlling the passage of air therethrough, individually operable controls operatively connected to said valves, a common supporting bracket for said controls sleeved on one of the outlets, and a fitting for defroster ducts sleeved on said outlet and retaining the bracket in place.

5. A warm air register having a hollow body provided with an air inlet and two air outlets, individually operable valves for said outlets for controlling the passage of air therethrough, individually operable controls operatively connected to said valves, a common supporting bracket for said controls sleeved on one of the outlets, and means for retaining the bracket in place including a fitting for a defroster duct sleeved on said outlet, and a fastening element for said fitting engaging the said outlet.

6. In a warm air register, the combination with a hollow body provided with a tubular air inlet and a flattened flaring outlet, of a pair of independently operable doors within said flaring outlet for controlling the discharge of air therefrom, and a mounting for said doors including a member between said doors fixed to the upper and lower walls of the outlet and provided at spaced points thereof with grooves for pivot elements, pivot elements for said doors engaging said grooves, and an adjustable retainer plate for said pivot elements carried by said member.

7. In a warm air register, the combination with a hollow body provided with a tubular air inlet and a flattened flaring outlet, of a pair of independently operable doors within said flaring outlet for controlling the discharge of air therefrom, and a mounting for said doors including two cooperating members in said outlet, one of said members being fixed to opposite walls of

the outlet, the other of said members being adjustably connected to the first mentioned member, and pivot pins for the doors mounted to turn between and carried by said cooperating members.

8. In a warm air register, the combination with a hollow body provided with a tubular air inlet and a flattened flaring outlet, of a pair of independently operable doors within said flaring outlet for controlling the discharge of air therefrom, and a mounting for said doors including a member within said outlet between said doors and fixed to opposite walls of said outlet, and pivot pins for said doors mounted to turn in said member at spaced points thereof.

9. A warm air register having a hollow body provided with an air inlet and an air outlet, a valve for controlling the flow of air from the inlet to the outlet, an operating member for said valve, a supporting bracket for said operating member sleeved on said outlet, and means for retaining the bracket in place including a fitting for a defroster duct sleeved on said outlet, and a fastening element for said fitting engaging said outlet.

10. In a warm air register, the combination with a hollow body provided with a tubular air inlet portion and a flattened flaring outlet portion, of a member within the flaring outlet portion of the body at approximately the center thereof and secured to the top and bottom walls of said outlet portion, said member being provided with spaced upright grooves, independently operable doors controlling the discharge of air from the flaring outlet portion and having pivot portions engaging said grooves, and means holding the pivot portions of said doors in engagement with said grooves including a clamping plate secured to the member aforesaid and having portions bearing against the pivot portions of said doors.

11. A warm air register having a hollow body provided with an air inlet portion and an air outlet portion, the outlet portion having substantially parallel top and bottom walls, a triangular-shaped partition member within said outlet and connected to the top and bottom walls aforesaid to divide the outlet into two passages, one apex of the triangular-shaped member being at substantially the center of the outlet, opposite sides of said triangular-shaped member diverging outwardly from said apex for deflecting air through said passages, and doors for said passages hingedly connected to said triangular-shaped member at opposite sides thereof.

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