Sept. 3, 1963 D. A. KELLY ET AL 3,102,464

HINGELESS VENTILATOR

Filed Jan. 12, 1961 2 Sheets-Sheet 1

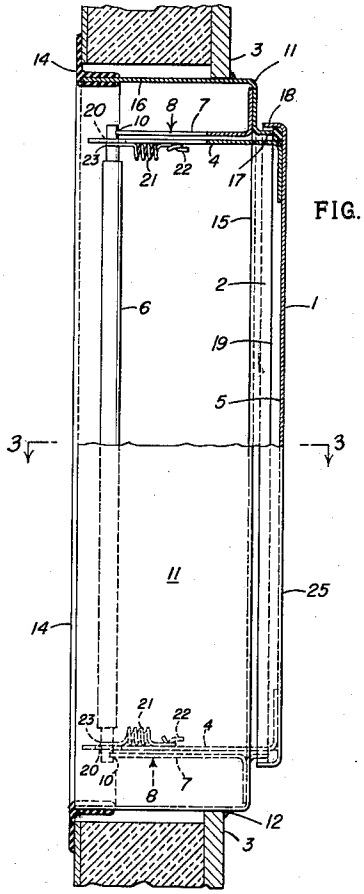


FIG. 2

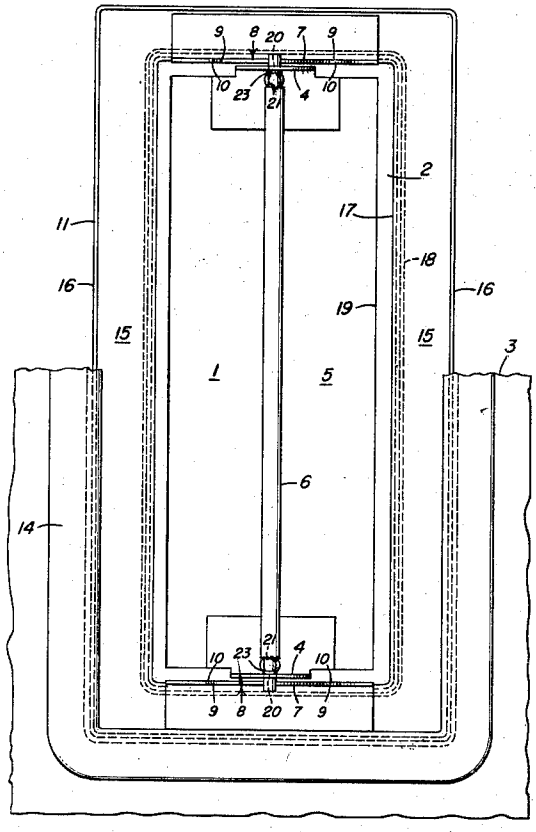


FIG. 1

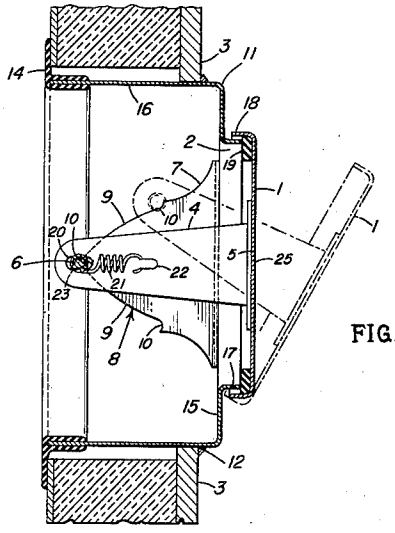


FIG. 3

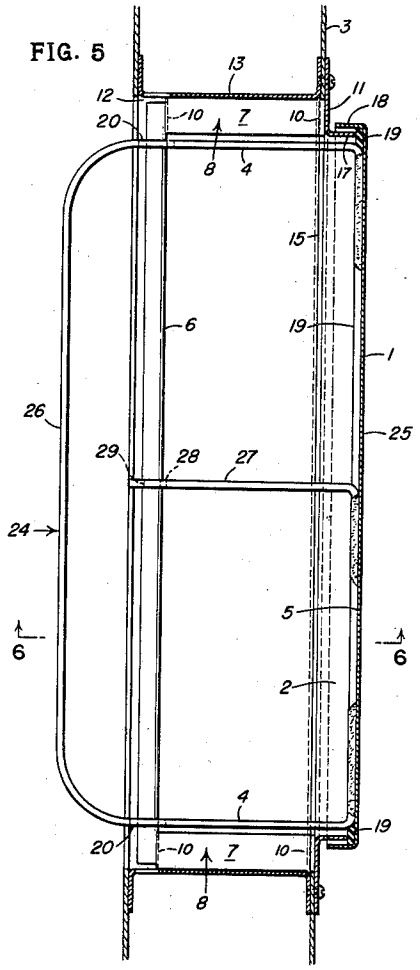
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FIG. 5



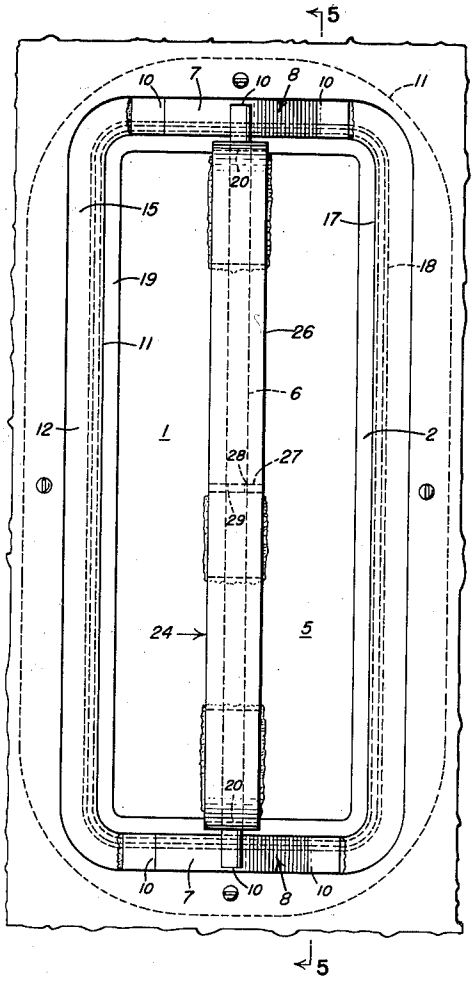


FIG. 4

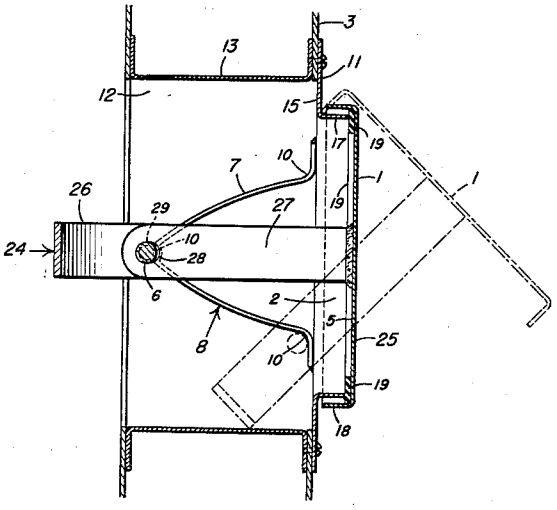


FIG. 6

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HINGELESS VENTILATOR

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Filed Jan. 12, 1961, Ser. No. 82,238
16 Claims. (Cl. 98—2)

This invention relates to hingeless ventilators and has for its primary object the provision of an improved hingeless ventilator which is simple and rugged in construction, easily operable and capable of closing an aperture or opening to pass air in opposite directions therethrough.

Another object of the invention is to provide an improved hingeless ventilator, the closure member of which is selectively settable and is effectively held in selected position by spring pressure.

An additional object of the invention is to provide a hingeless ventilator having a closure member settable in selected position and held in its seat on its mounting in any such position by means spring-urged against guide means fixed to the mounting, wherein the permissive movement of the spring-urged means relative to an interfit between the closure member and its mounting is such as to prevent accidental unseating of the closure member in any position.

A further object of the invention is to provide a hingeless ventilator in which rigid means connected to the spring-urged means and fixed to the closure member serves as the latter's handle.

Another object of the invention is to provide a hingeless ventilator wherein the means for limiting movement of the spring-urged means forms part of a handle for the ventilator.

Another object of the invention is to provide a hingeless ventilator wherein the spring-urged means itself serves as a handle for operating the ventilator.

An additional object of the invention is to provide a hingeless ventilator, the closure member of which carries positioning means swingable with and movable relative to it and resiliently urged into engagement with guide means fixed to the bounding frame or wall beyond opposite extremities of the aperture closable by the closure member for holding the closure member in any of a plurality of selected positions.

Other objects and advantages of the invention will appear hereinafter in the detailed description, be particularly pointed out in the appended claims and be illustrated in the accompanying drawings, in which:

FIGURE 1 is a fragmentary plan view of an embodiment of the hingeless ventilator of the present invention;

FIGURE 2 is a side elevational view of the structure of FIGURE 1 with portions broken away and shown in section to more clearly illustrate certain of the details of the construction;

FIGURE 3 is a sectional view taken along lines 3—3 of FIGURE 2.

FIGURE 4 is a plan view of another embodiment of the hingeless ventilator of the present invention;

FIGURE 5 is a sectional view taken along lines 5—5 of FIGURE 4; and

FIGURE 6 is a sectional view taken along lines 6—6 of FIGURE 5.

Referring now in detail to the drawings in which like reference characters designate like parts, the improved hingeless ventilator of the present invention, while adaptable generally for controlling the flow of air through an aperture, is particularly designed for application to a cab or other enclosure of a locomotive, truck or other mobile vehicle in which the flow of air controlled by the ventilator is induced by movement of the vehicle.

The improved ventilator is comprised of a closure member or cover 1 adapted selectively to close or cover an opening or aperture 2 in a top, side or other wall 3 of the compartment or enclosure (not shown) to be ventilated, such as a truck cab, and to open in opposite directions by alternately swinging, rocking or pivoting against the wall at or adjacent opposite sides of the opening about substantially parallel axes. The ventilator has no hinges connecting the closure member 1 to the wall 3, but, to substantially fix the swinging or rocking axes or pivots of the closure member, has the latter contained or limited in movement relative to the wall at least in directions parallel to the wall and perpendicular or normal to its swinging axes by a suitable interfit between the closure member and the wall or means fixed thereto at appropriate sides of the opening 2.

For enabling it to be selectively positioned, the closure member 1 has a pair or plurality of arms, uprights or levers 4 fixed to or rigid with it and up- or instanding from its inner or opening-confronting face 5. Spaced transversely or laterally of the closure member 1 in a direction paralleling the swinging axes of that member and preferably centered thereon in the opposite transverse direction, the arms 4 support, carry, mount or guide the bar, rod, pin or other suitable positioning means 6 in spaced relation and preferably parallel to the inner face 5 of the closure member. The mounting of the positioning means 6 by the arms 4 is such that the positioning means in whole or in part can move within limits toward and away from the inner face 5 of the closure member 1 to vary the spacing therebetween and that movement of the positioning means away from the inner face is against yieldable resistance.

Movable by the arms 4 with the closure member 1 as the latter swings on one or the other of its axes against one side of the wall 3, the positioning means 6 is adapted to engage a pair or plurality of guide members, plates or rails 7 fixed to or rigid with and projecting from the opposite side of the wall and spaced in the same direction as the arms 4 and preferably laterally or transversely aligned therewith in the closed position of the closure member. Each of the guide members 7 is between or outside the arms 4, depending on whether it is at a side of or bridges or spans the opening 2, and has one of a pair or plurality of duplicate or counterpart, transversely aligned guideways 8 along which the positioning means 6 ride, slide or shift as the closure member swings on its axes. Conveniently formable on the inner peripheries of the guide member 7, the guideways 8 are generally of inverted V-shape relative to and face away or inwardly from the wall 3 and the inner face 5 of the closure member 1.

Each of the guideways 8 is formed of a pair of preferably counterpart sections or segments 9 joined or merged at their upper or inner extremities and each preferably arcuately convex and struck about or concentric with the opposite pivot of the closure member. Spaced along each guideway 8 formed by the sections 9 and each paired or positioned in correspondence or alignment with one on the other guideway, are a plurality of notches, rests, seats or stops 10, one positioned centrally at the juncture of the sections and one or more spaced along each section toward the latter's lower or outer extremity. Overlying or overlapping and ridable or shiftable along the guideways and resiliently, yieldably or spring-urged or pressed thereagainst, the positioning means 6 are adapted sequentially or selectively to seat in or be positioned by the paired stops 10 and by being yieldably held by the same spring pressure in the selected seat or position, determine the position of the closure member 1 relative to the opening 2. Thus, with the positioning means positioned by the center pair of stops, the closure

member will be closed and, since the positioning means and closure member are forced or caused by the connecting arms 4 to swing together or in unison, shifting of the positioning means to a side pair of stops will open the closure member in a direction and at an angle corresponding to the arc of movement of the positioning means from its center or mid-position.

The selectively positionable positioning means 6 not only enables the closure member to be selectively positioned relative to the opening 2 but, because the force by which the positioning means is urged into engagement with or against the guideways 8 acts toward the closure member, the resultant force on the latter pulls and holds it tight against the wall 3 itself or other means fixed thereto on which it is adapted to bear at sides of the opening. The resilient or spring action between the positioning means and the closure member, forcing each toward the other against the wall 3 or means fixed thereto, has the further advantage that, so long as it is maintained, it holds the closure member in position and positively locks that member against accidental dislodgment or disassembly from its mounting.

Alike in the above particulars, the ventilators of the illustrated embodiments are designed for installation as units and each for this purpose has a preferably rectangular frame 11 which not only bounds the opening 2 closable by the closure member 1 and in place forms a part of the wall, but also serves as the mounting for the various other parts of the unit or assembly. The illustrated frame or mounting 11 is open-ended and insertible or installable in or about an aperture 12 of appropriate size cut or otherwise formed directly in the wall 3 and is fixable in place, as by welding it to the wall thereabout. The particular form of the frame 11 may be varied to suit the installation, that of FIGURES 4–6 being a plate fixed to the outer side of a hollow wall and backed by a peripherally flanged backing or filler 13 for installation between the sides of the hollow wall, while, for a solid wall, the frame, as shown in FIGURES 1–3, may be of generally box-shape and extend through the aperture with a rubber or like finish strip or molding 14 applied to its inner end and overlapping the corresponding side of the wall. In any case, it is preferred that the opening 2 in the frame closable by the closure member be restricted in one or both transverse dimensions relative to the aperture 12 in the wall to provide, immediately within or inside of the aperture 2 in its outer or closure-member-confronting end, a shelf 15 integral or rigid with and instanding substantially right angularly or normal from the frame's side wall 16 in the first embodiment and forming the inner face of the frame in the second.

The desired interfit between the frame 11 and the closure member 1 conveniently is provided by bounding the opening 2 by an outturned lip or flange 17 integral or rigid with the frame and the closure member by an integral, inturned peripheral skirt or flange 18. With the skirt 18 overlapping and surrounding or encircling the lip 17 and the transverse clearance therebetween preferably only sufficient to accommodate swinging of the closure member freely and without transverse displacement relative to the frame, the illustrated interfit effectively limits transverse movement of the closure member relative to the frame and substantially fixes the pivots of the closure member. To aid in fixing the pivots, as well as to assist the overlap between the skirt 18 and lip 17 in making the ventilator weather- or air-tight when the closure member is closed, there preferably is interposed between the inner face 5 of the closure member and the confronting end or edge of the lip a continuous marginal rubber or like gasket 19 conveniently bonded to the inner face inside the skirt.

The ventilators of the illustrated embodiments also are alike in using as their positioning means 6 connected to and guided by the arms 4 a single bar or rod spaced inwardly from the inner face 5 of the closure member 1 and disposed or extending substantially parallel both to that face and to the pivots of the closure member. The arms 4 are in each embodiment a pair of arms which not only are transversely spaced from and aligned with each other and substantially centered on the closure member on the transverse dimension thereof normal to their spacing, but are substantially parallel to each other and normal to the inner face 5 of the closure member. Connected to and guided by the arms 4 and engaging and riding on each guideway 8 either between or beyond the arms, depending on the position of the associated or related guide member 7 relative to the arms and the opening 2, the positioning bar 6 here extends through a pair of transversely aligned slots 20, each in one of the arms. The slot 20 are elongated longitudinally of the arms 4 sufficiently to accommodate the range of movement of the bar or its end portions relative to the closure member as the bar rides or is shifted on the guideways and seats in or is positioned by the pairs of aligned stops 10 spaced therealong. At the same time, the outward elongation of these slots 20 is so limited as in turn to limit or hold the play or movement in the connection afforded by the bar between the closure member 1 and the frame 11 within the limits of the interfit or overlap between the skirt 17 and lip 18. Thus, as long as the rod is in place, the limit imposed on its movement by the guide slots 20 will effectively maintain the interfit or overlap between the closure member and frame upon which the assembly is dependent for substantially fixing the contact, fulcrum or swinging axis of the closure member over the range of relative movement of that member and the frame. The fixing of this axis or contact and the sufficiency of the spring force on the bar 6 to force the closure member at all times against the frame are basic to the successful operation of the ventilator of this invention.

The illustrated guide members 7 embracing or straddling the arms 4 and being supported on and fixed to the shelf 15 at opposite sides of the opening 2, the positioning bar 6 has its end portions or ends beyond the arms engaging and riding on the guideways 8. While, for urging the opposite end portions or ends of its positioning bar 6 against the guideways 8 and concurrently pulling the closure member 1 tight against one or all sides of the lip 17 bounding the opening 2, each of the embodiments employs spring means, the means of the embodiment of FIGURES 4–6 is inbuilt or incorporated in the bar itself. In the embodiment of FIGURES 1–3, the spring means, instead are a pair of coil springs 21 each carried by one of the arms 4 and anchored or connected at one end to the bar by looping its end coil therearound and at the other end to the arm by a hook or prong 22 conveniently stamped from the arm and, for the illustrated tension springs, disposed between the bar and the inner face 5 of the closure member.

Tensioned at all times in the normal or assembled condition of the ventilator, the springs 21 preferably are made capable of locking or limiting the positioning bar 6 against movement relative to the arms 4, as well as of applying the force by which the bar and closure member are urged in opposite directions against confronting parts of the frame 11, by having their ends or loops connected to the bar locked against axial shifting relative thereto, as by fitting or seating these spring ends in circumferential grooves or notches 23 in the end portions of the bar. With the grooves 23 axially or transversely spaced such, relative to the length of the bar 6 and the transverse spacing of the arms 4, that on axial shifting of the bar with the springs 21 in place one or the other of the springs will engage or abut against the adjoining arm before the contiguous end of the bar can disengage its guideway 8 or slot 20, the interlock provided between the springs and the bar effectively locks the latter in assembled position.

In the embodiment of FIGURES 1–3, the positioning bar 6 serve both as the means by which the closure member 1 is held by spring pressure in any selected position

and, guided and limited in outward movement by the slots 20 in the arms 4, as a directly actuatable handle for shifting the closure member from one position to another. In the embodiment of FIGURES 4–6, the closure member 1 is actuated, instead, by a separate handle 24 which may be fixed to the outer face 25 of the closure member, if outside actuation is desired, but normally will be fixed to the inner face 5 of the closure member and in that case conveniently may be forced by the arms 4 and a loop or cross-member 26 integral with and connecting the inner extremities of those arms. Such a handle, of course, could be used for the closure member of a ventilator conforming in its other details to that of the first embodiment. However, as mentioned earlier, the ventilator of this second embodiment, rather than having its positioning bar rigid and using separate springs for urging the bar against the guideways 8, depends for its spring means by which its bar 6 is resiliently, yieldably or spring-urged into engagement with the guideways, or resiliency, yieldability, flexibility or springiness inbuilt or embodied in the bar itself by making the latter of spring steel or like suitable material. To make its inherent resilience or flexibility available as the spring force on the end or other portions of it engaging the guideways 8, the positioning bar must normally be stressed by being bent, bowed or flexed relative to the closure member. This is here accomplished by fixing to the inner face 5 of the closure member 1 intermediate the arms 4 a preferably rigid link, strap or connecting member 27 instanding or projecting inwardly from the closure member in lateral alignment with the arms and having a slot or aperture 28 of a size to slidably receive or accommodate the positioning bar 6. With its slot offset inwardly of the guide slots 20 as a whole or at least of the parts thereof in which the end portions of the bar ride over their range of movement on the guideways 8, the connecting member acts on and forces the bar normally to be bent, bowed or flexed inwardly from its end portions toward the closure member and, consequently, urges the end portions of the bar against the guideways and the closure member against the wall.

As in the first embodiment, the slots 20 in the arms 4 guide the end portions of the resilient or spring positioning bar 6 of this embodiment as they flex or move relative to the closure member in moving along the guideways 8 and, while elongated sufficiently to accommodate the necessary flexing, limit or hold the maximum flexing or movement relative to the closure member within the bounds or limits of the interfit or overlap between the closure member and the frame 11. There being no separate springs to lock it against axial or longitudinal movement, the positioning bar 6 of this embodiment is so locked by providing in its intermediate portion an annular notch or groove 29 which, when the bar is in normal or operating position, engages or receives the upper edge of the slot 25.

Whether obtained by the spring 21 as in the first embodiment or the notching of the bar at 29 as in the second, the limitation on axial movement of the positioning bar 6 of the ventilator of this embodiment relative to the arms 4, coupled with the limitations imposed on outward movement or flexing of the end portions of the bar relative to the closure member by the slots 20 and transverse shifting of the closure member relative to the frame 11, either entirely by the interfit between the skirt 18 and flange 17 or, as here, supplemented by the position of the guide member 7 in close adjacency and embracing relation to the arms, provides a positive interlock between the closure member and the frame and ensures against accidental dislodgment, removal or separation of the closure member and frame so long as the bar remains intact. On the other hand, disassembly or removal of the closure member from the frame in either embodiment is simply a matter of disconnecting the springs 21 from the bar in the first embodiment and the notch 29 in the bar from the connecting member 27 in the second, so that the bar can be slid or shifted axially in one direction, either into one of the slots 20, as in the first embodiment, or into one of the suitably apertured fillers 13, as in the second, sufficiently to free one end of the bar and then withdrawing the bar in the opposite direction to free its other end. Since the positioning bar 6 is the connection or lock between the closure member and the frame 11, removal of the bar in turn unlocks or releases the closure member from the frame.

Constructed in the above manner, the ventilator of this invention, when used to ventilate a cab or other compartment of a moving vehicle, ordinarily will be so arranged that its closure member will swing forwardly and rearwardly rather than sideways of the vehicle. With this arrangement, the closure member 1, when opened forwardly with the vehicle in motion, will act as a baffle or scoop for forcing, driving or deflecting air through the opening 2 into the compartment. Conversely, opening of the closure member in the opposite direction will deflect moving air along its outer face 25 past the opening 2 and in process create a partial vacuum or suction at the opening which will suck or draw air therethrough outwardly from the compartment. Consequently, over the range of positions in which it can be selectively set, the closure member 1 can be used, depending on the conditions, either to close the opening 2 or to open to force air to or from the cab.

From the above detailed description, it will be apparent that there has been provided an improved hingeless ventilator which is simple and rugged in construction, is selectively positionable to open in either direction or close an aperture and is effectively held against accidental dislodgment in any selected position. It should be understood that the described and disclosed embodiments are merely exemplary of the invention and that all modifications are intended to be included which do not depart from the spirit of the invention or the scope of the appended claims:

We claim:

1. A hingeless ventilator for ventilating a compartment through an opening in a wall thereof, comprising a closure member swingable against a side of said wall for opening and closing said opening, spaced guide means fixed to and instanding from an opposite side of said wall, bar means carried by said closure member and spring-urged into engagement with and ridable on said guide means for urging said closure member against said wall and positioning said member relative to said opening, spaced means connecting said closure member and bar means for guiding said bar means along said guide means and limiting outward movement of said bar means relative to said closure member, and means effective over the range of relative outward movement of said bar means and closure member for limiting transverse movement of said member relative to said wall.

2. A hingeless ventilator for ventilating a compartment through an opening in a wall thereof, comprising a closure member swingable against a side of said wall for opening and closing said opening, means for limiting transverse movement of said closure member relative to said wall during swinging thereof, spaced guide means fixed to and instanding from an opposite side of said wall, spaced arms fixed to and instanding from said closure member adjacent said guide means, and positioning bar means extending through longitudinally elongated slots in said arms and spring-urged into engagement with said guide means for forcing said closure member against said wall, said bar means being ridable along said guide means for selectively positioning said closure member relative to said opening.

3. A hingeless ventilator for ventilating a compartment through an opening in a wall thereof, comprising a closure member swingable against a side of said wall for opening and closing said opening, spaced guide means fixed to and instanding from an opposite side of said wall, spaced arms fixed to and instanding from said closure member adjacent said guide means, a positioning bar extending through lon-

gitudinally elongated slots in said arms and limited thereby in outward movement relative to said closure member, said bar riding on and being spring-urged into engagement with said guide means for positioning said closure member relative to said opening and urging said member against said wall, and means on said closure member and wall interfitting over the range of outward movement of said bar as limited by said slotted arms for limiting transverse shifting of said closure member during swinging thereof against said wall.

4. A hingeless ventilator for ventilating a compartment through an opening in a wall thereof, comprising a closure member swingable against a side of said wall for opening and closing said opening, spaced guide means fixed to and instanding from an opposite side of said wall, spaced arms fixed to and instanding from said closure member adjacent said guide means, a positioning bar extending through longitudinally elongated slots in said arms and limited thereby in outward movement relative to said closure member, said bar riding on and being spring-urged into engagement with said guide means for positioning said closure member relative to said opening and urging said member against said wall, means on said closure member and wall interfitting over the range of outward movement of said bar as limited by said slotted arms for limiting transverse shifting of said closure member during swinging therof against said wall, and means for normally locking said bar against axial movement relative to said closure member.

5. A hingeless ventilator for ventilating a compartment through an opening in a wall thereof, comprising a closure member swingable against said wall to open in opposite directions and close said opening, means for limiting transverse movement of said closure member relative to said wall during swinging thereof, spaced guide means fixed to said wall and having guideways facing away from said closure member, a plurality of stops spaced along said guideways, spaced arms fixed to and upstanding from said closure member, bar means extending through slots in said arms and ridable on and selectively positionable in said stops along said guideways for selectively positioning said closure member relative to said opening, and spring means acting between each of said arms and said bar means for urging said bar means against said guideways and yieldably holding said bar means in selected seats therealong.

6. A hingeless ventilator for ventilating a compartment through an opening in a wall thereof, comprising a closure member swingable against said wall to open in opposite directions and close said opening, means for limiting transverse movement of said closure member relative to said wall during swinging thereof, spaced guide means fixed to said wall and having guideways facing away from said closure member, bar means extending through slots in guideways, spaced arms fixed to and upstanding from said closure mmeber, bar means extending through slots in said arms and ridable on and selectively positionable in said stops along said guideways for selectively positioning said closure member relative to said opening, and spring means acting between each of said arms and said bar means for urging said bar means against said guideways and yieldably holding said bar means in selected seats therealong, said closure member being shiftable in position by direct actuation of said bar means.

7. A hingeless ventilator for ventilating a compartment through an opening in a wall thereof, comprising a closure member swingable against said wall to open in opposite directions and close said opening, means for limiting transverse movement of said closure member relative to said wall during swinging thereof, transversely spaced arms fixed to and upstanding from said closure member, a bar extending through slots in and elongated longitudinally of said arms, transversely spaced guide means fixed to said wall, a guideway on each of said guide means, a plurality of stops spaced along each of said guideways and each aligned with a stop along the other guideway, said bar being shiftable along said guideways between and selectively positionable by said stops for selectively positioning said closure member relative to said opening, and said bar being spring-urged into engagement with said guideways and yieldably resisting shifting thereof out of selected position.

8. A hingeless ventilator for ventilating a compartment through an opening in a wall thereof, comprising a closure member swingable against said wall to open in opposite directions and close said opening, means for limiting transverse movement of said closure member relative to said wall during swinging thereof, transversely spaced arms fixed to and upstanding from said closure member, a spring bar extending through slots in and elongated longitudinally of said arms, transversely spaced guide means fixed to said wall, a guideway on each of said guide means, a plurality of stops spaced along each of said guideways and each aligned with a stop along the other guideway, said bar being shiftable along said guideways between and selectively positionable by said stops for selectively positioning said closure member relative to said opening, and means spaced from said arms and connected to said closure member for flexing and urging said bar into engagement with said guideways and yieldably resisting shifting of said bar out of selected position.

9. A hingeless ventilator for ventilating a compartment through an opening in a wall thereof, comprising a closure member swingable against said wall to open in opposite directions and close said opening, means for limiting transverse movement of said closure member relative to said wall during swinging thereof, transversely spaced arms fixed to and instanding from said closure member, a resilient bar extending through slots in and elongated longitudinally of said arms, transversely spaced guide means fixed to said wall, a guidweay on each of said guide means, a plurality of stops spaced along each of said guideways and each aligned with a stop along the other guideway, said bar having spaced portions shiftable along said guideways between and selectively positionable by said stops for selectively positioning said closure member relative to said opening, said bar being spring-urged into engagement with said guideways and yieldably resisting shifting thereof out of selected position, and rigid means connected to said bar and fixed to and instanding from said closure member for shifting the position of said closure member.

10. A hingeless ventilator for ventilating a compartment through an opening in a wall thereof, comprising a closure member swingable against said wall to open in opposite directions and close said opening, means for limiting transverse movement of said closure member relative to said wall during swinging thereof, a rigid handle having transversely spaced arms fixed to and instanding from said closure member, a spring bar extending transversely of and substantially parallel to said closure member and through longitudinally elongated slots in said arms, transversely spaced guide means fixed to said wall in transverse alignment with said arms and handle in the closed position of said closure member, each of said guide means having a guideway disposed to be engaged by said rod, a plurality of pairs of stops spaced along said guideways, said bar being selectively positionable by said pairs of stops and shiftable therebetween along said guideways for selectively positioning said closure member relative to said opening, and means connected to said closure member between said arms and for flexing said bar toward said closure member and thereby urging said bar into engagement with said guideways and yieldably resisting shifting of said bar therealong out of selected position.

11. A hingeless ventilator for ventilating a compartment through an opening in a wall thereof, comprising flange means fixed to said wall and bounding said opening, a closure member seatable against and having a peripheral skirt overlapping and embracing said flange means, said closure member being swingable on opposite sides of said flange means for opening in opposite directions and closing said opening, sealing means interposed between and

sealingly engaging said closure member and a confronting end of said flange means for sealing said opening in the closed position of said closure member, a handle including a pair of transversely spaced arms fixed to and instanding from said closure member, a spring bar spaced inwardly from and extending substantially parallel to said closure member through and reciprocal in longitudinally elongated slots in said arms, transversely spaced guide means fixed to said wall in transverse alignment with said arms in the closed position of said closure member, each of said guide means having a guideway disposed to be engaged by said bar, a plurality of pairs of stops spaced along said guideways, said bar being selectively positionable by said pairs of stops and shiftable therebetween along said guideways for selectively positioning said closure member relative to said opening, and rigid means fixed to said closure member between said arms and acting inwardly on said bar for urging said bar toward said closure member and into engagement with said guideways and yieldably resisting shifting of said bar therealong out of selected position.

12. A hingeless ventilator for a compartment, comprising a frame bounding an opening in a wall of said compartment, a closure mmeber swingable against said frame at opposite sides of said opening for alternately opening in opposite directions and closing said opening, interfitting means fixed to said closure member and wall for normally limiting relative transverse movement therebetween, transversely spaced guide means fixed to said frame and facing away from said closure member, spring-urged bar means swingable with and reciprocable relative to said closure member and engageable with and selectively positionable on said guideways for selectively positioning said closure member relative to said opening, said bar means acting on said guideways for urging said closure member against said frame, and transversely spaced means connected to said closure member and bar means and cooperating with said limiting means for locking said closure member against accidental disassembly from said frame.

13. A hingeless ventilator for a compartment, comprising a frame bounding an opening in a wall of said compartment, a closure member swingable against said frame at opposite sides of said opening for alternately opening in opposite directions and closing said opening, transversely spaced guide means fixed to said frame and facing away from said closure member, spring-urged bar means swingable with and movable relative to said closure member and engageable with and selectively positionable on said guideways for selectively positioning said closure member relative to said opening, said bar means acting on said guide means for urging said closure member against said frame, transversely spaced means connected to said closure member for limiting movement of said bar means relative to said closure member, means for normally limiting axial movement of said bar means relative to said closure member, and interfitting means on said closure member and frame and cooperating with said limiting means for holding said closure member and frame in assembled relation.

14. A ventilator for ventilating a compartment through an opening in a wall thereof, comprising a closure member swingable against one side of said wall for opening and closing said opening, guide means fixed to an opposite side of said wall, spring urged means carried by and limited in movement relative to said closure member and engageable with said guide means for positioning said closure member relative to said opening and forcing said member against said one side of said wall, and means on said closure member and wall and interfitting during swinging of said closure member in one direction over the range of limited movement of said spring-urged means relative to said closure member for substantially fixing the swinging axis of said closure member on swinging thereof in said direction.

15. A ventilator for ventilating a compartment through an opening in a wall thereof, comprising a closure member swingable against a side of said wall for opening and closing said opening, guide means fixed to an opposite side of said wall, spring-urged means carried by and movable within limits relative to said closure member and engageable with said guide means for positioning said closure member relative to said opening and urging said member against said one side of said wall, and means on said closure member and wall and interfitting over the range of relative movement of said spring-urged means and closure member for substantially fixing the swinging axis of said closure member on swinging thereof against said wall at a side of said opening.

16. A ventilator for ventilating a compartment through an opening in a wall thereof, comprising a closure member alternately swingable against one side of said wall about opposite sides of said opening for opening and closing said opening, guide means fixed to an opposite side of said wall, spring-urged means carried by and acting on said closure member and against said guide means for urging said closure member against said wall while determining the position of said member relative to said opening, and means fixed to said closure member and wall at each side of said opening and interfitting over the range of limited relative movement of said spring-urged means and closure member on swinging of said closure member about that side for substantially fixing the swinging axes of said closure member.

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