

Dec. 16, 1924.

1,519,553

A. L. RIKER

VENTILATOR

Filed March 21, 1922

2 Sheets-Sheet 1

Fig. 1

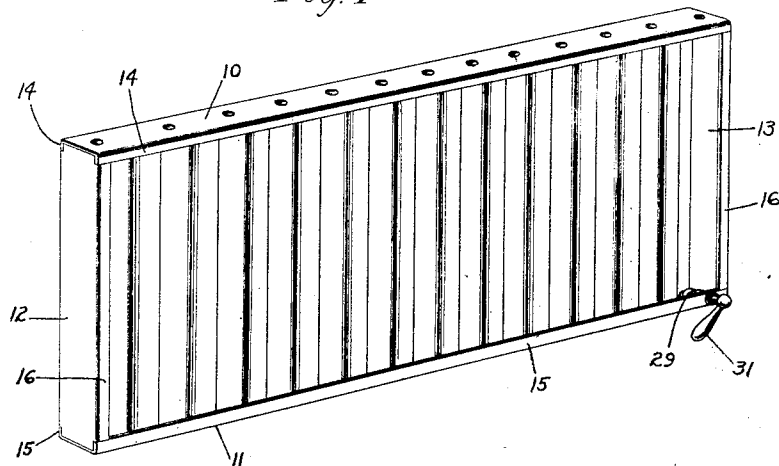


Fig. 2

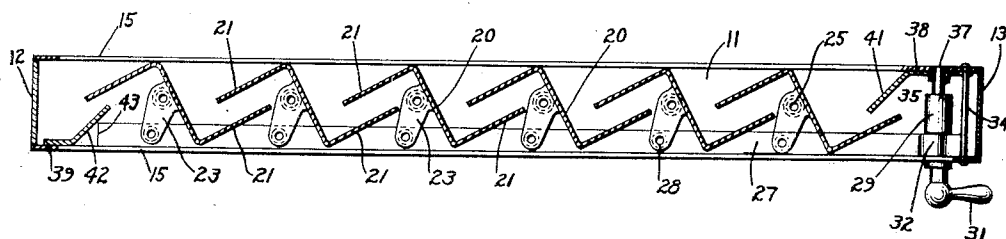
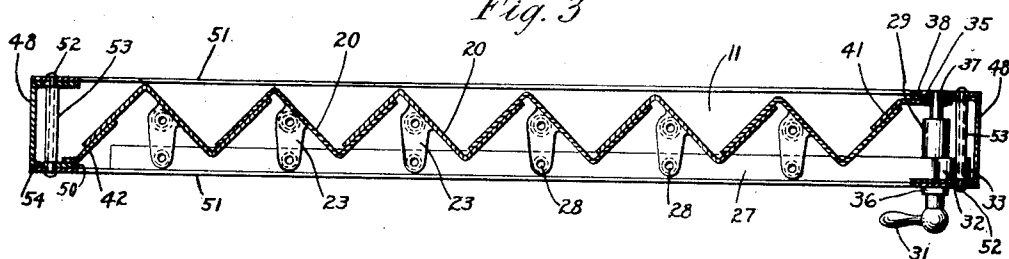


Fig. 3



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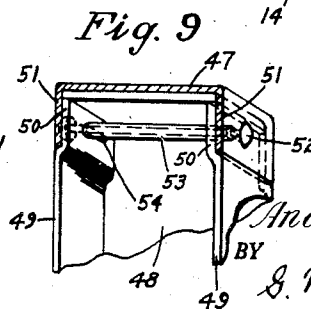
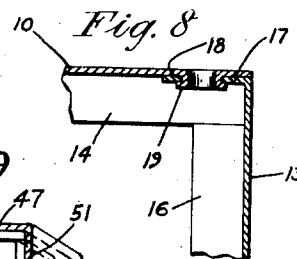
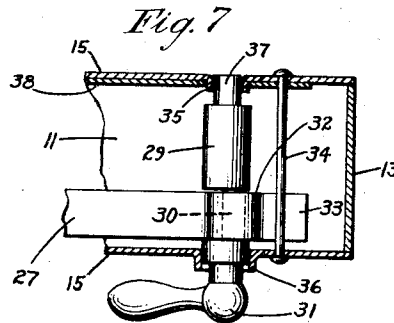
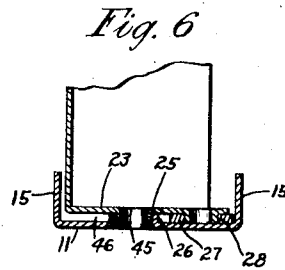
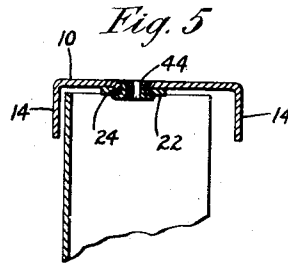
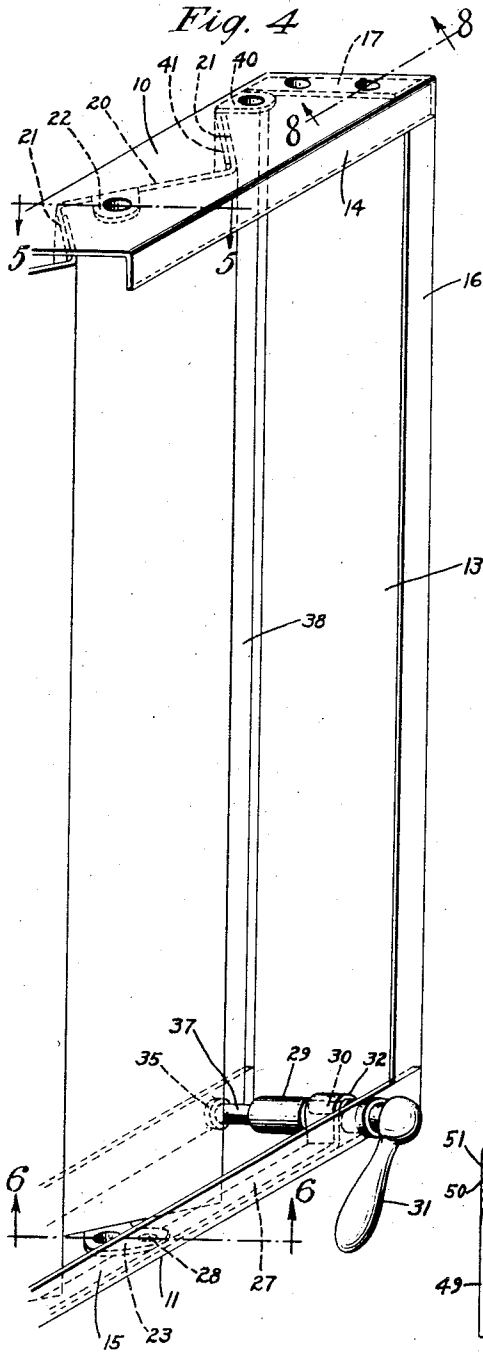
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UNITED STATES PATENT OFFICE.

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VENTILATOR.

Application filed March 21, 1922. Serial No. 545,429.

To all whom it may concern:

Be it known that ANDREW L. RIKER, a citizen of the United States, and resident of Fairfield, in the county of Fairfield and State of Connecticut, has invented certain new and useful Improvements in Ventilators, of which the following is a specification.

This invention relates to a ventilator, useful for many purposes, but more especially adapted for use as a closure for transoms, doorways, windows, panels, or the like.

An important object of the invention is to provide a ventilator which will be a novel, improved and compact article of manufacture, capable of insertion for use with a minimum of effort by unskilled workmen, without danger of destroying the advantageous features for which the ventilator has been devised.

A further and important object is to produce an efficient and reliable article of manufacture of the present character which will be simplicity itself in construction and which can be quite inexpensively manufactured, most all of the parts of the present ventilator desirably consisting of sheet metal.

A still further and important object is to provide a ventilator consisting of a frame having a plurality of louvers pivoted therein to turn on their axes and preferably so proportioned and arranged that when swung in one direction they will completely close the space within the frame and when swung in the other direction will leave passage ways between the respective louvers without opening a direct line of vision through the frame, and to equip the ventilator with dependable operating mechanism of improved design for swinging the louvers to open and closed position, the operating mechanism including simple and unique devices limiting the degree to which the louvers can be turned on their pivots.

With the above objects in view, as well as others which will appear as the specification proceeds, the invention comprises the construction, arrangement and combination of parts as now to be fully described and as hereinafter to be specifically claimed, it being understood that the disclosure herein is merely illustrative and meant to in no way limit the spirit of the invention, changes in details of construction and ar-

range of parts being permissible so long as within the scope of the appended claims.

In the accompanying drawing forming a part of this specification,

Fig. 1 is a perspective view of the novel ventilator, showing the louvers thereof in closed position;

Fig. 2 is an enlarged longitudinal sectional view of the ventilator showing the louvers in open position;

Fig. 3 is a view corresponding with the showing of Fig. 2, but disclosing the louvers in closed position, and frame members corresponding with those of Fig. 9;

Fig. 4 is an enlarged fragmentary perspective view of the right hand end of the ventilator of Fig. 1;

Fig. 5 is a sectional view on line 5-5 in Fig. 4, looking in the direction of the arrows;

Fig. 6 is a sectional view on line 6-6 in Fig. 4, looking in the direction of the arrows;

Fig. 7 is an enlarged sectional view of one end portion of the ventilator corresponding with the showing of Fig. 3 detailing the mechanism for operating the louvers;

Fig. 8 is a sectional view on line 8-8 in Fig. 4, looking in the direction of the arrows; and

Fig. 9 shows a variant form of frame members.

The ventilator of this invention is constituted by a frame of rectangular configuration, louvers pivotally mounted therein, and mechanism for swinging the louvers on their pivots to open and close the space within the frame.

The frame, as shown, is composed of sheet metal, it consisting of a top member 10, bottom member 11, and side members, denoted by 12 and 13, respectively. As will be most clear from Figs. 1, 4 and 8, all of the members of the frame are flanged plates, the top and bottom members having flanges, denoted by 14 and 15, respectively, extending at right-angles for the full lengths of said members from their opposite edges, and the side members having flanges 16 extending at right-angles from their opposite edges and terminating short of the ends of the side members. The ends of the side members are provided

with flanges 17 which are perpendicular to the side members and extend in the same direction therefrom as do the flanges 16.

The manner in which the top and bottom members are assembled with the side members to produce the frame will be best seen in Fig. 8. The opposite ends of the top and bottom members are arranged flush with the outer faces of the side members, the end portions of the flanges 14 and 15 are arranged contiguous with the ends of the flanges 16 in alignment therewith, and the flanges 17 are situated contiguous with the inner faces of the end portions of the top and bottom members, and between the end portions of the flanges 14 and 15, respectively. The connections between the members may be made in some other manner, as by means of rivets, but as shown said connections are made by providing holes 18 in the flanges 17 and drawing the metal of the end portions of the top and bottom members into the holes 18 and then spreading the drawn metal, as indicated at 19 in Fig. 8. I have used the terms top, bottom and side members for the sake of convenience. It will be understood that the arrangement as described could be reversed if this is found desirable.

The pivoted louvers, as shown, consist of body portions 20 having extensions 21 upon their opposite sides and edges, and having ears, denoted by 22 and 23, respectively, upon their top and bottom ends, the ears preferably being integral with and arranged at right-angles to the body portions of the louvers. The louvers are pivotally mounted in the top and bottom members of the frame in the manner best shown in Figs. 2 to 6, inclusive. That is to say, each of the ears 22 is provided with holes rotatably receiving a drawn portion 24 of the metal of the top member of the frame, and each of the ears 23 is drawn as at 25 to rotatably enter an annular flange 26 consisting of upwardly drawn metal of the bottom plate of the frame, the pivotal points for the louvers being arranged adjacent the opposite ends of the body portions thereof preferably close to the midwidths of said ends.

Numerals 27 denotes an operating bar for manipulating the louvers upon their pivots, said operating bar being arranged beneath the ears 23 to slide upon the bottom plate of the frame, and each of said ears having metal drawn therefrom and rotatably entering holes 28 at uniform distances apart in the operating bar. The mechanism for moving the operating bar longitudinally to turn the louvers on their pivots in a manner which will be obvious, consists of a spindle 29 mounted in the flanges 15 adjacent one side of the ventilator and having a crank 30 and a manipulating handle 31. Adjacent one of its ends the operating bar is bent to

general U-shape as denoted at 32 to receive the crank, and the position of that end of the bar, denoted 33, beyond the spindle is insured by a rod 34 situated directly above the operating bar and having its opposite ends located in the flanges 15.

The metal of the flanges 15 is drawn as denoted at 35 and 36, respectively, to provide a dependable bearing for the spindle 29, and the U-shaped part of the operating bar is preferably arranged about the crank so that the slight forward and rearward movements of the operating bar when moved longitudinally to adjust the louvers impart slight endwise movement to the spindle. Obviously, the operating bar will insure the spindle against displacement. The spindle has a reduced end 37 mounted in the bearing 35 whereby the larger diameter of the spindle can limit rearward movement of the same. Forward movement of the spindle is checked by engagement of the operating bar with the front flange 15 of the bottom member. Obviously, the position of the spindle in its bearings is thus insured. Numerals 38 and 39 denote the body portions of end louvers fixed in the frame as by means of ears 40 desirably secured to the top and bottom members by portions of metal drawn from the members and entering holes in the ears in about the manner in which the ears 22 are secured to the top member. The body portion 38 is preferably arranged contiguous with the rear flange 16 at the right end of the ventilator and the body portion 39 is preferably arranged contiguous with the front flange 16 at the left end thereof. Numerals 41 and 42 denote extensions upon the louvers 38 and 39 respectively, which may extend obliquely from the fixed louvers inwardly of the frame.

In Fig. 7 I have shown the bearing 35 as arranged within an opening of the fixed louver 38, and I have shown the rod 34 extending through said louver, as well as through the flanges 15. The arrangement as illustrated is simply for the sake of convenience.

The throw of the crank 30 determines the distance the operating bar can move longitudinally, and hence limits the degree to which the louvers can be turned on their pivots, as will be obvious, and the operating bar is of such length that when the louvers have been moved to wide open position, the end of the bar, denoted by 43, spaced from the crank will engage the extension of the louver 39 to furnish a positive stop tending to make stable the open positions of the louvers. See Fig. 2. The closed position of the louvers is made stable by the engagement of the extensions 21 with each other and the engagement of the end extensions 21 with the extensions 41 and 42 of the fixed louvers.

In assembling the louvers with the top

and bottom members of the frame I desirably utilize rivets 44 as shown in Fig. 5 to first secure the ears 22 to the top member of the frame. I then associate the ears 23 with the bottom member of the frame in the manner already set forth and I may utilize rivets 45 as shown in Fig. 6, to insure the relative positions of the ears 23 and the bottom member.

By drawing the metal of the bottom member of the frame upwardly to form the annular flanges 26, I provide a space 46 between the ears 23 and the bottom member to afford clearance for the longitudinal sliding movements of the operating bar upon the bottom member. This will be most clear from Fig. 6.

The simplicity of the construction of the present ventilator is to be noted. The frame consists of but four sheet metal plates rigidly secured to each other. The louvers each consist of a single piece of sheet metal suitably bent and mounted in the frame. And the operating mechanism for manipulating the louvers is constituted by an operating bar and a crank with manipulating handle. The ventilator consists of but few parts and the relative positions of all of the parts are insured, there being no liability whatever that any part can become dislocated or impaired. To incorporate the ventilator in its position of use all that is necessary is to fit the frame into a transom, doorway, window, panel, or the like, the flanges 14 and 15 serving the purpose of inclosing the ends of the louvers and the flanges 16 interlapping with the fixed louvers in such manner that the advantageous features of the ventilator are preserved.

In Fig. 9 I have shown a variant form of frame members. In said figure, numeral 47 represents a top or bottom member, and 48 represents a side member. A portion of the side member and its flanges 49 are offset or drawn inwardly as denoted at 50 and the flanges 51 of the top or bottom member fit thereover to align with the flanges 49. The connection between the members 47 and 48, as shown, is made by means of a rivet 52 passing through all of said flanges, a bushing 53, extending between the drawn in portions of the flanges 49 and through which the rivet extends, serving to allow the rivet to clamp the drawn in portions 50 and flanges 51 against each other. By the provision of elongated slots 54 in the drawn in portions, the side member can be slightly adjustable in the top or bottom member. In the present form of the invention the bushing 53 can be located to serve the purpose as described of the rod 34.

Having thus fully described the invention, what I claim as new and desire to secure by Letters Patent is:

1. As an article of manufacture, a device

comprising a rectangular frame consisting of joined metallic channel pieces, each channel piece having its marginal portions extending inwardly beyond the body of the frame, and louvers having integral ears mounted in certain of said channel pieces and between the marginal portions thereof.

2. As an article of manufacture, a device comprising a rectangular frame consisting of top, bottom and side metallic channel pieces, both of the flanges of each channel piece extending inwardly beyond the body of the frame, and louvers mounted in certain of said channel pieces and between the flanges thereof, there being intermediate louvers pivotally mounted and end louvers fixedly mounted.

3. As an article of manufacture, a device comprising a rectangular frame consisting of joined metallic plates having flanges upon their opposite edges all extending inwardly beyond the body of said frame, and louvers mounted in certain of said plates and between said flanges, there being intermediate louvers pivotally mounted and end louvers fixedly mounted.

4. A device comprising a rectangular frame constituted by top, bottom and side members each consisting of a plate having flanges extending inwardly beyond the body of said frame, the flanges being upon the opposite edges of the plates, and louvers mounted in certain of said plates and between said flanges, there being intermediate louvers pivotally mounted and end louvers fixedly mounted.

5. As an article of manufacture, a device comprising a rectangular frame consisting of joined metallic channel pieces, each channel piece having its marginal portions extending inwardly beyond the body of the frame and certain of said marginal portions having offset portions fitted within others of said marginal portions.

6. A device comprising a rectangular frame constituted by top, bottom and side channel pieces, each channel piece having its marginal portions extending inwardly beyond the body of the frame and certain of said marginal portions having offset portions fitted within others of said marginal portions, and louvers mounted in certain of said channel pieces and between the marginal portions thereof.

7. A device comprising a frame consisting of top, bottom and side members, louvers pivotally mounted in said frame, and operating mechanism for manipulating said louvers, said operating mechanism including a bar resting upon and slidable upon one of the members of the frame, and a crank with handle operatively associated with said bar.

8. A device comprising a frame consisting of plates, louvers mounted in certain

of said plates and arranged in the frame, and means for manipulating the louvers, said means including bar resting upon and slidable upon one of the plates, and a crank with handle operatively associated with the bar.

9. A device comprising a frame consisting of plates with flanges upon their opposite edges extending inwardly beyond the body of said frame, including a top plate, bottom plate, and side plates, louvers, ears upon the opposite ends of the louvers and pivoted upon certain of the plates between the flanges, and means for swinging the louvers on their pivots, said means including an operating bar having pivotal connection with certain of said ears, and a crank with handle associated with said operating bar.

10. In a device, a pair of spaced apart plates, a louver having an ear upon each of its ends, one of said ears having an opening receiving metal struck from one of said plates and the other of said ears having metal struck therefrom to enter a flange struck from the other of said plates, whereby the louver is pivotally supported on said plates and spaced from one of said plates, and means for swinging said louver upon its pivot, said means including an operating bar arranged adjacent said flange and pivotally associated with the ear mounted upon said flange to be slidable upon the plate from which the flange is struck.

11. In a device, a plate having flanges upon its side edges and a louver having an ear pivotally supported on said plate and spaced therefrom, an operating bar pivotally associated with said ear and arranged beneath the same to slide upon said plate, and a crank with handle operatively associated with said bar.

12. A device as specified in claim 11, wherein the crank is carried by a spindle mounted in said flanges to have a slight longitudinal movement therein and a portion of the operating bar is bent to general U-shape about said crank, there being means arranged in said flanges adjacent to the spindle for insuring the position of said operating bar.

13. In a device, a metallic plate having flanges; louvers having ears pivotally supported upon and spaced from said plate, an operating bar having spaced apart holes rotatably receiving portions of metal struck from said ears, said bar being arranged between said ears and said plate adjacent one of said flanges, and having a U-shaped portion, a spindle mounted in said flanges and having a crank operatively situated in said U-shaped portion, means for actuating said crank to swing said louvers upon their pivots, and means for rendering

the louvers stable when in open or closed position.

14. A device comprising a rectangular frame consisting of metallic plates having flanges, metallic louvers having integral ears upon their opposite ends whereby the same can be mounted in certain of said plates, the intermediate louvers being pivotally supported and the end louvers being fixedly supported, and means for swinging the pivotally supported louvers upon their pivots to completely close the space within the frame or to leave passage ways between the respective louvers.

15. A device comprising a rectangular frame constituted by top, bottom and side channel pieces, each channel piece having its marginal portions extending inwardly of the frame and certain of said marginal portions having offset portions fitted within others of said marginal portions, bushings extending between said offset portions, and means extending through said bushings, marginal portions and offset portions to clamp said marginal portions and offset portions to each other.

16. A device comprising a rectangular frame constituted by top, bottom and side channel pieces, each channel piece having its flanges extending inwardly of the frame and certain of said flanges having offset portions fitted within others of said flanges, bushings extending between said offset portions, and means extending through said bushings, flanges and offset portions to clamp said flanges and offset portions to each other.

17. A device as specified in claim 15 wherein said marginal portions include elongated slots allowing relative adjustment of said side and top and bottom members.

18. A device, comprising a rectangular frame constituted by top, bottom and side members each consisting of a plate having flanges upon its opposite edges, certain of said flanges having offset portions fitted within others of said flanges, bushings extending between said offset portions, and means extending through said bushings, flanges, and offset portions to clamp said flanges and offset portions against each other.

19. A device, comprising a rectangular frame constituted by top, bottom and side members each consisting of a plate having flanges upon its opposite edges, certain of said flanges having offset portions fitted within others of said flanges, bushings extending between said offset portions, and means extending through said bushings, flanges, and offset portions to clamp said flanges and offset portions against each other, said offset portions having elongated slots whereby the side members can be adjusted in the top and bottom members.

20. In a device, a plate, a louver having

an ear pivotally supported upon said plate and spaced therefrom, an operating bar pivotally associated with said ear and arranged beneath the same to slide upon said plate, a crank with handle operatively associated with said bar, a portion of the bar being bent to general U-shape about said crank, and means adjacent to the crank and opposite the portion of said bar pivoted to the louver for insuring the position of the bar about the crank.

21. In a device, a plate having flanges upon its side edges, a louver pivotally supported on said plate and spaced therefrom, an operating bar pivotally associated with said louver and arranged beneath the same to slide on said plate, and a crank with handle operatively associated with said bar, said crank being carried by a spindle mounted in said flanges to have slight longitudinal movement therein and a portion of the operating bar being bent about said crank in

such manner as to insure the spindle against displacement from its bearings.

22. In a device, a plate having flanges upon its side edges, a louver pivotally supported on said plate and spaced therefrom, an operating bar pivotally associated with said louver and arranged beneath the same to slide on said plate, a crank with handle operatively associated with said bar, said crank being carried by a spindle mounted in said flanges to have slight longitudinal movement therein and a portion of the operating bar being bent about said crank in such manner as to insure the spindle against displacement from its bearings, and means adjacent to the crank and opposite the portion of said bar pivoted to the louver for insuring the position of the bar about the crank.

Signed at Bridgeport in the county of Fairfield and State of Connecticut this 28th day of February A. D. 1922.

ANDREW L. RIKER.