Feb. 10, 1925. 1,525,781

F. F. SHEPPARD

CLOCK OPERATED VENTILATOR

Filed Oct. 31, 1923 2 Sheets-Sheet 1

Fig. 1.

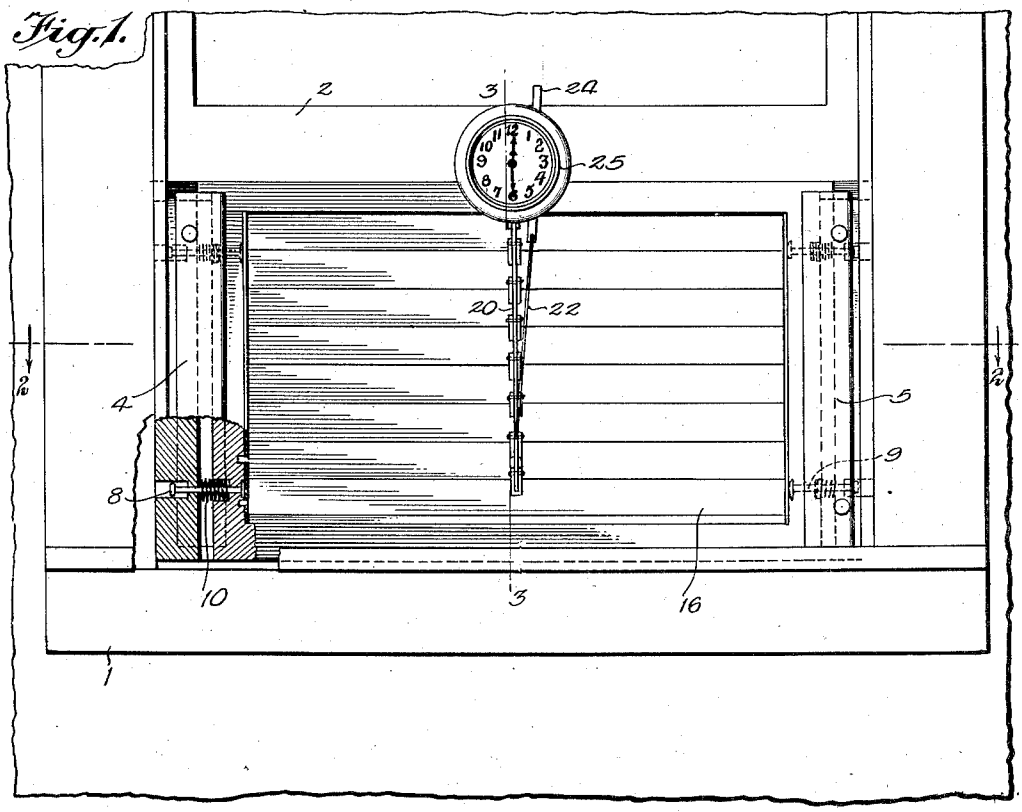
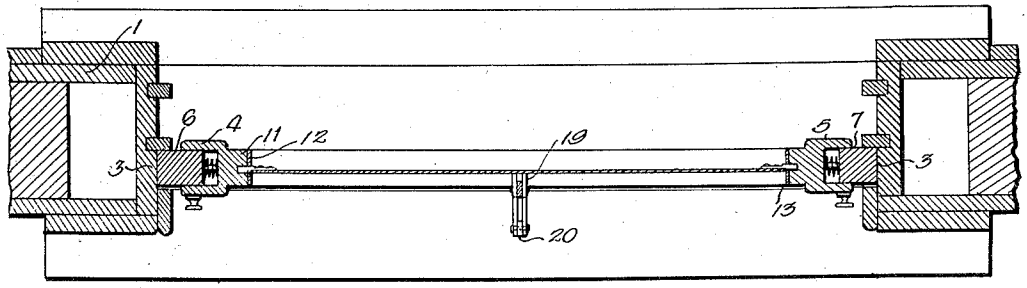


Fig. 2.



WITNESSES

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Fig. 3.

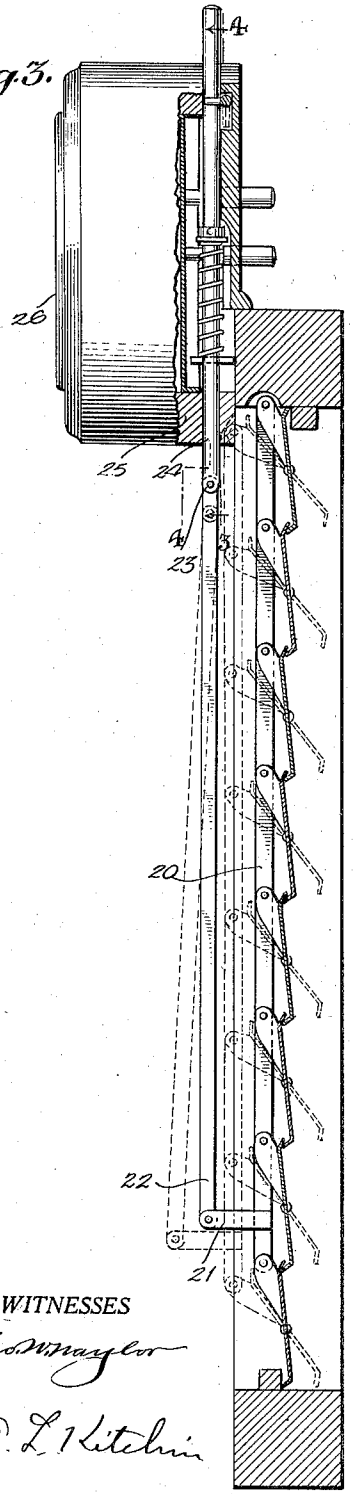


Fig. 4.

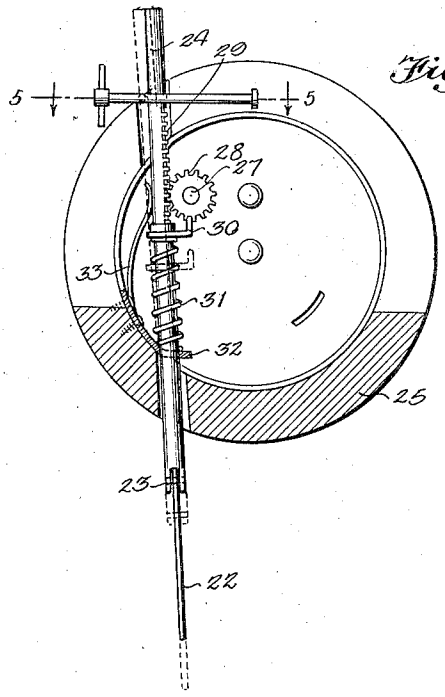


Fig. 5.

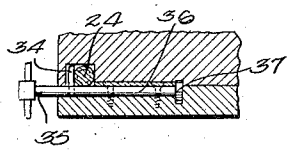
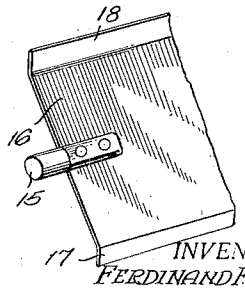


Fig. 6.



WITNESSES

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UNITED STATES PATENT OFFICE.

FERDINAND F. SHEPPARD, OF OSSINING, NEW YORK.

CLOCK-OPERATED VENTILATOR.

Application filed October 31, 1923. Serial No. 671,909.

To all whom it may concern:

Be it known that I, FERDINAND F. SHEPPARD, a citizen of the United States, and resident of Ossining, in the county of Westchester and State of New York, have invented a new and Improved Clock-Operated Ventilator, of which the following is a full, clear, and exact description.

This invention relates to ventilators for windows or other places and has for an object to provide an improved construction wherein a decided ventilation may be secured and an automatic closing also secured at a predetermined set time.

Another object of the invention is to provide a ventilator for a window which may be manually opened at a given time and automatically closed by a clock mechanism after a predetermined time has passed.

A further object, more specifically, is the provision of a ventilator adapted to be bodily applied and removed wherein one or more ventilating openings with closing doors are provided and a clock mechanism for actuating said doors in one direction.

In the accompanying drawing—

Figure 1 is a fragmentary front view of a window frame and surrounding wall with a ventilator embodying the invention applied.

Figure 2 is a longitudinal vertical sectional view through part of a window with a ventilator embodying the invention shown applied thereto, the section being taken on line 2—2 of Figure 1.

Figure 3 is an enlarged fragmentary sectional view through Figure 1, approximately on line 3—3.

Figure 4 is a fragmentary sectional view through Figure 3, approximately on line 4—4.

Figure 5 is a detail fragmentary sectional view through Figure 4, approximately on line 5—5.

Figure 6 is a fragmentary perspective view of one end of one of the shutters embodying certain features of the invention.

Referring to the accompanying drawings by numeral, 1 indicates a window frame of any desired kind provided with the usual lower sash 2 adapted to slide up and down in the groove 3. The structure just described is old and well known and forms no part of the present invention. When the device is to be used, the lower sash 2 is raised as shown in Figure 1 and the ventilator as a whole, placed in the window frame and sash 2 lowered until it engages the upper edge. In order to compensate for different widths of windows and to permit the side edges, or rather the ends of the ventilator to fit into the grooves 3 in the window frame, movable sections 4 and 5 are provided as shown particularly in Figures 2 and 3. These sections are substantially U-shaped in cross section and telescope over the end sections 6 and 7 to which they are connected by suitable guiding rods 8 and 9, each rod being provided with a spring 10 acting to force the sections 4 and 5 outwardly. The end sections 6 and 7 are secured to the body 11 by nails or any suitable means, which body may be formed of any desired material, as for instance, wood.

Preferably, plates 12 and 13 of metal are connected to the body 11 as indicated in Figures 1 and 2, said plates being provided with apertures for receiving the journal pins 15 of the respective shutters 16. These shutters are provided with bent interlocking edges 17 and 18 whereby a substantially air-tight joint is provided when the parts are all closed, as shown in Figure 3. Preferably, all of the shutters are connected together so as to be simultaneously operated. As shown in the drawings, a small bracket 19 is connected to each shutter and these brackets are all pivotally connected with a connecting rod 20, which connecting rod is provided with an upstanding section 21 pivotally connected with the operating link 22, which link is pivotally connected at 23 to the shift rod 24. When the shift rod 24 is forced downwardly, the various shutters 16 are opened to a greater or less extent according to the downward movement of the rod 24. When this rod is moved upwardly, either automatically or manually, the shutters are closed in proportion to the movement of the rod. The rod 24 extends through the casing 25 of a suitable clock 26, which clock is of any desired mechanism provided with an alarm device of any usual or preferred kind. As any suitable clock having an alarm mechanism may be used, a detail description of the clock will not be made. However, it will be understood that the alarm shaft 27 is provided with a gear wheel 28 instead of a winding button so that it may mesh continually with the rack 29 carried by the rod 24. A locking spur 30 is rigidly secured to the rod

24 in any desired manner and is adapted to interlock with certain of the teeth of the gear wheel 28 when the parts are in their extreme upward position as shown in Figure 4. When in this position, the various shutters 16 are tightly closed. A spring 31 is provided and acts at one end of the locking spur 30 and another on the locking projection 32 of the spring 33 which is secured to the casing 25 by suitable fastening means, as for instance, screws. The spring 33 acts on the rod 24 for holding rack 29 continually in engagement with gear wheel 28 but is sufficiently resilient to permit rod 24 to be manually moved laterally as shown in dotted lines in Figure 4 whereby the rod 24 may be raised or lowered without affecting the gear 28. This structure is provided in order that the shutters 16 may be opened more or less or adjusted manually after the clock has been set, as for instance, in case it should become colder during the night, suitable adjustment may be provided.

When the device is in operative position, the rod 24 may be locked with the rack 29 in engagement with the gear 28 by a pin 34 carried by the rotatable member 35 shown particularly in Figure 5. This rotatable member consists of a rod 36 having an enlarged end 37 fitted into suitable openings in the casing 25 and extending to a point where it may be readily grasped by the operator whereby it may be rotated until the pin 34 is substantially parallel with the rod 24. This will permit the rod to be freely oscillated back and forth and moved up and down as desired. At night when the occupant of the room is about to retire, he will set the alarm mechanism to operate at the desired time, as for instance, five o'clock in the morning and will then force the rod 24 downwardly until the shutters 16 are open fully or at least open to the desired extent. In forcing the rod 24 downwardly, the rack 29 is preferably left in engagement with the gear 28 so as to produce a winding action of the spring. When the clock mechanism indicates five o'clock in the morning, the alarm will be released and instead of sounding an alarm, gear wheel 28 will be rotated and the shutters will be immediately closed. As the shutters reach a closed position, spur 30 engages the gear wheel 28 and prevents any further rotation thereof. It will, of course, be noted that when the gear is operated by the alarm mechanism, the spring of the alarm mechanism is unwound to a certain extent. When the device is again set the next night, rod 24 is merely pushed down to the desired extent which will cause a certain amount of winding of the spring. In this way, the spring will be automatically maintained wound but additional tension may be brought thereon at any time by manually winding the alarm spring by rotating the gear 28 or by the use of a suitable key, not forming any part of the present invention.

What I claim is:—

1. Clock controlled mechanism for shutting the shutters of a ventilator, comprising a bar pivotally connected with said shutters, said bar having a rack, a pinion normally meshing with said rack, a clock for operating said pinion, said bar and rack being mounted to swing away from said pinion, and spring means for normally holding the rack in mesh with said pinion, said bar by reason of its mounting being capable of manual operation independent of said pinion and rack.

2. Clock controlled mechanism for shutting the shutters of a ventilator, comprising a bar adapted to be connected with said shutters, said bar being formed with a rack, a clock, a pinion connected with the alarm mechanism of the clock whereby the pinion may be operated at any set time by the clock, a spring for normally holding said rack in mesh with said pinion, and manually adjustable means for locking the rack in mesh with the pinion, said rack when not locked in mesh with the pinion being capable of movement away from the pinion whereby it may be actuated manually.

3. Clock controlled mechanism for shutting the shutters of a ventilator, comprising a bar adapted to be connected with said shutters, said bar being provided with a rack, a pinion, a clock for operating said pinion, said pinion being connected with the alarm mechanism of said clock, means for holding said rack in mesh with said pinion, a spur slidingly mounted on said rack and adapted to be brought into engagement with said pinion, and a spring for resiliently holding said spur in engagement with said pinion, said spur being mounted to slide away from the pinion when the pinion rotates in one direction.

4. Clock controlled mechanism for shutting the shutters of a ventilator, comprising a bar having a rack thereon, a pinion in mesh with said bar, a clock for rotating said pinion, and a spring pressed spur slidingly mounted on said bar and positioned to permit the rotation of said pinion in one direction and prevent its rotation in the oposite direction.

FERDINAND F. SHEPPARD.