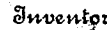


918,163.

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UNITED STATES PATENT OFFICE.

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AUTOMATIC WINDOW OPENING AND CLOSING DEVICE.

No. 918,163.

Specification of Letters Patent.

Patented April 13, 1909.

Application filed May 9, 1908. Serial No. 431,869.

To all whom it may concern:

Be it known that I, LEE O. KEMP, a citizen of the United States, residing at Crank, in the county of Miller, State of Arkansas, have invented certain new and useful Improvements in Automatic Window Opening and Closing Devices; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to an automatic window opening and closing device.

The object of my invention is to provide an automatic device for regulating the temperature of a room, hall or housing, controlling the source of ventilation, and thereby directly regulating temperature.

In the accompanying drawings, Figure 1 discloses a window equipped with my automatic ventilating device, showing the window closed. Fig. 2 discloses the window as opened by the ventilating mechanism. Fig. 3 shows an enlarged detached detail of the operating mechanism, and Fig. 4 a central sectional view thereof.

In carrying out the object of my invention, I employ a simple mechanical means to rotate a shaft, connected to a window to open and close the same. In the accompanying drawings, 5, 5, represents an ordinary window frame, having the two movable sashes 6 and 7. These window sashes are preferably connected to accurately counterbalance one another, though if desired each window may be separately counterbalanced. At a suitable point I secure to the window frame a base 10, secured by means of the screws 11 to immovably secure this base plate. Striding this base plate 10 is a spider 12 secured by means of the screws 13, this spider having a central collar 14 carrying the set screw 15. Held within the collar 14 is a slotted plug 16 secured within the collar by means of the set screw 15. Fixed within the slot of this plug 16 is an involute compensation strip 20 preferably made of two metals having different degrees of expansion under the same temperature, as brass and steel. At its ends this expansion strip is forked to provide the stems 22 and 23.

Suitably secured between the window frame or within a suitable housing are the bearing plates 25, 25 as shown in Fig. 4 each

being provided with a ball race 26 to receive suitable balls, supporting the conical hubs 27 which are screwed upon the threaded shaft 29 which has its forward end slotted as is shown at 30. This shaft carries the drum 31 suitably secured thereto and is revolvably held within its bearings.

As shown in Figs. 1 and 3, the shaft 29 is positioned immediately below the plug 16 and between the forked ends of the involute expansion strips 20. Held within the slot 30 and wound about the end of the shaft 29 is a strand 35, one end of which strand is secured to the end 22 of the compensation strip while the other end of the strand is secured to the end 23 of said strip. Wound about the drum 31, which has been described as secured to this shaft 29, is a strand 37, one end 38 of which is secured to the lower window sash 6 while the opposite end 39 is secured to the upper window frame 7 as clearly indicated in Fig. 2.

Now the instrumentalities are so arranged that under a normal predetermined temperature, the window sashes 6 and 7 will be held in a closed condition. As soon as the temperature rises beyond the predetermined degree the involute expansion strip will be actuated under the influence of the increase of heat so that its forked end will be rocked resulting in the shaft 29 being rotated, and as this shaft carries the drum 31 this drum will operate the strand 37 to carry the end 38 upward while permitting the end 39 to drop downward, this window 7 to which the end 39 is connected being preferably a little heavier than its counterpoise so that this sash 7 will normally gravitate downward, insuring the lower window being raised while the upper window is lowered, thereby directly regulating the temperature.

The device is simple of construction and positive of operation, and the shaft 29 is promptly responsive to the swaying movement of the forked end of the expansion strip.

And having thus described my said invention, what I claim as new and desire to secure by U. S. Letters Patent is—

1. In combination with a sash; a counterbalance therefor, a shaft, a strand wound about said shaft and connected at one end to said sash and at the other end to said counterbalance, a spider, an involute expansion

strip secured to said spider ending in a fork, and a pliable connection secured to the ends of said fork and wound about said shaft.

2. The combination with two counter-
5 balanced sashes, of a shaft, a cord passing over said shaft and having its ends secured to said two sashes, a suitably secured spider, a plug adjustably carried by said spider, an involute expansion strip ending in a fork

carried by said spider and a pliable connec- 10
tion wound about said shaft having its ends secured to said fork, all arranged as set forth.

In testimony whereof, I affix my signature, in presence of two witnesses.

LEE O. KEMP.

Witnesses:

LACY D. TERRELL,
E. P. WILLIAMS.