Feb. 18, 1941. J. SAUTER 2,232,343

BEEHIVE

Filed June 23, 1939 2 Sheets-Sheet 1

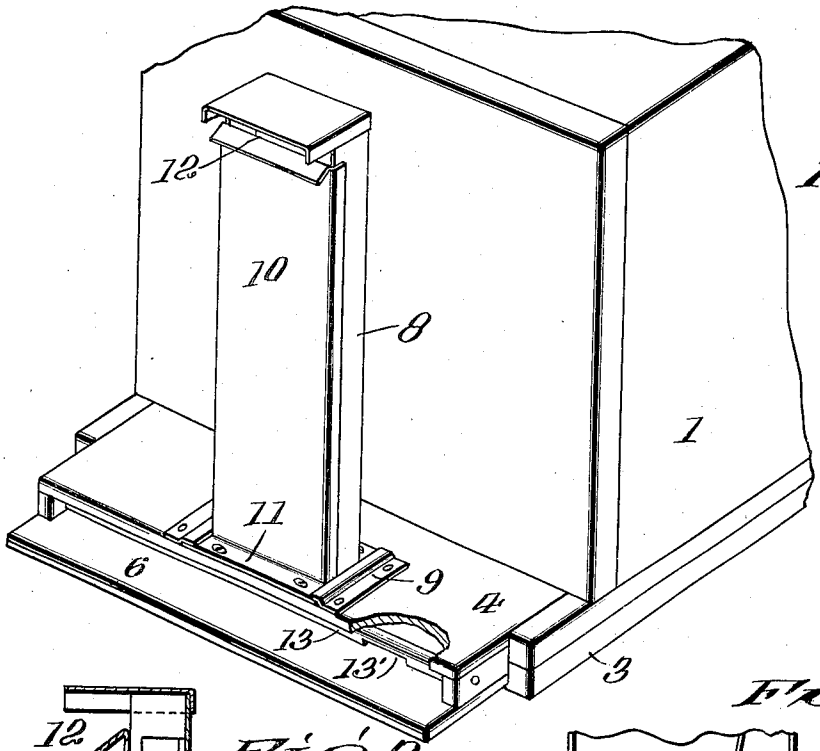


FIG. 1.

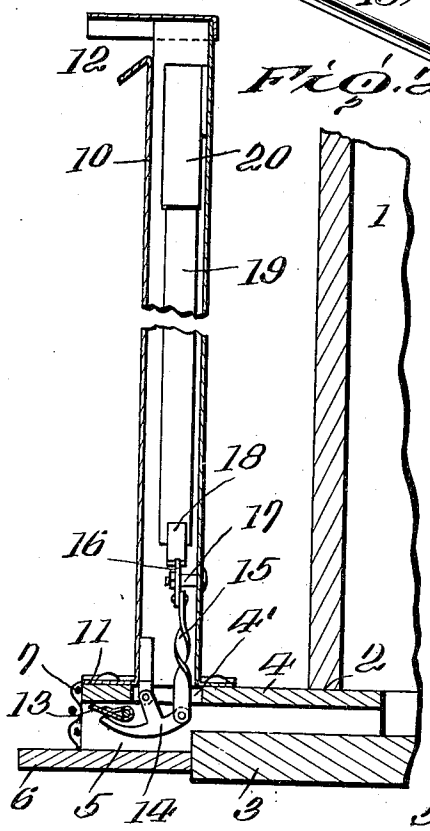


FIG. 2.

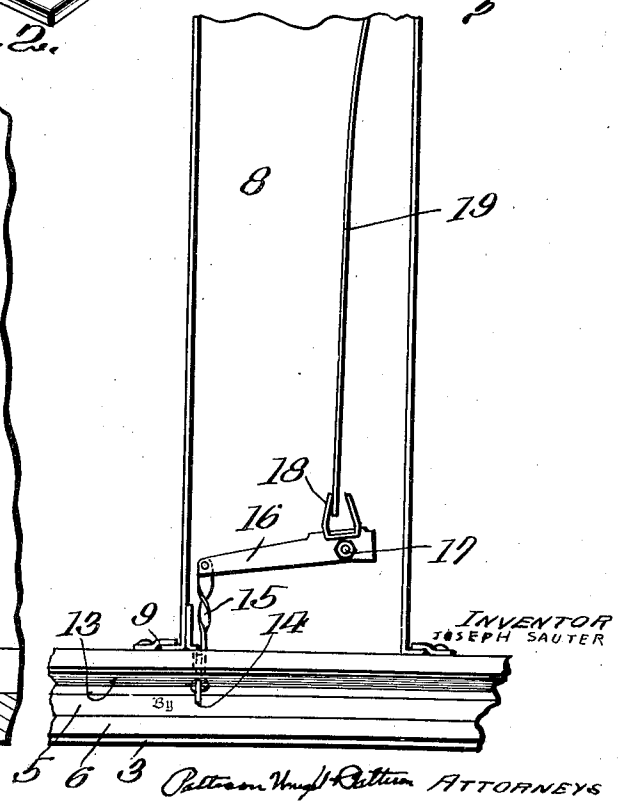


FIG. 3.

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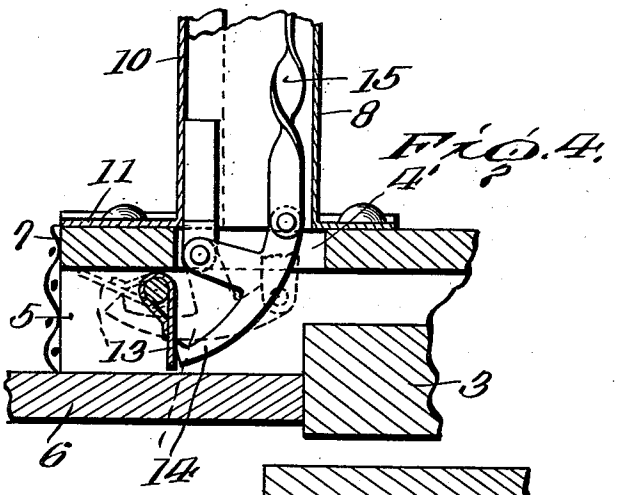


FIG. 4.

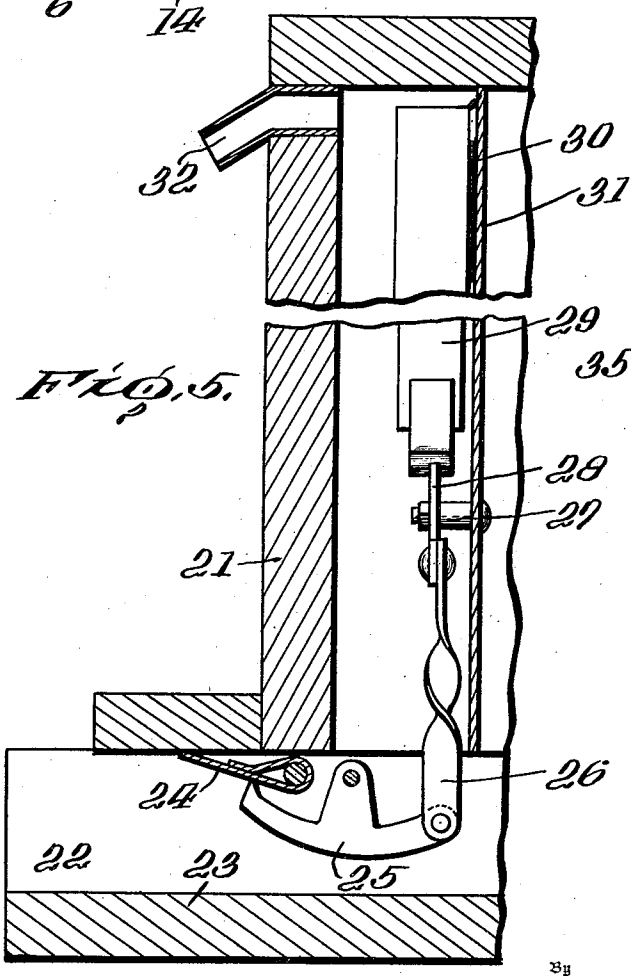


FIG. 5.

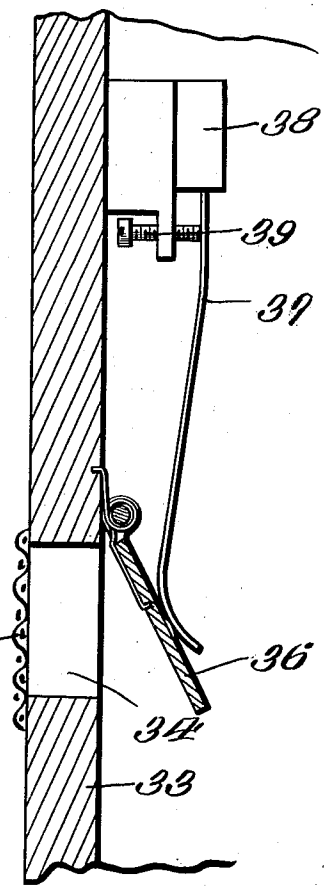


FIG. 6.

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2,232,343

BEEHIVE

Joseph Sauter, Cleveland, Ohio

Application June 23, 1939, Serial No. 280,860

12 Claims. (Cl. 6—1)

This invention relates to certain new and useful improvements in beehives and more particularly to means for regulating the temperature within the beehive through the medium of a temperature responsive device which is responsive either to atmospheric temperature or the temperature within the beehive which will be hereinafter termed room temperature.

Another object of my invention is to provide a beehive so constructed that the bees will be protected from the cold by controlling the entrance and exit opening by a temperature responsive device.

Another object of my invention is to provide a beehive with means for controlling the admission of air thereto through the entrance and exit opening and yet maintain the proper ventilation within the beehive. In bee culture it is generally the practice to close the entrance and exit of the beehive in cold weather by inserting an obstruction and to remove the obstruction on warm days and the main object of my invention is to provide automatic means for regulating the size of the entrance and exit of the beehive by a temperature responsive device whereby the proper temperature can be maintained within the beehive without an attendant having to place such an obstruction in each hive.

Another object of my invention is to provide a beehive so constructed that it can be properly ventilated when the entrance and exit is closed by snow, thereby eliminating the removal of snow by the attendant.

Another object of my invention is to provide means for controlling the temperature within the beehive, either by a temperature responsive device located within the beehive or on the outside of the same, thereby enabling my device to be sold as an attachment to be placed in position in the conventional type of beehive now in use.

Another object of my invention is to provide means for controlling the temperature within the beehive which is exceedingly simple and cheap in construction and one which can be readily installed in an ordinary beehive.

Other and further objects and advantages of the invention will be hereinafter set forth and the novel features thereof defined by the appended claims.

In the drawings—

Figure 1 is a perspective view of a portion of a beehive showing my improved construction of temperature regulator attached thereto, the same being partly broken away to show the notch in the shutter, the foraminous mouse protector being removed;

Figure 2 is a detail vertical section through the same;

Figure 3 is a detail front elevation with the removable front of the casing removed;

Figure 4 is a detail enlarged section showing the shutter in closed position;

Figure 5 is a vertical section through a portion of a beehive showing my temperature regulator incorporated within the beehive; and

Figure 6 is a modified form of temperature responsive device showing the application of the same to the pivoted shutter arranged to close an opening in the beehive.

In the embodiment of my invention as illustrated in Figures 1 to 4 I have shown a temperature regulator and ventilator in the form of an attachment to enable it to be placed in position on the conventional type of beehive.

In the drawings 1 indicates a beehive having the usual entrance and exit opening 2 and shelf 3. Disposed within the entrance and exit opening on the shelf is a vestibule 4 having an entrance and exit opening 5 and a shelf 6, the opening being closed by a foraminous mouse protector 7.

Disposed on the top of the vestibule over an opening 4' formed therein is a casing 8 provided with a base 9 secured to the vestibule with screws or the like, said casing having a removable front 10 having a flange 11 at its lower end slidably mounted within the base and secured in position by screws or the like. The casing 8 is herein shown rectangular in cross section and is provided with an opening 12 adjacent its top which can be used by the bees as an entrance and exit opening when the entrance and exit opening 5 of the vestibule 4 is closed by snow.

Pivotally mounted within the entrance and exit opening 5 of the vestibule 4 is a shutter 13 which is engaged by one of the arms of a pivoted crank 14. The shutter is so mounted that it closes by gravity when the arm of the crank 14 is moved out of contact therewith so as to close the entrance and exit opening 5 and is herein shown provided with a notch leaving a small opening for the bees to enter and leave the beehive. Connected to the other arm of the crank 14 is a link 15 which extends up through the opening 4' and is connected to one end of a lever 16 pivotally mounted on a stud 17 and provided with a bifurcated portion 18 into which extends a thermobar 19 carried by a support 20 fixed to one wall of the casing forming a thermostat of the conventional type now in use and is preferably pro-

vided with adjusting means for adjusting the thermo-bar in the conventional manner as shown in the modification of Figure 6.

The particular construction of thermostat forms no part of my invention and I wish it to be clearly understood that various other forms of thermostats can be used to form a temperature responsive device to regulate the position of the shutter 13 within the entrance and exit opening so as to control the temperature within the beehive.

The thermo-bar is so disposed and set in respect to its connection with the pivoted link 16 that when the weather is warm, the shutter is in the position as shown in Figure 2 and when the weather is cold, the crank moves out of the path of the shutter and allows it to drop into a closed position by gravity as shown in Figure 4. It is of course understood that the shutter can assume any number of intermediate positions so as to regulate or control the size of the entrance and exit opening in order to regulate the temperature within the beehive.

In this construction it will be seen that the opening 12 provides means for ventilating the beehive when the entrance and exit opening 5 is closed by snow and as in this construction the thermostat is affected by atmospheric temperature, I am able to control the temperature within the beehive to a nicety, thereby dispensing with a great deal of work on the attendant's part in either closing the entrance opening by inserting an obstruction or having to go to each beehive and remove the snow from over the entrance opening.

In the embodiment of my invention as shown in Figure 5, the beehive 21 is provided with the usual entrance and exit opening 22 and shelf 23. Disposed within the entrance opening is a pivoted shutter 24 engaged by a pivoted crank 25 to which is connected a link 26 having its end pivotally connected to a lever 27 provided with a bifurcated portion 28 in which the free end of a thermo-bar 29 is disposed which is carried by a support 30 carried by a casing 31 disposed within the beehive and having an opening 32 which can form an entrance and exit opening similar to the preferred embodiment of my invention. As the construction of thermostat is identical with the construction of thermostat disclosed in the preferred embodiment of my invention, I have refrained from showing the details of construction. This embodiment of my invention differs from the preferred embodiment of my invention by disposing the casing within the beehive and dispensing with the vestibule. In this construction the thermostat will be affected to a certain extent by the temperature within the beehive but I am fully aware that by forming openings in the casing 31 the effect of the heat generated by the bees within the beehive will have more effect upon the thermostat and while I have failed to show any adjustment for the thermostat herein shown and described, it is, of course, understood that the conventional adjustment as shown in Figure 6 can be used without departing from the spirit of my invention.

In the modification of the broad invention for controlling the temperature within a beehive as illustrated in Figure 6, 33 indicates a portion of a beehive having an opening 34 closed by a foraminous mouse guard 35. Disposed within the beehive is a spring-actuated shutter 36 for controlling the opening 34 and disposed within the beehive so as to be affected directly by the heat generated from the bees is a thermo-bar 37 carried by a support 38 and engaged by adjusting screw 39 for adjusting the position of the bar. This is one conventional means for adjusting a thermo-bar in respect to the member to be operated and can be used in connection with the preferred embodiment of my invention. The free end of the bar 37 is adapted to engage the outer face of the shutter 36 so as to close the shutter against the action of the spring or to move away from the shutter to allow the spring to open the same.

The opening 34 can be so disposed in respect to the beehive as to admit air or to allow air to escape from the beehive and therefore I do not wish to limit myself to the position of this opening or to the particular construction of thermostat used so long as it controls an opening disposed within the wall of a beehive.

While I preferably control the admission of air from the other entrance and exit of the beehive to regulate the temperature within the beehive, I am aware of the fact that a separate opening can be formed in the beehive and provided with a shutter thermostatically controlled by regulating the temperature within the beehive, therefore I do not wish to limit myself to the position of the thermostat control device or to the particular construction of the thermostat as my invention consists broadly in automatically regulating the temperature within the beehive by controlling the admission of air or the outlet of air and I am fully aware that the adjustment of the thermostat and size of the air controlling shutter will be determined by the particular construction of beehive to which the thermo responsive device is attached.

While I have only shown several embodiments of the broad principle of controlling the temperature within a beehive by a temperature responsive device, I am aware that the temperature can be controlled in various ways and therefore I do not wish to limit myself to any particular embodiment or principle of the broad idea of controlling by temperature responsive device the temperature within a beehive whether it is affected by atmospheric temperature or by room temperature.

From the foregoing description it will be seen that I have provided means for controlling the entrance and exit of a beehive by a temperature responsive device so constructed and mounted that the attendant will be relieved of having to take care of the beehive by either closing the entrance opening or by removing the snow therefrom but with my construction of beehive, means is provided not only for ventilating the beehive and controlling the temperature therein but by providing an auxiliary entrance and exit opening for wandering bees which under ordinary conditions will open to the atmosphere.

What I claim is:

1. A beehive having a temperature responsive device for controlling the entrance and exit to the beehive.

2. A beehive having entrance and exit opening and means for regulating the size of said opening by a temperature responsive device.

3. The combination with a beehive having an entrance and exit, of a vestibule arranged in said entrance and exit having an entrance and exit and temperature responsive device for controlling the last mentioned entrance and exit.

4. The combination with a beehive having an entrance and exit, of a shutter for controlling

said entrance and exit and temperature responsive means for controlling said shutter.

5. The combination with a beehive having an entrance and exit, of a movable shutter for said entrance and exit and temperature responsive means for actuating said shutter.

6. The combination with a beehive having an entrance and exit, of a vestibule adapted to be inserted in said entrance and exit and provided with an entrance and exit, a movable shutter for closing said last named entrance and exit and a temperature responsive device disposed in said vestibule for actuating said shutter.

7. A beehive having a main entrance and exit and an auxiliary entrance and exit forming ventilating means therefor, and a temperature responsive device for controlling the admission of air through said main entrance and exit.

8. An attachment for beehives comprising a vestibule having a vertically disposed casing in communication therewith having an opening in its upper end, a shutter for closing said vestibule and a temperature responsive device disposed within said casing for actuating said shutter.

9. A beehive having an entrance and exit opening in communication with the atmosphere, a shutter controlling said opening and a temperature responsive device for actuating said shutter.

10. The combination with a beehive having an entrance and exit, of a pivoted shutter for controlling said entrance and exit, a crank arranged in the path of travel of said shutter and temperature responsive means for moving said crank in position to allow said shutter to close said entrance and exit.

11. A beehive having an entrance and exit, a pivoted shutter for closing said entrance and exit, a crank arranged in the path of travel of said shutter, a link connected to said crank, a pivoted lever connected to said link and a thermobar cooperating with said lever having means for adjusting the same.

12. An attachment for beehives having an entrance and exit opening and a temperature responsive device for controlling the admission of air through said entrance and exit opening.

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