CLOSURE FOR BEEHIVE SMOKERS

This invention relates to a closure for beehive smokers which is used for producing smoke and delivering the same into beehives for the purpose of rendering the bees temporarily docile or enabled as to permit the beekeeper to safely open the beehive and examine the interior of the same or removing the honey therefrom.

When using a beehive smoking device of this character the beekeeper sometimes lays the same aside carelessly and it may be knocked over when not in use and this is liable to ignite combustible plants, grass or other material by some of the burning fuel escaping through the smoke delivery spout of the device.

Therefore precaution was taken against such an accident by means of a wad of paper, a potato, a cork or the like which was stuck into the outlet of the smoke delivery spout, but such closure means are not always available with the result that the smoke outlet of the smoking device was left unguarded and thus produced a fire hazard.

It is one of the objects of this invention to provide a closure for smoke delivery spout or nozzle of these smokers which may be permanently attached to the smoke generating means and is capable of being quickly and easily moved into its operative position to prevent the escape of smoke or fuel from the interior of the smoke generating chamber and also moved into an inoperative position so as to permit smoke to freely escape from the smoke generating chamber and delivery spout into the beehive.

A further object of this invention is to provide a device of this character which is very simple and compact in construction, and which can be readily applied not only to beehive smokers when the latter are originally manufactured but also on beehive smokers now in use.

In the accompanying drawings:

Fig. 1 is a side elevation of a beehive smoker having its smoke delivery spout provided with a closure which embodies an approved form of this invention.

Fig. 2 is a perspective view of this closure detached from the beehive smoker.

Fig. 3 is a transverse section, on an enlarged scale, taken on line 3—3, Fig. 1.

Fig. 4 is a fragmentary longitudinal section, on an enlarged scale, taken on line 4—4, Fig. 1.

The beehive smoker shown in the drawings is generally of the type now in common use and comprises a fuel or generating chamber having an upright body in which smoke is produced by burning fuel, such as oily rags, wood, paper and the like, within this chamber in such a manner that the fuel smoulders and produces smoke without a flame. This fuel is introduced through the upper end of this chamber which is normally closed by means of a cover pivoted to the body of the chamber by means of a hinge and is normally held in its closed position by a friction fit between the cover and the body of this chamber. The air for supporting combustion of the fuel in this smoke generating chamber is supplied by means of a bellows which is permanently attached to the rear side of the body of the fuel chamber by means of brackets, this bellows being provided on its rear side with an inlet check valve whereby air is admitted to the bellows as the same expands while the front side of this bellows is provided with an outlet check valve through which air is delivered to an opening in the rear lower part of the fuel chamber and into the interior of the latter.

Thus, when the bellows is contracted air contained therein is discharged across the space between the bellows and the smoke chamber and forced into the inlet at the lower end of this chamber. The stream of air is thus projected across the space between the bellows and the smoke chamber without employing a separate conduit for this purpose.

On its upper side the cover of the smoke generating chamber is provided with an upwardly and forwardly projecting smoke delivery spout or nozzle the outlet at the front end of which is of circular form.

Upon compressing the bellows the air forced into the lower end of the smoke generating chamber causes the smouldering fuel therein to produce smoke which is discharged through the delivery spout.

The preferred organization of the closure for controlling the outlet of the smoke delivery, the spout in accordance with our invention is constructed as follows:

The numeral 19 represents a transverse closure head which preferably has the form of a plate and is adapted to be moved toward and from the front or outlet end of the smoke spout for covering or uncovering the same.

At its opposite ends, this closure head is provided with two attaching arms or ears 20 projecting rearwardly therefrom along opposite sides of the front part of the smoke spout, these arms being preferably inclined and diverging from their front ends toward their rear ends, as best shown in Fig. 4. This closure head and the attaching arms are preferably made from a single piece of sheet metal. The closure head and attaching
arms are strengthened so as to maintain the same in the proper shape by means of horizontal flanges 21, 21 arranged at the upper and lower edges of the closure head and having their opposite ends connected with the front parts of the attaching arms 20.

On its central part the closure head is provided with a rearwardly projecting stopper 22 which is preferably of spherical form and has a convex rear side which is adapted to project rearwardly into the front part of the smoke delivery spout and thereby prevent this closure from becoming displaced laterally relative to the smoke spout when the closure head extends across the front end of the smoke spout and its stopper enters the front end thereof.

In order to prevent leakage between the closure head and the outlet of the smoke spout when the closure is in its operative position the rear or inner side of the closure head and the spherical stopper thereof are covered by a coating or packing 23 of soft material such as leather, asbestos or the like. The marginal parts of this packing are adapted to engage the circular edge at the front or outlet end of the smoke spout when the closure is in its operative position and thereby produces a tight joint between these members which positively prevents the escape of any smoke or fuel from the smoke spout when the closure is in place, thereby saving any object adjacent to the beehive from being set afire when this device is handled carelessly.

Manipulating means are provided for moving the closure into and out of its operative position which means preferably consist of a handle which is made of wire bent to form a front circular finger piece 24 preferably of helical form and two supporting legs 25 projecting rearwardly from opposite ends of this finger piece. This finger piece 24 engages its rear side with the concave face or seat formed on the front side of the closure head by the spherical stopper 23 and the legs 25 of this handle diverge rearwardly along the outer sides of the attaching arms 20. These legs are provided, respectively, at their rear ends with hooks 26 which project inwardly through openings 27 at the rear ends of the attaching arms and extend forwardly along the inner sides of the latter, as best shown in Figs. 2 and 4.

This closure is yieldingly connected with the smoke spout so that it is permanently attached thereto but can be readily moved into and out of its operative position by means which preferably comprise two helical springs 28 normally arranged on opposite sides of the smoke spout and each having its front end connected with the hook 26 at the rear end on one of the handle legs while the rear end of this spring is connected with a screw 29 which is secured to the outer side of the adjacent part of the smoke spout, as shown in Figs. 1 and 4.

When this closure is in use the closure head is drawn rearwardly by the springs 28 so that the packing 23 of its stopper firmly engages the front edge of the smoke spout and thereby securely seals the outlet of the smoke spout so as to prevent any fuel from escaping therefrom, this position of the closure being indicated by full lines in Figs. 1 and 4.

When it is desired to use the smoking device for delivering smoke into beehives in which the bees are to be rendered docile or harmless, the closure head together with the parts connected therewith is first drawn forward so as to disengage the stopper 22 and its packing from the front end of the smoke spout after which the closure may be moved into a position above or below the smoke spout into an inoperative position and held there by the resilience of the springs 28, as shown by dotted lines in Fig. 1.

Smoking causes bees to fill up with honey because they fear a calamity has befallen them. When filled with honey, they become somewhat docile.

As a whole this closure is very compact in construction and can be produced at a comparatively low cost, and it permits of quickly and easily smothering or discontinuing the issue of smoke from the apparatus when the same is not in use.

Owing to the security which the same affords against the escape of any fuel from the smoke delivery spout when the apparatus is not in use the same provides a very desirable safety device for insuring loss by fire in the event that the smoke device is accidentally turned over while not in use or handled carelessly.

We claim as our invention:

A closure for the outlet spout of a beehive smoker, comprising a transverse head of sheet metal movable toward and from the front end of said spout and having its central part deflected backwardly and forming on the rear side thereof a convex stopper adapted to extend over the front end of said spout and a concave seat on the front side of said head, sheet metal attaching arms formed integrally with said head at opposite ends thereof and normally arranged on opposite sides of said spout and each arm provided at its rear end with an opening, a wire handle having a helical finger-piece which engages with said concave seat, two legs formed integrally with said finger-piece at opposite ends thereof and said arms and each leg provided at its rear end projecting rearwardly along the outer sides of a hook which engages with the opening of the respective arm, and two helical springs normally arranged on opposite sides of said arms and spout and each spring being connected at its front end with the hook of one of said legs and adapted to be connected at its rear end with the corresponding side of said spout.

ROBERT H. VOLGENAU.
JOHN M. HOOE.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

<table>
<thead>
<tr>
<th>Number</th>
<th>Name</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>67,292</td>
<td>Gould</td>
<td>July 30, 1867</td>
</tr>
<tr>
<td>1,154,629</td>
<td>Ainslie</td>
<td>Sept. 28, 1915</td>
</tr>
<tr>
<td>1,188,115</td>
<td>De La Barre</td>
<td>Dec. 16, 1915</td>
</tr>
<tr>
<td>1,314,065</td>
<td>Jackson</td>
<td>Sept. 14, 1919</td>
</tr>
<tr>
<td>1,329,284</td>
<td>Frank</td>
<td>Jan. 29, 1924</td>
</tr>
<tr>
<td>1,428,285</td>
<td>Mills</td>
<td>Sept. 5, 1923</td>
</tr>
<tr>
<td>1,573,338</td>
<td>Warth</td>
<td>Feb. 16, 1926</td>
</tr>
<tr>
<td>1,711,345</td>
<td>Melvin</td>
<td>July 29, 1930</td>
</tr>
<tr>
<td>1,829,224</td>
<td>Freeman</td>
<td>Oct. 31, 1931</td>
</tr>
<tr>
<td>2,009,552</td>
<td>Jaen</td>
<td>July 30, 1935</td>
</tr>
<tr>
<td>2,092,964</td>
<td>Fernberg</td>
<td>Sept. 14, 1937</td>
</tr>
</tbody>
</table>