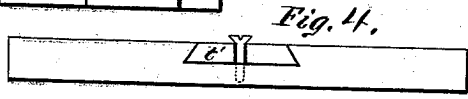
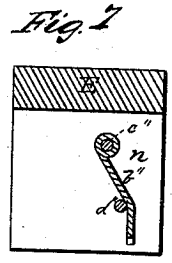
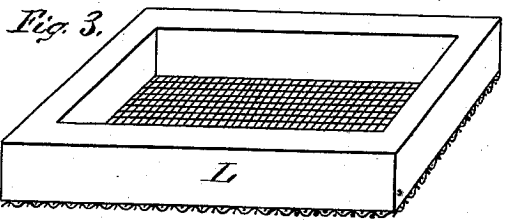
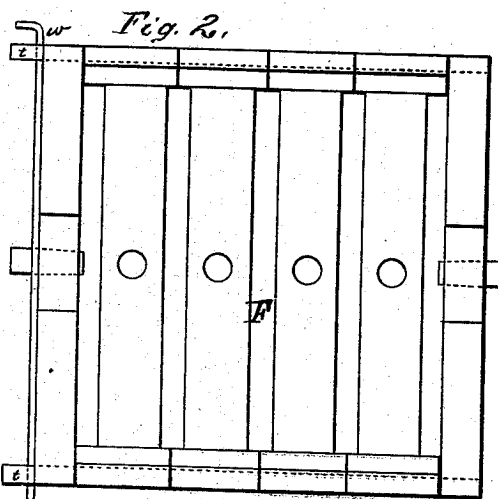
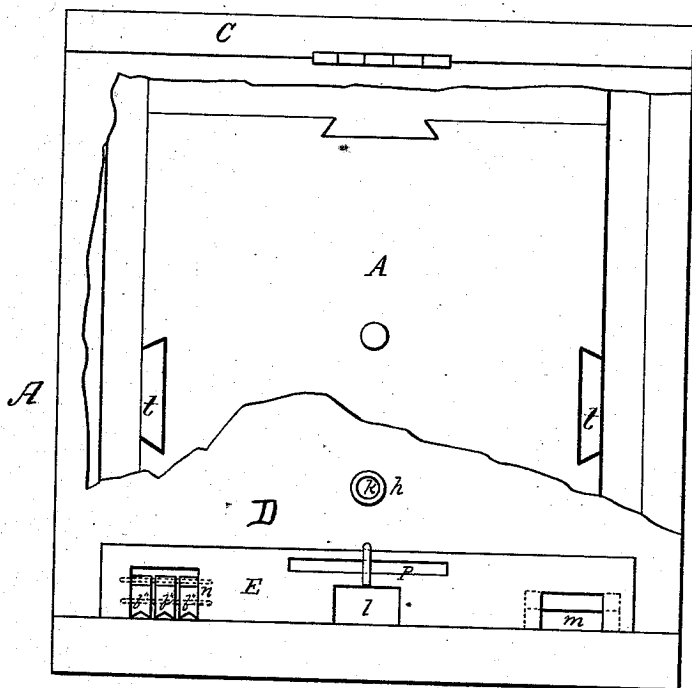


A. B. BOWEN.
Bee-Hives.

No. 158,826.

Patented Jan. 19, 1875.

Fig. 1.



WITNESSES
Villette Anderson
Robert Everett.

INVENTOR.
A. B. Bowen.
Chipman, Howard & Co.

ATTORNEYS.

A. B. BOWEN. Bee-Hives.

No. 158,826.

Patented Jan. 19, 1875.

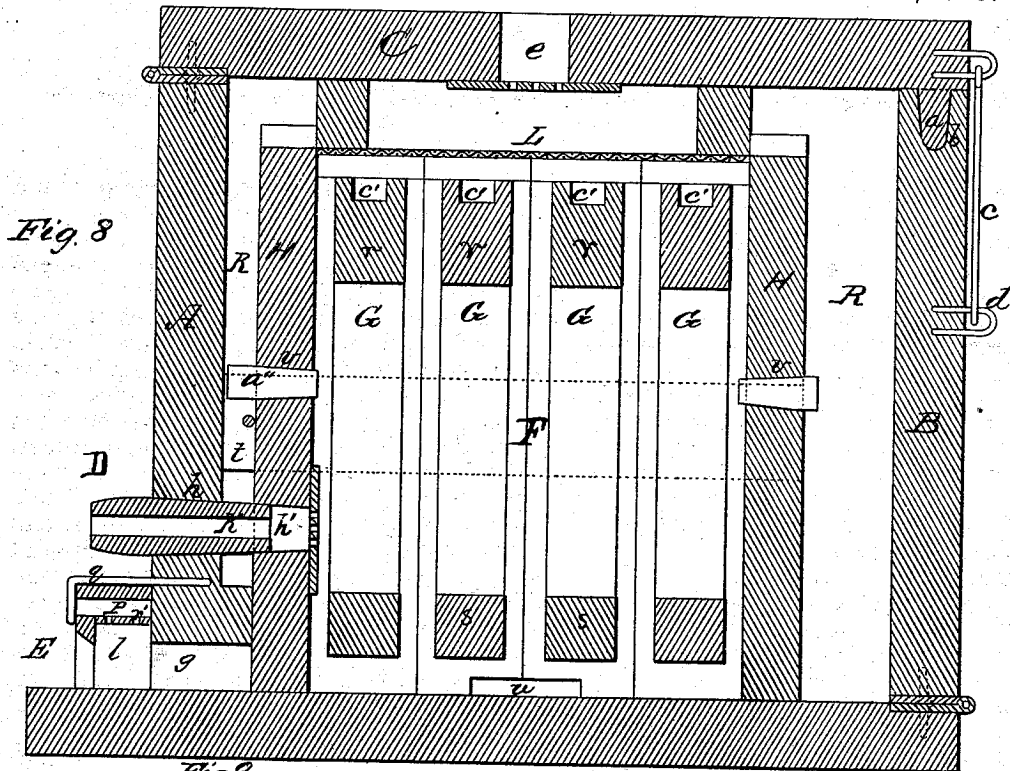


Fig. 8

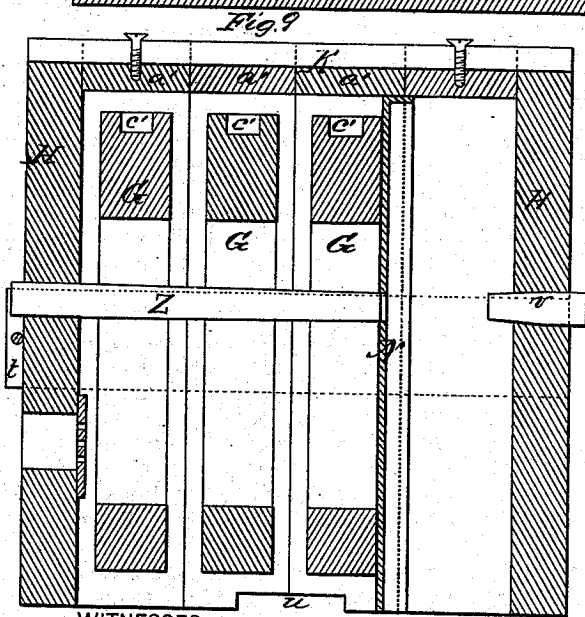


Fig. 9

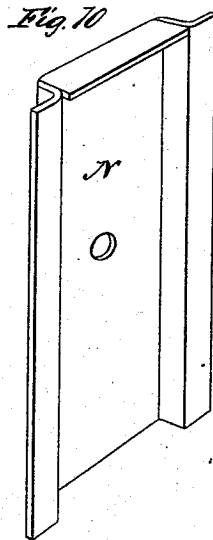


Fig. 10

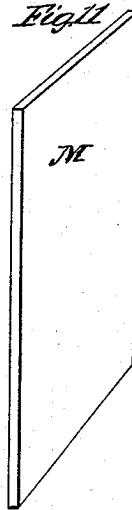


Fig. 11

WITNESSES

Villette Anderson
Robert Everett.

BY

INVENTOR
A. B. Bowen.
Clippman, Stewart & Co.

ATTORNEYS

UNITED STATES PATENT OFFICE.

AZRO B. BOWEN, OF WEST RANDOLPH, VERMONT.

IMPROVEMENT IN BEE-HIVES.

Specification forming part of Letters Patent No. 158,826, dated January 19, 1875; application filed April 18, 1874.

To all whom it may concern:

Be it known that I, AZRO B. BOWEN, of West Randolph, in the county of Orange and State of Vermont, have invented a new and valuable Improvement in Bee-Hives; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings making a part of this specification, and to the letters and figures of reference marked thereon.

Figure 1 of the drawing is a representation of a front view of my bee-hive, and Figs. 2, 3, 4, 5, 6, and 7 are detail views of the same. Figs. 8 and 9 are sectional, and Figs. 10 and 11 are detail, views of the same.

This invention relates to the construction of bee-hives, and it has for its object, mainly, to facilitate the feeding of the bees in cold weather, thereby preventing their destruction; and to this end my invention consists in forming communicating passages through the combs by means of a natural deposit of wax around a removable tapering peg, as hereinafter more fully set forth.

Referring to the accompanying drawings, the letter A indicates the outer case, which is designed to be of considerable length, as it is necessary in the spring to leave room between each swarm for the addition of surplus honey-boxes. For convenience of access the rear wall B of the case may be hinged at its lower edge to fold upward to meet the hinged top, which may be provided with a stud, *a*, to enter a recess, *b*, in the upper edge of said rear wall B to hold the two together, the fastening being locked by means of a hook, *c*, and staple *d*. Through the top C an aperture, *e*, is made, and provided with a wire-gauze or perforated lining, forming the upper ventilation. Through the front wall D of the outer case is made the entrance *g*, and above it an aperture, *h*, through which the air-tube *k* is inserted. E indicates the entrance-slide, which is adjustable to bring the main entrance *l* opposite the entrance *g* of the outer case, or to bring either the worker-entrance *m* or the valve-entrance *n* in such apposition. Above the main entrance *l* is made a narrow horizontal slit, *p*, the floor of which consists of a plate of perforated sheet metal, *r'*. This is covered with some adhesive material, and serves as the moth-trap, the bees not being able to enter the slit. The entrance *m* is

gaged to permit the passage of workers, and prevent that of the queen, and is used when a young swarm is hived for three or four days. The valve-entrance *n* is so arranged that the bees can go out of the hive, but cannot pass in. By reversing the block they are enabled to pass in, but not to go out. A hook, *q*, serves to confine the block E against the side of the case. F indicates the hive, which is located within the case A. It is composed of sections, G, which are rectangular frames, the sides *r* of which are wider than the transverse bars *s* at the top and bottom. These sections fit closely together at the sides, and are bound together by the dovetail horizontal strips *t*, which are seated in recesses of similar forms in the sides *r*. Within these frames the bees build their combs. The sides *r* extend downward and upward respectively a little beyond the lower and upper transverse bars. In this manner space is provided under the comb-frames for the passage of the bees. A space is also provided above the frames. The entrance *u* of the hive is formed by cutting away the adjacent corners of two of the sides *r* of two adjacent sections. H indicates the sides of the hive. These are rectangular boards, each centrally perforated at *v*, and provided, in its side and top edges, with dovetail notches to receive the binding-strips *t* and *t'*. The strips *t*, which extend along the ends, may be attached to one side of the hive by screws, but their other ends are designed to extend beyond the other side of the hive, and should be secured by a movable tie-rod, *w*, passed through perforations in the strips just beyond the side-board. These strips are designed to be pieced or spliced, or exchanged for longer ones when more sections or honey-boxes are added at the ends of the hives, as hereafter explained. K represents the top of the hive. This is also made in sections, *a'*, each of which corresponds to, and covers one of, the comb-sections. Transverse dovetail recesses are made in the upper surfaces of these sections to receive the binding-strips *t'*, which are usually two in number, parallel with each other, and separated by screws or studs *b'* to form a channel between. These double strips may be arranged to break joints, and thus spliced out to any extent. In the upper bars of the frames below the top sections little perforations or cups *c'* may be formed to receive feed for the bees, if the

honey should run short during the winter. L indicates a chamber, the floor of which is formed of wire-gauze. It is used in the winter, and serves to contain some dry material to absorb the breath of the bees. When it is used the sectional top K is removed. M designates a glass plate, and N a tin partition, flanged usually at the sides and top, and centrally perforated for purposes which will be hereinafter explained. Z represents a tapering peg, long enough to span three comb-sections, and serving to form central perforations in the combs, in the manner presently to be described.

During the winter season the sectional top is replaced by the absorption-chamber L.

The air-tube *k* is inserted, through the aperture in the outer case, into the aperture *h'* in the front board of the inner hive. This aperture *h'* is lined with perforated metal or wire-gauze, and serves to supply the hive with fresh air without interfering with the dead-air space R around the hive within the outer case.

It will be observed that the live-entrance is turned away from the entrance *g* of the outer case in the winter arrangement, and that the side board of the hive is pressed well up against this entrance, closing the same. When there is more than one swarm in the hive in winter the inner hives are arranged as they are in summer, the air-tube being run through the end of the outer case instead of the front. Then the hives are arranged within the case, with the smaller swarm next the air-tube, and the larger one separated from the smaller by a screen-cloth or gauze partition. In this manner the small swarm will stand the winter as well as the large one.

For the summer arrangement the inner hive is turned one-quarter around, bringing the entrance *u* thereof opposite the opening *g* of the outer case; the entrance is cleared; the absorption-chamber is replaced over the comb-frames by the sectional top, and the air-tube is taken out.

When a young swarm is hived it is advisable to use only three comb-sections, which will usually be sufficient. The bees will build their comb straight next to the left side of the hive. On the other side of the three sections is placed the tin plate. Now the short center plug, *a''*, in the board H, is removed, and the long tapering peg is put in its place, the short plug being kept for next winter. The next day after the swarm is hived put on five more comb-sections, making a whole hive of eight sections, the tin partition being between the three and the five. In the smaller division the bees will build straight next the side of the hive. The comb next the tin will also be built straight, as will the comb in the middle. Now the tin is to be taken out and moved to the right beyond one section, and a tapering peg is inserted through its central aperture. The new comb will be built straight, and when filled the tin is to be removed one section far-

ther, the peg being turned and withdrawn from the comb at the same time, thus leaving through it a central perforation. When at length the hive is full, through each of the five combs on the right a hole will be formed, and before winter the peg on the left is to be turned and withdrawn, when every comb will have a central aperture for the passage of the bees in feeding in the winter. In this manner their lives may be saved, for they will frequently starve before they will pass under the comb-frame to the next comb.

The boxes which I employ are designed to be as large as the side of the hive, although they may be made in sets of four, one-quarter this size. The outside wall is designed to be of glass, so that the condition of the box may be readily ascertained. The box may be attached to the hive by first removing the tie-rod, then, starting the side of the hive with the blade of a knife, slipping the straight tin or glass between the side of the hive and the bees, and removing the side. Then the box is put up against the tin or glass, the slats *t* are spliced or extended beyond the box, and the side of the hive replaced at the end, after which the whole is secured by inserting the tie-rod through the perforations in the ends of said slats beyond the side-board. The tin or glass having been removed, the bees have the whole side of the box to enter from the hive. When the box is full, with the slide it can be taken off and deposited in the cellar, when the bees will fly out of the window to the hive.

The pegs *z*, by which the holes are made in the combs, also serve to stay the combs in the center while they are being built, until the bees can get them fastened at the bottom and at each end.

The valve-entrance may be readily constructed by pivoting upon a transverse rod, *c''*, near the upper part of the entrance, depending hangers *b''*, pointed or bifurcated at their lower ends. These hangers are free to move in one direction when pushed by the bees, and are made in strips or sections placed side by side, so that each will be light enough for an insect to move. A stop-bar, *d''*, prevents movement in the opposite direction.

I am aware that it is not new to perforate the comb after it has been built by means of a boring instrument; hence I do not claim such invention.

What I claim as new, and desire to secure by Letters Patent, is—

The process of forming communicating passages through the combs by means of a removable tapering peg arranged for the reception of the natural deposit of wax around it, substantially as described.

In testimony that I claim the above I have hereunto subscribed my name in the presence of two witnesses.

AZRO B. BOWEN.

Witnesses:

S. A. BABBITT,
M. L. KINNEY.