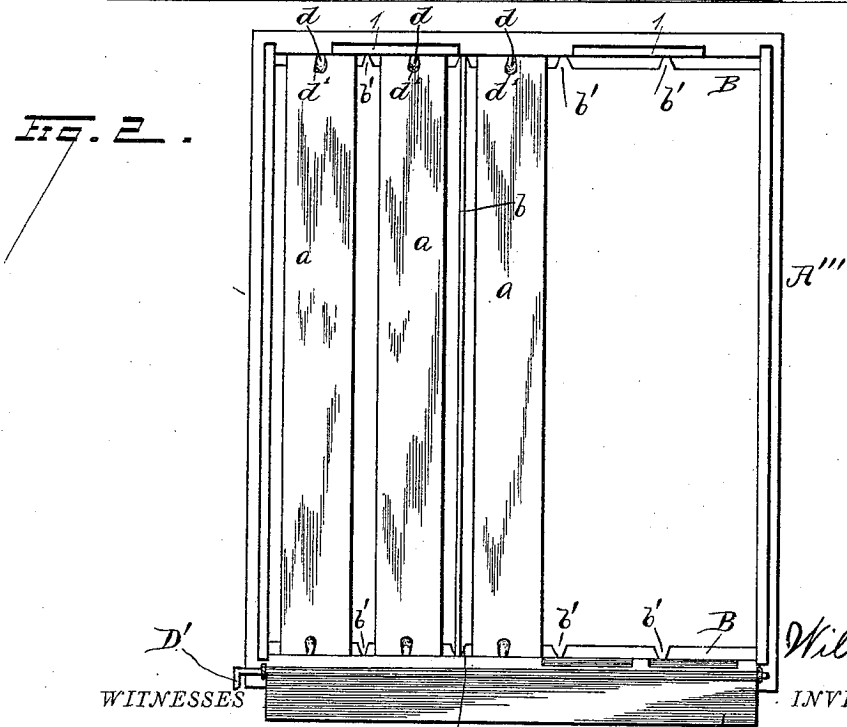
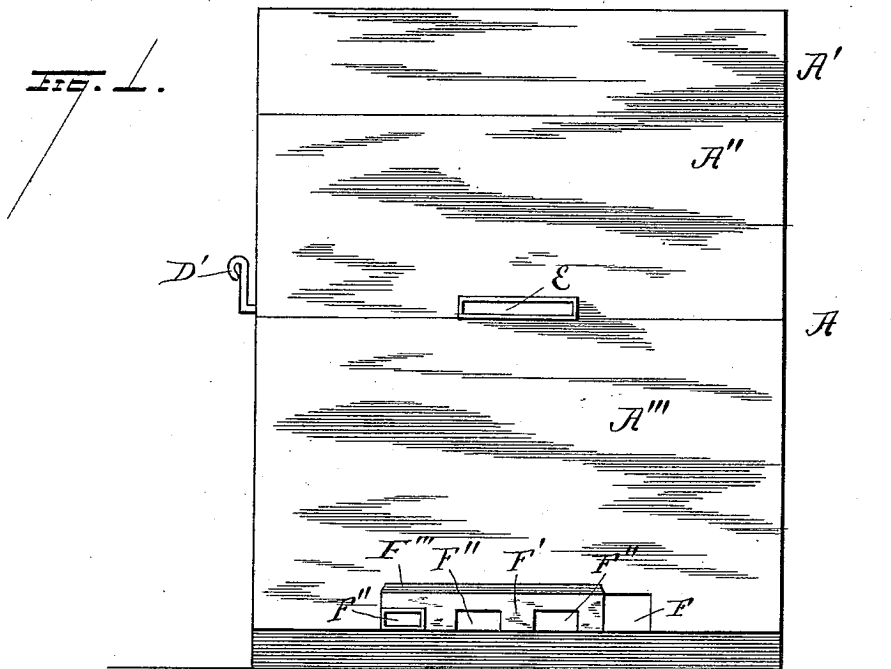


W. D. PENNOCK.
BEE HIVE.

No. 449,760.

Patented Apr. 7, 1891.



WITNESSES
W. S. McArthur
W. W. Lippitt

William D. Pennock
 INVENTOR, by
A. P. Deers
 Attorney

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FIG. 3.

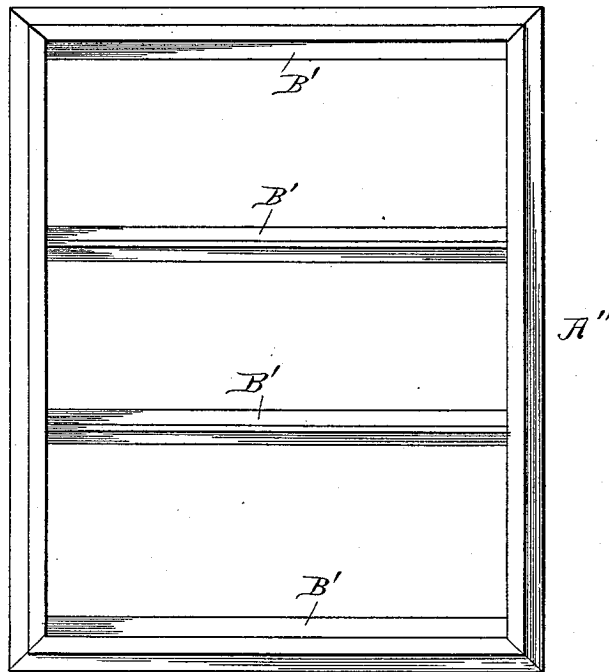


FIG. 4.

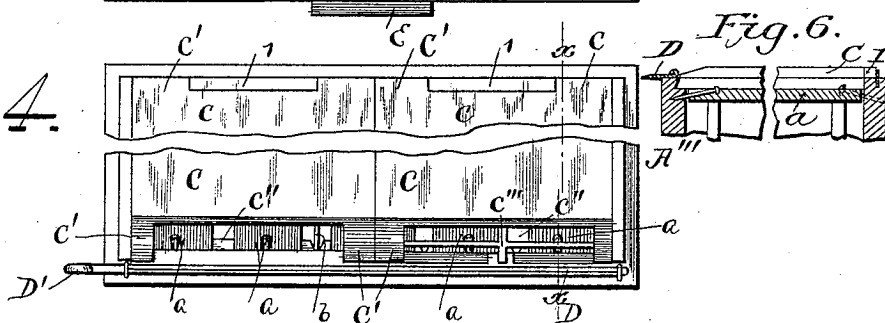
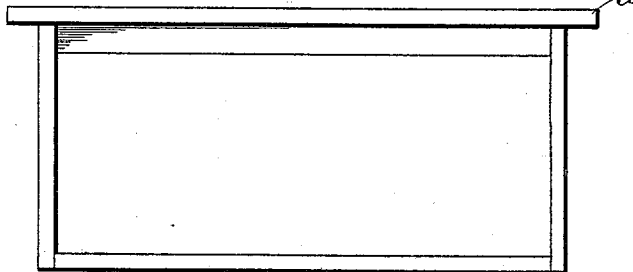


Fig. 6.



FIG. 5.



WITNESSES

W. S. McArthur

W. M. Lippitt

William D. Pennock
INVENTOR by

J. P. Seer

Attorney

UNITED STATES PATENT OFFICE.

WILLIAM D. PENNOCK, OF LONGMONT, COLORADO, ASSIGNOR OF ONE-HALF
TO EDWARD J. WILCOX, OF SAME PLACE.

BEE-HIVE.

SPECIFICATION forming part of Letters Patent No. 449,760, dated April 7, 1891.

Application filed June 7, 1890. Serial No. 354,662. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM D. PENNOCK, a citizen of the United States, and a resident of Longmont, in the county of Boulder and State of Colorado, have invented certain new and useful Improvements in Bee-Hives; and I do hereby declare that the following is such a full, clear, and exact description of the invention as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification, and in which—

Figure 1 is a front elevation of my improved hive. Fig. 2 is a top plan view of the lower section of my improved bee-hive, two of the comb-frames being removed. Fig. 3 is a top plan view of the upper section of said hive. Fig. 4 is a top plan similar to Fig. 2, the middle portion being broken away, and parts being shown in a different position. Fig. 5 is a view of one of the comb-frames. Fig. 6 is a detail sectional view on line *x x* of Fig. 4.

The same letters of reference denote the same or similar parts in all the figures.

This invention relates to bee-hives, and has for its object to provide a hive that shall possess simplicity and inexpensiveness and afford the apiarist an easy and perfect means for controlling the amount of comb that may be devoted to brood, and accordingly the amount of comb that may be filled with honey.

With these ends in view the invention consists in the improved construction, arrangement, and combination of parts, which will be hereinafter fully described, and particularly pointed out in the claims.

A designates the bee-hive, made up of a lower section *A'''* and an upper section *A''*, and having a cover *A'*. The section *A'''* is provided near the top thereof with a support B at each end, and upon these supports are suspended the several comb-frames *a*. These supports B are provided at distances apart somewhat greater than the width of the comb-frames with notches *b'* for the reception of a partition-piece *b*, preferably made of thin sheet metal. The purpose of this partition *b*

will be fully set forth hereinafter. The comb-frames are of course placed far enough apart to leave a sufficient bee-space between each two of said frames. The supports B are preferably made of sheet metal bent at a right angle, so that one flat side may be against the inside of the shell of the hive and the other project into the hive, forming a ledge or support for the ends of the comb-frames, as is clearly seen in Fig. 1. The ends of the comb-frames are slotted or sawed into at about the middle, as at *d'*, for the reception of pins *d*, (preferably common wire nails,) which are inserted into holes made in the shell of the hive just above the said supports B. Upon the tops of these comb-frames rest my honey-board C C, which is made in two portions, as is clearly shown in Fig. 4. The divided honey-board is an important feature in my hive. Each portion of this honey-board is cut away at the ends, as at *C''*, all but a small part *C' C'* at the sides, as clearly shown in Fig. 4. The cut-away portion at the rear ends receives a projection 1, extending upward from the shell of the hive to hold the honey-board firmly in its place. The cut-away portion at the front ends is for the purpose of allowing the working-bees to freely pass back and forth to and from the section *A'''* and section *A''*. This cut-away *C''* in the front ends of the divided honey-board is either made sufficiently large to permit the working-bees to pass, but to exclude or shut off the queen; or, if made so large that the queen could pass therethrough then the said cut-away is provided with a lattice-work *C'''*, as shown in the right-hand portion of the honey-board, Fig. 4, through which lattice the working-bees can freely pass, but which excludes the queen from passing therethrough. A valve or shut-off D is provided for this bee-passage up and down through the honey-board.

In Fig. 2 the valve or shut-off is shown turned outward to give a plan view of it. In Fig. 4 it is shown turned up or on edge in the position which it occupies when the bees are permitted to pass up and down freely. When it is turned backward, so as to cover the cut-away portion of the honey-board, it makes a close fit, and no bee can pass through to go

either up or down. The front of the top of the honey-board is slightly beveled so as to enable the shut-off to fit snug. There are shown two small staples in the top of the shell of section A''' for the reception of the rod on which the shut-off valve is mounted. This valve may be mounted in any suitable manner. The rod is provided with a handle D', by means of which to open or close the valve.

The upper section A'' is provided with supports B' for comb-frames. These supports are preferably of sheet metal, and are made by crimping or doubling the metal so as to make a strengthening-rib at the middle running lengthwise of said supports B'. This upper section A'' is also provided or supplied with a cone-exit or escape-hole E. I have shown this as a metallic chute or cone set into a cut-out portion of the section A''. The object of this opening is simply to furnish a means of escape to the bees from the section A'' when the shut-off D is closed down on the front of the honey-board, as will be more fully hereinafter recited. Any form of escape-opening would answer. It will be observed that the escape E is not furnished with any lighting-place for the bees, as it is not intended that they shall ever enter the hive at the opening E, whereas, as shown by the shading on Fig. 1, the bottom board of the hive projects sufficiently to furnish an ample lighting-place for the bees. In the lower front of the section A''' is made an opening F, in which is an adjustable slide F', made, preferably, of sheet metal and provided with openings F'' F''' F'''. One of these openings, as shown at the left, is furnished with a chute or cone or tube like projection. Through this cone or chute the bees may have free egress, but they cannot enter the hive thereat. Through the other openings they may have both ingress and egress. The purpose in making this slide F' adjustable is as follows: Suppose the tin partition or division board be so placed as to set off certain comb-frames. Then this slide may be so adjusted as to admit the bees to but one side of the division-board, and suppose the apiarist wishes to remove comb-frames either to examine them or to take honey, he has simply to adjust this slide so as to bring the chute or cone exit in front of that part of the hive having such honey-frames in it, and leave no ingress-opening in front thereof. The bees can at once be made to go out of the chute, but cannot return through it. Hence by removing the super and part of the sectional honey-board the apiarist can remove the honey-frames and examine them, or take honey at will without disturbing the bees or being disturbed by them. This slide rests on the bottom of the opening F and is guided by the flange F'', and may be secured in place in any well-known manner. This slide I term my "Queen Excluder Number One." The tin division-board b is to be adjusted from one set of notches b' to another

set in the comb-supports B, just as may be desired.

The hive is shown as having five comb-frames; but it may have any number, depending entirely upon the size of the hive. In Fig. 2 this division-board b is shown as placed so as to leave two comb-frames on one side of it and three on the other side. This board b may be of wood. I term it my "Queen Excluder Number Two." Thus the queen, in place of having the whole of section marked A''' in which to lay her eggs and make brood, is confined to one side of this board b, having one frame, two, three, four, or more comb-frames, just as the apiarist may choose; whereas the working-bees, having free access to both sides of this partition-board b, both at the entrances F'' F''' and over and across the tops of the comb-frames, where there is left a bee-space for the working-bees, will fill the frames on that side, from which the board b excludes the queen, with clean honey; and when it is desired to admit the bees to section A'' the apiarist turns open the valve or shut-off D to the position in which it is seen in Fig. 2, when the honey-making bees will proceed to fill said section A'' with honey, the queen being excluded, as hereinbefore stated.

Suppose now that the section A'' has been filled with honey and it is desired to take it without harming or exciting the bees to sting. It is simply necessary to turn down the shut-off or valve D, when the bees, finding themselves cut off from all access to or intercourse with the queen, will immediately rush forth from the section A'' through the "escape" or opening E, soon leaving said section A'' entirely free from bees. It is now only necessary to lift the cover A' and remove the section A''. Then a new section A'' may be replaced, the valve or cut-off opened again, when the bees will at once proceed to fill said new section with honey.

As has been stated hereinbefore, the bees cannot return through the escape, neither would they be disposed to do so, since they are entirely cut off from the queen by reason of the turning down of the cut-off on the lattice-work or cut-away front ends of the honey-board. This lattice in the front of the honey-board I term the "queen-excluder" proper.

It will be seen from what has been said that the apiarist can so handle the queen as to fully control the amount of brood that shall be produced during the season, and hence, also, to control to a large extent the amount of honey that the colony of bees shall produce; and, furthermore, it does away with all fighting the bees or smoking them in order to take their honey.

One great advantage of having the sectional or divided honey-board is the ready access which it gives to the one side of the hive in order to remove comb-frames filled with honey and to replace said frames with others

without at all disturbing the brood comb-frames and the queen, which are set off to the other side of the partition *b* and covered by the other section of the divided honey-board.

The great object of all bee-men or apiarists is to control the amount of brood, which can only be done by controlling the queen. Many hives, and all with which I am familiar, allow the queen to make brood all the season, thus reducing the amount of honey to a minimum. By the arrangement and combination of the parts in my improved hive I have been enabled to produce more than three times (three hundred per cent.) the quantity of honey the last season than I had done prior to the use of my said invention. These advantages I attain by my queen-excluders, enabling me to fully control the queen, for when not brooding honey is making, and the honey-receiving combs are by my invention kept free from brood, and are hence clean and pure, and the honey commands a higher price in market.

The two sections *A''* and *A'''*, as well as the section *A''* and the cover *A'*, are neatly joined together by having the outer half of the shell of the top edge of both sections and the inner half of the shell of the bottom edge of the upper section and of the cover cut away or rabbeted, so that wet and any foreign substance are excluded from the hive.

Another use of my queen-excluders *b* and *C C D* is this, that I am thus enabled during any part of the year (especially in the winter in the northern portions of the country) to shut up the whole colony of bees in a smaller space than the whole hive, and as the colony is often small in winter the bees do better in a small space than in a large one.

The supports *B B'* may be secured in the hive in any suitable manner.

Having thus described my invention, I claim and desire to secure by Letters Patent of the United States—

1. In a bee-hive, the combination, with upper and lower sections of a honey-board cut away at one end and having a latticed queen-excluder in said cut-away portion, of a pivoted cut-off or valve located between the sections and fitted to open and close said excluder, all substantially as described.

2. In a bee-hive, the combination, with upper and lower sections of a sectional or divided honey-board cut away at one end and having a queen-excluder in said cut-away portion, of a pivoted cut-off or valve located between the sections and fitted to open and close said excluder, as may be desired, all as and for the purposes set forth.

3. In a bee-hive, the combination of the case or shell provided with holes, comb-frames having sawed-in spaces or kerfs on the upper surfaces of their ends, and pins or nails engaging said holes and kerfs, whereby said comb-frames may be held secure, as and for the purposes set forth.

4. In a bee-hive, the combination, with a section of said hive having a suitable partition-board, of the slide herein shown and described having a plurality of ingress-openings and a single egress-opening, said egress-opening being so constructed as to exclude bees from entering thereat, whereby the divided-off portion of the hive may have the bees excluded for the examination of comb, as and for the purpose set forth.

WILLIAM D. PENNOCK.

Witnesses:

B. L. CARR,
F. P. SECOR.