

H. B. KNIGHTS.
BEEHIVE.
APPLICATION FILED JAN. 18, 1917.

1,235,576.

Patented Aug. 7, 1917.
3 SHEETS—SHEET 1.

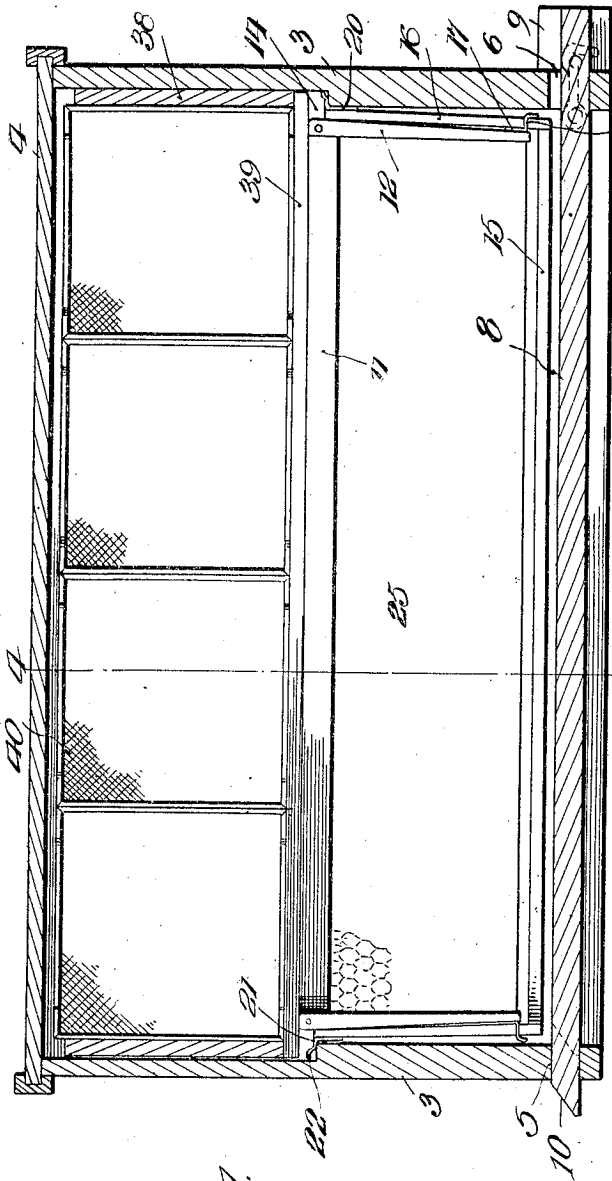


Fig. 1.

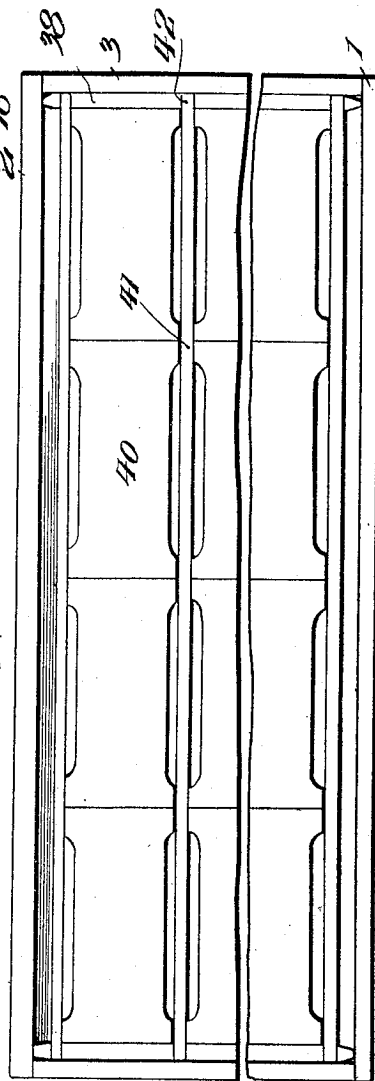


Fig. 2.

Inventor
H. B. Knights

By

H. B. Knights
Attorneys

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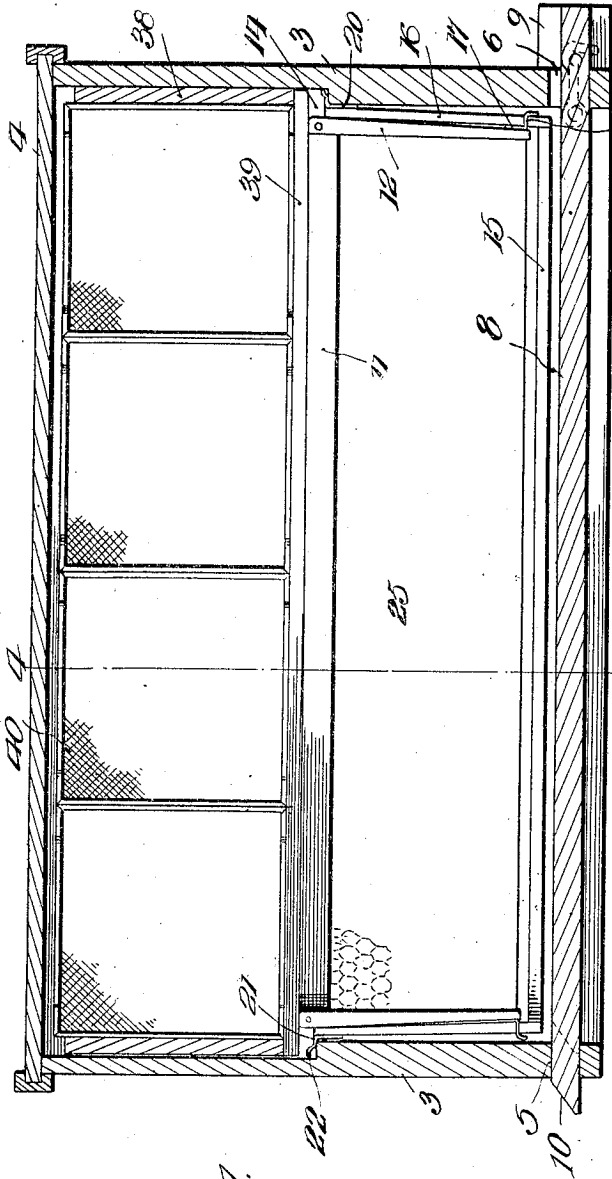


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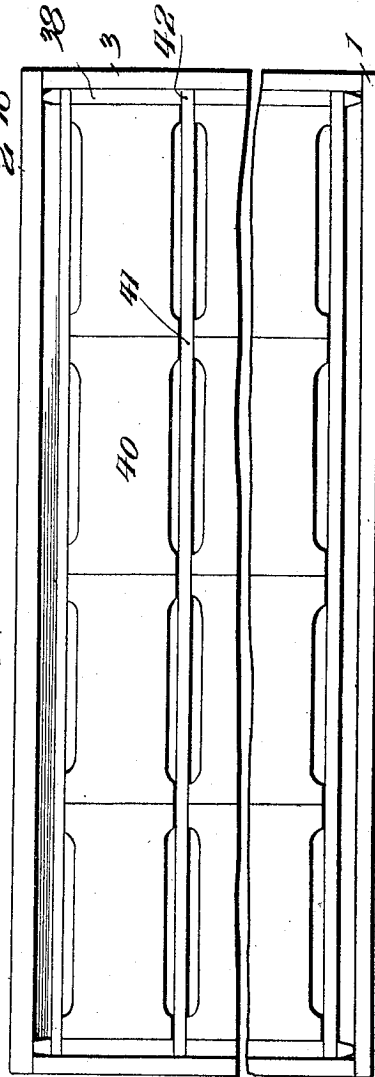


Fig. 2.

Inventor
H. B. Knights

By

W. H. H. H. H. Attorneys

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3 SHEETS—SHEET 3.

FIG. 4.

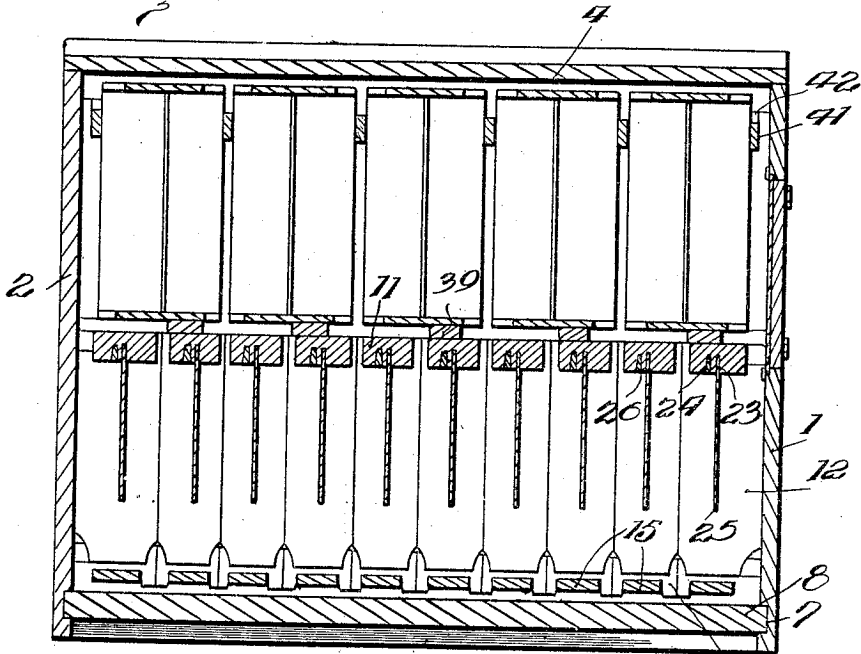


FIG. 6.

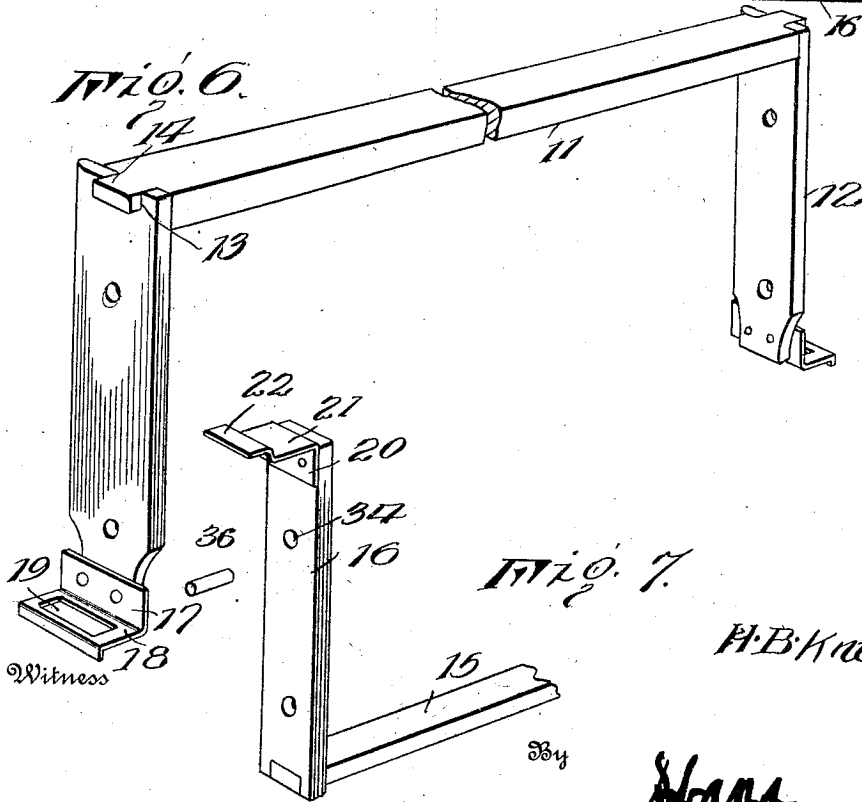


FIG. 7.

Inventor
H. B. Knights

By *H. B. Knights*, Attorneys.

UNITED STATES PATENT OFFICE.

HAROLD BURBANK KNIGHTS, OF ALBION, MAINE.

BEEHIVE.

1,235,576.

Specification of Letters Patent.

Patented Aug. 7, 1917.

Application filed January 18, 1917. Serial No. 143,174.

To all whom it may concern:

Be it known that I, HAROLD B. KNIGHTS, a citizen of the United States, residing at Albion, in the county of Kennebec and State of Maine, have invented certain new and useful Improvements in Beehives, of which the following is a specification:

This invention relates to bee-hives and it is one aim of the invention to provide a bee-hive so constructed that the same may be readily and quickly adapted for use either in the brooding season or the honey making season.

Another aim of the invention is to provide in a bee-hive a brood frame so constructed that the same may be contracted and expanded whereby in the former instance to support but a single foundation and in the latter instance to support two foundations located one above the other so that in winter the frames may be expanded and supplied with two foundations during the brooding season, and in summer the lower foundation may be removed and the frames collapsed and housed within the lower portion of the hives beneath the comb frames.

Another aim of the invention is to provide a novel means for securing the edges of the foundations in the brood frame sections.

Another aim of the invention is to provide a bee-hive so constructed as to provide for additional ventilation in the hot weather and also for an additional entrance for the bees.

In the accompanying drawings:

Figure 1 is a vertical longitudinal sectional view through the bee-hive embodying the present invention, the same being adapted for summer use;

Fig. 2 is a plan view thereof, the middle portion of the bee-hive being broken away;

Fig. 3 is a view similar to Fig. 1 illustrating the bee-hive arranged for winter use;

Fig. 4 is a vertical sectional view on the line 4-4 of Fig. 1;

Fig. 5 is a perspective view of the support for the lower foundation of one of the brood frames;

Fig. 6 is a perspective view of the upper section of the said brood frame;

Fig. 7 is a fragmentary perspective view of one end of the lower section of the brood frame.

The bee-hive embodying the present invention includes, as usual, a box-like body having a front 1, back 2, ends 3, and a removable cover 4. One of the ends 3 is formed with a transversely extending slot 5 and the other end is formed with a slot 6 and the inner faces of the front and back of the box are channeled, as at 7, to slidably receive the edges of a bottom board 8 which is slidably fitted through the slots 5 and 6, as shown in Figs. 1 and 3 of the drawings. The sliding movement of the bottom board 8 in the direction of that end of the box in which the slot 5 is formed, is limited by the provision of blocks 9 which are secured to the opposite edges of the said board at that end which projects through the slot 6 and which blocks abut against the outer face of that end of the box in which the said slot 6 is formed, for the purpose stated. It will be observed by reference to Figs. 1 and 3 that the slot 6 is of a height greater than the thickness of the bottom board and that, consequently, an opening is left for the bees. It will also be observed by reference to the said figures of the drawings that when the bottom board is in the position shown therein the end thereof opposite the end which carries the blocks 9 will fill the slot 5. However, in very hot weather when it is desired to provide for additional ventilation and it is also desirable to permit the bees to enter the hive from opposite ends thereof, the bottom board 8 may be slid to the right in the said figures of the drawings so that its last-mentioned end will occupy approximately the position shown in dotted lines in Fig. 1, and as this end is beveled, as indicated at 10, the bees may readily enter and leave the hive through the said slot 5.

Each of the brood frames embodying the present invention includes a cover section having a top bar 11 and depending side bars, which are indicated by the numeral 12, and it is preferable that the upper ends of the side bars be mortised, as at 13, to receive tenons 14 provided at the ends of the top bar, the tenons projecting beyond the outer faces of the side bars 12 provide supporting members as will presently be explained. Each brood frame further includes a lower frame section having a bottom bar 15 and upstanding side bars 16 located at the ends of the bar 15. The frame sections are so proportioned that the side bars 16 of the lower section may extend upwardly beside

the outer faces of the side bars 12 of the upper section when the two sections are assembled with the upper section received within the lower section, as, for example, as shown in Fig. 1 of the drawings. In order that the upper and lower sections of each frame may be connected for relative sliding movement so that the frame may be contracted and expanded, a guide bracket is provided at the lower end of each side bar 12 and slidably receives the corresponding side bar 16 and each of these brackets includes an attaching portion 17 and a portion 18 which extends laterally at right angles from the lower edge of the attaching portion 17 and is formed with a slot or opening 19 of a size to slidably receive the said respective one of the side bars 16. In order to limit the movement of the sections in a direction toward separation, a stop member is provided at the upper end of each side bar 16 and comprises an attaching portion 20 having an outstanding portion 21 which, in assembling the sections, is inserted through the slot or opening 19, the portion 21 preferably terminating in an upwardly and outwardly extending flange 22 to permit of ready insertion of the said member through the slots or openings 19.

In order that a foundation may be supported within the upper frame section the top bar 11 is formed in its underside with longitudinally extending parallel grooves 23 and 24 and the foundation has its edge inserted into the groove 23 and a strip 26 preferably wedge-shape in cross section is driven into the groove 24 and then secured in place by means of tacks or nails. The strip 26 is of a thickness greater than the width of the groove 24 and, consequently, when driven into place the thin wall between the grooves 23 and 24 will be sprung or crowded in the direction of the groove 23 and will firmly bind the edge of the said foundation.

In order that a foundation may be supported within the lower frame section there is provided a supporting frame, such as illustrated in Fig. 5 of the drawings, this frame including a bottom bar 27 and upstanding side bars 28 and the lower ends of the said side bars are mortised, as at 29, to receive the ends of the bottom bar 27, the mortise being of greater depth than the thickness of the said bottom bar whereby to provide downward projections 30 at the opposite sides of the mortise, which projections by engagement with the opposite edges of the bottom bar 15 of the lower frame section prevent displacement of the supporting frame for the said lower foundation. The upper ends of the side bars 28 are formed with spaced kerfs or notches 31 which receive the ends of thin wooden strips 32 which bind the edge of the lower foundation, indicated by the

numeral 33, tacks or any other suitable securing elements being driven through the strips for the purpose of securing the same together. It will now be understood that when the hive is to be used during the winter or brooding season the sections of each brood frame are relatively separated so that the frame as a whole will be expanded, as shown in Fig. 3 of the drawings. A foundation having been arranged within the upper section, the foundation supporting frame shown in Fig. 5 is disposed within the lower frame section and its side bars 28 are of such height that their upper ends will constitute a support for the lower ends of the side bars 12 of the upper frame section and, consequently, the frame sections will be held relatively separated and the upper section will be supported against downward movement. In order to further provide against disarrangement of the supporting frame for the lower foundation when the same is disposed within the lower frame section, the side bars 16 and 28 are formed respectively with openings 34 and 35 which register when the frames are assembled, and dowel pins 36 are provided and are designed to be fitted through the said openings for the purpose stated. It will be observed by reference to Fig. 3, that when the foundation frames are employed in their expanded condition they are placed side by side within the hive box with the projecting portions 21 resting upon ledges 37 provided at the opposite ends of the said box. When it is desired to adapt the foundation frames for use during the honey making season and it is desired to contract the said frames, the supporting frames for the lower foundation are removed whereupon the upper frame section may be slid downwardly with relation to the lower frame section until the projecting ends of the tenons 14 rest upon the stop members 21 whereupon the frames may be arranged side by side within the hive box in the manner shown in Figs. 1 and 4 of the drawings. When thus arranged, however, the foundation frames will occupy only the lower portion of the hive box and comb frames are arranged and supported within the upper portion of the said box.

The supporting frame for the comb frame comprises end members 38 and supporting bars 39 which extend between the said end members and connect the same in spaced relation. The comb frames of the usual construction and indicated by the numeral 40 are arranged end to end upon the bars 39 and the frames of each row are spaced from the frames of the adjacent rows by means of supporting bars 41 which are removably fitted at their ends into notches 42 formed in the upper edges of the ends 38 of the said frame. It will be understood, of

course, that upon removal of the supporting bars 41 the comb frames may be readily separated and removed.

Having thus described the invention, what is claimed as new is:

1. A brood frame for bee-hives comprising upper and lower frame sections slidably connected, and means within each frame section for supporting a foundation.
2. A collapsible and expansible brood frame for bee-hives including frame sections, and means within each frame section for supporting a foundation.
3. A brood frame for bee-hives comprising a section including a top bar and depending side bars, means upon the top bar for supporting a foundation, a lower frame section including a bottom bar and upstanding side bars, and means extending between the upper ends of the said side bars of the last-mentioned frame section for supporting a foundation.
4. A brood frame for bee-hives comprising an upper section and a lower section, means slidably connecting the sections, means within the upper section for supporting the foundation, and a foundation supporting frame removably mounted within the lower section.
5. A brood frame for bee-hives comprising an upper section and a lower section, means slidably connecting the sections, means within the upper section for supporting the foundation, and a foundation supporting frame removably mounted within the lower section and constituting means also for preventing relative sliding movement of the sections to collapse the frame.
6. In a bee-hive, a hive box provided in opposite walls with entrance openings, and a bottom for the box slidably mounted therein and occupying the said openings, one of the openings being of dimensions greater than the cross sectional dimensions of the said bottom to provide a permanent entrance and the other opening being of such dimensions as to be closed by the bottom when the bottom is in one position, the bottom being beveled at one end and slidable to position partly uncovering the second-mentioned opening whereby to afford an auxiliary entrance.
7. A brood frame for bee-hives comprising an upper section having depending side members each provided at its lower end with a loop, a lower section having upstanding side portions slidably fitted through the said loop whereby the sections are slidably connected, means within the upper section for supporting a foundation, and means removably arranged within the lower section for supporting a foundation.
8. A brood frame for bee-hives comprising an upper section having depending side portions provided at their lower ends with loops, a lower section having upstanding side portions slidably fitted through the loops, means at the upper ends of the side members of the lower section for limiting the downward movement of the said lower section, and means within each of the sections for supporting a foundation.
9. A brood frame for bee-hives comprising an upper section including depending side members, and a lower section having upstanding side members slidably connected with the side members of the upper section, means for supporting a foundation in the upper section, and a foundation supporting frame removably fitted in the lower section.
10. A brood frame for bee-hives comprising upper and lower sections slidably connected, means within the upper section for supporting a foundation, the lower section comprising a lower bar and upstanding side members, a frame including a top bar and depending side members, the said frame being designed to be removably fitted within the lower section and the lower ends of the side members of said frame being constructed to straddle the lower bar of the lower section, and means within the said frame for supporting a foundation.
11. A brood frame for bee-hives comprising upper and lower sections slidably connected, means within the upper section for supporting a foundation, the lower section comprising a lower bar and upstanding side members, a frame including a top bar and depending side members, the said frame being designed to be removably fitted within the lower section and the lower ends of the side members of said frame being constructed to straddle the lower bar of the lower section, and means within the said frame for supporting a foundation, the upper corners of the said frame, when the frame is in place within the lower section, constituting abutments for the lower ends of the side members of the upper section whereby to prevent collapse of the frame as a whole.
12. In a bee-hive, a hive box provided interiorly with oppositely located supporting ledges, a brood frame arranged within the box and comprising upper and lower sections slidably connected, means upon the upper section for coaction with the said ledges to support the said section in elevated or lowered position depending upon whether the frame as a whole is extended or collapsed, and means within each of the sections for supporting a foundation.

In testimony whereof I affix my signature.
 HAROLD BURBANK KNIGHTS. [L. S.]