

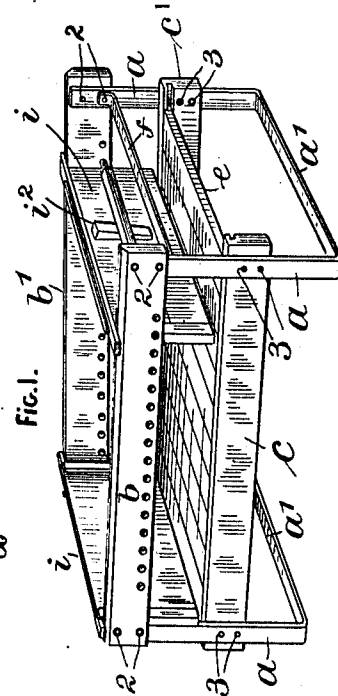
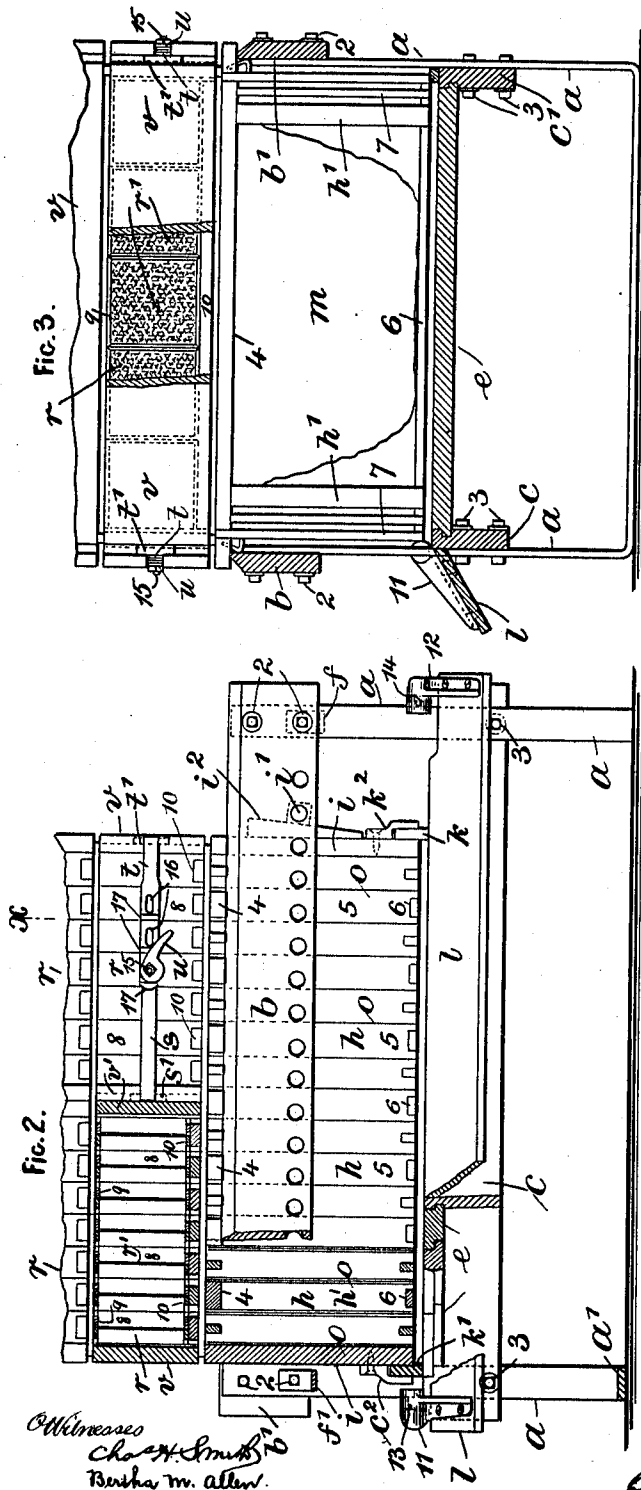
L. A. ASPINWALL.
BEEHIVE.

APPLICATION FILED JUNE 1, 1911.

1,004,335.

Patented Sept. 26, 1911.

2 SHEETS-SHEET 1.



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3 SHEETS-SHEET 2.

FIG. 7.

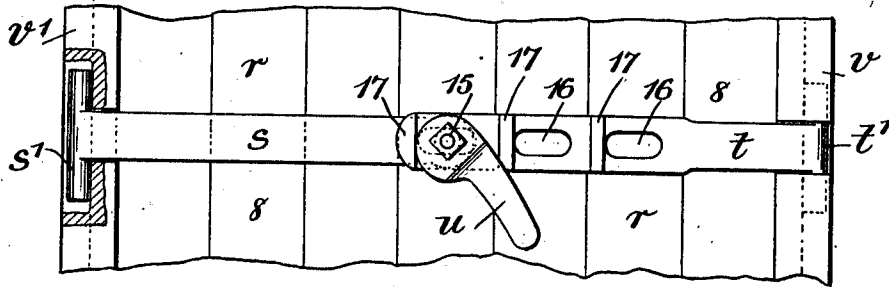


FIG. 8.

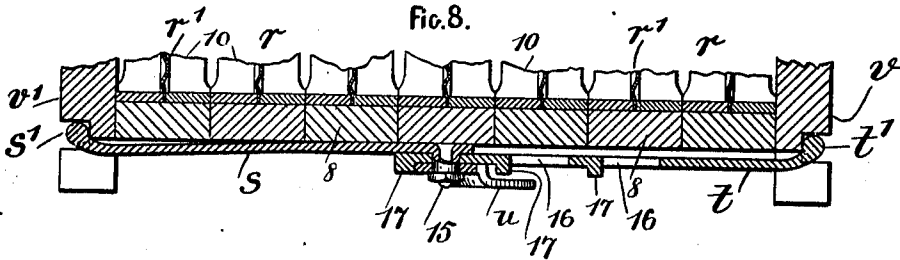


FIG. 4.

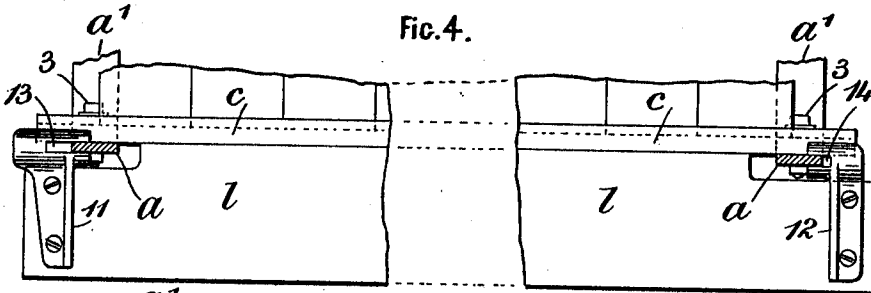


FIG. 5.

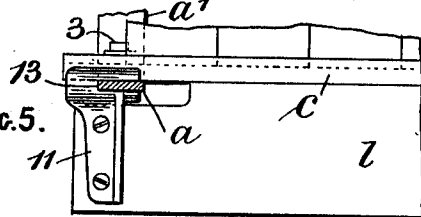
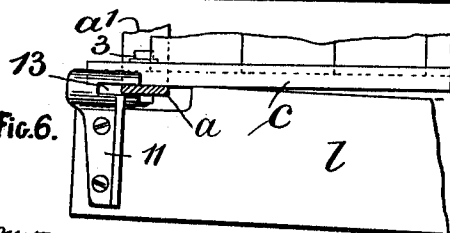


FIG. 6.



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UNITED STATES PATENT OFFICE.

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BEEHIVE.

1,004,335.

Specification of Letters Patent.

Patented Sept. 26, 1911.

Application filed June 1, 1911. Serial No. 630,634.

To all whom it may concern:

Be it known that I, LEWIS AUGUSTUS ASPINWALL, a citizen of the United States, residing at Jackson, in the county of Jackson and State of Michigan, have invented an Improvement in Beehives, of which the following is a specification.

My present invention is designed as an improvement upon the devices shown and described in Letters Patent granted to me June 23, 1908, and respectively numbered 891,583, 891,584 and 891,585, with the object of increasing the useful life, strength and convenience of the beehive and improving the manner in which certain parts are connected and held thereto and together as essential parts of the beehive structure. In these several Letters Patent certain parts were not readily removable and certain other parts were not readily removable and separable and valuable time was unnecessarily consumed in disassembling the parts, adding thereto and re-connecting the same.

In carrying out my invention, I employ U-shaped metal members to which both series of longitudinal rails and metal stays are securely fastened, and an alighting-board that is quickly put in place and supported by the said metal members and one lower rail, a construction of comb and brood frames and slatted or dummy-frames which increases the useful area for the bees and obviates certain disadvantages inherent in the devices of said patents. I further employ a bottom to the hive composed of relatively narrow removable boards in two series, ship-lapped, so as to be extensible. I further dispense with the slatted frames in the supers and make the supers double, consequently the capacity for honey is doubled and because the comb frames, dummy-frames and supers all agree in end width, the intermediate spaces for bee movements through the hive can be increased and such spaces are directly between said parts and the spaces between the supers directly above the spaces between the comb and the dummy-frames; thus not only more standing room is afforded the bees, but greater facility within and through the hive. Where a superposed series of section holders are employed these conditions also maintain. I

also employ a novel clamping device for connecting and holding the section holders together, all of which is hereinafter more particularly described.

In the drawings Figure 1 is a perspective view of the frame or rack for receiving the comb-frames, the closing boards, etc. Fig. 2 is a broken front elevation representing the rack or holder with the comb frames, supers, etc., in position. Fig. 3 is a vertical cross section at the dotted line *x, x*, of Fig. 2. Figs. 4, 5 and 6 are sectional plans of the same parts for the purpose of illustrating the alighting-board in its relation to its supports and the manner of connecting and removing the same therefrom. Fig. 7 is an elevation of the means along either end of the supers for connecting them securely together and which means are extensible to include more or less section holders together, and Fig. 8 is a longitudinal section and plan of the parts shown in Fig. 7.

Referring particularly to the perspective view Fig. 1, the U-shaped metal members are shown as each composed of the upright or vertical parts *a* located at the corners of the frame and the horizontal or base parts or bars *a'*; two of these are employed in each hive. *b b'* are the longitudinal upper rails and *c c'* the longitudinal lower rails. The upper rails come outside of the metal corner members *a* and are secured thereto by the bolts 2, while the lower longitudinal rails or members *c c'* come inside the upright corner members *a* and are secured thereto by the bolts 3. Extending across between the longitudinal lower rails *c c'* are the bottom boards *e* in series, ship-lapped at their alined edges and with the respective ends of the same with tongues received in the grooves *d d* made in the inner faces of the rails *c c'*. *f f'* are metal stays which extend across between the upper ends or adjacent to the upper ends of the upright corner metal members *a* for the purpose of holding the same together and yet spacing the same apart, and these are about on a line with the lower edges of the rails *b b'*. *h* represents the comb or brood-frame and *o* the intermediate slatted or dummy-frames; the frames *h* and *o* alternating through the hive. These latter

slatted or dummy-frames *o* like the structure shown and described in my Patent No. 891,584 are each formed of top and bottom bars, end bars and slats; the top bars being of sufficient length to rest over the upper rails *b b*¹ so that these frames *o* are supported from the rails *b b*¹. The comb or brood-frames *h* are constructed very similar to the same frames shown and described in the aforesaid patent to myself, except in one particular. These frames *h* are each provided with a top bar 4, vertical end pieces 5, a bottom strip 6 and slats 7, and the top bars 4 are sufficiently long to substantially agree with the top bars of the dummy-frames *o* and extend over, rest upon and be supported by the upper rails *b b*¹. These frames *h*, however, differ from the frames of my aforesaid patent in being provided with wide slats or uprights *h*¹ which come at opposite ends of the brood-combs *m*, for the reason that experience has shown that where there is not sufficient storage room in the brood-combs, small bits of comb are frequently made in each space nearest or adjacent to the brood-combs. Therefore to prevent this tendency on the part of the bees, I have provided the wider slats *h*¹ which close off at least the one space heretofore employed by me next to the brood-comb and obviate the bee tendency to form small bits of comb,—as it were,—compelling the bees to center their energies on the formation of comb in the supers.

As in my aforesaid patents, I employ closing-boards *i* on the opposite ends of the series of comb or brood-frames and slatted or dummy-frames. These closing-boards are held in position by the locking bar *i*¹ at one end which is formed with round ends adjustable in the openings in the rails *b b*¹ and between which locking-bar there is a wedge *i*²; the series of frames *h* and *o* at the other ends resting against the end of the frame or rack composing the hive. As in said patents, at the lower edges of the closing-boards I employ closing strips or pieces *k k*¹ and metal buttons *c*² *k*² connected by screws to the outer faces of the closing-boards and coming over the closing strips to hold the same in position.

As in my aforesaid patents, I employ an alighting-board but the alighting-board of the present invention is quite different from that shown in the aforesaid patents. The alighting-board of said patents is connected by means of bolts with nuts which pass through one of the lower rails. These bolts and nuts would rust and often be difficult to disconnect and remove, so that after a lapse of time it was not only difficult to get at and remove these alighting-boards but considerable time was wastefully consumed. The alighting-board *l* of my present invention is quickly applied and is quickly re-

moved and should there be any rust, a blow from a hammer will break the same so that the alighting-board is readily removable. This alighting-board is provided at the respective ends with brackets 11, 12, which are reversed in position and form and each of which is provided with slotted rounded portions forming jaws. In the bracket 11 there is a long slot 13 and in the bracket 12 there is a short slot 14. These slots are open-ended and the circular jaws of the construction are provided for strength.

Fig. 4 represents the alighting-board in position in which the outside edges of the upright corner metal members *a* are received in the slots 13, 14, and the alighting board is held by these open ended parallel-sided slots in an inclined position in which the forward edge comes against the surface of the lower rail *c*. Fig. 5 represents a position in which this alighting-board has been moved fully to the right hand side preliminary to removing it from the hive. After this movement the right hand end of the alighting-board is drawn forward and the board moved to the left hand past the position in Fig. 6, until free. To attach the same to the hive the reverse action is employed; first the position of Fig. 6, then the position Fig. 5, and a movement to the left, Fig. 4, will bring the parts into the relation there shown.

In my patent aforesaid No. 891,585, I have shown supers with intermediate or intervening slatted frames and tie-rods running through projecting closing-boards to hold the same together. In this patent it will be noticed that the section holders are substantially the same width as the comb or brood-frames and that the slatted frames are substantially the same width as the slatted or dummy-frames between the comb-frames. In this device the freedom of the bees moving in the hives is restricted.

In the device of my present invention, the brood-frames *h* and the slatted or dummy-frames *o* are of the same width. This consequently makes it possible for me to double up the supers, or in other words, to use additional section holders. This, of course, increases the available bee space in the wider slatted or dummy-frames.

In my present invention I prefer to employ the section honey boxes and the frames or holders therefor shown and described in my application for Letters Patent filed April 3, 1911, Number 618,564, and duly allowed May 5, 1911, for the reason that these employ my improved comb foundation and the frames at the ends thereof are all of the same width and of a width which corresponds with the comb-frames and dummy-frames and the upper or lower members of which are narrower than the end members; consequently the spaces between the comb

or brood frames and the slatted or dummy-frames agree in parallel vertical planes with the spaces between the sections, consequently there is free access for the bees on the comb and dummy-frames up into the supers, and where a second tier of supers are placed or superimposed on top of the first or lower tier of supers these same advantageous spaces are also employed in the same vertical planes. These sections *r* as shown, are each composed of end members 8 and top and bottom members 9 and 10 that are narrower; *r*¹ representing the comb foundation in these supers.

I have shown and advantageously employ in connection with the supers the end closing-boards *v* and the center or intermediate closing-boards *v*¹ and these boards are each preferably of half the thickness of the comb and dummy-frames so that when in position, the section holders containing the sections are divided into two groups for connection by my improved clasp fastener. Each of these clasp fasteners comprises a bar *s* with a T-head *s*¹ and a bar *t* with a T-head or end *t*¹. These bars overlap at the center, one of them being provided with an eccentric lever *u* connected by a bolt stud 15 and the bar *t* is provided with spaced slotted holes 16 and surface-bearing lugs 17. This construction is particularly shown in Figs. 7 and 8 in which it will appear that the end and intermediate closing-boards are longer than the section holders, and from Fig. 3 it will appear that they are about as long as the top members of the comb and dummy-frames, and these end closing-boards and intermediate closing-boards are cut through at the ends and recessed on the backs; the parts cut through receiving the ends of the bars *s* and *t* and the recesses or grooves on the back receiving the T-heads; consequently the T-heads of said bars are given a firm seat and when the bars are connected as shown in Figs 2, 7 and 8, tension will be applied by swinging the eccentric lever *u* so as to bring the ends of the super frames tightly together, and secured by a check nut.

By the use of the double supers hereinbefore described, without either slatted or plain separators, I am enabled to double the capacity for honey sections, that is to say, it is usual to employ thirty-five sections and by my present improvement I am enabled to employ seventy sections in the first instance, which are placed upon the hive, and this doubles the storage capacity and at the same time also entirely eliminates the tendency of the bees to swarm. Furthermore, by tiering the supers, or in other words, placing a superposed series of sections, one hundred and forty sections may be placed upon the hive. It will also be observed that ample standing room is afforded the bees by the increased comb surface which is also a work-

ing surface, and the sections, in lieu of separators, are arranged above the slatted frames, affording spaces which are in alinement with those below, that is, in the hive body. This perfect alinement I have found to be a great factor in producing sections of honey combs which are even in thickness and with level or smooth surfaces without the use of separators. The perfect alinement affords equal passage-ways for the upward movement and distribution of warmth above, which is essential in maintaining uniform comb building. Furthermore, the supers being arranged double may be reversed at pleasure either when tiering or when the sections are one-half or two-thirds completed. This reversal brings the central combs to the outer sides. The inside or center of the hive being the warmest the comb building naturally progresses more rapidly there than at the two outer sides where there is less warmth, and by reversing or turning the supers around, the sections with comb building least advanced are brought over the central or warmest locality where the work is carried on more rapidly, resulting in completed sections throughout the supers in about an equal period of time.

While perfect alinement is advantageous and is productive of an increased product of honey in a given space of time, I do not limit myself to this perfect alinement.

The advantages to be derived from supers arranged in pairs are three-fold, namely, the elimination of separators, the control of swarming of the bees and the uniform completion of sections on both sides of the supers. This is accomplished as generally hereinbefore stated, by reversing the supers so as to place the outer sides at the center and the centers at the outer sides and the outer sides being brought to the center where the temperature of warmth of the colony is the highest.

I claim as my invention:

1. In a beehive the combination with suitable upright corner members, of an alighting-board, devices secured to the opposite ends of the alighting-board and adapted for a removable connection to said corner members and for support therefrom.

2. In a beehive the combination with upright corner metal members, of an alighting-board, brackets similar in construction but reversed in position secured thereto and provided with slotted members or jaws which are adapted to engage progressively with the said upright corner metal members in connecting the alighting-board therewith for support.

3. In a beehive the combination with upright corner metal members, of an alighting-board, brackets similar in construction but reversed in position secured thereto and provided with slotted members or jaws, the slot

in one of which is longer than the slot in the other, which are adapted to engage progressively with the said upright corner metal members in connecting the alighting-board therewith for support.

4. In a beehive the combination with a suitable frame structure, of a series of comb or brood frames each comprising a top-bar, bottom strip, vertical end pieces, wide slats or uprights adapted to come at the edges of the brood comb and narrower slats between the wide slats and the vertical end pieces.

5. In a beehive the combination with a suitable frame structure and series of comb or brood frames suspended therein, of supers arranged in at least two similar connected series, the meeting edges of the supers being approximately over the center of the hive, thus adapting the supers to be reversed or turned around so that the central portions are brought at the ends and the ends at the center, substantially as herein shown and described.

6. In a beehive the combination with a suitable supporting frame structure, of series of comb or brood frames and intermediate series of slatted or dummy-frames, the slatted frames for the purpose of increasing bee space in the hive being equal in width with the comb frames.

7. In a beehive the combination with a suitable supporting frame structure, of series of comb or brood frames and intermediate series of slatted or dummy-frames, the slatted frames for the purpose of increasing bee space in the hive being equal in width with the comb frames, and series of section holders adapted to be mounted upon the comb and slatted frames of the hive and all of which section holders are alike and agree in width with the width of the slatted frames and comb frames so that corre-

sponding bee spaces exist between the several frames in parallel vertical planes.

8. In a beehive the combination with a series of section holders, of end inclosing boards, the respective corners of which are notched and recessed and adjustable tension strap members having T-head ends adapted to pass through said recesses and into said slots for holding the series of section holders comprising the supers, together.

9. In a beehive the combination with a series of section holders, of end inclosing boards, the respective corners of which are notched and recessed, fastening devices consisting of suitable bars in pairs having T-head ends adapted to pass through said notches and into said recesses, one of said bars having series of slotted holes and bearing lugs and the other of said bars provided with an eccentric lever, the edge of which is adapted to bear upon one of the bearing lugs of the companion bar, whereby tension may be applied to the fastening devices for the series of section holders and said series held securely by a check-nut as a unit.

10. In a beehive the combination with a series of section holders and end inclosing boards, of fastening devices for said holders each consisting of a pair of bars one of which has a series of slotted holes and bearing lugs and the other an eccentric lever, the edge of which is adapted to bear upon one of the lugs of the other bar whereby tension may be applied in connecting the section holders, a nut for securing the same and means at the ends of such bars for engaging the ends of the inclosing boards.

Signed by me this 27th day of May 1911.

LEWIS AUGUSTUS ASPINWALL,

Witnesses:

C. G. ROWLEY,

GEO. N. WHITNEY.