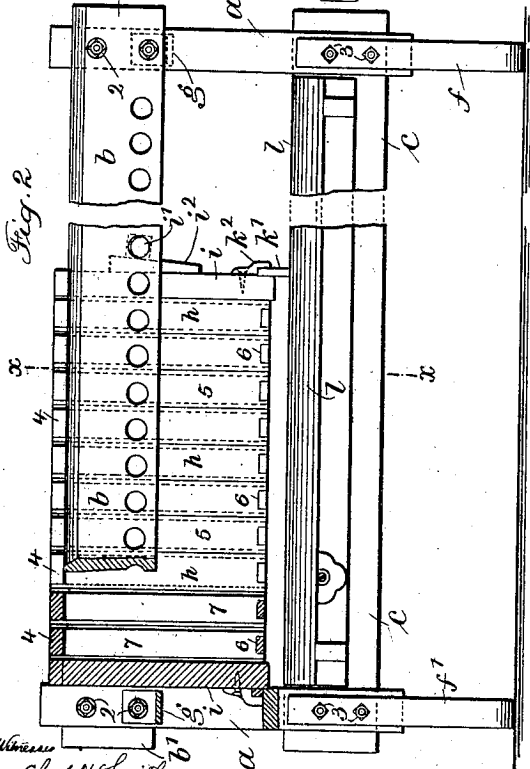
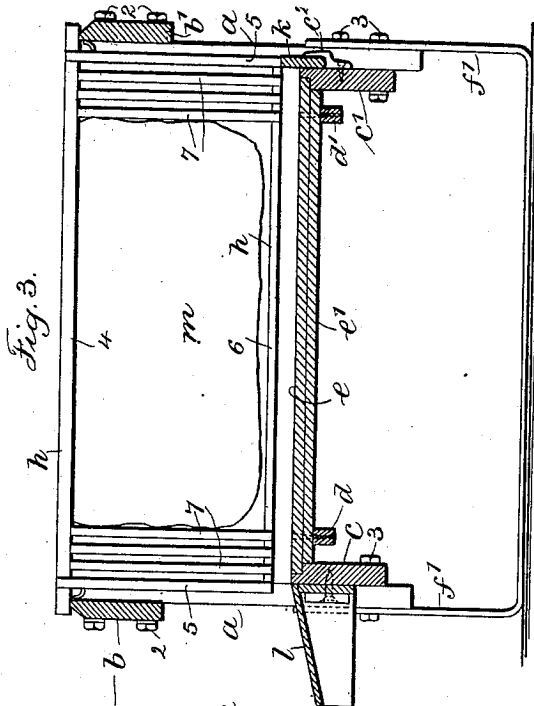


No. 891,583.

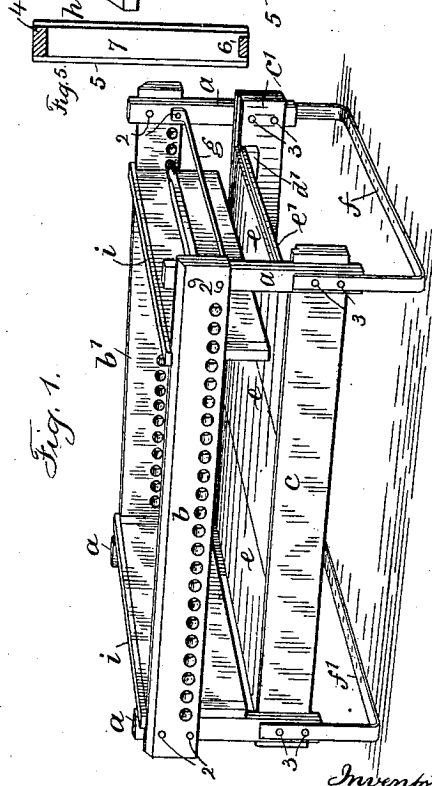
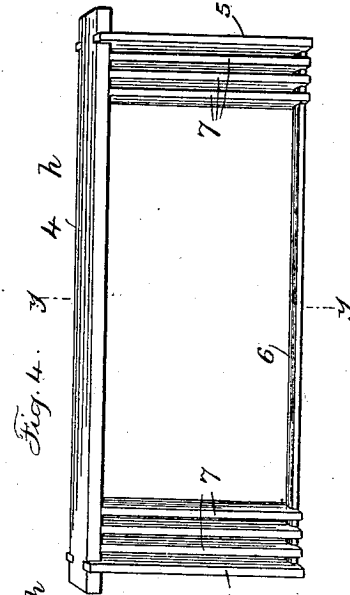
PATENTED JUNE 23, 1908.

L. A. ASPINWALL.
BEEHIVE.

APPLICATION FILED FEB. 3, 1908.



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UNITED STATES PATENT OFFICE.

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BEEHIVE.

No. 891,583.

Specification of Letters Patent.

Patented June 23, 1908.

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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 March 14, 1893, No. 493,466 and July 10, 1900, No. 653,331.

In the latter of these patents the hive-body or frame-holder was constructed of parts secured and fixed together and not readily separated or knocked down for shipment, whereas in the device of my present invention the hive-body or frame-holder is more of a skeleton and composed of separable parts in the nature of a rack for the comb-frames, closing boards, etc., and the separable parts favor small packages for shipment.

In my former patent No. 493,466, the end pieces or uprights of the comb-frames were constructed to be set at an inclination from the perpendicular, with the object of preventing liability of killing bees in moving or changing the comb-frames, but this desired advantage did not fully materialize.

In the device of my present improvement, the comb-frames are made with slatted ends and the central part of these frames is reserved for the combs; the slats come between the central part and the frame ends. The ends of the comb-frames are wider than the intermediate slats and when set up their edges touch, thus leaving spaces between the edges of the respective slats of adjacent frames. I find that this construction of the comb-frames insures the frame-ends being free of bees as they recede from these ends toward the combs; consequently the frames can be moved laterally and shifted; removed or receive other attention without liability of killing bees. This construction is simpler than the inclined ends of my former patent and the construction of the hive-body of my present improvement is simpler and lighter and better adapted for transportation than the hive-body of my former patents.

In the drawing, 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 etc., in

position. Fig. 3 is a vertical cross section at the dotted line x, x , of Fig. 2. Fig. 4 is a perspective view of one of the comb-frames separate and Fig. 5 is a cross section at y, y , of Fig. 4.

Referring particularly to Fig. 1, the rack or holder for the comb-frames is composed of four upright end or corner members a , two longitudinal members $b b^1$ serving as supports for the comb-frames and which are preferably formed with a row of spaced apart perforations near the lower edges; said frame members being connected to the upright end-members a by bolts 2.

$c c^1$ represent longitudinal pieces or members secured to the upright end-members a by bolts 3. The members $b b^1$ are against the outer faces of the end-members a , while the longitudinal members $c c^1$ come against the inner faces of the members a .

The inner upper edges of the members $c c^1$ are rabbeted to receive and support the series of bottom boards e, e^1 which are cleated to prevent warping as shown at $d d^1$. These boards are preferably ship-lapped so that when placed together they form a close joint upon the lapped surfaces, even if they shrink slightly in width.

The rack or frame-support of my improved beehive is carried in an elevated position above the ground by the bent metal supports $f f^1$, the free ends of which are bolted to the upright corner members a by the bolts 3 which are the same bolts that securely hold together the upright end-members a and the longitudinal members $c c^1$. These metal supports extend across from one upright to the other, constituting a bearing for their entire width on the ground and at the same time serving to hold together and to determine the relation of the upright end-members a .

I have shown and prefer to employ in connection with the metal support members $f f^1$ the metal stays g which extend across between the upright end-members a at the height of the longitudinal frame-members $b b^1$. In fact, the lower bolts 2 of the series of bolts connecting the members $b b^1$ and the members a also secure the metal stays g in position.

The comb-frames are represented at h and I prefer to employ as shown in my former patent No. 653,331, closing boards i and a locking bar i^1 with round ends to pass into the round openings in the frame members

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$b b^1$ and a wedge i^2 which comes between said locking bar and the closing board adjacent to the first of the series of comb-frames.

I have shown and prefer to employ closing strips $k k^1$ held in position against or adjacent to the lower edges of the comb-frames and closing board i by the metal buttons $c^2 k^2$, these closing strips serving to shut off access at the back of the hive so as to leave an open space below the series of comb-frames and adjacent to the alighting board l , (see Figs. 2 and 3.)

Each comb-frame h is composed of a top bar 4, vertical end pieces or members 5 which are of slightly greater width than the top bar 4; a bottom strip 6 which is considerably narrower than the top bar 4, and slats 7 that are of the same width as the top bar and are spaced apart as desired from the vertical end pieces or members 5 so as to leave as shown in the drawing, quite an appreciable center space in which to place and to which to attach the brood combs; the ends of the top bar 4 overhang the end pieces 5 so as when the comb-frame is in position the same rests upon the upper edges of and between the longitudinal frame members $b b^1$, which also enables the operator to handle the free ends when no bees are found.

The brood combs m which are in the comb-frames h between the slats 7 are of usual character and well-known in this art.

In the device of my present improvement as in the device of my patent #653,331, the various frames are suspended between and upon the longitudinal frame supports $b b^1$ and come between the closing boards i which are at the sides of the hive or frame-holder and close up the sides of the first and last comb-frames. Any number of comb-frames desired may be suspended in this manner by the overhanging ends of the top bars 4 until the locking-bar i^1 is placed in the last hole of the rows of holes in the longitudinal members $b b^1$ and the closing board i is placed closely adjacent to the same.

From the foregoing description it will be noticed that when the several comb-frames are thus placed in position that their respective vertical end pieces 5 come in contact near the inner faces of the longitudinal members $b b^1$; (Fig. 2) that their top bars 4 come nearly together, that is, leaving about a liberal bee space between them, and that at the bottom of the comb-frames the bars 6 which are narrower are still further apart, leaving ample room along said bottom strips for the bees to enter from beneath; such room as will not interfere with a free and unrestricted movement of whatever number of bees are occupying the hive. Furthermore, it will be apparent that there is a similar liberal space also between the respective adjacent faces of the brood combs, and it will also be apparent that the vertical slats 7 which are equal in

width with the top bars also leave bee spaces between their adjacent edges and liberal spaces between their respective inner faces, for the passage of the bees through the hive from one side to the other; and it will be further apparent that because of the increased width of the vertical end pieces 5 over the bottom bars 6, the slats 7 and the brood combs m , that the bees that occupy the respective comb-frames will be inside of the limits of the widths of these strips 5; therefore any comb frame can be lifted from the hive and transferred to another hive or be changed in its relation to other comb-frames in the same hive without the risk of bringing the bees into contact, or of the bees getting over upon the edges of these pieces 5. Therefore in changing the comb-frames in any way there is no liability of the bees getting between the edges of the strips 5 where they could be killed or injured. This is a distinct advantage over the devices of my former patents, for it is a fact that the tendency of the bees is to cling to and cover the comb structure and the adjacent slats and not to get as far out on the frames as the vertical edges 5, so that the ends are free for closing immediately after being separated and within the shortest time required for such an operation. The further tendency of the bees is to cover and protect the combs when they realize a contemplated movement of the same, thus they are drawn away from the edges of the frames that meet in the hive and such bees as do not cover the combs are upon the adjacent slats, and by this construction I am enabled to dispense with any inclined frame structure such as I have shown and described in my former patent 651,331, and at the same time the expense that is inseparable from such a construction. Furthermore, the frames of my present invention being not only alike but the same upon both faces, may be reversed, which is some times desirable. I am furthermore, by the device of my present invention enabled to dispense with the permanent side to the hive and I am enabled to employ the closing boards $k k^1$ thus simplifying the construction.

I claim as my invention:

1. In a beehive, a hive frame composed of series of longitudinal members, upright members and metallic support members and bolts for connecting the same so that the parts are readily separated for transportation.

2. In a beehive, a hive frame composed of upright end members, longitudinal frame supports $b b^1$ and longitudinal frame pieces $c c^1$, bolts for connecting the same and metal supports or trusses in the form of an expanded U, the free ends of which are bolted to the upright end members, the structure permitting of ready separation for transportation.

3. In a beehive, a hive frame composed of

the upright end members *a*, the longitudinal frame supports *b b'*, each having spaced apart series of perforations near their lower edges, the longitudinal frame pieces *c c'* below the supports *b b'* with the latter against the outer surfaces of the uprights and the pieces *c c'* against the inner surfaces of the uprights, bolts for connecting the longitudinal members to the upright members, the metal supports *f f'* to rest upon the ground, connected at their free ends by the same bolts that connect the longitudinal pieces *c c'* to the uprights *a*, and the lapping cleated bottom boards *e e'* and the metal stays *g*.

4. In a beehive and in combination with the longitudinal frame supports *b b'*, of a series of comb-frames each composed of a top member, or bar, vertical end pieces that are wider than the top bars, a bottom bar or strip that is narrower than the top bar and series of spaced apart vertically disposed slats adjacent to the vertical end pieces and which are of the same width as the top bar.

5. In a beehive and in combination with the longitudinal frame supports *b b'*, of a series of similar comb-frames adapted to be supported upon the upper edges of the members *b b'* and each provided with vertical end pieces which come into contact when the comb-frames are arranged in the hive, said comb-frames being provided with a central space for the brood combs between which and each of the end pieces there are a series of slats.

6. In a beehive and in combination with the longitudinal frame supports *b b'*, of a series of similar comb-frames adapted to be supported upon the upper edges of the members *b b'* and each provided with vertical end pieces which come into contact when the comb-frames are arranged in the hive, an overhanging top member and with a central space for the brood combs between which and each of the end pieces there are a series of slats, a bottom bar to each comb-frame, a series of slats which are wider than the bottom bar but not so wide as the vertical end pieces, thus leaving between the respective comb-frames, bee spaces between the adjacent edges of the slats and top bars.

7. In a beehive and in combination with suitable frame supports, of a series of similar comb-frames each having top bars with projecting ends to extend over and be supported by the frame members *b b'* and contacting side strips and closing boards to the respective comb-frames whereby the sides and ends of the series of comb-frames are effectually closed in.

8. In a beehive and in combination with suitable frame supports, of a series of similar comb-frames each having top bars with projecting ends to extend over and be supported

by the frame members *b b'* and contacting side strips and closing boards to the respective ends of the comb-frames whereby the series of comb-frames are effectually closed in, a bar adapted to be supported in an adjustable relation to and by the longitudinal frame members and a wedge coming between said bar and one of the follower-boards.

9. In a beehive and in combination with the longitudinal frame support members *b b'*, closing boards and devices connected to and extending between the support members for holding the parts in position, of a series of comb-frames each having top bars prolonged to extend over the upper edges of and be supported from the frame-supports *b b'*, vertical end pieces adapted to come in contact in the hive and which are wider than the top member, bottom members or bars which are narrower than the top bar and series of slats at the respective ends of the comb-frames which are narrower than the vertical end pieces or members, whereby the hive is closed on the front and side, but is open at the top and open to a greater extent at the bottom of the hive for the free ingress of the bees.

10. In a beehive and in combination with the longitudinal frame support members *b b'*, closing boards and devices connected to and extending between the support members for holding the parts in position, of a series of comb-frames each having top bars prolonged to extend over the upper edges of and be supported from the frame supports *b b'*, vertical end pieces adapted to come in contact in the hive and which are wider than the top bar, bottom members or bars which are narrower than the top members and series of slats at the respective ends of the comb-frames which are narrower than the vertical end pieces or members, whereby the hive is closed at the front and ends but is open at the top and open to a greater extent at the bottom of the hive for the free ingress of the bees, and closing strips *k k'* and means for removably securing the same to the closing boards and comb-frames so as to limit the entrance to the hive for the bees.

11. In a hive and in combination with suitable comb-frames, the closing boards and closing strips, of the longitudinal pieces or members *c c'* rabbeted along their inner edges, a series of cleated bottom-boards *e e'* supported the one against the other upon the rabbeted upper edges of the members *c c'*, thus providing a secure, removable and interchangeable structure for the base below the series of comb-frames.

Signed by me this ninth day of Jan. 1908.

LEWIS AUGUSTUS ASPINWALL.

Witnesses:

C. G. ROWLEY,
GEO. N. WHITNEY.