

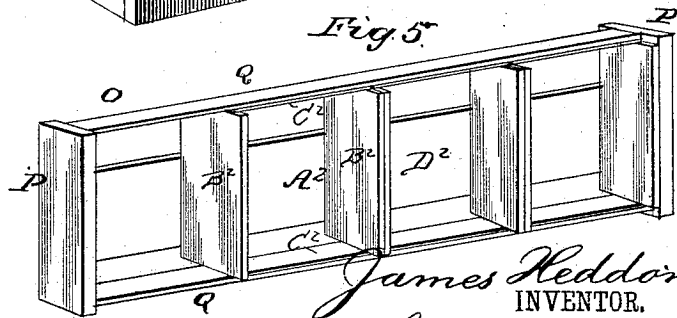
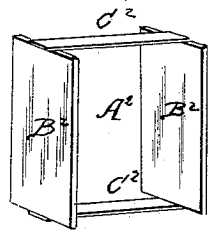
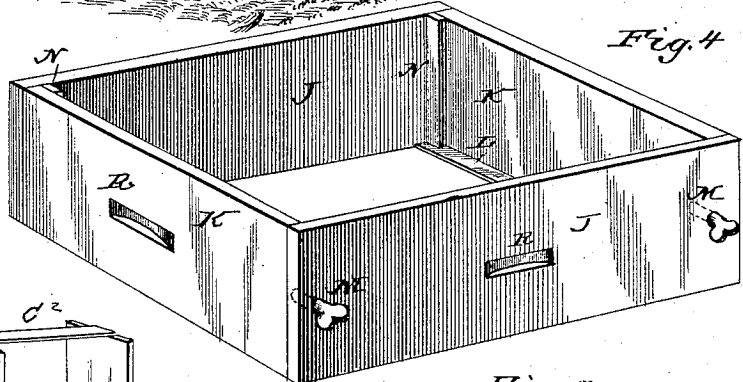
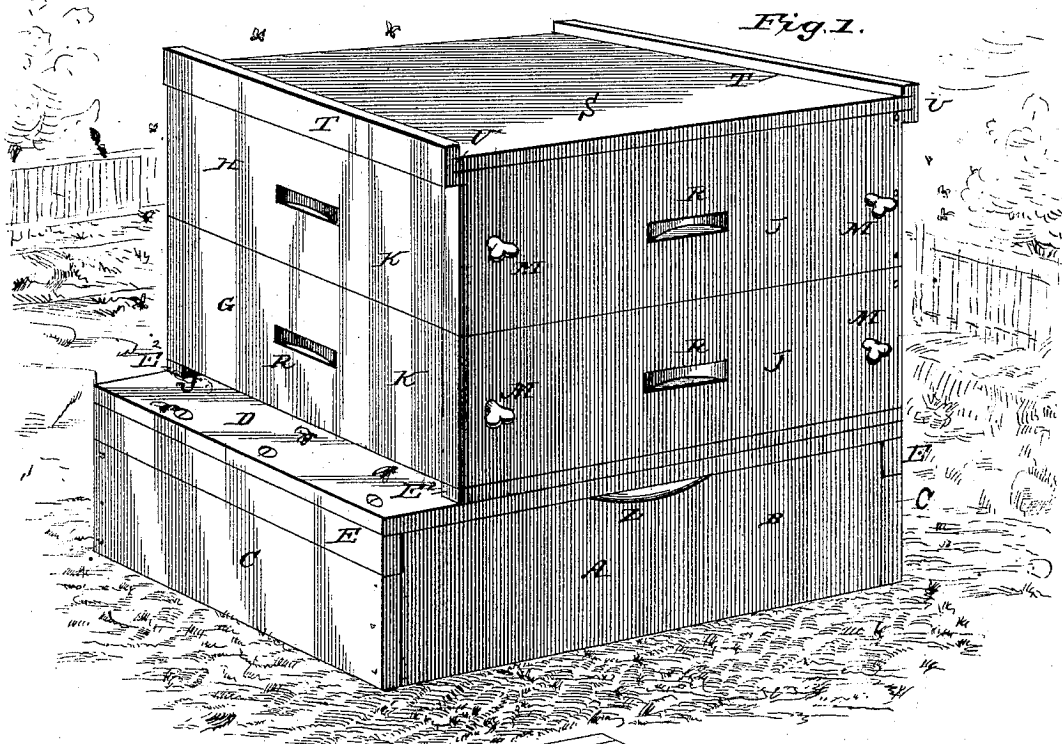
(No Model.)

2 Sheets—Sheet 1.

J. HEDDON. BEE HIVE.

No. 327,268.

Patented Sept. 29, 1885.



WITNESSES:

Wm. L. Dieterich,
Wm. Baggers

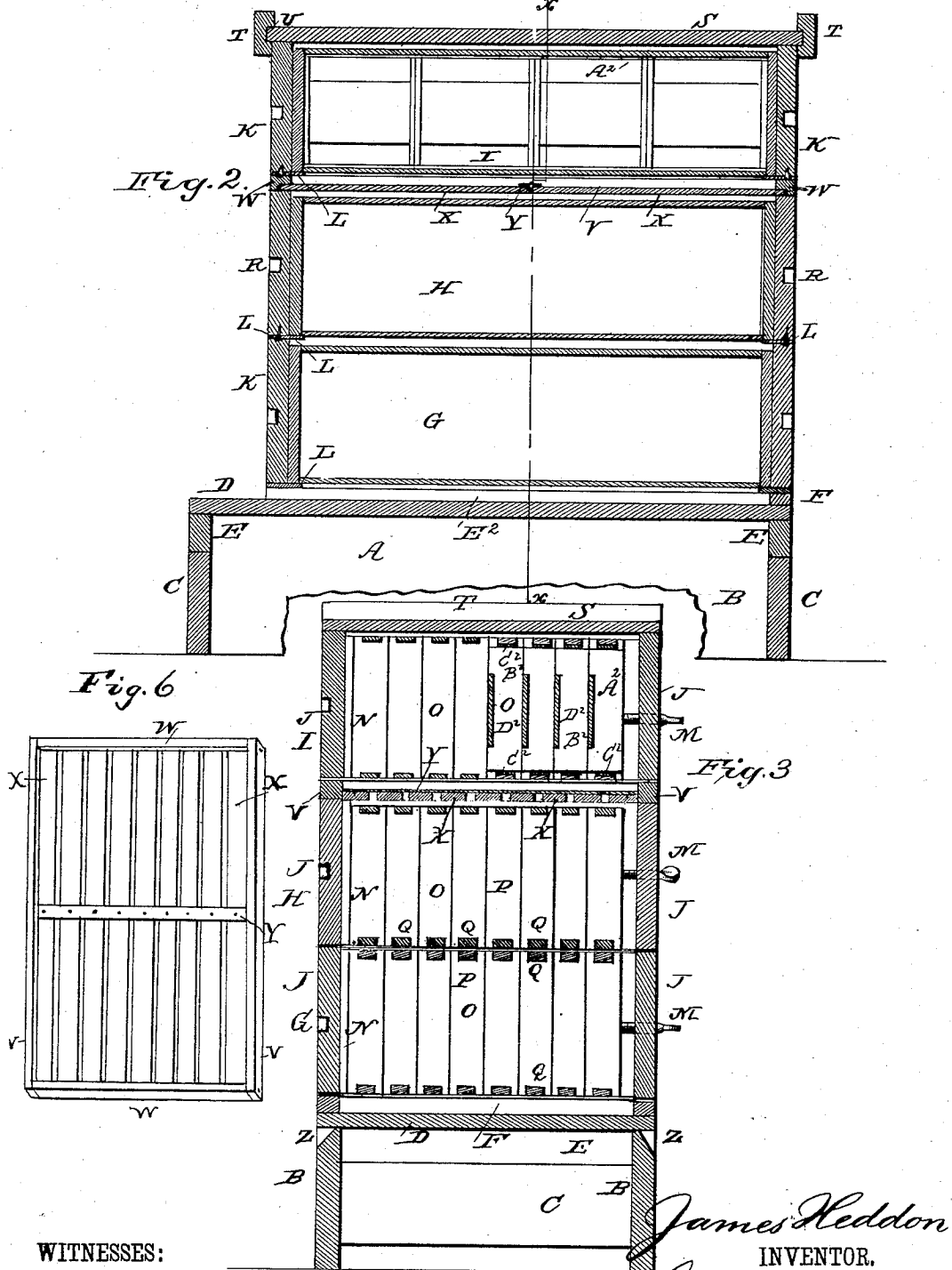
James Heddon
 INVENTOR.

by *Louis Baggers & Co.*
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UNITED STATES PATENT OFFICE.

JAMES HEDDON, OF DOWAGIAC, MICHIGAN.

BEE-HIVE.

SPECIFICATION forming part of Letters Patent No. 327,268, dated September 29, 1885.

Application filed March 3, 1885. (No model.)

To all whom it may concern:

Be it known that I, JAMES HEDDON, a citizen of the United States, and a resident of Dowagiac, in the county of Cass and State of Michigan, have invented certain new and useful Improvements in Bee-Hives; and I do hereby declare that the following is a full, clear, and exact description of the invention, which 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 perspective view of my improved bee-hive. Fig. 2 is a longitudinal vertical sectional view of the same. Fig. 3 is a transverse vertical sectional view taken on the line *xx* in Fig. 2. Fig. 4 is a perspective view of one of the interchangeable and reversible cases. Fig. 5 is a detail view of one of the comb-frames equipped with the surplus-honey sections, showing one of said sections removed from the frame; and Fig. 6 is a view of the honey-board.

The same letters refer to the same parts in all the figures.

This invention relates to bee-hives, and has for its object to provide a device of this class which shall possess superior advantages in point of simplicity, durability, and inexpensiveness.

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

In the drawings hereto annexed, A designates the bottom stand of the hive, which consists of the side pieces, B B, the ends of which are connected by the front and rear pieces, C C, which are of less height than the said side pieces.

D is the bottom board, which rests loosely upon the base or bottom stand, and the ends of which are provided with downward-extending cleats E E, resting upon the upper edges of the end pieces of the bottom stand, which thus supports the bottom board in proper position.

The upper side of the bottom board is provided at its sides with cleats E² and at the

rear with cleat F, the former of which terminates at some distance from the front end of the bottom board, which thus serves to form a lighting-place for the bees. The said cleats are thick enough to permit the bees to enter the hive at the front and to crawl under the comb-frames.

The cases G, H, and I (of which only the two former ones are shown in Fig. 1) are all similar in construction, and form the shell or box of the hive. Each one of these sections consists of a frame of suitable dimensions, and is constructed of the sides J J and the ends K K. The end pieces, K K, are provided at their lower edges with strips of sheet metal L L, extending slightly in an inward direction, so as to afford rests or supports for the comb-frames O when the latter are placed in position in the case. One of the sides is provided near its ends with the thumb-screws M, and the other side with narrow strips or cleats N at the corners of the case facing the inner ends of the said thumb-screws.

The comb-frames O O are composed of end pieces, P P, and top and bottom pieces, Q Q, the former of which are so much wider than the latter that when the frames are placed within the case, as shown in the drawings, ample space will be left between said top and bottom pieces. These frames are made long enough to neatly fit the case, but lack about one-fourth of an inch of coming to the top of the case, thus giving the bees sufficient space for them to freely pass on top, but not wide enough for them to build comb in. The frames are of such width that any suitable number, generally eight, neatly fill a case, and are securely held in position by means of the thumb-screws pressing them against the cleats upon the opposite sides, thus leaving a passage between the other frames and the sides of the case as well as between the frames themselves.

S is the top or cover of the hive, which consists simply of a flat board of suitable size to fit any one of the cases of the hive, and provided at the ends with cleats T T, having grooves or recesses N to receive the ends of the said board, which is thereby prevented from warping. By this construction the said cleats will also be caused to project both downwardly and upwardly, as shown, the

downward extensions serving to retain the top piece or cover in position when adjusted, and the upward extensions serving, when desired, to support a roof or shade-board in such a manner as to permit the air to circulate freely under the same.

The honey-board consists of a rectangular frame of the same outside dimensions as the outside of the hive or case, and consists of the end pieces, W W, side pieces, V V, slats X, and a strip of metal, Y, secured to the tops of the slats across their central part. The slats X are secured to the under side of the end pieces, W W, in a rabbet just as deep as the slats are thick, thus making the bottom of the honey-board level. The ends and side pieces project above these slats sufficiently to permit the bees to pass between them and the bottom of the frames in the case above. The slats are placed a bee-space apart, which is about one-fourth of an inch, and the said frame or honey-board is so placed in the hive that the space between the slats will be between the tops of the frames in the hive below and the bottoms of the frames in the case above, and the slats themselves will be between the said frames, thus breaking joints, as it were, between the two compartments. This manner of placing the honey-board prevents the bees from building bridges or brace-combs between the two compartments through the spaces in the honey-board. It will also have a tendency to prevent the queen from going up into the case above to deposit eggs, and thus spoiling the surplus comb-honey; but it will not bring the pieces so close together that the bees will fasten them with propolis or bee-glue, as they would do if they could not pass between the honey-board and the comb-frames.

In its simplest form my improved hive consists of a single case, G, filled with frames and supported upon the bottom board, D, and covered with the cover S. As the colony increases another case is added, making the hive as it appears in Fig. 1, in which the cases are designated, respectively, G and H; and when it is desired to secure surplus honey still another case is added, as shown at I in Figs. 2 and 3, the honey-board being interposed between the second and third cases.

In securing surplus honey, I prefer to use the small honey-sections A², having the end pieces, B², of the same width as the end pieces, P, of the frames O, and the top and the bottom pieces, C², are of the same width as the top and the bottom pieces, Q, of the frame O. These pieces B² and C² are of such a length that when they are fastened together they will form a section of such a size that a certain number (generally four) will nicely fill one of the frames O.

If it is desired, separators D² can be placed between the frames containing the sections for the purpose of causing the bees to build each section of honey of the same thickness.

Experience has taught that bees are inclined to place honey in the cells occupying the up-

per portion of the combs, while it would be to the advantage of the apiarist to have them breed in that portion of the comb, the same as they do in the lower portion. It has likewise been found that they are inclined to leave a small space between the bottom of the comb and the bottom piece of the frame, through which they can pass. These objections have been found to be entirely obviated by simply inverting the frames after the combs have been constructed, thus causing the bees to fill up the space referred to, to keep the comb from falling over sidewise with the weight of the bees and honey. It also causes them to remove the honey that is now placed in the center of the brood-nest to some other part of the hive, and as the top of the frame is now filled with brood the honey is taken up into the surplus-honey compartments or case. Several so-called "reversible frames" have been constructed; but as they all involve the necessity of handling each comb separately, it has been found too laborious and troublesome to put in practice. By my invention, however, an entire case and combs can be inverted in a moment, each case being provided with the recesses R R, which serve as handholds for lifting and handling the case. After the case has been inverted, and before it is placed in position, it is placed across the top of the hive below it, and the thumb-screws M loosened, so that the frames will slip down until they will rest even with the bottom edges of the case. The screws are then tightened, securing the frames in place, and the case can be placed where desired.

It will be seen that by the use of my hive composed of interchangeable and reversible cases, filled with interchangeable and reversible frames in connection with the peculiarly-formed honey-board a better control of the interior working of the hive is obtained than by any other method. During a great part of the year, especially the winter, in the more northern portions of the country, the colony of bees is small, and will do better in a small hive than a large one, while as soon as they commence to increase rapidly another case with frames is added, and, if desired, still another one, after which one or more cases can be added for surplus honey, the honey-board serving as a division between the brood-chamber and the surplus-honey compartment.

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

1. In a bee-hive, a case consisting of a frame one of the sides of which is provided with thumb-screws extending through said side, and the opposite side of which is provided at the corners with narrow cleats facing said thumb-screws, substantially as and for the purpose set forth.

2. The combination of the bee-hive, the bottom stand having end pieces of less height than the side pieces, and the detachable bottom board the ends of which are provided

with downwardly-extending cleats resting upon the end pieces of the bottom stand, and the upper side and rear edges of which are provided with cleats adapted to support the lower case of the hive and afford admission-space for the bees, substantially as and for the purpose set forth.

3. In a honey-board for bee-hives, the combination, with a frame, of a number of slats secured to the bottom sides thereof at a bee-space distance apart, said frame being even with the bottoms of said slats, and projecting a bee-space above them, substantially as and for the purpose set forth.

4. In a bee-hive of the described class, the combination, with the brood-chamber of a hive the tops of the frames of which are a bee-space below the top edges of the hive, and a case for surplus honey the bottoms of the frames of which are even with the bottom of the case in which they are secured, said frames for surplus honey hanging parallel with and directly above the frames of the brood-chamber, of a honey-board consisting of slats secured to a frame, said frame being even with the bottoms of said slats and projecting a bee-

space above them, said slats being so arranged that the spaces between them will be between the tops of the frames in the brood-chamber below and the bottoms of the frames in the case above, and the slats themselves will be parallel with the frames, and between the spaces between the said frames, substantially as and for the purpose set forth.

5. In a bee-hive, a brood-chamber consisting of a series of reversible and interchangeable cases, each of said cases being provided with thumb-screws extending through one side, and with cleats at the corners of the other side and facing said thumb-screws, and of a number of reversible frames rigidly secured therein between said thumb-screws and cleats, and a stand and cover, substantially as and for the purpose set forth.

In testimony that I claim the foregoing as my own I have hereunto affixed my signature in the presence of two witnesses.

JAMES HEDDON.

Witnesses:

HENRY H. PORTER,
LEVI S. HENDERSON.