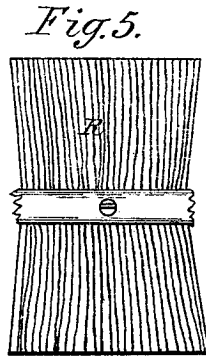
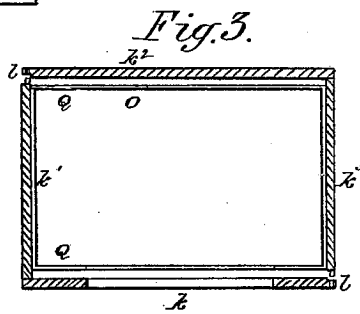
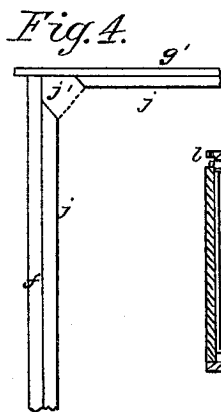
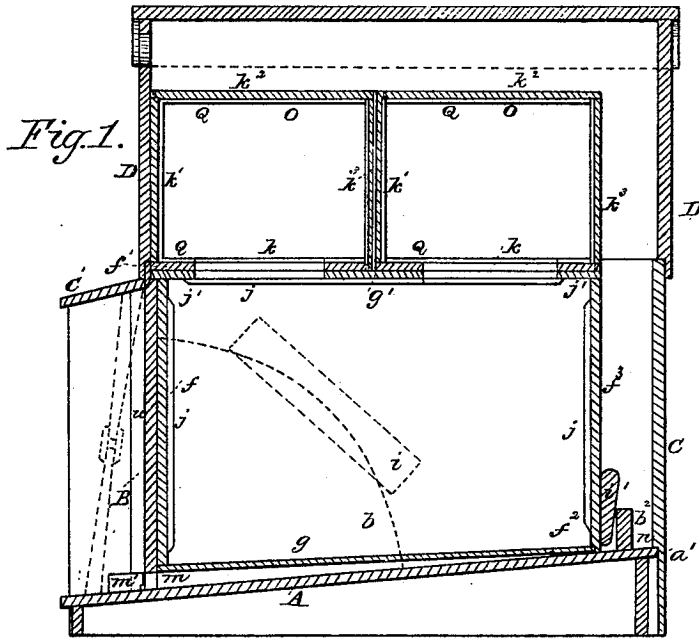


Redfield & Hubbard

Bee Hive.

N^o 91,266.

Patented Jun. 15, 1869.



Witnesses
 Victor H. Beecher
 Jos. J. Bonner.

Inventors.
 E. B. Redfield
 E. C. Hubbard
 by Forbush & Hyatt

Redfield & Hubbard

Bee Hive.

No. 91,266.

Patented Jun. 15, 1869.

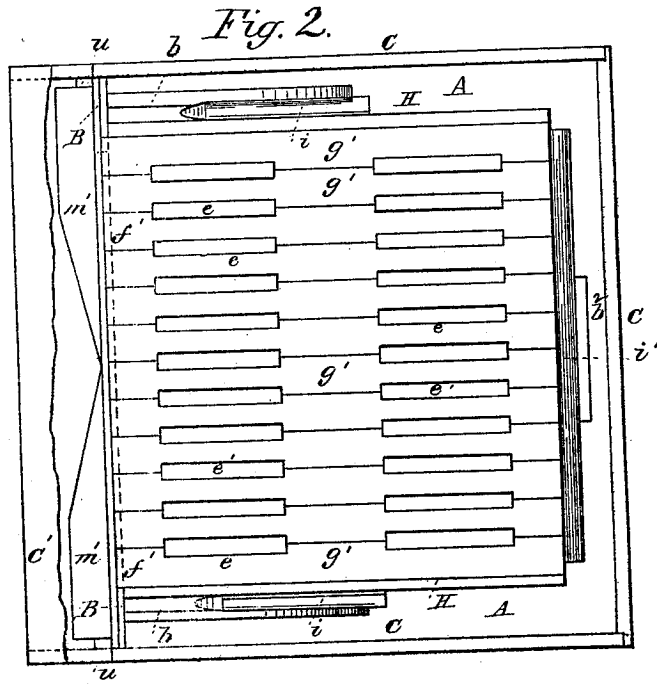
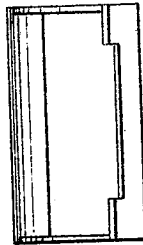


Fig. 6.



Witnesses.
 Victor H. Beecher
 Jas. J. Bonner.

Inventors.
 C. B. Redfield
 E. C. Hubbard
 by Fordush & Hyatt
 Attys.

United States Patent Office.

EDMUND B. REDFIELD, OF WHITE'S CORNERS, AND E. C. HUBBARD,
OF WATER VALLEY, NEW YORK.

Letters Patent No. 91,266, dated June 15, 1869.

IMPROVEMENT IN BEE-HIVE.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that we, EDMUND B. REDFIELD, of White's Corners, county of Erie, and State of New York, and E. C. HUBBARD, of Water Valley, and Erie county aforesaid, have invented certain new and useful Improvements in Bee-Hives; and we do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure I represents a cross-sectional elevation of our improved hive.

Figure II, a plan of the same, with the top of case removed.

Figure III, a cross-section of one of the honey-boxes and lining, showing the method of opening the same.

Figure IV, a detached view of an upper corner of one of the comb-frames forming the main body of the hive, showing the passage for the bees.

Figure V, the straw mat or screen, for protecting the bee-entrance in cold weather.

Figure VI, a representation of one of the wooden frames forming the lining of the honey-cases.

Like letters refer to like parts in each of the figures.

The nature of our invention consists—

First, in permanently attaching to the bottom board of the hive a vertical board, in connection with two partial side boards or corner-pieces, which together form a stall, or frame, in which the comb-frames forming the inner hive can be conveniently arranged and secured, the said vertical board also forming the front side of the lower portion of the outer case of the hive.

Second, in combining therewith an outer case, constructed and arranged so that the said vertical board shall form the front thereof.

Third, in constructing the comb-frames with the central beads, at the sides and top, employed as a guide for the bees in attaching the comb, cut away at the upper corners of the frames, so as to form a passage for the bees from one comb to the other, it having been found, from actual experience, that the bees, in attaching the comb, will bridge across the corners where the beads have been cut away, thereby leaving a free communication from one to the other.

Fourth, in providing the surplus-honey boxes, constructed so as to be readily taken apart, with an inner lining, or case of paper, wood, shavings, or equivalent material, which, when the box is filled, is found to be stiffened and glued together, so as to enable it, with the honey, to be readily removed without destroying the box, which can thus be used for an indefinite period by simply supplying it with a new lining from time to time, as the old one becomes filled, and is removed with the honey.

Fifth, in the use and application of a straw or other equivalent mat, before the front side of the hive and bee-entrance, so as to form a protection against the

cold in winter, while it permits the gradual passage of the requisite supply of air to the bees, without that violent direct draught which is so injurious in cold weather, and which always occurs where no such protection is provided.

In the drawings—

A represents the bottom of the hive, inclined from the back toward the front.

B is the front board of the hive, attached permanently to the bottom, and also to the two ends, or corner-pieces *b*, which not only serve to give stability to the front, but also to support the sections which form the main body of the hive.

The main body of the hive is formed of comb-frames, or sections, the ends of the top pieces *g* resting on a rebate in the top of the board B, as shown at *f*¹, and the rear resting upon the bottom, as shown at *f*², the frames being thus held in such position that the bottom piece *g* does not quite touch the bottom A, leaving a space below for the passage of the bees.

The bottom piece *g* is made somewhat narrower than the front piece *f* or rear piece *f*², so that when the frames are placed in position, slots, or openings, are left between the frames, and entirely across the bottom thereof, for the free passage of the bees to and from the space below.

The upper piece *g* of each of these sections has portions of it cut away, as shown in the drawings at *e*, in such manner that when the frames are placed together, two openings, *e*, will be left, for the passage of the bees upward to the honey-boxes.

Two boards, H, are placed against the outer sections at either side, forming the ends of the body of the hive.

The boards H are firmly held against the sections, securing them together, by two blocks, or wedges, *i*, fitting between them and the ends or corner-pieces *b*.

The sections are also held firmly against the front B by another wedge, *i*, fitting between their rear ends and a block, *b*², permanently attached to the bottom A.

By using this mode of securing the sections in place, it will be seen that one or more of them may be readily removed or put in place again, as the size of the swarm may render it desirable to diminish or increase the capacity of the hive.

The two pieces, *f* and *f*², and the top, *g*, of each frame, have upon their insides narrow, centrally-projecting beads, or strips *j*, which serve as guides for the bees in forming the cards of comb.

These strips, or beads, have been used before, but extending clear to the corners of the frames.

By cutting off these beads at the ends, leaving a space between at the corners, as shown at *j*¹, the bees, in forming the comb, will connect the two adjacent ends of the beads, as indicated in dotted lines, leaving the corners *j*¹ unoccupied, which thus become a free

passage-way from one comb to the other along the two upper corners of the hive.

Ventilating-holes, covered with wire gauze, may be made in the end-boards H, opposite these passages.

It will be seen, by reference to the drawings, that although the bottom A of the hive, and *g* of the sections, incline toward the front, the sides *f* and *f'* are perpendicular, and the upper piece *g'* horizontal.

Our reason for making the frame of such form is this: We find that where the top is inclined, the bees are apt to form the cards of comb irregularly, and run diagonally from one section to another, instead of following the strips or beads placed for their guidance.

The outer case of the hive is in two parts, the lower part C enclosing the main body of the hive, and resting upon the bottom A at the back, as shown at *a'*.

The sides are extended forward of the front B, and have a cross-piece, *c'*, extending across the front, connecting them together, and forming a sort of roof over the bee-entrance *m*, which is formed along the bottom of board B, and is regulated by the blocks *m'*, or other suitable means.

This lower case is left open at the front, the board B making it unnecessary to further enclose this side.

The case is designed to fit over the edges of the bottom board, being supported at the rear by a rebate, *n*, and in front by the ends of the guide-cleats *n*, which rest upon the bottom board, as shown in Fig. I, thereby most effectually protecting the bottom of the hive from rain.

The upper part of the case D may be readily removed for getting at the honey-boxes, without disturbing the lower part.

The surplus-honey boxes, a cross-section of one of which is shown in Fig. III, are represented as two in number, and covering the whole top of the main body of the hive.

The ends of these boxes are made of glass, and the bottom *k* and one of the sides *k'* are fastened permanently together.

The top *k²* and the other side *k²* are also attached together, the corners *l* being simply held together by dowels, as shown in Fig. III, in such manner that the box may be readily separated at opposite corners, as shown in Fig. III.

The bottom of each of these boxes has slots through it, corresponding to those between the top of the comb-frames, so as to afford a direct passage for the bees from between every card of comb in the hive to the honey-boxes above.

Q represents our improved lining, which may be made of paper, straw-board, veneering, wood-shavings, or any other equivalent material; or it may be made of thin pieces of wood in sections, similar to the sections forming the hive. One of these sections is shown in perspective in Fig. VI.

This lining has slots formed in its bottom, corresponding to those in the bottom of the box and top of the hive. It may be arranged loosely in the box, as the bees, in attaching the comb, will firmly glue the

parts together, and stiffen them, so that it will form a box in itself, which can be removed with the honey, while the outer case or box may be relined and left to be refilled.

By means of our improved lining, and a box capable of being readily separated, a great expense, both to the apiarist and to the consumer, is saved in the cost of boxes, which the one has to manufacture and the other to buy, which greatly enhances the price of this kind of honey.

R, Fig. V, represents a portion of our mat for protecting the front of the hive, and especially the bee-entrance. It may be made of hay, straw, or any other equivalent porous material, although we prefer straw, as being the cheapest and best.

The material may be secured together, in any suitable manner, by clamps, as shown or otherwise, and the mat be made of sufficient size to fill the front or porch of the hive, in which it is arranged, as shown in red lines, Fig. I.

This mat protects the front of the hive from the cold, and also from the rain and snow, which would otherwise beat against the board B, and render it damp. It is, however, of the greatest value in protecting the bee-entrance from those chilling draughts, or currents of air, at times so fatal to the bees within, while the mat is sufficiently porous to permit the passage of the requisite supply of air. It serves as a coat to retain within the hive the heat generated by the bees.

Our improved construction affords the freest communication, by the most direct routes, to all portions of the hive and honey-boxes, it being a matter of considerable importance to reduce, as much as possible, the distance the bees have to travel after they enter the hive.

Having thus described our invention,

What we claim, and desire to secure by Letters Patent, is—

1. The front board B and side board or braces *b*, permanently attached to the bottom board of the hive, and forming a frame, in which the comb-frames are arranged and secured by wedges, or equivalent, substantially as set forth.
2. The outer case C, with open front, combined and arranged with the board B, as set forth.
3. The corner-spaces *j*, formed by cutting off the beads *j*, so as to have a passage from one comb to the other, substantially as shown and described.
4. The inner lining Q, in combination with the honey-boxes O, made so as to be readily taken apart, substantially as and for the purpose set forth.
5. The mat R, applied in the manner and for the purpose specified.

EDMUND B. REDFIELD.
E. C. HUBBARD.

Witnesses:

VICTOR H. BECKER,
JNO. J. BONNER.