J. M. SHUCK.
Bee-Hives.

2 Sheets—Sheet 1.

No. 198,223. Patented Dec. 18, 1877.

Fig. 1

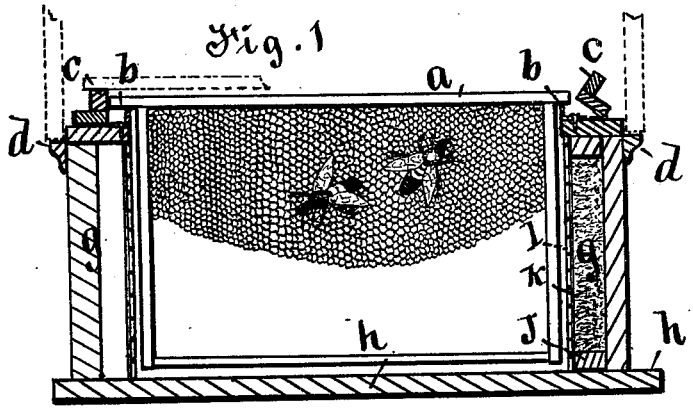


Fig. 2

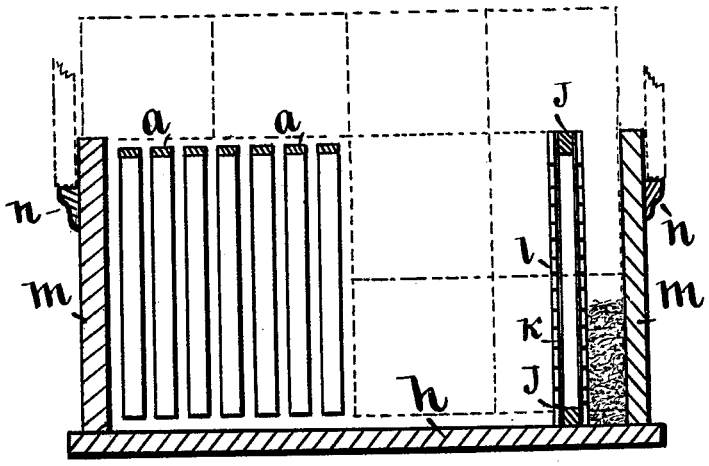


Fig. 3

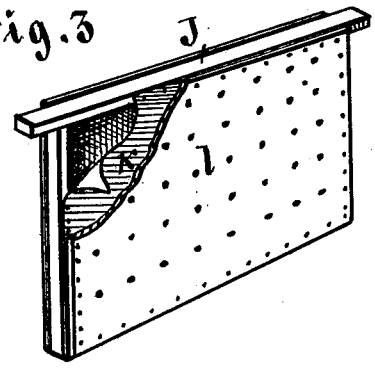
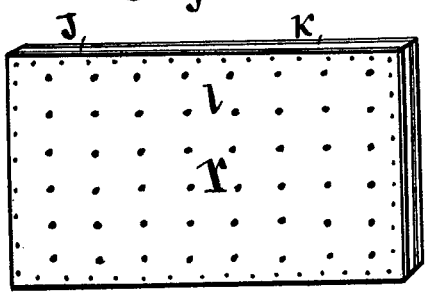


Fig. 4



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Inventor:
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By Thomas G. Orwig,
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2 Sheets—Sheet 2.

J. M. SHUCK.

Bee-Hives.

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Fig. 5

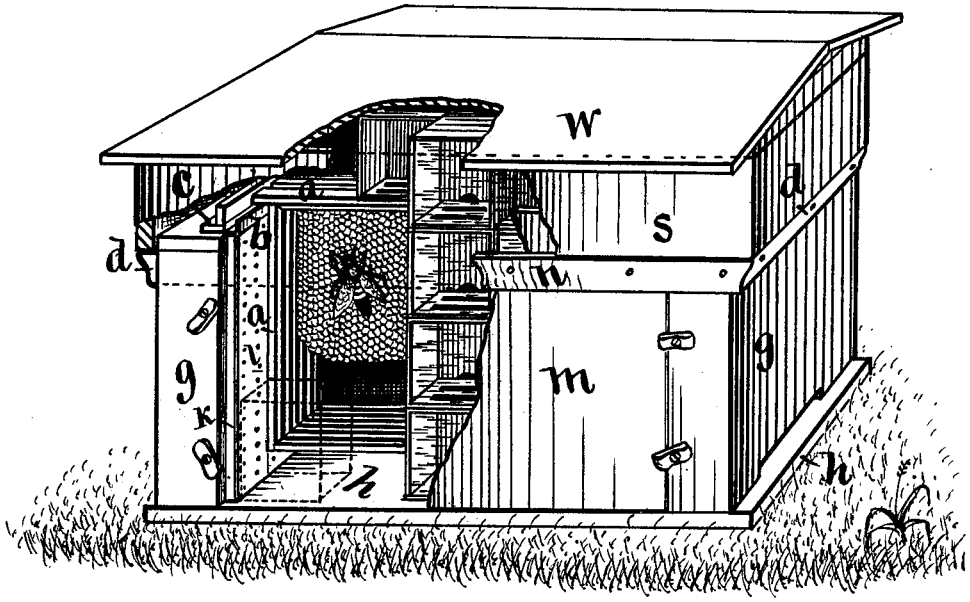


Fig. 6

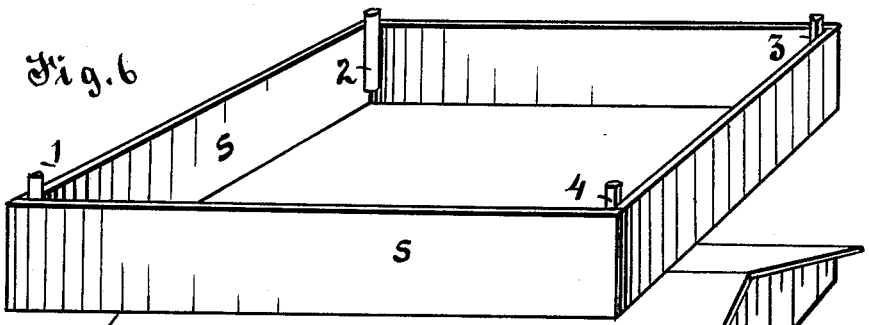
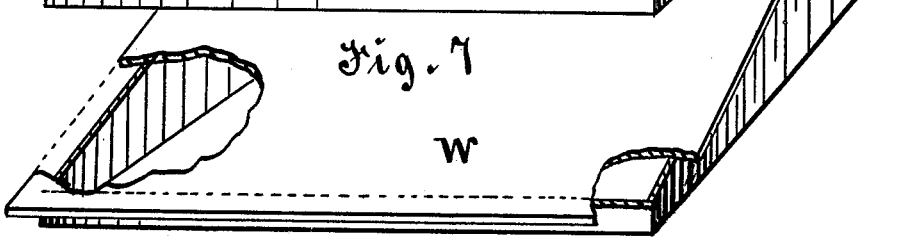


Fig. 7



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UNITED STATES PATENT OFFICE.

JOHN M. SHUCK, OF DES MOINES, IOWA.

IMPROVEMENT IN BEE-HIVES.

Specification forming part of Letters Patent No. **198,223**, dated December 18, 1877; application filed June 12, 1877.

To all whom it may concern:

Be it known that I, JOHN M. SHUCK, of Des Moines, in the county of Polk and State of Iowa, have invented an Improved Bee-Hive, of which the following is a specification:

The object of my invention is to facilitate the management of bees and the handling of bees and their combs, to preserve an even temperature in the hive, and to construct and arrange its movable parts in such a manner that it can be readily adjusted to suit the varying conditions of the bees and the seasons.

It consists in a removable strip to inclose the ends of movable comb-frames, and to support the brood-chamber cover; in the manner of constructing a porous wall; in a novel division-board; and in a novel brood-chamber cover, all as hereinafter fully set forth.

Figure 1 of my drawings is a longitudinal, vertical, and central section of my hive.

a represents a movable comb-frame, preferably of oblong form, and twelve by twenty inches in size. In length and depth the main portion of the hive is made to conform with the size and shape of the movable frames *a*. *b b* are strips of sheet metal, bent at right angles longitudinally, and fixed upon the inside edges of the tops of the walls *g*, to support the movable frames *a*, and to prevent the bees from fastening the frames with propolis. *c* is a removable strip, composed of two boards nailed together at right angles. They are designed to be placed on the top of the walls, to engage the ends of the frames *a*, and to close the spaces between the ends of the said frames, and to support the brood-chamber cover. The vertical portions of the angle-strips *c* rise above the frames one-fourth of an inch, to support the cover of the brood-chamber above the frames sufficiently to allow the bees to pass between the frames and the cover at all times.

The position of the brood-chamber cover relative to the strips *c* is indicated by the section of a cover formed in broken lines on the left side of Fig. 1.

d d are cleats fixed on the outsides of the end walls, to form a rest for a removable case that is designed to inclose the top portion of the complete hive, and to form a surplus chamber for honey-boxes. *g g* represent double walls fixed at the ends of the base-board or bottom *h*. The outsides of these walls are made of boards in a common way. Their tops and ends are closed with strips of boards, rigidly fixed thereto by nailing or in any suitable way.

J *k l*, Fig. 4, represent my improved porous wall, forming the insides of the double walls *g*. It is constructed in like manner to my division-board and my brood-chamber cover, hereinafter described; and similar letters of reference are used to designate like parts in my porous wall, my division-board, and my brood-chamber cover.

Fig. 2 is a transverse section of my hive, and illustrates the manner of arranging and adjusting movable comb-frames and movable honey-boxes relative to each other and the side walls of the hive.

m m are the side walls of the hive, one of which must be removable, and both may be. *n n* are cleats fixed on the outsides of the walls *m*, to correspond with and join to the cleats *d* on the ends of the hive, to aid in supporting the removable case, as hereinafter described.

J *k l*, Fig. 3, represent a removable division-board, made in like manner to my porous wall. It can be readily moved to and from the series of comb-frames *a*, as desired. In the winter season the space between the removable division-board J *k l* and the side wall *m* may be filled with chaff or other suitable packing, to aid in protecting the interior of the hive from frost. In the summer season, when the division-board J *k l* is removed, surplus-honey boxes may be placed in the space intervening between the comb-frames *a* and the walls *m*, in double tiers, and also on top of the frames *a* and brood-chamber, as indicated by figures in broken lines, or in a single tier on each side of the hive.

Fig. 3 is a perspective view of my improved removable division-board J *k l*. (Shown in Fig. 2.)

J represents the base, in the form of a frame, corresponding in shape and size with the movable comb-frames *a*. *k* represents a sheet of flexible material, preferably porous paper, tacked on the sides of the frame J. *l l* is a perforated sheet of wooden veneering cover-

ing the paper *k*, and also nailed around its edges to the frame or base J. The perforations in the wood are too small to admit a bee, but large enough to allow air and moisture to pass through. By making the two sides of a frame uniform a hollow, light, and porous division-board is produced.

Fig. 4 is a perspective view of my improved brood-chamber cover, made in like manner to my porous wall, and my removable division-board of a frame or base, J, paper *k*, and perforated veneering *l*. A complete, light, durable, and porous cover is thus produced, that is easily handled, and that will greatly aid in maintaining an even temperature in the brood-chamber.

Fig. 5 is a perspective view of my complete hive. It has a portion of one side broken away to show the interior, and to illustrate the arrangement of honey-boxes at the side and on the top of the series of comb-frames *a*, as indicated by broken lines in Fig. 2.

s represents a removable case, resting upon the cleats *d* and *n*. The cleats *n* extend beyond the ends of the removable sides *m*, to connect with the cleats *d* on the outside of the fixed end walls *g*. Suitable turn-buttons or catches on the ends of the walls *g* serve to lock the sides *m* in their proper positions, as required to securely close the hive. *w* represents a removable roof.

Fig. 6 is a perspective view of the removable case, designed to rest upon the cleats *d* and *n*, fixed to the outsides of the walls. It has four sides, *s*, corresponding in size with the four sides of the hive. They are joined together by nailing, or in any suitable way, and corner-posts 1 2 3 4 are fixed in the corners, to project above the top edge, and to form stops to keep the roof *w* in proper position.

Fig. 7 is a perspective view of the removable roof, designed to rest upon the top of the removable case to completely shelter the entire hive.

In the practical operation of my improved hive, when the cover composed of the roof *w* and case *s* is lifted off, one of the sides *m* is readily removed to gain access to the interior. By then moving the strip *c* outward, or removing them entirely, the ends of the frames *a* are exposed in such a manner as to allow the fingers of the operator to get hold of the ends of the frames projecting over the frame-supports *b*, and at once lift the frames, combs, and adhering bees without jarring and irritating them, as frequently occurs when frames must be pried up from rabbets in which they rest. By moving the division-boards to and from the comb-frames the brood-chamber is readily contracted or enlarged. By removing the division-boards surplus-honey boxes can be readily placed in tiers adjacent to the brood-chamber and movable frames *a*, and in such a position as to allow the bees to pass direct from their combs in the movable frames to the interior of the honey-boxes.

A series of honey-boxes may also be placed on top of the movable frames, and the outside tiers continued upward to connect with those resting upon the frames. The brood-chamber and movable frames can be thus surrounded on three sides with movable honey-boxes, and a very capacious surplus-chamber thus formed. When the boxes are removed, and the division-boards placed at the sides of the frames, and the sides *m* put in their proper positions, a hollow wall and dead-air space is produced, to protect the brood-chamber and winter-quarters of the bees from frost. By placing my porous cover on the top of the frames the bees will be securely protected from frost, and the porous walls and cover will, at the same time, allow them pure air, and carry off moisture generated by the condensation of the animal heat of the bees. A dry chamber and even temperature, cool in summer and warm in winter, are thus provided in an economical, simple way, that is greatly advantageous in keeping bees.

I claim as my invention—

1. In a bee-hive, the movable strips *c*, in combination with the frame-supports *b*, a series of movable comb-frames, *a*, and the top of the wall, substantially as and for the purposes shown and described.

2. In the construction of a porous bee-hive wall, the combination of the flexible sheet *k* and the perforated veneering *l*, substantially as and for the purposes shown and described.

3. The division-board for bee-hives, illustrated by Fig. 3, and composed of the parts J *k l*, substantially as shown and described, for the purposes specified.

4. The brood-chamber cover for bee-hives, illustrated by Fig. 4, and composed of the parts J *k l*, substantially as and for the purposes shown and described.

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