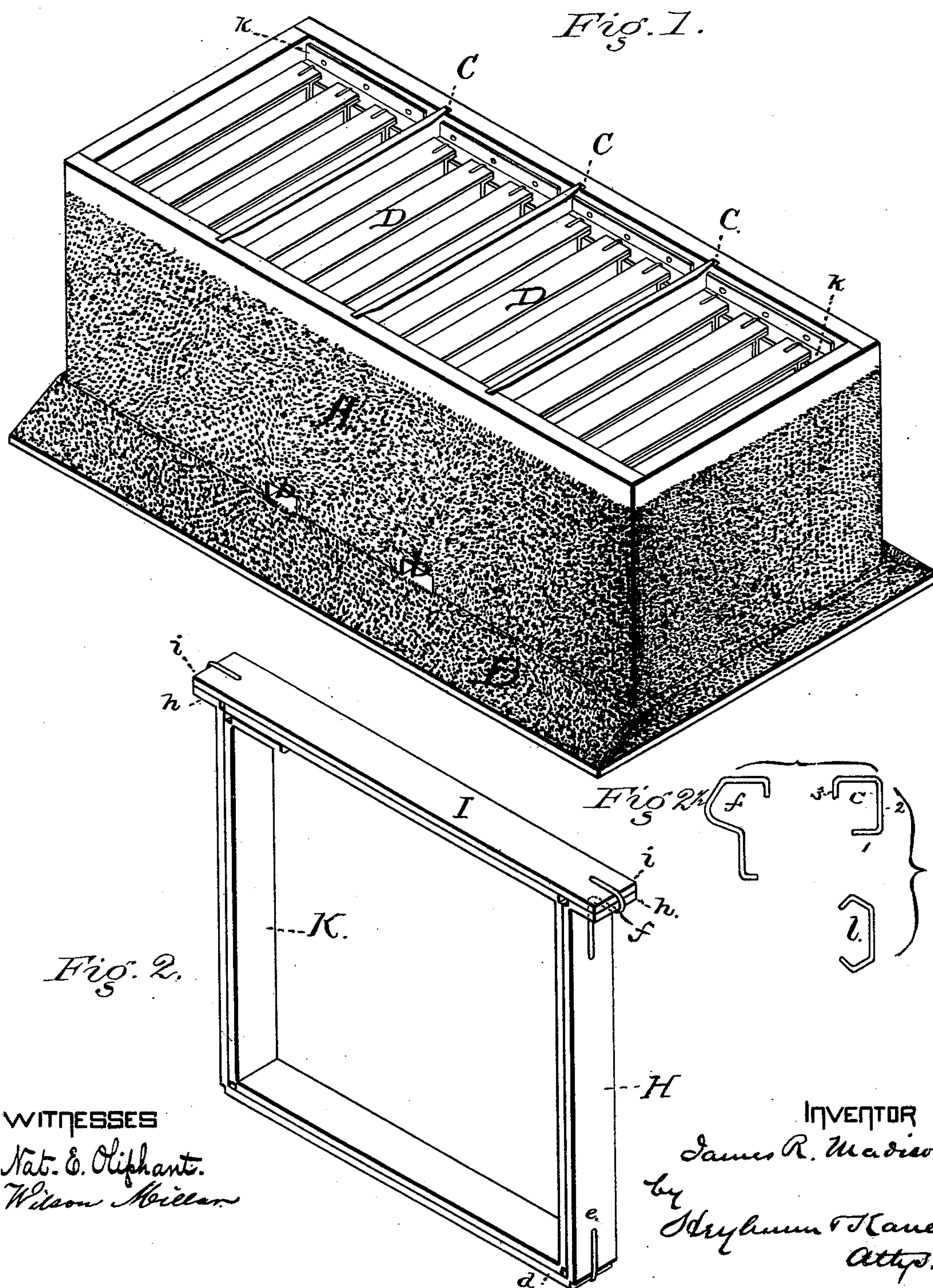


J. R. MADISON.
Bee-Hive.

2 Sheets—Sheet 1.

No. 218,822.

Patented Aug. 26, 1879.



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Fig. 3.

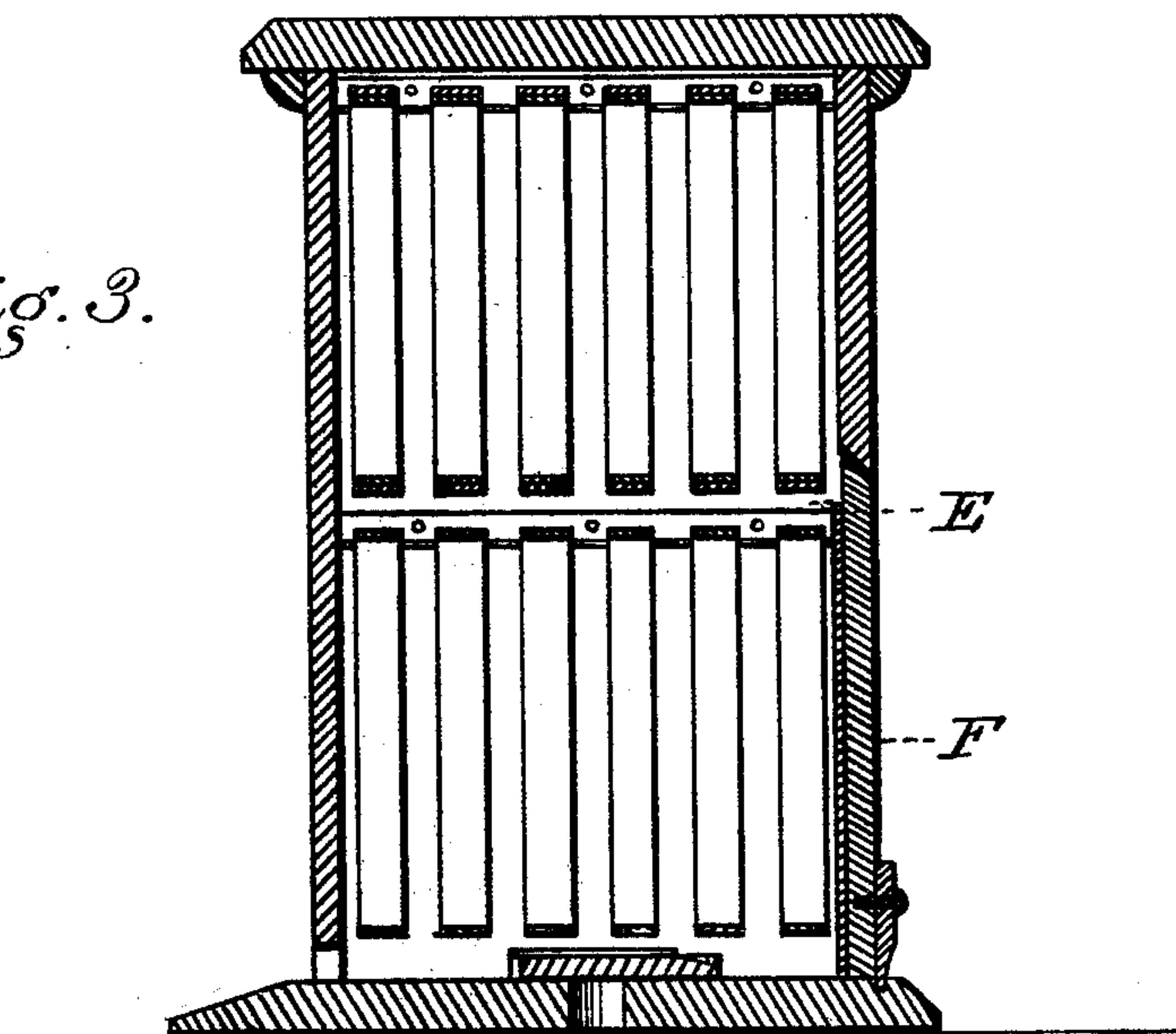


Fig. 4.

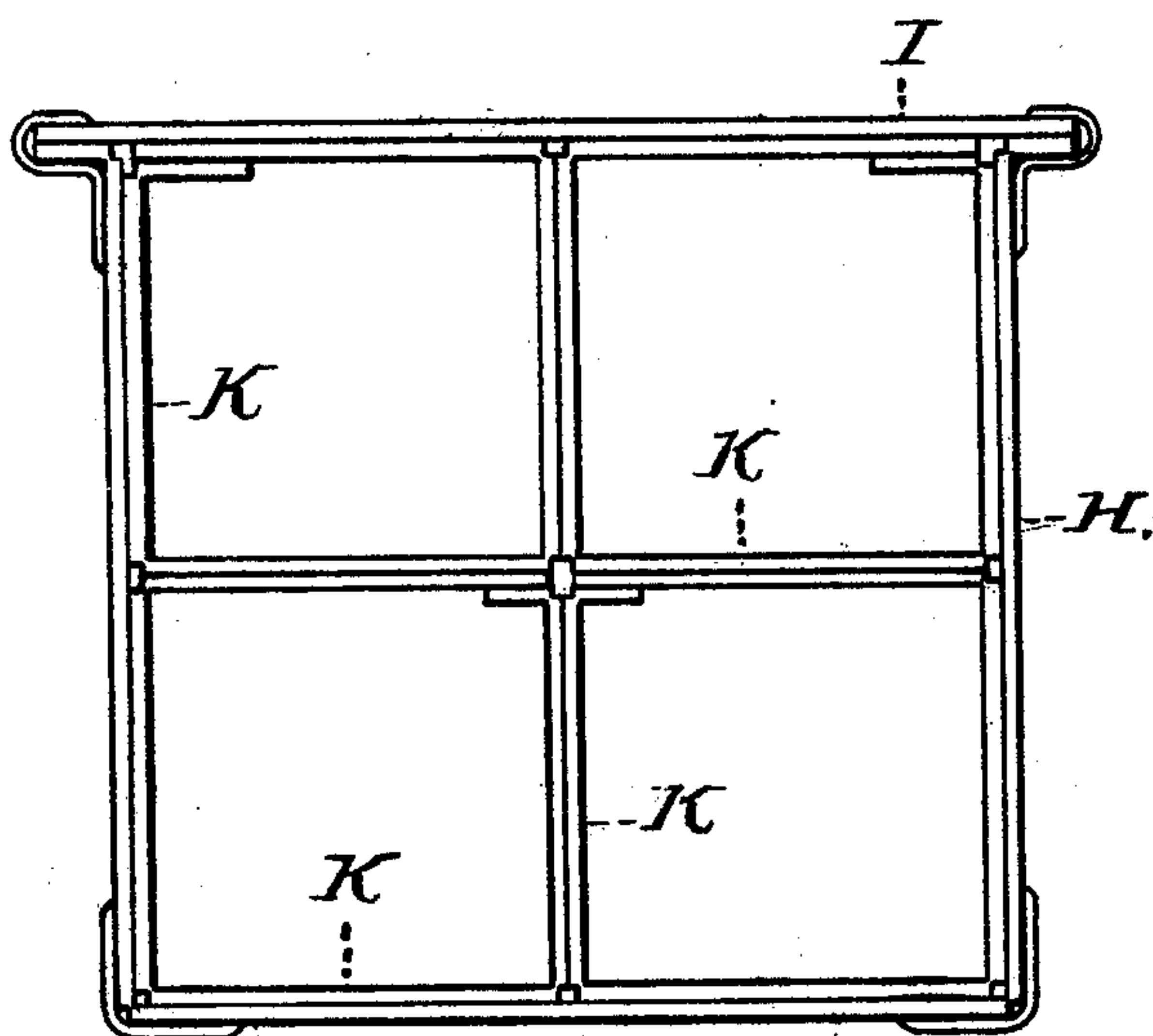
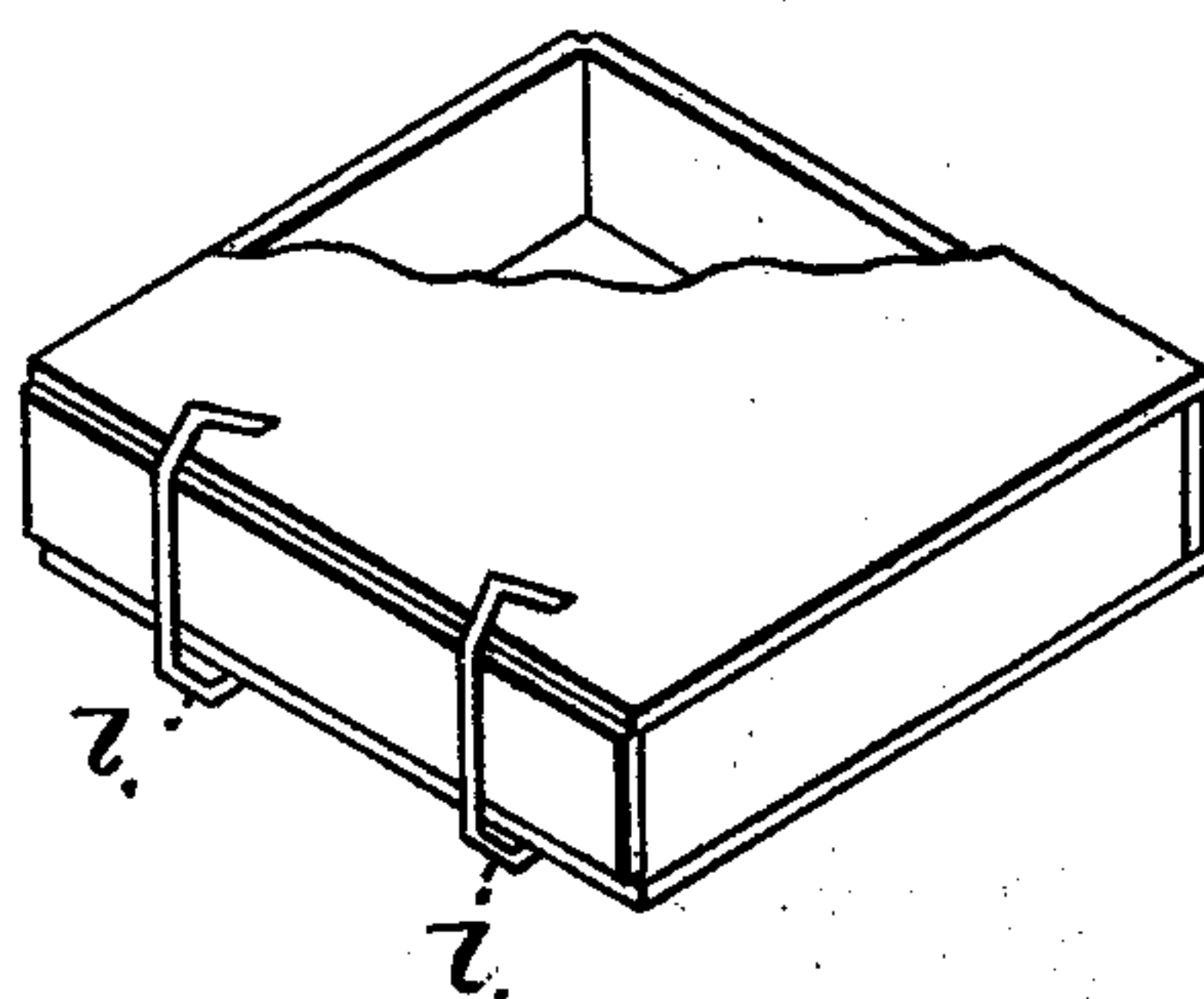


Fig. 5.



WITNESSES

Nat. E. Oliphant
Wilson Nicollan

INVENTOR

James R. Madison
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Attys.

UNITED STATES PATENT OFFICE.

JAMES R. MADISON, OF BEDFORD, IOWA.

IMPROVEMENT IN BEE-HIVES.

Specification forming part of Letters Patent No. **218,822**, dated August 26, 1879; application filed March 5, 1879.

To all whom it may concern:

Be it known that I, JAMES R. MADISON, of Bedford, in the county of Taylor and State of Iowa, have invented new and valuable Improvements in Bee-Hives; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, and to the letters and figures of reference marked thereon.

Figure 1 of the drawings is a representation of a perspective view of the bee-hive with the top removed. Fig. 2 is a perspective view of the comb-frame and section-box. Fig. 2½ is a view of the fastening devices. Fig. 3 is a vertical central sectional view of a two-story hive. Fig. 4 is a side view of the comb-frame, showing four section-boxes in position. Fig. 5 is a perspective view of a section-box packed for market.

This invention relates to certain improvements in bee-hives; and the novelty consists in covering the landing-board and other parts of the hive with a compound consisting of sharp sand, emery, and ground glass to form a rough surface against the attack of the moth; also, it consists in constructing the comb-frames of bent wood, in combination with the wire fastening device, as will be hereinafter more fully set forth.

In the annexed drawings, forming a part of this specification, the letter A represents the box or casing of the hive, and B the bottom board, projecting a short distance around the box, substantially as shown.

The outer surface of the box, including the top and the projecting portions of the bottom board, especially that portion in front of and surrounding the bee-entrance to the hive, is covered with a compound, mechanically mixed, consisting of sharp sand, emery, and ground glass. This material is applied to the exterior part of the hive and its projecting parts while the paint is still green—before it dries—whereby a rough surface is formed, rendering it impossible for moths to cross in attempting to gain an entrance to the interior of the hive. This coating forms a rough surface, of such a character that the moths cannot cross or crawl on, as their bodies are very sensitive, while

the bees can travel over the surface without any inconvenience.

The hive shown in Fig. 1 of the drawings is divided into four apartments by means of the removable partitions C, fitting into recesses in the front and rear wall of the hive. The two middle apartments, D D, are the breeding-chambers, and the end apartments contain the spare honey boxes or frames. Communication is established to the central apartments by means of the openings *b b*, forming bee-entrances at the lower end of the front wall of the hive. Whenever the swarm is large, or there are two or more swarms, the partitions C are removed and the apartments formed into one chamber.

The hive shown in Fig. 3 of the drawings is an upright two-story hive, with a glass partition, E, separating the upper and lower comb-frames. The bees pass from the lower to the upper chamber through a slot or slots in the glass partition, or the glass partition may be removed to enable the bees to work in the upper chamber. This hive is provided at one side with a door, F, so that the lower comb-frames in the bottom apartment may be removed when desired.

The letter H represents the main comb-frame, (see Figs. 2 and 4,) the sides and bottom of which are formed of a single piece and bent at the kerfed points to the desired shape to conform with the interior of the hive.

At the kerfed and bent portions of the comb-frame a wire fastening device, substantially like that indicated by the letter *c* in Fig. 2½, is used.

The end 1 of the fastener is passed through the bottom piece, *d*, and clinched, the horizontal and vertical parts 2 are passed around the corner or bent portion, and the end 3 passed through the vertical piece *e* and clinched, thus assisting and maintaining the relative position of the bottom and vertical walls of the frame.

The upper ends of the bent bar are bent outwardly and connected to the top bar, I, by means of the fastening device indicated by the letter *f*, applied in the manner substantially as shown in Fig. 2.

The outwardly-projecting ends *h* of the bent bar and the extended ends *i* of the top bar, I, form bearings for the comb-frame when the

comb-frame is suspended upon the cleats *k*, attached to the sides of the hive.

Within the main comb-frame is arranged a movable frame or section-box, *K*, or a number of frames, *K*, substantially as shown in Figs. 2 and 4 of the drawings.

The frames *K* are made of a single piece, and the ends are connected together by means of a fastening device, or the ends may be spliced and united in any of the well-known ways of connecting ends.

The object of dividing the main comb-frame or arranging a series of small frames with the frame, as shown in Fig. 4, is well known, and need not be repeated here; but the object of my improvement in this particular is to make these small frames or section-boxes in a simple and cheap manner, so that said frames can be shipped with the honey to market at a very small cost.

The frames being made of bent wood, no joints or seams are formed for the drippings of honey, thus avoiding objections attending frames made of four pieces.

The comb-frames, with their movable section-boxes, are suspended in the hives, substantially as shown in Figs. 1 and 3 of the drawings.

The section-boxes, when filled with honey and ready for market, are covered with a casing, substantially as shown in Fig. 5, and secured at the upper end by means of the wire fasteners, (indicated by the letters *l*.)

The comb-frames and section-boxes thus con-

structed are light, cheap, and strong, and the corners are strengthened by means of the wire fastening devices.

In some cases the wood may be steamed and bent to the desired shape by machinery or other known means for bending wood, thereby obviating the kerfing and dispensing with the wire fastening devices; also, I do not wish to confine myself to the use of sharp sand, emery, and ground or pulverized glass combined, as one or more of these materials may be omitted and another substance substituted, or either the sand or emery may be omitted to produce a like result.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. A bee-hive with its projecting parts covered with a compound consisting of sand, emery, and ground glass, or their equivalents, substantially as and for the purpose hereinbefore set forth.

2. A rectangular main comb-frame composed of two parts—to wit, a bent piece forming the bottom and the two vertical walls terminating in outwardly-projecting ends—and a top cross-bar resting upon the said outwardly-projecting ends, in combination with the wire fastening device, substantially as shown and described.

In testimony whereof I have hereunto subscribed my name.

JAMES RUSSELL MADISON.

Witnesses:

J. R. PRICE,
J. T. JOBE.