July 13, 1943. C. F. MUTH 2,324,227

WAX BEEHIVE FOUNDATION

Filed May 17, 1939

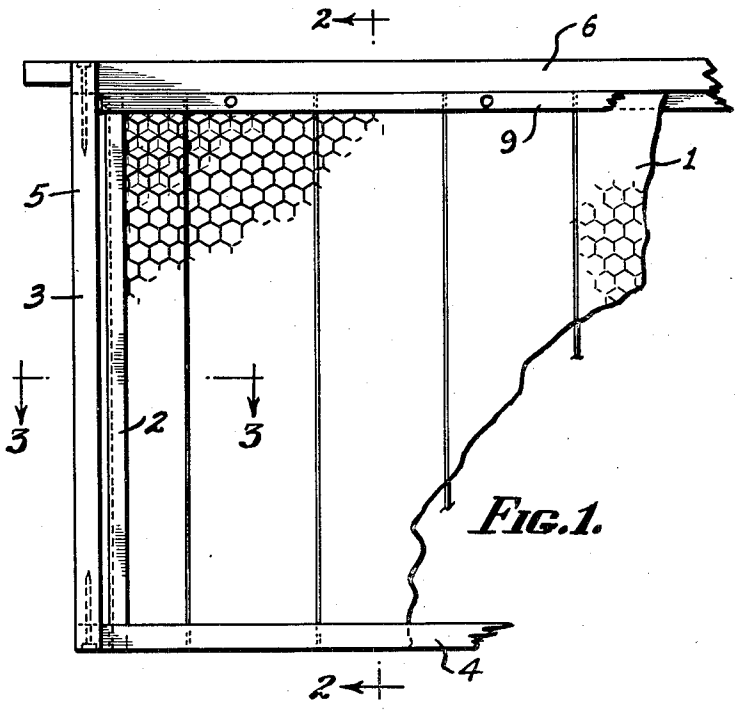


FIG. 1.

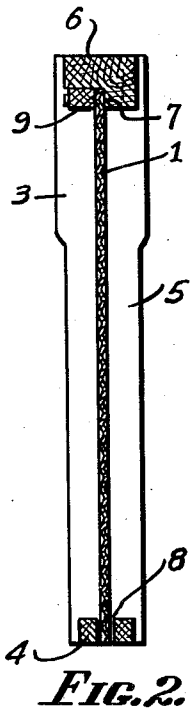


FIG. 2.

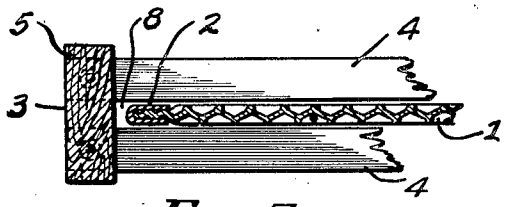


FIG. 3.

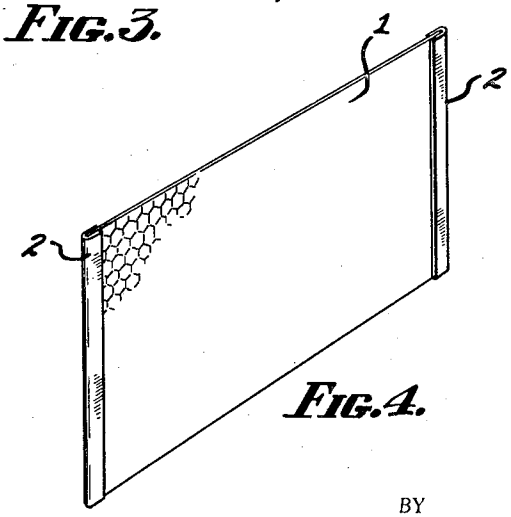


FIG. 4.

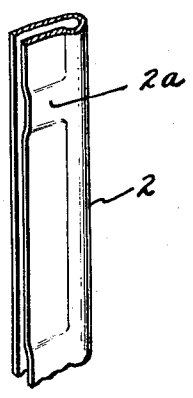


FIG. 5.

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WAX BEEHIVE FOUNDATION

Clifford F. Muth, Cincinnati, Ohio

Application May 17, 1939, Serial No. 274,207

4 Claims. (Cl. 6—11)

In my Letters Patent No. 1,849,331, issued March 15, 1932, I describe a machine for making artificial comb foundation sheets for use in beehives whereby certain wires are imbedded into the foundation sheets. The invention of my present application relates to improvements in such wire reinforced sheets as well as sheets which are not so reinforced.

Foundation sheets for beehives are formed of beeswax, by molding it between rolls, in the form of staggered rows of cells on both sides. The bees build up from the cell-like walls of the foundation sheet with their own wax, making the honeycomb in which honey is deposited and in which the queen bee lays her eggs. A queen bee will not lay eggs in an imperfect cell.

Such foundation sheets are usually slipped into wooden frames which are slotted at one end to permit this, and tacked down at the upper end of the frame. They have two defects, one is, the strength of the foundation is insufficient to hold the built-up comb of full-sized cells which the bees make and fill, and the other is that they buckle. The device of my patent was directed to increasing the strength of the foundations by imbedding vertical wires in them that extend in the direction of the load. This reinforcement does not, however, as experience has shown, prevent buckling, and even with the sheets made on my patented machine and reinforced with wires, buckling is a defect which is usually guarded against by the user of the sheets stretching wires across the sheets, at several points, at right angles to the reinforcing wires.

My present invention is directed to the prevention of this buckling. When foundation sheets buckle, one sheet bulges out to a position so close to another sheet in the hive, that there is insufficient space for full-sized cells to be built up on the faces of the two adjacent sheets. As a result the worker bees do not build up the cells deeply enough, and the queen bee will refuse to lay eggs in such cells.

By the use of my invention this buckling is prevented very simply, and indeed the buckling prevention is accompanied by considerable strengthening of the sheet also, so that less reinforcing wires or perhaps no wires at all need to be employed, due to the effect of keeping the sheet in a vertical plane. My sheet can be used in centrifugal extractors operating at much higher speeds than present day reinforced sheets.

The preferred embodiment of my invention is illustrated in the drawing and will be described below, it being understood that the novelty inherent therein is set forth in the claims that follow.

In the drawing:

Figure 1 is a partial side elevation of a beehive frame with my novel foundation in place.

Figure 2 is a section on the line 2—2 thereof.

Figure 3 is a section on the line 3—3 thereof.

Figure 4 is a perspective of the foundation sheet, the reinforcing wires being omitted in this figure, although they will preferably be present.

Figure 5 is an enlarged perspective illustrating a preferred method of affixing the metal strips.

Having prepared the foundation sheet 1 in the ordinary way, I apply to the two lateral edges thereof doubled strips 2 of bendable metal which is simply crimped or collapsed down in place to serve as a sort of frame along the two sides. I find that this holds the foundation sheet against buckling almost entirely. The stiffness of the doubled metal binding along the sides resists bending, and the tendency to buckle in the central portions of the sheet is prevented also.

The usual frames 3 may be used, having the slotted lower section 4, the sides 5, 5, and the top 6, which is cut away to form a seat 7. The upper or unbound top edge of the foundation is slid through the slot 8 in the section 4, and brought to the seat or ledge 7, whereupon a wooden strip 9 is tacked down over the said upper edge.

It is desirable to dip the metal strips in wax, in order to further the instinct of the bees to wax the sides of the foundation to the wooden frame, although bees will do this anyway, if the metal bindings are not too far spaced from the sides of the frame. The bees simply leave a passageway so that they can crawl around from one face of the foundation to the other.

Where reinforcing wires are used, as shown in Figures 1 to 3, they will be imbedded in the wax sheet. It is not necessary with my new sheet to insert any cross wires or frame piece to prevent buckling.

As shown in Figure 4, it may be desirable to eliminate the reinforcing wires, as the side binding increases the lengthwise strength of the sheets due to their tendency to hold the sheets in a straight vertical position at all times and prevent stretching transversely.

As illustrated in Figure 5, it is not desirable to clamp the metal strips 2 tightly to the foundation sheet through their entire length. By leaving unclamped or relieved portions 2*a* at intervals along the strip any tendency of the

foundation to tear along the line of juncture is reduced.

Having thus described my invention what I claim as new and desire to secure by Letters Patent is:

1. In a foundation sheet for beehives, the combination of a honeycombed sheet formed of beeswax or the like, and metal binding firmly secured at both faces of the lateral edges of the sheet, the other edges being left free for tacking to the sheet frame, said foundation sheet from binding edge to binding edge being of slightly less width than the inner dimensions of the frame to which the sheet is to be attached by the said free edges, for the purpose described, said foundation sheet being an article of commerce apart from the frame to which it is to be attached.

2. In a foundation sheet for beehives, the combination of a honeycombed sheet formed of beeswax or the like, and metal binding firmly secured at both faces of the lateral edges of the sheet, said binding being formed of a doubled strip of bendable metal collapsed inwardly about the said lateral edges, the other edges being left free for tacking to the sheet frame, said foundation sheet from binding edge to binding edge being of slightly less width than the inner dimensions of the frame to which the sheet is to be attached by the said free edges, for the purpose described, said foundation sheet being an article of commerce apart from the frame to which it is to be attached.

3. In a foundation sheet for beehives, the combination of a honeycombed sheet formed of beeswax or the like, and metal binding firmly secured at both faces of the lateral edges of the sheet, said binding being formed of a doubled strip of bendable metal collapsed inwardly about the said lateral edges, and reinforcing wires imbedded in the sheet and extending parallel with the said binding, from the top to the bottom of the sheet, the other edges being left free for tacking to the sheet frame, said foundation sheet from binding edge to binding edge being of slightly less width than the inner dimensions of the frame to which the sheet is to be attached by the said free edges, for the purpose described, said foundation sheet being an article of commerce apart from the frame to which it is to be attached.

4. In a foundation sheet for beehives, the combination of a honeycombed sheet formed of beeswax or the like, and metal binding firmly secured at both faces of the lateral edges of the sheet, said binding being formed of a doubled strip of bendable metal collapsed inwardly about the said lateral edges at interspaced points to avoid tearing of the foundation along the line of juncture with the binding, and reinforcing wires imbedded in the sheet and extending parallel with the said binding, from the top to the bottom of the sheet, said foundation sheet from binding edge to binding edge being of slightly less width than the inner dimensions of the frame to which the sheet is to be attached by the said free edges, for the purpose described, said foundation sheet being an article of commerce apart from the frame to which it is to be attached.

CLIFFORD F. MUTH.