Jan. 5, 1960 H. L. SINGER 2,919,450

HONEYCOMB FOUNDATION FRAMES AND MOUNTING MEANS THEREFOR

Filed April 2, 1958 2 Sheets-Sheet 1

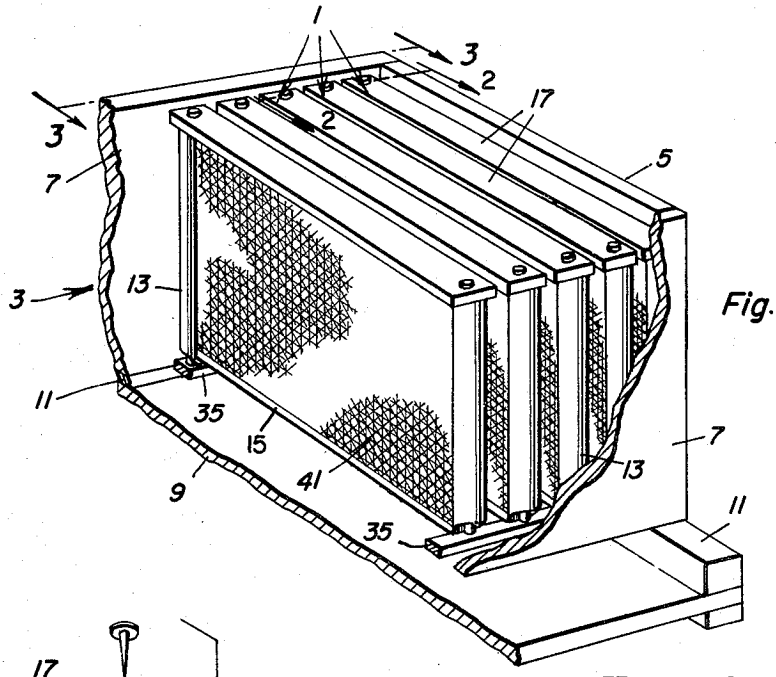


Fig. 1

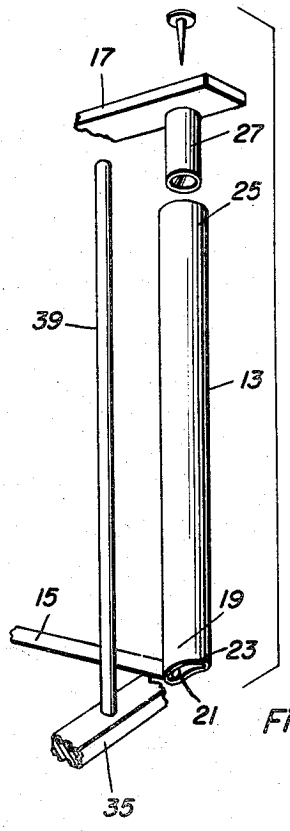


Fig. 5

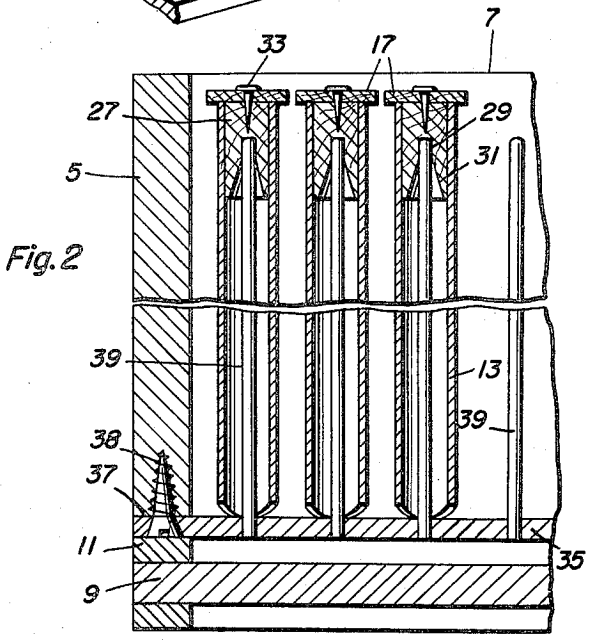


Fig. 2

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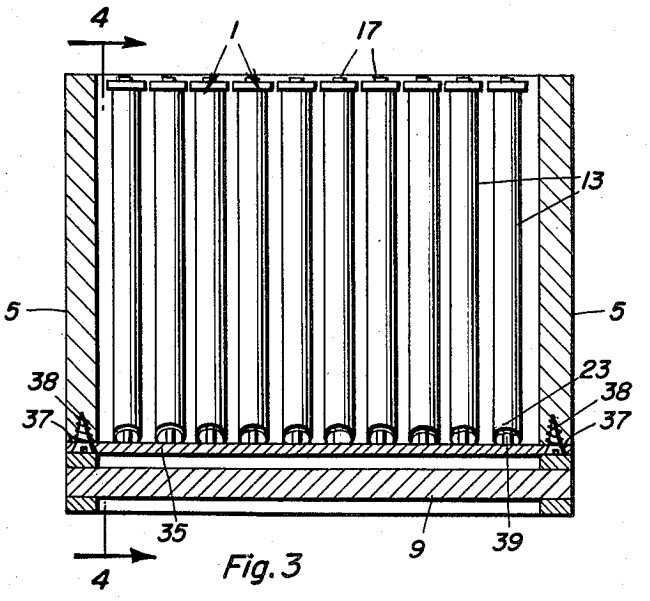


Fig. 3

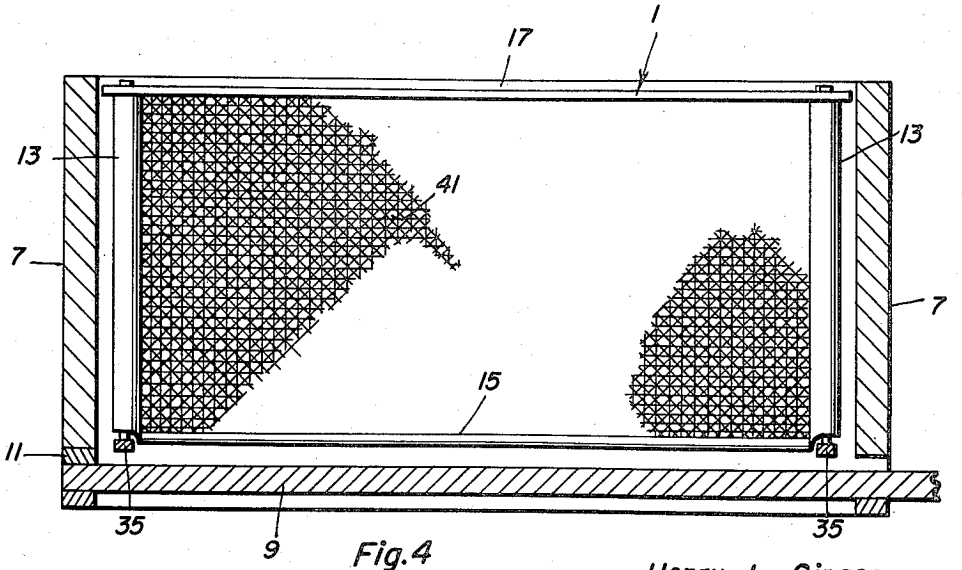


Fig. 4

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# HONEYCOMB FOUNDATION FRAMES AND MOUNTING MEANS THEREFOR

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6 Claims. (Cl. 6—10)

My invention relates to improvements in honeycomb foundation frames and means for mounting the same in a beehive.

By way of premise, present day honeycomb foundation frames as commonly mounted in beehives are difficult to remove from beehives and manipulate therein because of propolization by the bees gluing the frames to the hives and parts of the frames to each other. This results because of lack of bee-way space between the frames and beehive and between the frames which ordinarily bees will not propolize, as discovered long ago.

The primary object of my invention is to provide honeycomb foundation frames and means for mounting the same in beehives which will obviate the above disadvantages in present day honeycomb foundation frames as mounted in the beehives.

Other objects are to provide honeycomb foundation frames of simple construction and which are light in weight yet strong and rigid and may be made of inexpensive standard and readily available materials.

These together with other objects and advantages which will become subsequently apparent reside in the details of construction and operation as more fully hereinafter described and claimed, reference being had to the accompanying drawings forming a part hereof, wherein like numerals refer to like parts throughout, and in which:

Figure 1 is a fragmentary perspective view partly in section illustrating a plurality of my improved honeycomb foundation frames and the means for mounting the same in a beehive;

Figure 2 is an enlarged fragmentary view in vertical cross section taken on the line 2—2 of Figure 1;

Figure 3 is an enlarged view in vertical cross section partly in end elevation taken on the line 3—3 of Figure 1;

Figure 4 is a view in vertical section partly in elevation taken on the line 4—4 of Figure 3; and

Figure 5 is an enlarged exploded view in perspective of parts of one of the honeycomb frames.

Referring to the drawings by numerals, a plurality of my improved honeycomb foundation frames, each designated generally by the numeral 1 have been shown, for the purposes of illustration, as mounted in a conventional beehive structure 3 from which the top, not shown, has been removed and which embodies side walls 5, end walls 7, a bottom 9 and side cleats 11 on said bottom supporting the side walls 5 and one end wall 7 while the bottom of the other end wall 7 is in raised position for an entranceway for the bees.

The honeycomb foundation frames 1 which are rectangular as usual are shorter in length than the distance between the end walls 7 and of less height than the side walls 5 for a purpose presently clear.

Each honeycomb foundation frame 1 comprises a pair of upright tubular end members 13 of any suitable material, a longitudinal bottom rod 15 of round cross section and hard wood and a wooden, longitudinal top bar 17 wider than the end members 13. The rod 15 cross connects the lower ends 19 of the pair of end members 13



and for that purpose is nailed, as at 21 to said lower ends 19 and confronting sides of said end members 13. To facilitate such nailing and for another purpose presently described the lower ends 19 of the end members 13 are beveled, as at 23, from the outer sides of said end members 13. As will be understood the rod 15 is detachable and replaceable.

The top bar 17 is detachably attached to the upper ends 25 of the pair of end members 13 by the following means. A pair of plugs 27 of round cross section and wood, preferably depend from opposite ends of the bar 17 and frictionally fit in the upper ends 25 of the pair of end members 13. The plugs 27 are each provided with a downwardly opening cylindrical socket 29 in the axis thereof and with an upwardly tapering downwardly opening throat 31 therein leading to the socket 29 and for a purpose presently seen. A pair of nails 33 extend downwardly through the bar 17 into the plugs 27 and detachably fasten the plugs to said bar. As will presently more clearly appear the plugs 27 form part of the mounting means now to be described.

The mounting means comprises a pair of brass bars 35 for supporting the honeycomb foundation frames 1 mortised at their ends, as at 37, into the bottom of the side walls 5 to extend alongside and adjacent the end walls 7 in spaced parallel relation thereto and be spaced parallel to and above the floor 7 of the beehive 3 by the cleats 11. Screws 38 secure the supporting bars 35 to said side walls 5.

Upstanding brass rods 39 are suitably secured in the supporting bars 35 in equidistantly spaced relation to from pairs at opposite ends of the beehive 3 spaced from the end walls 7. Each pair of rods 39 form members which fit in the sockets 29 of the plugs 27 of one of the honeycomb foundation frames 1 so that the end members 13 of the frames 1 may be inserted downwardly over the pairs of rods to sleeve the sockets 29 over the upper ends of the pairs of rods and whereby said frames 1 are rigidly detachably attached to the bars in spaced parallel relation side by side to extend upright between the end walls 7 of the beehive 3 in suspended position with the lower ends 19 of the end members 13 spaced above and also adjacent the supporting bars 35.

As will now be seen when the honeycomb foundation frames 1 are secured on the support bars 35 in the manner described they are spaced from each other parallel and from the end walls 7, side walls 5, bottom 9 and the top of the beehive 3 to provide ample bee-way space all around said frames. The beveled ends 23 of the end members 13 provide ample bee-way space between the lower ends 19 of said members 13 and the support bars 35. Also as will be readily apparent the honeycomb foundation frames 1 may be easily and quickly detached from the rods 39 for apiary management with minimum disturbance to bees. Any conventional wire foundation 41 can be suitably attached in the foundation frames 1.

The foregoing is considered as illustrative only of the principles of the invention. Further, since numerous modifications and changes will readily occur to those skilled in the art, it is not desired to limit the invention to the exact construction and operation shown and described, and accordingly all suitable modifications and equivalents may be resorted to, falling within the scope of the invention as claimed.

What is claimed as new is as follows:

1. In a beehive having side and end walls and a floor, a plurality of elongated rectangular honeycomb foundation frames shorter than the distance between said end walls and each including a pair of downwardly opening upright tubular end members, and mounting means in said beehive for suspending said frames therein upright to extend endwise between said end walls in spaced re-

lation thereto and to said floor and in side-by-side spaced parallel relation and including upstanding members extending upwardly into said end members and spacing said upright tubular end members above said floor, said supporting means including a pair of horizontal bars terminally fixed to said side walls in spaced relation to said end walls and said floor and having said upstanding members fixed thereon adjacent to and spaced from said end walls to space said upright tubular end members from said end walls.

2. In a beehive having side and end walls and a floor, a plurality of elongated rectangular honeycomb foundation frames shorter than the distance between said end walls and each including a pair of downwardly opening upright tubular end members, and mounting means in said beehive for suspending said frames therein upright to extend endwise between said end walls in spaced relation thereto and to said floor and in side-by-side spaced parallel relation and including upstanding members extending upwardly into said end members and spacing said upright tubular end members above said floor, said upstanding members comprising rods, said end members having downwardly opening socket members in upper ends thereof sleeved over said rods, said socket members having flaring throats for guiding said rods into the sockets of the socket members.

3. The combination of claim 2, said frames including



top bars having said socket members rigidly depending therefrom, and bottom rods cross connecting the lower ends of said tubular end members.

4. The combination of claim 2, said socket members frictionally removably fitted in said tubular end members, said frames including top bars having said socket members rigidly depending therefrom, and bottom members cross connecting the lower ends of said tubular members.

5. The combination of claim 2, and a pair of horizontal bars terminally fixed to said side walls and supporting said rods and spaced from said end walls and floor parallel therewith, said tubular members having lower beveled ends spaced from and close to said bars.

6. A rectangular honeycomb foundation frame comprising upright tubular end members, a pair of downwardly opening socket plugs in the upper ends of said tubular end members for sleeving over upright rods in said hive, a top bar from which said socket plugs rigidly depend and a rod cross connecting the lower ends of said end members.

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