Aug. 28, 1945. G. A. CARPENTER 2,383,708

APPARATUS FOR MOUNTING FOUNDATIONS

Filed April 15, 1944 2 Sheets-Sheet 1

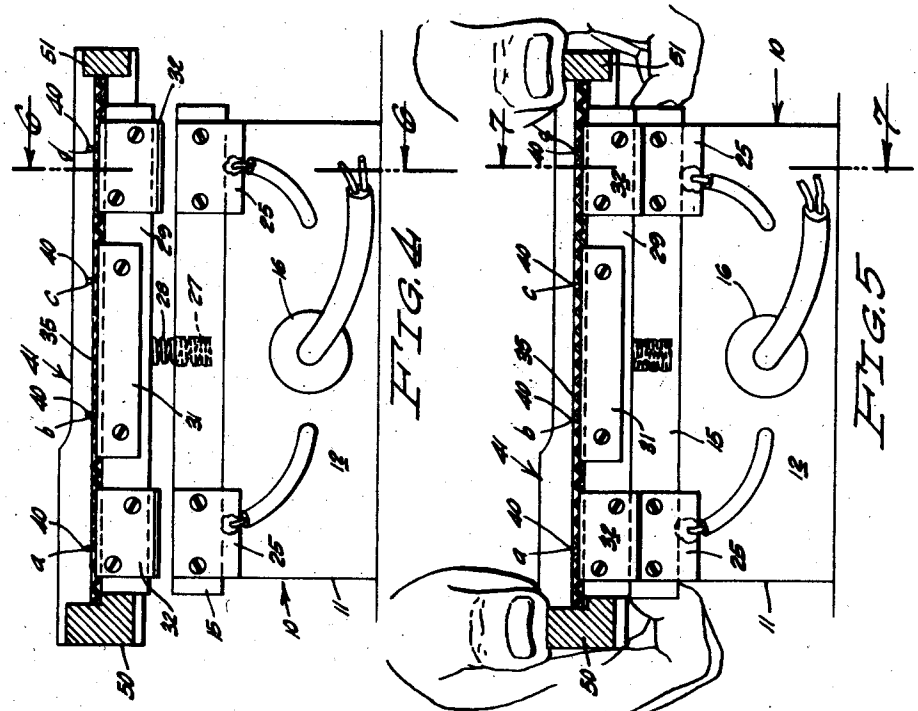


FIG. 4

FIG. 5

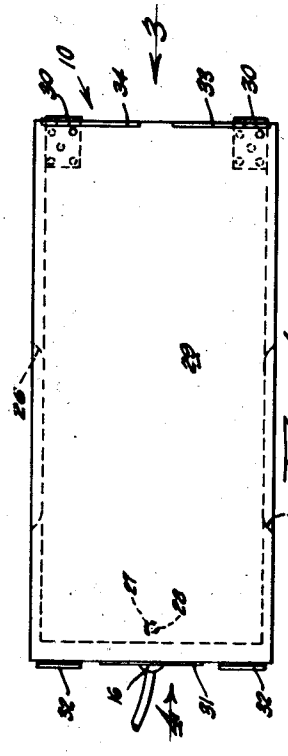


FIG. 1

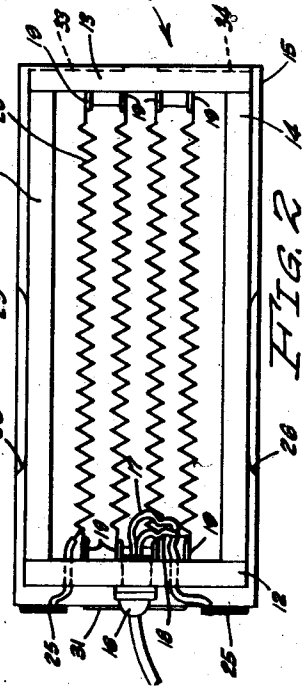


FIG. 2

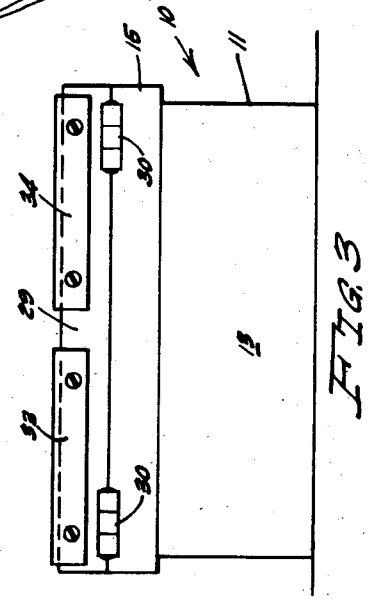


FIG. 3

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APPARATUS FOR MOUNTING FOUNDATIONS

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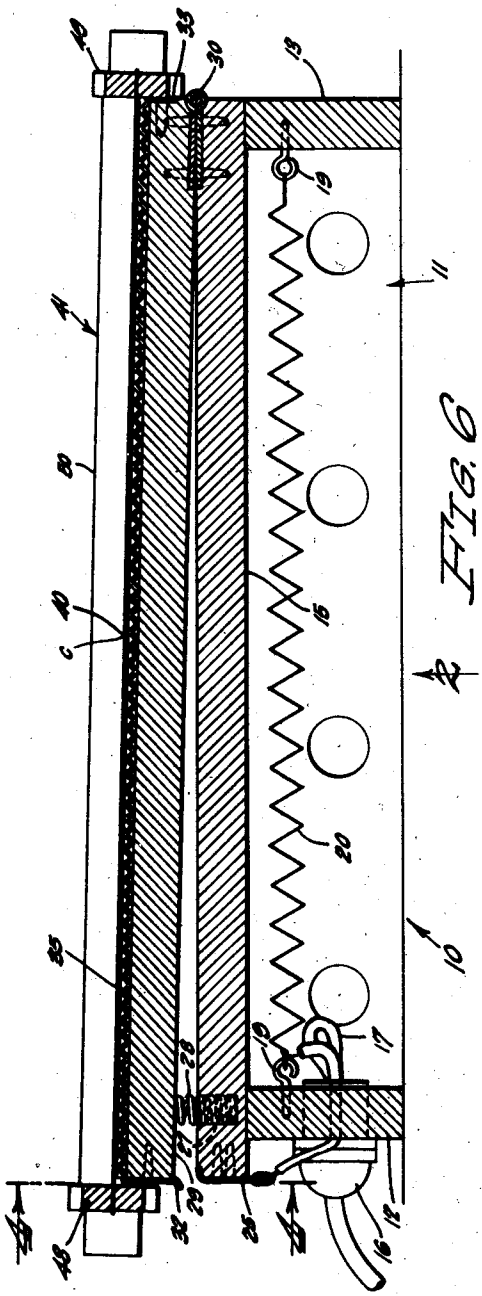


FIG. 6

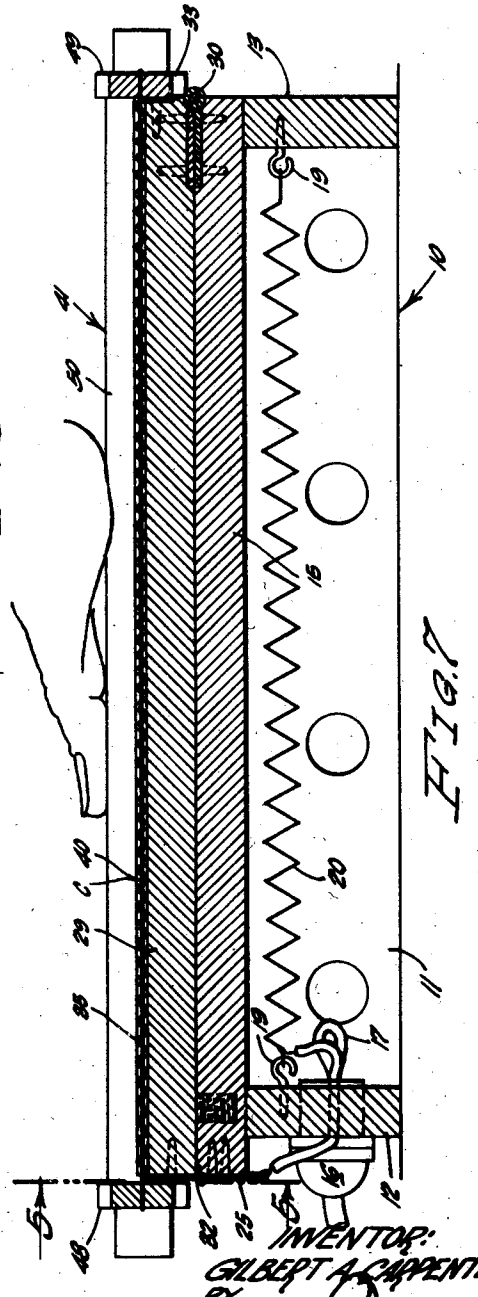


FIG. 7

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APPARATUS FOR MOUNTING FOUNDATIONS

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Application April 15, 1944, Serial No. 531,223

3 Claims. (Cl. 6—12)

This invention relates to the art of bee culture and is particularly useful in the mounting of wax comb foundations on frames by which these are suspended in the hive.

The practice has long been followed in bee culture of supporting wax comb foundations on frames by a series of fine wires strung across the frame and embedded in the wax of the foundation. Considerable difficulty, however, has been met with in uniting the wire with the foundation.

It is an object of my invention to provide a novel and efficient apparatus for embedding reinforcing wire in a wax comb foundation.

It is another object of my invention to provide such an apparatus by which this operation may be quickly and economically performed by apiarists.

The manner of accomplishing the foregoing objects as well as further objects and advantages will be made manifest in the following description taken in connection with the accompanying drawings in which:

Fig. 1 is a plan view of a perferred embodiment of the apparatus of my invention.

Fig. 2 is a bottom plan view of the apparatus shown in Fig. 1.

Fig. 3 is an enlarged end elevational view taken in the direction of the arrow 3 in Fig. 1.

Fig. 4 is an opposite end elevational view taken on the line 4—4 of Fig. 6 and illustrating an essential step in using the apparatus of my invention.

Fig. 5 is a view similar to Fig. 4, is taken on the line 5—5 of Fig. 7, and illustrates a succeeding step in using the apparatus of my invention.

Fig. 6 is a longitudinal sectional view taken on the line 6—6 of Fig. 4.

Fig. 7 is a view similar to Fig. 6 and is taken on the line 7—7 of Fig. 5.

Referring specifically to the drawings, the apparatus of my invention is there shown in the form of an embedder 10 which has a rectangular wooden base 11 including ends 12 and 13, sides 14 and a top 15. The base end 12 has an electric plug receptacle 16 with electric leads 17 and 18. The ends 12 and 13 are provided with hooks 19 on which is strung a single piece of coiled electric resistance wire 20. Secured to an end of the base top 15 adjacent the base end 12 are electric contact plates 25, one of which is connected to one end of the resistance wire 20, the other of which is connected to the lead 17. The lead 18 connects to the other end of the resistance wire 20.

Opposite sides of the top 15 have finger accommodating recesses 26, see Figs. 1 and 2, the purpose of which will be made clear hereinafter.

The top 15 is provided with a recess 27 in which a coiled expansion spring 28 is retained.

Superimposed over the top 15 is a rectangular foundation platform 29 which is pivotally connected by hinges 30 to the base top 15. The platform 29 has a central gauge plate 31 and side gauge plates 32 mounted on one end thereof and a pair of gauge plates 33 and 34 mounted on the opposite end thereof, all of these gauge plates extending above the upper surface of the platform 29 a distance equal to slightly less than half the depth of a wax foundation 35 on which the embedder 10 is adapted to operate. The gauge plates 32 extend below the platform 29 so as to engage the electric contact plates 25 when the platform 29 is depressed.

Operation

The apparatus 10 of my invention is employed for embedding reinforcing wires 40, which are strung on a frame 41, in the wax foundation 35.

The wire 40 is a single length and is strung between ends 48 and 49 of the frame 41 to form four strands *a*, *b*, *c* and *d*. The stringing of the wire on the frame ends is done by extending the wire through holes therein, the opposite ends of the wire being located where strands *a* and *d* pass through and are secured to the frame end 48. Strand *a* extends from frame end 48 through frame end 49 returning as strand *b*, which passes through the frame end 48 and then returns, as strand *c*, to frame end 49 from which it returns as strand *d* to frame end 48. It is thus seen that opposite ends of the wire 40 are located at the frame end 48 directly over the gauge plates 32 and the electric contact plates 25. It is also seen that the strands *a* and *b* adjacent the frame end 49 pass over the gauge plate 34 and strands *c* and *d* adjacent this end pass over gauge plate 33. It is also to be seen that strands *b* and *c* adjacent the frame end 48 pass over the central gauge plate 31.

The foundation 35 and frame 41 having been placed on the platform 29, as shown in Figs. 4 and 6, the embedding operation is performed in about three seconds by grasping the opposite side edges of the platform 29 with the fingers of the two hands and pressing down with the thumbs on the sides 50 and 51 of the frame 41 so as to stretch the strands *a*, *b*, *c* and *d* of wire 40 across the upper face of the foundation 35 and then pressing the frame 41 downwardly to bring the opposite ends of the wire 40 into contact with

gauge plates **32** and press these down into contact with the plates **25**, as shown in Figs. 5 and 7. This heats the wire **40** by passing an electric current therethrough so that the strands *a*, *b*, *c* and *d* thereof quickly melt their way into the upper surface of the foundation **35** while these wires are held taut and straight in the plane of the upper edges of the gauge plates **31**, **32**, **33** and **34**.

At the instant the wire is thus embedded, downward pressure of the hands on the frame **41** is partially relaxed, allowing the platform **29** to rise breaking contact between the plates **25** and **32**. The current through the wire **40** is thus broken so that the latter is no longer heated and the wax quickly hardens about strands *a*, *b*, *c* and *d* of this wire while these strands are still held taut by a slight downward pressure of the hands on the frame **41**. A perfect embedding of these strands in the foundation **35** is thus produced.

The notches **26** provide room for the finger tips in the operation of my invention as shown in Fig. 5.

The reinforcing wire **40** with which the frames **41** are strung usually consists of a single eight foot piece of 28 gauge iron wire which is preferably tinned although untinned wire may be used.

The apparatus **10** of my invention is adapted to be employed with electricity from a 110 volt domestic electric system. The resistance wire **20** is preferably such as to reduce the voltage down to about 28 volts. The circuit which is formed by operation of the device **10** draws approximately six amperes.

While the gauging of the depth to which the wire sinks into the foundation **35** is a valuable element of my invention as it makes it "fool proof," the invention, in its broader aspects, may be performed by a skilled operator without such a positive gauge of the depth to which the wire **40** penetrates the foundation at the extreme ends of the latter. As a practical matter, therefore, the device **10** may be operated with the gauge plates **31**, **32**, **33** and **34** flush with the upper face of the platform **29**. When this is done the wire **40** may cut almost through the foundation **35** right at its ends yet be properly embedded in the rest of the foundation, thereby giving a satisfactory mounting of the latter on the frame **41**. To do this, downward pressure on the frame **41** must be partially relaxed to break the electric circuit before the hot wire strands have melted themselves too far into the wax foundation, while continuing to hold these strands taut until the wax cools.

No matter how my method be performed, it is essential that the wires *a*, *b*, *c* and *d* be kept taut while the wax is cooling so that these wires will be properly embedded in the wax of the foundation when this congeals about the wires.

It is thus clear that my invention as disclosed is subject to various modifications without departing from the spirit of the invention or the scope of the appended claims.

I claim:

1. In an apparatus for embedding a reinforcing wire in a wax comb foundation, the combination of: a platform for supporting said foundation; means for yieldably supporting said platform; and means operative when said reinforcing wire is stretched and pressed downwardly against an upper face of said foundation to pass electricity through said wire and heat the same causing it to embed itself in said foundation.

2. In an apparatus for embedding a reinforcing wire in a wax comb foundation, the combination of: a platform for supporting said foundation while said wire is being embedded therein; means adapted to engage said wire when the latter is pressed in taut condition against the exposed face of said foundation to heat said wire by passing electricity therethrough and means for disconnecting said heating means in response to a partial relaxation of the pressure of said wire against said foundation.

3. In an apparatus for embedding a series of reinforcing wires provided on a frame in a wax comb foundation, the combination of: a base; a platform hingedly mounted at one end thereof on said base so as to substantially overlie the latter; a spring yieldably spacing the other end of said platform from said base, said platform being adapted to support said foundation; and means adapted to engage said wires, when said frame is pressed downwardly to stretch said wires and force them against said foundation, to heat said wires by passing electricity therethrough thereby causing said wires to become embedded in said foundation, said heating means being disconnected by partial relaxation of downward pressure against said frame.

GILBERT A. CARPENTER.