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ELECTRIC APPARATUS FOR SECURING BASIC WAX SHEETS TO THE WIRES OF HONEYCOMB FRAMES FOR BEEHIVES

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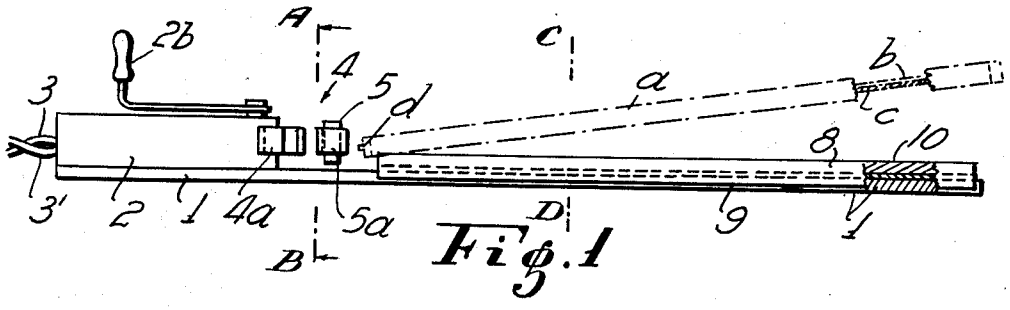


Fig. 1

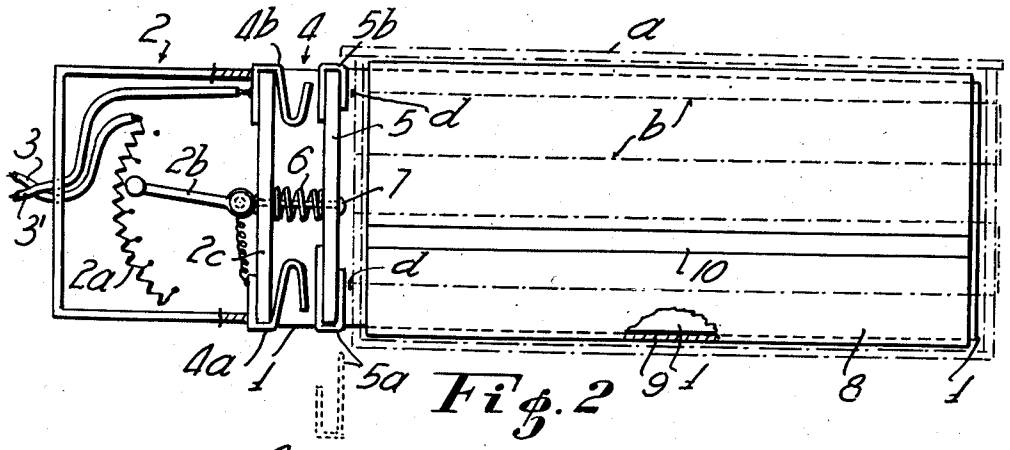


Fig. 2

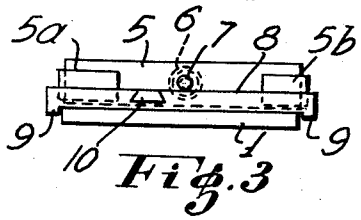


Fig. 3

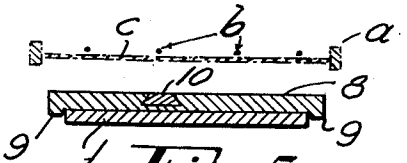


Fig. 5

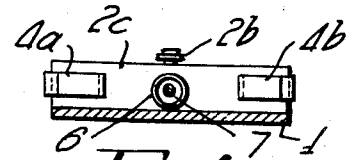


Fig. 4

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ELECTRIC APPARATUS FOR SECURING BASIC WAX SHEETS TO THE WIRES OF HONEYCOMB FRAMES FOR BEEHIVES

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5 Claims. (Cl. 6—12)

1

The present invention relates to the production of honeycombs for beehives. It is an object of the invention to provide means contributing to an improved electric apparatus permitting in an efficient and simple manner securement of the usual wax sheets to the wires of honeycomb frames.

Heretofore, different systems have been used for securing in position the basic wax sheets in honeycomb frames as, for example, by mechanical pressure with the aid of adequately shaped rollers, by insertion of the sheet within a narrow space left between two rows of wires; or by electrically heating the wire, although this latter system has frequently involved the risk of partially destroying the wax sheet at the slightest negligence of the operator.

Besides, up to the present no system has been known permitting said wax sheets of being secured in position in an efficient manner and without undue inconvenience.

Another object of the present invention is to provide means affording securing in place of said wax sheets in a most simple and safe manner, by incorporating the frame wires in the wax body without any risk of cutting or otherwise damaging the wax sheet.

With the apparatus according to the invention it is possible to heat the wires of a honeycomb frame before they are placed in contact with the wax sheet, thus controlling the correct temperature required for softening the wax material exactly to a point where the wire may become incorporated in the body of the wax sheet without damaging the latter.

The present apparatus is further characterised by the provision of certain novel elements, such as, means for opening or closing the heating circuit through the honeycomb frame proper; a slidable supporting platform and possibility of modifying its width in accordance with difference in size of the frames, and other features which will become apparent as the following description proceeds, which should be read in conjunction with the accompanying drawing, wherein:

Fig. 1 is a side view of an apparatus embodying the invention, parts being broken away;

Fig. 2 is a top plan view thereof;

Fig. 3 is a view taken from the rear end of the apparatus;

Fig. 4 is a cross-sectional view on line A—B;

Fig. 5 is a further cross-sectional view on line C—D of Fig. 1.

The construction illustrated in the drawing

2

comprises a platform 1 at one end of which is mounted a rheostat 2 having a resistor 2*a* (Fig. 2) which may be supplied with electric current from any adequate source through one of the wires and 3, 3'. Since resistor 2*a* must be connected in series, it is joined to selector handle 2*b* which is electrically connected to the resilient contact 4*a* of interrupter 4, whereas the other contact 4*b* is connected directly to wire 3'.

If the resistor 2*a* is of the fixed type, selector handle 2*b* may be dispensed with, the connection then being made from any point desired to a contact of interrupter 4, in accordance with the fall of tension as required.

Interrupter 4 has two further contacts 5*a* and 5*b*, opposing respectively contacts 4*a* and 4*b*, these contacts being in the form of clips arranged at the ends of a bar 5. At least one of these clip contacts has a different length from the other, so as to permit of arranging the longer clip contact member either to the inner or to the outer side (as indicated in full and dotted lines in Fig. 2) by reversing the positions of clips 5*a*, 5*b* with respect to bar 5 so as to permit the application of frames of lesser width where the projecting ends of the wire *b* for contact with said clips 5*a*, 5*b* are located at a corresponding shorter distance between them.

The bar 5 is shiftable on platform 1, to which end at its medial portion a spring 6 is provided so as to establish contact with the corresponding wall 2*c* of the casing or edge of rheostat 2. A small bolt 7 freely projecting through said wall 2*c* (Figs. 2 and 4) serves to maintain the parts in correct operating relationship.

On platform 1 is loosely supported a board 8 having at its sides flanges 9 serving as guides. At a longitudinal zone of said board 8 there is slidably mounted a separable member 10 (Figs. 1, 3 and 5) so as to permit the use of the device in connection with honeycomb frames of lesser width which are used in certain types of beehives.

When the present device is used in connection with frames of standard dimensions, the latter are placed on the slidable board 8 so that their end and side members extend downwardly along the ends and sides of board 8 with the wire *b* resting on the wax foundation placed on top of said board, terminals *d* being in a plane parallel to the plane of the board. When using the device in connection with frames of lesser width, one side member thereof would remain resting on top of board 8 with terminals *d* out of alignment with contact clips 5*a*, 5*b*. Therefore, in

such a case, the slidable member 10 is longitudinally withdrawn from its seat, thus providing in the board 8 a guide groove adapted to receive the corresponding side member of the frame and permitting terminals *d* to be aligned and on level with clips 5*a*, 5*b*.

The operation of the device is as follows:

Figs. 1, 2 and 5 illustrate a frame *a* on which is mounted a wire *b* and a basic wax sheet *c* which is to be secured to the wire *b*. It is to be noted that the terminals or free ends *d* of said wire project slightly beyond one of the ends or head members of the frame *a*.

In order to carry out the operation for uniting the wax sheet *c* to the wire *b*, the frame *a* is placed on the board 8 and this assembled unit is slid along on platform 1, with the ends or terminals *d* of wire *b* in contact with contact clips or members 5*a*, 5*b* which, as aforesaid, are arranged on the movable bar 5. Thereafter, the latter with the frame *a* is pushed along until said clip contact members 5*a*, 5*b* encounter contacts 4*a* and 4*b*, thereby closing the electric circuit whereupon wire *b* becomes heated. At this stage, the required degree of heating of wire *b* may be ascertained by touch and after establishing that the temperature of the wire is sufficient to partially soften, or melt, the wax of sheet *c* so as to permit the incorporation of wire *b*, the electric circuit is opened by the return of bar 5 to its normal position due to the action of spring 6. After cooling, the wire *b* will remain firmly embedded in the body of the wax sheet *c*.

The hereinbefore described operation has been explained merely by way of example, and it will be apparent to those skilled in the art that this may be modified without exceeding the scope of the invention. For instance, if desired, the wax sheet might be brought into contact with the heated wire after the electric circuit had been opened.

It may be emphasized that an electric arc may be formed between contacts 4*a*, 5*a* and 4*b*, 5*b*, thus avoiding any possible damage to the ends or terminals *d* of wire *b*. Further, the bar 5 will easily follow different angular positions of frame *a* in view of its free movement, thereby warranting a perfect electric connection between terminals *d* and contact members 5*a*, 5*b*.

Also, in the case of frames of lesser height, these may be placed on the board 8 removing the member 10, thus making possible the contact between the wires and wax sheet.

The resistor 2*a* may be adjusted, as regards its electric resistance, in accordance with operating conditions in each case, that is, available tension, length and cross-section as well as specific resistance of wire, etc., without exceeding the scope of the invention.

It is to be understood that different modifications may be made of the constructive details of the apparatus, within the scope and reach of the appended claims.

Having thus fully described and ascertained the nature of my invention, and the manner in which the same is to be performed, what I claim is:

1. An electric apparatus for securing wax sheets to the wire of honeycomb frames for beehives comprising a platform, an electric circuit, an interrupter in said circuit, a resistor connected in series with said interrupter, said interrupter including two fixed resilient contacts, a support for said fixed contacts, two movable contacts including a member capable of being shifted with said movable contacts, along on said platform and toward said fixed contacts, said movable contacts being arranged so as to close said electric circuit upon contact of the ends of said wire of said honeycomb frame when supported by said platform.

2. An electric apparatus according to claim 1, wherein said shiftable member comprises a bar provided with a spring interposed between said member and said support carrying said fixed contacts.

3. An electric apparatus according to claim 1, wherein a board provided with guide members is slidably arranged on said platform, said board having a longitudinally extending slidable member level with said board.

4. An electric apparatus according to claim 1, wherein said resistor is provided with means for modifying its ohmic resistance.

5. An electric apparatus according to claim 1, wherein said movable contacts are arranged on said slidable member and are in the form of clips with branches of different length.

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