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BEEHIVE CLAMP

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Fig. 1.

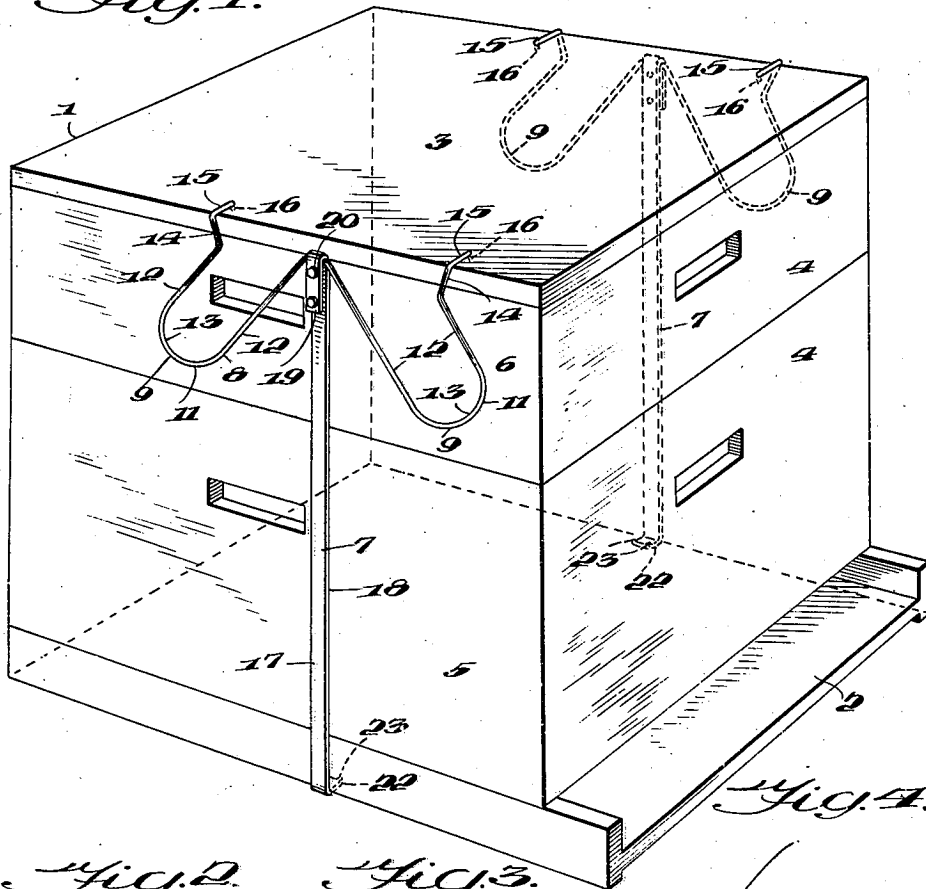
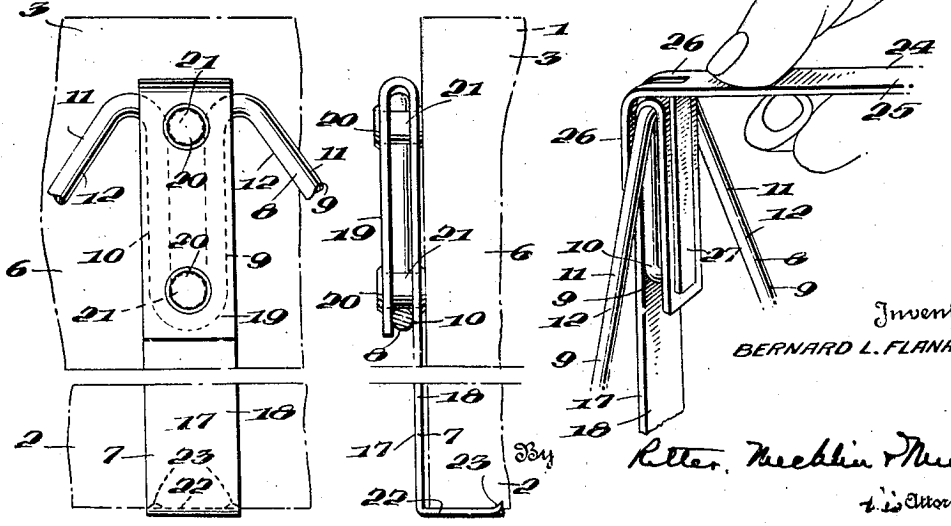


Fig. 2.

Fig. 3.



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BEEHIVE CLAMP

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9 Claims. (Cl. 6—12)

The invention relates to a beehive and more particularly to a clamping or anchoring means therefor.

An object of the invention is the provision of a clamping or anchoring means adapted to be associated with a beehive so that the latter may be maintained in assembled relation and moved from one location to another as an assembled unit.

Another object of the invention is the provision of a clamping assembly or mechanism for a beehive which may be easily removed so that the beehive may be disassembled.

A further object of the invention is the provision, in a beehive, of a securing means having resilient characteristics so that it may hold the various component parts of the beehive together firmly.

An added object of the invention is the provision, in a beehive, of a clamping or anchoring means made up of separable parts in order that at least one of the parts thereof may be used with hives of different vertical extent.

The above as well as numerous other objects will become apparent from a perusal of the succeeding description of the invention and by referring to the accompanying drawing which illustrates an exemplified form of the invention and wherein:

Figure 1 is a perspective view of a beehive having associated therewith a form of the present invention.

Figure 2 is a front elevational view of a portion of the clamp or anchor forming the invention and enlarged to more clearly illustrate the details of construction; the limits of a portion of the hive being illustrated diagrammatically to show the relation of parts.

Figure 3 is a side view of the portion of the clamp disclosed in Figure 2, a part thereof being illustrated in elevation and another part thereof shown in section.

Figure 4 is a perspective view of a portion of the clamp with a particular tool associated therewith to illustrate a preferred means and method of assembling or disassembling the clamp or anchor with or from the beehive.

Referring now in detail to the drawing wherein like reference characters designate like parts, the numeral 1 is employed to indicate, in a general manner, a beehive of ordinary or usual construction and adapted to house a colony of bees. The hive comprises a base member or lower or bottom board 2 forming the lowermost extremity of the hive and a cover member or top board 3

forming the uppermost extremity of the hive and arranged to present a shelter or top closure whereby rain or other foreign substance is prevented from entering the hive. Interposed between the base member and top board is a plurality of box sections 4 superimposed upon one another to form defining side walls of the hive and confining a bee colony accommodating area therein. The box sections are composed of a lower section or hive body 5 bearing upon and in direct engagement with the bottom board and a super 6 of the same horizontal extent as and, in turn, supported by the hive body. Since the illustrated hive is employed merely to show a type thereof with which the present invention may be associated it will accordingly be clearly understood that a plurality of series of stacked supers may, if desired, be interposed between the top board or cover member and the subjacent hive body.

For various reasons known to those familiar with the art it becomes necessary at times to move the hive from one location to another while housing a colony of bees. In order to prevent an accidental or unintentional displacement, removal or separation of the component parts of the hive proper a clamping means, mechanism or assembly, designated generally by the reference character 7, is associated with oppositely disposed or spaced sides of the beehive. By reason of the anchoring mechanism the hive may, therefore, be moved or shipped from one location to another as a unitary, stable or rigid structure without the danger of disturbing the colony of bees associated therewith. Each clamping assembly comprises a flexible or resilient means characterized by a yieldable wire or rod in the form of a tension spring 8 having a series of convolutions 9 vertically disposed and lying adjacent a side wall of an associated super. Each tension spring is made up of an intermediate, central or small loop or convolution 10 U-shaped in side elevation and opening in an upward direction. Extending laterally of or longitudinally from and forming continuations of each central loop are longitudinally spaced, large U-shaped outer loops or convolutions 11 opening upwardly of the hive and at an inclination to the vertical so that substantially parallel or spaced arms 12 and connecting returns or bends 13 of each outer loop may be readily flexed or made responsive to forces transmitted thereto and impart a resilient characteristic to the tension spring. The free extremity of each outer loop is vertically disposed, as at 14, to pass

through the horizontal plane of the cover member and terminates in a horizontal leg 15 which overlies and bears upon or reacts vertically against the top board. Since the vertically disposed portion of each outer loop extends across the juncture of the cover member and subjacent super, any tendency of the top board to shift in a horizontal direction toward or away from the respective clamping means will be arrested or overcome by the outer loop free extremities. In order to positively retain the spring legs in a predetermined position each leg has, depending from an innermost or free extremity, a sharp or pointed projection, tine or prong 16 which is adapted to embed itself into the cover member, and accordingly relative movement between the top board and spring is prevented.

Associated with each spring is a non-resilient element or link member represented by a bar, strap or shaft 17 vertically disposed and lying adjacent or against a side wall of the super and hive body to span or bridge the distance between the cover and bottom board. Each link shaft has an intermediate or main section 18 terminating adjacent its upper extremity in a downwardly depending return tang or flange 19 which is desirably spaced a predetermined distance away from the associated main section to form therewith a downwardly opening U-shaped clamp. Horizontally aligned, vertically disposed apertures are provided in each tang and intermediate section to accommodate rivets 20 which preferably have their heads flattened to present a relatively smooth outer surface. The rivets have stems 21 bridging or spanning the distance between the connected elements, as most clearly illustrated in Figure 3 of the drawing. By thus forming the upper extremity of the link the latter may be interlocked with the resilient element to removably secure the two together. Specifically, it will be noted that the clear or restricted opening of each central convolution is substantially equal to the diameter of the rivet stems so as to accommodate the latter and that the depth of each central convolution is a trifle greater than the overall dimension of the related rivet stems. Accordingly, each central convolution is positioned between an associated tang and main section to prevent a transverse pivotal movement between the resilient and non-resilient elements, and the rivets of each clamp are housed in a pocket-forming central convolution to eliminate any pivotal movement between the spring and link in a direction longitudinally of the hive.

The other or lowermost extremity of each intermediate section terminates in an inwardly or angularly disposed arm or wing 22 which underlies or extends within the vertical plane of the bottom board to bear thereagainst. The inner end of each wing is scarfed or scored to present upwardly directed teeth 23 which are adapted to be embedded in the bottom board and thereby prevent a relative horizontal shifting of the base member and link.

The assembly of the clamping mechanism and a hive is relatively simple and may be done quite expeditiously by placing the legs of the springs preferably intermediate the ends of the cover adjacent the edges thereof and by urging the link downwardly to flex the outer spring convolutions until the arms reach a position below the bottom board at which time the links are pivoted about a point adjacent their upper extremities in a direction inwardly of the hive until the arms are in subjacent relation with the bottom board. A

release of the links will, by reason of the energy stored up in the springs, bring the arms into bearing relation with the base member, and the hive is then securely or rigidly fastened together, having all parts thereof interposed between the vertically acting or urged legs and arms.

It will be observed that since the rivet stems normally occupy the space in an associated central convolution any flexing of the spring will tend to restrict the clear opening of the central convolution to wedge the rivet stems therein and make the connection firm and capable of withstanding any forces tending to shift the component parts of the hive in a longitudinal direction relative to one another.

As previously stated, a plurality of supers may be positioned in stacked relation upon the hive body, and consideration has been given to such a change in hive assembly. The clamping means has been designed so that the springs may be employed with a hive of any height, and if the hive is changed from the illustrated assembly to the extent of added supers it becomes only necessary to supplement the illustrated link with one extended to accommodate the added hive height. Since the clamping mechanism lies adjacent the side walls of the hive and does not present any appreciable holding or operating means a special tool has been devised to apply and remove the anchoring mechanism to and from the hive. By referring particularly to Figure 4 of the drawing it will be noted that a fork-like tool 24 is formed of bar material and comprises a handle 25 which can be grasped by an operator. The handle has, adjacent an extremity thereof, downwardly extending spaced end fingers 26 which are adapted to be inserted between a link and related super. Positioned in spaced relation with the end of the tool is an intermediate finger 27 extending vertically in the same direction as the end fingers and formed by the displaced metal which occupied the area between the end fingers before the tool was formed. The tool fingers are arranged so that an upper extremity of the link may be positioned therebetween, and a downward force applied to the handle will carry the arm below the base member where it may be moved to or out of engagement with the bottom board.

From the above description and accompanying drawing it will be noted that various changes and alterations may be made thereto without departing from within the spirit and scope of the appended claims.

I claim:

1. A clamp for a beehive of the type having top and bottom boards and one or more sections intermediate said boards, said clamp comprising an energized spring means having portions thereof adapted to be removably secured to one of said boards, and link means having one end rigidly interlocked with an intermediate portion of said spring means, said link means having another end thereof adapted to be removably secured to the other of said boards.

2. A clamp for a beehive of the type having top and bottom boards and one or more sections intermediate said boards, said clamp comprising an energized tension spring having laterally spaced end portions adapted to engage one of said boards, and a strap having one end thereof rigidly secured to said tension spring intermediate the ends thereof and having its other end adapted to engage the other of said boards.

3. A clamp for a beehive of the type having top and bottom boards and one or more sections

intermediate said boards, said clamp comprising an energized tension spring having spaced end portions adapted to be secured to one of said boards and an intermediate portion adapted to lie adjacent one of said sections, and a strap having one end thereof rigidly secured to said spring intermediate portion and adapted to lie adjacent all of said sections, said strap having another end thereof adapted to be secured to the other of said boards.

4. A clamp for a beehive of the type having top and bottom boards and one or more sections intermediate said boards, said clamp comprising a vertically extending energized tension spring having laterally spaced angularly disposed end portions adapted to be removably associated with one of said boards, and a strap having one end thereof rigidly and removably interlocked with said tension spring intermediate the ends thereof, said strap having an angular leg adapted to be removably associated with the other of said boards.

5. A clamp for a beehive of the type having top and bottom boards and one or more sections intermediate said boards, said clamp comprising resilient means having angularly disposed legs terminating in pointed projections adapted to embed themselves in one of said boards, said resilient means having an open loop intermediate its ends, a strap having one end thereof interlocked with said loop, and an angularly disposed leg at the other end of said strap having means associated therewith adapted to be embedded in the other of said boards.

6. A clamp for a beehive of the type having top and bottom boards and one or more sections intermediate said boards, said clamp comprising a resilient means having angularly disposed leg portions terminating in pointed projections adapted to embed themselves in one of said boards, said resilient means having an open loop intermediate its ends, a strap having one end thereof rigidly and removably interlocked with said loop, and an angularly disposed leg at the

other end of said strap having means associated therewith adapted to be embedded in the other of said boards.

7. A clamp for a beehive of the type having top and bottom boards and one or more sections intermediate said boards, said clamp comprising resilient means having angularly disposed end portions terminating in pointed projections adapted to embed themselves in one of said boards, said resilient means having a portion formed by a series of convolutions, and a strap interlocked with one of said convolutions, an extremity of said strap being angularly disposed and having pointed means adapted to be embedded in the other of said boards.

8. A clamp for a beehive of the type having top and bottom boards and one or more sections intermediate said boards, said clamp comprising resilient means having angularly disposed legs terminating in pointed projections adapted to embed themselves in one of said boards, said resilient means having a portion formed by a series of convolutions, one of said convolutions being smaller than the other convolutions, and a rigid bar interlocked with the smaller of said convolutions, said rigid bar having an extremity thereof angularly disposed and comprising pointed means adapted to be embedded in the other of said boards.

9. A clamp for a beehive of the type having top and bottom boards and one or more sections intermediate said boards, said clamp comprising a resilient means having a small central U-shaped convolution connecting larger end U-shaped convolutions, said end convolutions terminating in angularly disposed legs adapted to react vertically against one of said boards, a link having an inverted U-shaped end removably and rigidly interlocked with said central convolution, and an angularly disposed arm forming the other extremity of said link and extending inwardly of said beehive, said link arm being adapted to react vertically against the other of said boards.

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