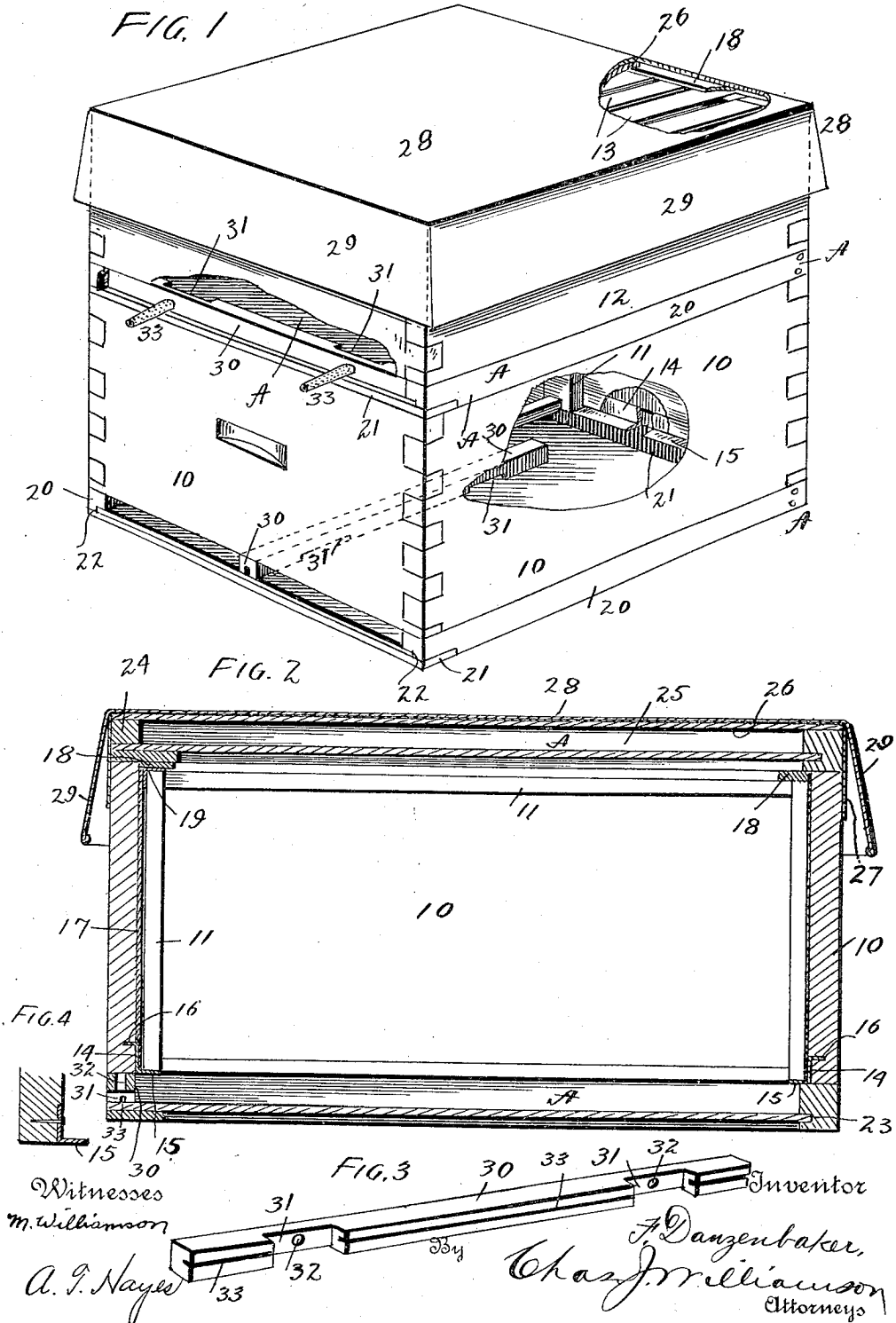


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BEEHIVE.
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UNITED STATES PATENT OFFICE.

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BEEHIVE.

1,122,697.

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To all whom it may concern:

Be it known that I, FRANCIS DANZENBAKER, of Norfolk, in the county of Norfolk, and in the State of Virginia, have invented a certain new and useful Improvement in Beehives, and do hereby declare that the following is a full, clear, and exact description thereof.

The object of my invention is to facilitate the manipulation or control of the bees, reduce the cost of manufacture of the hives and render their construction more advantageous, safeguard the bees from their natural enemies and enable them to safely pass the winter, and diminish the likelihood of propolizing, and thus utilize the energy of the bees in useful work, and avoid the labor and trouble to the apiarist from that cause.

In the accompanying drawings Figure 1 is a perspective view of a bee hive embodying my invention, portions being broken away to show the interior construction; Fig. 2 is a vertical section showing the hive arranged for wintering; Fig. 3 is a detail view in perspective of the stick that performs the functions of a bee escape, mice excluder, etc.; Fig. 4 is a detail view in section showing a different form of the frame-supporting ledge.

Referring to the drawings, 10 designates the brood chamber, or hive containing brood frames 11, and 12 designates a super (shown only in Fig. 1) containing comb honey section holders 13. For supporting the brood frames and the section holders in the brood chamber and super, respectively, I employ a similar device in each case, it consisting of a sheet metal strip 14 secured to the lower edge of the wall on the inside and having an inwardly projecting ledge, or shelf 15 upon which the bottoms of the frames and holders rest. Said strips are secured to the wall by nails, and as an additional precaution, as shown in Fig. 2, the upper edge may be bent horizontally outward and seated in a slit or kerf 16 in the wall; or as shown in Fig. 4, that expedient may be omitted and the vertical portion of the strip seated in a rabbet, or channel in the wall so that its outer face is flush with the inner surface of the hive wall. In each case it will be seen that there is no edge present with which the frame, or holder as it is inserted will engage, or catch, the rounded surface presented of the case in the construction shown in Fig. 2, preventing that occurrence. It will be seen that my

means for supporting the frames, or holders requires no special formation, or construction of the latter, as for example, the provision of pins or projections on the end bars, and involves no waste of room, or space in the hive, which the provision of projections, such as pins on the end bars causes, the projections requiring an inwardly projecting ledge on the inner surface of the hive wall at some point intermediate the top and bottom thereof; and at the same time the frames, or holders are adequately supported and they can easily and quickly be put in place and removed from the hive. Preferably between the hive wall and the end bars of the frames and holders, I place a sheet or layer of paper 17, preferably chemically treated, such paper, for example, as tar paper, which will be offensive to insect enemies of the bees, so that the paper provides protection from insects, and also since it is a nonconductor of heat it prevents the loss of heat from the hive and thus requires fewer bees within the hive to keep it at a proper temperature, so that accordingly a larger number of bees can be at work in the fields. Also to save unnecessary work for the bees in propolizing, I varnish the frames and all the inner surfaces of the hives, it having been discovered if such surfaces are covered with varnish the necessity for the use of propolis by the bees is lessened. Bees use propolis as a protection from insects and also to prevent radiation of heat from the hive.

Over the tops of the brood frames and the section holders at the ends thereof where they abut, I place a thin narrow strip of wood 18 which extends from side to side of the hive and thus covers the joints, which, if left uncovered the bees might daub with propolis; and to assure alinement of the end bars of the frames and holders, and thus the avoidance of shoulders or projections which also might result in the use of propolis by the bees, I crowd all the frames, or holders endwise in the same direction as by means of a strip 19 of tin or other sheet metal, which as shown at the left of Fig. 2 overlaps the top of a row of frames and extends down on the outside thereof contiguous to the inner wall of the hive, the downwardly extending portion constituting a straight edge which alines the frames and by being crowded, or wedged down into the space between the end bars and the con-

tiguous hive wall, prevents the existence of a loose condition which might result in the nonalignment of the frames, or section holders. Said metal strip 19 is covered by the wooden strip 18 before referred to.

I provide a member A for my hive which can be used as a bottom board; for emptying a super, or as a bee escape board; and may be used as an inside cover for the hive for wintering. This member consists of a frame of wood having parallel side bars 20 connected at their ends by parallel cross bars 21, and a sheet of a manufactured product known by the name of asbestos building lumber which covers the entire space between the bars, or rails, and is advantageously secured thereto by having its side edges, respectively, seated in grooves 22 in the inside of each of said side rails and its back edge seated in a groove 23 in the rear cross bar, the front edge extending flush, or substantially flush with the front edge of the front cross bar. By this construction, on the upper side the member A is closed on both sides and at the rear, but is open at the front, and on its underside is closed on each of the four sides and the space inclosed on the underside has a depth of a bee space, or a little more, while the space above the sheet 21 to the tops of the bars forming the frame is considerably greater. Said member is shown in Fig. 1, serving as a bottom board and also as a bee escape board and in Fig. 2 it is shown as serving for a bottom board and also as an inside cover for wintering, in which last-named use it is applied directly to the top of the hive so that allowing for the bee space above the frames in the hive a double bee space is provided above the latter in which the bees can cluster for wintering and there is abundance of room for them to move about to gather food from the frames without the necessity of traveling down between the frames, which otherwise they are obliged to do with the risk of being chilled, both by reason of the atmospheric conditions and of the cold state of the honey which they take for food, which chilling results in their destruction. By placing a strip, or bar of wood 24 to close the one open side of the space in the frame above the sheet 21, a chamber 25 is provided in which leaves, paper, or other nonconductor of heat may be packed, and this space may be closed by a board, or sheet 26, also of asbestos lumber and upon the latter and down the sides of the hive 27 may be placed paper. Over the whole I place a sheet metal cover 28 having the form of an inverted dish with downwardly extending sides 29 that flare outwardly so that when applied to the hive that may easily be done and a tight fit secured. Said dish form is also advantageous in ship-

ment, or storage of a quantity of covers, for they can be nested. I also provide a member, which for convenience I term a stick, which performs a great variety of functions. Said stick consists of a strip or bar 30 of wood having a length, say, three-sixteenths of an inch less than the distance between the side bars of the member A and a depth and thickness equal to the distance from the top of the sheet 21 of said member to the top of the frame forming bars, so that said stick can be applied either side up at the hive entrance, as shown in Fig. 2, in the otherwise open space between the side bars of the member A when used as a bee escape board, as shown in Fig. 1, and laid on the bottom of the hive, as shown in Fig. 1, say at or near the center thereof for the purpose of providing, in this last-named location, a device by which the bees entering at or near the center of the hive can climb directly from the bottom to the frames without running to the sides of the hive as otherwise they would do, so that unnecessary labor and waste of time of the bees are avoided. In one side near each end the stick 30 has an oblong notch 31 into which opens a round hole 32 reaching to the side of the stick opposite that having the notch. The stick can be placed at the hive entrance so that the notches 31 are in what is then the lower side of the stick, and hence, provides two entrance openings for the passage of bees, but too small for the passage of mice, so that the stick thus is useful as an entrance stop to keep out mice. The notches 31, since there are two of them and they are located toward the sides of the hive, greatly aid in ventilation of the hive by the production of a circulation of air, and ventilation is still further aided by the loose fit of the stick crosswise, that is to say, a slight space exists between each end of the strip and adjacent side bars of the frame of the member A. To serve as a bee escape, as shown in Fig. 1, each hole 32 has inserted in it a tube 33 of perforated sheet metal, or woven wire, which is of such length as to have its end sufficiently far from the stick that bees seeking to enter the hive will not attempt to enter through the tubes, and hence, only bees coming from the super will pass through the tube. The provision of the bee escape holes 32 at a point where they open into the notches 31 is important because the notches in effect act like funnels to direct the bees to the hole and diminish the tendency to crowd, which would exist if the hole opened directly to the inner face of the stick, for the provision of the notches increases the space, or area for the bees to move in. By reversing the stick with the tubes so that they project into the hive, the device becomes a robber trap. The tubes

are preferably tapering and their smaller ends are outermost and this enables the slipping of one tube upon another so as to increase the distance of the outlet end from the outer side of the stick should that be found desirable in order to make sure that no bees will enter the tubes in order to get into the hive.

To control swarming by preventing the queen from leaving the hive, a strip of queen excluder zinc may be applied to the inner side of the notch 31 when the strip is in the position shown in Fig. 2. Thus, the worker bees can pass freely through the notches, but the queen cannot by reason of the queen excluder. In the stick in one side thereof, I provide a longitudinally extending groove, or channel 33, which reaches from one end of the stick to the other, which renders the stick useful as a worm trap because, if the stick be placed upon the hive bottom, as shown in Fig. 1, the worms will take refuge, or harbor in the grooves so that subsequently the stick can be removed and the worms in the groove destroyed.

I prefer to use asbestos lumber for the member A and for other parts of the hive, such, for example, as the super cover and the follower board, because it is hard, tough, insensible to moisture and changes in temperature, it is lighter than metal and not so cold and it is impossible for worms, or other insects to cut into it as they can into wood. This asbestos lumber is a combination of asbestos fiber and hydraulic cement, and while I prefer that particular material it is to be understood that I do not limit myself thereto as other material having the same properties may be used.

Having thus described my invention what I claim is—

1. A member for beehives comprising a frame, a sheet secured to the frame, the frame extending on each of four edges of the sheet on one side thereof and upon each of three edges on the other side thereof.

2. A member for beehives comprising a frame, a sheet secured to the frame, the frame extending on each of four edges of the sheet on one side thereof and upon each

of three edges on the other side thereof, said sheet being made of asbestos fiber and cement.

3. The combination of a beehive, a member comprising a frame and a sheet mounted in the frame, the sheet being situated between the top and bottom of the frame so as to provide space therein on both sides of the sheet, and a removable cover for the frame.

4. A bee hive having frame or holder supports consisting of metal strips with inwardly projecting portions situated at the bottom of the hive body, said strips being attached directly to the inner side of the hive wall, and the entire inner surface of the wall above the strips being in the same vertical plane.

5. A bee hive member consisting of a stick having a plurality of notches forming bee passages, and holes opening into said notches at one end and to the opposite side of the stick at the other end.

6. A bee hive member consisting of a stick having a plurality of notches forming bee passages, and holes opening into said notches at one end and to the opposite side of the stick at the other end, and the stick having a longitudinally extending groove.

7. The combination of a hive frame or holders therein placed side by side, and a covering strip for the joints where the frames or holders abut.

8. A convertible entrance block and bee escape consisting of a strip with a recess in its side, and a hole leading from said recess outward.

9. A convertible entrance block and bee escape, consisting of a strip with a recess in its side, a hole leading from said recess outward, and a perforated tube removably applied to said hole.

In testimony that I claim the foregoing I have hereunto set my hand.

FRANCIS DANZENBAKER.

Witnesses:

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