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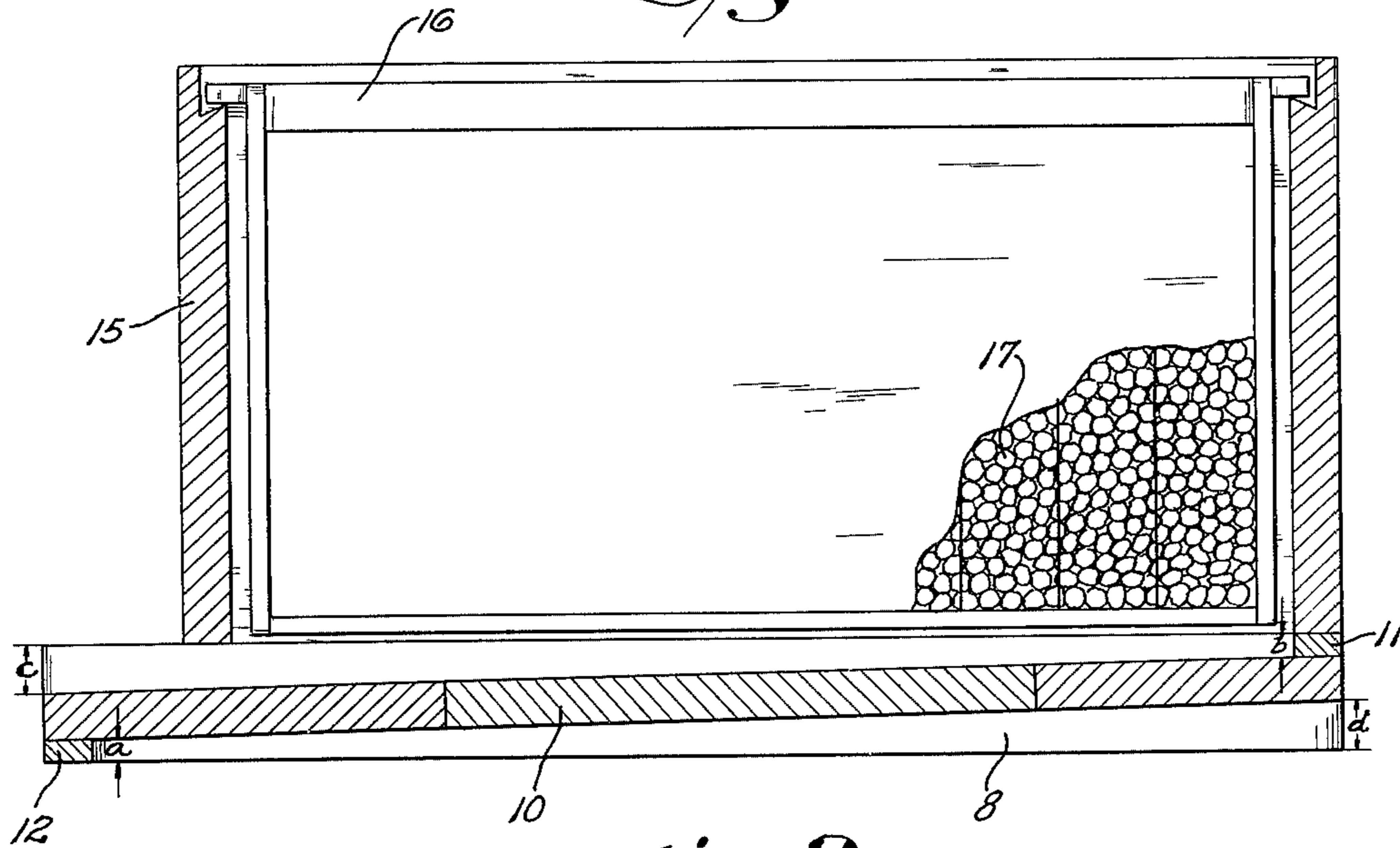
W. DIEHNELT

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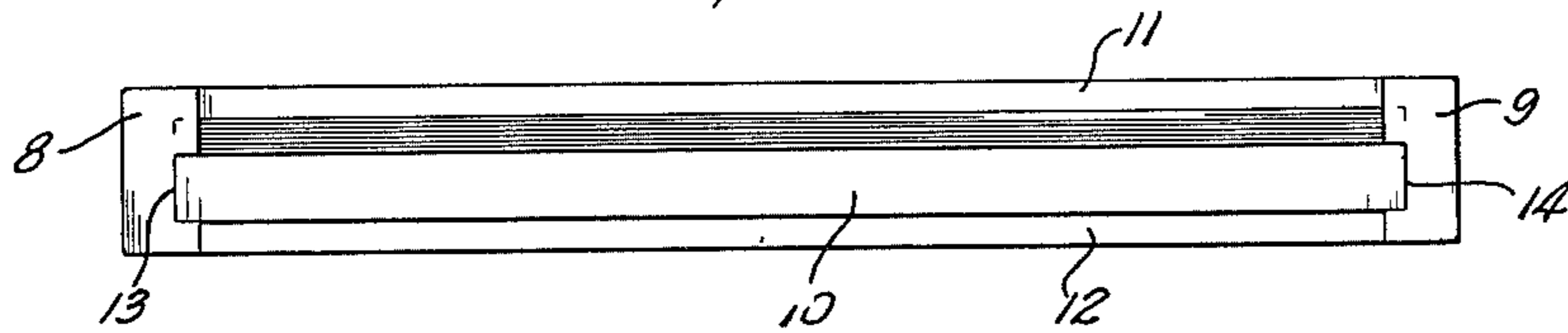
BOTTOM BOARD ASSEMBLY FOR BEEHIVES

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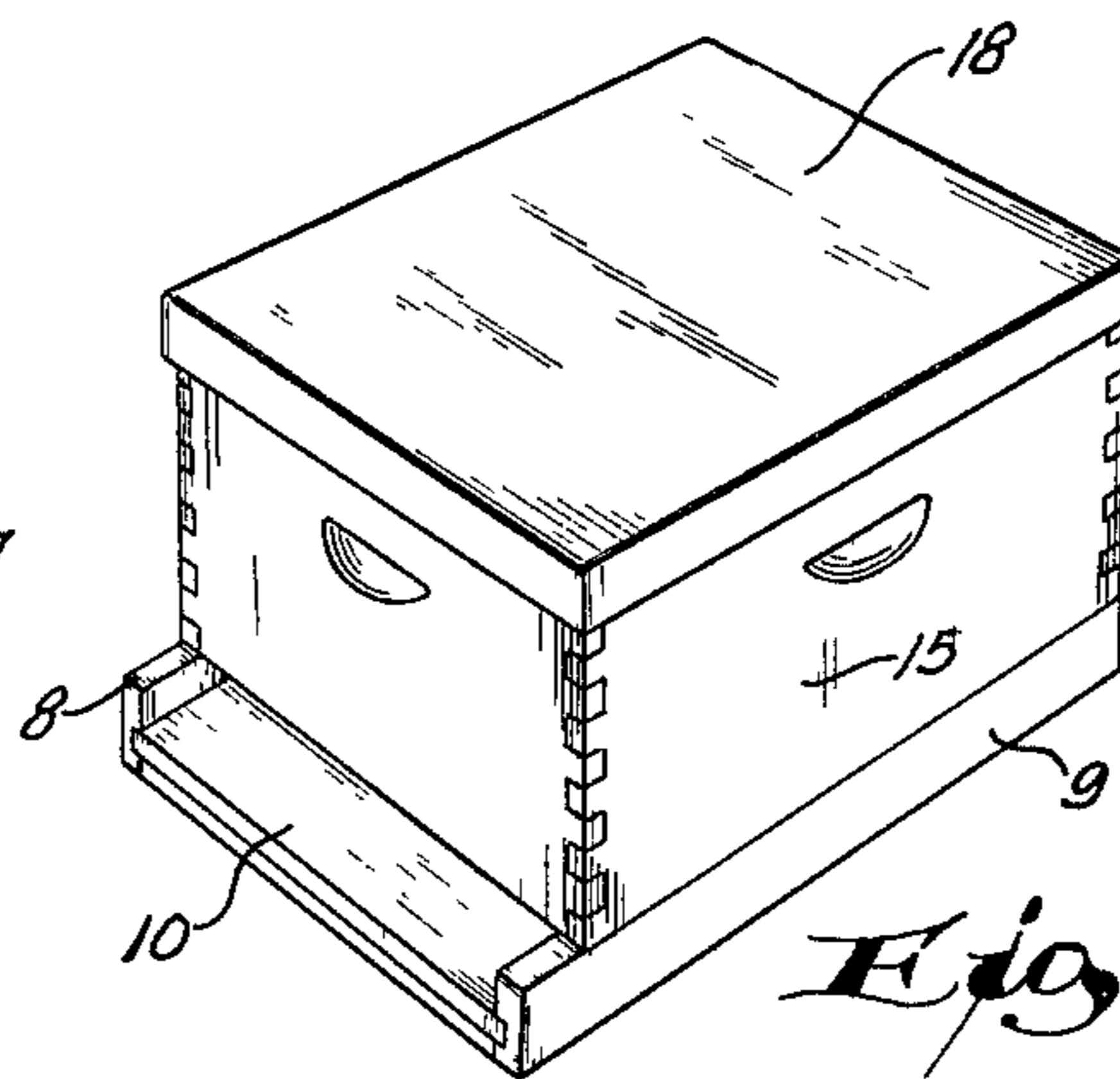
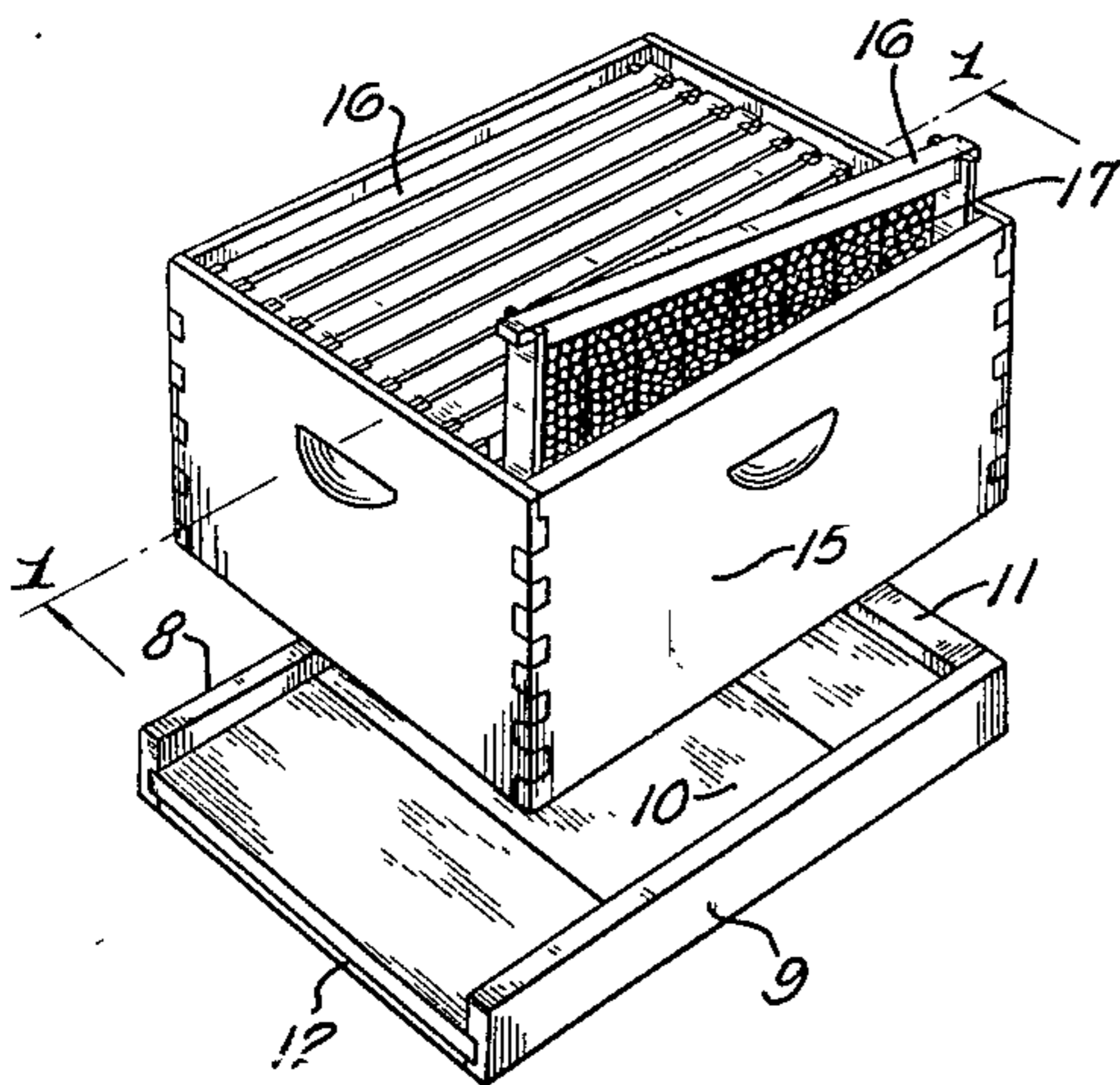
*Fig. 1.*



*Fig. 2.*



*Fig. 3.*



*Fig. 4.*

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# UNITED STATES PATENT OFFICE

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## BOTTOM BOARD ASSEMBLY FOR BEEHIVES

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2 Claims. (Cl. 6-4)

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This invention relates to improvements in bottom board assemblies for beehives.

Bottom board assemblies, as commonly constructed, comprise two side rails, a rear rail, and a bottom board proper supported between the rails and spaced below the bottom of the hive proper. The hive is supported on the upper edges of the side rails, and the spacing between the bottom board proper and the bottom of the hive is extremely important. Bottom board assemblies as heretofore manufactured have usually had the bottom board proper so mounted between the rails as to provide a space of three-eighths of an inch between the upper surface of the bottom board proper and the bottom of the hive and to provide a space of seven-eighths of an inch between the lower surface of the bottom board proper and the ground. The above description applies to the method of using bottom boards in the summer. By having a space of three-eighths of an inch between the upper surface of the bottom board and the bottom of the hive, the bees can walk along the bottom board and easily crawl onto one of the frames, and thence into the comb, without flying. It has heretofore been considered essential to provide this uniform space throughout the length of the bottom board in order to facilitate the entrance of the bees into the hive.

In the winter time, however, there are approximately 10,000 bees which die in a standard hive and these bees are pushed out and fall onto the bottom board. Because of the clogging which would result from the dead bees, it has been considered necessary to turn over the bottom board assembly for winter time use so as to provide a large seven-eighths inch space between the bottom board and the bottom of the hive. This usually allows enough room for the dead bodies while still permitting the bees to reach the combs by crawling on top of the dead bodies. While the bees attempt to push the dead bodies out of the front end of the bottom board assembly, this is difficult with present day constructions. Furthermore, careless bee keepers sometimes leave the bottom board assembly in the wrong position for summer so that there is the relatively large space below the bottom of the hive. This is objectionable because the bees, which are very active in summer, cannot readily reach the combs and sometimes have to build ladders of wax to facilitate entrance and exit.

The present day type of construction is also objectionable because the bottom board proper is not self-draining. As a result, it has often

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been necessary to place blocks underneath the rear edges of the side rails in order to facilitate drainage. When this is done, and when there are a number of hives superimposed on each other, the result is a leaning tower effect.

By studying the habits of the bees I have discovered that a uniform space between the upper edge of the bottom board and the bottom of the hive is not necessary and my experiments have shown that, if the bottom board proper is mounted at an angle between the side rails with a very small space between the upper surface of the bottom board proper and the bottom of the hive at the rear end of the bottom board, and with said space progressively increasing toward the front of the hive, that the following advantages result: The entrance and exit of the bees is facilitated in the summertime; the same arrangement may be used in the wintertime without turning over the bottom board and with definite advantages; and in both summer and winter, due to the angular position of the bottom board proper, suitable drainage is obtained without causing the superimposed hives to depart from a perpendicular position.

It is therefore a general object of the invention to provide an improved bottom board assembly in which the bottom board proper inclines downwardly from the rear of the hive toward the front to thereby facilitate the entrance and exit of the bees in any season of the year with the same bottom board arrangement, and to make it easier for the bees to move the dead bodies out of the front of the hive when this becomes necessary, and to also insure proper drainage in all seasons.

A further object of the invention is to provide a bottom board assembly which may be left in the same position for both summer and winter use, but which may be turned over and reversed end for end without changing the spacing relationships. Thus the bottom board assembly may still be used for a long time after one of its surfaces has become too worn out for further use.

A further object of the invention is to provide a bottom board assembly which is simple and inexpensive in construction, which will increase the well-being and as an indirect result the productivity of the bees, and which is otherwise well adapted for the purpose described.

With the above and other objects in view, the invention consists of the improved bottom board assembly for beehives, and all its parts and combinations, as set forth in the claims, and all equivalents thereof.

In the accompanying drawing, illustrating one

complete embodiment of the preferred form of the invention, in which the same reference numerals designate the same parts in all of the views:

Fig. 1 is an enlarged vertical sectional view taken approximately on the line 1—1 of Fig. 3;

Fig. 2 is a front elevational view of the bottom board assembly alone;

Fig. 3 is a perspective view showing a hive about to be placed on a bottom board assembly and showing one of the frames partially withdrawn; and,

Fig. 4 is a perspective view showing a hive mounted on a bottom board assembly and with the hive cover in place.

Referring more particularly to the drawing, the bottom board assembly comprises side rails 8 and 9, a bottom board proper 10, which may be made up of a single length of wood or of three sections as illustrated, a rear edge closing strip 11, and a front edge closing strip 12.

While the side edges of the bottom board 10 may be secured to the side rails 8 and 9 in any desired manner, it is preferred to have the side rails grooved as at 13 and 14 for receiving the edges of the bottom board proper. These edges may be suitably nailed in position within the grooves or otherwise secured. With the present invention the grooves are angled so that the space *a* just behind the front strip 12 is preferably equal to the space *b* just in front of the rear strip 11, and the space *c* between the upper surface of the front edge of the bottom board and the upper edges of the side rails is preferably equal to the space *d* between the lower surface of the bottom board and the lower edges of the rails at the rear end of the bottom board assembly. In prior construction there has been a uniform space from front to rear on one side of the bottom board 10 and a much larger uniform space from front to rear on the other side of the bottom board proper.

Mounted on the side rails, with its rear wall seated on the strip 11, is the hive body 15. The latter is of standard construction and comprises a box which is open at the top and bottom. The hive body supports, in any well-known manner, a plurality of frames 16, and within the frames are the combs 17. The usual cover 18 may also be used.

For a ten-frame hive it is preferred to have the spacing at *c* and *d* thirteen-sixteenths of an inch, and it is preferred to have the spacing at *a* and *b* five-sixteenths of an inch. These exact figures, however, may vary somewhat without departing from the spirit of the invention. Heretofore for a ten-frame hive a uniform spacing of three-eighths of an inch has been maintained in summertime between the upper surface of the bottom board and the upper edges of the side rails throughout the length of the bottom board, and a uniform spacing of seven-eighths of an inch has been maintained below the lower surface of the bottom board throughout its length. With the present invention, the bees from the outside will fly onto the projecting front edge portion of the bottom board 10 and will then run up the inclined surface to the rear of the bottom board. Due to the small spacing at *b*, the bees may then readily crawl onto the frames and into their combs. Due to the progressively larger space toward the front, the movement of the bees is facilitated, but because of the restricted space at the rear the bees can crawl onto the frames very readily as is desired.

In the winter time the bottom board assemblies

of the present invention are left in the same position. With prior structures they have been turned over to provide a uniformly large space below the bottom of the hive. With the present invention as the older bees in the hive die and fall down onto the bottom board 10, the live bees can readily push the dead bodies toward the front of the bottom board because of the inclined disposition of said board. Thus, in the winter, the bees can keep the rear entrance space *b* clear and there is plenty of room at the front of the bottom board for the dead bodies because of the progressively increased spacing. Thus, clogging is prevented. In both seasons of the year drainage of the bottom board 10 is insured, and there is never any necessity for placing blocks under the rear ends of the side rails to cause undesirable tilting of the hives.

After the upper surface of the bottom board 10 wears out the entire bottom board assembly may be turned over and reversed end for end. When this is done, the front strip 12 becomes a rear closure strip and the space *d* becomes an entrance space.

It is apparent from the above that the improved bottom board assembly, while departing materially from recognized practices as to spacing for summer and winter use, not only facilitates the work of the bees, to indirectly increase their productivity, but also provides a bottom board construction which has increased life and usefulness.

Various changes and modifications may be made without departing from the spirit of the invention, and all of such changes are contemplated as may come within the scope of the claims.

What I claim is:

1. A bottom board assembly for beehives comprising spaced side rails having upper edges for supporting a hive, a bottom board supported between said side rails below the upper edges thereof and extending at an angle to provide a progressively smaller headroom space between the upper surface of the bottom board and the plane of the upper edges of the side rails from front to rear, a closure strip extending transversely between the side rails near the rear edge of the bottom board and filling the rear end space between the upper surface of the bottom board and the plane of the upper edges of the side rails, and a strip of substantially the same thickness below the bottom board near the front edge thereof filling the space between the lower surface of the bottom board and the plane of the lower edges of the side rails, said bottom board also being so positioned between the side rails that when the assembly is turned over and reversed end for end, the headroom space at any point along the length of the bottom board is substantially the same as the headroom space at the corresponding point when the bottom board is in the first position.

2. A bottom board assembly for beehives comprising spaced side rails having substantially straight and parallel upper and lower edges, the upper edges being adapted to support a hive, and a bottom board supported between said side rails intermediate the upper and lower edges thereof and extending at an angle to provide a progressively smaller headroom space between the upper surface of the bottom board and the plane of the upper edges of the side rails from front to rear, said bottom board also being so positioned between the side rails that the space at the front of the assembly between the upper surface of the bottom board and the plane of the upper surface of the side rails is equal to the space at the rear of the assembly between the lower surface of the

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bottom board and the plane of the lower surface of the side rails, and the space at the front of the assembly between the lower surface of the bottom board and the plane of the lower surface of the side rails being equal to the space at the rear of the assembly between the upper surface of the bottom board and the plane of the upper surface of the side rails.

WALTER DIEHNELT.

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