

term bee-spaces. Between the lower and upper frames or supers, we find a double and sometimes triple bee-space. The apiarist has had to do battle in trying to confine the queen or mother bee to the brood chamber, and yet allow the honey gatherer to pass other combs above. This fight however has been reduced to a mere minimum since Mr. D. A. Jones of Beeton, applied zinc so accurately punched with oblong holes, that the queen is put at defiance, her shoulder being of somewhat larger proportions than that of the workers. The use of this zinc over the brood chamber is wherein it becomes necessary to have a double bee space, and any contrivance there which causes the queen to halt, is termed excluders. During this past summer I devised a mode of using this zinc which I consider the most practical form yet introduced, which is to cut it into narrow strips not exceeding four inches, and long enough to cover the hive cross ways. If the zinc $5/16$ of an inch in one edge of those is bent to a right angle to rest on the comb frame, the top of which should be just one space below the level of the top of the hive, the flat edge of first pieces of said pieces rests on the edge of hive, and each succeeding piece rests on the one previously placed until the last is reached, when it is reversed and is supported the same as the first one. By using this zinc in some such manner the upper frames are within two bee spaces of the lower ones. While in using it by the Heddon Tinker plan they are three bee spaces apart, and a bee space in the hive used contains fully 50 cubic inches, while in the Langstroth it is about 70, which means that amount of space to be filled with bees for nothing, as there is not, or should not be, any comb there.

As it is very desirable for comb honey producers to have well devised supers, and as I am not in the supply business it will not be amiss I hope, to show and explain to you here and now a super which I brought to light in June 18th last. A matter of no little importance in bee hive is to have the comb frames spread to a proper distance apart, they can, we confess, be spaced considerably wider in the surplus hives than in the brood chamber, in the latter $15/16$ of an inch from centre to centre is sufficient, while in the former $1\frac{1}{2}$ inches is not too much. Care should be used in suspending the frames to have as small a portion of them touch the hive as possible. All hives, of course, require a bee entrance at the bottom and a board or other covering. This brings us to the exterior of the hive. When there is nothing very material to note other than if the hive was to

stand the weather it is better to be well painted, but if protected by an outer case, it is better without paint and costs that much less. I feel convinced that a colony of bees will winter better in an unpainted hive than in a painted one.

This brings me to the second part of my paper on wintering on this subject. I will be brief. I have discarded cellar or indoor wintering. I have concluded to describe the clamp and use. It is built to accommodate two hives deep in summer, while in winter it affords three inches of packing under the hive and four around, and as much as you wish above. The bottom fits inside to allow the sides to run the wet over, the siding lies horizontally, the points are bevelled or ship-lapped, it is shanty roofed and the roof is shingled. The siding for front and back is nailed to two narrow strips that do not quite extend to the bottom or top. When the clamp is constructed they stand on the bottom, while they require to be short of reaching the top to allow the rafters a rest inside. By using strips in the corner the clamp is much stronger and no care need be used to break joints, and should you wish to knock them down in summer there would not be so many pieces, but it is quite unnecessary to do so, as no better sunshade could be provided. There are three boards in each bottom, the two outer ones are nailed to two strips for the hive to rest on, while the centre board is left loose to be removed in summer to allow a current of air to pass through the clamps. The front of the roof requires to be raised a little to give sufficient ventilation there are just two rafters which are fitted inside of ends to hold the roof in place. A board of proper width is placed between the interior of the clamp and front of rim to allow the bees an opening through the packing, this board is nailed to two bevelled pieces which forms the ends of entrance. There are two tin slides with a hole punched in each to afford a catch in opening or contracting the entrance.

Before closing the hive the clamp is filled to level of bottom pieces with ashes, cork, dust. Chaff is another packing, and when the hive and entrance fixtures are in position fill in all around with packing, but not over the top until you see that provision is made for the moisture to escape through the covering of the hive.

Thanking you for your attention, and trusting my explanations have been sufficiently explained and of benefit to you.

Mr. McKnight thought bees wintered better in separate clamps than where a number of hives were together as when he had wintered his