

I succeeded, however, in using bottom starters an inch wide or deep, and contemplated trying them larger. But later I found that some of these had fallen over, and I settled down on $\frac{3}{4}$ of an inch as large enough. This, with $\frac{3}{4}$ inch starter at top, fills the section except a small space between the two, which the bees have no difficulty in filling up. I have been asked whether a bad-looking section is not made if the top and bottom starters do not meet pretty nearly in the same plane. Not at all. I have seen the top starter swing to one side, and the bottom starter bend over to the other side, so that there lacked half or three-quarters of an inch of being a perpendicular line from one to the other, and the bees seemed to finish them promptly; and when finished, you could not see the slightest imperfection. It takes no more foundation to fill a section with two starters than with one, the only difference being the time taken to put in the extra starter, making an extra expense of one or two cents on a hundred pounds, and sometimes saving a good many cents in shipping."

THICK TOP BARS.

By last Gleanings it will be observed that A. I. Root is now making thick top-bars after exactly the same style as we have employed in the Jones and Combination hives for four or five years. This is a step in the right direction, and our friends will next decide that wiring frames is not so necessary after all, when they have given these stiff top-bars a trial without wires. Even Dr. Miller admits that if thick top-bars come into general use "the necessity for diagonal wires and folded tin will disappear. This is granting half of our contention at once.

FRAMES AT FIXED DISTANCES.

The discussion on thick top-bars to prevent burr-combs, in the American bee-publications, has brought up the question of having the frames at fixed distances to assist in the work, and many suggestions have been made, among them being metal ends, indented metal frame supports, wooden projections on frames, wire staples in the sides of the frames, but the latest is by the use of furniture or chair nails,—round headed brass tacks such as we use on fancy smokers. We have been over all this ground years ago, and the best of them all in our estimation was the wooden projections on the side-bars of the frames, at the top and bottom, but even these were clumsy. Our advice is to leave the whole matter of "frames at fixed distances" alone. Space your frames so that they will be not more

than three-eighths inch apart, and do it *with your eye*. Who is going to disturb them after they are once spaced? The bees can't do it. This whole question, like a good many more is taking up a great deal more space than the subject will warrant.

ARTIFICIAL INCREASE.

We give the "nucleus plan," of artificial swarming, as practiced by G. M. Doolittle:

"To be of the most value the nucleus should be formed eighteen or twenty days before the honey harvest, by having enough bees in it to protect a frame two-thirds full of brood, the larger part of which should hatch during the first four or five days, while said comb should contain some eggs just laid, if possible. Beside this frame of brood and bees, the nucleus should contain a frame having a pound or two of honey in it, the whole being set in a hive and confined by means of a division board. The next day after making, a mature queen-cell should be given, or newly hatched queen introduced. In about ten days if all proves favorable, the young queen will be laying, when I go to the hive from which I formed the nucleus, and select a frame of brood, nearly all of which are gnawing out of the cells, and add this to the nucleus, always putting a frame of comb or comb foundation into the old colony to take the place of the one taken out, otherwise too much drone comb would be built; for colonies that are allowed to build comb under these conditions nearly always build drone comb. I now wait four or five days, when I go to the old colony and take out four frames of brood, from which all the bees are shaken as they were from the last mentioned comb, when I carry them to the nucleus. I now fill out each hive with empty comb of foundation, and put on the surplus arrangement. By the above each colony is made of about equal strength, and the brood is so taken out of the old hive that the colony does not have a desire to swarm. This old colony will have the most field bees for the first week or so, but the other will soon make the stronger colony of the two."

We found it better to put in one frame a day for four days, or two frames on the fifth day and two more on the seventh or eighth day. This was a little more labor, but not much after all, where there were any eggs left in the four frames when all put in at once the bees often neglected the young larvae or eggs, having *too much* to take care of, and being unaccustomed to it. By giving them fresh brood gradually, they not only became accustomed to the new order of things, but there were more young bees hatched out, and they were the better enabled to care for the remaining brood. Some may say, take