

we break the glue adhesion with the hive-tool; then lift the frame with both hands, one at each end bar. Should bees be clustered where the fingers will grasp the top bar, then gently puff a little smoke on them and they will quickly scurry away. Remember it is such little tricks as these that make hive manipulation easy and prevent the bees becoming ill-tempered. Lift the frame straight up, with your back to the sun, and proceed to examine it. Fig. 13 shows the operation.

The frame we find is made of four pieces of wood, known as top bar, bottom bar, and end bars. The first is $19\frac{1}{8}$ inches long*, the second is $17\frac{1}{8}$ inches, while the other two will be about $8\frac{1}{2}$ inches, depending on the thickness of the top bar. The



Fig. 12. Showing frames.

full depth of the frame is $9\frac{1}{8}$ inches. The projecting ends of the top bar rest upon rabbets cut into the end pieces of the hive. The frame proper, it should be specially noted, is $\frac{1}{8}$ inch shorter than the inside length of the hive-body, so that between the ends of the frame and the hive there is a space of a little over $\frac{1}{4}$ inch. Modern bee-keeping is based on this vacancy, for until the Rev. L. L. Langstroth discovered that the bees will fill up a space less than $\frac{1}{4}$ inch wide with propolis, and build comb in one larger than $\frac{1}{8}$ inch, a movable frame was impossible. A bee-space then is one that is not less than $\frac{1}{8}$ inch, nor more than $\frac{1}{4}$ inch. It is important that this fact be remembered, for it has much to do with practical bee-keeping, and is the reason why it is better for the bee-keeper to buy factory-made goods than to attempt makeshifts of his own construction.

The inside of our frame is filled with wax comb, which is made up of an innumerable number of cells, at least 3,000 on each side. In these cells is stored the food-

* Some manufacturers are now making the top bar only $18\frac{1}{8}$ inches long, so that there may be a bee-space round the end of each bar. When such top-bars are used spacing staples must be driven into the side bars, otherwise the frame will drop out of place.