

to 170 °, the air in the room warmed to about 90 ° F., the sheeting may be proceeded with. Have convenient, two tanks ten inches wide, a trifle longer than the dipping boards and six inches deeper, containing cool water. The operator immerses the board one-half its length, gives it a quick turn and immerses the other half, so that the film of adhering wax overlaps in the centre. It is immediately placed in the water tank for a second of two to cool the outside of the film, and these operations alternated until the sheet is the desired thickness. To remove the wax from the board shave the edges with a hardwood knife, and, under water, peel off one corner, running the thumb and finger the length of the sheet, and the removal is effected. This appears an easy matter, but, as in everything else, it requires practice. But with boards water-soaked and warm, the wax and room of right temperature, there is not much danger of the sheets cracking. The finest sheets are made by dipping, as I have said, from both ends; in dipping one end only the wax runs from the top while being withdrawn and the bottom is thicker than the top. When boards are dipped edgewise, unless the resulting sheets are passed under rollers to equalise the thickness there will be some parts thicker than others, and the upper half being thinner than the lower will cause the sheet to warp and curl when being milled. Dipping endwise is far the better and more speedy; one man can sheet twenty-five to thirty pounds an hour with ease. Some authorities recommend dipping from one end only, which was formerly the plan practised by all makers of foundation, but at the National Convention at Cincinnati I explained the advantages of utilising both ends and now it is generally adopted.

A. I. Root uses brine for soaking his sheeting boards, and if the wax sticks he sponges them with lye.

FOUNDATION MILLS.

There are five foundation mills in use—the Root, Dunham, Vandervoort, Pelham and Given. In the four first mentioned the sheets of wax are passed between rolls embossed with lozenge-shaped dies which impress the wax with the shape of the cells. Originally these

sheets received only the impression of the cell base, but now have short side walls.

The Given press resembles in appearance the antiquated but useful Washington printing press now disappearing from even the smallest village office, and stamps the sheets by plates, embedding at the same operation fine wire for supporting the sheet in the hive frame. I do not know of any of these machines in Canada, but many in the United States who use it speak most highly of its ease in working.

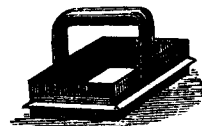
Formerly the Dunham machine was the favorite with me, but I now use the Vandervoort in two sizes—brood and section—twelve and six inch rolls. With them the very perfection of foundation is made at the rate of about fifty pounds an hour.

LUBRICANTS.

It is necessary to constantly apply a lubricant to the rolls to prevent the wax sticking to and clogging the dies. Starch paste with or without a little salt; weak lye and an infusion of soap bark, are used, but soap suds made from good white soap I find the most satisfactory. A. I. Root published an article recommending salt in the shape of starch paste made with brine—the sheets to be soaked in brine in addition to applying it to the rolls. He tried it and it worked so satisfactorily that I believe he uses it altogether now. With us it did not give as good results as the suds.

CUTTING FOUNDATION.

To cut the sheets to size pile them up ten or a dozen high and slice them with a sharp butcher knife, using a board of the dimensions required as a guide. Abbott L. Swinson recommends wiping the knife on a rag saturated with coal oil. In this way he states he can cut



SECTION FOUNDATION CUTTER.

through a pile of forty sheets without any sticking. Occasional dipping in the soap suds will answer the same purpose.

The thin foundation used in sections