joists under the driveways are doubled, being only 1 foot and 3 inches apart at the outside of the barn.

[Illustration: FIG. 15. SHOWING ALL RAFTERS IN PLACE AND METHOD OF SHEATHING ROOF.]

The studs, which are 2 × 6s, 20 feet long, were then placed on the sill, about 2 feet 6 inches apart, being as evenly spaced between the windows as possible, and temporarily braced, as shown in Fig. 13, until the 8-inch ship lap ceiling could be nailed on the outside. This was carried up 5 feet to the second scaffold, and then covered to this height with shingles laid 5 inches to the weather. The scaffolding was then moved up and this process repeated until the siding was completed. The plate, made up of five 1 × 4s, was then built in the notch in the top of the studs shown in Fig. 13.

[Illustration: FIG. 16. SHOWING HEIGHT OF SILO, CAPACITY OF BARN, AND CONSTRUCTION OF ROOF.]

The silo was completed, as before described. The rafters, which were framed on the ground, were then erected, as shown in Fig. 14, the first eight going to the center of the roof, and the remaining ones were cut to rest on the plate of the silo. There are 64 framed rafters, and these are the only ones in the upper section of the roof. At the break in the roof, a header is cut in between the framed rafters, and in the lower section a rafter is placed between these, thus making twice as many rafters in the lower section of the roof as in the upper section. After the rafters were all in place and temporarily braced, the 1 × 2-inch sheathing was put on, as shown in Fig. 15, and the shingles, which were the best 5/2 red cedar, were laid 5 inches to the weather on the lower section of the roof, and 4 inches to the weather on the upper section, as this had less pitch. No chalk line was necessary, as the shingles were laid by the sheathing.

[Illustration: FIG. 17. SHOWING ARRANGEMENT OF JOISTS AND HOW THE FLOOR IS LAID.]

The floor was made of 1 × 8 ship lap, laid in four directions, as shown in Fig. 17. In the driveway an extra layer of ship lap was used, making this portion of the floor 2 inches thick.

The doorways in the second story are 14 feet wide, and in the lower story 12 feet. These openings are closed by two sliding doors, each door being made of two sections, hinged together so as to follow the circular wall of the barn in opening.

The cow stable is on the ground floor, and well lighted by 16 windows having twelve 9 × 12 lights each. There are also six windows in the doors. The windows are placed just below the ceiling and admit an abundance of sunshine at all times of the day, which is one of the essentials of a good dairy barn.

[Illustration: FIG. 18. SHOWING PRESENT ARRANGEMENT OF COW STABLE. THERE ARE STANCHIONS AND MANGERS FOR 28 COWS, AND 2200 SQ. FT. OF FLOOR SPACE IN WHICH THE COWS CAN RUN LOOSE. THE GATES ARE SWUNG INTO THE PRESENT POSITION WHEN BOX STALLS ARE NEEDED.]

The floor, back of the manger, is of clay, except at the door, where a small portion is covered with cement. The cows run loose except at feeding and milking time, when they are placed in rigid stanchions. It must be distinctly understood that rigid stanchions are strongly condemned as a cow tie, where cows are to remain in them all night, but as they are here used merely to hold the cow during milking, they are both economical and convenient.

[Illustration: FIG. 19. SHOWING CROSS SECTION OF 60-FOOT ROUND BARN.]

[Illustration: FIG. 20. CLEANING OUT COW STABLE WITH THREE-HORSE MANURE SPREADER.]

[Illustration: FIG. 21. COWS IN STANCHION AT MILKING TIME.]