

at one end and gradually widen out to four feet six inches; and the wider platform start at four feet six inches and widen out to five feet. Thus the smallest cow could be placed at the narrow end, the next in size next, and so on around. The cows would be much more comfortable and would be much more easily kept clean were the platforms so arranged. The wedge, which would be made by having the platforms so arranged, should be left in the gutter. The gutter is eighteen inches wide and eight inches deep on the side next the cows. It holds as much manure as should be allowed to accumulate in any stable at any time, and, from the fact that it is only two inches deep on the side next the passage, the manure is easily lifted while the cows are in the stable. The passage behind the cows should have a pitch of one-eighth of an inch to the foot toward the gutter, so that any liquid falling upon it might readily run off. The platform should also have a slight slope toward the manure gutter.

The feed floor is on a level with the floor of the driveway. It is nine feet wide and is ten inches higher than the cow stands. This forms a manger ten inches deep in front of each row of cows, and this manger is partitioned off between each two cows, so that there is a box eighteen inches wide at the top and fourteen inches wide at the bottom, $3\frac{1}{2}$ feet long and ten inches deep, in front of each cow. This we find plenty large enough for feeding any kind of cut feed, and no progressive dairyman can afford to feed uncut feed.

Under the feeding floor is a root cellar fifty-six feet long, nine inches wide, and three feet deep. Where circumstances would permit I should advise a deeper cellar, but it was impossible for me to go deeper than three feet. In every four feet of the feeding floor there is a trap door four feet wide and six feet long, through which the roots may be fed directly into the cows' mangers. We draw our roots in with dump carts, which are backed down the feed floor and their contents dumped through the trap doors into the cellar beneath.

As shown in Fig. 4, our cow tie consists of an ordinary cow chain, which is fastened by a ring to the centre of another chain, which has a ring in each end. This second chain passes across under the cow's neck, and slides up and down on $\frac{5}{8}$ -inch iron rods, which are bolted to the partitions that keep the cows out of the mangers. This tie is, in many respects, much superior to any tie I have ever yet found; though, while it is just as convenient as any other chain tie, yet I must confess that cattle are by no means as readily fastened and unfastened by it as by the ordinary stanchion. If convenience for the attendant is the only object

sought, by all means use the stanchion; but if the aim is the comfort and well-being of the cow, and the profit of her owner, I would say by all means use some such tie as I have described.

Our cows are each supplied with a metal salt cup, which, as shown in Fig. 4, is screwed to the back side of the partition. These cups hold about a pint each, and are always kept full, so that the cows may have salt whenever they desire it.

Our watering arrangement, as shown in Fig. 3, consists of a metal bucket, holding about fifteen gallons, for every two cows. These buckets are connected by one-inch gas piping, which runs the whole length of the stable along each manger, about nine inches below the bottoms of the buckets. The connections between the buckets and the piping are made by short pieces of piping with right-hand threads cut on one end and left-hand threads cut on the other. One end of these pieces of piping is screwed into the bottom of the buckets and the other end into "T's" in the piping directly underneath. About six inches of one end of each of these short pieces of piping is rimmed off and then threaded, so that when screwed into the buckets they run up about six inches from the bottom, and thus dirt settling does not find its way into the piping. Each day fresh water is pumped by horse power into a small tank at one end of the stable, and as the water rises in the tank it rises in all the buckets as well. The buckets, which are cast in the form of a half oval, are bolted to the partitions, and are entirely out of the way of both the cows and their attendant.

Before leaving our description of this stable there are a few features which I believe to be absolutely necessary in a good cow stable—and which are possessed by this stable—upon which I would like to lay particular stress. The first is ventilation. The ventilation of their cow stables is a matter that has been entirely overlooked by nearly all the farmers of our country, and yet I believe that a very great percentage of the germs of disease that are said to exist and become infectious in milk and beef may be traced to the housing of dairy cows and beef cattle in ill-ventilated stables. No building which is intended for the close housing of man or beast is complete without a thorough system of ventilation. Our cow stable has six ventilators in all. Four of them run down the walls of the building, inside, to the floor—two of them behind each row of cows and directly opposite each other. They run up along the side walls, through the upper floor, to the main plate of the barn, and from the plate they run along between two rafters to the peak, where they find vent by means of cupolas built on the roof of