

scrap heap. Another serious objection to this machine was the large amount of power required to operate it.

There was a lull in milking machines at our College for nearly ten years—1895 to 1905. This was partially filled in with a hand milker invented in England, which milked four teats at once by pressing the teats against a rubber surface by means of revolving rollers covered with rubber. This was impracticable, because all cows' teats are not of the same size, nor do they hang perpendicularly and evenly from the udder. With a perfectly shaped udder and all teats the same shape and size, the machine might work. This, too, was laid on the scrap heap.

The "Calfette" milker was tried during the summer of 1906, but was not satisfactory.

In December, 1905, we installed a Burrell-Lawrence-Kennedy eight-cow milker. We began using the machine January 1st, 1906, and have used it during most of the past year. Of all the machines we have tried, this has been the most satisfactory, and yet it is far from perfection. The Burrell-Lawrence-Kennedy (B-L-K) milking machine works on the pulsating, suction plan, i.e., a vacuum is created by means of a double acting vacuum pump, which in our case is driven with an electric motor. However, any kind of power may be used for driving the pump. The estimated power required to milk eight cows at once is about $1\frac{1}{2}$ to 2 horse power. The vacuum created for milking the cows is equal to about 16 inches of mercury, or about half the pressure of the atmosphere. The pump is connected by means of galvanized iron pipes with the stalls where the cows are milked. Between each pair of cows is located a stopcock, which is connected to the milker by means of about four or five feet of ordinary rubber hose. The pulsating apparatus sits on the milk pail, and in this respect differs from the "Thistle," in which the pulsating took place at the machine, consequently a great deal of power was required to operate it. The pulsations are obtained by an ingenious device for allowing air to enter, thus reducing the vacuum, but not sufficient to allow the milk to drop off the cows' teats. The milker, having the pulsator or receptacle like a milk pail below, is connected with the cows by means of a rubber tube on which are four branches near the teats, one to each teat from the milker. The four branches have each a cone-shaped metal teat cup at the end, covered with a rubber mouth-piece having an opening in the centre for admitting the cow's teat. A "sight glass" on top of the milker enables the operator to see when the cow is finished and whether or not she is "giving down" her milk.

A stopcock on the milker connects the milker with the cows' teats by means of the teat cups, which latter are of different sizes to accommodate different sized teats. The pressure of the atmosphere having been removed from the outside of the cows' teats, the milk begins to flow because of body or blood pressure on the milk formed in the udder. This seems to be the weak point. With most cows the milk starts to flow freely and to the casual observer everything appears to be all right. To the close