

Dairy.

The New Milking Machine.

BY PROF. X. A. WILLARD, OF NEW YORK.

For many years dairymen have been wishing for some mechanical device to milk cows—a machine combining the following requisites: Milking rapidly; drawing all the milk from the udder without injury to the teats or udder—causing the cow no more uneasiness while milking than hand-milking, and having no tendency to dry the cow of her milk when used from day to day and from week to week; and finally to be simple, not liable to get out of repair, easily operated and easily cleaned, and as efficient in every respect as hand-milking, but doing the work more rapidly.

Inventors have been trying for years to supply such a device both in this country and in Europe. The demand for it is very great, and especially at this time when economy in labor is an important item in the profits from dairying. Such a machine would relieve the dairyman from a vast amount of drudgery and be a saving of labor on an equality with the mower and reaper.

The drudgery and worry, to say nothing of the cost of hand-milking, in any considerable dairy of cows, can only be appreciated by those who are engaged in dairying. It is a kind of work that can not be put off or slighted with impunity. First-class milkers are never plenty even in the dairy regions, and immense losses are annually sustained in the aggregate on account of the inferior manner in which cows are milked. A cow to yield the best returns should be milked with regularity as to time; the milk should be drawn rapidly and the udder completely emptied, since leaving a little milk undrawn at the time of milking has a tendency to lessen the quantity from day to day, and thus dry up the cow. A good milker will milk about ten cows per hour; and in large dairies from ten to twelve cows is the number usually allotted to one person night and morning. A dairy of fifty cows will require from four to five milkers, and in many instances the dairyman is obliged to hire more help than he actually requires on the farm simply to obtain the needed help in milking; in other words, if the milking was not taken into account he would often dispense with the hiring of from one to two hands. Thus it will be seen the cost of extra labor, including board, will make quite an item of expense to be charged to the account of milking. In Central New York women can occasionally be hired to come upon the farm morning and evening and help do the milking. Such cases are not by any means common, but where they occur about \$3 per week is given to each person for the service, the milkers, of course, furnishing their own board.

But even when the dairyman has provided for his help in milking, there are many accidents that are occurring from time to time that will reduce his force, thereby throwing the work upon the few remaining hands, who are compelled to overwork. The strain upon the muscles of the hand in overwork at milking is not unfrequently serious, laming the hand so as to incapacitate it for work during longer or shorter periods of time.

Again, many persons never learn to be good milkers, while others slight their work and abuse the cows, unless closely watched and prevented by the proprietor or manager of the dairy.

It will be seen, then, that if cows could be properly milked by machine the dairymen would be comparatively independent of hand-milkers, while the work could be done with more regularity and uniformity, and with less abuse to the stock.

MILKING TUBES.

Among the earliest devices brought out for milking were milking tubes, made of silver or other metal, and arranged so that by pushing the tube up the orifice of the teat until it reached the milk-reservoir at the base of the teat, the milk was tapped and drawn off. These tubes could only be used for short periods, because they soon irritated and inflamed the milk-duct, which not unfrequently resulted in the loss of one or more quarters of the udder. From time to time these things have been advertised, but their use is dangerous and dairymen should be warned against them.

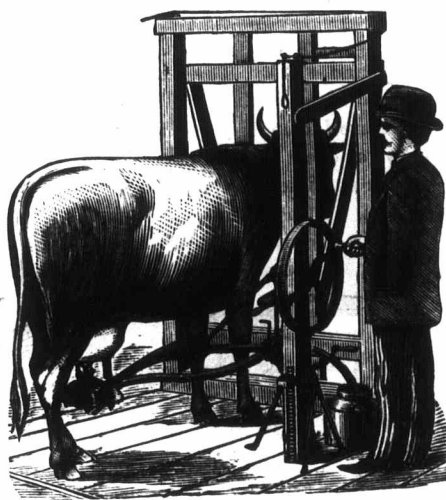
THE COLVIN MILKER.

Some years ago a Mr. Colvin invented a milker which operated upon the teat by suction, and although it drew the milk rapidly, it did not empty the udder completely, and hence never went into practical use among dairymen. This is the machine which has figured considerably in England, but it had defects which proved fatal to its success. At Colvin's death the patents came into the hands of Mr. A. A. Durand, whose attention was thus turned to the subject, and who has for some years been engaged in inventing machinery for milking.

THE DURAND MILKER.

It is only quite recently that Mr. Durand has felt warranted in bringing his milker to the notice of the dairy public, and he believes he has overcome defects in previous inventions, and is now able to milk cows successfully by machinery.

The subjoined cut will illustrate the general features of this device.



DURAND COW MILKER.

In the arrangement as here shown the machine is stationary, the cow entering the stallion, and when milked, by simply drawing a cord, the stallion opens like a gate, allowing the cow to pass out into the yard.

By a very simple arrangement the working of a rubber diaphragm under each "teat-cup" produces a sudden strong remitting suction, like a calf, which draws the milk and passes it into the centre reservoir and so out into the pail.

The operator places the teats in the teat-cups, then turns the crank slowly, and like four calves, he milks the cow; like them, also, the machine draws and stops drawing to swallow.

This invention more particularly relates to "cow-milkers" in which a series of diaphragm pumps are operated directly by mechanical means for extracting the milk simultaneously from the several teats of a cow. Although the invention is here shown adapted to a hand-power machine for milking one cow at a time, it is applicable to milking apparatus driven by dog or other power, or to any number of such milkers deriving their motion from a single prime mover.

The milker, which is attached to a post, has an universally adjustable arm-like support, including an extensible driving shaft, whereby increased facilities are afforded for operating and adjusting it to suit different positions or sizes of cows being milked.

To obtain for the milker a "bunting" movement and to elevate or lower it for the purpose of adapting the machine to large or small, short-legged or long-legged cows—cows with very pendant udders or contrawise, the arm-like support has connected with it an adjustable oscillating device.

The several pumps are also made adjustable up or down independently of their frame or holder—to raise or lower the teat-cups which they carry for the purpose of adapting said cups to different lengths of teats or different altitudes of the latter from the ground. This is done by means of adjustable parallel bars.

The teat-cups are of cylindrical, or approximately cylindrical, form throughout their length, and with an internally projecting rounded edge at their upper end, thus securing a close joint, free from any cutting or damaging action.

Each teat cup is composed of a nest of cups, fitted with flexible packing, and by inserting or removing an inner cup they also provide for the fit of the teat-cup to large or small teats.

We recently saw the "DURAND COW-MILKER" in operation, and watched its action in milking different cows for two or three days. When first operated upon the cows held up their milk to some extent, which was to be expected, on account of their being placed in new conditions, with several people looking on. But after becoming acquainted with the operation of the machine they gave down their milk, and were milked clean. The cows showed no uneasiness while being milked, but rather seemed to enjoy the operation, thus showing that machine-milking causes no pain or annoyance. The machine is readily applied to the teats, and can be moved in any direction desired, and from what we saw of it appeared to be a success.

Mr. Durand claims that one machine will milk twenty-five cows in an hour, and that two machines and two persons are all that is required in a dairy of fifty cows.

Of course we cannot say what the result would be in a long trial of the machine in milking, but from its uniform action we see no reason to doubt the statement of the inventor, that "cows will hold out better and yield more milk than when milked indiscriminately by hand."

The machine is certainly most ingenious in its construction, and we hope its operation will prove a grand success.

The best floor for cow stables, according to a correspondent of the Cultivator, is made of concrete, "or what is simpler and cheaper, a mixture of gas-tar and sand, with a little cement in to harden it." This can be laid immediately on the ground. Its advantages are that it is easily kept clean, either by scraping or washing, and all the manure is saved, none of it leaking through the floor, and thus being lost. This floor can be laid by anybody.

There is much excitement over the report that Pleuro-pneumonia has appeared among the cattle of Paterson, N. J. The authorities have quarantined a drove from Michigan from which three have died, and forbidden the sale of milk by the owner. State Inspector Force expresses the opinion that the disease is increasing. He says if it once spreads beyond the Alleghanies it will devastate the entire West.—[Conn. Farmer, Aug. 30.]