

Agricultural Implements.

Agricultural Food-Steamer.

As many, perhaps a majority of Canadian farmers are now giving a great deal of attention to cattle and cattle-feeding, it becomes a question of first importance, especially in these seasons of variable crops, how best to utilize the produce on hand, to renovate, if possible, the old, conserve the new, and spin out both to the very best advantage.

One year's scarcity in the fodder yield often proves a serious matter to the feeder. There are only certain productions which he finds serviceable as articles for feed, and when these fail he is driven to various necessitous expedients to keep his stock in anything like comfortable, or rather profitable circumstances through the winter, if indeed—as frequently happens—he is not obliged to sell off the one-half or more to obviate the starvation of the

tageous still must that feed become when, by means of a thorough steaming, it is cooked to the same extent, but with all its elementary strength retained? We find in the *U. S. Agricultural Report* for 1865, the following stated as the results of steaming cattle feed—the writer having drawn up his statement after an experience of several years:—

"*First* It renders mouldy hay, straw and corn-stalks perfectly sweet and palatable. Animals seem to relish straw taken from a stack which has been wet and badly damaged for ordinary use, and even in any condition except "dry-rot," steaming will restore its sweetness.

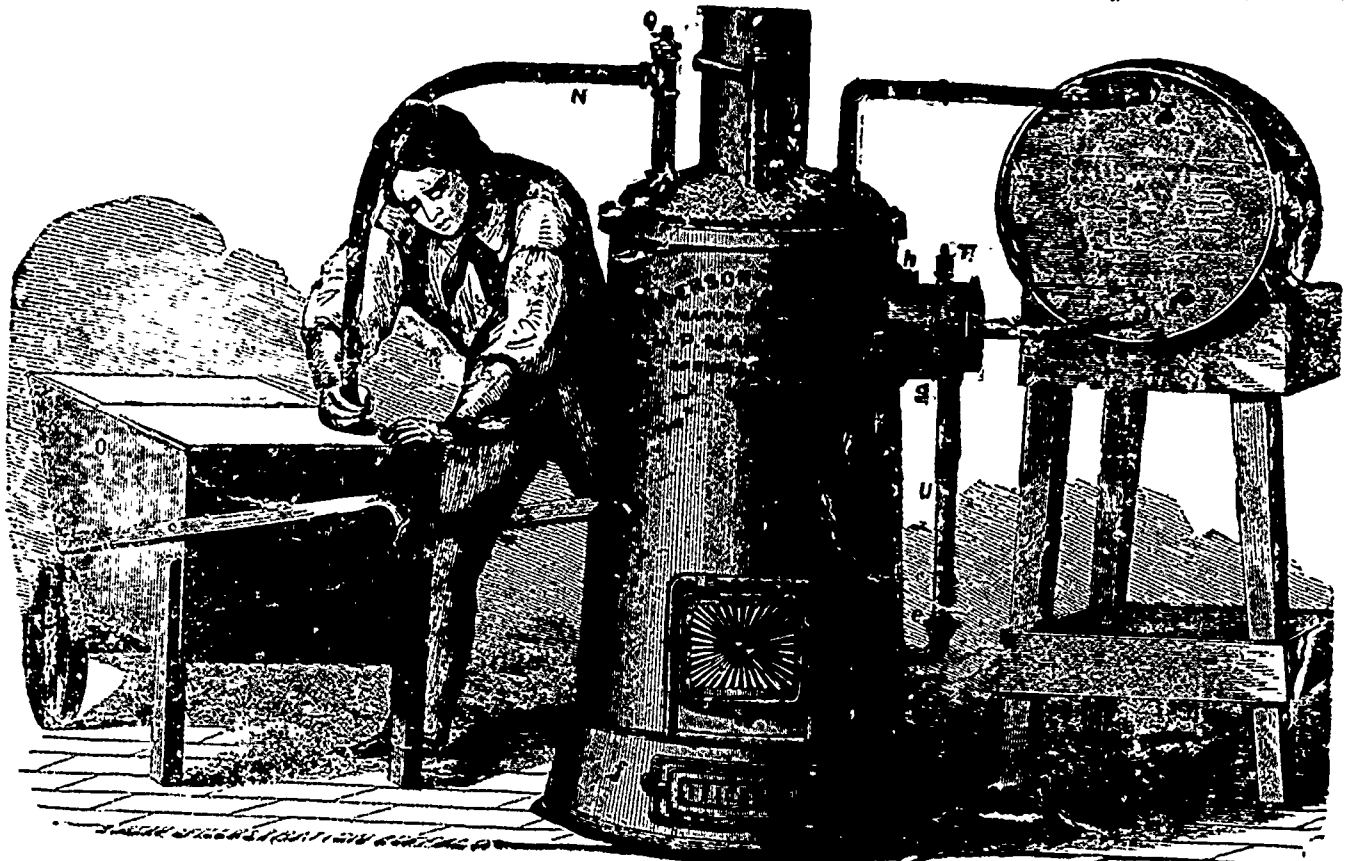
"*Second*. It diffuses the odor of the bran, corn meal, oil meal, carrots, or whatever is mixed with the food, through the whole mass, and thus it may cheaply be flavored to suit the animal.

"*Third* It softens the tough fibre of the dry-corn-stalk, rye-straw, and other hard material, rendering it almost like green succulent food, and easily masticated and digested by the animal.

"*Fourth* It renders beans and peas agreeable food for horses, as well as other animals, and thus enables the feeder to combine more nitrogenous food in the diet of his animals.

a trifle over one and a half pounds per day. I weighed my hogs in both instances before commencing on each kind of feed and set it down in my scale book, and weighed them when each kind was fed out. You may judge I was surprised at the result. In one case I made 20 pounds of pork from 72 pounds of ear corn, in the other ten and a half. My corn cost me 75 cents per bushel, and I sold my hogs for 8 cents, live weight. In the one case I got \$1.60 for my corn, in the other I got \$3 1-5 cents. After deducting 75 cents—the price of my corn—I have as profit for feeding in the one case, 86 cents, in the other, 8 1-5 cents."

One of the best modern "steamers" we know of is illustrated by the accompanying cut. A small sized one, quite large enough for ordinary use, being capable of steaming for from 50 to 100 hogs, measures about 4 feet from base to top, and 2 feet in diameter. It is manufactured wholly of boiler-plate, is complete in itself, and consists essentially of a boiler within a boiler. The grate or fire-lace near the base is fitted for either coal or wood. Within the outer cylinder, which forms one side of the boiler, is another circular plate, partly single and partly double, with water space between, and so constructed that the largest possible surface is exposed to the fire. Steam can thus be generated in two or three minutes



remainder. The old and mouldy productions of the last and preceding years are raked up and mingled in large quantities with much smaller proportions of new matter, and the compound thus produced is served up to animals that cannot properly relish it, and consequently do not derive that nourishment from it which it should and would yield if differently treated. How important then must be the knowledge how to render old mouldy remains serviceable. True it may be said that such remains constitute no loss since they can all be employed as manure.

This is all very good, but would it not be much better could we but hit upon a plan whereby they might first be applied to the use for which they were originally raised, and then after all, make a superior manure?

Such is the use of the "Food-Steamer." When feed is cooked in the ordinary old-fashioned manner, viz.: by boiling in water, a very considerable quantity of its strength is found to be boiled out, and to evaporate with the steam; and yet even when so treated, experience has repeatedly proved such feed to be more beneficial than the same article in a raw state. Now, if this is so, how much more advan-

"*Fifth*. It enables the feeder to turn everything raised into food for his stock, without lessening the value of his manure. Indeed the manure from steamed food decomposes more rapidly, and is therefore more valuable than when used in a fresh state. Manure made from steamed food is always ready for use, and is regarded by those who have used it as much more valuable for the same bulk than that made from uncooked food.

"*Sixth*. It saves, at least, one-third of the food. We have found two bushels of cut and cooked hay to satisfy cows as well as three bushels of uncooked hay, and the manure, in the case of the uncooked hay, contained much more fibrous matter unneutralized by the animal. This is particularly the case with horses. These have been the general results of our practice, and we presume do not materially differ from that of others who have given cooked food a fair trial."

Then, as to the difference between dry and steamed food, another writes as follows:—

"Sir—In reply to your question of what difference I find in feeding raw and cooked feed, I would say I fed 21 hogs 26 bushels of corn, (72 lbs. ears to the bushel), shelled, ground and cooked. It fed them 13 days; they gained 520 pounds, or a trifle less than two pounds per day. I then fed the same hogs 25 bushels of the same kind of corn ground and soured. It fed them eight days; they gained 260 pounds, or

after the match has been applied. To the right of the engraving is observed the water-supply barrel, communicating with the steamer by means of two india-rubber pipes, the higher leading from the top of the steamer to the upper part of the barrel, and the lower, or supply-pipe, which is furnished with a tap as shown, reaching from the lower part of the barrel into an enlarged entrance-funnel at the side of the steamer. This funnel is furnished internally with a float valve, which, when the water within has reached a certain height, rises up and closes the opening, thereby preventing the influx of any more until it is needed, when it falls down again of its own accord. The mode by which water is made to flow uniformly into the steamer by means of the upper pipe, illustrates a curious fact in the philosophy of hydraulics. What, it may be asked, is the use of that upper tube at all, for, at first sight, it certainly does seem superfluous. Well, but take it away and water will no longer flow through the lower one whilst steam is up! and why? Simply because the steam pressure within the boiler would prevent it. The advantage of the upper pipe then is this, Steam is conveyed through it into the upper portion of the barrel, and the pressure which this steam exerts there counterbalances that exerted in a contrary direction at the entrance-funnel, and consequently destroys it: so that when the top of the lower tube is opened the water flows along it in a uniform and steady stream, solely from its own gravity. A little experience,