

## Agricultural Implements.

### New Side-hill Plough

We presume that a recent invention in ploughs will in time almost completely revolutionize these important implements of husbandry. Of course, every farmer knows that in the ordinary plough the mouldboard and coulter are fixed, i.e., the soil is invariably turned over by them to the right. They are so adjusted, and hence it is that no sooner is the end of a furrow reached than the team, plough and ploughman have to move across the end of the "land" to the next starting point, when they proceed again, always ploughing to the right. Now, if the time lost per day in this operation of crossing alone were duly calculated, we doubt not the sum total would be astonishing. We question much if ever it has been computed, because the crossing has always been accepted as a matter of course, but, as we have said, we believe it would add up to several hours in the day. In side-hill ploughing, again, where it is impossible to turn the soil upwards against the rise and where ploughing must consequently be done all one way, the time consumed will be found to be somewhat better than one-half.

The new side-hill plough, then, we look upon as a most decided improvement, and one which must meet with the extensive encouragement which it merits. It is in all respects an ordinary plough, but with movable coulter and a swing mouldboard. The cutter can be readily changed from one side of the beam to the other, where, by a simple contrivance, it is secured in its position as soon as entered. The mouldboard again swings by a swivel on the beam, and is fastened in its position by a lock-clasp underneath, near the union of the beam and handle, and sufficiently high to escape interference from lumps, stones or other obstacles in the soil over which it is passing.

The process of working is as follows:—Having reached the end of the furrow the ploughman turns his team round, then, by raising the handles slightly and touching with his foot a short iron lever that juts up between the handles near the beam, the lock is unclamped and the mouldboard swings. A dexterous jerk of the handles then sways the mouldboard over to the opposite side, which it no sooner reaches than it immediately claps itself again. The coulter is next changed from one side of the beam to the other—the work altogether of about half a minute—when he can proceed on his way. In this manner, of course, double work is performed in the same time, as compared with that of the ordinary plough. The side-hill plough is but a recent invention. We have seen as yet but one of them in Canada, but judging from the demand made on the part of every one who saw it, we look for its very extensive use almost immediately.

### New Patent Corn or Bean Cracker.

It is well known that neither solid roller mills nor mill stones will split beans or corn unless they are in good condition, on account of their sticky nature when damp. A stone or other foreign substance passing into a solid roller will generally damage the rollers, which are costly and difficult to repair.

There is a new machine to be had now from some of our leading manufacturers, in which these defects are very much if not wholly remedied. The barrel or cutting roller is hollow, and is formed by a number of separate, triangular steel cutters, arranged around the circumference of two end-runs, and so set that there is more clearance at the back than at the cutting edge, therefore the mill can never choke, no matter what may be the size or condition of the grain to be cracked or crushed. Each tooth has three separate cutting edges, which can be successively used, and

when all are worn out they may be easily replaced with new teeth by an ordinary laborer at a very small cost, viz., between \$1 75 and \$2 00 for a complete set. The extent to which the grain is crushed is governed by a screw, and care must be taken not to set the cutting plate so close that it touches the barrel. They not only split damp beans and corn perfectly, but also dry ones with less dust and less power than can be done by stones.

### A Self-Binding Harvester.

Mr. James Gordon of Rochester has succeeded in inventing a self-binding harvester, which will no doubt be of immense advantage to farmers. The machine was tested in several fields of grain near St. John's last week, and gave entire satisfaction to a large number of practical gentlemen who were present. The *Free Press* gives the following particulars as to the binder:

The reaper and mower is not different in its construction from any of the other best machines of this class, only, while they cut a swath of from 5 to 6 feet, this one cuts from 6 to 6½ feet, and may if necessary be extended to 7 feet; but the great invention consists in binding each sheaf as neatly and throwing it off as orderly as if done by hand. The binder is rounded very similar to a hand sickle, and supplied with wire from a pulley attached, and works so ingeniously that as soon as there is grain enough in front of it to form a sheaf, the binder comes right down, presses the whole together, placing the wire round the bundle tight, gives it a twist and cuts the wire, completing its work with a rapidity truly astonishing; the following sheaf turning the previous one off to make room for itself. The advantages of this machine are the great saving of manual labor, and the cleanness and neatness of the work done. This machine cuts and binds from 15 to 20 acres per day, or 30 acres if required; and as it takes five extra hands for every ten acres to bind after the ordinary reaping and mowing machine, there is a saving of ten hands for every day's work, supposing the machine to cut twenty acres per day. Then, the difficulty of getting sufficient hands just at the very season they are wanted, and as much grain is often more or less injured by wasting, the advantage can easily be conceived. The extra cost of this machine is from one hundred to one hundred and ten dollars over the reaper and mower, but this extra amount would soon be saved on a large farm by its use. In regard to expense of wire, three pounds would bind up the grain of twenty acres, and as the cost is about ten cents per pound, the whole would cost thirty cents, which is more than saved otherwise by the cleaner manner in which the grain is taken up.

### Hauling Manure with Two Waggons.

There is an important gain in busy seasons of the year (and when is it not busy on the farm?) in having two and even three men with two waggons to every team when hauling manure from the barnyard. I am always provoked when I see one man loading a waggon, drawing it a quarter or half mile, unloading it and returning. In this way one man with team may haul eight or ten loads a day. Add another man and you increase the number of loads to fourteen or fifteen. The true way is to get two waggons, take off the boxes and have wide boards for the bottom and sides. Two men load one while one is driving to the field and unloading in heaps from the sides of the waggon, with a common potato hook clawing it down from the top. After one or two heaps are made, one of the bottom boards is turned over, the waggon is drawn a few steps further, and the whole is dumped. In this way thirty or even more loads can be drawn per day, where the pitching is good and the distance not too great. The manure is not spread, but this can be done at leisure and without stopping the team from the plough. Two men will fill a waggon with coarse manure in from fourteen to twenty minutes, according to the situation. For cleaning out a large accumulation in the barnyard I know of no better way than this. The horses are not unhitched from the whiffletrees, but these are shifted from one waggon to the other with each load. One of the pitchers usually assists in this operation, and after a few trials it is only the work of a moment.—*Rural New Yorker*

Two different reaping machines, with automatic sheaf-binding attachments, have been tried in the harvest fields this season with apparent success.

### Steam Cultivation

The Duke of Sutherland is showing a good example to the landed proprietors of this country, by the efforts he is making in the country from which he takes his title to reclaim and cultivate the waste lands which form such a large proportion of his extensive estates. The quantity of arable land in Sutherland is so small compared to that devoted to grazing, that the sheep farmers are compelled either to leave much of their pastures unutilized, or to be at the disadvantage of getting the wintering for their sheep from the adjoining counties of Ross and Caithness. The Duke, therefore, under the advice of Mr. Kenneth Murray, of Geanies, has set himself the arduous task of bringing under cultivation a portion of land which is advantageously situated in some respects, being only about 6 miles from the railway station at Laing, has a good road running through it, and a supply of limestone in the vicinity. Messrs. Fowler & Co's steam cultivating apparatus was called into operation, and as great difficulties were occasioned by huge blocks of buried stone on the land, a plough was specially devised for the purpose, with a cutting disc in front which lifts the plough over any large boulders that are encountered, and an iron shaft, terminating in a large boldly curved hook which follows, comes into operation and tears the stone or root from the ground. The first actual cultivation was commenced in the summer of 1873, on a tract of 250 acres. It was ploughed, deeply drained, and manured in February last, in the beginning of May was sown with oats, and the growth is now highly promising. The Duke is so encouraged, alike by the fine prospects of the growing crop and by the appearance of the land recently turned up, that he contemplates reclaiming 1,000 acres annually, and the first 1,175 acres will be partitioned into eighteen farms—fifteen of 40 acres each, with 650 acres of pasture in common, and three others of 125, 200, and 250 acres respectively, and 1,400 acres of pasture land to be divided among the three. The new "Sutherland clearances" seem destined to have a beneficial effect on the county of Sutherland.—*Farm. (Eng.)*

### Steam Locomotion on Common Roads.

An ingenious Scotch engineer has lately introduced a road-steamer upon the streets of Glasgow, the successful operation of which, and its absolute freedom from objection of any kind, are believed to have solved the problem of steam locomotives on common roads, which has given rise to so much investigation and experiment of late years. By this new arrangement, the engine attached to the road-carriage is so simple in construction, and so completely under control, that it is possible to stop the carriage, when travelling at the rate of six miles an hour, within a distance of fifteen feet. An annulus, provided for the emission of steam in a continuous glow, prevents the noise of puffing and snorting of the engine, and obviates all difficulty and danger of horses shying or becoming frightened. It is stated that the inventor of this road-steamer has applied the principle here involved in the manufacture of a private travelling carriage, and proposes to build steam omnibuses for city convenience and traffic. The small private carriage, after many experiments in the most crowded streets of Glasgow, was found to be perfectly manageable, while the steam omnibus, according to the plan proposed, will, it is believed, prove equally favorable in its operation, besides being from forty to fifty per cent. less expensive in working than an ordinary horse omnibus of the same capacity.

A FOOL and a lazy man stand a worse chance to succeed as a farmer than in any other department of life. To be a good farmer, a man must have good common sense, and he must reduce the facts that nature reveals to him to practice. He must follow nature, not force her. He must be obedient to her mandates.

BRICK-MAKING MACHINE.—An English exchange, *Iron*, speaks of a brick-making machine which compresses 1,500 bricks per hour, but which is capable of producing, if required, a much greater quantity. On a revolving horizontal table are fixed six dies or compressing the clay. On one side of the table stands a man who fills each die with clay, and a man on the other side removes the clay after it has been compressed. Each die is fitted with a hinged lid and a sliding bottom, and as the table revolves the die passes under a fixed plate which compresses the clay. The clay is delivered in a column down an incline from the pug-mill, and is cut into blocks of the required size by a very simple apparatus worked by a man who fills the dies.