

passing a fixed obstacle, thus avoiding the double delay of returning the tube by hand, and of replacing a wooden pin when broken.

Another recent improvement is a "tube shifter," worked on a lever principle. It is designed to throw the tubes (which ought generally to be in line) from side to side suddenly, to pass stony or lumpy places, and then return to line again. The attachment is neat, cheap and convenient, and a boy can work it easily.

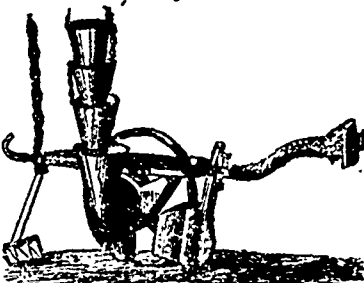
A still later improvement again connects the tube elevator or back roller with the gear-lever by means of which it operates at the precise moment when wanted; being certain to put the drill in gear with the tubes down, and in elevating them to throw it out of gear. This puts the implement under the complete control of the operator by the use of a single lever.

The fertilizer or guano attachment, sows guano, bone-dust, super-phosphate, lime, ashes, salt, &c., either in a dry or damp state. Owing to the strong affinity of guano and super-phosphate for damp, they often clog, and it was therefore at one time quite a difficult matter to sow them by means of machines, except in a dry state. By a recent alteration in the shape of the cavity through which these fertilizers are distributed, this difficulty has been overcome.

The grass-seeder which weighs only about 20 lbs., is attached to the drill in rear of the tubes, and sows broad-cast in desired quantities from a quart or two to half a bushel per acre.

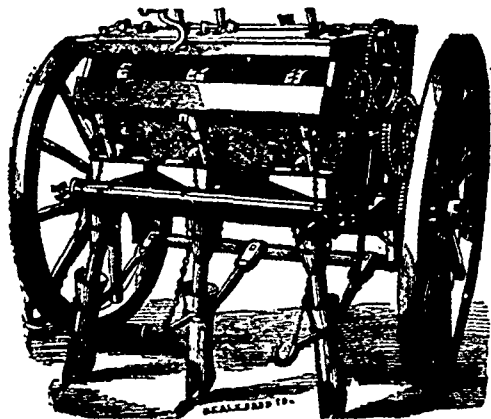
All the various implements here specified are easily accessible to the Canadian farmer—especially the last—itsself, or modifications of it being manufactured at most of the leading establishments in the Dominion.

The system of drilling in Great Britain, as well as the drills by which the system is carried out have been advanced to a much greater degree of perfection than on this side of the Atlantic. There, they have



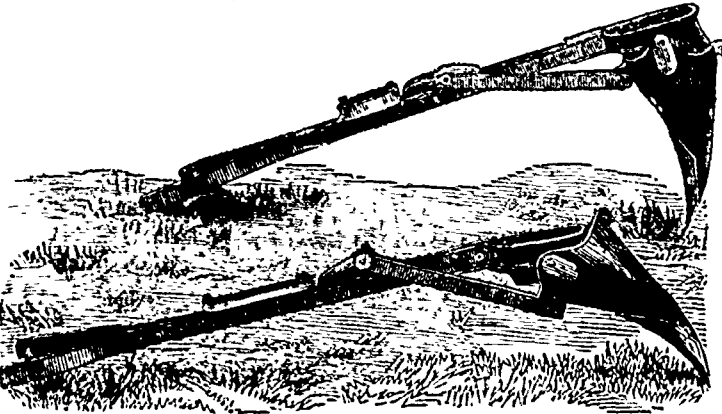
manure drills at one and the same time.

Of the first class Chandler of Westbury, (Wilts), manufactures an excellent liquid manure drill, with



stirrers working between the buckets, so that the whole of the manure is set in motion as soon as the

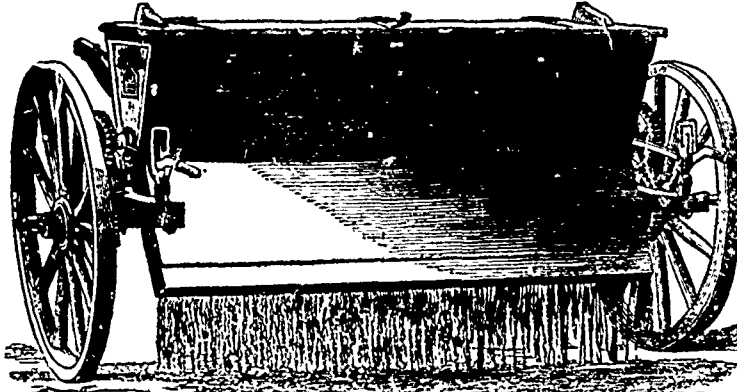
machine is set to work, and consequently every part of the field receives its share of manure equally strong, and should any portion of the soil require more or less



TUBE SHIFTER.

than the general distribution, the machine is so arranged that the attendant can easily vary the quantity.

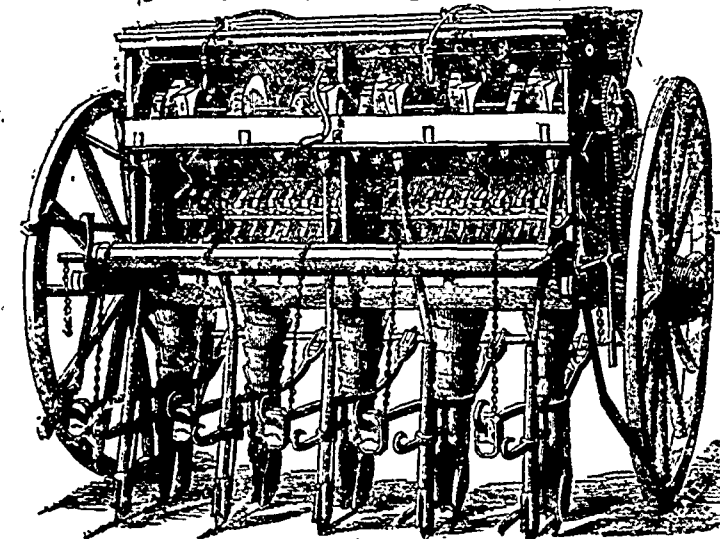
The same implement may be used either to deposit manure in regular rows, or by an alteration, to scatter



CHAMBERS' MACHINE.

it broadcast, and in both cases as well as in the case of nearly all the British drills a most decided improvement can now be applied in the shape of Chambers' patent drop lever, which, in the distribution of liquid manure has been found to effect a saving of two-thirds of the water usually applied, also a considerable saving of seed, manure, and hoeing.

land which looks, from the visitors' stand, like a row of parallel straight lines. But we see men who have given their lives to learn the art of ploughing, whose ancestors have been ploughmen for generations, and who are, therefore, born ploughmen. They are, moreover, taught to excel by a system of matches and prizes. Boys there compete with their ploughs,



HORNSEY'S SEED DRILL.

Hornsby & Sons, of Grantham, (Lincoln), also make a very superior general purpose drill for manure and seed, both of which may be deposited simultaneously down the same coulter, or through separate ones at the pleasure of the operator. It may be employed likewise for seed alone or manure alone if desirable, and the uniformity of depth in delivery is ensured by weighted levers, which press equally upon all the coulters separately.

Prizes for Ploughmen.

As a man ploughs, so shall he reap. We are a nation of scratchers of the soil, and our furrows are as crooked vertically as they are laterally. That is, while they are rarely to be seen in a straight line, or of even width, so in depth they are equally irregular. If one should thrust a staff into the surface of a ploughed field, the hard bottom would be found at depths ranging from one to nine inches, but very rarely nine. In the majority of cases, the plough is not to be blamed for this, but the ploughman. An American farmer, with any of our best standard American ploughs, can, if he will, do as good work as any English or Scotch farmer, with a Norfolk or Scotch plough. It is not altogether in the plough, although the Scotch plough, with its long sole and share, can hardly leave a right line in steady hands, but in the man, who has habituated himself, and has been encouraged to do so by force of circumstances, to plough carelessly or slovenly. New needs are now arising for our farmers. The original wealth of the soil has departed, and now the harvest, no longer bountiful as of old, must be secured by dirt of hard-work and the best skill.

And the first work toward this end must be done with the plough. It is not too much to say that we have yet to learn how to use this implement. To realize this, one should see the ploughing matches at the English Agricultural Fairs, or even those held so near to us as Canada. It is not so much the ploughing that one is struck with, as the system. The ploughing is perfection; a furrow half a mile long with equal width and depth, as measured with a rule, and straight as an arrow, and a

and are thus early trained in the way they should go, and the whole year is but a practising-time for the annual trial of skill. It is equally so among our neighbors, the Canadians, who have transplanted the old fashion from their native soils. On this side the line we have nothing like it. Our boys have no ambition to excel. In this, as in other things, they are unwisely and unfortunately ignored; while the farmers themselves would rather see a horse trot in 2:40 than plough a furrow, at any time. A plan to change all this suggests itself. Let ploughing matches be instituted at our Agricultural Fairs. There is no possible difficulty. If the Autumn

weather is too dry, let the competition take place at a more favorable season than our dry falls, but by all means let our farmers' boys have an opportunity to become ploughmen, and have some scope for their natural desire for competition, and to excel in the use of those implements by which they hope to, or are obliged to earn their bread. Our neighbors across the lakes hold, this fall, two such ploughing matches, at which \$500 are to be competed for, while we, who are not willing to admit any foreign superiority, totally ignore these contests.—Plantation.