The hopper is attached to the end of the machine opposite the arch. It need not be described by me, for if a man cannot make a suitable hopper without a description, he is not mechanic enough to make any part of the machine.

Finally, a box must be made to receive the pulp. This is done by simply nailing boards across the feet and upon the insides of the posts. Then nail up one end of the box and the thing is complete.

In the above I have described the original machine, with all the improvements which have suggested themselves to my mind.

If, in any point, my statements have been obscure, I shall be happy to answer, through the press, any inquiries which may be made.

I hope that manufacturers as well as farmers generally will see and take advantage of the few hints given.

Note by Editor.—We are informed by Messrs. Maxwell & Whitelaw that they have imported from England one of Samuelson's pulpers, after the model of which the teeth referred to above were made.

Summer Fallows and Canada Thistles.

It is a general custom, amongst a great many farmers, to plough summer fallows early in spring, unless they have been previously ploughed in the fall.

Both plans are bad, and in my opinion, where the land is infested with thistles, all waste labour. If the land is wet and needs surface draining, ridge and furrow will answer well for that purpose, but will be equally objectionable, so far as killing thistles is concerned. Nothing assists the growth of thistles more, and impedes their destruction to a greater degree, than moving the land whilst wet in the spring or fall. The more you plough, under such circumstances, the more thistles will flourish afterwards. Ploughing in the fall and again in the spring, for spring grain, exactly coincides with this theory, and every one knows how thistles gain under such regimen

The working of clean land is not, of course, here alluded to, for almost all our fields are now, alas, more or less infested with thistles For many years I followed this course, and grew more thistles than any thing else, and certainly more thistles than I ever saw grown elsewhere. I sowed large quantities of spring grain, and any fallow I had, was always ploughed in the fall or early spring, and consequently when the time came to kill thistles by working amongst them during the hot dry months, they were young, green and succulent, and very difficult to kill. They had not had time to grow and almost mature their seed, as they would have, had they been let alone, and hence, in strict accordance with Nature's rules, the plant, under these circumstances, makes great efforts to recover itself, and so mature its growth and seed. In the latter part of June, under this treatment, thistles will be about twelve to fifteen inches high, and in full vigour of young growth, with little seed showing.

Now, my plan is quite different. I never plough or disturb the fallow land infested with thistles until June, and then they are often three to four feet high, in my rich clay land, and many of them forming seed; in fact, their growth is about done, and they only seek to mature their seed. Now is the time to go at them. The land is comparatively hard, and ploughs up very rough—and the rougher the better, and the larger the furrows turned, the rougher the land will lie. Much of the land so ploughed will lay up quite hollow, and expose a surface many times larger than the area of the land; the sun gets into and under these lumps, and being much exposed to the action of the air, the soil becomes completely dried, and every thistle that remains in a clod so exposed and dried will die, and in fact is dead in a week. As soon as ploughed once do not go and harrow all down smooth again, for that course is the very worst you can follow. You can easily perceive that by these means you cover up all thistles exposed, and so prevent their death being entirely completed, where there is some remains of life left. But instead of harrowing, put in the plough again, and move all the under soil to the top, and enable it to obtain more ammonia and nitrogen from the air While in this state of rough surface, so much is exposed that the land is absorbing at every pore from the atmosphere, and on a surface exposed to the action of the air a great deal larger than its flat area. Whereas, if the land was well harrowed down, the surface exposed for such absorption would be but little larger than its absolute area. Weeds also vegetate more freely, in this case, and in direct ratio with the surface so exposed. Three such movings, if the weather be dry, will entirely exterminate all thistles; they are dead, root and branch; they have for that year lost the natural and extreme tendency to surmount all difficulties and mature seed, as they had nearly done so before being disturbed, and hence are much weakened, and five times as easily killed. This course particularly applies to clay land, and is the mode of working fallows in England, so far as the rough surface is concerned, amongst the more intelligent farmers, especially where steam cultivation is practised. They do not absolutely plough, but do what they call "smash up" the land with powerful cultivators, whose tines or teeth penetrate from twelve to fifteen inches, leaving the soil very rough and the surface soil always on the top; and in many sections where the land is clean, this is considered the best mode of cultivating, unless where manure has to be buried, or weeds or sod killed. Let those who are sceptical try this plan alongside a piece worked in the old way of fall ploughing, and again in June or early in July, and again for seeding, with intermediate harrowings My piece will be clean and free from thistles and weeds, whilst the other will be as foul as ever. My three ploughings are applied just when the heat is greatest, and will be found most efficient in their action

I entirely cleared twenty-seven acres of land, last summer but one, by this course, and as yet no thistles are to be seen, where, when I began, they could be counted by millions Some were so high that I had to move them before the horses could go into them

C.

Cultivation of Barley.

That hurried season of Canadian farming, seed time, is to all appearance fast approaching. I would now treat in their order the cultivation of the various spring crops most widely sown by our farmers, not professing to lay down arbitrary rules for their guidance, but simply with the intention of somewhat refreshing our minds, by briefly touching upon those several peculiar and most important points which should be ever borne in mind as we prepare our land for each different spring crop Of late years, the breadth of land over which barley has been sown has steadily increased in Canada, until its area has encroached greatly upon the old fall wheat crop.

The principal varieties of barley are the two-rowed and six-rowed, the former cultivated largely in Europe, but little in this country. It is also both a winter and spring grain, but is sown only at the latter season in Canada.

To secure a good crop of barley a judicious choice of seed is essential. In choosing our seed, we cannot do better than follow the advice of Loudon, who says:—"The best is that which is free from blackness at the tail, and is of a pale lively yellow, intermixed with a bright whitish cast, and if the rind be a little shrivelled, so much the better, as it indicates thin skin." Barley may be sown upon a grass or clover ley, if such be clean ploughed in the fall, or after roots. Thorough pulverization of the soil is an essential element in the successful cultivation of barley. For this reason every farmer should use his utmost endeavours to have his barley land for the succeeding year fall ploughed, as our Canadian frost is the most thorough disintegrator that we can employ. It is well to sow barley early, but at the same time it were better to be too late than to sow before the land be thoroughly warmed for no crop succeeds well that is checked in its earliest growth.

Barley does not require a deep seed-bed, but that seed-bed must be thoroughly worked. If we cross-plough, let us do it