at wheel, two men on plows, tank man, cook, blacksmith and man hauling coal. We have to haul coal at present about four miles and keep a man and team at that job, four horses on water tank; we are hauling water at present two miles and it keeps four horses busy. We burn two ton of coal a day.

We have a 28 h.p. steam engine and are pulling four plows, as it is very dry.

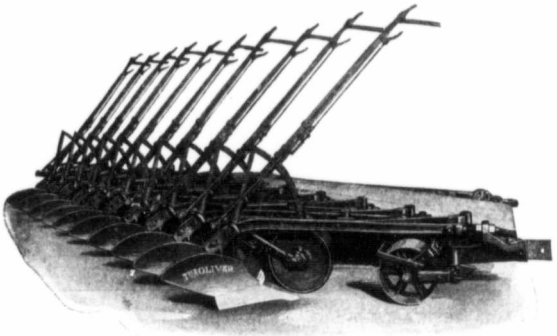

Fig. 19.—Side view of a two section Oliver engine gang. Observe hinged platform and bar vertexes of sections.

When ground is in good shape, we pull six plows, using the 2 bottom gang plows which are the best for this country.

With four plows we can plow about 10 acres a day in long days, and with six plows can turn over about 15 acres these days. It costs close to 83 an acre to plow in good ground and in gravelly ground all the way from $4 up, according to the amount of rocks.

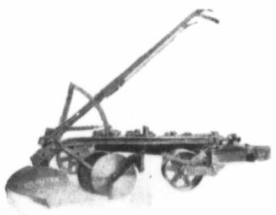

Fig. 20.—Each plow of the Oliver Gang is independent, with coulter, gage wheel, lifting lever, etc.

The above is taken simply as a fair average of what was done at that time, and when compared with the work done today by a plowing outfit, it looks small indeed. This horse plow arrangement did not however last and by 1906 we find the traction plowmen turning their attention toward a new style of plow,

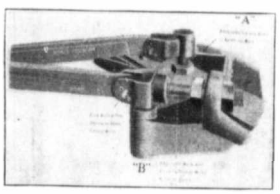

Fig. 21.—Attachment of beam to frame. Bolt is adjustable up and down to level the base. B regulates width between plows.

known as the "Stiff" engine gang. This consisted of four, five or six plows arranged on one frame. The frame was carried on wheels and it was thought that a real engine gang had been at last perfected. It was, however, really no better than the old horse plow equipment. It had more weight which held it to the ground more securely, but in plowing uneven ground, it was worse than nothing, as it would not adapt itself to the "pot holes" and "hummocks" that are so prevalent in virgin prairie. About 1905, however, a new thing came to the plowing field in the shape of a real engine gang, and we give below a letter published in our September, 1906, issue, to show the result of the transition from the makeshift to the real engine gang.

When we came to Canada last spring we carefully thought over the question as to whether or not steam would be most profitable for plowing, and the more we studied the situation the more we thought that steam plowing was the

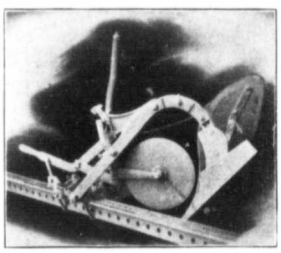

Fig. 2.—Spring trip used on Emerson moldboard engine plows. Point raised as high as frame.

thing for this vast new country now being opened up, for the minutes are golden in this short season.

The next thing to decide was what kind of an outfit to get. We consulted freely, and finally decided upon working steam plow. We started to work the first of May with more or less success for a time; then the plows began to yield under the heavy strain of breaking the virgin prairie. For almost two months we labored and tinkered with these plows in vain to make them work. They would clog between the beam and moldboard so tightly that it was nearly impossible to clean them. There is no use in discussing a painful subject, so we decided it would be economy to purchase a new set of plows. So, profiting by our past experience, we finally decided upon the Cockshutt steam plow of ten furrows, and it is needless to say that we are now more than pleased. We are plowing nothing but prairie at present, and at this time of the year it is quite a tough proposition on engines and plows, as the ground is so dry, but so far we are having fair success. Some time ago we decided to plow day and night, as we were so far behind because of the failure of our first set of plows. We equipped our outfit with lanterns, so that now the night force is doing almost as well as the day force, but of course, there are some drawbacks to rapid work and nice, principally, of course, the darkness. However, we are satisfied with the work thus far. The men work in twelve hour shifts, from seven to seven.

Now, in regard to the number of men employed, there are two with the engine and plows, engineer and steersman, and the tank man. Last, but not least, is the coal man, who, in this case, is a lad, who hauls two good loads which last night and day. The night force is the same as the day force. In regard to the teams used, there are two tank teams, and the coal team, making six horses, six men, and one lad all told, running day and night.

As near as we figure at the present moment, the cost of plowing is a little over $2 per acre. In lighter soil than what we are working the cost would be quite a little less, but in this heavy soil breaking is a stiff proposition.

We have, on extra good days, plowed as high as 25 acres a day, but we consider 20 acres a good day's work, and would be content to average that day in and day out. With regard to the fuel, slack coal is what we are using. While it requires a little more work in keeping a fire, it is a very satisfactory coal for plowing, making but few clinkers.

Another essential thing in steam plowing is the extra wide wheels. It is, in our estimation, absolutely necessary, as after the spring rains the engine would sure go out of sight without the extensions with which ours is furnished.

Now, just a word regarding steam plowing in general. There are lots of perplexing questions and things coming up all the time to discourage the owner of a steam plowing outfit, and the work is hard on the man running it, but then the pleasure will certainly come when the broken prairie is changed into long unbroken fields of waving wheat. Don't let breakdowns discourage you, but get the repairs as soon as possible, and whatever you do keep your engine working. It is the idle moments with a gang of men idle that makes the balance go on the wrong side of the ledger.

The real engine gang had at last arrived, and the one who writes Western Canada's history must, if he be fair, chronicle the fact that engine plow has done as much or more than any other single factor towards the rapid development of the three prairie provinces. Much has been said and written regarding the tractor in this connection, and far be it from us to discount in any particular its good work, either past, present or future, but without the development of the tractor plow, the development of the tractor itself would not have been anywhere near as rapid as it has been. Mr. Farmer, have

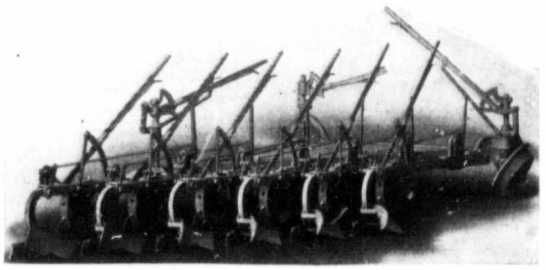

Fig. 23.—Six bottom Emerson independent plow. A lever for each plow and levers to regulate height of frame.

you ever stopped to realize that you in conjunction with the plow manufacturers have worked out a proposition that has effected a veritable revolution in grain growing? He has built and you have bought. You have found

Fig. 24.—Top view of J. I. Case engine plow. Note the furrow wheel.

weaknesses and he has remedied them, but between you there has been given to the world an implement that is rivalled in importance only by the self binder. 1836 is the year that really marks the introduction of the first traction plow. In 1832, one, Thomas Heathcote, of Devonshire, England, perfected a system of cultivation that was new

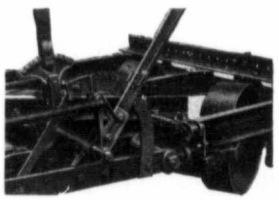

Fig. 25.—Attachment of plow beams to frame. The vertical eye bolt provides for wing adjustment and the horizonal for parallelism.

and rare. It might be said in passing, however, that in 1618 David Ramsey and Thomas Wildgosse patented an invention comprehending.