

STEAM PLOUGHS.

Nearly thirty years ago Mr. Smith, of Woolston, Eng., brought out his system, called the "Roundabout," and it was used with more or less success until a few years ago, when it was re-placed by the now well-known Double Engine system. In 1869 Mr. Fiske exhibited for the first time, at the Royal Society's Show at Manchester, his system of steam cultivation and cartage, but like Smith's it also died a natural death.

Both systems were, however, capable of doing good work, but the enormous amount of rope, the number of men required, the time and labour necessary to set it to work, and move it from place to place, prevented either being adopted to any very great extent.

Many fortunes have been spent in England in trying to perfect a system that would meet all the objections of the "Roundabout," or Smith's system, and it has ended in the Double Engines being almost universally adopted, and up till now it is perhaps the only system worth notice for the requirements of the English agriculturist.

What was required, however, was a steam plough that would break the thousands of acres of prairie in the North-West. For this purpose one or two sets of Double Engine apparatus were imported from the well-known firm of John Fowler & Co., but it was found that, although it answered all the requirements of the British agriculturist, there were certain objections which were fatal to its use in this country—the chief among them being, first, the enormous first cost; second, the number of skilled men required to work it, and at high wages; third, the enormous weight of the engines.

The only system that appears to have been attempted on this continent is the one of drawing the ploughs behind the traction engine, and a more stupid, *unmechanical* idea it would be impossible to conceive. The reasons must be patent to every engineer who knows his business, but as it is farmers, and not engineers, that our remarks are addressed to, it will be as well to explain the fallacy of this system:—

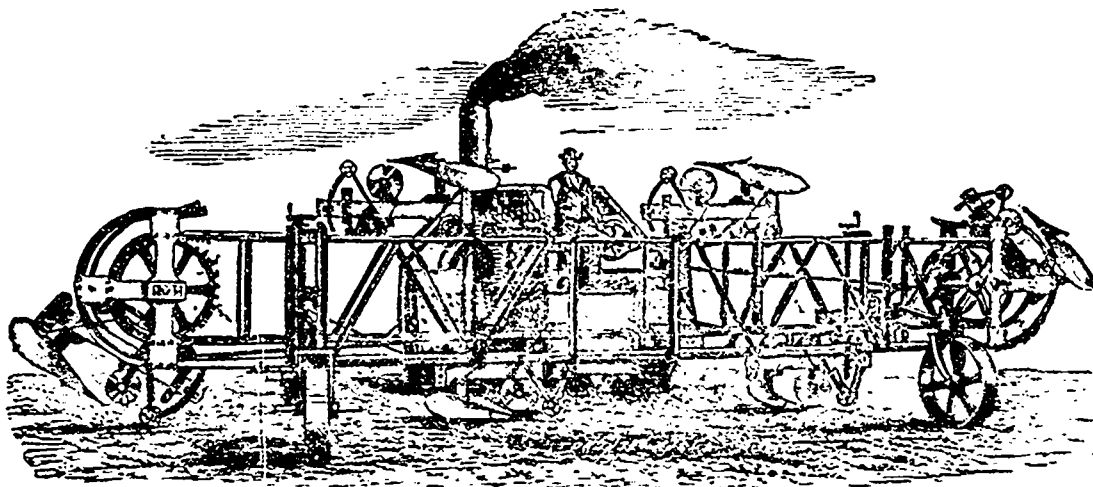
First, it is useless to attempt ploughing by steam unless a large amount of work is done, and for that reason at least six ploughs should be used, and to draw that number of ploughs—the resistance of which is often as much as one and a-half tons—requires an engine weighing not less than eight tons, otherwise there would always be a slip between the driving wheels and the surface of the land. Second, the power required to drive or propel such an engine over the land at the same rate that the ploughs are travelling—say three miles per hour—is greater than that required to draw the ploughs. It will thus be seen that there is not only a serious loss of power, but of a corresponding amount of fuel and water, and wear and tear of engine. Thirdly, it is impossible to work the ploughs after a rain of a few hours, as the engine is depending entirely upon the dry surface of the land for the necessary friction to haul the ploughs.

Our illustration represents a new system that has been invented and patented by Mr. E. Ingletton, late of the county of Kent, Eng., who has had very extensive experience for this past seventeen years with all kinds of steam-ploughing and other agricultural machinery in Germany, Russia

and England, was for several years the mechanical judge for the two agricultural societies of Entin and Lubeck, and a practical agriculturist as well as engineer. The illustration represents the plough as attached to the traction engine of Capt. Colquhoun, of Stony Mountain, the latter having been adapted to that purpose by the builders of the plough—the Vulcan Iron Works, Winnipeg. The advantages of this system over all others are, first, its extreme simplicity; second, its easy control, only one man being required to manage the whole apparatus; third, the moderate cost; fourth, the small amount of fuel required to do a given amount of work.

It will be noticed that the ploughs work at right angles to the travel of the engine, and cut furrows twenty-five feet long, the engine travelling at the rate of half a mile per hour in a direction of right angle to the ploughs. This speed of engine gives a surface ploughed of one and a-half acres per hour, or say from fifteen to eighteen acres per working day, and although the engine travels across the land, it has nothing to haul behind it, and the speed is so low that it requires a mere fraction of its power to drive it, so that almost the whole power of the engine is devoted to doing actual ploughing; this accounts for the very small consumption of fuel required to do the work.

Owing to the angle of the mould-boards of the



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ploughs, the pressure of the furrow has a tendency to force the ploughing apparatus forward, thus relieving the engine of *all draught*, and consequently loss of power and liability of the driving wheels to slip, as is always the case when drawing a heavy load. This enables the engine, when fitted with broad wheels, to work on the land when in its very softest condition. It is only fair to state that the engine was built by Messrs. Taggart Bros., of Ontario, and is a poor specimen of engineering, and has caused endless trouble and delay to both Mr. Ingletton and Mr. McKechie, of the Vulcan Works, but it has at last been put into practical shape at a cost of nearly a new one. It is, however, the intention to build a new style of engine, and adapt it to every requirement of the farm, including ploughing, threshing, reaping, rolling, and hauling grain to the railway.

Assured as we are of the success of this machine, we anticipate a direct profit from its use, as farmers will be able to dispense to a great extent with horses for farm work. Mr. Ingletton sees no difficulty in adapting his new engine to practically every department of labour where horses are required. In such a case the farmer owning a set of his machinery can use a few oxen for odd work, these can be kept at trifling expense, and the more costly horse simply kept for driving purposes. Farmers here and there have urged that one of the drawbacks to profitable farming in this country lay in the first cost, care and feeding of horses, added to their liability to

disease and death. The equipment we have described will be moderate in first cost, economical in working, and with fair play the chances of life are largely in favour of the engine as against the number of horses required to do the same amount of work.

BRIGHT SIDE OF FARMING.

It is undeniably true that the energetic driving farmer, who follows the business in view of making money, leads a busy life; for it necessarily involves an outlay of much hard labour and energy of mind. With this fact in view, and the numerous trials and perplexities which always occur to the farmer during very busy seasons, and the fact that the hardest and most important work of the year comes during hot weather, when labour and exertion are most unpleasant, and when those who follow other callings have comparative leisure—it is not surprising that many farmers become discontented, and sometimes discouraged. A certain amount of discontent seems to be a law of human nature. People of all callings look with envy upon those who follow other kinds of business, and however well a person may be situated, he is likely to imagine that others have a better lot in life. It is not surprising then to find farmers looking enviously upon lawyers, merchants, or those who follow other callings which demand less exertion of body and mind. (?)

But there is a bright side of farming which every farmer ought to recognize and which more than balances its unpleasant features. While it is true that much farm work is laborious and unpleasant, it is also true that farmers enjoy ample time for rest, and without financial loss. The work of the farm requires more muscular exertion than that of the shop or desk,

but it is less confining and monotonous. The clerk, book-keeper and mechanic work more hours a day, and are more closely confined than the average farm hand, whose work is in the open air and who has his evening for himself.

The winter months, with their long evenings, afford to the farmer comparative leisure and ample time for recreation, amusement and intellectual culture. They afford opportunity for reading and study, and for laying plans for future work and improvement.

The fresh vegetables, pure, rich milk and golden butter, which are looked upon by the wealthy residents of cities as luxuries, come to the farmer directly from nature and at little expense. The same articles are bought by the city people at extravagant prices, after they have lost their freshness and most desirable qualities. The farmer deals directly with nature, and the blessings which he should appreciate and enjoy, more than counteract the difficulties and disappointments which fall in his path.

There is no reason why farmers may not lead happy lives. Ambition if carried too far, becomes a misfortune and excludes contentment and enjoyment. But with an aim to live and to enjoy, rather than accumulate fortune, there is no calling better adapted to comfort, contentment and real happiness than agriculture.—*Manitoba Free Press.*