

# "The Farm and Garden," Newspaper Article, February 12, 1872

## The Farm and Garden

**Plows and Plowing - - A Revolving Plow-Fender.**

**The Use of Cast Steel in Place of Iron - - Sward-Plowing.**

**Sulky Gang Plow and Riding Cultivators --- The Chemistry of Farming.**

*From Our Agricultural Correspondent.*

*CHAMPAIGN, Ill., Feb. 10.*

*There is much inquiry in regard to*

### **PLOWS AND PLOWING.**

Many of those have had replies by mail, but of late they have become too numerous to admit of this, and we will take up the subject from the present stand-point. This is done the more willingly on account of the thousands of new readers of THE TRIBUNE who have not been posted on this subject, and yet I must confess that there are some new things that I desire to take into consideration.

In purchasing a new stubble-plow, the first thing that the farmer looks at is the height of the beam from the ground, that the rubbish may be cleared from it, and not choke up. The other day, Major Webber, a farmer of Marshall County, showed me a little simple contrivance, that he calls a revolving fender, that will clear all the rubbish, weeds, stubble, wild morning-glory, and vines, and all that sort of trash, from the plow, even when the beam is low, or just high enough to clear the furrow-slice. But this is only one of its advantages, for it will allow of a shorter standard, and this will reduce the power to move it; as every farmer knows that a low-beam plow has a lighter draft, is held easier, and is the best in all respects, in land clear of rubbish, that is liable to choke it up. Here, then, is a point for improvement in the weight of the plow, for two reasons: In the first place, a low-built plow will bear a greater resistance than the Shanghigh: consequently, it can be made lighter, and, of course, cheaper, for it will require less pounds of iron and less size of wooden beam. And this leads me to the inquiry, Why not use all cast steel in the construction of our plows? Cast steel is a great deal stronger and stiffer than iron, and could be used of much less size for the same purpose. The large bolts that pass through the beam weaken it in a ratio corresponding to their size; hence, the smaller the bolts, the smaller may be the beam. If you can reduce the bolt one-fourth of an inch, you may reduce the thickness of the wood that amount. If cast steel costs more per pound than iron, it will require less pounds for the same work, and then the cost of the wood is also reduced. Cast steel is not being used for harrow-teeth, as it is found that the size of the harrow-teeth may be much less, and the harrow may have a wider spread without adding to the weight, and is thus enhanced in its capacity for work. Our plows are all too heavy; but, with the use of iron, it has been found difficult to make them lighter and yet have them capable of all the resistance that they meet in striking sunken boulders and roots. The

use of caststeel would make a most decided change, and more especially when we are enabled to lower the beam from four to ten inches. - a point of no small consideration

Last November I was in the shop of Furst & Bradly, of Chicago, when they were forging hundreds of iron beams for plows; and it has since seemed to me that, if these beams had been made of cast steel, the weight might be reduced several pounds each, and yet the beam be less liable to break or bend than now. The fact is, the new processes for the cheapening of steel are gradually drawing us on to the use of steel in place of iron, and we will soon enter the age of steel, and substitute it in all cases for wrought iron. While these remarks apply to the common old land and sward plows, yet they have a double force in the sulky or gang plow.

The following letter is a fair exponent of what farmers now demand.

### **FRENCH PLOWING.**

RICHVIEW, ILL, Jan. 24, 1872.

SIR: Have you trench-plowed prairie sod, timothy sod, or old ground, with any of the sulky or gang-plows advertised to do such work? You have written much about trench-plowing, but I believe, never fully described the plow you used.

I have trenched timothy and clover seed with a plow rigged in front of a common stubble-plow, but was not entirely satisfied with its operating. I want to get a sulky-plow rigged for trenching prairie sod, and also, the same plow for old ground. Can it be done? I have trenched considerably by going twice in the same furrow with the same team ; but this has objections. The Decatur Agricultural Works, and Skinner, Briggs & Enoch, send me a description of a sulky-plow they rig for trenching. The cost is so great that I want to feel that I am getting the the best plow of the kind when I invest. Some recommend a gang-plow changed to a trench. I want something which three horses can carry right along. Have you any experience in these plows that will benefit me in starting a new prairie farm in Western Missouri. Also, have you used the coupled diamond or shovel plows for cultivating corn? If so, how did they perform compared with walking-cultivators? J.H.A.

All of the gang plows are made too heavy; there is too much weight to carry ; and then four horses make one horse too many for one man to handle in plowing. We must have the plow adapted to the team, for we cannot so well adapt the team to the plow When two plows are attached to the same team and drawn by four horses, each plow must have double the resistance of a single plow drawn by two horses ; hence, the gang plow must be twice as strong as the single plow, and this double strength implies double the weight of two common plows, in order to get a gang plow. That is, we must have four plows, or their equivalent, in order to do the work of two. And this extra weight has been the great stumbling-block in the introduction of this kind of plow. And, unless the defect can be overcome, they will not come into general use. Last fall, a manufacturer proposed to send me, for trial, a sulky plow cutting twenty inches to be drawn by three mules or horses. Do not send it, I said, for I can point out to you its defects without trial. In the first place, no furrow-slice should be more than one foot wide, as all over that width must be elevated at a greater loss of power, and a twenty-inch furrow will require as much power to turn it as would two twelve-inch furrow will require as much power to turn it as would two twelve-inch furrows. "That is not possible, for, with the plows, you have to open two furrows, which will fully compensate for the extra power to raise the wide furrow ; so, you see, there is no loss." But the opening of the furrow-slice with a rolling cutter is at a very small expense of power, - a mere trifle as compared to the elevating of a wide furrow in order to invert it. It was for this reason that the old wide prairie breakers went out of use. It is a very pretty, though fallacious idea, that these makes, with a twenty-inch plow, have any advantage, over the common mode of plowing, or of a sulky plow with two plows of twelve inches each. In light soils, the latter will be found of great value, for then three

ordinary horses or mules will be able to work it, without more than the usual fatigue ; but, in a heavy clay soil, such as we often find on the prairie, it will need three heavy horses to do the work. Nearly all of the gang plows are made with two fourteen or sixteen inch plows. These wide furrows, added to the great weight of the frame and attachments, drag out the team, and the farmer finds that his anticipations are sadly cooled off. The truth remains that, to turn over a given furrow it requires a given amount of power, and that two furrow slices of a foot each will require less power than one of two feet.

Since the plow trial at Mattoon I have not had an opportunity to test the relative merits of the different gang plows, but I know that the Skinner plow has been much improved since then. These gang plows can be, and, I believe all are, arranged for either trench plowing or subsoiling, by placing one plow behind the other on the same beam. What we need is a sulky plow, with a single plow, made as light as is consistent with the requisite strength for the turning of single furrow. I think the gang-plow should be made for the use of three horses, and the two plows of a corresponding width, not to exceed twelve inches each. As before stated, they may now be made with low beams, and, by using steel, the weight could be materially lessened. Three horses work very well together, and such a team would do a third more work than the team of two horses, thus saving one-half of the labor of one man. This, in a short time, would pay the difference in cost between a sulky gang-plow and the common walking plow.

### **SWARD PLOWING.**

I now trench-plow all my sward-land, and, what is more, I try to do it as soon as the frost is out of the ground, and the surface is firm enough to bear the team. If the water follows the furrow, no matter; for sward-land plowed in this wet condition will never bake, though the same soil, after the turf has become rotten, would do so. I have before explained the reason of these apparent contradictions. The top furrow need be no more than two, or at most three, inches deep, and the bottom one three or four, — the two making not more than six or seven inches though some think five quite sufficient. The turf affords a good drainage, while the bottom furrow that has been thrown out on this turf is made pulverulent and in nice condition for the root of the young plants. The gang plow rigged as a trench plow will do better work than to use two single plows in the usual manner, for the reason plows in the usual manner, for the reason that the weight of the implement and the driver will hold the forward plow to its place, and a more even and lighter furrow can be cut, for it is desirable to have the turf cut as thin as possible, just below the crown of the grass roots. For this purpose, an inch and a half is better than two inches. This shallow cutting of the turf is really the secret of success in the trench-plowing of sward land, for it separates the live part from the roots, and the turf is at once destroyed.

This thin ribbon of turf is placed at the bottom of the furrow and is incapable of sending up new blades. The lower furrow that contain the dead roots thus separated, is soon comminuted and the [illegible] matter supplies plant food, and by its porosity and color, admits air and attracts heat, while the rain-fall readily passes through it. Land thus prepared is admirably adapted to corn, oats, and flax.

For spring wheat and barley, the land must be plowed the previous autumn, while potatoes do rather better on such land the second season, though I have had good crops the first year. I now make it a rule to stop breaking sward-land as soon as it becomes dry ; for, in that condition it requires nearly double the power to do the work. I allow the weather and the condition of the soil to be the arbiters of my corn crop. Last year I planted thirty acres, all old land. No sward was broken, for the reason that it was too dry. Had there been heavy rain-falls, so as to stop work on the old land, the teams would have been put at trench-plowing of either prairie or timothy sward for corn. I hold this sward-land in reserve for this purpose ; for it is often the case that we cannot plow our old land for weeks, when, without this sward-land, the teams must be idle; and, besides this, in a wet season sward-land thus treated will produce more than old land, while, in a dry season, it is the reverse. This system of preparing land of corn must come into general use in all the prairie country, when we shall have a rotation of grass, corn,

and the small grains. That a three-horse sulky gang-plow must play an important part in this programme is also certain; but these plows must be made lighter than at present, and the plows used must be reduced in width.

The double Michigan plow went out of use on account of the power required to draw it; but it did the work in the best manner, and to it we are indebted for the idea of trench-plowing. I have no doubt that a modification of that plow, combined with such a sulky plow as that of Skinner's, would be found useful for this purpose. We may look for improvements in this new style of plow, in order to better fit them for sward-plowing, for which they are especially adapted. So soon as they come into more general use, the price will be materially lessened. A boy of a dozen years can drive a good sulky plow all day, and do as much work as a man with a common walking plow; while, with the walking plow, he could neither do good work nor a day's work. One of my neighbors has used one of these sulky plows four years, in all kinds of work, and would not think of doing without it. The wheels of this plow are too small, and the whole is unnecessarily heavy; yet he contends that the draught is little, if any, greater than with a common plow. With first-class timber and cast steel, these plows may be made so light and so cheap that they will come into general use.

For the past two years the demand has been for walking cultivators, mainly from the fact that sulky cultivators cost too much, and I predicted that, so soon as this objection was removed, they would again come into general use. I have letters from several manufacturers, who say they have accomplished this desired result, and that riding cultivators will be put on the market at an advance of from \$5 to \$10 over the walking cultivators, and that the demand from dealers is larger than usual. So much for a reasonably cheap article. The fact is, with corn at the present rates, farmers cannot afford to pay \$60 or \$65 for a sulky cultivator, when \$30 or \$35 will buy a walking one, and the same holds good, to some extent, with the sulky plows. A good single sulky plow, with rolling cutter, costs \$65, while a first-class walking plow, with rolling cutter, costs about \$28.

### **THE CHEMISTRY OF FARMING.**

We have placed too much reliance on what chemists have taught us in regard to manures, and their assimilation for plant-food, and have lost sight of the effect of the mechanical condition of the soil. I have the analysis of the soil of this farm, and also of soil from the Rocky Mountain district, taken from a garden in Greeley. One appears like a friable clay loam, while the other is a coarse, sandy soil. On analysis, they both present the same amount of silica, and only differ in the quantity of alkalis. In one the silica is in the condition of a firm powder, as shown under the microscope; while the other is a coarse sand. In some of the minor details, the analysis is not complete, but will be in the course of a few days. These experiments, as thousands of others do, show that it is not so much the elements of a soil, or its mechanical condition, that makes it of more or less value. For this reason, we want a plow that will do more than simply turn over the furrow-slice; one that will comminute it at the same time. We must apply our chemical science with the aid of natural philosophy and vegetable physiology. Last week, a farmer assured me that all there was required, to make pasture rich in white clover was to sow on plaster, for then the clover would come in anyhow, or no seeding would be required. This is of a piece with manuring with iron filings, in order to supply the plants with iron, as doctors supply iron to the blood of invalids. The iron filings are good when mixed with clippings of wool and hair, - the more of the latter, the more valuable for plants. So of iron tonics, which are good for the blood in connection with beefsteak and other food. The science of farming must be applied science from the farmer's standpoint.

RURAL.