





THE

"PLANET JR."

1885

ILLUSTRATED.

Farm and Garden Implements.








A. A. MITCHELL,

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ILLUSTRATED CATALOGUE and PRICE LIST

OF THE

"PLANET JR" AND "FIRE-FLY"

FARM and GARDEN IMPLEMENTS.

THIS edition of our Annual Catalogue contains a careful description of the above tools, accompanied by ample illustrations, which we trust will enable every one interested in the culture of the soil to understand their use and appreciate their value. The same practical knowledge of the use of labor-saving tools on the Farm and in the Garden, which has in the past enabled us to put such implements before the public as has given universal satisfaction, has been directed during the past year to further improvements which will certainly please practical men. We have obtained valuable patents on some of these and improved our methods of manufacture, and can confidently assure our customers, that for 1885, our goods will be superior to any we have ever offered.

They will combine lightness with strength, adjustability with firmness, simplicity with perfection of work, and thorough practical value with beauty of design; and the line is so complete, that no one desiring such goods for Farm or Garden can fail to find one or more of the list adapted to his wants. They are carefully packed to carry across the world, and arrive almost as fresh as when they leave our work benches.

Customers will confer a favor by sending full shipping directions with their orders; where this is impossible, we shall use our best judgment, and endeavor at all times to secure lowest possible freight rates.

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Hand Seed Drills.

THE "PLANET JR."

No. 2 Garden Drill.

Figures 1 to 3 inclusive.

Twenty years ago hand seed drills were little used or appreciated except by large market gardeners, but they have now come into general use among farmers and those having small gardens, and are considered indispensable by those who have once tested them. Many still remain ignorant of their value, though few can economically conduct their farms and gardens without them. The importance of raising root crops for feeding stock is now well understood, while competition among market gardeners compels them to own the most labor-saving tools they can find, and family vegetable gardens are much larger and better than twenty years ago. Sowing seed by hand is at best a very laborious, slow, and uncertain process and wasteful of the seed, and the result such as to increase the labor and attention required in cultivation, while when seed is put in with a good drill, the same work is accomplished many times as fast, and far more perfectly in every part of the operation, even with unskilled labor.

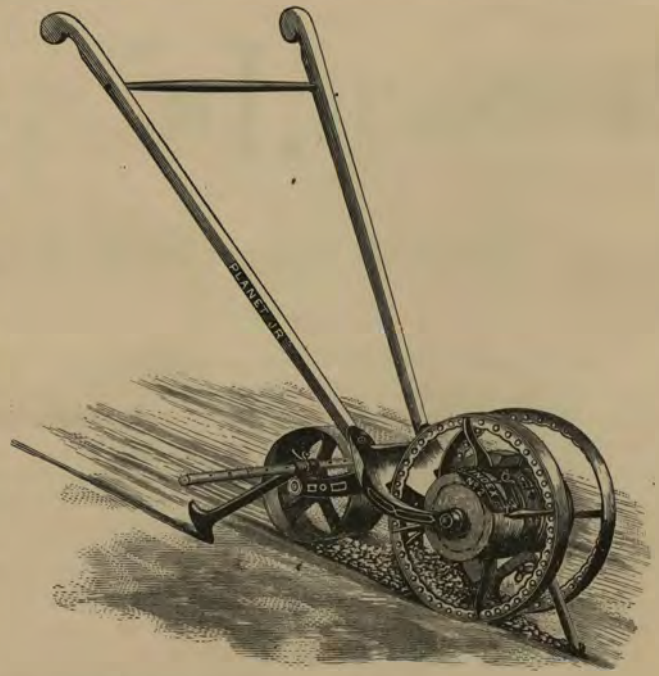

Fig. 1.—The "Planet Jr." No. 2 Seed Drill – no cultivating attachments.
Price, $10.00.

But there are some important qualities which a seed drill *must* possess to insure good work.

It should drop with regularity all garden seeds.

The distributing devices should discharge the seeds without injuring them.

The discharge should be easily regulated.

The seed index should be reliable and permanent.

The drill should deposit the seed in a straight and narrow line.

It should cover with the greatest regularity and at any exact depth desired.

It should not clog in foul ground.

It should roll down lightly or heavily at will.

It should quickly wheel into the next row without waste of seed.

It should have a good marker.

The opening plow should be adjustable in depth.

It should be simple in construction, durable and light running.

Regular Dropping.—The seed drum of the "Planet Jr." Drill No. 2, shown in fig. 2, is made of spring brass; it is perforated with twelve equidistant diamond shaped holes; over this drum is *accurately fitted* a spring-brass band with corresponding openings, by which the discharge holes can be adjusted a *hair-breadth at a time to any desired size.* The ends of this band (as shown in the engraving), are joined by a cam, which when open, allows the band to be moved with great ease, but when closed holds it firmly in the position in which it is set. Each opening is covered upon the inside of the drum by a shield, which prevents the discharge holes from sowing any seed, until in their revolution they consecutively reach the bottom of the reservoir and begin to ascend, when the shield, instead of *preventing* access of the seed to the discharge holes, forces it therefrom in a continuous stream, during about one-quarter of the revolution following. There are twelve openings

Fig. 2.—Seed Drum.

with these shields in the brass drum of the No. 2 Drill, and there are always three of them discharging at one time, the discharge from one overlapping the previous one and being overlapped by the following. The shields, as will be seen in engraving No. 2, do not entirely cross the surface of the brass drum, so that the smallest amount of seed distributes itself over the whole breadth, and as the hopper revolves, but a portion of it passes to any one discharge hole, the remainder going to the next and the next, so that there is no difficulty in sowing regularly with the smallest amount of seed; a thimblefull of writing sand can be sown a distance of one hundred feet with entire regularity, and in the same way a single paper of garden seed can be distributed with entire satisfaction; yet the hopper can be filled to the brim, and continue to sow with the same regularity and thickness; the seed, whether much or little, being always kept in the same loose and free condition most favorable in regular sowing. A moment's examination of this method of sowing seeds indicates its entire superiority over the old one of shaking them through holes in the bottom of an upright hopper, in which varying amounts of seed cause irregularity, chaffy or irregular varieties sow with difficulty, and dirt and obstructions settle toward the opening and are liable to stop the flow in a manner impossible in the "Planet Jr." Drills.

Distributing Without Injury.—We have seen the old-fashioned hand seed drill made with upright hopper, and stirring finger over a hole in the bottom, split turnip and cabbage seeds so badly in a run of from two to three hundred yards as to *turn the color of the seed in the hopper to a gray.* The method employed in the "Planet Jr." for distribution is perhaps *the most free* that could be devised *from possibility of such or any injury;* the seed simply turning over in the reservoir till finally discharged without being struck by any device which could endanger its vitality.

The Seed Index.—This should be clear, and should contain the names of all the seeds in common use, and should be permanently attached to the machine in such a position as enables the operator to adjust the discharge in a moment. As shown in figure No. 3, the door of the "Planet Jr." Drill contains the names of the most important seeds sown, to each of which is prefixed a number which enables the operator to set the brass band accurately by means of a corresponding number on the German silver gauge plate attached to the seed drum. *The index and gauge should both be reliable*, and those used on the

Fig. 3.—Seed Index.

"Planet Jr." Drill, fig. 3, have been made with extreme care, for we know how disappointing it is to have directions indicating certain sizes as proper for sowing seeds and have them prove entirely unsuitable. Beginners, however, frequently expect to sow seeds an improper thickness, from the impression that they should not be much thicker than the plants are required; but this is incorrect, as for example, rutabaga turnip should be put in at the rate of from twelve to twenty grains to the foot, yet two roots to the foot are sufficient for the crop.

Discharge Easily Regulated.—No more common direction is given with a seed drill, nor better one, than that the operator before going to work in the field should test the drill after being set according to directions to see if it sows the proper amount to suit his views, but this seems futile *unless the opportunity is given to change the size of the discharge holes at will.* The old style machines confined their owners to a set of a dozen or less of different sized holes, none of which would in a majority of instances be the exact size desired; and many now offered cling to this antiquated plan with a tenacity only equaled by the persistence with which they assert its superiority. Nothing could be more vexatious than after being sold a machine said to be the latest improved, or best in the world, to find that it had such a limited supply of discharge holes. The "Planet Jr." Drill, as can be seen in figure 2, *can be set to any size*, a hair-breadth at a time, from that suited to the sowing of the finest flower seeds up to beans. This point alone is of sufficient value to decide any purchaser in its favor.

Straight and Narrow Rows.—No one that has use for a seed drill can afford to be without a wheel hoe, and every wheel hoe, however perfect in itself, must owe its economy largely to the fact of having seed planted in a straight and narrow row, so that it can be worked closely on either side without danger to the crop.

Where seeds have been sown by a good drill, and have come up surrounded by a mass of weeds, it is a fact that with a good wheel hoe the latter can nearly all be destroyed, leaving the crop untouched, from the fact that *it* is in a straight and narrow line, while the weeds are on either one side or the other of that line. Care therefore has been taken to so form the bottom of the opening plow of the "Planet Jr." Drill that it shall leave a somewhat V shaped furrow, which will conduct the seeds into a narrow line; and the position of the opening plow *between* the carrying wheels is such as to insure its running at least as straight as the machine is propelled. The "Planet Jr." Drill having two carrying wheels, is quite readily kept in a straight line, and the variation of the plow *is no greater than that of the wheels*, but with an old-fashioned machine, with the driving-wheel a considerable distance ahead of the plow, every variation of the wheel is *greatly exaggerated* by the plow.

Covering at an Exact Depth.—It is self-evident that the first requisite for covering at a regular depth is regular opening, and after this is done nothing is required but to return the earth where it came from. All ground, however well prepared, settles very irregularly, either with or without rain. In machines having the plow at a distance from the carrying-wheel, while the latter is in a low spot the former is opening *deeply* through the high portions, and while the wheel is going over the high portions the plow is *skimming* lightly over the low. With such machines also, especially in mellow soil, the plow frequently has to fol-

low in the track of the carrying wheel an inch or an inch and a half in depth, making it impossible to cover seeds shallow or with any regularity. This is very objectionable with delicate seeds, which must be covered shallow and with great evenness. By referring again to figure 1, it will be seen that nothing of this difficulty exists with the "Planet Jr." Drill; that the plow is *between the carrying-wheels*, and let the operator be careless or not, the plow once set, whether shallow or deep, must always run at a regular depth.

An important advantage in favor of this method of construction is that the operator may change the height of the handles of the "Planet Jr." Drill several inches at every step *without varying the depth of the plow or covering in the least*, while a two-inch variation of the handles of the old-style drill results in *½-inch variation in depth*, and every operator is *sure* to oscillate the handles with the motion of the body at each step sufficiently to seriously injure the regularity of depth. In returning the earth upon the seed the "Planet Jr." Drill depends on a device which is positive and regular, the earth from the plow being thrown upon the wide rims of the carrying-wheels and returned by a scraper in the most regular manner directly on top of the seeds. This feature is fairly shown by our artist in figure 1.

Clogging.—Straw, manure, small roots, weeds and other obstacles, are nearly always present in ground prepared for the seed-drill, and are vexatious in the extreme in a machine unprovided with a cleaner. The cleaner is shown in figure 1. It is so arranged that it always precedes the opening plow, and at the same depth, and it enables the drill to be propelled through a considerable coating of manure, roots, trash, or grass of almost any description, without the slightest inconvenience.

The Roller.—The position and attachment of the roller is such as enables the operator to roll lightly or heavily at will, by varying the pressure on the handles.

Wheeling from one Row to Another.—The "Planet Jr." Drill, by bearing on the handles, can be wheeled into the next row without stopping or shutting off the discharge, *yet without wasting any seed, or leaving any uncovered at the end of the row.*

Adjustable Opening Plow.—It is exceedingly important that the opening plow should *be adjustable to any depth that is required*, enabling the operator to suit himself in regard to the height of the handles, rather than be compelled to vary the depth at which he plants the seeds, by stooping much or little as needful.

The Marker.—A good marker is important and it should be easily adjusted. Nothing could be more simple than that shown in the engraving which can be turned from side to side at the end of the row in an instant, and is *of sufficient weight* to mark distinctly.

Simplicity of Construction. –There are no cogs, belts, brushes, levers, or gearing of any kind used in the construction of the "Planet Jr." Drills. They are noiseless, automatic, self-cleaning, *simple in construction, easily understood, and light running.* The seed reservoir and regulating slides are made of *spring brass, and having for years discarded wood except for handles, all other parts are cast-iron*, making the tools firm, durable and graceful. They are handsomely finished and carefully packed for distant shipment.

For 1885 we can supply it with a plow made specially for sowing **onion seed for sets** in an even row about two inches wide. It is sent only when specially ordered.

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THE "PLANET JR."

COMBINED DRILL.

Wheel Hoe, Wheel Cultivator,

—AND—

Wheel Plow.

Figures 4 to 8 inclusive.

This tool is the most popular combined garden tool known. As a drill it is similar to and as carefully made as the No. 2, just described, though somewhat smaller, holding one quart. It will be found to work

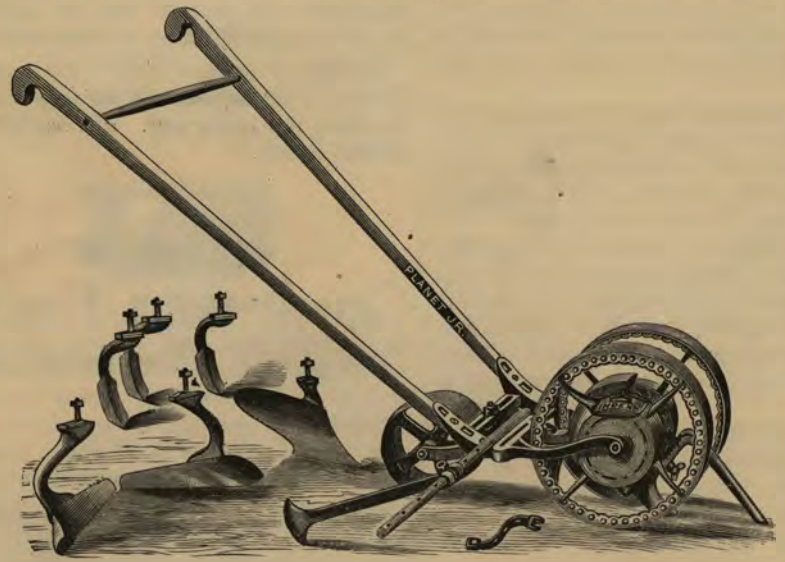

Fig. 4.—The "Planet Jr." Combined Drill, Wheel Hoe, Cultivator and Plow.
Price, $12.00.

perfectly in every capacity, an excellent tool either in the field or the garden. The main wheels are eleven inches in diameter, the roller six inches, and the seed-drum has nine discharge openings; in every respect the tool is as well made, well finished, and as complete as the No. 2. Yet we always recommend those who have much work for such implements to buy the separate tools as an economical investment, for no combined machine can be quite so perfect in all its details, or as convenient as the separate tools.

The work of *planting* a garden is but a small part of the labor necessary for its success. The hoeing, plowing and cultivation of the different crops is far more important and laborious. No perfection of planting nor previous preparation of the soil will amount to any thing without continued attention and cultivation afterward throughout the growing season. An important feature, therefore, of a combined machine for the garden is its adaptability to rapid and easy hoeing, cultivating and plowing of the different crops. This has led us, while perfecting in the highest degree every part of the sowing devices of our combined machine, *to provide it with a complete set of tools for garden work*, and it is our special pride to call attention to the practical perfection of the combination. The No. 2 Drill is a perfect seed-sower; our Double and Single-wheeled hoes are excellent, but in our Combined Drill we have a sower equal in all essential points to that of our separate drill, and cultivator teeth, hoes and plow equal to those used on our

wheel hoes. The change from a seed-drill to a wheel hoe can be made in a few moments by unscrewing two nuts. To assist those to understand the tools who are unfamiliar with the large variety of work to which they are adapted, we illustrate the description with a number of engravings, showing the tools as set and used for different operations. By

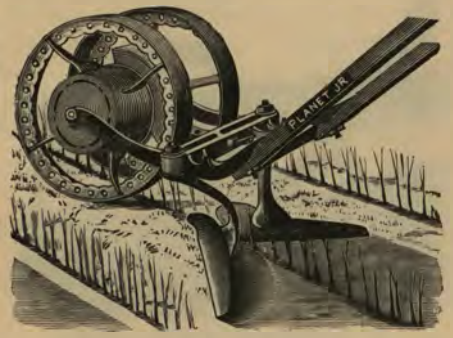

Fig. 5.—Hoeing both sides of the row.

putting on the hoes, as shown in fig. 5, the machine is ready for the first hoeing of small plants from seed. These hoes can be safely set to approach the row within one-half inch, and the earth after them is left in a perfectly broken up and fine condition, and all weeds destroyed. Their peculiar shape was originated only after long-continued and careful experiments in the field, and by comparison and test with everything of a similar character, and they have stood the test of many years' successful work, and have the following practical advantages. They cut next to the row of plants with an edge *slanting forward* which ensures a clean, clear cut close to the plants, without danger of disturbing them even when very small, while any other shape, let the edge be as keen as it may, is sure to upturn, to a greater or less extent, the crust of earth in which the tender plants are starting. The difference between the slanting forward cut and the slanting backward cut is readily illustrated by first *drawing* a knife through the ground in a slanting position, and then pushing it through the ground in the reverse position. In the former case the cut is clean, and the crust undisturbed; in the latter the crust is thrust upward and broken apart These blades are of such a shape as to clean perfectly and break up the worked soil thoroughly, leaving all in a fine broken condition, which is sure death to weeds. The cut shows the tool among onions the first time they are hoed. It is then that careful and close work counts. The crop sown by the drill may be worked by the hoes just described very closely, and both sides at once by straddling the rows as the tool is shown in the cut, while with the usual method, with old-style or single wheel hoes working only between the rows, it is impracticable to safely approach them within an inch or an inch and a half, and all persons familiar with the cultivation of such crops will readily understand that the last half inch next to the row is more important to have cultivated with a wheel hoe than the whole remaining space between the rows. The weeds near the centre of the row are readily killed by almost any ordinary device, while the last inch next to the row is

Fig. 6.—Hoeing between rows.

the one which requires hard labor, generally performed by getting down on the ground and cutting with a knife, and a tool that will save this half-inch will save its cost *even when used immediately behind an ordinary wheel hoe.* This method of using the tool is applicable to all crops when small and will be exceedingly satisfactory. It is not necessary to watch

the blades but only to keep the row exactly between the wheels. In figure 6, the onions are shown larger than at second hoeing, and the machine as used between the rows with the hoes in nearly the same position, but throwing a very light furrow toward the row. If the hoes are insufficiently long to work the whole of the space, one or more cultivator teeth can

Fig. 7.—As a Cultivator.

be placed in the frame and used at the same time. This method of hoeing is adapted to the working of all plants in rows from ten to sixteen inches apart, and the machine is capable of cleaning up at a single passage all rows up to sixteen inches. It can also be used between rows with the hoes set to cut away from the row. The next engraving, fig. 7, shows the tool with the three cultivator teeth, two narrow in front, and one wide behind, between rows of peas. In this shape it is exceedingly useful for mellowing the soil and cultivating all kinds of crops. With two of these narrow teeth, while the plants are small, the tool can be used as a double wheel hoe, hoeing both sides of the row at once. With the set of three teeth the tool is exceedingly effective and capable of working all rows ten to fourteen inches wide at a single passage. A single cultivator tooth can be used with the hoes in any of the positions mentioned to increase the amount of ground that can be thoroughly worked up and cleaned at a single passage. A like cultivator tooth can also be used to mark out drills for onion sets or large seeds, or for any such purpose, and with the aid of the marker the rows can quickly be run out at any desired distance from each other up to twenty inches. These cultivator teeth are made after an admirable model, well calculated to do the most work with the least labor, *and when worn out at one end are readily reversed, when the teeth work as well as new.*

Figure 8. shows the tool as used with a plow, making furrows for manure, potatoes, or any desired purpose. This can be very nicely done, as the plow is a fine model and works in the most perfect manner. The covering can also be done by throwing either one or two furrows upon the work with the plow; and it is an ever useful companion from Spring to Fall, being capable of breaking up the ground in Spring, by going twice in the same furrow, from four to five inches deep, and ten times as fast as can be done with an ordinary spade and in the most thorough and satisfactory manner; while during the season it is continually useful for plowing large crops, such as potatoes, corn, celery, etc., etc. It is used on the left side of the frame to plow *away* from crops, as the "Fire-Fly" Hand Plow is shown in fig. 22, and on the

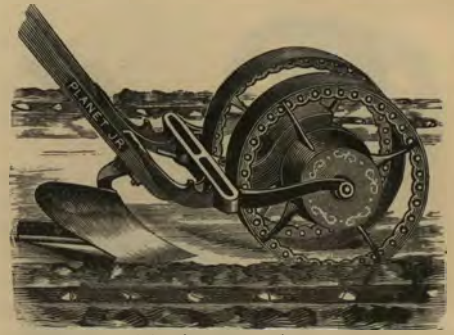

Fig. 8.—As a Plow.

right side for plowing to and ridging, as shown in fig. 23, where the "Fire-Fly," which has a mold-board of exactly the same size, is used in earthing up celery. The different tools in this combination comprise all that are necessary for the greatest variety of work usually needed in the hand cultivation of farm or garden crops, and is particularly useful for all sown by a seed drill. Each one of the hoes furnished with

this tool is made in the very best manner and shape of tempered and polished steel, and finely finished in every respect. While like the No. 2, *all wood-work has been discarded* except for the handles, every other part being either brass, cast iron or tempered and polished steel, all finely finished. Every buyer of this machine will find that it is an excellent seed sower; a first-class double wheel hoe while plants are small; a first-class single wheel hoe; an excellent furrower; a rapid subsoiler; an admirable wheel cultivator; a rapid and efficient wheel garden plow; and that it is without an equal in variety of tools, easy adjustment, lightness, strength and beauty, and as a practical every-day time and labor saver.

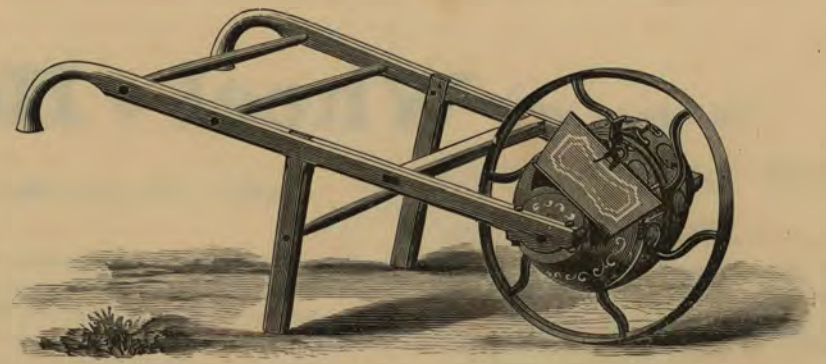

Fig. 9.—The "Planet Jr." No 3 Fertilizer Drill.
Price, $16.00.

THE "PLANET JR." No. 3 DRILL.

Figure 9.

Our No. 3 Seed Drill is constructed upon the same general principles as the smaller sizes except, that while intended for hand use, it is so large as not to be made to cover or roll down, *being intended for use in the furrow only;* the machine is used for distributing fertilizers and dropping large seeds, such as peas, beans, corn, etc. The drum, as may be seen in fig. 9, extends through the centre of the carrying wheel, having distributing openings on each side about six inches apart. When used for distributing fertilizers both sides of the drum are allowed to sow at once, and the fertilizer is distributed on both sides of the furrow, so that in dropping potatoes or in setting out plants the seed or roots do not come directly in contact with the fertilizers, but find it near at hand after they commence to grow and in just the position to do the most good. The tool holds one-half bushel and runs easily.

In sowing seeds, one or both sides of the drum may be used at once, leaving the seeds in a narrow or broad line; it is considered best by large growers to distribute peas in a wide band in the furrow so that as the plants grow, they may stand up a greater length of time and be cultivated later.

This tool has given remarkable satisfaction among truckers and market gardeners using fertilizers and sowing a large acreage of peas, beans, etc., in the furrow. Truckers in applying fertilizers to growing crops, usually plow a furrow away from the row on each side, and sow the fertilizer with the drill open only on the side next to the crop.

Wheel Hoes.

Wheel Hoes are companion implements to the seed drill, and are indispensable to market gardeners and nurserymen, and to all farmers who use the hand seed drill, or who grow roots for stock or vegetables for market. The tendency in many parts of the country where ground is costly or lots small, is to double the amount of fertilizers used, and to plant much closer. The crops obtained by this method are generally much larger than by the old plan, and the cultivation with the improved hand tools now manufactured is less costly than combined horse and hand cultivation. Many have no horses, or only hire them for breaking up their ground in the spring, and if this is properly done and the soil put in good condition and made smooth, the use of such tools as hand seed drills and wheel hoes is most satisfactory and economical.

In garden plots when cultivation is attempted with a horse, the great width necessary between the rows and the large headlands required are serious drawbacks, and most horses are so clumsy as to ensure continual tramping down of valuable crops, especially when used by persons who have not had the experience necessary to manage a horse in the best manner. Under such circumstances it becomes a necessity to use hand wheel hoes *that crops may be grown economically.*

By adopting the use of good wheel hoes, the market gardener can readily undertake the cultivation of double his usual acreage of hoed crops without fear of being caught in their cultivation.

We have also discarded wood in the construction of our Wheel Hoes, using only cast and wrought iron and polished steel, except for handles. They are therefore firm, durable, light, and graceful and are also interchangeable. They are handsomely finished and tightly boxed, to carry across the world without breakage.

Wheel hoes should be used at the speed of a moderate walk, making a stroke at each step, except for very delicate work, when strokes but a few inches in length may be taken, averaging three or four to each step. This method of using the tools is generally far superior to pushing them at a regular gait, as it is a great relief to the muscles to pause at each step, and the advantage of a stroke is similar to that gained by using the ordinary hand hoe with a stroke. The hand hoe drawn along the ground at a moderate walk is ineffective, while the same tool used with a stroke is capable of very effective work.

The wheel hoes weigh from twelve to fifteen pounds and when used with a quick stroke, are capable of cutting off a heavy growth of weeds with great success and ease. Careful practice will enable any operator to become very skillful with the wheel hoe in a short time, the chief rule being to watch the wheel or wheels only, keeping it or them at the proper distance from the row. The knives follow them accurately, and the whole operation in a short time becomes easy, rapid and pleasant.

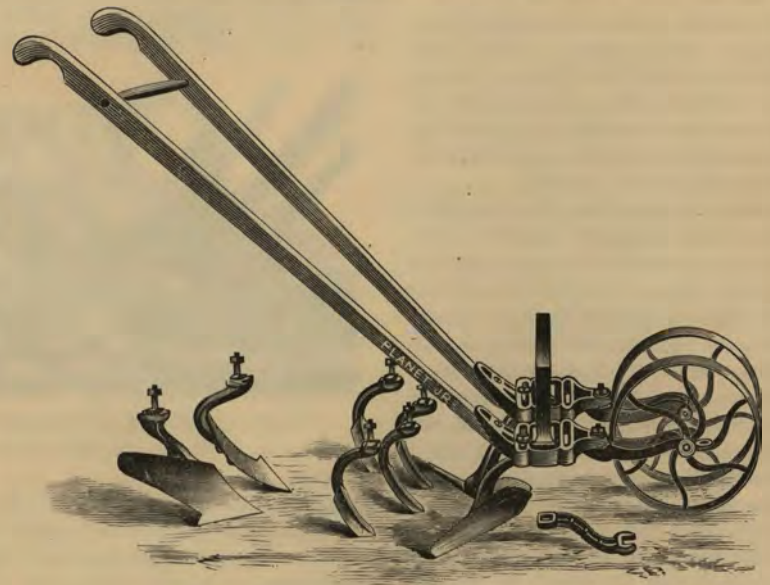

Fig. 10 —The "Planet Jr." Double Wheel Hoe, Cultivator and Plow combined.
Price, $8.00.

THE "PLANET JR."

Double Wheel Hoe,

WHEEL PLOW,

and Wheel Cultivator Combined.

Figures 10 to 14 inclusive.

A wheel hoe should be double, or at least capable of hoeing both sides of a row at one passage. We lay down this proposition because long experience has proved to us that no wheel hoe working *between* rows sown by a seed-drill does as good, as close or as satisfactory work as a double-wheeled machine or one which hoes both sides at once, especially while plants are small.

The "Planet Jr." Double Wheel Hoe is built with the greatest care, and combines lightness with a proper degree of strength. It is capable of being quickly adjusted deep or shallow, according to the kind of work, character of the soil, or height of the operator. This adjustment is obtained by loosening the nuts which bind the wheel-carriers to the main frame,

when by slipping the wheel frame forward a notch the teeth enter the ground a half-inch deeper, or by moving it backward, a half-inch less than before, and the number of notches is such as to give all the depths that are desirable. For small plants there is no better width for the wheels than seven inches from centre to centre, but as plants become larger, or when set out from seed-beds, as tomatoes, tobacco, cabbage,

Fig. 11.—Hoeing both sides at once.

and many other plants are, it is important that the wheels should be much wider apart, that they may not injure the delicate leaves of the plants by running over them. The "Planet Jr." Double Wheel Hoe wheels can be set *ten inches apart* for such work. There are many plants, such as onions, celery, corn, etc., which grow too tall to be hoed both sides at once, and *for the late tendings* of such crops nothing can give satisfaction that will not work *between* rows. The "Planet Jr." Double Wheel Hoe is therefore arranged so that the wheels can be set at a distance of only *four inches apart when it works perfectly as a single wheel hoe.*

This tool is capable of cultivating rows from six inches apart up to eighteen inches. In still wider rows or in very heavy work the 'Planet Jr." Double Wheel Hoe can be used with great satisfaction by first running down the centre between the two rows and hoeing from six to twelve inches, and then straddling the rows, cutting out the remainder.

The "Planet Jr." Double Wheel Hoe is supplied with one pair of long curved end hoes, with a forward slanting cut to be used next to the row among young plants, each cutting six inches wide; and is also supplied with four cultivator teeth, two narrow and two wide; also with two plows, which are exchangeable, and may be used to throw either to or from the row, and are of sufficient size to do all the work that one man can supply the muscle for, and more if desired, as the tool has drawing eyes to which a rope can be attached when necessary, as where two large and heavy furrows are thrown at once.

In fig. 10, it is shown with all the tools which belong to it. For first hoeing of such plants as the beets just coming through the ground, the hoes are arranged as in fig. 10. The importance of this first hoeing being properly done, can hardly be overestimated in the care of such crops as are grown from seed, and nothing but a forward slanting cut will enable the operator to work as closely to his crops as is most desirable and economical, In figure 10 the forward slant of the "Planet Jr." Hoes will be seen; a careful operator can work with perfect satisfaction within a half inch of each side of the row with these hoes. It can be used as shown for plants much further advanced, but the hoes should be somewhat further apart.

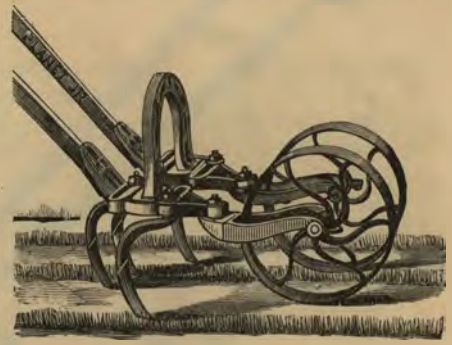

Fig. 12.—Cultivating two rows at once.

In figure 11 the tool is shown in the late hoeing of onions, the first having been conducted in the manner described in the previous paragraph for beets. In the second hoeing the hoes have exchanged sides, and in this position throw a very slight amount of earth towards the row. By a quick motion of the tool more

earth can be thrown towards the row if desirable. The hoes are of such a suitable shape for the work intended that they break up the soil thoroughly, and kill all weeds.

In fig. 12 the tool is shown with the four cultivator teeth in onion sets, cultivating two rows at once. It is common to grow sets in rows only six or eight inches apart, sowing the seed very thickly. In such cases,

Fig. 13.—Hoeing between rows.

with the cultivator teeth running very shallow, they can be neatly hoed two rows at each passage. As the plants become larger the rows can be cultivated separately, the hoes being arranged to suit.

In fig. 13 the machine is shown between rows of beans, with the wheels closed together, so as to operate as a single wheel hoe, the hoes being set to throw towards the rows.

The next operation in the cultivation of such a crop would be the use of the four cultivator teeth, the two narrow ones foremost and next to the plants, the wide ones following.

In fig. 14 the tool is shown with the wheels set to their greatest width, and with the two plows throwing towards the row, illustrating the manner in which celery or other plants, such as potatoes, peas, corn, &c., can be earthed up two furrows at a single passage. This is superior to passing down one side of a row and up the other, or passing between two rows, as in plowing delicate plants, such as peas the two furrows striking the row at the same moment do not have the tendency to knock the plants down or plow them under, that is shown when but one side of the row is plowed. These plows are very useful in making up rows for setting out plants, for covering manure and for covering large seeds that are dropped in a furrow. They are exchangeable, and can readily be used for throwing furrows away from the rows, a useful method of cultivation where ground has become hard or weedy.

All the teeth which go with this machine are made of steel, are tempered and highly polished, and will give the most perfect satisfaction, as their shape and the arrangement of the frame combine to suit every operation. The handles are long and of the proper height for work, and are made of such shape as to be pleasant for pushing, quite different from the handles of the ordinary horse plow or cultivator, which are used chiefly for guiding or lifting.

The wheels of the "Planet Jr." Double Wheel Hoes are as low as they can be and pass readily over hollows and obstructions, such as are usually found where such tools are used. They *should be low, for a wheel hoe is not a wagon*, and high wheels make it unsteady.

Fig. 14.—Earthing up.

The foregoing description and engravings show that this wheel hoe is built with the express object of making a thoroughly satisfactory and practical all-day tool for the economical performance of all work which can be expected from such an implement..

THE "PLANET JR."

Single Wheel Hoe,

WHEEL PLOW,

and Wheel Cultivator Combined.

Figures 15 to 20 inclusive.

The Single Wheel hoe, fig. 15, is considerably lighter than the Double. It is not capable of quite the same variety of work, nor will it perform it in exactly the same way; but it is supplied with two pairs of the same kind of hoes, and has also three reversible *cultivator* teeth, two narrow and one broad, and a large garden plow. To some it will be more pleasant than the Double Wheel Hoe, owing to its greater lightness. The Double Wheel Hoe, as before explained, can be used as a single-wheel hoe, and the single wheel can also be used as a double; to hoe both sides of the row at one passage, *while plants are small.* This we consider a very striking advantage for reasons already given under the description of the Double Wheel hoe. The change is made quickly and simply

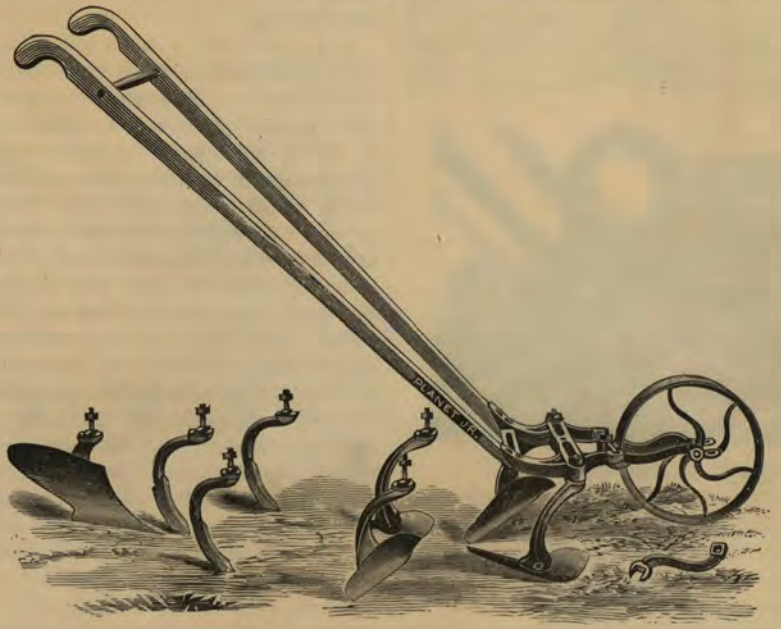

Fig. 15.—The "Planet Jr." Single Wheel Hoe, Cultivator and Plow combined.
Price, $6.00.

by attaching the wheel *at one side of the main frame of the machine* instead of in the centre, *leaving the tools central in the frame.* This can be done to suit the operator by placing the wheel either on the right or left side of the machine. The tool is supplied with two pairs of hoes, one pair long, each cutting six inches wide, and one pair of short, each cutting about four inches in width. The latter are adapted to the cultivation of rows as close as six inches; the former, to the cultivation of rows up to sixteen inches apart, and by using three together, rows up to eighteen inches apart. The tool can be raised or lowered in depth very quickly, the same as in the Double-Wheel Hoe, by loosening the bolt that holds the wheel frame to the main frame of the machine, and changing it forward or backward in the slot, as the work is wanted

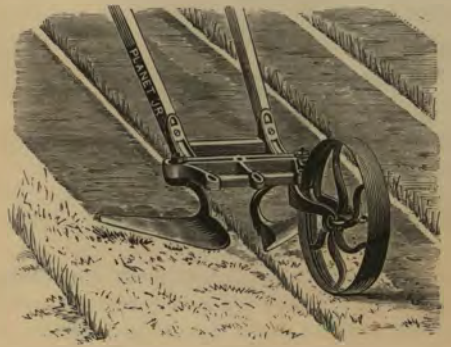

Fig. 16.—Hoeing both sides at once.

deep or shallow. The tool is also supplied with drawing eyes for use where a great deal of work is needed at a single passage, as in deep cultivation. The tool is clearly shown in fig. 15.

Fig. 16 shows the tool at first hoeing of onions, straddling the row with the wheel on the left side of the frame. This enables the operator to hoe the crop within a half inch of the row on each side, while if

Fig. 17.—Hoeing wide rows.

the tool were used between the rows he could not approach the same crops successfully closer than an inch or an inch and a half, *as it is impossible to plant the rows at so exact a distance apart as to enable the operator to set the tool as close as can be done when he straddles the row, and has his attention taken by only one row, and is able to follow perfectly any slight deviation from a straight line.*

Fig. 18.—Hoeing away.

These hoes break up the soil thoroughly and are certain death to weeds, and leave the surface completely tilled. Wherever desirable, the tool can be set as in fig. 15, but hoes exchanged from side to side, doing the same kind of work though not so close as when used as shown in fig. 16.

In Fig. 17 the tool is shown with three hoes hoeing between rows of beets eighteen inches apart. In this shape the tool is capable of working all the ground between eighteen inch rows that can be safely worked. A plan, however, which is better for general purposes, and that too with very little loss of time, is to first go down the centre between the rows cutting that out and by a second passage work close to the crop. This renders the work more effective and pleasant,

and is always best where the rows are very wide, or the work heavy and delicate.

The cultivator teeth are valuable in mellowing the soil deeply in all states of the crop or stages of cultivation, and are used with the narrow hoes next to the rows and the wide in the centre, when the whole set

Fig. 19.—As a Plow.

are used together. The wide tooth can be very successfully used between a pair of hoes, as shown in fig. 18; this doing perhaps the best and most satisfactory work of any arrangement that can be made when hoeing between rows.

Between the long hoes a narrow cultivator tooth can be used, and a wide tooth between the short ones. When hoeing away from plants the hoes should be in the front slot and the cultivator tooth in the same one in the centre, but when hoeing towards the rows it is most satisfactory to have the hoes in the front slot and the cultivator tooth in the centre of the rear slot.

A single wide cultivator tooth is very useful for marking rows for onion sets and very large seeds, plants, etc. The plow is a very neat model and is capable of plowing from one to three inches in depth, and by going twice in the same furrow a depth

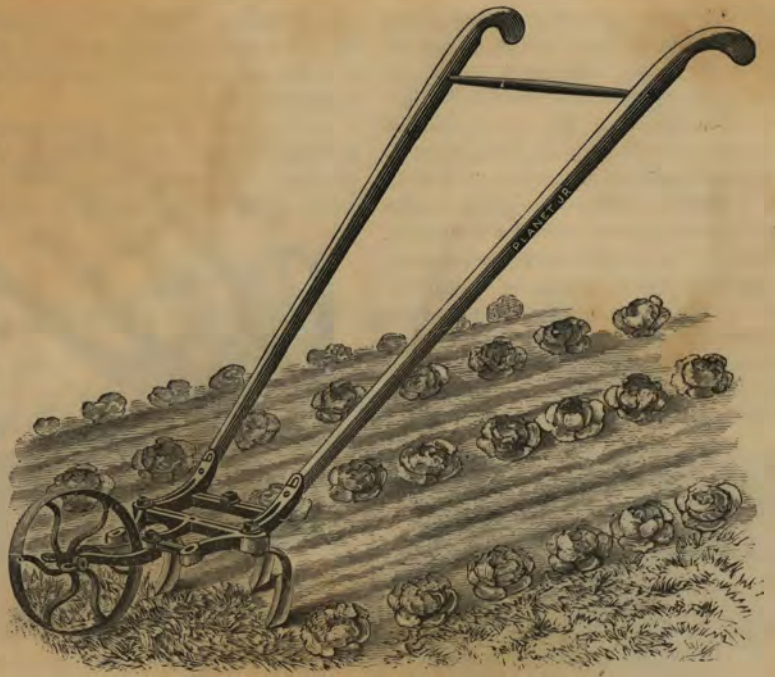

Fig. 20.—As a Cultivator.

of from four to five inches can be reached, and the ground very thoroughly and rapidly broken up. It is exceedingly useful during the whole season in any garden.

It can be used as the "Fire-Fly" plow as shown in fig. 22, in plowing away from the row, placing it in the left hand side of the frame, and as shown in fig. 23, when plowing toward the crop. The work of this little plow is equal in thoroughness to that of an ordinary horse cultivator. In many cases it is quite as economical, for crops can be planted much more closely when such tools are used than where horse cultivation is intended, and there is no necessity for waste in headlands.

Fig. 19 shows the tool as used for plowing corn; while fig. 20 shows it as used in the cultivation of a garden patch of cabbages. The artist has not been as successful as might be desired in showing the shape of the ground after the tool has been used, but to those familiar with such operations the effect can be readily understood. All the blades are tempered and polished steel.

No tools offer such easy and numerous changes for different crops and variety of work, combined with a suitable combination of first-class and well finished tools as the wheel hoes we have just described, and we feel sure that no one having work to which hand tools are adapted, can fail to find one or the other of those described exactly what he needs for every variety of work or kind of crop.

The "Fire-Fly" Wheel Garden Plow.

Figures 21 to 23 inclusive.

Fig. 21.—The "Fire-Fly" Plow.

Price, $3.00.

The "Fire-Fly" Plow fig. 21 has given great satisfaction, and is much improved in strength and in adjustment for 1885. It is a tool intended for those who have but small gardens and a moderate amount of time to spend in them, and for those who cannot avail themselves of horse-power tools advantageously. It

is exceedingly valuable to such persons, since it enables them to economically raise the vegetables necessary for their family, or for market, with a minimum expenditure of labor and time, the latter being often the most important item to many who would be glad to grow their own vegetables if they could do it in their spare moments. The "Fire-Fly" is all cast-iron, except the handle and the mold-board, which is tempered and polished steel. It is capable of

Fig. 22.—Plowing away from row.

throwing a furrow four to six inches wide and one and a half to three inches deep, and by going twice in the same furrow when breaking up ground in the spring, it can be made to do admirable work, and many times faster than with the spade. It has drawing eyes to attach a rope for an assistant, where the work is difficult. In ordinary work it is light and easily handled by one person, and is used in small stuff by first plowing away from it, allowing the ground to lie untouched for some days afterwards, when light furrows are thrown back to the plants, the rows having in the meantime been weeded directly in the row by hand. The operation can be repeated during the season by again plowing away and afterwards back again. This kind of cultivation is exceedingly satisfactory, and the labor is light and rapid. The tool should be pushed a stroke to each step.

It is shown in fig. 22 as plowing a light furrow away from peas, and in fig. 23 it is shown plowing to celery.

The work of this tool is quite equal in thoroughness to that done by a one-horse cultivator, while the whole garden is available, no headlands being required. Ten thousand families who without such assistance would be quite unable, in the limited time at their disposal, to grow their own vegetables by the use of the ordinary hand hoe, can with this tool successfully raise them with but little expenditure of time or labor.

Some owners of the "Fire-Fly" Wheel Plow say they want no other tool in their vegetable garden, for if they cannot conveniently break up their ground in the spring with a horse, they can do it well with the "Fire-Fly" by going twice in each furrow. Then they can draw their furrows with it for potatoes, peas, corn, manure, etc., and then cover them with great ease. As the crops grow they can plow to or from them very shallow when the crops are small, and deep as they grow larger.

Fig. 23.—Plowing to the row.

THE "FIRE-FLY"

Single Wheel Hoe,

Cultivator and Plow.

Figure 24.

This is a new claimant for public favor and is sure to receive a share of it for it combines lightness and strength with the greatest adjustability and variety of hoes. The latter are highly polished and tempered and their use makes gardening both easy and profitable. The tools are all made after the most perfect models and are first, a pair of admirable hoes which can be set to work to or from the row to any desired depth. Next, a set of three reversible cultivator teeth to be used together, singly or in conjunction with the hoes. Third, a large and excellent garden plow. The handle is made of stiff iron with hard wood crosshead and the whole tool is light, strong, attractive in appearance and capable of standing hard usage for years, while the price is its final recommendation.

A favorite method of using the tool as a hoe in wide rows is arranged as in fig. 24 while for narrow ones the cultivator tooth is taken out and the hoes moved as closely together as required. They can be quickly adjusted to throw lightly either to or from the row. The cultivator teeth are usually arranged as shown in fig. 20 while the plow can be used in any part of the frame to throw to or from the crop, more perfectly and neatly than is possible with the finest horse tools, and in small gardens, as no headlands are required, the crops may be planted closer, and no fear of awkward horses in the hands of unaccustomed drivers ruining the crop after a summer's hard work and care have been bestowed upon it.

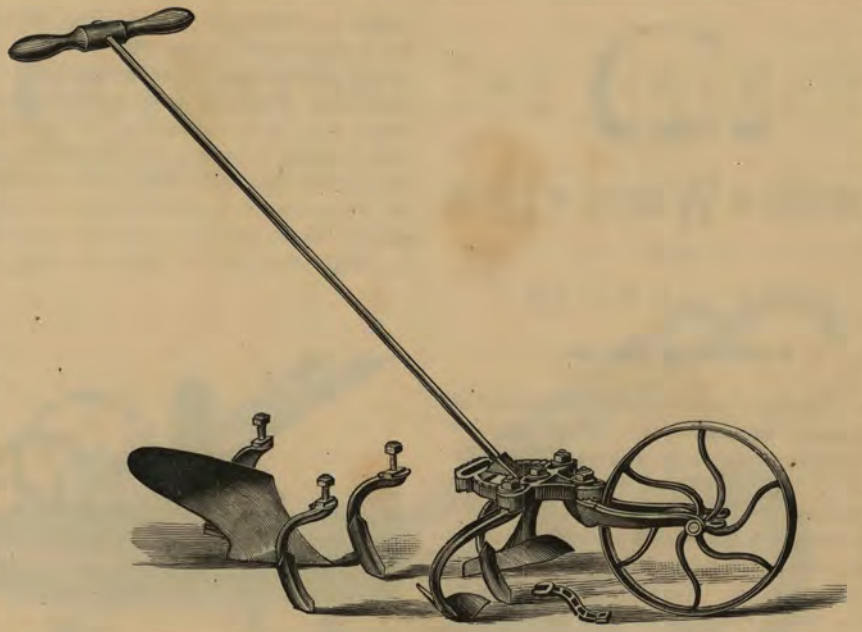

Fig. 24.—The "Fire-Fly" Single Wheel Hoe, Cultivator and Plow combined.

Price, $4.50.

THE "FIRE-FLY"

Double ❁ Wheel ❁ Hoe,

—FOR—

ROWS and HILLS.

Figures 25 and 26.

The "Fire-Fly" Double Wheel Hoe for rows and hills is another new tool, bound to be the special favorite of onion growers, for though we recommend the "Planet Jr." Double Wheel Hoe, Cultivator and Plow as unexcelled for variety of tools and perfection of adjustment, this more simple hoe costs proportionally less, while answering admirably the wants of those who want a hoe *only*. It is a beautiful piece of workmanship; its two finely polished hoes being adjustable for width and to throw slightly either toward or from the row, while the handles are adjustable to suit man or boy. A special feature in addition, is an arrangement of the frame by which the hoes as shown in fig. 25 are adapted to the hoeing of plants in *hills*.

When used for working drills the first time, the hoes are used as in fig. 26; second hoeing, as arranged in "Planet Jr." Double Wheel Hoe, fig. 11, and it can be used between wide rows as in fig. 13, or with one hoe somewhat behind the other in medium width rows. For hoeing plants in hills, the tool is arranged as in fig. 25, and used as follows: Have the right hand hoe in forward slot with the inner end two inches to the right of the centre of the machine, and the left hand hoe in the rear slot with inner end nearly on line with the end of the other hoe; push the tool at a single stroke till the right hoe passes the hill

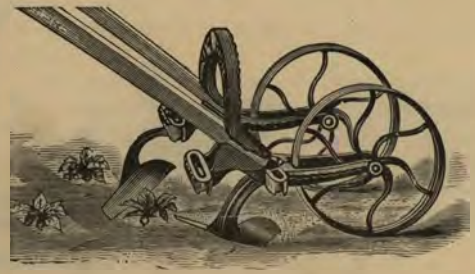

Fig. 25.—Hoeing Plants in Hills.

about two inches, when with an easy motion of the handles, 6 or 8 inches first to the left and then to the right, and at the same time slightly ahead, each plant

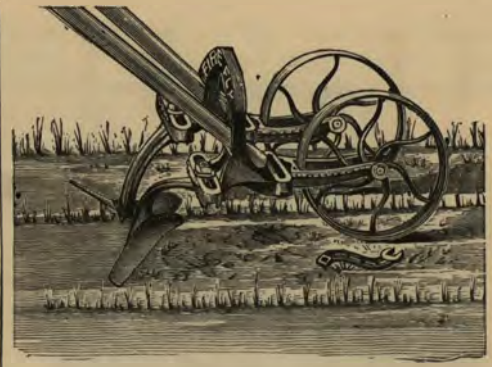

Fig. 26.—First Hoeing of Onions.

is perfectly hoed, leaving it standing untouched in a small diamond-shaped hill. To ensure its success where it is to be thus used, the ground should be *made up sufficiently level to make easy running for the wheels*, when practice will make the work rapid.

HORSE HOES, CULTIVATORS AND COVERERS.

THE "PLANET JR."

HOLLOW STEEL STANDARD

HORSE HOE

AND

CULTIVATOR COMBINED

WITH WHEEL.

Figs. 27, 28, 29, 34, 38, 39.

For the season of 1885 we offer as a chief attraction our recently patented Hollow Steel Standard Horse Hoe with steel expanding bars and extra high frame. The standards are made from heavy sheet steel cut out and struck up by a new process and special powerful machinery.

The *Hollow Steel Standards* are far superior to any ever before offered to the public, and are a *distinguishing feature* of the *improved* "Planet Jr." Horse Hoe.

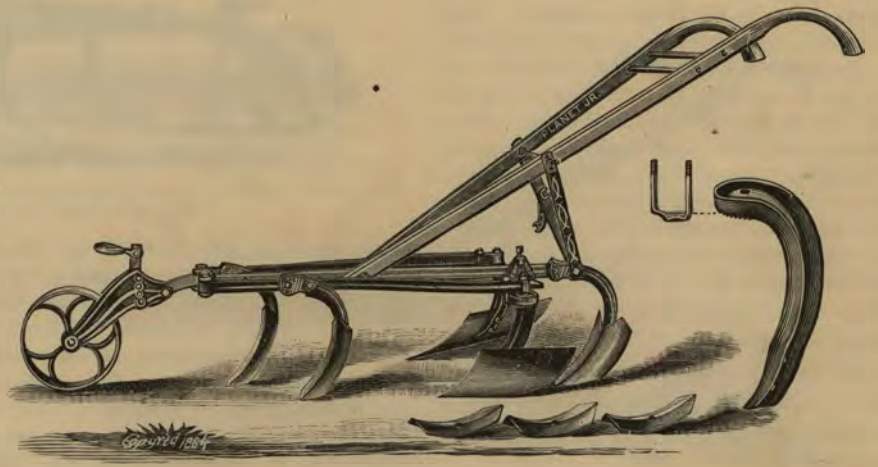

Fig. 27.—The "Planet Jr." Hollow Steel Standard Horse Hoe and Cultivator with Wheel.

Price, $13.25. Without Wheel, $12.00.

We particularly request that all buyers who are looking for the latest and best goods, be sure to ask for and get the *Hollow Steel Standard* machines. They have very decided advantages over the ordinary iron standards heretofore in use. They are much stronger; and owing to their being round in front, instead of square cornered, and to the fact that the steel will polish in use, the tool has much less tendency to clog, and runs much easier. As the new standards are also longer than the old, the tool stands higher and from that cause also, there is less danger of clogging. Each side standard has a series of notches on the under side, and the *steel* staple bolt which holds it to the frame has a cog in the centre which fits into the notches on the standard, thus enabling the tooth to be turned at any desired angle or completely reversed, whilst holding it very securely in the desired position, when screwed up. This is a very valuable feature, since it enables the operator to throw just as much or little earth as may be desired *either to or from the row*, no matter whether the soil be light or heavy. The teeth are of the best pattern and the changes and adjustments are as perfect as can be desired.

These distinct advantages of the "Planet Jr." Steel Standard Horse Hoe and Cultivator make it the cheapest and most labor-saving invention of its class ever offered.

The original "Planet Jr." Horse Hoe was invented by one of the firm who had been a practical farmer for many years, and had not been able to find in the United States market satisfactory cultivating implements; repeated trial in the field developed this for his own use. It has now become well known over the whole United States, and in many foreign countries, and has given unbounded satisfaction and received unmistakable marks of favor wherever used. It is made for 1885 almost entirely of steel, and as shown in fig. 27, has an expanding frame capable of being closed to five inches or opened to twenty-four, and provided with such a variety of adjustable teeth as enables it to perform almost every kind of one-horse cultivation. The front two teeth are three inches wide and of such a form as is best adapted to enter the soil, cut off the roots of growing weeds and turn them upside down while preparing for the easy working of the rear blades. The two side hoes are especially adapted to the working of all hoed crops and are used to save hand labor by passing along the row previous to the usual hand work. The operation is something as follows: Where rows are too wide to finish at a single passage, keeping the row to the right

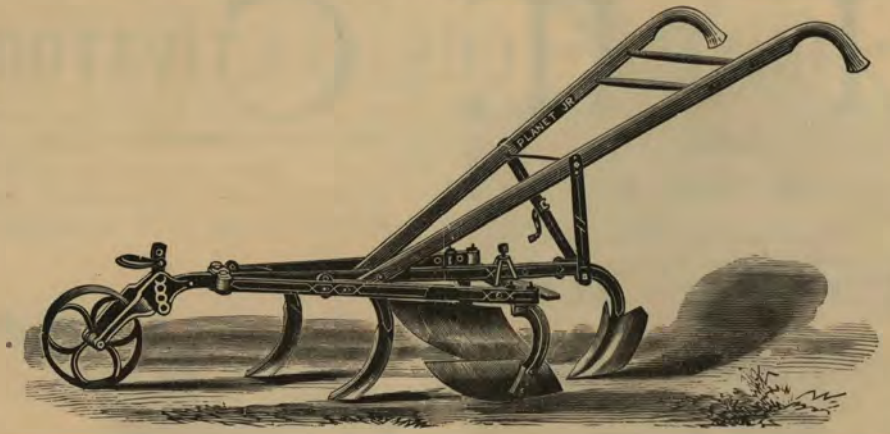

Fig. 28.—The "Planet Jr." Horse Hoe reversed for hoeing.

with hoes set as in fig. 28 the tool slices off the weeds close to the growing plants, running shallow next to them yet deepening the cut as the distance from the row increases. These hoes slice off the weeds yet do not throw the earth away from the row to any considerable extent, and the hind tooth returns a much heavier furrow toward the row so that when the hand hoeing is done it is very slight, for the work is well defined and in plain sight, and the earth thrown up by the hind tooth in such a position as enables the operator to earth up his plants in the most satisfactory manner with the very least amount of labor.

The perfection of the working of this tool is largely dependent upon the patent teeth which are readily understood in fig. 28, where the side hoes are shown with a curved sled runner edge which works beautifully in all free soils, making a cut exceedingly shallow next to the plants and gradually deepening with a curved shape which protects the small rootlets from injury while destroying the weeds to the very best advantage and absolutely, quite different from the work of an old style cultivator tooth which is sure to throw a considerable amount of loose earth on top or near to the row and interfere with the hoeing, instead of leaving it open and easy of accomplishment. This method of using the tool is the one most generally practiced whenever the crop is to be hoed, and it often supersedes hoeing altogether, the operator first using the tool as described and in the course of two or three days returning with the same tool but teeth set in the position shown in fig. 27. The furrow thrown away in the first operation is now returned by the same hoe reversed, and light furrows thrown on the row, and with ease made to lap on top of the row in such a way that a crop which grows tall is readily tended without any hoeing, especially such crops as potatoes, cotton, corn, etc. This is particularly the case with crops that are planted in rows both ways, as for instance, corn.

This tool is also useful for drawing furrows where manure or fertilizers are to be put in the row, or where potatoes or other crops are to be planted, and in making furrows for peas, beans, cotton, corn and many other seeds. It is then used as shown in fig. 29, the rear tooth being put front, and the two side teeth closed up behind it.

We have, however, just brought out a separate tooth fig. 30, used either for furrowing or hilling. When used for the former it is placed alone on the frame with marking irons and poles, for furrowing at any width from two to five feet. This is an excellent device for marking out ground for potatoes, cotton, corn, cabbage, etc., and all who own the Horse Hoe should have this attachment. A single passage of this furrowing tooth leaves a furrow in many respects superior to that made by two passages of a one-horse plow. It is also used with great satisfaction to hill up white and sweet potatoes and all crops not planted over 3½ feet apart.

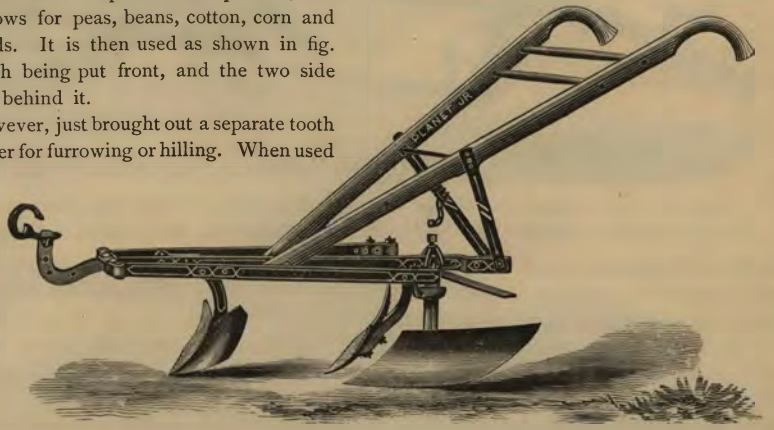

Fig. 29. The "Planet Jr." Horse Hoe as used for furrowing.

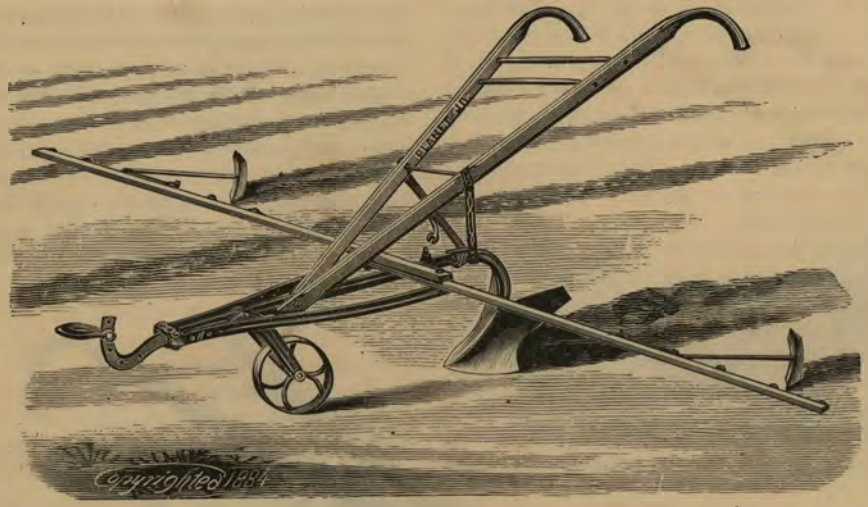

Fig. 30.—The "Planet Jr." Horse Hoe, with Furrowing and Marking attachment.
Furrowing Steel, (15 inches wide) $2.00; Marking Attachment, (poles and markers) $2.00.

When the furrow has been made and it is ready to be covered, instead of using two furrows of a one-horse plow, use the covering attachment of the Horse Hoe and the work can be better done in half the time. It should be arranged, as shown in fig. 31, or "The Reversed Rake" is an excellent device for use in lumpy or sticky land, working freely, cutting up the lumps and compacting the soil sufficiently, and leaving an even surface very much as if raked by hand; sticky soil is much less likely to bake treated thus than when smoothed down flat. It is shown in fig. 32. With the hoes in this position it is especially desirable for covering early potatoes deeply for fear of frost, and also for covering where a considerable amount of earth is desired upon the row; but when desired to be used shallow or on a soddy field, the teeth may be set as shown in fig. 28, with the sled runner curve front in order to avoid tearing out the sod. The depth and the amount of earth thrown are easily regulated by the set of the wheel and roller and of the covering hoes. When covering, the handles should be attached to middle bar at the hole marked A in the cut; the operator has six inches more room for walking, and the tool is more manageable.

Fig. 33 shows the Horse Hoe provided with hoes or scrapers for flat cultivation in orange groves, and in cotton, peanuts, etc.; five can be used at once if desired, and they can be set to run deep or shallow. There are two widths, eight and ten inches. With five of these the tool will cut clean 36 inches in width at one passage; with three, 25 inches.

We also have another pattern, just got out, which work still flatter and do better work in most cases. We shall send them out unless specially ordered otherwise.

Where deep working of the soil only is desirable, and no furrow is to be thrown either to or from the crop, the same tool can be arranged with cultivator teeth, which accompany every combined machine, as shown in fig. 34, and is then used as an ordinary cultivator, the teeth all being of the improved style and form, and finished in the best manner. The front two teeth and the rear one are capable of adjustment for depth, while the side teeth are adjustable for angles, to throw much or little towards the row, and are capable of being set to avoid cutting the roots of plants. The teeth are of our own invention and

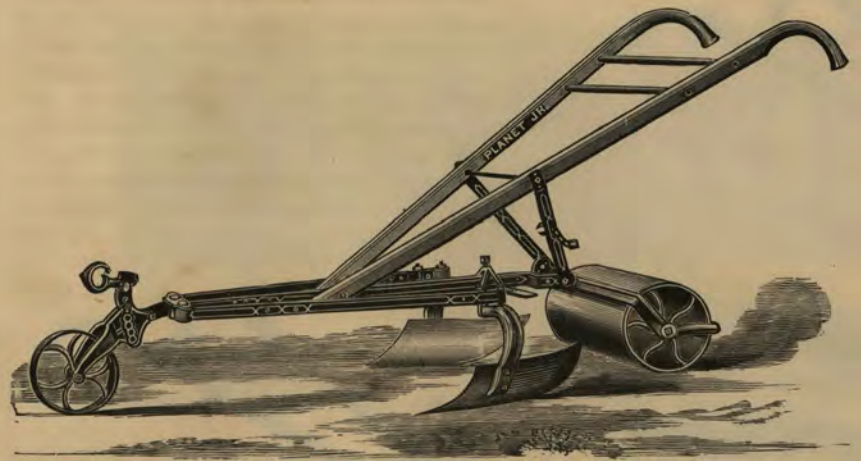

Fig. 31.—The "Planet Jr." Horse Hoe with Covering Attachment.
Roller, $2.75.

are particularly adapted to working a great variety of soils. There are six widths, one and one-quarter, two and one-quarter, three, three and a half, four, and four and one-half inches. All shown in fig. 35.

The narrowest throw almost no furrow, yet work beautifully as cultivator teeth and subsoilers, and are very desirable where the soil is to be broken up deeply without throwing a furrow, as where the ground is clean, but may be beaten down by rains or baked by the sun. The next size, two and one-quarter inch, are exceedingly desirable for general cultivation, and do superior work. The next size is three inch. This is the size sent out with the Horse Hoe, unless otherwise ordered, being best adapted to general work in all kinds of soil.

The three and one-half inch we recommend for quite light soils, where the earth does not move so freely before the blades as a stiffer soil.

The work is superior from the fact that the teeth

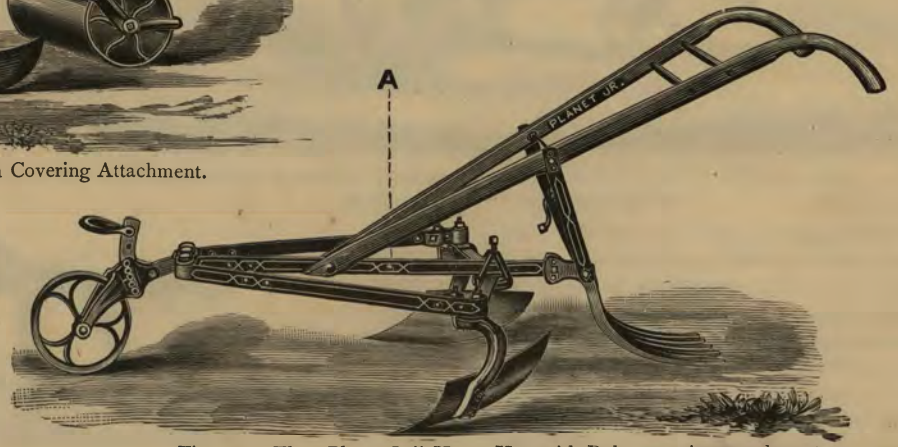

Fig. 32.—The "Planet Jr." Horse Hoe with Rake covering attachment.
Rake, price $1.50.

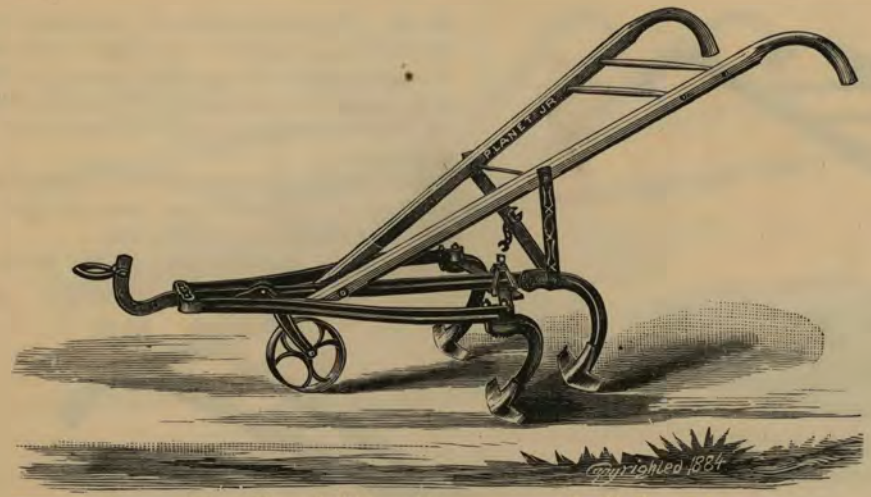

Fig. 33.—The "Planet Jr." Horse Hoe as arranged for Shallow Cultivation.
Scrapers per set of three,—Price, $1.00.

instead of being pointed, spread out their full width at the bottom and cut off the roots of weeds far below the surface, while the breadth of tooth at the top and slight angle which the face has sidewise, combine to turn the earth upside down instead of simply going through it and breaking it open. This advantage is difficult to describe, but as used in competition with those of the ordinary pattern in a weedy cornfield full of wire grass, at a single passage these improved teeth did better work than the old style at two passages, because of the advantages just described. The teeth *cut off the roots* of the grass, and then turn it upside down, while the ordinary tooth simply roots among them, leaving them right side up, and only partially cut off, so that in case of dry weather the roots still have hold, and would grow, and in wet weather the earth would be settled around the roots and the grass continue without much injury; while with our tooth, in dry weather the roots being cut off and turned upside down the grass is at the mercy of the sun, and

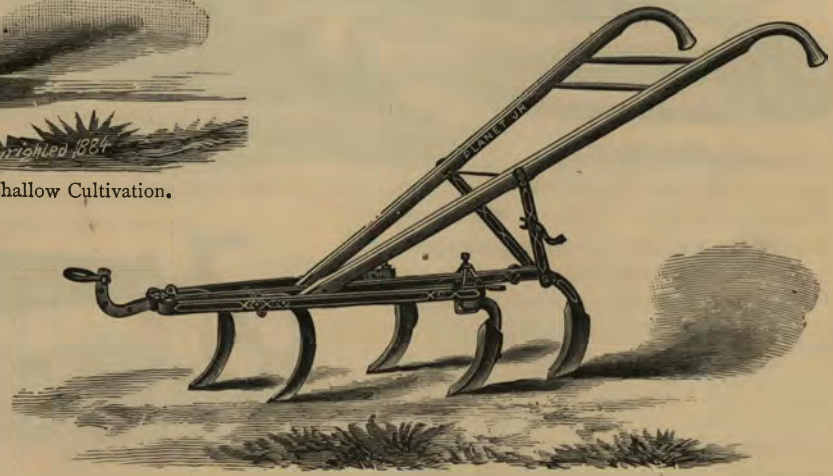

Fig. 34.—The "Planet Jr." Horse Hoe as a Plain Cultivator.

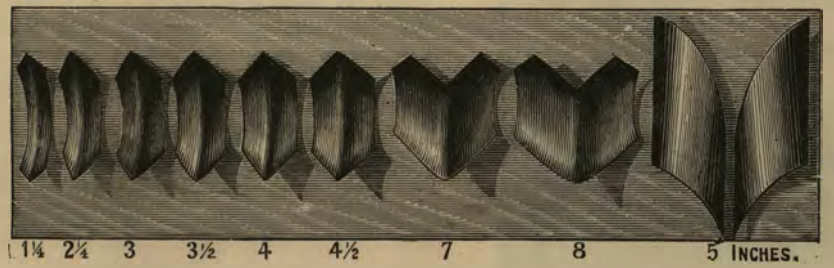

Fig. 35.—Varieties of Steel Plates made for the "Planet Jr." Horse Hoe.

it is buried too thoroughly to recover, even in wet weather.

It will be seen in either engraving of our cultivator, that the middle tooth is in the rear, and is much broader than the others. The object of this arrangement and the arrangement of the teeth themselves, is that the tool shall not leave an open furrow next to the row of plants, but on the contrary, that the broad tooth in the rear shall fill up as much as possible the furrows left by the others. This is considered of extreme importance by skillful truckers and gardeners, whose long devotion to the class of work which requires the most skillful cultivation, enables them to speak with authority. As many of our readers will recollect, the old style cultivators with wooden frames have a very objectionable arrangement, the centre tooth being in the middle or front of the frame; and it is much to our surprise that we find this style of frame and arrangement of teeth is still in vogue in some of our most enlightened communities, being largely built in the Eastern and Middle States, where one would naturally suppose the latest and best tools of every class would be used to the exclusion of all others. The wooden frame has many disadvantages, rotting, splitting and warping in the weather, soon becoming loose and unserviceable, while its clumsy form hides the work and clogs readily, and it has neither the improved teeth, their adjustability nor ease of change possessed by our improved Horse Hoe and Cultivator.

In some sections of the country, particularly in the Florida orange groves, broad, shallow cultivation is especially desired. For such work our four and one-half inch teeth, with a wheel in front make a tool which will give satisfaction, enabling the operator to use them to cultivate about thirty inches wide at one passage, and run from one to three inches deep, as desired. We make in addition another style of hoeing teeth or scrapers, which are much preferred in some sections, see fig. 33.

The front wheel is a useful adjunct in turning at the ends and in regulating the depth in front, and is *necessary* in connection with the roller to make a complete coverer. The wheel is nine inches in diameter, runs very freely, and gives excellent satisfaction in covering, not having a tendency to push corn, etc., out of place.

Our cut, fig. 36, shows the Coverer. Our artist has been careful to show a trained animal unwilling to tread either in the furrow or on the potatoes; on some accounts it is better to use a pair of horses. Covering can be done at any depth desired, by changing the wheel and roller.

Fig. 38 shows the tool in the potato field, with the hoes set to cut the weeds away from the row, and the rear tooth to throw back the earth and put the crop in excellent condition.

Fig. 39 shows the tool as used in the corn-field where the rows are so wide apart that it is necessary to go "a round" to the row. The side teeth are then

Fig. 36.—The "Planet Jr." Horse Hoe with Covering Attachment.

used to throw a furrow towards the row, and being immediately followed by the centre tooth, the ground is all thoroughly tilled and any weeds in the corn-hills are covered and killed, while the earth is thrown up to the corn in the most satisfactory manner. This same operation can be performed the second time by going across the field in another direction, and still a third or fourth time till the crop is ready to be laid by.

Where corn is planted only three and a half or three feet ten inches apart, once to a row is sufficient, and in many cases superior to that done by a high-priced two-horse cultivator, and that too when such crops as corn, broom-corn and cotton become too high for cultivation by a double team.

When used as shown in fig. 27, the tool does admirable work in a great variety of crops. Broom-corn and cotton are crops which have to be hoed very carefully by the ordinary method of culture, but either of these crops can be almost entirely worked by the use of the Horse Hoe, by first hoeing the crop with the tool arranged as in fig. 28, and immediately following in the course of four or five days with the tool as arranged in fig. 27.

Fig. 37.—The "Planet Jr." Wrench.

Each of these tools, as well as our plain cultivator, is supplied with a malleable iron wrench Fig. 37, capable of turning every nut upon the machine The handles are braced in a manner which ensures their being firmly attached to the frame, while at the same time preventing the latter from bending, while the ordinary brace, as used in former years, allows the main frame

to bend before the standard has taken all the strain it is capable of bearing. This new arrangement compels the standard to bend before the frame, and gives the machine all the strength there is in the standard. The handles can be adjusted in height to suit the operator.

The clevises and hooks supplied with this machine, either of which can be had as desired, when attached to the machine are locked and stand horizontal, so that in attaching the swingletree it can be readily done without the usual necessity for raising the clevis with one hand while putting in the hook or staple with the other. The lock pin is a feature unknown in any other clevis; it is securely locked by a tooth and button,

Our clamp for holding the expanding bars of the machine is such a valuable improvement that we have noticed that no manufacturer of this line of goods fails to imitate it on his implement, but we have yet to find one equal in strength and design to our own.

THE "PLANET JR."
HOLLOW STEEL STANDARD
PLAIN CULTIVATOR.
Figures 40 to 42 inclusive.

Our Plain Cultivator, shown in fig. 40, is a very light and strong tool, having the *Hollow Steel Standards* and Steel expanding bars. It is supplied with any width tooth we make from an inch

Fig. 38.—The "Planet Jr." Horse Hoe in the Potato Field.

Fig. 39.—The "Planet Jr." Horse Hoe in Corn.

and a quarter up, and is the most satisfactory tool of the kind known. It is used either with or without a wheel, the wheel being very much liked in some sections. As shown in fig. 41, the cultivator is fitted with one and one-quarter inch teeth. They run very deep without throwing any furrow, and are very much liked for hard soils and deep work. In fig. 42, the tool is shown with very narrow teeth in front, two three inch teeth on the side, and one four inch tooth in the rear. This is a very excellent arrangement in hard soils, the front two teeth breaking up the soil and making an entrance for the wider blades. In fig. 42, the tool is shown, though somewhat imperfectly, with the teeth set at different angles as may be desired by the operator.

For some kinds of work the side teeth are needed shallow, while the centre teeth work best very deep. In such a case by arranging the side tooth as high as possible, and the others as low, the object is attained. It is almost impossible to clog this tool under the frame, as it is so narrow and high that any corn stub or similar obstruction will not readily lodge. The advantages of construction of the Horse Hoe are equally made use of in the plan of this machine. The same iron frame, the same style of steel blades and the same patent standing clevis, stirrup clamp, &c., &c., being used,

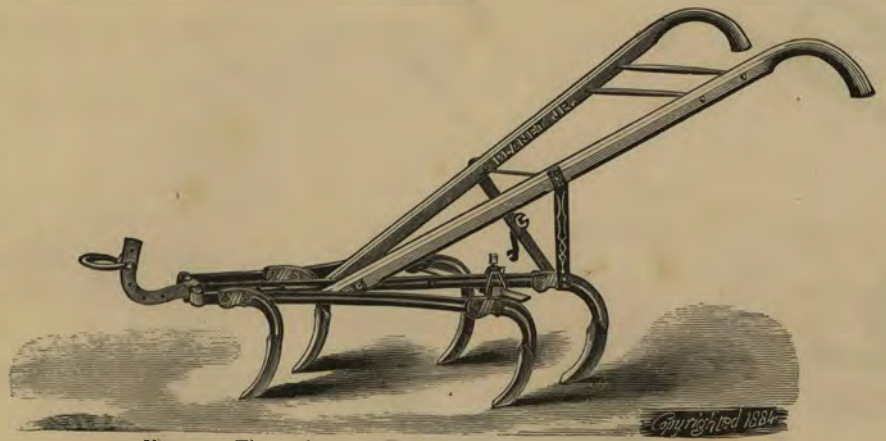

Fig. 40.—The "Planet Jr." Hollow Steel Standard Plain Cultivator.
Price, $8.00.

THE "PLANET JR."
SWEET POTATO DIGGER.
Figure 43.

For five years our Sweet Potato Digger has been giving excellent satisfaction. It is simple and not liable to get out of order. The main body of the tool is similar to that of an ordinary plow. The mold-board, however, is of an entirely different shape and angle, its object being to raise the furrow containing the potatoes and hold it up so that it will not fall back into the furrow, nor yet turn completely over, at the same time shaking off a considerable portion of the soil from around the potatoes. The result of this plan of mold-board is to throw out the whole crop of potatoes leaving the hills resting on their sides, the potatoes showing on one side and the tops on the other, and the potatoes *not being knocked off the hill* are in the most desirable position for gathering.

The operation being simply to lift the hills by the stems, bodily out of the broken furrow, and throw them into a row to dry before picking off, or else to shake the potatoes off at once into rows.

In order to adapt this tool to the sweet potato crops in different parts of the country the mold-board

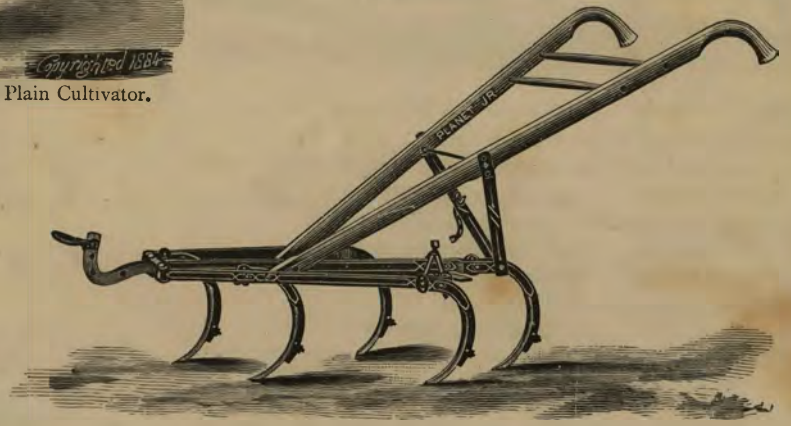

Fig. 41.—The "Planet Jr." Plain Cultivator with 1¼ inch Steels.
Steels, per set of five, $1.00.

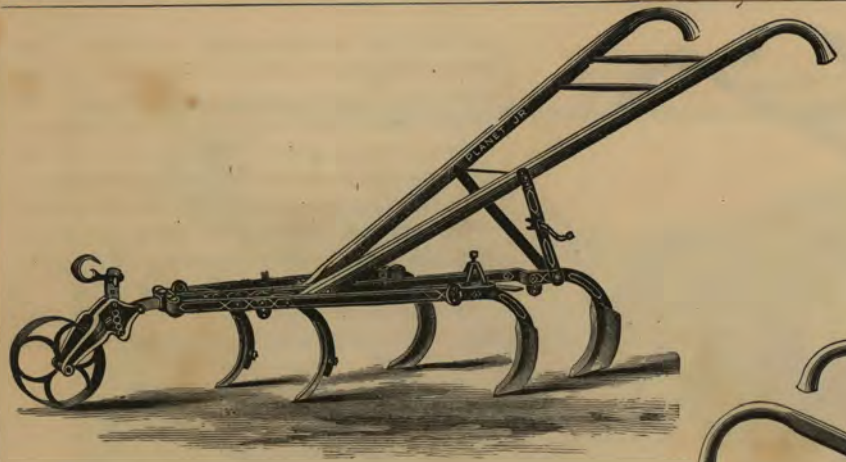

Fig. 42.—Showing different angles at which the teeth can be set.

rests upon a set screw by which the angle with the furrow is regulated to suit any depth or width of crop or style of throwing the furrow that is desired. When the rows are close together or the plants in hills, the mold-board is used comparatively flat, but where they are grown in rows wide distances apart the mold-board should be set to throw hard.

The gang of wheels in front is made of fourteen inch discs. The frame which carries them is capable of being raised or lowered so as to give it the proper depth, to be sure of cutting all the vines.

The wheels have a very great influence over the direction the plow takes, and that the tool should work perfectly, it is necessary that they should be set with great exactness. To accomplish this object a set screw bearing against the rear edge of the standard of the frame which carries the wheels enables the operator to set it at any exact angle he may desire. They should be set almost in an exact line with the landside of the plow. This with the raising and lowering devices, enable the operator to make the tool work perfectly.

The wheels do not require frequent sharpening. In light soils they should dig several acres with once sharpening.

It will save its cost on twelve acres of sweet potatoes *as a vine cutter only*, while an equal saving is effected by its superior digging of the crop.

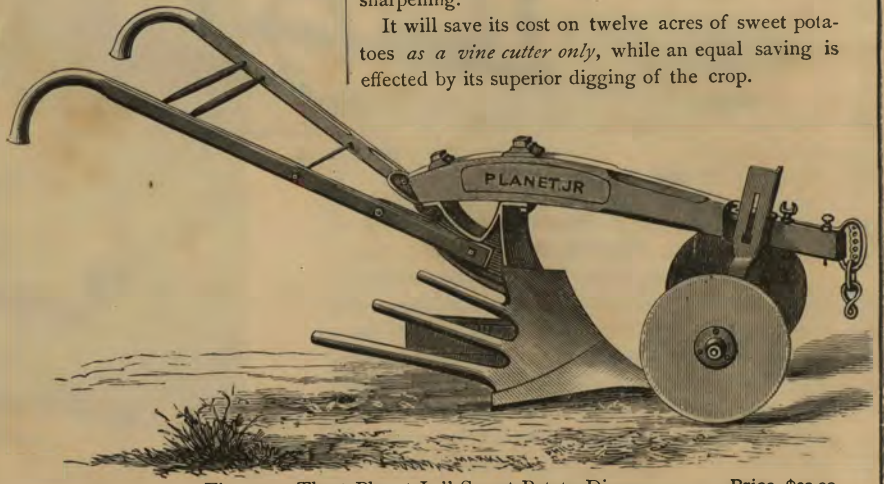

Fig. 43.—The "Planet Jr." Sweet Potato Digger. **Price, $20.00.**

PRICE LIST.

The "Planet Jr." **No. 2 Drill,** - - -	Packed Weight, 40 lbs.		$10 00
The "Planet Jr." **Combined Drill,** Wheel Hoe, Cultivator and Plow, - - - - - -	" "	40 lbs.	12 00
Onion Set Attachment, fits either Drill, - -			50
The "Planet Jr." **No. 3 Seed and Fertilizer** Drill,	" "		16 00
The "Planet Jr." **Double Wheel Hoe,** Cultivator and Plow, - - - - - - - - -	" "	35 lbs.	8 00
The "Planet Jr." **Single Wheel Hoe,** Cultivator and Plow, - - - - - - - - -	" "	30 lbs.	6 00
The "**Fire Fly**" **Hand Plow,** - - - -	" "	12 lbs.	3 00
The "Fire Fly" **Single Wheel Hoe,** Cultivator and Plow, - - - - - - - - -	" "	30 lbs.	4 50
The "Fire Fly" **Double Wheel Hoe,** - -	" "	30 lbs.	5 00
The "Planet Jr." **Hollow Steel Standard** Combined Horse Hoe and Cultivator, with **Wheel,** -	" "	65 lbs.	13 25

Without **Wheel,** - - - - - -	Packed Weight,	55 lbs.	$12 00
Wheel, for **Horse Hoe,** alone, - - -	" "	10 lbs.	1 25
Roller, extra, - - - - - - - -	" "	20 lbs.	2 75
Rake, extra, - - - - - - - - - -		10 lbs.	1 50
Furrowing Steel, extra, (FIG. 30) - - - - - - - -			2 00
Marking Attachment, extra (FIG. 30) - - - - - - -			2 00
1¼ and 2¼ inch Cultivator Steels, extra, (Set of five,) - - -			1 00
Other Widths, - - - - - - - - - - -			1 25
Scrapers, set of 3, (FIG. 33) - - - - - - - - -			1 00
Horse Hoe Side Steels, - - - - - - - -		each,	80
Shovel Steels, - - - - - - - - - -		"	75
Complete Set of Horse Hoe Steels (2 Cultivator Steels, 2 Hoe Steels and 1 Shovel Steel), - - - - - - - - - -			2 75
"Planet Jr." Hollow Steel Standard **Plain Cultivator,** Packed Weight,		50 lbs.	8 00
"Planet Jr." Sweet Potato Digger, Packed Weight, 150 lbs., - -			20 00

NOTICE.—Money may be sent by Draft, P. O. Order or Registered Letter at our Risk.

In Ordering Repairs, always send an outline Sketch of the piece, with its number or letter. If for a Drill, send height of wheel.


THE PLANET JR. HOLLOW STEEL
STANDARD HORSE HOE IN COTTON.