Implements of Husbandry.

A Turnip Thinner.

It has long been proved that the most profitable method of sowing turnip seed is in continuous rows on ridges a certain fixed and regular distance apart, and that the best time to thin them is when the little plant rises about three inches above ground. All are then removed except small tufts of two or three inches in width and from twelve to fifteen inches apart. This thinning process, we need scarcely say, is both a slow and tiresome occupation when done by the hoe, and it is a constantly increasing cry of complaint with farmers that they can never get it done properly at the right time. In the first place they must not attempt it until the plant has attained sufficient vigor to withstand the ravages of the fly, and secondly, if left too long, there is a large waste of nutritious matter in the support of those which have to be cut away. A good turnip thinner, then, is an implement which, we presume, the great majority of farmers would hail with delight. There is one at present in use which is fairly spoken of by those who have used it. It consists of a number of hoes, placed in frames at distances apart corresponding to the spaces desired between the plants—twelve, fifteen, or eighteen inches, as the case may be. The frames are supported on curved slides which travel on the ground across the ridges, transversely to the lines or rows of plants; they are connected together so that three or more hoes are worked at the same time, and the curved slides are so constructed that as they pass across the ridges they communicate a wavelike motion to the hoes, causing them to dip into the tops of the ridges and remove the plants that lie in their respective tracks. Very simple means are provided for adjusting the slides to ridges and furrows of different widths, and also of adapting the hoes to different sizes and spaces of tufts. The larger machines have light wheels for turning at the headlands, but the smaller machines being so light, these are not required. It may be added that no practical difficulty is found in getting the horse to walk across the furrows; and he does so without injuring the crop in any way At the usual ploughing pace the smaller machines will space from 3 to 6 acres per day and the five-hoe machines from 8 to 12 acres; of course, the wider the spaces the more rapidly the work will be done.

Farm Pumps.

There is nothing more vexatious or annoying than a bad pump, whatever its situation, or however used, and there are so many different opinions as to what constitutes a good pump, that a few remarks on the subject may be acceptable. A good pump should work easily, and draw water in sufficient quantity (that is, of course, providing there is plenty of water to be drawn) to fill a common wooden pail with two, or not more than four strokes. Iron pumps are decidedly superior to wooden ones, both in respect of work to be accomplished and the duration of the article itself. The fact that the difference in price between the two kinds is now becoming smaller and smaller, renders their acquisition all the more easy. One of the greatest difficulties connected with the pump is its liability to freeze in winter. Now a sure way of preventing that is to purchase one whose movable or upper valve works some inches, or even a foot or two below the level of the ground, and then of course you must have your platform tight, so that the well and all parts below are guarded against the cold from without. An excellent deep-well pump was contrived some years ago by a company at Seneca Falls, N.Y. The working part is placed at the very bottom of the well; the lower part of the cylinder is furnished with a strainer, and is plugged at the bottom to prevent the ingress of sand and mud. The connecting rod between the cylinder at the bottom and the standard at the top is wrought or galvanized iron, and all the pump needs is firm bracing to prevent its swaying whilst working.

The *Chain Pump* is one of the least liable to freeze, being composed essentially of a series of discs attached to chains which, revolving over a pulley, empty themselves as they "go over;" and when the motion has been discontinued, the water settles down again into the well.

The *Drive Pump* is an invention which might be worth trying in sandy ground, or in fact any kind of ground that is free from large rocks or boulders. It consists, first, of a small tube of iron, closed and pointed at one end, about twelve or fourteen inches in length, and riddled along its sides with small holes or pores. The upper or open end of this tube has also a screw-thread around it. Having selected your place for the well, this tube is driven into the ground with a maul until only a couple of inches or so remain above ground; a similar piece, but open all through, is next screwed on to it and the maul is again applied. Piece after piece is thus added, until you think the last must be in the water region. As soon as it passes into a stratum of wet sand or gravel, the water oozes into it through the pores, and a pump applied at the top will readily draw it out. The pump, it must be remembered, is constructed to fit on any of the pipes just as they are made to fit one another, and it must be frequently adjusted and tried, for it is indeed by its means, and that alone, that the existence of water in the tube can be determined. As soon as water is found to come away, keep on pumping, and the effect will be that in a short time your well will be formed. The water is first drawn in through the pores, as we have said, then the sand which has been loosened around the pores, little by little, until at last quite a large opening is effected, capable of holding three or four pails, and the longer the pump is used the larger will the well become These pumps have been largely used in several parts of the United States with much satisfaction.

Machine Combinations.

The combination of several functions in the same machine is one that has much to do with manufacturing machinery, and constitutes what we may term a principle in construction.

The reasons that favor the combination of several functions in one machine, and the effects that such combination may have on the product of machines, are so various that it has led to a great diversity of opinions and practice among both those who construct and those who employ machines. It may be said too, that a great share of the combinations we see in machines, such as those to turn, mill, and bore, slot and drill in iron fitting, are due not to any deliberate plan on the part of the maker so much as to an opinion that such machines are novel, and represent a double or increased capacity. So far has this combination in machines been carried, that in one case that came under the writer's notice, a machine was arranged to perform nearly every manipulation required in finishing the parts of machinery; completely organized, and displaying a high order of mechanical ability in design and arrangement, but practically of no more value than a single machine tool, because but one operation at a time could be performed. To direct attention to certain rules that will guide opinions and practice in this matter of machine combination, the following propositions should be considered:—

1. By combining two or more operations in one machine the objects gained are economy in framing, the same supports answering double purpose, and a saving of floor room.

2 In a machine where two or more operations are combined the capacity of such a machine is only as a single one of these operations, unless they can be carried on at the same time without interfering one with the other.

3 Combination machines can only be used with success when one attendant performs all the operations, and when the change from one operation to another requires but little adjustment and rearrangement in each case.

4. The arrangement of the parts in a combination machine have to be modified by the relations between them, instead of being adapted directly to the nature of the work to be performed.

5. The cost of special adaptation and the usual inconveniences of fitting combination machines when their parts operate independently, generally equals what is saved in framing and floor space.—*Journal of Franklin Institute.*

Swivel Ploughs.

The advantages of the swivel plough are not so well appreciated as they should be. A few years ago, desiring to test their value upon level ground, we did the whole of our spring and fall ploughing with them. We used one of them which was designed only for hill-side ploughing, and by no means so well calculated for level work as some of the newer and improved ploughs, both for sod and stubble, and found it a great saving of time and labor. By returning upon the same furrow we went up there was no waste in going around the headlands, and the harrow could follow close up to the plough. Thus, in corn planting in the spring or in sowing wheat or other crops, every foot of ploughed ground at the close of the week could be finished and sown or planted, and on Saturday the week's work evenly and neatly done up. Besides, the seed could always be put into the ground while the soil was mellow and moist, an advantage in some seasons of great importance. One of these ploughs has recently been greatly improved and furnished with a coulter for ploughing sod. The character of the mould board is such as to insure easy draft, and as in using the plough each horse alternately walks in the furrow, the labor of the team is greatly lightened. The efforts of plough makers have been industriously turned of late to the improvement of these ploughs with great success, and it needs only that the attention of farmers should be drawn to them to profitably extend their use —*Am Agriculturist.*

Useless Machinery.

Many thousands of dollars are expended annually in the purchase of useless machinery, palmed off on the unsuspecting farmer by the oily-tongued and unprincipled so-called agents, pedlars and patent rights men. It is asserted by some that the agents of machinery and agricultural implements are a great blessing to the persons that use such articles, on the principle that they are ignorant of the use and benefits of the improved machinery which is being introduced from time to time. But such a theory is absurd. I think the farmers intelligent and thoroughgoing enough to seek the manufactories and canvass the merits of the different machines offered, and supply themselves with such labor-saving implements as they consider economical. Under the present system an agent comes along with a very oily tongue, a pretty good knowledge of human nature, and an aptness to discern the weak side of the farmer, and is determined to sell a machine if he has to spend days for it (and he can well afford to spend much time by the profits he gets). He exhibits his machine, or engravings, or samples of it, descants upon its superior merits, displays a string of certificates of leading men in its favor, and usually leaves with your order for a machine. In many cases the purchaser is cheated, and he curses the agent, pays for the machine, and throws the useless article aside. Just glance around you, and at nearly every house you will find a churn, washing-machine, a corn cultivator, and many other machines of like character, which are never used because of their worthlessness. Let us, in all cases, try a new invention before we invest, and if we find it well adapted to our purpose, inform our brother farmers of its merits, through our favorite papers, and we may discuss their merits with profit in the club. The manufacturers may advertise their wares through the same papers and send samples of their machines to the different clubs for their inspection, and thereby keep up a direct communication between the producer and consumer, with profit to both.—*Cor. Iowa Homestead.*

POTATO DIGGER WANTED.—The Agricultural Association of Veendam (Netherlands) offers a prize of 1,000 guilders (say $400) for the best machine for digging potatoes, and 300 guilders for the second best. If no machine according to the requirement is sent in, a compensation of 100 guilders will be offered to the best of the machines presented for competition, and another of 50 guilders to the next one. The match is to be held at Veendam in the beginning of October next.