

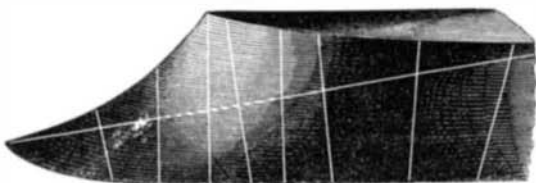
Improved Plow Mold Boards.

The advantages claimed for this plow over others is a diminution of side draft, a lessening of friction, and an ease of manipulation, derived from the fact that its construction is based upon fixed and correct mechanical and geometrical principles. The surface of the mold board is laid out with square and compass, every line bearing its exact proportion to any other at every other point. The surface of the mold is really an inclined plane, curved, with no abrupt turns nor side friction.

Fig. 1 is a perspective view of the plow and shows merely its general appearance and not its special and distinctive characteristics; these are seen in the diagram marked Fig. 2. The diagonal longitudinal line across its face, from lower point to upper, is a right line on which a straight edge bears perfectly the whole of its length. The cross lines present also a perfect surface from the base upward. By placing one angle of a square on the base of the block from which this diagram is taken, and moving forward the block, turning it as moved, the tongue or other angle of the square will engage with the whole surface, point by point, in succession. Of course it will be seen that the face of the mold is a true inclined plane, curving like the movement of a spiral or screw. Thus the soil is not crushed against the mold board, bent nor strained, but slides gradually up the incline to a perpendicular, when a slight outward projection of the upper rear portion of mold board inclines it to the outer side and it falls by its own weight.

It must be evident that heavy, stiff soils can be worked with great ease by a plow designed on these plain geometrical principles, and experience has proved that this plow is an exceedingly easy working one. The soil will not adhere to the mold board, and, as the plow itself is parallel with the beam and not at an angle, the side draft is reduced to its minimum.

Fig. 2



Patented Oct. 30, 1866, by L. P. Rider. For further particulars address Moseley, Rahm, & Co., the owners of the patent and manufacturers of the plow, Pittsburgh, Pa. The right for the Eastern States for sale.

Purification of Polluted Waters.

Pulverized charcoal has always been recognized as furnishing a most valuable filter for clarifying water containing organic or inorganic substances. A paper was recently read before the London Institute of Civil Engineers embodying the results of a number of carefully conducted experiments made for the purpose of definitely determining just how far the statements made regarding the action of this substance in purifying water, might be depended on.

The details of four sets of experiments were given, the first on animal charcoal, of which nearly 5 lbs. new and freshly burned, and of the degree of fineness used in sugar refineries, were packed in an ordinary stoneware filter. The water employed (of which a complete analysis was given) contained, in the gallon, organic matter, 10.80 grains; inorganic matter, 88.30 grains. The hardness of the water, before boiling was found to be 50.50°, and after boiling, 33°; and the oxygen required to oxidize the organic matter contained in in one gallon, amounted to 0.0116th. part of a grain. Several gallons of the water were allowed to percolate slowly through this charcoal, and upon examination afterwards, it was found that, of the inorganic matter which had originally existed, 52.60 grains were removed from the first gallon; but from each succeeding gallon less and less; so that from the twelfth gallon of water that passed through the charcoal only 8.80 grains of inorganic matter were removed. Of the organic matter 4.89 grains were removed from the first gallon; but, with a gradual decrease, the charcoal ceased to remove any organic matter after the sixth gallon. In fact, immediately afterward, it commenced to give back a portion of the organic matter removed in the first instance, the quantity returned to the twelfth gallon amounting to 1.55 grains. Thus, of the 13.54 grains of organic matter removed by the charcoal from the first six gallons of water, as much as 4.98 grains were given back to the next six gallons; from which the author concluded that, had this set of experiments been carried a little further, all the organic matter removed at first by the charcoal would have been given back again.

The second and third series of experiments were with wood and peat charcoal, which, however, were still less satisfactory than those with animal charcoal. The fourth set of experiments was on animal charcoal, with water previously treated with permanganate of potash slightly in excess. After remarking that the water, in its passage through the charcoal, was found to contain organic matter, apparently in the same quantity as before treating it with the permanganate, attention was drawn to a comparison between the first and fourth sets of experiments, to show how closely they agreed to contradict the general statements made as to the removing power of charcoal, and to demonstrate how very little indeed could

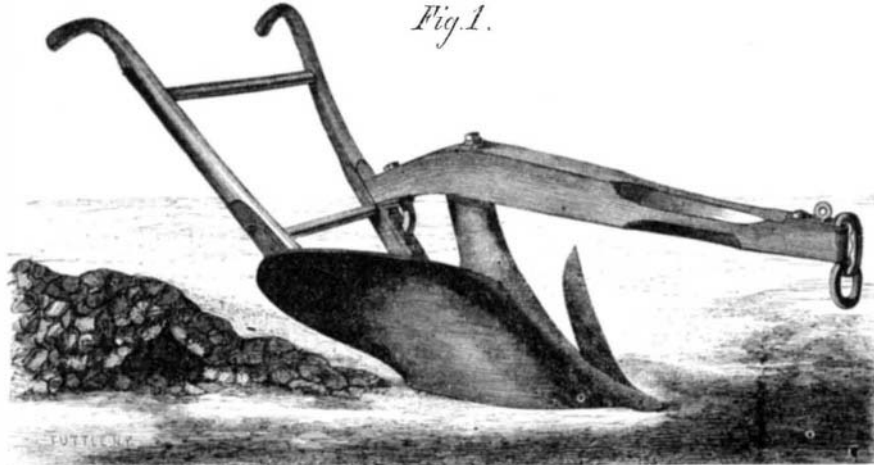
be done by this filtering material, even on a small scale, toward the purification of water.

The author in conclusion gave it as his opinion that, as by chemical agency bad water could be purified to a very limited extent only, the public mind should more than ever be given to the great question of supply; and as people valued their lives, they should above all things, in their choice of a source, not be too much influenced by distance, but be willing to undergo the necessary expense of securing the object of their search, not only in abundance but in the greatest purity.

Combined Wood and Iron Pavement.

J. B. S. proposes a street pavement composed of square blocks of wood put together in sections on a frame of cast iron which extends about half way up the sides of the blocks; these sections to be prepared at the manufactory in sizes to

Fig. 1.

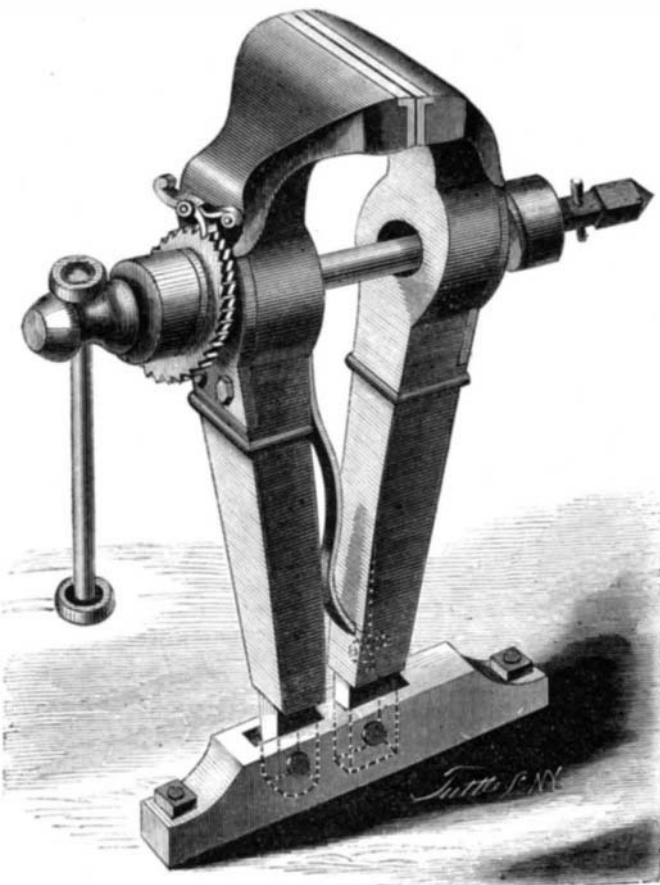


RIDER'S GEOMETRICAL PLOW.

suit and transported to the place where they are to be laid. He would use resinous wood or wood kyanized, uniting the joints with resinous matter. We see no real advantage in the use of the iron. Already sections of wooden pavement are made in a manner similar to that proposed, except that no iron is employed.

Improved Device for Working Vise Jaws.

The object of this device is the quick opening and closing of the jaws of vises, as in no case is it necessary to turn the handle lever more than half around. In place of the screw and sheath, a bar passes through the jaws, the apertures being large enough to allow of the reciprocating movement of the



RALSTON'S DEVICE FOR CLOSING VISE JAWS.

jaws. On each end of the bar, outside the jaws, is fixed a disk having an inclined face, that is a disk one edge of which is much thicker than the other, working against steel faces on the outside of the jaws.

It will be seen that as the bar with the disks is turned in one direction the spring will force the jaws apart, and if in the other direction they will be closed firmly. Attached to one of the disks is a ratchet wheel, which by means of a spring pawl secured to the vise, is held in any position. Thus the jaws can be secured to suit the thickness of the article held between them. The back disk may be moved upon the bar to allow the vise to open more or less, and held by a pin passing through the bar. The foot also of the movable jaw can be set by changing its pivot to other holes in the base. Not only can it be closed firmly by a single half turn of the ratchet, but it can be instantly opened by merely pressing

down the pawl of the ratchet with the thumb or finger, and it can be worked by either hand or foot. It is impossible for it to give away, and loosen its grasp upon the work, like a screw vise, either from hammering, jarring, or any other incidental cause. The same vise is applicable alike to all kinds of work, whether heavy or light. The extent of its grasp is limited only by the length of the rod which passes through the cam disks, and by which the power is applied.

A patent was obtained for this improvement through the Scientific American Patent Agency Jan. 22, 1867, by James S. Ralston. For further particulars address Carter & Ralston, Indiana, Pa.

Platinizing Metals.

Platinum has been formed into coins, etc., by subjecting it in fine powder as obtained by chemical treatment, to powerful pressure. It may now be melted and cast by the oxygen furnace referred to in another paragraph. There is also a method newly published, for coating other metals with a delicate film of platinum, and thus endowing them for practical purposes, with some of its most valuable properties. It is dissolved in nitro-muriatic acid, or aqua regia, forming bichloride of platinum. Of this, 60 grains are to be dissolved in one ounce of distilled water, with an equal weight of pure honey. Add ¼ oz. spirit of wine, and ¼ oz. ether, and filter the solution, if necessary, quite clear. The metallic surface to be platinized is first washed with soda and then with water, dried and finally heated not quite to redness, and plunged for a minute into the solution above described. The color of the platinum film is a neutral grayish black, sometimes showing a faint iridescence. Gold and silver are not affected by the process.

Eating Without Hunger.

This is a very foolish and injurious habit, one which almost every one is more or less subject to. Hunger is the signal which nature gives to indicate the necessity for a supply of food. When the system requires food and is in a condition to make good use of it, it will call for it in its legitimate way. There are some exceptions to this rule in certain diseased conditions, but they are very few. The digestive organs are in the best possible condition for digesting food when the sensation of hunger exists, and they can then do it far more easily, thoroughly, quickly, and with less effort than at any other time. Most people pay little attention to this; they are sure to eat whenever they are hungry, if it is so that they can, and they are just about as apt to eat when they are not, if it is convenient for them to do so or they chance to see anything which "tickles their palate." Especially is this rule—never eat unless you are hungry—violated in sickness. In acute disturbances of the system the sensation of hunger is seldom manifested for the simple reason that the system does not require food. If food is eaten at such times, as it usually is, for everybody thinks the patient will surely starve if he does not eat just so much and so often, it becomes a burden to the system which must be got rid of, for there is no use for it, and, as it will not do to let it remain in the stomach, the vital powers, which are engaged in the reparative process termed disease, are called from the work upon which they are engaged to remove the substances which are creating the disturbance. The result is that the reparative process is partially or wholly suspended; fresh operation, and a longer time will be required, (for causes of disease are added to those already in the remedial powers,) to repair damages and set the vital machinery in proper and harmonious action. Thousands of persons have been prematurely laid in their graves simply from eating heartily when the system was not in a condition to properly digest and appropriate the food. Let this rule be observed by those who desire health with all the untold blessings which always accompany it: whether sick or well, do not force food into the stomach unless there is a demand for it. No fears need be entertained of starving, for a desire for food will be manifested long before the starvation point is reached.—*Journal of Physical Culture.*

REMARKS.—Many of the "ills that flesh is heir to" are doubtless caused by over indulgence at the flesh pots. But it is questionable whether the rule of "eating when you are hungry," is the best that can be adopted. If carried into practice would it not lead to frequency, absurdity, and irregularity of meals? Would it be wise, even if you are hungry, to dine at bed-time, or breakfast whenever you happened to wake in the night? Does not experience prove that the golden rule of diet consists in regularity of hours, moderation in quantity, careful choice of edibles, complete mastication of the food?

ADJUSTABLE HANGER.—In our description of the adjustable hanger, in No. 25. Vol. XVI., the device was credited to M. T. Davidson, 84 John street, this city, who are only the agents for its sale. The patent is owned and the hangers manufactured by the American Tool and Machine Co., Boston.