

Science and Art.

Steam Cultivation.

Among the tolerably promising devices for plowing or loosening the earth by steam power should be mentioned a steam spading machine, recently patented by G. M. Ramsay, of this city. It is a locomotive with a series of spades behind, to operate in such a manner as to propel the wagon ahead, like the stern wheel to a shallow river steamer, and at the same time to pulverize the soil to any desired depth. The spades are worked by two cranked shafts, which latter are mounted one above the other in an adjustable frame. Dr. Ramsay is now seeking for a capitalist to assist him in bringing it out.

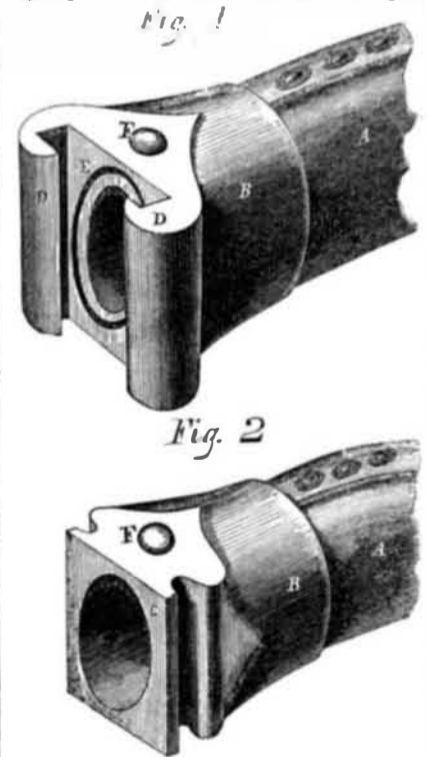
Falconer's Hose Coupling.

With the hose couplings now in use, great difficulty is encountered in effecting a junction or coupling while the water is flowing through the hose; and in the cases where a head of water, force pumps, or fire engines are employed to force the water, the supply must be shut off above the break in the line of hose. The screw coupling now generally used by the fire departments is also objectionable for other reasons, it requires considerable time to "set it up," and complete the joint.

The coupling represented in the accompanying figures has been used by the Perseverance fire company, of Washington, D. C., since April, 1855; and it has been found, by actual experiment, that there is no necessity for shutting off the water, and that the union can be effected with the water flowing, no matter how forcibly. The joint is set up and made tight by a single blow from a mallet, and it may be broken or separated with equal facility.

The halves of the coupling are held together by a species of dovetail, and the joining and separating is similar to the motion of an ordinary draw slide. The parts are made a very little tapering or wedging, so that the faces are drawn together very tightly, and a ring of leather or rubber allowed to project from the face of the female part, makes a perfectly tight contact with the plane face of the other part.

Fig. 1 shows the female, and Fig. 2 the male parts of a coupling. A is the hose and B the metallic neck, in each; C is the dovetail, and D D the stout, lipped flanges on the other part which embrace C. E is the pro-



jecting collar of packing material or the hose itself, which fits tightly against the face of C, and F F on each part are simply projections to receive the blows of the mallet or hammer, two or three of which only are required at any time to effect a junction or separation even if the water is flowing very rapidly through the hose.

The new coupling makes a tighter joint than the screw coupling, is not so liable to choke from grit or ice, costs considerably less

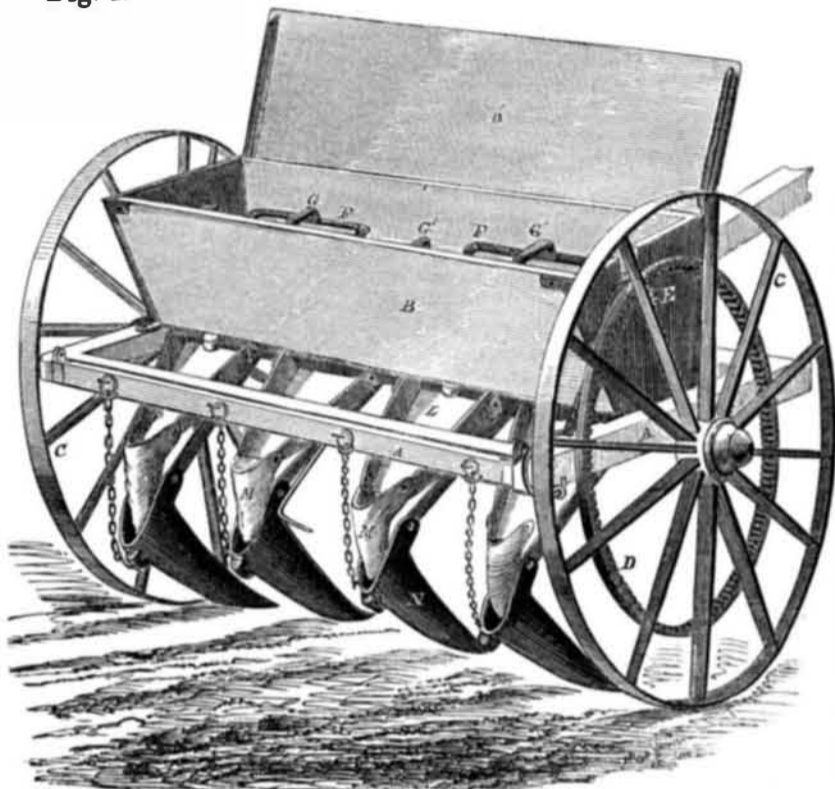
in the manufacture, and presents a much neater appearance than the screw coupling. But its great advantage at a fire, is the saving of time. Time is all important at a fire, and the loss of five or ten minutes in connecting with screw couplings undoubtedly has often

determined the issue of an extensive conflagration.

This coupling was patented June 9th, 1853, by R. J. Falconer, of Washington, D. C. For further information or for rights, address Prof. Chas. G. Page, of Washington, D. C.

MEYERS' SEEDING MACHINE.

Fig. 1.



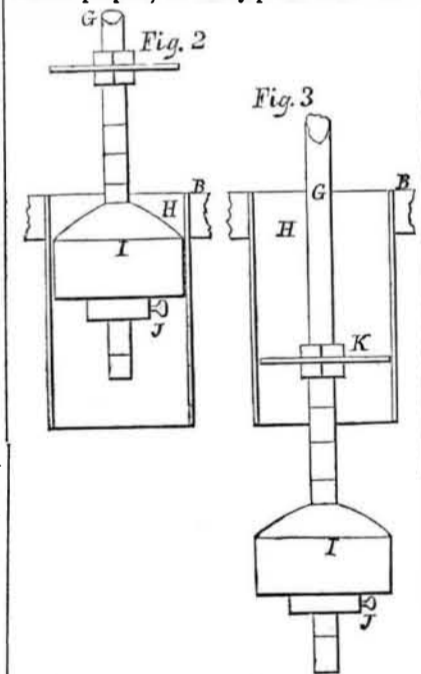
L. B. and H. A. Meyer, of Massillon, Ohio, are the inventors and patentees of the machine seen in the accompanying engravings. It is adapted to the planting of seed alone, or to the depositing of any fine fertilizer therewith. Provision is made for depositing in drills, or scattering broadcast at pleasure.

The seed or fertilizer is measured off and deposited by the working of double pistons, through holes in the bottom of the seed box, and at each movement an amount of seed equal to the space inclosed between the pistons is allowed to descend through tubes. In case it is desired to plant in drills, it is let down through flexible spouts into the drill, but in scattering broadcast, it is thrown upon conical deflectors, and allowed to scatter as much as possible.

Fig. 1 is a perspective view of the whole machine, and figs. 2 and 3 are sections of the bottom of the seed box, showing the pistons first in their highest and second in their lowest positions.

A is the frame of the machine; B the seed box, and B' the cover; C C are carrying wheels; D is an internal gear on one of the wheels, and S a pinion meshing therein; F is a cranked axle on which E is fixed; G' are "spade handles" on the upper ends of the piston rods, G; H are short feed cylinders secured in the bottom of the seed box, B; I represents the lower pistons, and J set screws by which they may be secured at a higher or lower position on the piston rods, G; K represents the upper pistons which are merely disks of leather or rubber, and L the discharge trough through which and the flexible spout, M, the seed is allowed to descend at each revolution of the shaft, F; N N are digging

spouts which serve the double purpose of excavating the drills or channels, and providing a passage for the seed to the bottom thereof. In other points the machine is fitted up like other of the most approved machines for this purpose, and every provision is made



against derangement, and for combining great strength and durability with lightness and ease of working.

This machine was patented on the 3d of March last. For further information address either L. B. Meyers or H. A. Meyers, Massillon, Ohio.

Something New in the Iron Trade.

The Liverpool Courier announces that John Harding, the managing partner in the Beeston Manor Iron Works, Leeds, has taken out a patent for an improved method of freeing iron and other metallic ores from the rock and shale in which they are generally imbedded. As those who are familiar with the iron trade are aware, it is necessary to remove this extraneous rubbish before the ore is sent to the blast furnace, and hitherto the mode of accomplishing this has been by exposure to the air, by which the rock and shale was loosened, after which it was chipped or "napped" off by manual labor. This was a work of time

and involved considerable cost, and the object of Mr. Harding's patent is to diminish both the one and the other. Instead of exposing the stone to the air, it is enclosed in a structure for the purpose, and subjected to the action of steam, which effects in a few hours that which often, under the ordinary method, takes months or years to accomplish, the shale and rock falling off of themselves, and rendering almost unnecessary manual labor for "napping." The invention has been seen by some of the leading men connected with the iron trade in the district, who are satisfied of its value and efficiency; and it may yet be very extensively operated.

Literary Notices.

SCIENCE OF COMMON THINGS.—A familiar explanation of the first principles of physical science, for young students. By David A. Wells, A. M., Ivison & Phinney, New York, 1837. 12 mo., 324 pp. A great objection to works of this kind is that they are necessarily too concise to convey scientific knowledge. Brief generalizations of truth are frequently met at prolific fountains of error in the natural sciences. Having said this we are free to add that after careful examination we unhesitatingly pronounce this the best book in its line which has ever yet appeared. It is almost invariably clear and correct, and interlard the exposition of principles with many valuable facts relating to each of the subjects treated on.

THE ECLECTIC MAGAZINE, for August, contains a fine engraving and likeness of Agassiz, the most eminent naturalist now living, accompanied with a brief biography. It has also an able article from the Westminster Review on "Progress: its Law and Cause," besides others of solid interest. We are happy to learn from the editor that the Eclectic is in a prosperous state. It well deserves success, as it is a sterling magazine, and should have a circulation equal to its character and value. W. H. Bidwell, Publisher, No. 5 Beekman street.

A MANUAL OF ASTRONOMY AND THE USE OF THE GLOBES. By Henry Kidder, A. M., Ivison & Phinney, New York, 1837. 12mo., 171 pp. This is a school-book on a science which is very sublime and ennobling, but is practically useless to those for whom this book is intended. The first four pages are ordinary valuable definitions of geometrical terms—the remainder is dry, and far inferior either in correctness or attractive character to many other astronomical books.



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