New Inventions.

Rolling Iron and Steel.

A patent has recently been taken out in England for rolling iron and steel by having the axes of the rollers arranged to work at an angle to each other, and, when two or more pairs are used, the succeeding ones are arranged in opposite directions to the axes of the preceding. By these means, the grain of the iron and steel is twisted and crossed more effectually than by having the rollers placed parallel to one another.

Improvement in the Voltaic Pile.

Of all the piles in use, at present, Bunsen's is that most generally adopted, and yet it has two serious inconveniences—it emits nitrous vapors both disagreeable and injurious to the health; and the electric current, which is very strong at the outset, rapidly decreases in intensity. Many liquids, all those, in fact, which are capable of producing oxydation, may be used for the production of electricity, but a solution of bichromate of potash has hitherto been used with advantage instead of nitric acid. Bunsen himself was the first to propose the substitution, which has since been studied by various chemists, especially by Poggendorf, who in 1842 recommended the addition of sulphuric acid to the bichromate, but without obtaining any remarkable improvement; for, although the exhalation of nitrous vapors was avoided, the diminution of intensity was as great as before. Poggendorf showed that this was owing to a deposit of oxyd of chromium, with which the charcoal and zinc of the voltaic couple became rapidly coated in the course of the operation, but he was unable to point out any remedy by which it might be prevented. M. Grenet, a young chemist of Paris, has been more fortunate, and has succeeded in preventing this formation of the oxyd, by the curious expedient of making a strong current of air pass through the pile. This current causes the oxyd of chromium to be re-dissolved in the exciting liquid as soon as it is formed; the elements of the pile remain unencumbered, and the voltaic current retains the same degree of intensity.

M. Grenet's pile consists of plates of zinc and charcoal placed alternately in a frame provided with vertical grooves into which they fit, so that, as usual, the plates are separated from each other by interstices. The zinc plates are all attached to a copper wire acting as a conductor; another conductor of the same material connects together all the plates of charcoal. These conductors are coated with an insulating substance. The frame has a hollow bottom pierced with small holes, corresponding to the interstices, and a lateral tube fixed to this bottom communicates with the nozzle of a ventilator.

The exciting liquid, contained in a metal trough, consists of a saturated solution of bicarbonate of potash, acidulated with about one-hundredth part of sulphuric acid. When the pile is to be used, the frame with the couples which fits into the trough is immersed in the liquid, and the ventilator set agoing. As no deposit is formed, the liquid may be kept a considerable time without it being necessary to renew it, or it may be partially renewed from time to time, the great object to be kept in view being, first, the perfect saturation of the liquid, and secondly, the permanent insufflation of air while the pile is being used.—*Galignani's Messenger.*

Improvement in Building Ships.

A ship, whether of iron or of wood, is made of a framework, which is then covered with plates or planks; and it is evident that the constant motion to which a ship, when at sea, is subject—the vibration that takes place through her whole hull—in a great measure loosens her joints, and opens the seams between the planks (a leak is sprung), the ship is no longer water-tight; and thus many valuable lives, together with much property, are lost.

The improved method of building ships invented by John Reeves, 55 Sands st., Brooklyn, and patented by him January 5, 1858, is intended to overcome this defect, by providing cross braces from the bilge of ships up to between the upper and lower decks.

In our engravings, Fig. 1 shows a ship, D, in a position in which she is often placed by the winds, and the dotted lines, E, show the amount of vibration which she is likely to undergo. If the cross ties or braces be of wood, then they are represented by A, Fig. 1; they are strongly secured by knees, *a*, to the bilge, and between the upper and lower decks, C′ and C. If, however, iron braces are preferred, they can be made and secured as seen in Fig. 2, where B, the brace or cross tie, is attached to the same places by plates strongly bolted, *b*, and these iron cross ties have screws and nuts, *c*, so that they can always be kept perfectly taut. E and F illustrate the vibrations to which the ship is subject on both sides, and it will be easily perceived how such a vibration would start and strain the timbers, and the frame of a ship. When, however, the sides are thus rigidly connected by these cross ties, it is next to impossible for such vibrations and consequent strains to take place, and consequently, the ship is rendered stronger and safer, without in any way deteriorating her sailing qualities. This system of cross ties can be applied in any part of the ship, so as not to interfere with her cargo room or, if a steamer, with her machinery, and so attain the requisite degree of strength without taking up more room. The inventor will give any further particulars, if addressed as above.

REEVE'S IMPROVEMENT IN BUILDING SHIPS.

Fig. 1

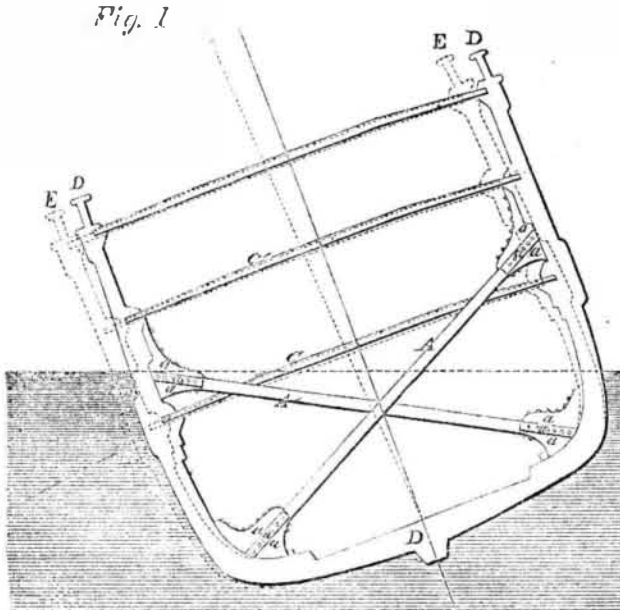
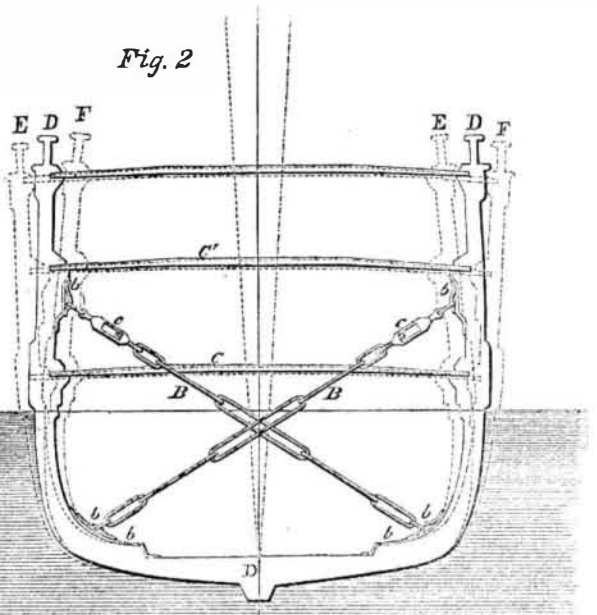


Fig. 2



MOSIER'S CORN PLANTER.

Fig. 2

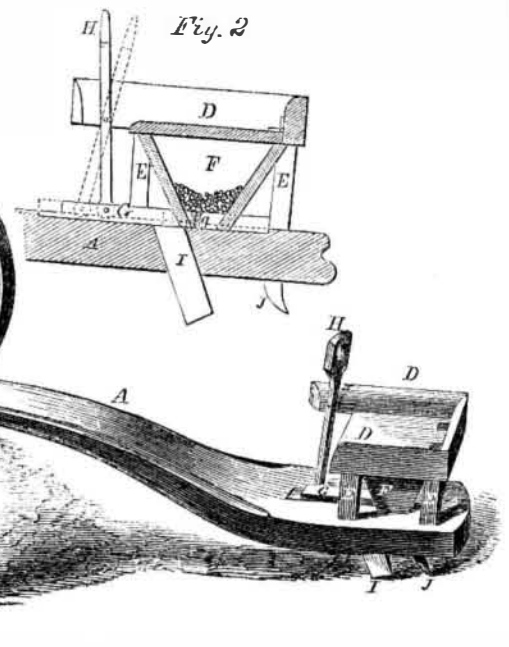


Fig. 1

The great merit of the corn planter which we are about to describe, is its simplicity, and the perfect command which the operator has over it, in all positions and places. It can be drawn by horses or other means, and operated by hand, being light, portable, and constructed with such few parts that there is very little chance of their becoming deranged.

In our engravings, Fig. 1 is a perspective view of the planter, and Fig. 2 is a section through the working parts.

A is a beam, fitting into a slot in a cross piece, C, having a wheel, B, at both ends. The beam can be secured to the cross-piece by a king pin, and the horses can be attached to the cross-piece. On the opposite end of A, (that which rests on the ground,) a seat, D, is raised on four small uprights, E. The seat, D, forms a lid to a seed hopper, F, in the bottom of which slides a piece of wood, G, having a perforation, *g*, that will just contain one deposit of seed, and so acts as a measurer. G is connected by a pin to the hand lever, H, that can move G backwards and forwards. I is the seed tube, passing through A, and J are the coverers. The operation is simple, the operator sitting on the seat, D, having first filled the hopper, his weight causes the seed tube to sink in the earth to the required depth, and from its shape it cuts a trench as it is drawn along. The operator next taking hold of H, pulls it towards him, thus bringing G with the quantity of seed in *g*, directly over I, through which it drops into the earth, and is covered up by J; then pushing H away, *g* is again filled from the hopper, and so the operation continues. The seeds can be planted any distance apart, just when and where the operator pleases, and altogether it is a thoroughly useful machine.

Any further particulars can be obtained from the inventor, P. C. Mosier, of Homer, Mich.. It was patented by him on January 26, 1858.

The Patent Office.

A correspondent writing to the Kalamazoo (Mich.) *Gazette*, in alluding to the unprecedented prosperity of the Patent Office, remarks that "this department has been completely renovated since it has been placed under the control of the present Commissioner—the Hon. Mr. Holt. It had long been in a somnolent state. The antiquated examiners were drilled into a routine similar to that so dear to the 'Circumlocution Office' of venerable England; and an ingenious applicant for its favors fared very much like our simple friend, Mr. Doyce. Mr. Holt is fast bringing the Patent Office up to the requisitions of this progressive age, and a bill has already been introduced into Congress, containing most important and beneficial amendments to the existing law."

We suppose the treatment of "simple friend Doyce" is on a level with what we have been exposing of late, and which Commissioner Holt is determined to correct in future, if Congress will permit him to do it unmolested. —Eds.

American Lap-Welded Iron.

On page 197, this volume, Scientific American, in an article on the above subject, credit was given to Joseph McCully, of Philadelphia, for the first really successful manufacture of American lap-welded tubes. On page 209, we gave the substance of a letter from a correspondent who stated that John Peace produced the first of such tubes in the establishment of Messrs. Morris, Tasker & Morris, of Philadelphia, in 1850. J. D. Heppard, of the *New York Daily Times*, informs us that Joseph McCully sent a model of his machinery—the same in substance as that now employed by Messrs. Morris, Tasker & Co.—to the Patent Office in 1846, three years before Mr. Peace came to this country. He also informs us that although Mr. McCully did not construct and put his machinery in operation until 1852, yet he took means, as far as he was able, to secure a patent, and has never relinquished his title to the invention