Scientific American.

A WEEKLY JOURNAL OF PRACTICAL INFORMATION IN ART, SCIENCE, MECHANICS, CHEMISTRY AND MANUFACTURES.

VOL. IX.---NO. 26. (NEW SERIES.) NEW YORK, DECEMBER 26, 1863. SINGLE COPIES SIX CENTS. $3 PER ANNUM—IN ADVANCE

Improved Convertible Fence.

The object of the inventor in designing this structure has been to obtain one that could readily be converted into many different kinds of fences, and also be applied to other uses not generally attainable in structures of a similar nature. In Fig. 1 we present a view of the fence as arranged in straight panels; in Fig. 2 the same pieces or parts of the fence are shown in the form of a rail, or worm fence, as it is sometimes designated; and Fig. 3 is a representation of a shed or hut, also built up from the same parts as the preceding plans are. The construction of the fence is quite simple, inasmuch as it consists only of a few distinctly different details. Many pieces are required in the aggregate, but the essentially different nature of them is not changed in building the lines of fence herewith illustrated. In the straight panel fence, Fig. 1, the uprights, A, are notched, and the bars, B, placed on every alternate notch; these bars are then secured by nails. The fence is made in sections or panels, and it will be seen by looking at the engraving that several panels are joined together by the diagonal braces, C. These braces are supported by a rod, D, running through the tops of the adjoining uprights, and a cross-stay, E, is further pinned to each leg of the braces in the manner shown. It will also be seen that the bars of each panel are embraced by the cross-stay, E, in a notch cut to receive them. In this manner the several panels are firmly secured against accidental dislodgement. In the rail plan of this fence the uprights are notched in the same manner as the others and the bars nailed to them; the ends of the bars, however, are extended beyond the notched uprights, so as to permit the several panels, or sections, to be set angularly, as shown. When this plan is desired, the braces, C, in the straight plan of fence are omitted, and the caps, F, used instead. In Fig. 3 the house, or shelter-hut, is shown, and to change the fence into this form it is only necessary to remove the braces and separate the panels, then to invert each alternate panel and adjust the ends of the bars thereof opposite the spaces between the bars of the panels which have not been inverted, and to shove the inverted panels along a sufficient distance to cause the bars thereof to occupy the said spaces, and the posts of each pair of panels to come opposite one another as shown. The panels thus doubled are set up in the form of barracks or a shanty, and are extremely useful for sheltering stock and farm produce in the winter.

These fences can be set up temporarily around the growing crops in the summer season, and, later in the year, when the grain has been harvested, taken down and erected as shown in Fig. 3; so that a double duty is thus obtained from the parts of which the fence is constructed.

This fence is the invention of H. C. Foote, 127th New York Volunteers, and was patented on Dec. 17, 1861. For further information address the inventor, Company A, 127th Regiment, N. Y. V., Port Royal, S. C.

Fig. 1

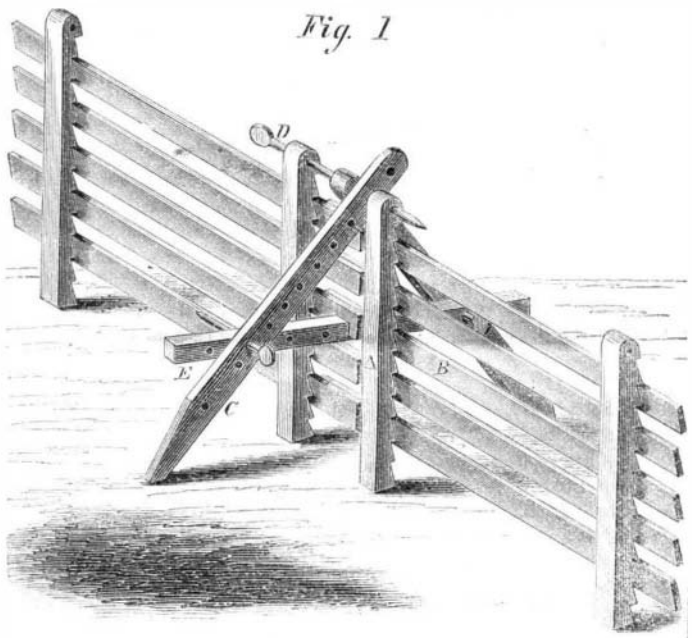


Fig. 2.

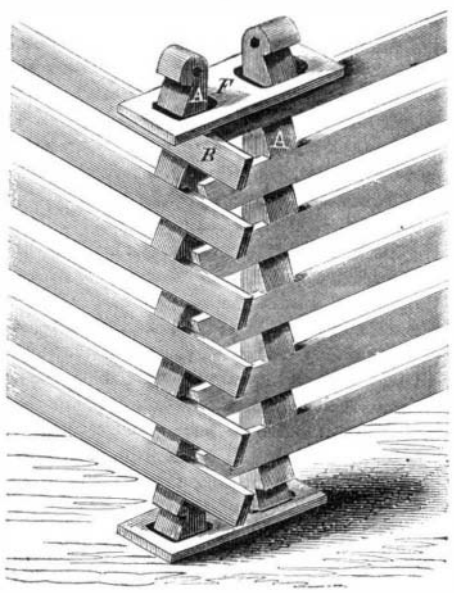
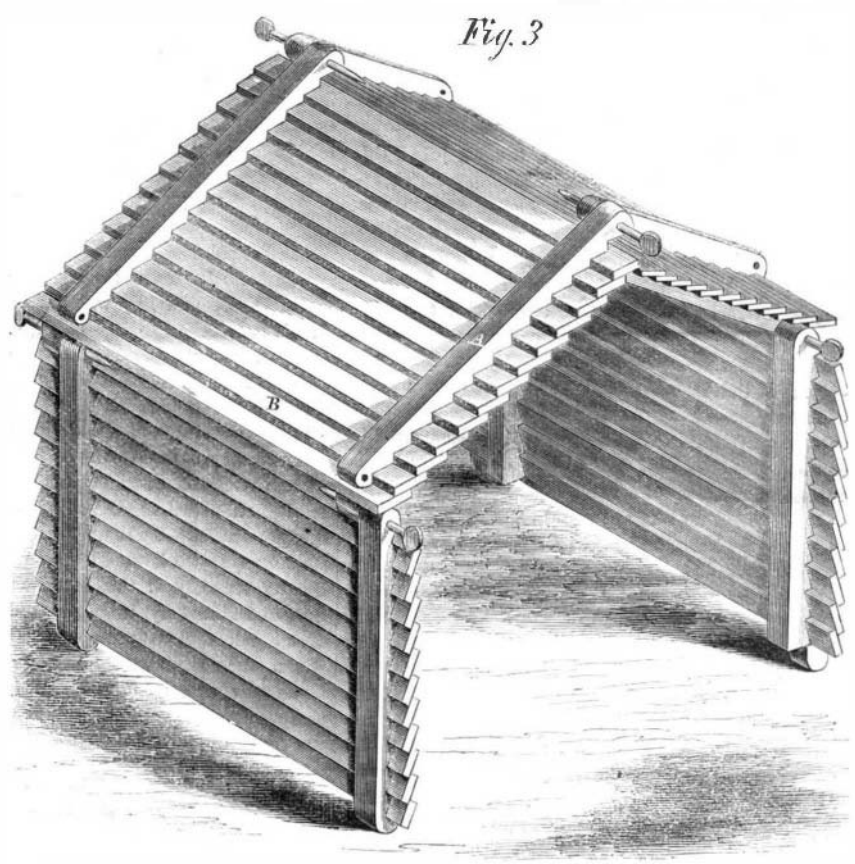


Fig. 3



FOOTE'S IMPROVED CONVERTIBLE FENCE.

ON PACKING METALLIC RODS.

The rods about steam engines which work through vessels or chambers containing steam, or liquids, are fitted with glands and stuffing boxes in the latter the packing is placed and the gland compresses it against the rod, so as to form a perfectly steam-tight and yet an easily-working joint. All this is well known to mechanics and engineers, but so many plans for and such erroneous ideas prevail respecting the performance of this duty, that we have thought a little discussion on the subject not inappropriate.

To judge from the number of scored, three-sided, bent and otherwise damaged piston and valve rods which we have seen at various times about steam engines, there would appear to be a necessity for some radical reform. To insure ease of action and economy of work, an engine should be very carefully packed, for the absorption of power from this source is enormous, in a large engine, and would scarcely be believed. We have seen engineers in charge of large low-pressure engines take a wrench three feet long in the handle, apparently made especially for the purpose, and heave down the nuts on the standing bolts with main force, merely in order to check the escape of a small jet of steam. Such practices are reprehensible from the fact that the expenditure

of force to accomplish the desired end is a proof that something is wrong, either in the design of the engine or the execution of the duty discussed. Faulty design may be briefly alluded to; where piston rods issue through cylinder heads the bottom of the stuffing-box, which is bored to admit the rod, is often made too large; there is too much clearance. No rule can be laid down for the size of the hole; engineering common sense must tell when the aperture is too large or too small; but from the first evil —too much clearance—many other evils spring. The packing is exposed to an unnecessary pressure of steam, which requires the enormous tension obtained by a long wrench to prevent leakages; it is sooner destroyed by being burned out; in consequence of the friction it necessitates a great expenditure of oil, absorbs power, and is also liable to be drawn in during the down stroke of the piston, and thus cause *thrums* and ravelings to get under the valves, or make dirt and grit in the cylinders. Unequal compression of the packing gland, caused by reckless screwing down of the same, together with the use of improper substances, such as old tarred rope, rough coir, or jute, also scant clearance in the cylinder head, and the absence of brass bushes in the same, is the cause of the scratched and damaged piston rods previously spoken of. When a gland is screwed up it should be carefully measured all round so as to insure perfect accuracy. A rule will not do; a pair of inside calipers should be employed and the engineer should set the gland as accurately as if he were about to re-bore it in the lathe; then it will be certainly right, and the piston rod will be clean, bright, smooth and true, as it should be.

A kind of packing in very general use is jute; this is a very good substance when braided into an eight-strand, square gasket, and well slushed with tallow. Some men use a central core of India-rubber, but this is not necessary, in our opinion; another kind used for packing small rods is a piece of square rubber, well overlaid with cotton lampwick; this kind has gone out of favor lately, probably from the high price of the material. Still another sort is a compound of india-rubber and brass wire gauze, for which a patent has been issued and which is highly spoken of. Metallic packing has also been used in connection with small rods with some success; india-rubber in the form of several layers of canvas coated with it, rolled up like a sausage, has also been employed as packing, and is, as we can testify, a most xcellent article.

It matters little what the nature of the material is, so that it is soft, close in texture, and uniform in quality, without knots or hard layers. Jute is very often full of grit and should be washed before it is used; care ought to be taken to keep gaskets off the floor when they are being braided, otherwise the rod will be scratched by the dirt accumulated. If the bottom of the stuffing-box is too large, from wear or design, take two turns of lead pipe, or such a length as will encircle the rod twice, draw a gasket through the bore of it, and drive the pipe down about the rod with a wooden drift; no other material than wood should ever be used in packing an engine, even to the mallet which drives the packing home. The packing should be renewed as soon as it is worn out, which can be told when the amount of pressure required by the nuts to preserve the joint is too great, and by leakage. When an engineer cannot screw down the gland on a 100 inch cylinder with a wrench twenty inches long in the handle, and by the force of one hand, or arm, there is some defect or fault that needs remedy. Of course far less power is required when the rods are smaller. Smooth and true rods and tight joints are the pride of every good engineer, and no pains should be spared to have every engine in such a condition.

The Ingenuity of the Japenese.

They are bold, courageous, proud, and eager after every kind of knowledge. A gentleman gave a workman a Bramah lock to put on a box; it was not discovered until some time afterward, and only then by the absence of the name, that the lock had been imitated, and, as the workman confessed, the original kept as a pattern. There is a steamer (paddle), which used three years ago to run between Nagasaki and Jeddo, 600 miles, whose engines and boilers, and every part of her machinery, were made of copper. She was built by a doctor in Jeddo, whose only guide was a Dutch description of a steam engine, translated into Japanese. An American gunnery officer was sent over in 1859, in the *Powhatan*, to teach them gunnery. He was courteously received, and then taken over the arsenal at Jeddo. He returned to the ship, saying "he had been taught a lesson instead of having to teach." In many of the arts and manufactures they excel us; their beautiful castings in bronze would puzzle the most experienced European workmen. Specimens have been shown to clever workmen who have confessed they could not imitate them. Though they do not know how to blow glass, there are samples which would rival in brilliancy any made in England. The French minister had a large ball, so clear, and of such perfect color, that he believed it to be a gigantic sapphire, and bought it for a good round sum. Their paper imitations of leather are perfect; their paper waterproof coats are bought by the captains of ships for their exposed boats' crews; their own clocks are good, and they have imitated our watches; they walk about with "pedometers" attached to their belts, and they are not backward in copper-plate engraving and perspective. Their china is far superior to the Chinese. The country abounds with coal, though they only use that found close to the surface; but even that, a sort of bituminous shale, is good. In gold and silver they could almost rival Mexico and Australia; iron, copper, and tin are found in profusion. An Englishman at Yokohama gave a Japanese a piece of English cotton shirting; in a few days the man brought back two pieces, and the former had much difficulty in saying which was his, so closely had it been imitated. In fact, they are a people who want for nothing but teachers.

Incendiary Cotton.

The Providence *Journal* speaks of a new danger to cotton factories from the use by the Government of a small steel point, by which the tag marked "duty paid" is attached to bales. Several mills have had a very narrow escape from fire, where these have got into the machinery. The Providence *Bulletin* says:—"The cloth tag or label, on which are stamped 'duty paid,' the weight of the bale and other marks, is connected by a brass wire about eight inches long, with a piece of steel shaped much like an arrow-head. This steel is driven into the bale, and the sharp point-like barbs at the base render it impossible for it to work out of the cotton. It thus holds the tag securely, if the brass wire does not break. But, unfortunately, in a great many cases the wire does break, and the piece of steel is left in the bale. When the cotton with this little steel point, which is narrow and less than two inches long and so escapes attention, is put into the lapper, the chances are that the steel strikes fire and ignites the cotton. Several cases of such ignition have recently occurred in this vicinity, and some mills have had narrow escapes. The Government officers should at once discontinue the use of this 'incendiary document.'"

[There is no necessity for using such a clumsy device; there are much better and far simpler ones invented and for sale.—EDS.

Nitrous Oxide Gas in Surgery.

MESSRS. EDITORS:—It was not my intention to raise any discussion on the properties of the protoxide of nitrogen; but in the different letters which have appeared on the subject in answer to my communication no one has controverted the facts I advanced. I believe in the anesthetic properties of this gas and that thousands of teeth have been extracted from persons while under its influence; but I have said (and repeat) that its uses are dangerous. And my opinion is confirmed by the authority and experiments of Sir H. Davy, Dr. Pereira, Prof. Silliman, Reynauld, Thenard, Berzelius, Taylor, Nysten, &c. In the different answers which you have published not a word is said to refute them. I will remain an unbeliever and opponent to the uses of this gas until as good authorities as mine are produced; and until it is demonstrated that the delirium produced by this gas, when inhaled, brings no change in the nervous system of the person submitted to its influence.

Prof. H. Dussauce.

New Lebanon, N. Y., Dec. 2, 1863.

Squeaking Boots---a Crying Nuisance.

MESSRS. EDITORS:—I wish to call your attention to what I consider a grievous annoyance, for which I suppose the bootmakers are responsible. I allude to the disturbance produced at lectures and other meetings (where silence is essential), by those who enter late with creaking boots. If they made other wearers of them as nervous as they do me when afflicted with a pair, I think some remedy would be adopted. It seems to me, however, that the gentlemen who come late into such meetings are entirely unconscious of the effect they are producing. Where the voice of the speaker is not very powerful, or he does not keep an even tone, and the closest attention is required from the audience, a creaking pair of boots often causes the loss of a statement or a link of an argument essential to the right understanding of the whole subject on hand. I want you to urge the adoption of a remedy on your readers. Bootmakers have told me that French chalk, or something like it, put between the soles, will prevent the evil. The last bootmaker from whom I purchased a pair having assured me positively that they would not annoy me in that way, agreed that if they did he would take the soles apart and apply the corrective. But when I came to wear them I found they screeched horribly; though as it was in a distant city that I bought them I could not call upon the seller to fulfill his agreement; so I determined to try some remedy myself, however desperate, to cure them. I had frequently tried saturating the soles with common oils, but though this mitigated the evil it did not cure it. It occurred to me that boiled linseed oil might do better. I accordingly applied it to the soles, keeping them quite hot during the process to enable them to absorb the more. I did not know but that the hot oil might be ruinous to the boots; but though I could not afford to throw away such an article, I was determined to sacrifice the boots rather than to be so sadly troubled with their noise. I saturated them accordingly with as much oil as they would absorb, and am happy to say that my experiment appears to have succeeded. I have worn them now for a number of weeks and they have been as quiet as the best-behaved boots ever made. I can march up the broad aisle of a church without disturbing one serious listener, or enter any other meeting as noiselessly as a lady in velvet slippers, and as far as I can see, the boots are none the worse for the application.

H. W.

[As this correspondent has provided his own remedy, we cannot do better than circulate it for the benefit of others.—EDS.

Morphia and Tincture of Iodine for Neuralgia

The following method of successfully treating that painful disease—neuralgia—is from the Dublin *Medical Press*:—"As a corollary to his remarks on the efficacy of tincture of iodine in the treatment of neuralgia, M. Bouchut adduced several cases, from which it appears that when the remedy in its pure state has proved unavailing, the pain sometimes yields in a remarkable manner, when a certain amount of morphia has been added to the tincture. In this instance the application is not merely counter-irritant; indeed in this respect the fluid would seem to have lost some of its power; its efficacy is chiefly due to the presence of the sedative, the introduction of which beneath the epidermis is facilitated by the tincture of iodine. Whatever explanation may be offered of the effects of this mode of treatment, its beneficial operation is an unquestionable fact, deserving of every attention. Thus, we noticed in M. Bouchut's wards, a little girl, who, while recovering from typhoid, became affected with neuralgia of the forehead and temple; pure tincture of iodine failed in relieving the pain; M. Bouchut ordered the brow to be painted over three times a day with a solution of half a drachm of sulphate of morphia in half an ounce of tincture of iodine, and a cure was effected in the course of three days. The professor adopted the same method of treatment in the case of a lady, aged fifty-two, suffering from interscapular neuralgia, symptomatic of chronic pulmonary disease. Morning and evening the sedative tincture was applied to these regions, and on the second day amendment set in, and the neuralgia was altogether removed on the fourth day."