

## INVENTIONS AND DISCOVERIES ABROAD.

**Facitious Blocks of Wood.**—A patent has been taken out by G. Colomb, of Aigle, Switzerland, for making ornamental blocks of wood as follows:—He takes the shavings of soft pine or other wood, and dyes them different colors, then packs them together so as to form a truss, which is put into a frame and dipped into a solution of warm glue; it is then subjected to severe pressure and formed into a block, after which it is dried with a current of hot air in a warm room. Such blocks of wood may be cut and used for ornamental purposes, as substitutes for high-priced natural woods that are employed for cabinet work.

**Salinometers for Marine Boilers.**—The sea water used in marine boilers contains about one-third of salt, and as steam is evaporated from it the brine becomes more dense; hence the boiler has to be blown out regularly when the water in it attains to a certain density. An instrument called a salinometer is employed to measure this density, yet considerable trouble has been experienced in determining the times of blowing off. A patent has lately been taken out by J. Burrell, of London, for an improvement in salinometers. He leads two pipes, the one from the top and the other from the bottom of the boiler. These pipes he connects with a glass tube, so that the said tube forms a connection between the two pipes. The arrangement is thus very similar to the ordinary water gage of a steam boiler, but differs from it in the employment of a considerable length of pipe above and below the glass tube. In the upper pipe into which the steam from the boiler enters condensation is constantly going on, and the water thus distilled runs down and fills the lower pipe. The water stands in the glass tube as in an ordinary gage tube, but its level will not be the same as that in the boiler; for the weight of the salt water in the boiler will raise the column of the distilled in and above the glass tube, to a height considerably above its own level. An ordinary gage gives the water level of the boiler, and this, when compared with that of the salinometer gage tube, will indicate on a scale attached, or by reference to a table, the density of the water in the boiler.

**Purifying Petroleum.**—Crude petroleum, also coal oil, is first distilled, then treated with sulphuric acid and subsequently with caustic alkali, before a second distillation. John Cassell, of London, has secured a patent for the use of a mixture of the bichromate of potash and caustic soda, mixed with the oil in the second distillation. The quantity used is one part of bichromate of potash, and two parts of caustic soda at 35°, and they are then distilled. Potash may be substituted for soda; and, instead of bichromate of potash and caustic alkalis, any of the salts of chromium, or in combination with alkalis, caustic or otherwise, may be used, although it is preferred to use them as stated above. If the oil, like that of some shales, is difficult of purification, it may again be treated with sulphuric acid and caustic soda, and distilled a third time.

**Coloring Substances for Dyeing and Printing.**—A. H. Hoffman, of London, has taken out a patent for an improvement in manufacturing aniline colors. He takes the substance known as rosaniline, which is the base of the various salts called roseine, magenta and fuchsin, and he mixes it with the iodides or the bromides of the alcohol radicals, such as iodide of ethyl, methyl, amyl, propyl, or capryl, or bromides of these. He takes one equivalent of rosaniline and three of the salt of the alcohol radical, and heats the mixture to a temperature of 212° Fah., or somewhat higher, in a close vessel. An iron vessel with a safety valve is the best to use for this purpose. During the heating the mixture passes through several phases of coloration, and is eventually converted into a blue violet; but the longer it is subjected to heat, under pressure, it becomes more nearly a pure blue. This color is employed, dissolved in alcohol, for dyeing and printing.

**New Mode of Rifling Guns.**—No general principle of rifling guns seems to be recognized and practiced in the rifling of guns. Regular and increasing twists of various pitch are used by rifle makers for guns of the same bore. Capt. T. A. Blakely, the inventor and constructor of the best guns of large caliber in Europe, has taken out a patent for the application of a new principle in rifling. It consists in rifling guns and in forming projectiles in such a manner that the same power shall always be exerted. The patentee

first decides at what distance from the center of the projectile the turning force of the spiral shall act, and the smaller the bore the nearer the center it acts. He says:—"Let a circle be now drawn, with a center in the axis of the barrel, the radius of which circle is this settled distance; then form the rifling of such a shape that a line perpendicular to any point of its surface shall also be a tangent to this circle." The projectiles are formed to correspond and follow the same mathematical rules with respect to the shape of their external surfaces.

**Projectiles for Ordnance.**—W. Palliser, of Dublin, Ireland, has taken out a patent for manufacturing chilled cast-iron and chilled cast-steel projectiles.

**Safety Garments.**—R. Brooman, of London, has taken out a patent for manufacturing oiled silk or india-rubber garments double and in compartments, so that they may be inflated with air through a valve and thus rendered life-preservers. Every person going to sea should have a jacket of this character.

## Note on a Chinese Tea-Chest.

The London *Grocer* says:—

We have just now before us one of those small square wooden tea-cases, in which are packed, for sale in the English and other markets, the finest kinds of the valued Chinese plant. This little tea-case is worth some remark on account of the peculiarities of its decoration.

The box is about a foot square, and each side is differently ornamented. The surface is varnished in a dead flat manner—a plan which might be usefully adopted in connection with many of the paintings of both ancient and modern masters, instead of giving that brightly polished surface which often catches the light and renders the work invisible except from one position.

At a first glance, it might be thought that the patterns of the tea-chest were cleverly painted on a light buff ground: a more close examination shows, however, the yellow tint on which, in green and black there are printed, most likely from woodcuts, the representations of fruit, trees, birds, butterflies, elephants, &c. In the combination of these forms no account seems to be taken of the comparative sizes, nor are the shapes in accordance with nature. The veins of the leaves are carefully shown on the delicate green in black markings. The general style of this ornamentation is not unlike that of some of the English Mediaeval wall-painting and tapestry. Round the edge of each square there is a running scroll pattern, about half an inch in width, of a dull madder scarlet color, on a ground nearly white. This has been printed in slips, which, when cut of the proper length, have been pasted on the box. In the centre of most of the compartments, badly printed in black, on a deep orange ground, are the mark of the merchant and other devices: each side is of a different pattern, and the general effect of the arrangement of the colors is rich, and, at the same time, harmonious and delicate.

The green color seems to be some vegetable preparation, which is more pleasant to the eye and more wholesome than those arsenical tints which have caused so much mischief. The black used for the merchants' marks on the tea-chests is remarkably intense; deeper, we think, than that used for the finest book-printing of the present day.

Taking note of this simply as a case for a particular description of goods, the care and taste with which it is got up contrast with the way in which these matters are managed at home. Some will say, "What odds about the case if the contents are of a high quality?" This is not wise, for however excellent an article may be, its worth is enhanced in both the home and foreign markets by a tasteful and well-designed inclosure. There has been of late years considerable improvement in this way, but much more remains to be done.

Many of the cases for preserved fruits, articles of silk mercery, artificial flowers, and gloves, which come from France, Italy, Switzerland, and elsewhere, and are seen in such large numbers, especially about Christmas time, are very pretty, and some have considerable artistic merit.

The masts of a new French iron-clad just launched near Toulon, are of a single piece each. The timber was obtained in California. Built-up masts are said to be much stronger.

## Convention of Wool Growers.

A convention of wool growers was held on the 5th and 6th inst., at Columbus, Ohio, which was well attended. Two prominent general questions were discussed, namely:—Is washing sheep advantageous? Is the tariff on foreign wool adequate protection to the American producer? Mr. Montgomery stated that the loss to sheep owners from dogs in the State of Ohio amounted to \$200,000 per year. Lieut. Gov. Stanton made an address upon the tariff, claiming that it was not sufficient to protect the great and growing interest of sheep husbandry. Col. Daniel Needham of Vermont, who was the Commissioner from Vermont to the International Exhibition of Sheep at Hamburg, delivered an address on the "triumph of the Vermont Sheep at the International Exhibition." In the course of his remarks he said, "to George Campbell, of Vermont, belongs all the honor that attended the success of the American Merinos." He took twelve little sheep—six bucks and six ewes, and surprised all Europe with the fact that America contained better Merinos than all the world beside; and not only did he surprise Europe but America also, which never before had dared to claim for herself the leading position in the production of stock-breeding Merinos. These sheep were of Mr. Campbell's own breeding; and the fact that they took from the best flocks of Germany and France the two first premiums, is an honor of which America may well be proud. Mr. Henry S. Randall, LL.D., of New York, editor of "Sheep Husbandry," "The Practical Shepherd," &c., also addressed the assemblage. He argued that the sheep interest of the country was on the increase and likely to be, although wool and sheep would, in the future, have the depressions that they had suffered in the past. He also argued that the cotton culture of the country, after the rebellion, would be of more absorbing interest than ever before; that cotton culture was a healthy occupation, and might be engaged in by white as well as black labor.

## The Earth made Cold by Heat.

Professor Agassiz lately delivered a course of three lectures before the Smithsonian Institute, Washington, and the greater part of the last one was devoted to a description of the phenomena which indicate that the continent of North America had at one time been overlaid by dense and unbroken masses of ice, moving from the North to the South. The traces of such an agency are found in the peculiar drift deposited on the surface of the continent, from the Arctic to the 36th or 40th parallel of latitude, being in its nature and composition such as would be deposited by immense cakes of ice, pushing forward the debris of the soil over which they moved, and bearing on their top the irregular masses of stone which are found in the region designated. That the direction of this moving ice was from north to south is proved by the abrasion of hills having an acclivity facing toward the north, where the southern descent is without such characteristic marks.

After stating the grounds on which the "earthquake theory" was inadequate to explain the phenomena of this drift, Prof. Agassiz estimated that the ice which deposited this drift and produced its other attendant phenomena must have been five or six thousand feet thick. But whence came the cold which produced such a thickness of ice? This query was answered by supposing that there had been injected into the sea from the subterranean fires of the earth below it a vast mass of melted material, thus generating an immense volume of vapor, which, escaping for ages into the upper air, was condensed and fell in the shape of snow and hail. By this mass of snow and hail the temperature of the earth's climate was reduced from the comparative warmth which preceded it, even in Arctic regions, and the world entered on the "cold period," which it was the object of the lecturer to describe and to account for while describing. Prof. Agassiz said that this period was the winter which preceded man's advent in the world.

The total cost of the monitors, built and being built, will be \$22,150,000. Twenty other monitors—light draft—are building at a cost each, complete, of \$465,000, all designed for inside work—river and harbor defense.

More shells were discharged in the single battle of Gettysburg than were employed in all the battles that Napoleon ever fought.

**Oliver's Kiln for Drying Lumber.**

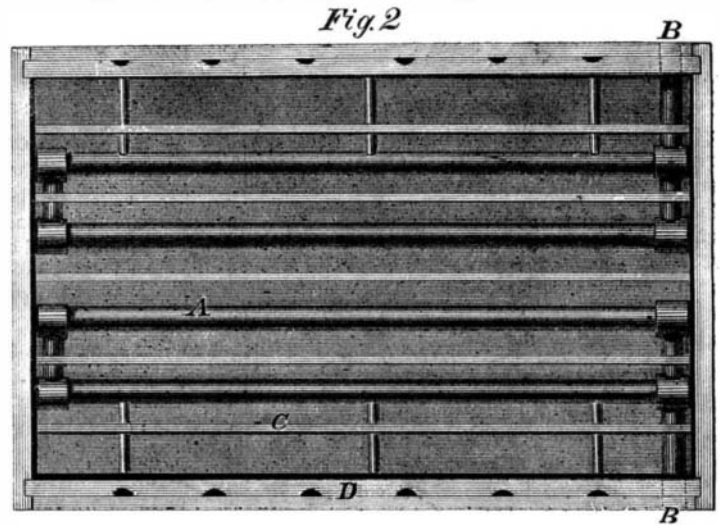
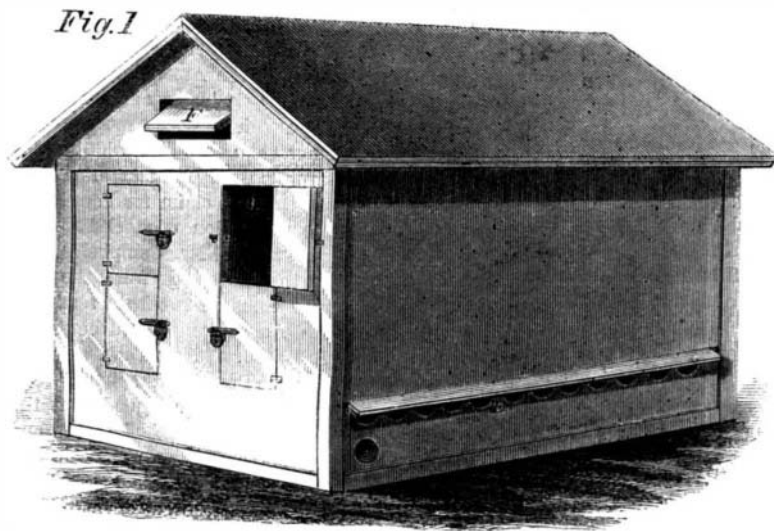
The engravings published herewith represent an improved arrangement for seasoning or drying lumber by steam, whereby the sap is extracted, and the timber rendered fit for use in a short time.

The lumber is packed in a store house, or kiln, which is shown in perspective in Fig. 1, and in plan at Fig. 2. The steam pipes, A, extend over the bottom area of the kiln, and are connected at their outer extremities, B, with a steam boiler situated outside the building; in some cases the boiler is placed underneath the building itself, where the steam pipes are showing in this engraving; the plan here delineated is the one generally preferred. The supports, C, carry the lumber to be dried, which is arranged at right

horse is harnessed and going out upon the road, and taken off when brought in and unharnessed. It is of course required that the fastening shall be simple, safe, and not liable to get out of order, to cramp or hurt the foot, nor to impede freedom of action. The simple statement of the want will, we doubt not, be understood and appreciated by every horseman. Even to those horses which are in constant service it would be a relief and a benefit at night to have their shoes off; but to that large class of family and sporting horses which are on the road only at the pleasure of their owners and which are frequently idle for days and weeks at a time, the benefit would be incalculable. Many a valuable horse has had his feet ruined by the inflexible iron shoe nailed and riveted to his hoof,

tents can be discharged in small or large quantities to suit individuals. Such an arrangement as the one above indicated is a very convenient one, and for picnic and festal occasions of all kinds, this fountain is a most excellent thing, as it dispenses with carrying clumsy bottles which, in addition to the loss from breakage, occupy a great deal of room, and are in various other ways inconvenient.

This fountain is now in successful operation in Philadelphia, and is constructed of the best materials in an improved manner; we do not think it necessary to present a section of the interior, as our readers will readily understand the main points when we say that the outer case, A, is an ornamental iron casting and contains a glass bottle or demijohn, similar to the

**OLIVER'S KILN FOR DRYING LUMBER.**

angles with them, the ends of the timber abutting against the partitions, D. These partitions are wadded with some resilient or soft absorbent substance, shown in the engraving by the dark lines.

The method of drying lumber in this kiln is as follows:—the lumber is arranged transversely with its ends in contact with the wadded partitions, one or both of which may be made movable, to be accommodated to lumber of different lengths. The lower tier of lumber is supported upon the ledges projecting from the sides of the kiln; strips are then laid upon it lengthwise of the kiln to receive another tier of lumber, upon which similar strips are placed to receive a third tier of lumber, and so on as high as may be desired. The lumber is then heated by radiation from the steam pipes placed some distance below, as shown in Fig. 2, and about equal distance from either end. Steam is admitted to the chambers by other pipes and cold air is admitted to the same chambers through openings, E, in the outer walls of the building, see Fig. 1. The wadding in the partitions becoming thoroughly moistened by the condensation of a portion of the steam by the cold air, keeps the ends of the lumber moist, and the natural channels or pores of the wood open, and as the greatest heat from the pipes is applied at the middle of their lengths, the sap is caused to be rapidly extracted without checking the lumber, and the drying may be entirely completed by gradually diminishing the quantity of steam, and continuing the heat some time longer.

Suitable doors are provided for the admission of the lumber, and also a ventilator, F, at the top.

This invention was patented, June 24, 1862, through the Scientific American Patent Agency. For further information apply to H. W. Oliver, patentee, Box 934, New Haven, Conn.; or, S. C. Lewis, Whitneyville, Conn.

**A NEW HORSESHOE WANTED.**

The editor of the *National Eagle*, published at Claremont, N. H., is evidently a go-ahead man. In a recent number of the *Eagle* we find the following article:—

"If we had possessed the requisite genius, we should before this have invented, patented and made a fortune out of an article which every man who owns a horse, especially a family or fancy horse, really requires, namely, a set of horseshoes, made of steel and finished in a neat manner, which any person can have in his stable ready for use and put on when the

there to remain for weeks, and often for months, without change, while the hoof was growing, but with no chance to expand and take the natural shape of the natural or wild horse of the desert or prairie. Thousands of horses are hitched in their stalls, their feet raised from the floor by the thickness of their shoes and calks, there to dry and cramp, become feverish and painful to the poor brutes, promoting thrush, windgall, spavin and various other ailments, besides those concerning the feet alone.

"Who will produce the shoes—perfect and complete—and make over to us half the invention upon our assuming the expense of getting out the Letters Patent? To any inventor complying with the above suggestions and conditions we will pay a cash premium of \$1,000.

**LYNDE'S PORTABLE SODA FOUNTAIN.**

We place before our readers this week two engravings of one of the most convenient as well as useful



well-known vessel of that name. This glass demijohn is slightly smaller than the case, so that there is a space all around between the two; this space is filled with plaster of Paris or cement, for keeping the liquid cool. The draught tube, B, connects with a glass tube, C (see Fig. 2), which runs to the bottom of the fountain; this tube is fastened to the cap, D, and the cap itself screws on to the thread, E, just above it.

Fig. 2



The valve and its attachments are contained in Fig. 2. The tube, F, screws into the mouth of the fountain; this tube is fastened to the cap, D, and the cap itself screws on to the thread, E, just above it. In this tube the valve spindle works, and the valve itself is simply a disk of india rubber, G, shown off its seat in the engraving. This valve spindle is connected to a rubber diaphragm, H, which acts as a spring, and holds it up against the rubber seat. The draught tube is made longer than shown in Fig. 1, and is slipped over the nozzle, I, from whence it can be immediately removed if necessary. There is a rubber joint at J to keep the tube, E, tight. By this arrangement all that is necessary to draw the soda

is to press on the draught tube with the hand; the valve, G, is then opened and the contents rush out. As pressure from within always acts upon the valve no leakage can occur; when the tube is removed the cup on the handle is to be slipped over the nozzle as a shield.

The inventor writes us, saying:—"The value of this improvement, beside the purity of the contents (being always in glass), is its practicability in taking the place of small bottles; while it costs no more it saves full half the labor and usual loss of bottles, and is a source of greater profit and less trouble to the retailer; and the customers get pure and fresh soda water."

A patent was granted on Oct. 20, 1863, for the said improvement, to John D. Lynde, of 247 North 9th street, Philadelphia, Pa., to whom communications may be addressed in regard to it.

A CORRESPONDENT of the *Chicago Times* says that one of the ordinary fine wire gauze masks, such as are frequently worn at masquerades, put over the face, is a sure protection against the cold. The writer says he tested one, in a ride of three miles against the wind, with the thermometer sixteen degrees below zero, and therefore he knows whereof he affirms.

apparatuses we have seen in a long time. It is simply a portable soda fountain, so arranged that the con-