

## NOTES ON FOREIGN INVENTIONS\* AND DISCOVERIES.

**Stereotyping.**—A patent has been taken out in England by J. Napier, Glasgow, for an improved mode of forming stereotype plates. Under one modification of the process a smooth cast-iron plate is prepared to receive the plaster impression as follows:—A piece of cartridge paper is cut the size of the plate and pasted on its smooth surface. Plaster of Paris of the consistency of cream is then poured upon the paper and the surface leveled to the required thickness by means of a "straight edge." The form containing the type, locked up in the usual manner and oiled upon the surface, is immediately inverted, laid face downward upon the soft plaster and pressed, and is thus allowed to remain until the plaster has hardened. The form is then lifted off and the plaster matrix dried from the metal side upon an ordinary type-founder's furnace. A flat cast-iron plate covered with paper is provided with metal gages to regulate the thickness of the stereotype plate. The matrix plate is now screwed to this plate, and when both are well heated, the molten metal is poured in between, and an exact counterpart of the form is obtained. After cooling it is planed and finished.

**Steel.**—William Clark, London, has obtained a patent for converting iron into steel as follows:—A mixture of carbonate of baryta and finely pulverized bituminous coal is placed in a crucible, or into a retort, and bars, or pieces of less size, of iron are placed among this mixture, and the whole heated to a bright red heat, at which temperature it is maintained for several hours. After this roasting the metal is taken out and cooled, and when broken it is stated to have the grain and hardness of steel, and is capable of being wrought and tempered.

**Aluminum Bronze and Coating Metals.**—The following is the substance of the specification of a patent taken out by Thomas Bell, of Gateshead, England, for decomposing compounds of aluminum (such as the double chloride of aluminum and sodium) by galvanic electricity, and coating metals, such as copper by the same agency. A bath is made up composed of the double chloride of aluminum and sodium in an anhydrous state, and this is kept melted at a temperature of 360° Fah. The plate of copper to be coated with aluminum is placed on the negative electrode; the positive electrode may be a plate of alumina, or a composition of carbon and anhydrous alumina molded and calcined so as to form a plate. When the galvanic circuit is formed, the alumina in the bath of double chloride is deposited on the copper plate, which must have been perfectly clean before being placed in the bath. When an aluminum deposit of sufficient thickness is obtained, the copper plate is removed and dried, then placed in a furnace and heated to a high temperature. The aluminum combines with the copper and the surface of the plate is converted into aluminum bronze.

**Iron Telegraph Posts.**—An English patent has been taken out by R. Jobson and C. F. Farley, for telegraph posts made of cast iron in tubular sections, capable of being easily transported and fitted together.

## RECENT AMERICAN INVENTIONS.

**Cooking Ranges.**—This invention consists in arranging in the back part of the fire chamber of a cooking range a rotating cylinder or frustum of a cone, one portion or side of which is of fire brick or other equivalent substance or material, and the opposite portion or side forming a water back, an air-heating chamber, being between the fire brick and water back; whereby either the water back or fire brick may be made to form the back of the fire chamber, as may be desired, and an air-heating chamber obtained, which may be constantly used, or in other words, used in either of the two positions of the cylinder or frustum of a cone. The invention also consists in a peculiar means employed for operating the cylinder or frustum of a cone, as well as a novel arrangement for automatically supplying the water back with a flow of water and cutting off the same. For any information concerning this invention address F. C. Merritt, 1212 Broadway, New York city.

**Coal-Oil Distilling Apparatus.**—This invention, patented by John Bullard, of Stockbridge, Vt., relates more particularly to that class of retorts in which the heat

to effect distillation is derived from the slow burning away of the charge toward the outlet. It consists in the construction and arrangement of such a retort in such manner and with its outlet in such a position as to obtain a draft along the bottom and obliquely downward to the lowest point in the retort throughout the whole of the charge, by which means the difficulties encountered in the working of the so-called "meerscham" retort, in which the draft is directly downward through the charge, and those encountered in the working of horizontal or slightly-inclined retorts, in which the draft is toward an opening distant from the bottom, are obviated. It also consists in the introduction of steam into and through the bottom of the retort to heat it before firing, and to prevent the vapors condensing in the kiln and being burnt therein. And it further consists in certain novel means of obtaining a draft through the kiln, serving at the same time as a means of condensation for the vapors.

**Harvester.**—This invention relates to a new and improved means employed for elevating the sickle, whereby the same may be raised bodily in a horizontal position so as to pass over obstructions which may lie in its path, and the sickle at the same time admit of being so arranged as to work or turn on a shaft attached to the main frame of the machine, said shaft forming the only attachment of the sickle to the main frame. The invention consists in using, in connection with a cord and pulley, arranged to actuate or adjust the main frame of the machine, a pawl and segment rack so arranged that the sickle is held in a horizontal rigid state as the main frame is actuated, and its back part elevated, and the desired result thereby attained. Invented by E. Smith, of Cold Spring Harbor, New York.

## Cements for Porcelain, Marble, Alabaster, Glass, &amp;c.

Take of isinglass two drachms, wet it with water, and allow it to stand until softened, then add as much proof spirit as will rather more than cover it, and dissolve with a moderate heat. Take of gum mastic one drachm, dissolve it in two or three drachms of rectified spirit. Mix the two solutions, and stir in one drachm of gum ammoniacum in a fine powder, and rubbed down with a little water. Keep the cement in a bottle. When required for use place the bottle in warm water, and apply the cement with a stick or small hard brush to the china previously warmed. Compress the pieces firmly together until cold, taking care to make the contact perfect, and using a very thin layer of cement.

The white of eggs thickened with powdered quick lime is also used as a cement for broken china, marble and glass.

White resin and white beeswax melted and mixed with plaster of Paris make a good cement for mending alabaster and marble ornaments.

A transparent cement for glass is made by dissolving one part of india rubber in chloroform, and adding sixteen parts, by measure of gum mastic in powder. Digest for two days, and frequently shake the vessel in which these substances are contained. The cement is applied with a fine camel's-hair brush.

The silicate of soda is about the best cement that can be used for mending broken crystal.

**NORTHERN TURPENTINE.**—A correspondent of the Philadelphia Ledger directs public attention to the pine forests of New Jersey and Pennsylvania from which to obtain a supply of turpentine. He says:—"The mode pursued for obtaining 'the juice,' of white or common turpentine, as it is called, is as follows: A reservoir is made in the trunk of the tree, a few inches from the ground, capable of containing two or three pints of liquid. Into this, which should be prepared in the winter season, the juice will commence to flow early in the spring, increasing in quantity with the summer heats, and subsiding with the autumn. As the reservoir becomes filled the liquid is transferred to barrels, where it gradually thickens and becomes a soft solid. From this the spirits are distilled, and the residue, as is well known, is common rosin."

Fogs have been frequent and very thick in London this winter. The gas has been kept lighted in street lamps and houses all day on several occasions. The weather has been mild.

## Salt-peter—Imports in 1861.

The imports from India into the United States, for the year, have been, 36 ships at Boston, 65,073 bags; 13 ships at New York, 29,286 bags; 3 ships at Philadelphia, 5,861 bags. Total, 100,220 bags. In addition to the above, there have been imported from Europe, into Boston, 1,263 bags; into New York, 160 bags. Total, 1,413 bags. Total imports into the United States for 1861, 101,633 bags. There are also 886 bags on the way from London, bound to New York, shipped in November. A considerable portion of that to arrive has been sold to, or is imported by consumers. The principal manufacturers have had large orders from government for powder, the past six months, and are still busy on these contracts. The general powder business has been small for some time, particularly since our government has prohibited the export of powder. In January, 1861, the price was 8 cents per pound. In August it rose to 9 cents. On the 1st of December it was 10½ cents. On the 16th of last month warlike news from England, growing out of the Trent affair, and also advices that the export of the article from Great Britain to the United States had been prohibited, were received. The market was greatly excited, and prices advanced rapidly, with considerable sales on speculation, at 14½ to 17 cents per pound, cash. The article at present is less active, with more disposition to sell, and with little demand, and prices are somewhat nominal, and may be quoted at 12 to 14 cents per pound. The stocks in the country and on the way are moderate.

## Commerce of New York for 1861.

The value of foreign goods imported in 1861 was \$125,688,000, of which \$7,309,000 were re-exported, leaving the total for the market valued at \$118,379,000. In the year previous (1860) the value of goods imported was \$221,384,000, or \$103,005,000 more than last year. The exports of domestic produce (chiefly breadstuffs) were valued at \$131,236,000; in 1860 only \$95,468,000. The export of specie in 1861 was but \$4,236,000; in 1860 it was \$42,191,000. The import of specie from foreign countries in 1861 was \$37,088,000; from California, \$33,485,000, making a total of \$66,347,000 of specie that remained for home use. The revenue of customs amounted to only \$21,715,000.

DURING the past ten years the Western Railroad, Mass., has expended in the aggregate \$70,000 to keep the track clear of snow and ice. City companies pay large sums for this purpose.

## NEW YORK MARKETS.

**ASHES.**—Pearl, 6½c. per lb.  
**BEESWAX.**—Yellow, 33c. per lb.; good demand.  
**COAL.**—Anthracite, \$4 25 to \$4 75 per 2,000 lbs.  
**COCOA.**—18½ to 30c. per lb.  
**COFFEE.**—14c. to 27c. per lb.; the demand is good.  
**COPPER.**—Ingot, 28c. per lb.; sheathing, 30c.; good demand.  
**CORDAGE.**—Manilla, 10½c. per lb.  
**COTTON.**—The market is dull; 33c. to 35c. per lb.; none of the higher quality for sale. From the 1st to the 25th of January 5,345 bales were imported—mostly from Liverpool.  
**DOMESTIC GOODS.**—Brown sheeting, 30 inches wide, 9c. to 11c. per yard; bleached, 32 inches wide, 12c. per yard; 36 inches wide, 16c. per yard; calicoes, 11c. to 13c. per yard; drilling, 30 inches wide, 16c.; Kentucky jeans, 8c. to 18c.; cloth, all wool, \$1 60 to \$3; cotton warp, wool welt, 75c.; satinetts, 30c. to 60c.; wool flannels, 30c. to 60c.; canton flannels, 14c. to 18c.  
**FLOUR.**—From \$5 50 to \$7 25 per bbl.; cornmeal, \$3 to \$3 10; rye, \$3 50 to \$3 80.  
**GRAIN.**—Wheat, \$1 26 to \$1 52 per bushel; corn, 65c. to 87c.  
**HEMP.**—American, dressed, \$215 to \$230; Russian, \$250 per tun.  
**INDIGO.**—Bengal, \$2 20 to \$2 40 per lb.; manilla, 80c. to \$1 50.  
**IRON.**—American pig, \$20 per tun.  
**LEAD.**—\$7 to \$7 15 per 100 lbs.; good demand.  
**LEATHER.**—Oak, tanned sole, 26c. to 33c. per lb.; hemlock, 18c. to 22½c.; demand good for oak tanned.  
**LUMBER.**—Nothing doing.  
**MOLASSES.**—20c. to 50c. per gallon. The total home consumption of molasses in 1861 was 40,191,556 gallons—about 7,000,000 less than in 1860.  
**NAVAL STORES.**—Turpentine and resin out of market.  
**OILS.**—Sperm oil is in good request at \$1 40 to \$1 60 per gal.; petroleum, dull; crude, 16c. to 19c. per gal.; refined, 30c. to 40c.; burning fluid (camphene and alcohol) 67c.  
**PROVISIONS.**—Mess pork from \$8 to \$14 50 per bbl.; beef, ranging from \$5 to \$30 per bbl., according to quality; butter from 11c. to 23c. per lb.  
**SALTPETER.**—13c. to 16c. per lb.; good demand.  
**SUGAR.**—From 3c. per lb., the lowest Melado, to 11½c. Stuart's best crushed; market dull.  
**TEA.**—30c., the lowest, to 97c. per lb. The duty is 20c.—allike on all quantities.  
**WOLLEN.**—9c., the lowest Scotch American; 52c. per lb.; American Saxony fleeces. Prices on the advance.