RECENT FOREIGN INVENTIONS.

Coating Iron to Preserve it from Rust, &c.—G. Bennett, of London, has applied for a patent to protect iron by treating it as follows:—It is first scoured bright by steeping it for six hours in dilute sulphuric acid, at the rate of 1 pound of acid to 10 gallons of cold water, after which it is rubbed with sand and emery and washed well in warm soft water; then it is heated to 212° in a stove and is ready for the coating. This consists of a paste composed of 28 pounds of flint and 14 pounds of borax, pulverized and fused together, then ground with water and 5 pounds of potter's clay. It is put on the iron like paint in a coat of about one-tenth of an inch in thickness and allowed to become half dry; then it is dusted over with a powder composed of 62 pounds of white glass, 12 pounds of borax and 10 pounds of soda, fused first then ground with water and dried in a kiln. The iron thus coated and dusted over is dried in a stove at a heat of 212°; then placed in a potter's kiln and submitted to a heat which fuses it and forms an enamel on the surface of the metal. It is afterward cooled slowly to anneal it.

Molded Articles of Ivory and Bone.—L. Gabler and M. Zingler, of England, have applied for a patent to make ornamental articles as follows:—Ivory or bone are first reduced to fine powder, then mixed with a cementing solution of gelatine or gum ammoniacal, and formed into a doughy paste; then forced into molds of the form required to produce the molded articles. A considerable pressure is employed to mold this ivory cement, and the molds are so formed as to permit the escape of air and moisture. After the articles have become set in the molds, they are removed, placed on shelves and soon become as hard as ivory and resemble it in appearance. Coloring pigments may be mixed with the cement to impart any desired hue to the articles.

Stoneware Pulleys.—A patent has been taken out by W. McAdam, of Scotland, for making pulleys of stoneware; also the weights for window sashes. Under one modification of the patent, the frame in which the pulleys of window sashes are fixed, is stated to be formed of stoneware molded to suit the window. The sheaves or pulleys are molded of porcelain clay, and burned in a kiln in the usual manner. The sash weights are molded hollow of clay and burned like the pulleys, and the proper weight to balance the sash is obtained by filling the inside with a quantity of metallic dust.

Sugar-refining Pans.—In place of using the ordinary stationary vacuum pans for refining sugar, J. Robey, of London, has patented for the same purpose a rotating pan of a cylindrical shape with hemispherical ends. The saccharine fluid occupies but a small portion of the interior space. By the rotary motion given to the pan and its extensive heating surface, a more rapid evaporation of the fluid is said to be secured than by the ordinary pan.

Caustic Soda and Potash.—A patent has been obtained by W. Gossage, of London, chemist, for manufacturing caustic soda and potash, by causing the common carbonate of soda (soda ash of commerce) or carbonate of potash in a state of solution to filter through slaked lime. The carbonic acid in the crude soda and potash combine with the lime forming carbonate of lime (chalk) and the filtered solution is thus rendered caustic. Caustic soda is now used extensively in the purification of petroleum.

Preventing Corrosion of Steam Boilers.—T. Davidson, of Belfast, Ireland, has taken out a patent for the use of soda in such steam boilers as belong to engines that are furnished with surface condensers, and in which the same water is used over and over again. It is stated that such water corrodes boilers rapidly, and the object of this invention is to prevent such action. A sufficient quantity of the carbonate of soda to render the water slightly alkaline, it is stated, will effect the object desired.

COTTON DUCK.—At the present price of cotton duck, a suit of sails for a ship of 1,000 tuns would cost not less than $5,500, not including bolt-rope manufacture, &c., reckoning 7,500 yards for the suit, at an average price of 75c. per yard. For a ship of 1,000 tuns, No. 3 duck is used, which weighs one pound to the yard, a fact that will give some adequate idea of the amount of cotton used, as well as the weight of a suit of sails.

RECENT AMERICAN INVENTIONS.

The following are some of the most important improvements for which Letters Patent were issued from the United States Patent Office last week. The claims may be found in the official list.

Bed Vapor Bath.—The object obtained by this invention is two-fold, viz., first, to enable a vapor bath to be administered in a bed without changing the position of a sick patient; and, second, to obtain an apparatus for administering such a bath, so inexpensive as to bring it within the reach of nearly all classes and which enables the bath to be taken as a luxury without the aid of a second person. The invention consists in an apparatus composed of a boiler and lamp inclosed within a suitable casing to which the boiler is fitted in such a manner as to provide for the escape of the vapor through a suitable perforated or reticulated medium, the whole being placed upon a suitable base in which are provided suitable supports for the upper bed-clothes, so that when the apparatus is placed in a bed between the mattress and the upper clothes or covering, they may be kept out of contact with the patient, and also prevented from interfering with the evaporation or the elimination of the vapors; the casing is furnished with suitable means of confining the said clothes or covering to its sides to make it form, in combination with the mattress, a vapor bath of convenient form and size. This valuable invention was patented by Miss Sarah E. Payson, who may be addressed, in care of Geo. A. Payson, Milton, Mass.

Evaporating Cane Juice.—The object of this invention is so to employ steam as the heating medium in the evaporation of cane juice and other saccharine solutions as to provide for the tempering and uniform regulation of the heat. For this purpose an inner and an outer vessel are employed, the inner vessel containing the juice and having within it a series of rotating disks which take up the juice and expose it to the atmosphere, and the steam being admitted to the space between the two vessels. This invention consists in so applying a perforated coil of steam pipe for the admission of the steam into the said space, in combination with a cold-water injection pipe and overflow, for the circulation of water through the vessel, that the steam is delivered into the said space without passing through the water; but the steam pipe is so far immersed in the water as to enable the steam to be more or less tempered by regulating the circulation. The patentee of this invention is James Newnam, of London, England.

Evaporator for Saccharine Liquids.—This invention consists in conducting the smoke pipe through the heater in such a manner that the contents of the heater are heated by the action of the gases and products of combustion passing from the fire through the smoke pipe; it consists, further, in the arrangement of a spiral channel at the bottom of the heater, and passing around the smoke-pipe in such a manner that the liquid has to pass several times around the smoke-pipe, whereby it becomes highly heated before it is permitted to escape from the heater. It consists also in the arrangement of a helical inclined channel receiving the liquid to be evaporated in its middle or highest part, and discharging it at the circumference or at its lowest part, in such a manner that the liquid, in passing from the highest to the lowest point of the helical channel, is spread in a thin sheet over a large heated surface, and the evaporation is accomplished in a short time and with little labor and with a comparatively small expenditure of fuel. It consists, finally, in the arrangement of a heater provided with a regulating faucet in combination with the helical evaporator, in such a manner that the discharge of the liquid from the heater can be regulated according to the temperature of the helical channel, and according to the desired degree of evaporation. James C. McKee, of Urbana, Ill., is the inventor of this improvement.

Printing Press.—This invention relates to an improved printing press of that class commonly termed power presses, and which are designed for rapid work. The object of the invention is to obtain a printing press of the class specified, by which both sides of the sheet may be printed in passing once through the press and the parts so arranged that the press may be fed at both ends, so as to render the printing operation continuous, the printed sheets being also discharged from both ends of the machine. The invention consists substantially in the employment of a cylinder having a form fitted in its periphery, and so operated as to have a reciprocating partially rotating movement, and working in connection with a reciprocating bed which receives the sheets, and upon which the sheets receive the impression from the form cylinder. The above parts are used in combination with a reciprocating form bed and pressure rollers, all arranged in such a manner as to effect the desired end. The inventor of this press is James Gordon, of Caledonia, N. Y.

Revolving Fire-arm.—On the 22d of July, 1856, C. S. Pettengill obtained Letters Patent for the invention of certain improvements in revolving fire-arms, and on the 27th of July, 1858, E. A. Raymond and C. Robitaille obtained Letters Patent for the invention of certain improvements on the aforesaid inventions of C. S. Pettengill. In fire-arms constructed according to either of these inventions, the necessary tension is brought upon the mainspring to produce the blow of the hammer by the force applied to the trigger in the act of drawing it to fire, through the agency of a lever operated upon by a cam on the trigger. Owing to the manner in which the force is transmitted by the aforesaid cam, the pull on the trigger requires to be harder as the tension of the spring increases. The principal object of this invention is to overcome this difficulty and to obtain a constantly increasing application of power upon the lever, to counterbalance the increasing tension of the spring, without requiring a corresponding increase in the force applied to the trigger. To this end it consists in effecting the connection between the trigger and lever by means of a toggle arranged and applied as specified. H. S. Rogers, of Willow Vale, N. Y., is the inventor of this improvement.

PATENT BUSINESS IN 1860 and 1862.

During the first nine months (from January to October) of 1860 there were three thousand nine hundred and thirteen patents issued from the United States Patent Office. For the same period this year there have been granted only eighteen hundred and eighty-five patents; thus showing a decrease in the number of patents issued up to October 1st. of considerably more than one-half of the number issued in the same period in 1860. This falling-off does not augur well for the prosperity of the country. Labor-saving machinery was never in greater demand than now, but where are the inventors? Certainly half of them cannot have gone to the war.

Three Millions of Bullion per Month.

The Territory of Nevada, that great and wealthy gold and silver spot, scarcely marked on the geographical maps of Europe, will furnish no less than $3,000,000 in silver and gold per month shortly. From the number of companies and associations recently formed in this State and Nevada Territory, the amount of bullion must be materially augmented—a great amount of capital will be invested, and the miners, and the working classes generally, can find no better field than this new Territory. Humboldt district is coming out finely, and bids fair to exceed even the section known as Washoe. But bullion of any amount has not yet been received from that quarter. Esmeralda interests seem to revive with celerity.—*Cal. Sci. Press.*

A Scientific Problem—Oblique Arches.

At the late meeting of the Holland Society of Science, which assembles annually at Harlem, it was stated that since the establishment of railroads, the construction of oblique arches had much increased, while the rules for fixing the dimensions of these arches and of their parts have not yet reached the degree of perfection arrived at in relation to other arches. The Society consequently calls for a mathematical theory of oblique arches, whence rules may be deducted for the form and dimensions of these arches, for their slopes, and especially for the limit of the inclination allowable to such works.

SINCE the beginning of the war New York has raised an aggregate force of two hundred and nineteen thousand and fifty-nine men, of which 188,070 are infantry, 9,679 artillery, 9,642 cavalry, 855 engineers, 163 rocket battalion, and 10,650 recruits raised and being organized in the State.