

## RECENT AMERICAN INVENTIONS.

The following inventions are among the most useful improvements lately patented:—

## GAS GENERATING STEAM BOILER.

This invention consists in combining one or more retorts with a steam boiler, in such a manner that, the same fire which is employed to convert the water in the boiler into steam, also heats the retort or retorts, and that by introducing suitable materials into said retort or retorts, steam and illuminating gas are produced simultaneously; also, in the arrangement of a series of gaspipes and airholes, in combination with an additional fire-chamber, situated in close proximity to the ordinary or main fire-chamber, in such a manner that, by the action of the gas and air, thus introduced into said secondary fire-chamber, the smoke and other combustible gases escaping from the main fire-chamber are consumed, and an additional heating surface is obtained; further, in the employment of a three-way cock, in combination with a conical vessel with a conical bottom, in such a manner that the oil and water used for the manufacture of the illuminating gas are mixed before entering the retort or retorts; also, in combining with said three-way cock two gasometers, and a series of levers with weights or springs, in such a manner that, the supply of the oil and water to the retorts is regulated by the quantity of gas in the gasometers. John Laing, of Hoboken, N. J., is the inventor.

## OIL DISTILLING APPARATUS.

This invention is more especially intended to be applied in connection with the apparatus for distilling crude petroleum, but is applicable also in connection with apparatus for the distillation of palm and other oils, and for the re-distillation and refining of crude coal oils. It consists principally in the employment of an inverted siphon, applied in combination with the still and the condenser, for the purpose, first, of enabling the distilling and refining of the oils to be effected at one operation, and by the same heat, without the use of agitators, pumps, or analogous machinery; second, of serving as a safety valve in such cases as when paraffine or palm oil has been allowed to solidify in the worm, by the neglect of the operator; third, of serving as a vacuum chamber, to prevent oil boiling over from the still into the condenser and mixing with distilled oil in the receiver; and fourth, as a means of running back a portion of the oil to the still. Abraham Quinn, of New York city, is the patentee of this device.

## WATCH ESCAPEMENT.

It has been long acknowledged by experienced watch-makers that, of the many kinds of escapements that have been tried, two, viz., that known as the "lever" escapement, and that known as the "chronometer" escapement, excel all others in durability, strength, ease of action and general excellence of performance. Nevertheless there are some slight objections to both of these as usually applied, each being in some respects inferior, though in others superior to the other: as, for instance, the chronometer escapement is superior to the lever, inasmuch as it gives the impulse to the balance more directly, it acts with less friction and imparts more power, but is inferior inasmuch as it gives the impulse only in one direction, is liable to overbank, and is more expensive to make. This invention consists in a certain novel construction of the escapement, whereby the advantages of both the lever and chronometer escapements are combined without the disadvantages of either. The patentee of this invention is George P. Reed, of Roxbury, Mass.

## CORK-CUTTING MACHINE.

This invention relates to improvements in machinery for cutting bottle corks, wherein an automatic reciprocating frame is employed, to which two straight knife-blades are secured, one of which knives rounds the cork, while the other knife finishes it; and in conjunction with these knives, the common rotating heads are used for embracing and holding the blanks during the operation of the knives in rounding the corks—said rotating heads are made adjustable, and are mounted on adjustable beds, whereby the machine is adapted to cut large, medium or small corks of any degree of taper. Alexander Millar, of New York city, is the inventor of this machine. The machine to which this improvement applies was illustrated on page 152 of our current volume.

## APPARATUS FOR DISINFECTING VESSELS.

This invention consists in combining a fanblower or other device for creating a current of air with a refrigerating chamber, and with suitable suction and discharge pipes, in such a manner that, by the aid of said fanblower or its equivalent, the infected air of a vessel or other closed space can be passed once or several times through the refrigerating chamber, until its temperature is brought down to such a degree, that the miasma or other impurities which cause the infection are destroyed, without allowing any portion of the infected air to escape to the open atmosphere. It consists, also, in the peculiar arrangement of a series of hollow revolving drums or a hollow shaft, the interior of which is divided into several channels, in combination with the fanblower and refrigerating chamber, in such a manner that, the current of air created by the fanblower is compelled to make a long circuit in the interior of the refrigerating chamber, and that its temperature is reduced considerably before it is permitted to pass out on the opposite side of said refrigerating chamber. The credit of this invention is due to Alois Peteler, proprietor of Peteler's Hotel, Staten Island.

## APPARATUS FOR MAKING EXTRACTS.

This invention consists in the arrangement of a globe, which communicates with the steam-space and with the waterspace of a steam boiler by a series of pipes, in combination with a vessel intended to receive the substance to be boiled or extracted, and with a receiver, in such a manner that the heated liquid from the steam boiler rises to the globe, from which it can be passed through the substance in the extracting vessel, either from above or from below, acting on said substance, under a hydrostatic pressure determined by the height of the globe above the extracting vessel, and that the extract or infusion thus obtained, when passed into the receiver, is kept in a heated state by the action of the steam from the boiler, until it is drawn off by suitable faucets. The apparatus is of particular value for making tea or coffee in large quantities, and a great saving in fuel, and also in tea or coffee, is effected by its use. The patentee of this apparatus is A. A. Burlingame, of New York city.

## HOOK AND EYE.

This invention relates to an improvement in that class of hooks and eyes, the hooks of which are provided with snaps or spring-guards to prevent the casual detachment or unfastening of the hooks and eyes. The object of the invention is to facilitate the unhooking or detaching of the hooks from the eyes when necessary, and also to prevent the bending and injuring of the snap or spring-guard, a contingency consequent on the difficulty and embarrassment frequently attending the unhooking of the hooks provided with the usual snap or spring-guard. The invention consists in having the end of the snap or spring-guard bent, so as to extend obliquely into a loop or opening in the hook, whereby the desired end is obtained. The inventor of this ingenious device is Alvin Childs Mason, of Springfield, Vt., who has also obtained patents in France and England for the same invention.

## SKATE.

This invention relates to a novel means for attaching and detaching skate irons directly to the soles of boots, whereby straps, and the objections attending their use, are obviated—the skates are made much lighter, and more compact and portable, and can be readily put on and taken off. The invention consists in two or more hooks hooking backwards into the sole of the boot, in connection with a spring latch for securing the skate to the heel of the boot. The inventor of this skate is J. A. de Brame, 707 Broadway, New York city.

## COTTON PRESS.

This invention is a new and improved vertical lever press for pressing cotton by steam power. It consists in the arrangement of a horizontal sliding rack-bar, which is moved back and forth by a train of spur gearing, in combination with two jointed parallel levers, which are attached to the rack-bar and the follower-block; and which move the follower up and down in the press-box, as the rack-bar is moved back and forward, thereby giving a gradually increasing upward pressure to the cotton which is placed within the press-box. This invention was patented by Tilman Gilbert, of Natchez, Miss.

## DOUBLE SHUTTLE MOTION FOR WEAVING SEAMLESS BAGS, &amp;c.

This invention consists in a novel and very simple means of raising and dropping the shuttle boxes, to permit the simultaneous throwing of two shuttles, and the weaving, at the same time, of the upper and lower portion of a bag or tube, thus doing double work at the same expense, and as quickly as single. The inventor has other patents of looms for weaving tubular fabrics, such as bags, hose pipe, &c., to which subject he has devoted many years' attention. His loom turns off six two-bushel bags per hour, with 28 threads of filling to the inch, and has woven sixty-six twilled seamless bags in ten successive hours. The inventor of this improvement is George Copeland, of North Gray, Me.

## SHAPING AND EMBOSSEING HATS.

This invention consists in shaping or embossing a hat or cap, by placing it in a suitably formed shell or concave mold of metal or other suitably hard, strong, and smooth substance, filling its interior with sand or other granular or pulverous material and subjecting such material to pressure, by which means the felt or other fabric of which the hat or cap is composed is driven against or into the figure or figures of the shell or mold, and so caused to take a corresponding form. This invention was patented by A. L. Bagley, of Salisbury, Mass.

## HAND-HEMMER.

This improved hemmer is composed of two plates and a flexible strap, one plate resembling, in most respects, the hem folder used in sewing machines, and being attached to the other plate, which is of such form that, by the aid of a strap placed on the thumb, it may be held in the left hand, in such manner that the cloth to be hemmed may be worked freely through it by that hand, to effect the folding of the hem as fast as the stitching is proceeded with by the needle used in the right hand. The patentee of this device is James O. Whitcomb, of New York city.

## Application for the Extension of a Patent.

*Harvesters.*—Wm. F. Ketchum, of Buffalo, N. Y., has applied for the extension of a patent granted to him on the 10th of July, 1847, for an improvement in the above-named class of inventions. The testimony will close on the 10th of June next; and the petition will be heard at the Patent Office on the 24th of same month.

A CALIFORNIA paper says that a large number of men are in a disabled condition at and around the Enriqueta quicksilver mine, in Santa Clara county, who have been salivated to a terrible extent in working the mine. Some of them are reported to be unable to lift a bowl of tea or raise a hand to their mouths. This is the result, it is said, of carelessness by ignorant laborers.

THE plunder of the British and French armies in China amounted to about \$30,000,000. Gold watches, and gems of great value, were thrown at one another by the soldiers in the emperors' palace. Several of the soldiers got 20 lbs. of gold, and pearls and precious stones of unknown value.

THE "GREAT EASTERN."—Grinnell, Minturn & Co. announce that the steamship *Great Eastern* is to sail from England for New York on the 1st of next month; and returning, is intended to leave this port with passengers on or about the 24th of May.

To test the presence of silver in suspected coin, apply a little chromic acid. A reddish purple hue soon appears, which is the bichromate of silver. German silver, as it is called, will not show this color when so tested.

GREASED LIGHTNING.—In the coal oil regions, thunder has disappeared. The atmosphere is so saturated with oily vapor that it greases all the lightning, and enables it to slide down hill from the upper regions as gently as a "cooing dove."

A CURIOUS ITEM.—In the list of contingent expenses of the Treasury Department at Washington for the last year, the following entry occurs: "Varnishing Mr. Buchanan \$3.50," supposed to refer to His Excellency's portrait.

Two comets are now looked for by astronomers—the De Vico comet, which appeared in 1855, and the celebrated comet of Charles V.

**Improved Tile-Making Machine.**

In England, a great deal of land too wet for cultivation has been ameliorated by underground draining. Pipes, made of porous material which will allow the water to filter through their walls, are buried at sufficient depth in the earth to be out of the way of plows, and thus the redundant moisture is removed.

Within a few years the practice has been extensively introduced into this country, and the increased demand for drain pipes or tiles is leading to improvements in their manufacture. The accompanying engravings illustrate one of the recently patented improvements, and they will also enable the general reader to form a very good idea of the mode of making drain tiles.

The clay or aluminous earth of which the tiles are made is placed in the cylinder, A, Figs. 1 and 2, where it is cut to pieces by the revolving knives, *b b*. These knives are fastened to the lower sides of the arms, *c c*, which are secured rigidly to the rotating shaft, D, and are set at an inclination, so that they will press the clay downward. To the lower end of the shaft, D, is fastened the spiral screw, E, which forces the clay into the square box, F. Passing horizontally through the box, F, are two augurs, G, Fig. 2, for forcing out the clay in a pipe from the machine, making two pieces of pipe at the same time. Each of these augurs has a conical shaped extension, *h*, at its outer end for forming the bore of the pipe, and this is surrounded by a movable thimble, *i*, Figs. 2 and 4, for forming the outside of the pipe. These thimbles, with the conical extensions, *h*, may be changed to form pipes of various sizes. As the clay

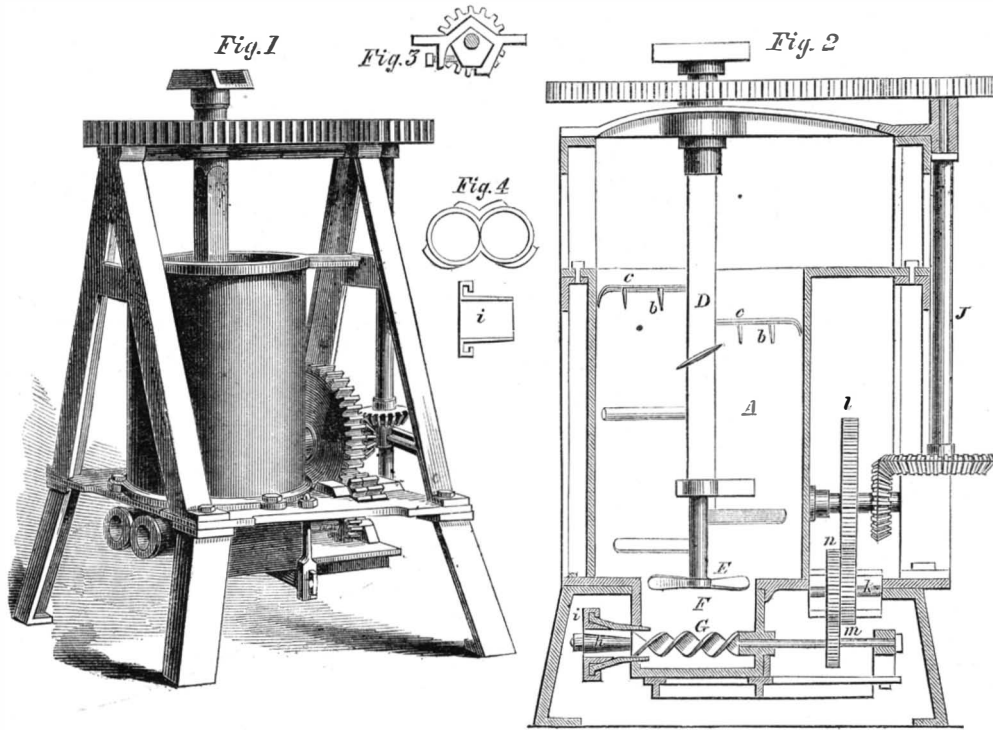
by the revolutions of the augur forced out around the conical extension, *h*, it is powerfully compressed, whereby it is made more compact, and consequently less liable to break either in baking or in the handling before it is baked. This compressing also makes a stronger and better pipe. This is one of the features of this invention. The mode of fastening the thimble, *i*, to the conical tube around the extension, *h*, is clearly shown in Fig. 4. A lip upon the thimble hooks over a spiral projection on the end of the tube, which curves in the proper direction for the rotations of the augur to keep the thimble in place. The thimble is, of course, removed by simply turning it in the opposite direction.

A second improvement by this invention is the mode of regulating the speed of the augurs, G, in relation to that of the shaft, D. The motion is communicated from the shaft, to the augurs, G, through the intervention of the shaft, J, and gearing, as shown, and the speed is varied by reversing the ends of the axle, *k*. This axle has rigidly secured to it the two gear wheels, *m* and *n*, of different sizes, and when it is desired to vary the motion by taking the wheel, *m*, out of gear with the wheel, *l*, and substituting the

wheel, *n*, this is readily done by reversing the ends of the axle, *k*. Bringing a wheel of a different size, however, upon the axle, *k*, into gear with the wheel, *l*, makes it necessary to change the position of this axle in relation to the wheel, *l*. This is done by making the journal boxes of the axle in the form of a prism with five equal sides, as shown in Fig. 3, with the

water closets for the purpose of washing them out after use. The seat is hung upon hinges in the rear, and beneath its front edge is arranged the apparatus represented in the engraving.

The watertight cylindrical chamber, C, is closed by an elastic india-rubber diaphragm, *c*, at the bottom, and by a similar sheet, *f*, at the top. The portion, *c'*, of the cylinder, C, which is below the diaphragm, *c*, communicates with the supply pipe, D, and also with the pipe, B, which rises at an inclination backward to carry the water into the upper part of the pan, A. The opening from the pipe, D, is closed by the valve, *b*, which is held down by its upper surface offering a larger area for the pressure of the water than its lower surface; the water being led into the chamber, C, by the pipe, *d*. But when the sheet, *f*, is pressed down by the weight of a person on the seat, I, a portion of the water is forced out of the chamber, C, through the pipe, *d*; and when the downward pressure upon the sheet, *f*, is removed, as the water cannot flow through the small pipe, *d*, as rapidly as it can through the large pipe, D, the pressure upon the upper side of the valve is diminished, allowing it to



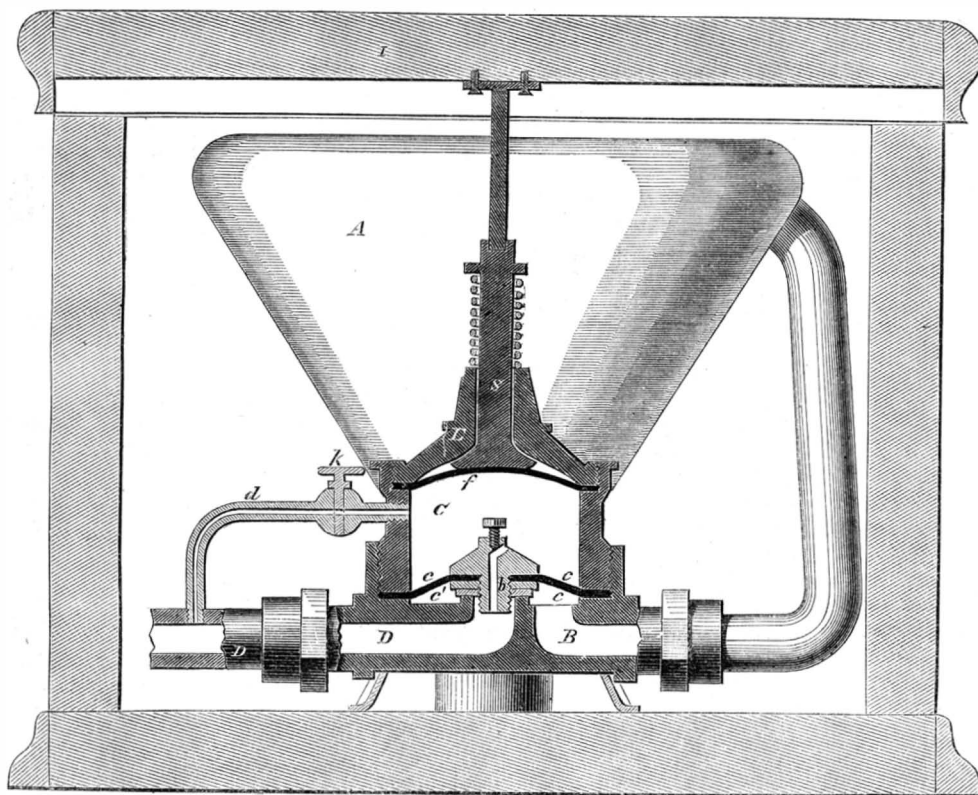
TIFFANY'S IMPROVED TILE-MAKING MACHINE.

holes for the axle near one side, so that by turning the boxes over in their supports the position of the axle is changed. This improvement was patented by George S. Tiffany, through the agency of the Scientific American, February 26, 1861. Further information in re-

rise and permit the flow of the water from the pipe, D, through the chamber, *c'*, into the pipe, B. This flow continues until the chamber, C, is again filled by the passage of the water through the pipe, *d*, restoring the pressure to the upper side of the valve and closing it. By means of the stop cock, *k*, the time occupied in filling the chamber, C, and consequently the time of the flow through pipe, B, may be adjusted to any length desired.

The patent for this invention was granted Nov. 3, 1857; and for the purchase of rights, or for any further information, the inventor, Francis Mcghan, may be addressed at Washington, D. C.

**NEW CANADIAN DYE.**—We have seen it stated in several of our exchanges that Professor Lawson, of Kingston, C. W., has prepared a new dye, of great beauty, from an insect found on the common black spruce. The new dye is said to resemble that of cochineal, which latter is now employed to impart rich red, scarlet and crimson colors to woolen and silk fabrics. If this dye can be obtained in sufficient quantities to be afforded at a reasonable price, the discovery will be of importance. Cochineal



M'GHAN'S IMPROVEMENT IN WATER CLOSETS.

lation to the matter may be obtained by addressing the patentee, at Palmyra, Mich.

**Improvement in Water Closets.**

The invention here illustrated will attract the attention of plumbers by its simplicity and efficiency, and it will interest mechanics generally by the novelty and ingenuity which it displays. It is an improved mode of introducing water into the pans of

costs about \$1 per pound, wholesale; it is very rich in coloring matter, one ounce being sufficient to color one pound of wool, and two ounces one pound of silk. If the Canadian dye can be afforded as cheap as Indian lac dye, of which we think it must be a variety, it is an important discovery.

The Boston Mechanical Bakery has been suspended. It is stated that this was owing to bad management