

## 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.

**Mode of Heating Gold and Silver.**—This invention consists in placing or arranging a steam chest or chamber within the pan of an amalgamator in such a manner that the pulp or crushed ore within the pan will be gently heated while the process of amalgamation is going on, and the steam chest or chamber be capable of being readily removed, when worn by the agitator or mixer, so as to be unserviceable, and a new one adjusted in its place, the pan at the same time not being subjected to any wear, and consequently lasting an indefinite period. The inventor of this improvement is W. A. Palmer, of San Francisco, Cal.

**Horse Rake.**—The object of this invention is to obtain a simple and efficient horse rake which may be constructed at a small cost and by any one of ordinary ability familiar with mechanics' tools, and, at the same time be capable of being operated, that is to say, have its teeth raised and lowered for the purpose of discharging the load and adjusting them again in proper working position with the greatest facility. This invention is intended as an improvement on a horse rake on which a patent was granted to the same parties on May 13, 1862; and it consists in the arrangement of a double-armed lever in combination with the axle to which the rake teeth are secured and with a clearer suspended by means of staples from said rake teeth in such a manner that by the action of said lever the rake teeth can be raised and at the same time the clearer is made to slide out toward the point of said teeth whenever it is desired to discharge the load gathered up by them. B. Mellinger, S. Mellinger and J. Mellinger, of Mount Pleasant, Pa., are the inventors of this improvement.

**Slide Valve for Steam Engines.**—This invention relates to that kind of valve which may be termed the oscillating segment valve, that is to say, which is constructed with its face in the form of a portion of the periphery of the cylinder, and is arranged to oscillate about a fixed axis in a seat of corresponding form. The improvement consists principally in combining the valve with the pendulum or oscillating arm to which it is attached by means of a flexible and elastic plate which constitutes a portion of the back of the valve, and which, while it allows the greater portion of the pressure produced by the steam on the back of the valve to be transmitted to a fixed bearing at the axis of oscillation, at the same time permits the valve to be pressed against the seat with sufficient force to counteract the tendency to lift the valve, which is produced by the pressure of the steam in the ports during portions of the stroke of the valve. Alexander Buchanan, of New York city, is the inventor of this improvement.

**Air Engines.**—The first part of this invention relates to that class of air engines known as Stirling's, in which the air is heated in two vessels connected with opposite ends of the working cylinder, by being transferred from one end to the other of the said vessels alternately by means of plungers working therein; the working cylinder being double-acting. In such engines, as heretofore constructed, the aforesaid plungers have been so connected that one always ascended while the other descended, and *vice versa*, and the time occupied by the stroke of each has been generally equal to that occupied by the stroke of the working piston, and the consequence has been that the pressure of the air has been made effective upon the working piston through but a portion of each stroke. The object of this part of the invention is to render the said pressure effective throughout the whole stroke of the working piston; to this end it consists in so operating the two plungers that the one in either operating vessel is stationary in its uppermost position, with the space below it full of heated air, while the working piston is making the stroke from the end of the cylinder in connection with that vessel; the plunger in the other heating vessel, which is shut off from the cylinder, making both its upward and downward stroke in the meantime, and causing the latter vessel to be filled with heated air to produce the return stroke of the working piston,

by which means a more uniform and greater power is caused to be developed in the operation of the engines and its working is effected with greater economy. The second part of my invention consists in an improvement in the packing of the stuffing boxes, through which the rods of the plungers of the heating vessel work, applicable also to other stuffing boxes, for the purpose of making the oil or other lubricating material employed therein serve, in a novel manner, to aid in preventing leakage. John R. Peters, of New York city, is the inventor of this improvement.

**Ventilating Apparatus.**—This invention relates to the arrangement and construction of a simple automatic apparatus to be fixed in the roofs or ceilings of public halls, churches, dwelling-house apartments, ships' cabins, railroad cars, and other places, for the purpose of securing efficient ventilation therein; that is to say, to provide for a steady influx of pure atmospheric air, and for the discharge of the air which is vitiated by respiration, combustion or other causes. The apparatus consists, essentially of two tubes arranged concentrically, and opening at their lower ends into the space or apartment to be ventilated. These tubes communicate with the external atmosphere at different levels, the vitiated air rising up the central tube and passing off at the higher level, whilst the fresh air enters the annular passage between the inner and outer tubes at a lower level, and descends into the space and apartment below. Both passages are provided with suitable valvular mechanism for regulating the currents, that of the outer passage at the same time serving to deflect the downward current of fresh air, and spread it out horizontally so as to prevent partial draughts. This invention, by John McKinnell, of London, England, is assigned in full to John Hyslop, of Bradford, England, who may be addressed in relation to it at No. 247 Spring street, New York city.

## Who to Write To.

As there are many persons who may desire to communicate with the different bureaus of the War Department, a memorandum of the proper persons to address may be useful:—

All letters relating to pay of soldiers on furlough or in hospitals should be addressed to General B. F. Larned, Paymaster General.

Applications for back pay and the \$100 bounty of deceased soldiers should be addressed to Hon. B. B. French, Second Auditor.

Applications for pay of teamsters, employes of the Quartermaster's Department, or for horses killed in service, should be addressed to Hon. R. I. Atkinson, Third Auditor.

Applications relating to pay and bounty in the marine or naval service, should be addressed to Hon. Hobart Berrien, Fourth Auditor.

Letters concerning soldiers in the army should be addressed to Adjutant General Lorenzo Thomas.

## Explosion of a Lard Tank.

At the packing house of Pulcifer & Williams, in Chicago, a large iron lard tank exploded recently with a terrific force that threw it from the first floor clear through the other four stories above to the roof, wrecking that portion of the building and descending to nearly its former location. Another full tank stood near, which was thrown from its foundation and its contents spilled. At the time of the explosion there was no one in the building but the engineer, who escaped with his life, but was severely scalded about the face and body. The building was closed at the time, and the effects of the concussion upon it were such that a portion of the west wall sprung out several inches beyond the windows in the upper stories, and the whole edifice—a very large one—was terribly shaken. No satisfactory reason for the explosion can be given at present.

In the valley of Saginaw, Mich., there are 45 saw-mills, which produce annually 90,000,000 feet of lumber. In 1861 there were shipped from East Saginaw 600 cargoes of lumber. The pine of the Saginaw valley, it is stated, cannot be exhausted in fifty years.

The Great Exhibition in London has proved a financial failure. The expenses have been much greater than in 1851—the receipts much less.



ISSUED FROM THE UNITED STATES PATENT OFFICE

FOR THE WEEK ENDING NOVEMBER 11, 1862.

Reported Officially for the Scientific American.

\* \* Pamphlets giving full particulars of the mode of applying for patents, under the new law which went into force March 2, 1861, a specifying size of model required, and much other information useful to inventors, may be had gratis by addressing MUNN & CO., Publishers of the SCIENTIFIC AMERICAN, New York.

36,935.—Hugh Barr, of Independence, Iowa, for an Improvement in Churns:

I claim the rotary cream box, I, in combination with the stationary brakes, M M, provided at one side with V-shaped faces, e, and at the opposite side with flat faces, f, when said brakes are placed in an inclined position, as and for the purpose herein set forth.

[This invention relates to an improved churn of that class in which a revolving cream box or receptacle is employed, and consists of a revolving cream box in connection with a stationary brake, constructed in such a manner as to favor the rapid production of butter from the cream and the gathering of the former, when produced, with the greatest facility.]

36,936.—Alexander Beckers, of Hoboken, N. J., for an Improved Steering Apparatus:

I claim the barrels, l and z, on the arms, c c, or tiller, in combination with the ropes or chains, h and i, and sheaves or blocks, f and g, substantially as and for the purposes set forth.

36,937.—Joseph Berthoud, of Paris, France, for an Improvement in Apparatus for Panoramic Advertising:

I claim the loom, l and m, the ratchet wheel, e', and the stop wheel, f, combined with the carrying rolls, d and i, when actuated substantially as described and for the purpose specified.

36,938.—Joseph Bradt, of La Porte, Ind., for an Improvement in Bee-hives:

I claim the construction of the hive or main box, b, with bars, f, flap, d, and inclined bottoms, g, arranged and operating with the entrance, D, box, A, honey boxes, a, and drawer, e, as set forth and described.

36,939.—Abel Brear, of Saugatuck, Conn, for an Improved Apparatus for Raising and Forcing Water:

I claim, the apparatus composed of the vessel, A, pipe or opening, B, pipes, G D, cock, H, or its equivalent, and the two self-acting check valves, C E, the whole combined to operate substantially as herein specified.

[This invention consists in a novel apparatus for raising and forcing water or other liquid, by the pressure of steam, compressed air or gas upon its surface in a suitable vessel, into which it runs by gravitation or is forced by the pressure of the atmosphere after a vacuum has been produced by the condensation of steam.]

36,940.—F. H. Brown, of Chicago, Ill., for an Improved Gas Regulator:

I claim, first, the bi-valve bellows, A, made, constructed, and operated as and for the purposes set forth.  
Second, I claim tube, F, in combination with flange, a, and bellows, A, constructed and arranged as and for the purposes specified.

36,941.—Alexander Buchanan, of New York City, for an Improved Slide Valve for Steam Engines:

I claim combining an oscillating segment valve, A, with the pendulum or oscillating arm, I, which suspends it from fixed bearings by means of a flexible and elastic plate, C, or its equivalent, constituting a portion of the back of the valve, substantially as and for the purpose herein specified.

36,942.—E. J. Chapin, of Ottawa, Ill., for an Improvement in Watchmakers' Lathes:

I claim, first, The mode of attaching the bed-piece, I, to the table or bench, A, as shown and described, to wit, by means of the bell-shaped base, H, fitted on the annular way, G, and secured thereto by the screw, K, hook, J, and pin, L, all arranged as shown, to admit of the turning or adjusting of the bed-piece, I, on the table or bench.  
Second, The gear-cutting frame, S, provided with the mandrel, T, cutter, U, and set-screw, h, and connected to the sliding plate, f, by center points, g, z, to admit of the rising and falling of said frame and its proper adjustment relatively with the wheel to be cut, as set forth.

Third, The combination of the mandrels, J O, with the bed-piece, I, rests, K N, chuck, M, and gear-cutting frame, S, all arranged as described, to form a new and useful lathe, for the purpose herein specified.

[The object of this invention is to combine a number of parts in such a manner that all the different lathes used by watchmakers may be obtained and used with a single bed-piece and with but one driving mechanism. The device, as a whole, being at the same time extremely simple and capable of being adjusted and operated with as great facility as the ordinary lathes in use.]

36,943.—C. B. Cotter, of Milford, Pa., for an Improvement in Molds for Casting Metals:

I claim the composition substantially as above described, whether the same be of ashes and lye alone, or the same, in combination with the hydraulic or plastic cement, as and for the purposes set forth.

36,944.—John P. Cowing, of Seneca Falls, N. Y., for an Improvement in Bell Yokes and Fastenings:

I claim making the yoke of the bell with a square hole to receive the bolt that holds the bell.  
I also claim the bolt with four, more or less, flat sides to fit the corresponding hole in the yoke with the hole in the top of the bell sufficiently large to turn on the corners of said bolt for the purposes above specified.

36,945.—J. L. Ellis, of Concord, Ill., for an Improvement in Cultivators:

I claim the rock shafts, C C, uprights, D D, connected at their upper ends by the bar, E, and the lever, I, said parts being applied to the main frame, A, provided with curved transverse bars, B B', in combination with the supplemental frame, composed of the parallel bars, L L, and curved transverse bars, K K, with the driver's seat, J, attached, the supplemental frame being mounted on wheels connected to the main frame, and all arranged to operate as and for the purpose set forth.

[This invention consists in a novel and improved construction of a corn plow or cultivator, whereby the device may be drawn along and made to perform its work without breaking down or injuring the growing plants, and, at the same time be capable of having its shovels or shares operated or adjusted at the will of the driver so as to be elevated above the surface of the ground when necessary, as in turning the work at the ends of rows, and also capable of being moved while at work, toward and from the plants, as circumstances may require.]

36,946.—John Farrel, of New York City, for an Improvement in Locks:

I claim, as an improvement on Hall's lock (patented Aug. 1, 1848), mounting the lever tumblers on an axis at or about the middle of their