RECENT AMERICAN PATENTS.

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:—

Hydraulic Quartz-crusher.—In this machine the common Chillian traveling crushing wheels are employed, and the patentees have hit upon the novel idea of placing water buckets upon the sides of the wheels, thus converting them into water wheels. The buckets are supplied from a small tank above, which rotates with the wheels, the tank being filled by a suitable conducting trough. When the water is let on, the wheels travel around in the usual circular quartz trough, without assistance from any other motor. The water is prevented from entering the quartz trough by an ingenious arrangement of aprons. John H. Perkiss and David Gay, Long Bar, Yuba county, Cal., are the patentees.

Spinning Machine.—This invention removes difficulties which occur in the use of many or most domestic spinning wheels. It is necessary, in reeling on these useful machines, which are still found in general use in the Southern and Southwestern States, to raise the spindle on account of the low position of the wheel, and this could only be done by removing the carriage from the railing, and perhaps thereby throwing off the bands. Again, when the band which drives the spindle is to be crossed, it has to be done by cutting it, and then crossing it and sewing it together again. This invention avoids the first difficulty by connecting the spindle frame to its carriage in such a way as that it can be elevated at pleasure without disturbing any of the machinery, and the second by making the boxes in which the spindle runs removable, so as to take the spindle out with ease and without deranging any of the adjustments of the other parts. Charles A. Moorehead, of Quincy, Ill., is the inventor of this machine.

Knitting Machine.—This invention consists in furnishing the bobbin of a knitting machine with a movable piece of steel or other metal or material, so applied within a recess on one side that while there is more than a very few coils of yarn upon the bobbin, the said piece is thereby confined in such a position that it will not interfere with the lock of the stop motion, but that when the yarn has nearly given out, the said piece will be projected so far from the bobbin by a spring or other means as to be caused, by the operation of the machine, to come in contact with the lock and unlock it, thereby leaving the automatic belt shipper or its equivalent free to throw off the belt from the driving pulley, or otherwise put the machine "out of gear" and produce its stoppage. Joseph Dalton, of 103 East Houston street, is the inventor of this improvement.

Iron-clad or other Vessels.—This invention consists in improvements in the construction and shape of the nose of the ram; also in the use of a stand-pipe closed by a valve in its bottom and extending above the water line in such a manner that a convenient egress for divers is afforded from the vessel, for the purpose of removing torpedoes or effecting other submarine operations. Further, in forming the after part of the vessel with double ogee lines in such a manner that room is afforded for the side-screws and rudders within the bilge line of the vessel, and that said parts are fully protected against accidents or against the effect of a hostile attack; also in concentrating the chains or ropes of two or more rudders on one central drum in such a manner that by the motion of this single drum two or more rudders can be operated simultaneously; also in the employment or use of a rod extending from the steering drum to the throttle valve of the steam engine in such a manner that by turning said drum the pilot from his stand is enabled to throttle the steam at any moment without giving a signal to the engineer; also in two or more turn-tables, each provided with a series of guns in combination with an iron-clad casemate completely covering and protecting said guns and turn-tables and provided with a series of ports in such a manner that each gun can be readily trained to any point of the compass, and one gun can be loaded while the other is being discharged; further, in the use of an oblong cylindrical casemate with an arched roof, in such a manner that great strength is combined with ample room to work the turn-tables and the broadside guns; also in a port-closer, consisting of two sliding doors hinged to spring levers, which are placed in an angular position in such a manner that the muzzle of the gun, when brought in contact with said levers in the act of running out the gun, will open the port, and when the gun recoils said port will close automatically. Finally, in the application of a movable top to the pilot-house in combination with one or more screws, in such a manner that said top can be raised when the vessel is not in action to admit fresh air, and when preparing for action it can be readily fastened down. Captain R. G. McDougall, at the Allaire Works, 466 Cherry street, New York, is the inventor.

Universal Smoothing Plane.—The body of this plane is composed of a series of separate blocks, held together by an exterior band and screw. By loosening the screw the position of the blocks may be changed at pleasure, and the bottom surface of the tool may thus be made to assume either a convex, concave, or horizontal line. The instrument is therefore adapted to the planing of all concave, convex and horizontal surfaces, and promises to be a most valuable acquisition to the general stock of carpenters' tools. S. Williams, inventor, 2048 Winter street, Philadelphia, Pa.

Applying Safe-Locks.—The object of this invention is to obtain a means whereby locks may be applied to the doors of fire-proof safes without being affected by the moisture emanating from the filling between the double walls of the door. This filling is applied in a moist state, and the dampness has hitherto proved very detrimental to the locks, causing them to need repairs in a very short time and at considerable expense, owing to the difficulty in removing the locks from the doors. This invention, while it fully protects the lock from dampness, also admits of its being removed from the door with the greatest facility and without the aid of a mechanic, so that the lock may, when it requires to be repaired, be removed by the owner, and sent to a locksmith and again applied at a comparatively small expense. Thomas Dolan, of Albany, N. Y., is the inventor of this improvement.

Photographs.

We have had occasion in previous numbers of the Scientific American to allude to the perfection this art has reached in the hands of its professors, and we are often in the receipt of large and handsome pictures, accompanied by friendly letters, speaking in terms of praise of our journal. The latest gift of this kind comes from Mr. John A. Whipple, of 96 Washington street, Boston, Mass. This gentleman has recently taken a large group of 500 or more Russian sailors and officers with great fidelity and accuracy. The sheet is some 14 by 16 inches, and the individual faces, although not larger than this letter, O, could be readily identified by friends or acquaintances. There are also two other photographs of the same size, representing the Russian frigates, which are distinct as to outline and agreeable as to tone. These pictures will serve as pleasant mementoes of the visit of the Russians to this country, and are to be carried abroad by them as specimens of the skill which our artists have attained in this line.

SPECIAL NOTICES.

Richard Montgomery, of New York city, has petitioned for the extension of a patent granted to him on Oct. 29, 1850, for an improvement in corrugated boilers.

It is ordered that the said petition be heard at the Patent Office, Washington, on Monday, Oct. 3, 1864.

Rene Charles Demolon & George Alexander Charles Thurmeyssen, of Paris, France, have petitioned for the extension of a patent granted to them on Jan. 13, 1851, for an improvement in treating fish for manure and oil.

It is ordered that the said petition be heard at the Patent Office, Washington, on Monday, Dec. 26, 1864.

All persons interested are required to appear and show cause why said petitions should not be granted. Persons opposing the extensions are required to file their testimony in writing, at least twenty days before the final hearing.

A Gold and Silver Working Model of the Steamer "Commonwealth."

A gold and silver model of the steamer *Commonwealth*, of the Stonington line of Sound boats to Boston, has just been completed, and will be sent to the Philadelphia Sanitary Fair for exhibition. This is one of the most beautiful models of the kind ever made. In its construction seventy-three ounces of gold were used, and two hundred and fifty-two ounces of silver, and skilled mechanics have been employed upon the work for six months, at an aggregate cost of six thousand five hundred dollars. The length of this model is thirty-one inches, and it is an exact copy of the steamer *Commonwealth*, made by measurement upon a diminished scale of three thirty-seconds of an inch to the foot. The workmanship is most elaborate. Not only the smoke-stacks, flag-staffs and deck machinery are carefully copied, but the panels of the saloons, the window shades, and all the intricate and delicate handiwork which appears on the steamer, are accurately represented. This piece of workmanship is supplied with machinery and music, and will undoubtedly be one of the features of the Philadelphia Fair.—*Exchange.*

What it Costs to launch a Big Ship.

The expense of launching a large ship is very great. By the failure to send the *Puritan* down the ways heavy expenses were incurred which were entirely lost. The time occupied in laying the ways was about seven weeks, and upwards of two hundred men were employed on the day of the launch, each of whom were paid $5. The ways are laid crowning or arching, twelve inches in the length of them, but when the weight of the ship comes on them they straighten out. Eight coats of white zinc paint have been applied to the *Puritan's* hull below the water-line. It was stated to us, by a person in a position to know, that the cost of launching this particular ship would have been $5,000, if all things had worked satisfactorily. As it is, the expense is very nearly doubled by the failure. Some time must elapse before the ship goes into the water.

The Public Debt of the United States.

The Secretary of the Treasury furnishes, in answer to a resolution of the Senate, a statement of the public debt of the United States to June 14, 1864, making the total amounts as follows:

Debt bearing interest in coin,	$837,941,091 80
Debt bearing interest in lawful money,	379,700,802 58
Debt on which interest has ceased,	370,170 09
Debt bearing no interest,	501,383,104 41
Total,	$1,719,395,168 88
Annual interest in coin,	$50,823,672 45
Annual interest in lawful money,	20,876,057 70
Total interest,	$71,699,730 16
10-40 bonds,	$70,239,250 00
Three year 7-30 notes,	118,577,650 00
United States notes outstanding,	432,041 330 00
Fractional currency outstanding,	21,031,948 85

The remainder of the debt bearing no interest is mainly unpaid requisitions.

Railroad Battery.

An army correspondent gives an account of the latest rebel machine discovered by our signal corps:

"When first seen upon the track at Bottom's Bridge, it looked like a car in a locomotive, roofed with a singular covering. But soon the roof was turned down vertically, disclosing itself as a mail proof shield, perforated with a port-hole, behind which a large pivot gun was mounted. The locomotive keeps up steam constantly, and stands upon the road near a curve, emerging from which it can sweep the railroad for a mile, covering the railroad bridge of the Chickahominy, and retreat again to its cover, in which it is entirely beyond the reach of our guns. An account of this same machine had been given by a contraband from Richmond, but it had never been seen until now."

Mr. C. S. Hubbard, of New Haven, Conn., is still receiving subscriptions for Parson Brownlow's paper at $2 per year, or $1 for six months. Those of our readers who desire to subscribe should forward their money as above directed.

Nail Machinery.—R. Hamilton, Dayton, Ohio, wishes to communicate with parties who can supply the most approved machinery for cutting nails.

Improved Process of making Turpentine.

The advance in price from 50 cents to $3 20 per gallon of a commodity so indispensable as spirits-of-turpentine, naturally excites an interest among inventors and among dealers in the article, either to procure a substitute, or to cheapen the product by improvements in the manufacture. The largest use of spirits-of-turpentine has been for drying paints, but since access to the pine regions has been closed by the war, most painters have latterly resorted to the use of petroleum naphtha in its place. As the turpentine, however, makes better work, some of our best painters continue to use it, notwithstanding the enormous price at which it is held.

In view of the great desirableness of increasing the product of spirits-of-turpentine from the yellow pines of the North, we are on the constant watch for improvements in the process of manufacture, and finding in the Patent Office the model of an apparatus invented by Seth L. Cole, of Burlington, Vt., which seems adapted to this purpose, we present an illustration of it to our readers.

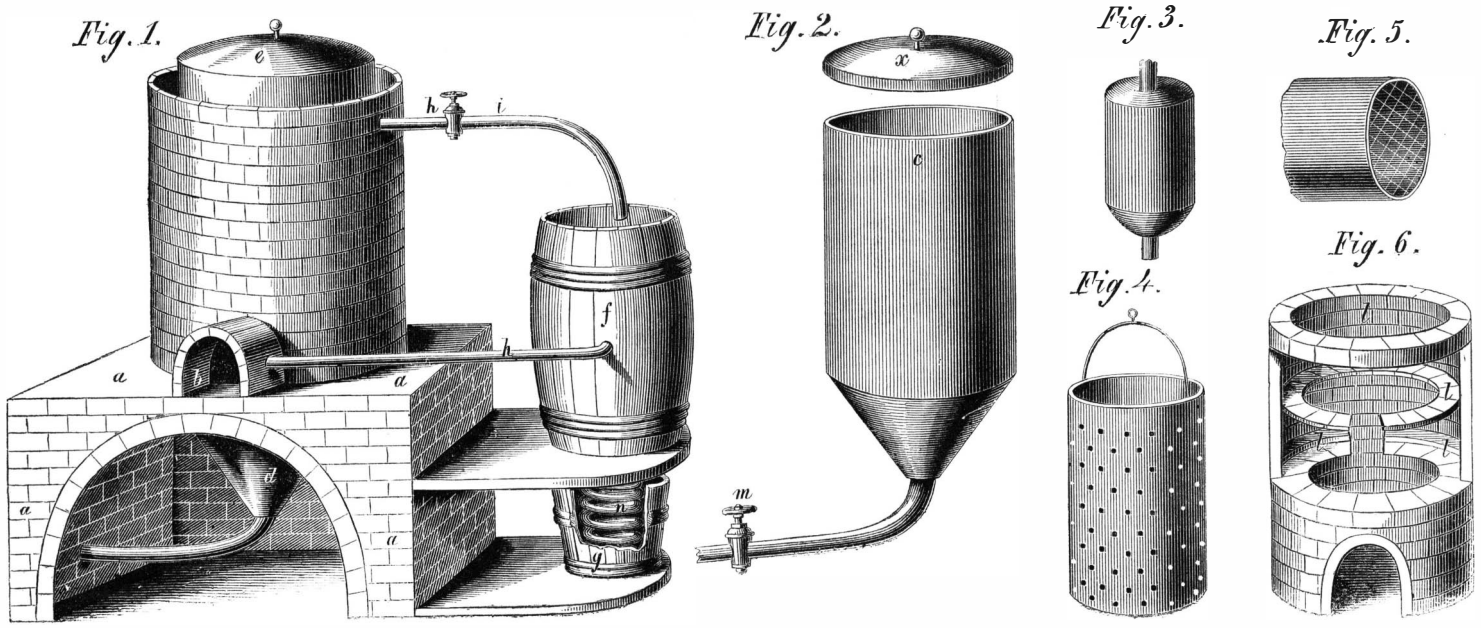
By the usual method, pitch is collected by chopping boxes or pockets in the trunk of the pine, and as these become filled the contents are dipped out with a wooden ladle. In the process here illustrated the whole of the wood is subjected to distillation, by which means a much larger immediate yield is obtained.

The wood is cut into lengths of from 12 to 18 inches and split in pieces 1½ to 2 inches square. The iron skeleton basket (Figs. 4 and 5 of the annexed engraving) is filled with these pieces, and placed in the retort, Fig. 2, which is closed by the cover, *x*, the joint being luted air-tight to prevent the escape of vapor. The working position of the retort, *e*, is seen in Fig. 1, where it is set in brick-work, provided with a furnace for heating it to evaporate the oil.

A moderate fire is kindled in the furnace, *b*, by which the oil is evaporated. The vapor passes out through the pipe, *i*, which is led into the cask, *f*, where it enters the gas-holder, Fig. 3. The cask, *f*, is supplied with a current of cold water which condenses the vapor; the uncondensable gases being led by the pipe, *h*, into the furnace where they are burned as fuel. From the lower end of the gas-holder a pipe passes down into the lower condenser, *g*, where it is coiled in the form of a worm, *n*, and surrounded with cold water to complete the condensation.

The condenser, *e*, extends below the furnace, to prevent the too great heating of the resinous sediment, and terminates in a cone, *d*, a pipe being provided to lead off the melted rosin. After the fire has been continued from six to ten hours, the oil will begin to be discolored, when the stop-cock, *h*, is closed, and the stop-cock, *m*, is opened. The heat may now be increased, when the remainder of the pitch will be expelled from the wood in the form of tar, and the wood will be charred.

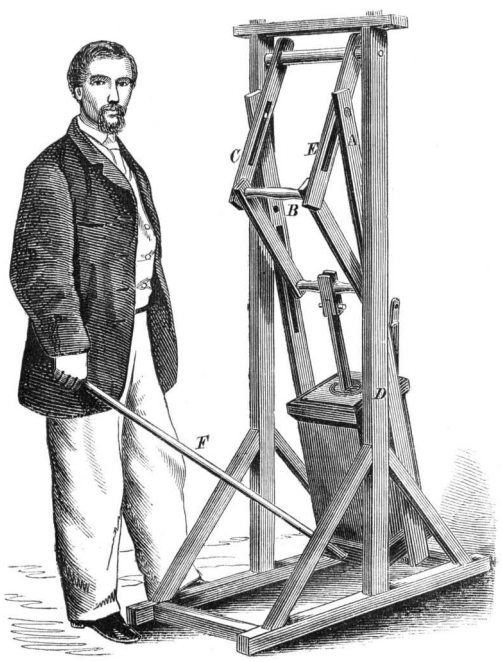
Fig. 6 represents a series of furnaces, *l l l*, to be set in brick-work like that of *a a*, Fig. 1; the apparatus being thus duplicated or multiplied to any extent.



PROCESS OF MAKING SPIRITS-OF-TURPENTINE.

LEWIS'S OSCILLATING CHURN.

The mechanical action of this churn is different from anything we have examined before, and the inventor claims that it is very efficient for the purpose; being easy to operate, and thoroughly separating and breaking the globules so that the butter is made in a remarkable short time. The churn is attached to the bars, A, which are swung on centers at B. The top of the bars, A, is connected to a frame, C, also jointed to the main frame, D. This frame consists of two sets of arms connected at the center by a working joint, and at the bottom to the churn-dasher. A slot, E, in the upper set of arms permits the pin in the bar, A, to transmit motion to the churn-dasher. It will be seen that when the churn is pushed from or drawn towards the operator by the rod, F, the contents are subjected to two actions, one of which is the result of the swinging motion, and the other caused by the reciprocating action of the dasher. By



these two motions the cream is thoroughly agitated, and a superior article of butter produced in a much shorter time than by the usual methods. This churn is easily cleaned and kept sweet, and has no parts liable to get out of order—a feature of much importance in machines of this class. It can be moved from place to place without difficulty, and occupies but little room when not in use. This churn can also be converted into a cheese-press of the most powerful character by a very simple alteration, involving no more cost to the purchaser.

A patent for this churn was obtained through the Scientific American Patent Agency, on the 7th of June, 1864; and further information may be obtained of the inventor, George Lewis, Panama, N. Y.

SIGHTING FIELD GUNS.

It is well known to artillerists that the nature of the ground very often interferes with a correct sight, if one wheel of the carriage is higher than the other the surface must be leveled until both are on a plane; this operation not only takes time but requires the services of an experienced officer of artillery to set the gun in battery. At the front where sharp-shooters abound, many a piece is disabled before it gets fairly to work, and the necessity of leveling the ground as mentioned previously, becomes a serious disadvantage. A convenient and simple arrangement for obtaining a correct site on a gun, no matter in what position it may be, has long been desired and artillerists have acknowledged that it would be a very great addition to their profession.

Major Robert Smith, of the 70th Artillery, has been experimenting with a small instrument for this purpose, and has shown us a model with which he states that he has made accurate shots with the gun carriage in all positions, and that one wheel may stand 45° higher than the other without interfering with the accuracy of the shot. It is also advantageous in that any person without previous instruction can make a line shot at the first trial. When the gunners are all picked off as they are in close action, this becomes a matter of importance and will no doubt prove valuable to the service. Major Smith desires to associate himself with some persons who will take a pecuniary interest in his invention and bring it to public notice, as from its nature it is eminently calculated to prove valuable to the Government. Major Smith refers to General Duryea; and a machine can be seen at this office. The Major's address is at 64 Prince street, Brooklyn, N. Y.

New Method of taking Portraits.

A new era in portraiture is predicted from the discovery of a Mr. Swan, who presents a solid, life-like likeness of any one, inclosed in a cube of crystal. The effect of the new process is to exhibit the subject of the portraiture with life-like verisimilitude, in natural relief. You take up a small case, and look through what appears to be a little window, and there stands or sits before you, in a pleasantly-lighted chamber, a marvelous effigy of a lady or gentleman, as the case may be. The projection of the nose, the molding of the lips, and all the gradations of contour, are as distinct as if an able sculptor had exercised his skill; but the hair and the flesh are of their proper tint, and the whole thing has a singularly vital and comfortable look. Indeed, were it not for the reduction in size, it would be difficult to avoid the belief that an actual man or woman, in ordinary dress, and with characteristic expression, was presented to your eye. The "Swan system" is about to be introduced into this country.