

the other is carried round. The small grooves on the outer ends or peripheries of the pistons, become filled with water, and the centrifugal action makes it serve as an air-tight water packing. The rotary pistons being revolved towards one another in the air-tight case, a vacuum is formed behind them, and the water rushes in through the suction pipe, D, and is discharged through the pipe E. This constitutes the water force pump. If steam be admitted above or below the pistons and the exhaust pipe placed opposite to it, it is evident that it will answer for a steam engine as well as a pump. It is thus applied as a rotary steam and force pump in the *Neptune*, and one, two, or more such steam engines and pumps may be thus very compactly arranged on the same shafting, thus forming a most simple steam fire engine. The boiler supports the machinery, and the whole is supported on a substantial carriage. The machinery and all the parts are well constructed, and the workmanship was the admiration of every person who saw it.

At the Firemen's Tournament held at Seneca Falls, N. Y., on the 10th and 11th September last, the Judges awarded it a complimentary prize of \$25 as a token of their appreciation of its merits. It threw, on that occasion, two 1-2 inch streams 170 feet horizontally with steam at 60 lbs. pressure. It filled a tank of 1552 gallons' capacity in three minutes and thirteen seconds. It is capable of throwing four streams and working up to 100 lbs. steam pressure. The boiler has an immense amount of tubular heating surface, the object of which is to get up steam rapidly after the fire is kindled, so as to bring it into operation on a fire in the shortest possible space of time. One great object of usefulness in a steam fire engine, is getting up steam quick; without it has this quality it will not answer.

At a trial of the *Neptune* at Seneca Falls on Sept. 4th, the *Seneca County Courier* states that it got up a working pressure of steam in eight minutes from the time the fire was kindled, and the Editor, who stood with his watch in hand timing the operation, gave it as his opinion that this time could be shortened one minute if the fuel had been better.

During the trials which took place with the *Neptune* in the Crystal Palace, and which have been noticed in our columns, it did not get up steam quite so quick. On the first trial it was not well situated to obtain a good draft; on the second trial it got up the steam much faster, and had it been placed with the furnace door towards the river (as the wind was blowing from that direction) instead of being placed in the opposite direction, it no doubt would have generated steam much faster.

Mr. Silsby informs us, that on an examination of the *Neptune*, after its return from this city, some hard substance, like emery, was found in the bearings, which caused it to grind down and thus leak steam; it was, therefore, not in proper order during its trials here. It is now undergoing repairs, which, when completed, its owners pledge themselves for \$1000 that it will surpass the engine with which it was tested at the Crystal Palace, in a steady play of from two to six hours, both using the same kind of fuel, and taking water in the same manner.

It is constructed under Birdsill Holly's patent of February, 1855. For more information address Silsby, Mynderse & Co., at Seneca Falls, N. Y.

Coal and Trees.

It is generally admitted that coal is the product of a buried vegetation—mostly trees. How thick they must have grown in the coal period! It is calculated that an acre of coal three feet thick is equal to the produce of 1,940 acres of forest. The first coal mines were worked in Belgium in the year 1198, and very soon after in England. There is now raised five times as much coal in Great Britain as in any other country; and it is estimated that there is in these isles more than 4,000 square miles of coal fields yet to be cut out.

A large number of iron paddle wheel steamers are now building at Walker-on-the-Tyne, England, to run on the river Nile in Egypt.



Advice to American Patentees Concerning Foreign Patents.

It is generally much better to apply for foreign patents simultaneously with the application here. If this cannot be conveniently done, as little time as possible should be lost after the patent is issued, as the laws in some foreign countries allow patents to any one who first makes the application, and in this way many inventors are deprived of their right to take patents for their own inventions. Many valuable inventions are yearly introduced into Europe from the United States,—by parties ever on the alert to pick up whatever they can lay their hands upon which may seem useful.

It is a part of our business to secure European patents—in fact three-fourths, and probably more, of all the patents granted in Europe to American citizens, are solicited through this office. We have faithful agents in the chief cities in Great Britain and on the Continent, and through them we can not only solicit patents, but often effect their sale upon advantageous terms. We can give the names of many of our patrons who have realized fortunes out of their European patents through our Agents abroad, if it is desired.

We are prepared at all times to furnish advice in regard to Foreign Patents, and will cheerfully do so on application personally at our office or by letter. Models are not required in any European country, but the utmost care and experience is necessary in the preparation of the case.

Almost every invention that is of value in this country is of equal value abroad, and we would recommend patentees to pay more attention to securing their inventions in foreign countries than they have heretofore done. All particulars in regard to the modus operandi of obtaining patents in any country where patent laws exist may be had by addressing the publishers of this paper.

MUNN & CO.,
123 Fulton street, New York.

[Reported Officially for the Scientific American.]

LIST OF PATENT CLAIMS

Issued from the United States Patent Office FOR THE WEEK ENDING NOVEMBER 4, 1856.

OPERATING THE PAWL CASES OF A SHIP'S WINDLASS—Christopher Amason, of Newcastle, N. H.: I am aware that it is not new to operate the pawl cases by a single brake lever, and that a lever working on a vibratory post is not new, as the same has been applied to a pump, therefore I do not claim such.

Nor do I lay claim to a single brake lever, and two levers or series of levers applied to a windlass so as to turn it by a single gear affixed on it, as is shown in the specifications and drawings of Niance & Pelatiah Osgood's rejected applications for patents.

I claim the arrangement of the brake levers, H H, connection lever, G, vibratory posts, I I, and two pawl cases, B C, as applied to a post and windlass barrel, substantially as specified.

CUTTING METALS—Robert Anderson, of U. S. A., and Aaron H. Vanclve, of Trenton, N. J.: We claim the use of the parallel table, B, revolving table, M, and traversing table, K, in connection with machinery for punching and shearing metals, when the said tables are constructed and operated in the manner described for cutting and punching straight, curved, or irregular forms in metals, as set forth.

EQUATORIAL SEXTANT—William A. Burt, of Mount Vernon, Mich.: I claim combining with the common sextant equatorial and horizontal movements, substantially as set forth, for the purposes of obtaining latitude, time, azimuth, altitude, and declination, which are read from the instrument without computation.

I claim combining the limb, B, which moves over the face of the hour circle with the limb, n, by means of the slotted arc, or equivalent thereof, and movable bearing, K2, and vertical spindle, S.

I also claim combining the latitude circle with the limb, n, by means of the limb, E, having its center of motion on the line, m, the arc, F, and bearing, K2, and vertical spindle, S, as set forth.

ODOMETERS—Albert Carter, of Forestville, Conn.: I claim the bearing ring, D, the catch spring, F, and the set screws, E, on which the case containing the movements turn by the action of the carriage wheel, and produce the result of indicating the distance traveled in the manner and for the purpose as set forth and described.

R. R. STATION INDICATORS—Edwin A. Davis, of Crawfordville, Ind.: I do not claim the endless apron, F, operated by a spring, for that has been previously used for the same purpose.

But I claim the bar, Q, connected with the pawls, j j k k, and operated by the lever, L, and crank, p, arranged specifically as shown and described, for the purpose set forth.

[Instead of having the conductor of the train shout out the names of the stations on a railroad, as is now the custom, this invention is designed to show in a visible manner the name of each station, as the train arrives at it, in the same manner that an Annunciator exposes the number of a room. The names of all the stations on the railroad are painted or marked on an endless apron confined in a box having a small show window. The rollers over which this apron passes are connected with gearing, a coiled spring and lever; the latter is so situated that it comes in contact with a projection placed at some particular spot at a station, and by this means the marked apron is moved so as to expose positively the name of the station at the window. This station annunciator may be operated by hand, but it is better to have it self-acting. Conductors often speak so indistinctly as not to be understood, and they sometimes forget to call the names of the stations; this invention obviates these evils, and is, evidently, a good improvement.]

ROCKING CHAIRS—Martin Eberhard, of Philadelphia, Pa.: I do not confine myself to the exact form of the frame or working parts.

But I claim, first, the lever, I, the link, L, and lever, K, in combination with the seat, F, and adjustable foot rest, G, the whole operating substantially in the manner and for the purpose set forth.

Second, the treadle, M, its arm, N, and link, O, in combination with the frame, P, and footrest, G, operating substantially as described and for the purpose specified.

Third, the crank shaft, V, the lever, S, and link, T, in combination with the footrest, G, and frame, P, substantially in the manner and for the purpose set forth.

JOINT FOR UNTING A MORTISING CHISEL TO ITS MANDREL—Joseph R. Perry, of Port Clinton, Pa.: I claim securing the revolving chisel socket, J, to the cross head or cap H, by grooving both in the manner described, and filling the annular space thus created with a metallic composition, as specified.

R. R. CAR BRAKE—William G. Creamer, of New York City: I disclaim generally any and all plans of reserved power, for closing brakes in cases of emergency, that is, not identified, and in direct combination with the apparatus that is used for ordinary cases, and if used from the engine, that is, not in combination with the usual bell or signal cord of the train.

I do not claim directly or indirectly the use of weights or springs for closing brakes, nor as a reserved power.

Nor do I claim any powerful attachment to any one part of the brake shaft, and transmitting its power from car to car by means of chains, levers, pulleys, &c., as invented by Crawford, even considering it as a reserved power.

I claim no apparatus whatever involving a connection of brakes from one car to the other.

But I claim generally the attachment of a reserved power for applying the brakes in sudden emergencies connected with the present brake shaft, as used in eight-wheel platform cars, and operating in combination with the common bell or signal cord of the train.

I claim the combination of the cross bar, D, with the spring drum, E, and circles of ratchet teeth, F and H, operating in connection with the vertical brake shaft, J, on the front end of the pulley with a double chain of ratchet teeth arranged in the same way, but actually by a weight or spring operated as described and for the purposes mentioned.

I also claim the combination of the jointed pawl, L M, and disconnecting lever, N, with the drum, E, as specified, for retaining and disengaging the reserved power when required, while the brakes are being operated by hand if necessary.

SPADING MACHINES—Orinrod C. Evans, of Staunton, Ohio: I claim the combination of a series of forks or space blades with an endless chain, and with a drum and rollers arranged in such order upon a carriage that by the pressure and motion of the chain the said blades or spades or forks will at first be forced by a direct or nearly direct thrust into the ground, and afterwards in the act of being lifted by the chain out of the ground shall be made to turn at such short angle with the surface as will cause the breaking and upheaving of the ground, substantially as described.

HUSKING CORN—Harlan P. Gerrish, of Boscawon, N. H.: I claim the use of the hooks, b, b, or their mechanical equivalents, arranged and made to operate essentially as described, in connection with two knives, I K, for the purpose of cutting off the stalk of an ear of corn, and removing the husks therefrom.

I also claim holding the cylinder, C, with the depression, c d e, for the purpose as described.

AUTOMATIC MUSICAL INSTRUMENTS—Hiram Groves, of New York City: I claim, first, constructing the barrel of automatic musical instruments of a prismatic form and by leaving spaces between the bars or rails covering it, substantially as described.

Second, notching the rails or bars of an organ barrel, and securing in the said rails a wire, in the manner specified, and for the purpose set forth.

Third, constructing the tunes of automatic musical instruments of metallic segmental plates, in the manner and for the purpose described.

COWL OR DRAFT ACCELERATOR FOR STEAMERS—Peter C. Guion, of Cincinnati, Ohio: I do not claim any of the several devices, surfaces or parts described separately.

But I claim their combination constructively, in the manner and for the purposes described and shown.

R. R. CAR BRAKE—Dennis Harrigan, of Winchester, Mass.: I claim the compensation rods, G, in combination with the levers, J and K, or their equivalent, operating in the manner and for the purpose substantially as described.

MAKING ROPE—John Harris, of Hoosick Falls, N. Y.: I claim the described method of driving the flyers by arranging them radially to the main or laying spindle, B, and providing them with rings, G, G, or wheels, of their equivalent, to roll in contact with a stationary table, F, when rotary motion is given to the main or laying spindle, said rings being adjustable to bring them nearer to or further from the center of the main or laying spindle for the purpose of varying the speed, as set forth.

[This improvement relates to rope machines having the sun and planet wheel motion. The flyers in rope machines have a motion around their own axes, and a laying motion round a central general axis. If these motions are changed relatively, so will be the character of the rope made by the machine. In this machine the flyers can be arranged with great facility to alter their relative revolutionary speeds, and thus produce any degree of twist desired. The improvement is simple and good.]

CATCH FOR INDIA RUBBER SHOES—Nathaniel Hayward, of Colchester, Conn.: I claim the use of a steel rubber, or other kind of spring catch of any proper shape, in the heel of an india rubber overshoe or clog, having a projection or lip extending out horizontally through the quarter, as specified, whereby the overshoe is prevented from slipping at the heel, and is susceptible of being disengaged from the under boot or shoe without using the hands, as set forth.

FISHING IMPLEMENT—Elmore Horton, of Bristol, Conn.: I am aware that spring grab hooks with notched cross bar have been used.

But I claim the spear cross bar, c, notched at each end, e, e, in combination with the spring jaws, a, a, as set forth and described.

LOOMS—Lucius J. Knowles, of Warren, Mass.: I do not claim a single picker operating in connection with a movable series of shuttle boxes, and so as to pass from one box into another of the series as occasion may require.

But I claim a combination of a single picker staff, pickers and boxes, substantially as described, whereby the separate picker for each box of the series, and all such pickers are successively moved towards and operated by such single picker staff during the operation of weaving with the shuttles of the said series of boxes.

I would remark that I by no means claim making a bar with a bend or recess, as I am well aware that such, without any reference to a special use of said bend or recess is no new invention.

But I claim the improvement in the picker staff, when applied to operate a series of pickers, arranged in a set of shuttle boxes as described, the improvement consisting in the bend or recess, G, applied to the picker staff, so as to enable it while operating a picker to pass by another picker under the former, and not move the said other picker in its box, the whole being substantially as specified.

And I also claim making the picker staff with a bend or recess, g, or its equivalent, so as to enable it, while operating a picker to pass by another picker and not move the same in its box, the whole being substantially as specified.

AUTOMATIC RAKES FOR REAPERS—Pells Manny, of Waddam's Grove, Ill.: I claim pivoting the rake, B, for curvilinear play over the platform, to the up and down moving lever or supporting beam, D, and arranged to operate together and separately at intervals in relation to the platform and each other, in the manner and for the purposes set forth.

BURGLAR'S ALARM—Wm. McLachlan, (assignor to Robert Livingston), of New York City: I am aware that alarms have been applied to locks; I therefore do not claim the alarm or any particular construction of the alarm.

I claim simply the application of a portable alarm of any construction to the key, in the manner set forth, so that the key being in the lock in one position cannot be interfered with, or the position changed without indicating the same by causing an alarm to be given.

LUBRICATOR—James F. Monroe, of Fitchburg, Mass.: I claim the plate, H, and plug, E, as arranged and combined with each other and with the lubricating cup for the purpose set forth.

SPRING FRAME FOR PACKAGES—Henry B. Osgood, of Dorchester, Mass.: I claim the arrangement of the protector frame, B, in relation to the box or other receptacle, A, and its combination therewith by means of the elastic fastenings, C, or their equivalent, substantially as and for the purposes set forth.

HAY RAKES—Thomas R. Roach, of West Needham, Mass.: I claim the springs above and below the teeth, operating in the manner and for the purpose substantially as set forth.

TROWELS—L. D. Phillips, of Chicago, Ill.: I do not claim a mortar chamber having a follower operated in it, as that has been heretofore known.

But I claim, first, the open bottomed chamber provided with flanges or trowels, B D, arranged in the manner and for the purpose described.

Second, I claim the adjustable gauges, E E, as applied to my trowel, operating in the manner and for the purpose described.

Third, I claim the general arrangement of the follower and its appendages, viz., springs, B B, guide or brace, C, and handle, I, in the manner and for the purposes described.

COTTON GINS—Wilson A. Purdom, of Jackson, Miss.: I claim, first, giving to the cotton to be ginned within the feed box and before the saws, H, a reciprocating motion, by means of the corrugated cylinder, A, or a modification of such cylinder, and the corrugated aprons, B, or either of them separately, or their equivalents, so that the cotton will pass back and forth slowly in bulk, or nearly so, before the saws, thus presenting a fresh surface to the action of the saws throughout the entire length of the saw cylinder without leaving any of the saws idle, and without the accumulation of seed at one end of the box, or the banking up of the cotton at either end.

Second, for the purposes aforesaid I claim the cylinder, A, or its equivalent, whether it is placed within or outside of the cotton roll, and whether it is permanently attached to the apron, B, or not, also whether it revolves or not, or whether that revolution is continuous or intermittent.

Third, and for the purposes described I claim the corrugated apron, B, or its equivalent, whether it is operated conjointly with the said cylinder, A, or not.

HUSKING CORN—Joshua Perkins, of West Killingsley, Conn.: I claim the improvement of so operating the two cutters or chisels, A and B, that during their descent into the stalk of the cob they may pass into it in contact with each other, so as to pierce but one hole, and then after receiving a lateral motion simultaneously in opposite directions, so that while one chisel or cutter is made to discharge the husk from the machine, the other is caused to discharge the ear therefrom in the manner described.

CHAIN PUMPS—John Robinson, of New Brighton, Pa.: I do not claim the drum or wheel, B, with the buckets hung as described in it, and tilted by striking a stop, the bucket chains passing round the sides of the drum, as such and many other parts or details are common to chain bucket pumps.

But I claim providing the wheel, B, having its buckets and chains arranged as described, with a partition, C, forming troughs, D D, and tilting stops or bars, G, arranged relatively to each other, and rotating together with the wheel and its buckets for operation together, as specified.

[This patent for an improvement in chain pumps relates to the method of discharging the water from the endless chain of buckets to a discharging wheel, which contains chambers for receiving the water. This wheel rotates and discharges the water from its troughs into the pailor tub placed to receive it. It is stated to be a very convenient arrangement for discharging the water.]

SEWING MACHINES—S. H. Roper, of Roxbury, Mass.: I claim, first, a thread guide which guides the thread into the eye of the needle by means of the projection, y, and the thread holder, m, forming a thread clamp, and gripping and holding the thread between them, while the thread guide with its clamp revolves until the thread is wrapped partly round it, and stretched across the aperture therein; and then also by means of the thread guide with the thread thus held moving laterally, until in this manner and by means of these rotary and lateral motions the thread is effectually guided into the eye of the needle.

Second, the working of eyelot holes in cloth or other material by means of a rotary feed motion combined with the slotted table, v, and two needles, all substantially as described.

STARTING AND STOPPING WATER WHEELS—David M. Tyler, of Lisle, N. Y.: I claim the combination of the frame upon the main shaft, and the spring dog, i, on the same, with the notched disk, D, and the rods leading to the swinging buckets, or their equivalents, for effecting the opening of the issues and locking of the same, substantially as set forth.

I also claim the beveled disk, B, in combination with the studs of the dog, or their equivalents, arranged and operating substantially as set forth, for permitting the water in the wheel to close the issues.

THRUSTLE SPINNING MACHINES—Joel Smith, of Northbridge, Mass.: I claim regulating the twist of the yarn in ring spinning machines by communicating a gradually accelerated motion, proportionate to the gradually increasing diameter of the bobbins, to the rolls, which give out the yarn to the bobbing, substantially in the manner and for the purposes set forth.

WEAVING LONG WARPS—John C. Smith, of New Hartford, Conn.: I do not claim a carriage traveling at right angles with a warping frame, carrying the beam so that the warp may be laid in a regular succession of layers as received thereon, for I am aware that such is not new.

Nor do I claim dispensing with a warp beam in manufacturing cloth, for I am aware that cloth has been woven with yarns for the warp taken directly from spools.

But I claim a box arranged substantially in the manner and operated by the mechanism described, in combination with the arrangement for dispensing with the warp beam as described, for the purpose of laying the warp in a regular smooth succession of layers evenly, that the box may give out the warp free from twists or tangles.

STIRRUPS FOR RIDING SADDLES—Richard Trussell, of Brooklyn, N. Y.: I do not claim the toe pieces, as I am aware that a toe piece has been used on a foot piece attached rigidly to the bow of the stirrup.

But in combination with the use of the toe piece or its equivalent I claim the attachment of the foot piece, B, to the bow, A, of the stirrup by a shaft, C, or other connection of similar character, furnished with a spring, e, to operate in the manner substantially as set forth.

[This stirrup has a bow made separate from the foot piece, and the latter is hung loosely on a spindle or shaft passing through the bow at each side. There is a turned up toe curb on the foot piece, to prevent the foot of the rider passing too far through. There is also a spring under the spindle of the foot piece. If the horse should start to the one side, or rear backwards, or throw the rider forwards, the toe part of the foot piece of the stirrup will swing up at an angle, and the foot of the rider be thrown out of the stirrup. Many persons have lost their lives by being thrown from horseback, and one foot retained in the common stirrup, whereby they were dragged along, dashing on the ground until life was extinct. This improvement will prevent such accidents. It is simple and good, and applicable to ladies' as well as gentlemen's saddles.]

SAWING MARBLE AND STONE—George J. Wardwell, of Hatley, Canada: I claim suspending the swinging saw frame, B, from levers, C C, when arranged as described, and constructed with or without the circular bearing surface, D, resting on the friction roller or rollers, G, in the end of the vertical lever or levers, D, attached to and swinging with the swinging saw frame, B, the whole being arranged in the manner and for the purpose specified.

SEWING MACHINES—Isaac M. Singer, of New York City: I do not wish to be understood as limiting my claim of invention to the precise form and construction of parts, as these may be varied without changing the principle of my invention.

I claim operating the needle to give it the required reciprocating motions, substantially such as described, by a crank pin or roller on a rotating shaft, acting in a cam groove, substantially such as described, whereby the required motions are imparted to the needle with much less extent of motion of the crank pin or roller in the cam groove, and consequently less friction than if the cam groove were on the shaft, and the pin or roller on the needle carrier, as described.

I also claim projecting the operative part of the surface of the feeding apparatus through the surface of the table, substantially as described, so that such feeding surface may act on a portion of the under surface of the material to give the required feeding motion to space the stitches, while the other portions of the said material slide on the

