

ble the number used by any other manufacturer in the United States. He was a man of great wealth, a prominent citizen, and one whose loss will be widely and deeply regretted.

Potato Bug Sailors.

The sea coasts in the vicinity of this city and the shores of Long Island Sound are, at the present time, undergoing invasion by countless myriads of potato bugs. Where the insects come from is a mystery. They seem to cling to the floating sea weed and are left therewith on shore by the tide. At Coney Island and other points directly on the ocean the bugs are most numerous, showing that they have been brought hither by sea currents, and by similar means have been swept into Long Island Sound. It seems hardly possible that the insects will now fail to reach the other side of the Atlantic, as they may find transportation on vessels or be carried over in the drifting weed of the Gulf Stream.

Progress of the French Exposition of 1878.

Ninety-four Parisian architects have recently submitted plans for the buildings in which the great French World's Fair of 1878 will be held. For six of these, a prize of \$600 each has been awarded, and for an additional six, next in order of merit, the designers have received premiums of \$200 each. The project definitely adopted includes a principal palace which will be built on the Champs de Mars, and in the center of which will be the fine art gallery. The latter will be surrounded by the industrial department. France reserves to herself half the space; the remainder will be distributed among foreign nations. The buildings will cover an aggregate of sixty-eight acres, and the total expense of construction is estimated at \$7,000,000.

The Spirophorus.

The above is the name of a new device proposed by Mr. Woillez for restoring partially suffocated people. The patient is enclosed in a metal cylinder, so that only his head protrudes; connected with the cylinder is a large bellows holding five or six gallons of air. When this is operated, the air is alternately drawn out and forced into the cylinder, thus causing artificial respiration in the patient. The movements of the chest of the latter can be seen through a pane of glass in the cylinder.

Killing Entomological Specimens.

The Bulletin of the Amiens Linnæan Society describes the following simple device for killing butterflies and other insects, without injuring them, as is often the case when they are held in the hand. A glass tube of sufficient diameter to accommodate the insect is provided, with corks at each end. As soon as a butterfly is captured, one cork being removed, it is gently inserted in the tube, then a wad of tow is pushed in, saturated with a couple of drops of ether. The insect dies instantly, and may be at once removed and pinned.

United States Circuit Court--District of Connecticut. RULE IN REGARD TO FOREIGN PATENTS.—THOMAS A. WESTON vs. WILLIAM H. WHITE *et al.*

An American patent will expire at the same time with the foreign patent granted to the same party or parties, but will not exceed the term of seven years.
The date of publication of the foreign patent is to be the date from which to determine the life of an American patent.
The fact that a patent has been issued does not of itself prove the introduction into common use without the necessity of other testimony.
J. E. Wetmore, for plaintiff.
John S. Beach and S. W. Kellogg, for defendant.

NEW BOOKS AND PUBLICATIONS.

A NEW TREATISE ON STEAM ENGINEERING. By John W. Nystrom, C. E. Philadelphia, Pa.: J. B. Lippincott & Co.

Mr. Nystrom is a thoroughly educated engineer and a competent teacher of his profession; but in this, as in some of his previous works, he falls, we think, into the manifest error of using too many new terms and characters. The object is the laudable one of simplifying his meaning; but the result to the average mind will, we fear, be the reverse. The best of workmen, accustomed for years to his present implements, cannot produce skillful work with strange tools, the manipulation of which he has got to learn before he undertakes a task. The less new terminology introduced into science the better; for the student in any branch has enough to do to become well grounded in principle, without burdening his mind with vocabularies of new languages. Besides, the introduction of new characters and names renders the book useless for reference, save to those who have studied it from the beginning. In other respects, Mr. Nystrom's work is clearly written, and may be profitably studied by engineers and others.

A TREATISE ON THE MECHANICAL THEORY OF HEAT AND ITS APPLICATION TO THE STEAM ENGINE, ETC. By R. S. McCulloch, C. E. New York city: D. Van Nostrand, 23 Murray and 27 Warren streets.

This is an elaborate purely mathematical treatise on thermo-dynamics. It requires a thorough knowledge of analytical geometry and the fluxional calculus for its comprehension, and consequently is not a book for the ordinary practical engineer. For advanced students, however, in colleges, it will be found valuable, since it may be used as the continuation of a mathematical course, and in this respect may be advantageously substituted for the works on astronomy and others involving high mathematics, commonly employed for the study of practical application of the abstract reasoning.

Recent American and Foreign Patents.

NEW MECHANICAL AND ENGINEERING INVENTIONS.

IMPROVED BALL VALVE.

Cortland Carlton and John B. Jones, Kalamazoo, Mich.—This invention is intended to take place of the commonly used hinged leather valve, which frequently gets obstructed and out of order; and it consists of a ball valve with metallic seat entering the wooden tubing, being driven by a sharp circumferential flange into the end of the tubing.

IMPROVED STATION INDICATOR.

J. Robinson Balsley, Connellsville, Pa.—As the train, car, or boat leaves a station, a cord is pulled, which turns rollers and

brings into view the name of the next station, which operation causes the hammer to strike the bell to call the attention of the passengers to the indicator. As the train, car, or boat approaches the said station, another cord is pulled, which brings the lever into position to be again operated, and also again strikes the bell to warn the passengers that they are approaching the station.

IMPROVED CAR MOVER.

John W. Raynor, Moberly, Mo.—This is for readily moving cars from the main to the side track, or out of the way; and it consists of a block with curved front jaw that takes hold of the outer concave part of the wheel, a pivot dog and block being on the tread of the wheel, and an adjustable gage piece bearing on the flange of the wheel.

IMPROVED SWITCH AND SIGNAL LOCKING DEVICE.

Smith H. Finch, New York city, and Henry Moore, Orange, N. J.—This attachment for switch and signal levers is so constructed that the movement of the detent to release a lever will lock the other levers, or any previously arranged number of them, before the said lever has begun to move. So that the other levers cannot be moved until the first one has been brought back to its place and secured by its detent.

IMPROVED CAR BRAKE.

Peter Hughes, New York city.—This consists of a yoke spanning a friction wheel on each axle of the car, and having a little motion forward and backward, so as to be driven against the wheel from either end of the car. Said yokes are connected together between the axles, and attached at each end of the car with a brake lever rising up in front of the platform, so that it can be worked to apply the power.

IMPROVED SELF-CLOSING HATCHWAY.

Henry Reese, Baltimore, Md.—As ordinarily constructed, the iron hoisting ropes of elevators prevent the use of hinged doors or hatches.—The object of the first part of the invention is therefore to provide hatches adapted for use in such connection; and to this end, rigid arms are attached to the crossbeam of the frame from which the elevator platform is suspended, and cleats are so attached and arranged in the several floor openings of the hatchway that, when the platform goes up, it shall take each hatch or cover with it, and, when it descends, shall leave each in its proper place supported upon said cleats. The second feature of the invention relates to a sliding gate, guard, or railing for each floor opening, the same being arranged to be raised (by hand) when it is desired to transfer goods to or from the platform upon any of the upper floors, and to be automatically released and thus allowed to resume its place when the platform descends.

IMPROVED CANAL LOCK AND DAM.

George W. Parsons, Ceredo, W. Va.—The object of this invention is to enable boats to be passed from one level to another, either in canals or rivers, more quickly and with less labor than by means of the locks heretofore used. To this end, the invention is two-fold: It relates, first, to a lock proper; and secondly, to the bulkhead of the lock or dam. For locking purposes the inventor employs vertically acting gates, operated by the pressure of the water in the canal or river. The water is let on and shut off from the pistons which raise and lower the gates, simply by the adjustment of a valve or wickets. It is hence obvious that the labor and time involved in the operation are reduced almost to a minimum. In respect to the chute, the ridge or column of water which forms at the bottom of every fall is broken up by allowing a portion of the water which would otherwise pass over the fall to pass beneath or around it (in one or more separate streams), and enter, or rejoin, the main body at the bottom of the fall. A body of comparatively smooth water will thus be formed to float the boat safely over the brink of the fall.

IMPROVED METHOD OF CASTING CAR WHEELS.

James McAllister, Virginia City, Nev.—This invention is an improvement in the class of car wheels having a soft cast iron hub and a hardened rim or tread. The feature upon which the claim to novelty is based is the form of the meeting portions of the cast iron hub and hardened tread or body of the wheel, whereby they are more firmly united than in other wheels of the class.

IMPROVED TREADLE.

Henry Reese, Baltimore, Md.—This invention relates to an improvement in that class of treadles in which independent foot rests or secondary treadles are employed, upon opposite sides of the fulcrum, for obviating the tiresome strain upon the ankle joint. The invention consists, first, in a raised support with an arc-shaped face upon which the instep of the footstep rests, and upon which arc-shaped face the sole of the shoe becomes the independent treadle, turning upon the curved face as a pivot. It also consists in a pivoted independent treadle, having pendent weights which hold the secondary treadle or foot rest always in a horizontal position.

IMPROVED ROLL FOR RE-WORKING RAILROAD RAILS.

James McCaffrey, Pittsburgh, Pa.—The object of this invention is to economize worn-out steel or iron railroad rails by reducing them to flat bars, in which form they may be conveniently utilized for various purposes. To this end, the invention relates to rolls provided with a series of graduated grooves, through which the rails are passed in succession, being thus gradually reduced to uniform widths.

NEW CHEMICAL AND MISCELLANEOUS INVENTIONS.

IMPROVED VALVE FOR BRASS MUSICAL INSTRUMENTS.

William A. Tischendorf, Leavenworth, Kan.—This invention relates to the cylinder valves of wind instruments to open and close the air passages; and it consists of said cylinders, pivoted on center points adapted to be adjusted from time to time to take up the slack, and being adjusted to spring pressure. The object is to prevent the wear of the cylinders against the sides of the case.

IMPROVED ARTIFICIAL TEETH.

Thomas Williams, Braytonville, North Adams, Mass.—This is a new mode of securing artificial upper front teeth in place in such a way that they will be held firmly in place, and may be readily put in and taken out. It consists in a plate and teeth having grooves or channels along the sides of the outer teeth, and provided with a spring and pad, which rests against the roof of the mouth.

IMPROVED TWINE CUTTER.

William Haddenhorst, Hoboken, N. J.—This is a device for cutting twine or cord as it is used for tying up packages. When a package is to be tied, a sufficient amount of cord is drawn through the device, the package is tied, and the cord is cut off by drawing it across the edge of a blade in the apparatus, leaving the device suspended from the cord, from which it need not be removed until all the cord upon the reel or ball has been used up.

IMPROVED DRUGGISTS' GRADUATED MEASURE.

Edward L. Witte, White Mills, Pa.—This is a druggist's graduate or measuring vessel, having the scale or graduation burned into the glass in black or other color to be clearly and readily distinguishable.

IMPROVED LUBRICATING COMPOUND.

Horace W. Billington, Jersey City, N. J.—This is a lubricating compound consisting of saponified grease or soap, London oil, and paraffin oil. It will keep its state through all grades of weather, the saponified matter will not melt except when broken or disturbed. It will not congeal or harden on cold iron when in use, nor will it gum or thicken. It is applicable to all kinds of axles.

IMPROVED GLASS BOTTLE MOLD.

Jacob Pease and Abraham Tester, Brooklyn, N. Y.—This consists of the bottom of a glass bottle mold so arranged that the opening of the sides of the mold lets the bottom fall to relieve the bottle from pressure between the bottom and the breast, which in the common molds cracks and breaks the bottles to some extent. The contrivance is such that, when the mold is closed, the bottom is raised up to the proper position for shaping the bottle.

NEW AGRICULTURAL INVENTIONS.

IMPROVED SHEARING CHAIR.

James A. Boals, Dinsmore, Pa.—This invention consists of a horizontally revolving seat and a vertically swinging rack, together with adjusting devices for the same, fixed on a platform and arranged in such manner that the sheep may be so placed on the seat and rack as to be more conveniently supported and handled for shearing.

IMPROVED HARVESTER.

Richard Emerson, Sycamore, Ill., assignor to himself and Horatio H. Mason, of same place.—This is an improvement in the class of harvesters having a binder's table and tilting platform, and a traveling rake arranged to carry the cut grain up to the binder's table. The construction and arrangement of the parts are simple and embody many new devices, which require drawings for their proper explanation.

DITCH-DIGGING AND TILE-LAYING MACHINE.

David T. Lucas, Stockwell, Ind.—This invention relates to a novel construction of ditch-digging and tile-laying machine, designed to effect in one operation the opening of the earth and laying of sections of pipe or tile adjacent to each other, so as to form a continuous under drain. The invention consists mainly in the construction of the placing devices, having a long beam supported in front by a sled adjustably attached to said beam, so as to vary the elevation of the beam and depth of placing devices. The placing device is provided with a chute dam, which the tiles pass consecutively in contact with each other, and occupy a position in the opened channel below, one after the other, in alignment, a supplemental trough being used with the chute to facilitate the inserting of the tiles, and the chute made adjustable to different sized tiles by a spring.

NEW HOUSEHOLD INVENTIONS.

IMPROVED MATTRESS.

John J. Donahoe, New Orleans, La.—The object of this invention is chiefly to effect an economy in the construction of mattresses, particularly in respect to the material of which the covering is composed, and the mode of making up the same. The invention consists in displacing with the cord or binding at one end of the mattress and continuing the ticking around said end so that the portion which covers the top and bottom of the mattress is of one and the same piece. The portion covering the sides is also in one piece, and likewise the binding cord.

IMPROVED WASHING MACHINE.

Thomas Muir, Andes, N. Y.—This invention consists of a couple of conical rollers arranged side by side, and reversed as to their tapers, on a fluted roller, and pressed down upon it by a lever and weight or other suitable means, the said rollers being arranged horizontally across the middle portion of a tub, so that the clothes can be drawn up from and be delivered back into the tub in working the machine. By the conical form a rubbing action is effected, and by the use of two reversed conical rollers the clothes are made to pass straight through the rolls.

IMPROVED COFFEE POT.

Willis H. Sherwood, Waco, Tex.—This consists of a receiver for the decoction, fitted in the pot from the top. In the top of the receiver is a dripping cup to hold the coffee or tea, and through which and the receiver a tube extends from the water pot. Up the tube the hot water is forced by the steam, and discharged into the dripper to drip the coffee into the receiver, from which it is drawn for use without passing into the water pot. The receiver is provided with a gage to show the quantity in it, and the water pot has a safety valve to let off the steam when the pressure is too high, the said valve being fitted in the cap of the filling tube.

IMPROVED STOVE PIPE ELBOW.

Alfred Greenleaf, Brooklyn, E. D., N. Y.—This is so constructed that the pipes may be cleaned out, when required, without being taken down, and conveniently examined to see if they need cleaning, and ventilated so that they will not rust if allowed to stay up in summer. It consists in the combination of the collar and the cover with the opening formed in the one part of the elbow, directly opposite the cavity of the other part. The edge of the cover has notches formed in it to receive the screws by which it is secured in place, and which are screwed into the collar, so that by loosening the said screws the cover may be removed.

BATH TUB ATTACHMENT FOR STEAM, HOT AIR, OR VAPOR.

William C. Kidney and Alfred H. Kidney, New York city.—This invention consists in the combination, with an ordinary bath tub, of a casing provided with movable doors or sections, and ventilating doors or openings. By using this attachment, a steam, vapor, or hot air bath may be taken by its owner at his own house and in his own bath tub.

NEW WOODWORKING AND HOUSE AND CARRIAGE BUILDING INVENTIONS.

IMPROVED WAGON BODY.

Benjamin Rankin, Jeffersonville, O.—This wagon body is so constructed that it will be held firmly in place, and together, may be readily attached and detached when desired, may be snugly packed for storage, and will allow the rear end boards to be detached without loosening the other parts.

IMPROVED TABLE.

Conrad Schmid, New York city.—This is an improved table for parlors, hotels, and other uses, that may be employed for playing and other purposes, its top being capable of being changed from one side to the other by a simple mechanism. The invention consists in providing the circumferential frame of a table with a swinging end locking leaf and a joint covering molding.

IMPROVED TABLE HINGE.

Frederick H. Cutler, Buffalo, N. Y.—This hinge for table leaves is so constructed as not only to allow the leaf and top to be flush when extended, but mainly to allow the leaf, when down, to hang immediately under the top, and flush with the edge thereof. This allows compactness of form and in packing for shipment, and does away with the usual edge and groove of the leaf and top.