

## RECENTLY PATENTED INVENTIONS.

## Engineering.

**HYDRAULIC DREDGING MACHINE.**—John W. Sackett, St. Augustine, Fla. This invention provides a dredger and accompanying apparatus adapted to plow in the bed of a watercourse a furrow, to be deepened by excavator teeth and hydraulic jets, removing the excavated material with a modicum of water through an adjustable conduit that is the feeder of a pump on a float, the raised material being discharged at a preferred point. The invention also provides novel and simple means for the support and adjustment of the excavating mechanism, and a novel speed mechanism for the dredging apparatus to regulate its degree of advance in locating the plowing and elevating devices.

**STRUCTURAL HOLLOW SHAFT.**—Samuel H. Johnson, Pittsburg, Pa., and Harold C. Stowe, New York City. This invention is for an improved means of producing a composite hollow shaft for steamboats and other purposes, which shall be of equal density throughout, adapted to resist transverse and torsional strains, and one which will be cheap to manufacture, light and easy to handle, and may be easily repaired. The improvement consists in forming a comparatively large shaft from a number of formed plates secured together to break joints laterally and longitudinally, re-enforcing the plates by internal junction sleeves, and stiffening the structure by the introduction and fixture of transverse diaphragm walls. The shaft also has solid cylindrical journal stub ends, and any desired number of intermediate solid cylindrical bearing supports.

## Railway Appliances.

**CAR AND AIR BRAKE COUPLING.**—Gabriel Rohrbach, Del Rio, Texas. This is a combination device adapted to automatically couple cars, which may be uncoupled from the top or sides, and also to automatically couple the air pipes as the cars come together. The car coupling is similar to a former patented improvement of the same inventor, and the drawhead has a rocking jaw, behind which is a socket with which an air brake pipe is connected, a link having a longitudinal bore and a head to engage the rocking jaw and enter the socket, a lever mechanism releasing the jaw.

## Electrical.

**TROLLEY LINE CONSTRUCTION.**—Geo. Q. Seaman, Brooklyn, N. Y. Supporting devices having rocking and pivotal connection with the supports are provided with contact and insulated faces, and a switch bar or circuit closer on each support is held normally in electrical contact with the supporting devices, the switch bars having independent connection with the feeder bar of the line. The trolley wires are connected with opposing supporting devices to form a series of sections, the wire of each section while under tension normally maintaining its supporting devices in engagement with the switch bars, whereby, when a trolley breaks, its supporting devices will turn and present their insulated faces to the switches, the broken section thus becoming immediately insulated, preventing the wire from doing harm. The cutting out of the broken wire can also be effected without disturbing the circuit at either side of the section.

**MAGNETIC PERMEAMETER.**—Edgar D. Knap, Schenectady, N. Y., and Severn D. Sprong, East Greenbush, N. Y. This is an instrument to test iron used in the field magnets of dynamos and motors, to determine its magnetic permeability. Combined with a field magnet having oblique pole pieces is a soft iron armature turning between them and having oblique wings or arms, the pole pieces being arranged diagonally opposite each other, and the wings of the armature being also diagonal, to avoid short circuiting. Polar extensions are formed on or attached to the poles of the field magnet to form contact with the iron to be tested.

## Mechanical.

**MACHINE DIE.**—Aimé Vuillier, Millis, Mass. This is an improvement applicable to punching machines or drop presses, for setting rivets, and particularly for riveting ears upon pails or similar articles, affording means for securing a pail ear in place on the body by one stroke of the machine, in a neat and rapid manner. It comprises an upper composite die, with die block, punches, stripper block, keeper sleeve, etc., and a composite lower die, with upright anvil blocks, spring clamping device, adjustable gauge plate, etc. The cylindrical anvil blocks in recesses in the lower die block are preferably permanently magnetized, to adapt them to hold rivets on their upper faces secure from accidental displacement.

**BORING TOOL.**—Josiah W. Batcheller, St. Joseph, Mo. This is a tool for enlarging and smoothing bores already made, as the bores of gun barrels, turning out a shaving instead of simply scraping the walls of the bore. It may also be used for choking the barrel and operated by a machine or an ordinary hand brace. It has an elongated stock with an open recess at one side and transversely slotted at the ends of the recess, separable blades being pivoted in one of the slots and adapted to swing into the other, a screw threaded in the stock being adapted to enter between and separate the blades. A turning rod with flattened end is loosely secured in the slotted end of the stock.

**NUT LOCK.**—Joseph Harmon and George W. Faber, Duluth, Minn. The bolt, according to this improvement, has cupped indentations in the bottom of and between the threads, and on the nut is a spring limb whose free end successively enters the indentations when the nut is screwed on the bolt thread. On the nut is a post and a key adapted to engage it, and by partial rotation lift the spring limb and release the nut. The improvement is especially applicable in securing fish plates upon rails and other like uses.

**STONE SAWING MACHINE.**—Antoine Jeansonne, Paris, France. Drums mounted on a traveling frame carry flat-lying saws, and shafts arranged on the frame transversely to the saw blades carry grooved rollers adapted to bring the blades into working position,

springs bearing against one end of the shafts and cams contacting with their other ends. The machine is adapted to quickly saw marble and other blocks of stone into slabs of any desired thickness or to cut profiles.

**PRINTING MACHINE.**—William M. D. Turton, Philadelphia, Pa. This is a machine designed for printing any desired pattern on textile fabrics, oil cloth, paper, etc. It has an endless traveling feed belt carrying the fabric to be printed, series of pattern cylinders, fountain rollers and inking rollers, the latter supported by rigid pivoted arms, motion being transmitted to the feed belt, cylinders and rollers by worm cog gearing, pulleys and belts. At the end of the pattern cylinders is a sprinkling device for dusting the printed material.

**PLUMBER'S TACK.**—William H. Evory, Brooklyn, N. Y. This is a tack adapted to be quickly and firmly clamped around pipes of different sizes to hold the pipes securely on the side of a wall. It comprises two separable leaves, a catch holding the leaves connected and bands attached to one of the leaves and to a rotatable shaft journaled in the other leaf.

**IRON OR STEEL PILE.**—Alexander Hooven, Norristown, Pa. An improvement in the piling of iron has been provided by this inventor, whereby scrap iron and steel may be brought into proper convenient form to be placed in the furnace and heated before being subjected to the rolls. The improved pile consists of a number of tubular sections telescoped loosely together, keys being driven into spaces between the sections to lock the sections together.

## Agricultural.

**SULKY PLOW.**—Stephen E. Calif, Wilson, Mo. This is an improvement in plows, having wheels mounted on crank axles adapted to swing in a horizontal plane, the axles being connected by rods so that they swing in unison to facilitate the turning of angles. The implement has three supporting wheels of different sizes, and an adjusting lever is connected with the plow shank, whereby it is raised and lowered, while the sectional construction of the beam allows the plowshare to remain in the ground and yet permit the plow to be turned to the right or left.

**COTTON SCRAPER.**—William Lum, Carthage, Miss. An implement adapted for attachment to a plow having a removable point has been designed by this inventor, the scraper being also adjustable upon itself as well as upon the plow, so that it may be used to scrape a field without necessarily cultivating the crop by disturbing the ground. The scraper has a straight upper and inclined lower edge, a curved fender being adjustably secured to its upper forward corner. The inner edge of the scraper registers with the landside of the plow, and its upper edge in rear of the fender registers with the lower edge of the mould board.

## Miscellaneous.

**COIN CONTROLLED APPARATUS.**—Richard M. Shaffer, Baltimore, Md. By the insertion of a coin or token into the coin slot of this apparatus an operating rod is thrown into operative connection with a hammer, and means are provided for dividing the coins. The coin chute leads down to a switch, which operates automatically to deliver the coins alternately into different receptacles, the coins in one receptacle being the compensation of the owner of the machine, and those in the other receptacle going to form a "pot" or pocket, the ownership of which is decided by the automatic opening of a door giving access thereto.

**STOVEPIPE FASTENER.**—Adam P. Fedewa, Belding, Mich. A pipe connection for fastening stovepipes in chimney holes has been patented by this inventor, one end of the connection being inserted in the chimney hole and the stovepipe inserted in the other end of the connection tube. The latter is longitudinally divided, and an expanding and contracting device of pivoted levers connected with it at its opposite ends and on opposite sides of its division, the device being adapted, on turning a screw shaft, to spread one end and contract the other end of the connection.

**EARTH CARRIER.**—James J. Wishard, Watsonville, Cal. This invention relates to an improvement upon a ditching machine, formerly patented by the same inventor, and provides a novel form of earth elevator for conveying the earth from the plow to the body of the ditcher and a novel form of belt for delivering the earth to one side of the road, the belt being so made that a heavier load can be carried than heretofore, and a lighter frame employed to support the belt.

**HARNESS.**—Harvey Stout, Fairmount, Ky. This inventor has provided a simple, cheap and light harness, which may be easily put on, and is so made that the horse may be instantly hitched to the shafts; the drawing strap and traces exert no friction on the breast of the horse, and means are provided for instantly unhitching the horse from the vehicle to obviate danger in case of an accident or runaway.

**WINDOW SHADE HANGER.**—John A. Thompson, Howard, Kansas. This device comprises guides to be secured to the window frame, a shade roller carrying bar and slides fitted to slide on the guides and provided with spring loops to receive and hold the ends of the bar. With this improvement a window shade and its bracket may be raised or lowered quickly and conveniently, so as to leave any portion of the upper or lower half of a window uncovered, and, no matter in what position the shade may be placed, it may be adjusted as readily as when hung in the usual manner.

**MEAT COOKING DEVICE.**—Adam Reubold, New York City. A vessel partly cylindrical and partly coniform has a flange around its upper edge to which may be attached a hollow cup piece in such a way as to make an air-tight joint, the general form of the vessel being such as to accommodate a ham or shoulder of pork or other article, and hold the meat from becoming loose in cooking, which is effected by placing the closed vessel with its contents in boiling water. In cooking by means of this improvement, the juices are not diluted, and all the aroma and distinctive flavors of the meats are saved, the meat being rendered tender and rich without shrinking in bulk.

**PULLEY LINE HANGER.**—Herman Reichwein, New York City. This hanger, when not in use, may be readily removed from the window frame and stored in small space, and when attached to the window frame it may be carried directly into the room, connected with the pulley line, and held in the room until all the clothes have been pinned on the line, when it may be carried out of the window and locked in position to stand at a right angle to the frame, the slack of the line at the same time being taken up.

**PIANO ACTION.**—James F. Conover, New York City. In this action a rocker is adapted to be pivoted to the key, and a spring-pressed arm pivoted on the rocker is designed to engage the pivot end of the hammer, a fixed rod held on the key engaging the arm. With this improvement the hammer can be forcibly propelled to the string from intermediate points of its travel for readily executing reiterating tone passages without the action resuming its normal position after each percussion, thus forming a double repeating or grand action and insuring greater speed and force of the hammer. An instantaneous automatic adjustment is effected by repeated strokes of the key.

**HEATING APPARATUS.**—Beniah M. Dunson, Kenton, Ohio. A simple funnel and drum attachment for an ordinary heating stove is provided by this inventor, the pipe having a pipe extending transversely across it, and a hot air pipe within the stovepipe extending outward through the transverse pipe, while a perforated drum surrounds the stovepipe. The attachment does not interfere with the draft or the ordinary heating capacity of the stove, but is adapted to collect the heat radiated by the pipe and conduct it to a room above.

**ROOFING.**—Charles E. Pope, Millville, Ark. A roofing board forming an improved article of manufacture is, according to this invention, formed with a groove in one edge, and an opposite tongue of greater width on the upper than on the lower side, the upper face of the tongue being provided with a groove, and the top face of the board having side channels and a center channel. A simple and efficient roof may thus be made at a low cost, requiring but a single layer of boards, or it may be covered with other roofing material.

**SHEET METAL CAN.**—Frank H. Palmer, Brooklyn, N. Y. An annular cone shaped flange is spun or struck up from a single piece of sheet metal, according to this invention, and fastened to the open end of the can body, the flange forming a seat for the cover and having its upper and lower ends doubled for connection with the can body, the lower doubled end forming a seat for the lugs of the bail, to permit the latter to draw the cover onto the flange and lock the cover in place. A can body so formed is strengthened at its upper end, and the separate soldering of the overlapping sides of the flange to form a joint is avoided.

**HANDLE CLAMP FOR BROOMS.**—Patrick H. Lynch, New York City. This is a device especially adapted for use with street and stable brooms, for readily connecting and disconnecting the handle and the head, reversing the broom when desired to insure even and regular wear. The back of the clamp has depending lugs or flanges at its front and rear edges, those at one edge being provided with clamping screws, and on the back is an inclined socket, in the rear of which is an inclined split clamping sleeve and screw, a scraping prong or finger for loosening any object projecting upwardly and forwardly from the socket.

**VEHICLE BRAKE.**—Stephen E. Odell, Grayling, Michigan. This device is especially adapted for use with bicycles, causing no sliding friction on the tire, but being designed to keep the latter in its natural shape, even when the strongest pressure is applied. On the head a brake staff is held for vertical movement, and when pressed downward a roller contacts with the periphery of the tire of the wheel, with which it turns, a brake shoe immediately afterward being brought into frictional contact with the roller, the interposed wheel thus sustaining all the sliding friction.

**COOKING APPARATUS.**—George H. Nicholls, Galveston, Texas. Within an ordinary saucepan is placed a vessel having perforated bottom and sides, and a fibrous envelope of muslin or other material is held against the inner walls of the perforated vessel by means of a skeleton frame. The apparatus is especially designed to facilitate the cooking of cereals, etc., that are boiled or steamed, enabling them to be cooked without danger of their burning in the absence of an attendant to stir them constantly.

**TEA OR COFFEE POT.**—Frederick Mann, London, England. Centrally in this pot is arranged a vertical grooved frame, in which slides a second two-part frame containing a strainer made of perforated metal, wire gauze, muslin, or other similar material, the frame being reversible and the strainer easily cleaned. A strainer thus arranged does not interfere with the free pouring of the infusion from the pot, and on account of its large surface the strainer may be made very fine without liability of choking up.

**BUCKLE.**—Louis B. Prahar, Brooklyn, N. Y. The back plate of this buckle has a central stud with enlarged head, and hinged to the back plate is a cover or latch plate adapted to snap over and frictionally engage the stud. The construction is simple, and the buckle may be highly ornamented to serve as a decoration of a belt, while being very quickly manipulated to lock or unlock the two ends of a belt.

**DOLL MAKING.**—Frank M. Scott and Abner F. Seymour, Brooklyn, N. Y. These inventors have provided an improved method by which nice dolls may be quickly and cheaply made. The busts are moulded in sections between concave and convex dies, their meeting edges formed with curved or interlocking portions, the sections being thus fastened together without overlapping engagement. Celluloid or any other pliable material may be used which is capable of being moulded and retaining its shape.

**NOTE.**—Copies of any of the above patents will be furnished by Munn & Co., for 25 cents each. Please send name of the patentee, title of invention, and date of this paper.

## NEW BOOKS AND PUBLICATIONS.

**FOUNDATIONS OF THE ATOMIC THEORY:** Comprising Papers and Extracts by John Dalton, William Hyde Wollaston, and Thomas Thomson. Edinburgh: William F. Clay. London: Simpkin, Marshall, Hamilton, Kent & Co., Limited. 1893. Pp. 48. No contents, no index.

This little contribution to the history of chemistry, referring to the period of 1802-1808, and covering papers by Dalton, Wollaston and Thomson, will be read with much interest by those really interested in the science. It figures as the second of the Alembic Club reprints, and it cannot be believed that its usefulness and interest would be greatly heightened by a contents and an index, both of which are wanting.

**THE ENGINEER'S DIRECTORY.** Compiled by Marlboro Stationary Engineers' Association. Marlboro, Mass. 1893. 18mo. Pp. 200. Price 50 cents.

This work is almost entirely devoted to advertisements, the useful information occupies a secondary place and only consists of forty-four pages.

**SECOND REPORT OF THE BUREAU OF MINES.** 1892. Toronto, Canada: Office of the Bureau of Mines. 1893. 8vo. Pp. 264.

A report containing an account of the progress made in mining and metallurgy for the year 1892. A description of the minerals exhibited at the World's Fair is the subject of an interesting paper. The peat industry also comes in for ashare of attention.

**MASSES AND CLASSES. A STUDY OF INDUSTRIAL CONDITIONS IN ENGLAND.** By Henry Tuckley. Cincinnati: Cranston & Curtis. New York: Hunt & Eaton. 1893. Pp. 179. Price 90 cents. No index.

This little work is devoted to the English bread winners, the toilers by the Thames, the street drivers, clerks, shop assistants, London working girls and others. The author says that these English bread winners are our own kindred, and argues that we should be informed of their situation and needs. The additional factor obtains that we are rapidly approaching a time when we may find our own cities in the same condition of overcrowding and extended pauperism. A very full table of contents excuses to some extent the want of an index.

## SCIENTIFIC AMERICAN BUILDING EDITION.

NOVEMBER, 1893.—(No. 97.)

## TABLE OF CONTENTS.

1. Elegant plate in colors showing a residence at Bridgeport, Conn., recently erected for Mr. Thos. C. Woodin, at a cost of \$4,600 complete. Floor plans and two perspective elevations. An excellent design. Mr. Henry A. Lambert, architect, Bridgeport, Conn.
2. Plate in colors showing the residence of Clarence M. Burch, Esq., at Philadelphia, Pa. Two perspective views and floor plans. A very attractive design. Messrs. Moses & King, architects, Philadelphia.
3. A dwelling erected at Joliet, Ill. Perspective views and floor plans. An excellent design. Cost \$6,000 complete. Mr. J. C. Weece, architect, Joliet, Ill.
4. A suburban cottage erected at Glenbrook, Conn., at a cost of \$3,500 complete. Floor plans, perspective view, etc. Mr. E. H. Waterbury, Stamford, Conn., architect. An excellent design.
5. Engravings and floor plans of a suburban residence erected for Mr. George H. Barton, at Hartford, Conn. Messrs. Hapgood & Hapgood, architects, Hartford, Conn. A very attractive design.
6. Very excellent design for a two-family house, erected at Bridgeport, Conn., at a cost of \$4,500. Floor plans and perspective elevation. Mr. A. H. Beers, architect, Bridgeport, Conn.
7. St. Peter's Chapel at Springfield, Mass. Perspective and ground plan. Cost \$7,100 complete. Mr. W. P. Wentworth, architect, Boston, Mass.
8. Engraving showing some city dwellings of modern design at Washington Heights, New York City. Plans and perspective views. Mr. W. E. Mowbray, architect, New York.
9. Residence of Mr. C. T. Hemstead at Glenbrook, Conn. Plans and perspective. An excellent design.
10. Moving of the Normandy apartment building at Chicago. Supposed to be the largest building ever moved and turned around on rollers. Numerous illustrations.
11. The World's Columbian Exposition. A general view.
12. Sketches at the World's Columbian Exposition.
13. Miscellaneous Contents: Causes of fire in dwellings.—An improved brace, illustrated.—Steel ceilings, illustrated.—A large day's sawing.—The new mode of constructing foundations.—Sheathing quilt, illustrated.—A cap for the obelisk.—Interior woodwork for buildings, illustrated.—Electrical injuries to gas and water pipes.—An improved scraper, illustrated.—Linseed oil for paint and polish.—Improved circular sawing machine, illustrated.

The Scientific American Architects and Builders Edition is issued monthly. \$2.50 a year. Single copies, 25 cents. Forty large quarto pages, equal to about two hundred ordinary book pages; forming, practically, a large and splendid MAGAZINE OF ARCHITECTURE, richly adorned with elegant plates in colors and with fine engravings, illustrating the most interesting examples of Modern Architectural Construction and allied subjects.

The Fullness, Richness, Cheapness, and Convenience of this work have won for it the LARGEST CIRCULATION of any Architectural Publication in the world. Sold by all newsdealers. MUNN & CO., PUBLISHERS, 361 Broadway, New York.