

RECENTLY PATENTED INVENTIONS.

Engineering.

FURNACE.—Ivor J. and Robert Mon-ger, Baltimore, Md. This is a regenerative and reverberatory furnace for smelting and refining copper, to quickly reduce low grade matte without previously pulverizing and calcining it, while rendering unnecessary the process of skimming and tapping. The furnace is semicircular, having an arched top and an outlet spout in its sides, with blast pipes arranged on the sides, and tuyeres at the upper edges extending into the interior, whereby the blast may be directed upon the surface of the molten metal, means being provided for imparting a tilting movement to the furnace.

BOILER.—Ferdinand J. Thrun, Romeo, Wis. Two bottom water drums are arranged on the sides of the brick work, diagonal tubes leading from them to top water drums, and vertically arranged return tubes connecting the bottom water drums with side top drums, sets of pipes connecting the top water drums with each other, while mud drums extend transversely below the water drums, with which they are connected by short tubes. The construction is simple and durable, the boiler being designed to quickly and economically generate steam and insure a perfect circulation of water.

Railway Appliances.

LOCOMOTIVE ENGINE PILOT.—Furman F. Mortimer and John P. Coffin, Florence, S. C. Strongly braced to the front cross beam of the truck is a triangular frame, along whose front side, diagonally to the tracks, is a trough-shaped chute, semicircular in transverse section, with its concave sides to the front and extending across both the rails, the lower edge of the chute extending forward horizontally, to enable the pilot to easily take up and lift an object into the trough of the chute. This pilot is designed to throw objects entirely away from the rails, without throwing them on adjacent rails, and with the least danger of mutilating and killing living things.

ELECTRIC ELEVATED RAILWAY.—Andrew L. Rutter, Washington, D. C. The cars of this railway are cylindrical and have conical ends, and are suspended beneath the track from wheeled trucks running on the track, the motive power being preferably supplied by a storage battery. Each car is suspended by a jointed coupling from yokes attached to the wheeled motors on the track above, and the seats are suspended from the roofs of the cars, the couplings between the two pairs of motors of contiguous cars being so constructed as to enable them to yield to tension and resist thrust elastically.

CAR COUPLING.—John P. Derr, Greenville, Pa. This invention provides a peculiar construction and arrangement of levers whereby the drawhead may be raised for coupling or uncoupling in such a manner that the lever upon one side is wholly disconnected from and independent of the lever upon the other side, or the top of the car, so that the operation of one lever does not move or disturb any of the others. The drawbars each consist of a flat bar of iron or steel, having an upwardly and a downwardly extending hook on the end, and slotted, and in coupling one drawbar is raised above the plane of the other, the hooks passing into the slots as the cars come together.

CAR COUPLING.—August G. Vogt, Boerne, Texas. In the drawhead of this coupling is arranged a sectional link holder, the upper and lower sections of which are pivoted together near their rear ends to the drawhead, and have near their front ends pin openings closed at their front sides, with operating devices whereby the sections may be flared apart at their front ends. In combination with a transverse main operating lever for the link holder and coupling pin levers, is a swinging weighted latch to lock the main lever in position. The cars are coupled automatically by the device and they may be uncoupled, or the link adjusted for a meeting drawhead, without the trainmen going between the cars at any time.

Mechanical.

DUPLEX SPINDLE.—Joseph Duffy, Paterson, N. J. The bolster of this device comprises a central trunnion, upon which, as a common center, oppositely extending arms are journaled and adapted to oscillate, spindles being carried by the arms at their outer ends, while a spring is held between laterally extending lugs near the inner ends of the arms. The invention is an improvement on a formerly patented invention of the same inventor, the spring mechanism taking up the slack of the belts or bands, and causing the spindles of the spinning frame to be driven with substantially the same speed and power.

MACHINE FOR CUTTING KEYWAYS.—Gottlob F. Grotz, Bissingen, Wurtemberg, Germany. In this machine the tool is held by a tool holder attached to a vertically movable slide contained within a longitudinally movable carriage operated by a rack and pinion, the slot being cut during the longitudinal movement of the carriage. The vertical slide which holds the tool is alternately raised and lowered during the operation of the machine by two fixed trips engaging with a suitable cam, thus lowering the tool into the slot at the commencement of the stroke and raising it at its conclusion.

WALL PAPER TRIMMING MACHINES.—Henry B. Tiffany, Clyde, Ohio. This invention consists of a slotted paper-receiving roller and a reciprocating plunger for pushing the end of the paper into the slot to attach the paper to the roller. The paper passes over the usual feed board extending from the trimming machine to guide the paper to the receiving roller, and the attachment is of simple and durable construction.

DRIVING GEAR FOR HOISTING DRUMS.—Patrick White, Perth Amboy, N. J. The drive wheel, according to this invention, is made with a removable rim having gear teeth and having a removable

drive section of a friction clutch, the hoisting drum carrying the driven section of the friction clutch, the latter consisting of an integral rim on one end of the hoisting drum, the friction blocks being held to the rim by cruciform lugs, and a retainer ring being held on the rim, overlying the faces of the blocks and serving to prevent their outward movement. The construction is such that parts may be removed when damaged without a loss of the whole.

Agricultural.

THRASHER, FEEDER, AND SEPARATOR.—Milton O. Godding, Monrovia, Cal. This is a combination machine in which the several parts automatically operate to feed, thrash, and separate the grain in a quick, continuous, and effective manner. A feeder frame is detachably held on the front end of the main frame, a band cutter being journaled transversely over the delivery end of the apron, and a picker cylinder arranged over the carrier, the grain being fed under a beater onto arms and dumped onto an inclined straw carrier, the grain being constantly jumped from one pocket to another of shoes having a peculiar circular motion. The straw is similarly treated until elevated to the carrier for delivery to the stacker, being constantly agitated by knocker arms, the separated grain being subjected to air blasts and thoroughly shaken before being carried to the elevator.

BELT GUIDE FOR THRASHING MACHINES, ETC.—William L. Schwaller, Halbur, Iowa. This invention provides a mechanism of simple and economic construction, conveniently operated, for holding in place and guiding a belt even in the face of a high wind, where a long belt is run in the open air, obviating undue friction and wear and tear. The guide has a base to which are attached shafts upon which friction rollers are longitudinally adjustable, a latch mechanism connecting the shafts at their upper ends, the boxes on the shafts being adjustable to and from the friction rollers, while braces entering the ground hold the device upright against the wind.

MILK PAIL.—William R. Watt, Somerville, Tenn. This pail or milk bucket is so made that a removable strainer may be quickly and conveniently combined with it, to strain the milk as fast as it is milked or poured into it. The strainer rests on the edge of the pail and has a funnel-shaped bottom, with an outlet having a strainer and closed by a spring-pressed valve, while a cover fits the pail on the upper end of the strainer. All danger of spilling the milk is avoided, with this improvement, and the milk is cleansed from impurities at the time of placing it in the pail.

Miscellaneous.

GAS GOVERNOR.—Benjamin E. Patterson, New York City. This is an improvement in governors having outer and inner wells, the latter balancing the valve, and the invention provides a simple governor to efficiently regulate the flow and prevent waste, delivering the gas at a steady and uniform pressure. To this end the regulating valve and the well floats for actuating it are arranged so that the movement of the valve will be steady and positive, while preventing all jumping, rattling, and telegraphing through the connected parts.

HYDRANT CAP RETAINER.—Salisbury F. Rosse, Sedalia, Mo. This is a device for use instead of chains for connecting hydrant caps to the bodies of hydrants, the chains frequently becoming rusty so they will not turn around the cap. The improvement consists of a curved retaining bar or link, having a slot near each end, the lower one receiving a set screw for attaching the bar to the hydrant post, while the pin of the cap is passed through the upper slot, and a locknut is screwed to place thereon.

TO SEPARATE MATTE FROM SLAG.—William H. Howard, Pueblo, Col. The furnace of this apparatus for separating the matte from slag in lead and copper smelting is provided with the usual outlet spout, to discharge the matte and slag into a settler, preferably mounted on wheels to be conveniently moved to and from the furnace. The settler has a vertically movable partition in which is arranged a water pipe connected with flexible inlet and outlet pipes, in connection with means for supporting, counterbalancing, and raising and lowering the jacket. The apparatus also deadens the flow of the matte and slag from the furnace to the settler.

GRAVEL WASHER AND SEPARATOR.—Franklin T. Gilbert, Walla Walla, Washington. Two patents have been granted this inventor for improvements on a former patent for a machine in which the mixed water and gravel is passed through a series of screens of different mesh to separate the gravel from the water and the coarse from the finer grades. Means are also provided for a second flushing and grading treatment for each grade by itself before the final discharge into the bins, a continuous separation of the materials being effected in a rapid and economical manner. A screen body or disk is held to be rotated transversely to the direction of the feed, and a screening body with projecting portions is arranged to receive the impact force of the mixed water and gravel as it is discharged against the screen, and upon which the gravel is temporarily lodged, the weight of which serves as additional means for rotating the screen.

GRAVEL SCREENING MACHINE.—This is a further invention of the same inventor for a machine adapted to take a mixture of gravel, sand, and dirt, and separate therefrom the gravel, wash it, and divide it into as many grades of different sizes as desired. A series of conical open-ended rotating screens is arranged in steps below a supply hopper, chutes receiving and delivering the material and water to the successive screens according to the number of divisions to be made.

EVAPORATING APPARATUS.—William Golding, New Orleans, La. This improvement is designed to facilitate the recovery of solid matters from solutions, a box-like structure below the supply tank having a series of imperforate treads and perforated risers over which the solution is passed to a receiving tank

at the bottom, while a hot air blast is directed from the bottom to the top, the air currents passing through the perforated risers, so that the solution is very freely exposed to the air currents.

PNEUMATIC CONVEYER.—William E. Vernon, Sipe Springs, Texas. The car of this device is supported by brackets having on their lower ends runners fitting in tubes forming the tracks of the conveying mechanism, the brackets passing through slots ordinarily closed by flaps, and the car is engaged at its rear by a pusher on the end of an arm extending upward from a plunger sliding in a tube between the tracks. The plunger is made in sections, to follow the curves of the tube, which is connected at one end with an air compressor, and the slot in the top of the tube in which the arm of the pusher travels is closed by a valve of flexible material secured on the inside of the tube.

TIME LIGHTING DEVICE.—Antonio B. y Dias, Havana, Cuba. This is a simple automatically working apparatus which may be applied to any alarm clock, and which, when the alarm goes off, will, by the movement of the hammer of the clock or its key, automatically strike a match, the latter being so arranged, if desired, as to light a fire. One end portion of the base plate of the device is curved to fit the top of a small circular alarm clock of the ordinary pattern, a perforation fitting upon the standard which supports the gong, although the attaching portion of the plate may be shaped to fit a clock of any shape.

FIRE OR BURGLAR ALARM.—Elzear La France, Worcester, Mass. A supporting block attached to a ceiling or other support is surrounded by a metallic band forming one terminal of an electric circuit, springs arranged circumferentially around the block forming each another terminal. Attached to each spring is a string of just sufficient strength to hold the spring out of contact with the band, these strings radiating to the different points to be connected with the alarm. Should any of the strings be burned by a fire, a spring is released to close the circuit, and an alarm is sounded, or the strings may be connected with windows, doors, etc., by the movement of which the strings will be broken or loosened to sound the alarm.

OPERA CHAIR.—Herman A. J. Rieckert and Louis F. Kwiatkowski, New York City. This is a conveniently foldable chair for forming longitudinal passageways or aisles in theaters, in addition to the ordinary transverse aisles. To a longitudinal frame a seat frame is pivoted to swing vertically, a seat hinged to the upper rear edge of the seat frame swinging vertically at right angles to the direction in which the seat frame swings. By arranging each frame with two seats an aisle of a width equal to two seats may be formed when these seats are swung up into folded position, the chairs also being of such construction as to afford the occupant all desired comfort.

TRANSOM LIFTER.—John P. Ketteringham, Natchez, Miss. This invention consists of a drum carrying a rope connected with a block pivotally connected with a bracket held on the device to be lifted, the block serving to lock the transom when closed. The device is of simple and durable construction, very effective in operation, and designed to conveniently lift transoms, windows, drop doors, etc., holding them in any desired open position, or securely locking them when closed.

VEHICLE WHEEL.—Alexis F. Gillet, Kearney, Neb. This is a metal wheel with tire-tightening devices, and is adapted to be fitted to any vehicle having axle boxes. To the larger end of the box is fitted a flanged piece, provided with a projecting sleeve forming the sand box, while near the outer or smaller end of the box is fitted another flanged piece, outside of which is an internally threaded sleeve. The felly and tire are drilled and threaded to receive a threaded sleeve for each spoke, and after inserting the outer ends of the spokes, in building up the wheel, their inner ends are placed between the flanged pieces and clamped in place by screwing up the outside sleeve. At any time after the wheel is put together, the spokes can be tightened, if necessary, in the tire.

DEVICE FOR RAISING LOADED TRUCKS.—Benjamin H. Stephens, Woodland, Cal. This invention provides a frame adapted for quick and ready attachment to two-wheeled trucks to facilitate lifting the latter into a car or upon a platform as desired, the frame being also quickly detachable from the truck, and the latter being all the time under the supervision of the manipulator.

BRUSH.—James E. Provine, Ridgewood, N. J. This brush has an inclosing case held to it, the brush being movable in the case to project it out for use, while internal stops limit its outward movement. The brush has two sections, one provided with bristles and the other with plush for brushing silk hats, etc., either brush section being ready for use while the other is covered, and the whole being conveniently inclosed in a case which may be carried in one's pocket or in a small valise or satchel.

CLOTHES DRIER.—John F. Hanson, Macon, Ga. Arms are suspended from parallel shafts turning in hangers, and frames pivotally attached to the arms are connected by bars, a driving mechanism applied to the arms giving a laterally reciprocating movement to the frames. The frames carry any desired number of bars upon which dyed articles or other goods to be dried may be hung, and the peculiar movement imparted to the machine causes the air to circulate through them in such a manner that the drying is quickly effected and the dye is evenly fixed.

UMBRELLA CANE.—Rufus Waples, Jr., New York City. This invention provides a combined cane and umbrella of light, durable, and economic construction, in which the umbrella canopy may be folded up and concealed in the cane, which will then have the appearance of an ordinary walking stick, or the canopy may be readily taken from the interior and mounted on the cane to form an umbrella.

Designs.

FURNITURE CASE.—Paul Kurtz, Marshalltown, Iowa. This case is made with the two front

vertical corner pieces formed as sunken panels, with curved surfaces bearing ornamental carving.

SURFACE ORNAMENTATION OF GLASS.

—William L. Pilkington, St. Helen's, England. This design consists in configurations in the form of rosettes made in whirls, the arms of which emanate from a common center and curve in the same direction, the rosettes forming scalloped circular borders.

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.

NEW DYNAMO TENDER'S HAND BOOK. With one hundred and forty illustrations. By F. B. Badt. First Edition. Chicago, Ill.: Electrical Publishing Company. 1892. Pp. 226. No index. Price \$1.

The preface of this little work states that 9,000 copies of the *Dynamo Tender's Hand Book* have been sold, so that the author proposes the issuing of a new book, and this appears as its first edition. It seems well got up and covers the ground reasonably well. It is throughout characterized by the practical style of treatment adopted by the author in his other works, but lacks an index.

THE WELL DRESSED WOMAN. By Helen Gilbert Ecob. New York: Fowler & Wells Co. 1892. Pp. 253. Price \$1.

This excellent work details the absurdities that the fair sex indulge in in their dress and recommends a more hygienic treatment of the subject. It seems to be eminently practical in its treatment and at the same time enters into the subject scientifically. It inveighs against the corset and claims that a properly dressed and artistically developed figure is far better without this adventitious support. Numerous illustrations of artistic dress are given, which certainly, if they do embody dress reform, do so without any sacrifice of the artistic effect.

DEEP SEA SOUNDING. By Captain A. S. Barker. New York: John Wiley & Sons. 1892. Pp. iv, 133. Price \$2.

This is an abbreviated log book of the deep sea sounding executed under Captain Barker's command, and forms a valuable memoir of the work he did. Several large charts display at a glance the route and operations.

SCIENTIFIC AMERICAN BUILDING EDITION.

JANUARY, 1893, NUMBER.—(No. 87.)

TABLE OF CONTENTS.

1. Elegant plate in colors, showing a very attractive dwelling at Bridgeport, Conn., erected at a cost of \$15,000 complete. Floor plans and perspective elevations. Joseph W. Northrup, architect, same place.
2. Plate in colors showing a residence at Armory Hill, Springfield, Mass. Two perspective views and floor plans. Mr. Francis R. Allen, architect, Boston, Mass. An excellent design.
3. A cottage at Brookline Hills, Mass., erected at a cost of \$4,825 complete. Perspective views and floor plans. Messrs. Shepley, Rutan & Coolidge, architects, Boston. A picturesque design.
4. A dwelling erected at Holyoke, Mass., at a cost of \$6,500. Floor plans, perspective, etc. Mr. G. P. B. Alderman, architect, same place.
5. A very attractive and convenient stable and carriage house erected at Plainfield, N. J., at a cost of \$1,500 complete. Messrs. Rossiter & Wright, New York, architects.
6. A residence recently erected at Plainfield, N. J., at a cost of \$9,175 complete. A picturesque design. Two perspective elevations and floor plans. Messrs. Rossiter & Wright, architects, New York.
7. An elegant residence recently erected at Malden, Mass., for Mr. B. G. Underwood. Two perspective views and floor plans, together with a view of the Holland stairway. Cost complete about \$11,000. Mr. Frank L. Smith, architect, Boston.
8. A substantial residence at Holyoke, Mass. Perspective elevation and floor plans. Mr. H. H. Gridley, architect, Springfield, Mass. An excellent design.
9. View of the Union Passenger Station, Worcester, Mass.
10. Miscellaneous contents: Combustible fireproofing.—House drainage.—Roofs and roof coverings.—Wall papers.—A plea for the use of white in house painting.—Defective flues.—Antiquity of glue and veneering.—The piping of dwellings.—Collodion glass.—A saw for foot, hand, or steam power, illustrated.—A new court house at Greenville, Miss.—A baluster spindle lathe, illustrated.—Solid partitions.

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,
351 Broadway, New York.