

RECENTLY PATENTED INVENTIONS.

Engineering.

FIRE BOX FOR BOILERS.—Edward Ingleton, Pottstown, Pa. This fire box has a horizontal water leg at each side at the bottom and a single water leg in the middle at the top, with two separate series of water tubes, each series on one side and extending from the lower to the upper water leg, the tubes being close together and constituting a flame-tight tubular box which is conveniently detachable from the boiler for cleaning and repairs. This fire box is so connected with the interior of the boiler that a perfect circulation is obtained. The improvement is especially designed for locomotives and traction engines.

Railway Appliances.

SWITCH WORKING MECHANISM.—Robert W. Farrell, Vincennes, Ind. Connected with the rails, according to this improvement, is a spring barrel with spring-pressed piston rod pivotally connected with a switch stand, a dog on the barrel engaging a shoulder on the piston rod, while a connecting lever extending parallel with the track is moved by striking arms on the track to trip a lever to tilt the dog. The improvement may be used in connection with an ordinary switch, the tripping devices being then actuated by a passing train or engine to automatically close a switch.

STREET RAILWAY CAR.—Willard R. Dodson, Jermyn, Pa. This is a car designed to be readily transformed from a winter to a summer car. The car has removable sides, which are provided with guides receiving the windows of the winter car, so that the windows may be moved into auxiliary guides and the whole disconnected from the car. Different sets of seats are also provided, the change being readily made from one to the other.

Electrical.

HOLDER FOR TELEPHONE RECEIVERS.—Fergus W. Martland, Fall River, Mass. This holder is designed to support the receiver close to the ear of the user, without making it necessary to hold the receiver in one hand. A spring-pressed sliding rod is connected with the telephone switch and an arm pivotally connected with the rod carries the receiver, a segment holding the arm in any desired inclined position to bring the receiver close to the ear of the user.

RENOVATING STORAGE BATTERIES.—John Trowbridge, Cambridge, Mass. This inventor has devised a method of renovating lead accumulators by removing temporarily the negative elements after the battery has been charged, replacing them by amalgamated zinc plates, then discharging the battery, removing the zinc plates and returning the lead negative element to the battery while it is recharged; the negative elements are then again removed and the zinc plates inserted and the battery discharged, the process being repeated until the battery has been restored to its normal efficiency.

Mining.

ORE CRUSHER.—August H. Schjerholz, San Francisco, Cal. This is a strong and simply constructed machine to facilitate the crushing, pulverizing, and amalgamation of ores, and comprises a pan in which the crushing rollers are adapted to travel, the rollers being journaled in a frame, while a driving arm engages the journals held vertically adjustable on the frame to permit the rollers to move up or down according to the material under treatment.

Mechanical.

MACHINE FOR TREATING METAL RODS.—John Doughty, Philadelphia, Pa. This machine comprises frames with racks adapted to move in opposite directions, the racks receiving between them a bundle of rods to be treated, means for imparting a reciprocating motion to the racks, end plates engaging the ends of the rods, and a feed table extending between the racks. The machine is designed to facilitate the rapid tempering, cleaning and straightening of the rods.

FLOAT VALVE.—Joseph W. Chamberlain, Bangor, Me. This valve is designed to open and close a full waterway instantly, affording a flow of water as large as the pipe supplying the valve will discharge, while the construction is simple and inexpensive. The valve is more especially designed for use in connection with a house tank, where the ordinary float valves open but a small passage for the water if only a small amount is drawn from the tank.

Agricultural.

CULTIVATOR.—Charles E. Booi, Danforth, Ill. This is a machine designed to be drawn by three horses, and it is provided with equalizing devices whereby the strain on the team is reduced to a minimum, the draught being taken from the rear portion of the machine, and the side draught not being sustained by the team, nor the harness injuring the animals. All the cultivator blades may be readily raised from the ground, and the machine made to travel on supporting wheels, one at each side. The machine also comprises a gopher cultivator of simple and inexpensive construction and thoroughly under the control of the operator.

LABELING PLANTS, ETC.—Frederick R. and Clara J. Chapman, Dunedin, New Zealand. This invention provides a convenient movable and readily adjustable label standard, which will present the labels directly to the observer at any desired angle, and provides also a special form of label. The label holder consists of a standard and a double hook formed of a wire whose middle portion is bent or twisted about the head of the standard, and the label is composed of a plate having a brace which diverges at an angle, the free end engaging the body of the standard or carrier.

Miscellaneous.

CALENDAR CLOCK.—Alfred E. McCollum, West Leisensing, Pa. This invention relates to calendars attached to and driven from watches or

clocks, and consists principally of a rotatable sleeve carrying the month hand, a shaft rotating in the sleeve being driven from the clockwork, and there being on the shaft a double hand, the hands standing at angles, and one indicating the day of the month and the other the day of the week. The positions of the hands are adjusted monthly.

AUTOMATIC DISINFECTING DEVICE.—Emil Tausseg and Michael Sheridan, New York City. This is an improvement for toilet rooms, comprising a water-holding reservoir controlled by a float valve, and a rocking liquid holder for disinfecting fluid that is tilted for the discharge of a gaged amount by draught strain of a flexible connection, a siphon-controlled water-discharging device being set to work by the tilting movement of the liquid holder when it is rocked.

HYDRAULIC AIR COMPRESSOR.—Albrecht Kalthoff, New York City. This is an improvement more especially designed for use in beer pumps and similar machines, the compressor being simple in construction and not liable to get out of repair, automatic in operation and utilizing the pressure of the water to the best advantage. A spring-pressed main valve controls the inflow and outflow of the water to and from the compression cylinder, and the valve has a hollow stem forming an air inlet and a leakage water discharge, a spring-pressed valve engaged by the stem connecting it with the general water discharge.

SPLICING SCISSORS.—John A. Myers, Monroe City, Ind. Each blade of these scissors is provided with a side perforation, one of the perforations being adapted to receive the end of a strip to be spliced and the other being circular, for use in splicing cords. One of the blades also has an additional cutting edge near its point. The improved device forms a combination tool which may be advantageously employed for various household uses.

BOILING EGGS.—George Fundinger and Ulderico Nesi, New Brighton, N. Y. To accurately and automatically regulate the time of boiling eggs, that they may be as hard or as soft as desired, these inventors have devised an apparatus in which a clock mechanism is connected with an egg receptacle, with means for submerging the eggs and raising them out of the water at the end of a certain time, the time required for boiling being regulated by moving an adjusting lever on an index with scale of minutes and fractions.

CHERRY STONER.—Emil Zeitfuchs, Portland, Oregon. To remove the pit from the fruit without mashing or injuring the cherry, this inventor provides a device in which a suitable base forms an open bottomed seat for the fruit, while attached to the base is a spring wire guide and spring for a plunger adapted to be pressed down by a thumb piece to press the pit through the stem opening of the fruit.

DISH CLEANER.—Albert J. Finlay and Charles Wilson, Silverton, Oregon. According to this improvement a receptacle for hot water or a cleansing compound, adapted to be kept heated on a stove, has an inner basket in which dishes may be placed, the basket being raised and lowered by turning a crank supported in standards at the sides, the water being forced up around the dishes on the downward motion of the basket, and draining off on its upward movement.

CLOTHES LINE PULLEY.—Johan J. Leuzinger, West New Brighton, N. Y. This is a pulley which automatically adapts itself to the expansion and contraction of the line, and the clothes pins on the line may be readily passed around the pulley without being forced from the line or from clamping engagement with the clothes. The pulley has a hub and radiating wings, the outer face of the pulley between the wings being concave, and each wing having a recess and depression in its bottom wall.

CHAIR ATTACHMENT FOR SEWING MACHINES.—Jane A. Adkins, Atlanta, Ga. The curved forward legs of this chair are made in pivotally connected sections, whose forward extremities are adapted for attachment to a sewing machine frame, and the rear legs and back are hinged to the seat. When not required for use, the chair may be so folded as to occupy but little room and disposed of beneath the table of the machine or within its cabinet work.

REMOVING GARBAGE.—Wolfgang Goetz, New York City. An apparatus for this work designed by this inventor consists principally of a wheeled wagon body having at its top a receiving spout closed by a slide, a gate at the rear being held in an open or partly open position. A box seated on the wagon spout has drop bottom doors, the box having a cover of which part is fixed and part hinged, the apparatus being designed to facilitate the removal of garbage without scattering portions in the street, and spreading disagreeable odors.

WINDOW.—William Wallace, New York City. This inventor provides a window arranged to permit of readily cleaning the window panes on both sides from the inside of the room, the two sashes being readily swung downwardly and inwardly into an open position. A bar hinged to the lower rail of the upper sash has on its lower side a flange to enter a recess in the top rail of the lower sash, while a slotted arm or haep pivoted to the free end of the hinged bar swings down to receive a knob or turn button in latches mounted in the top rail of the lower sash.

GATE.—Abner Yates, Yates Center, Kansas. This is a gate which may be opened by those on horseback or in vehicles, the levers engaging the latch bar when the gate is closed being adapted to be operated by the wheel of a vehicle, or by the pressure of the hand or foot of a person seated therein, or on horseback. The improvement is designed to be durable and inexpensive, and the construction is very simple.

LATCH.—Nestor Lattard, New York City. This is a simple and inexpensive latch lock which may be applied to the leaves of a table without affecting the even upper face of the leaves. The casing has a top plate and side plate, the latter having an opening to receive a keeper, and the latch bar has a head at one end and a handle at the opposite end, a spring normally holding the latch head transversely of the keeper receiving opening.

MATCH BOX.—Isaac O. Day, Ottumwa, Iowa. This box has in its top a vertically sliding carrier plate operating a rocking match-carrying plate to project it through an opening in the top of the box. At each operation of the mechanism of the box, by the pressing of a thumb piece, a single match is expelled and simultaneously ignited, being held upright on the box when lighted.

Designs.

HANDLE FOR SPOONS.—Austin F. Jackson, Taunton, Mass. Scroll, fluted and ball ornamentation on the front of the broad portion of the spoon handle, and flowers and foliage on its back, are the leading features of this design.

BRACKET.—De Witt C. Bowen, Kansas City, Mo. This bracket has an upright member and two curved members, the whole somewhat resembling a letter K.

GLASS DISHES.—Henry T. Broden, Brooklyn, N. Y. Three designs have been patented by this inventor for glass dishes, such as bowls, plates and jugs, all of the designs having prisms crossing one another at different angles, and forming prismatic and multiple pointed stars and oval and polygonal panels.

ABDOMINAL SUPPORTERS.—John H. Kellogg, Battle Creek, Mich. This is a supporter pad having side pear shaped perforated plates connected by a webbing.

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SCIENTIFIC AMERICAN

BUILDING EDITION.

DECEMBER, 1895.—(No. 122.)

TABLE OF CONTENTS.

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5. View of the new City Hall, Philadelphia, which has been erected at a cost of over \$20,000,000. The building is of white marble and covers four and a half acres. Is absolutely fireproof. The height of this building is 547 feet 3 1/4 inches, being, with two exceptions, the highest building on the earth. The exceptions being the Washington Monument and the Eiffel Tower. The next highest building on earth is the Cologne Cathedral, which is 510 feet.
6. View of the facade of the magnificent new Boston Public Library, Boston. Architects, Messrs. McKim, Mead & White, New York City.
7. Residence at Bensonhurst-by-the-Sea, L. I. Two perspective elevations and floor plans. Cost complete, \$8,500. Architect, S. S. Covert, New York City.
8. Perspective elevations and floor plans of a cottage at Oakwood, S. I., recently erected at a cost of \$2,800 complete. An attractive design.
9. Miscellaneous Contents: Testing house pipes and drains.—A combination bathtub and washstand, illustrated.—The permanence of modern dwellings and public works.—An improved steam and hot water heater, illustrated.—Moving a large factory.—How to fix paper on drawing boards.—A quick water heater, illustrated.—Improved toilet room fixtures, illustrated.—A single track parlor door hanger, illustrated.—An improved furnace grate, illustrated.—Cements in mason work.—An improved furnace, illustrated.—A regenerative gas heater, illustrated.—Improved woodworking machinery, illustrated.

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Notes & Queries

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References to former articles or answers should give date of paper and page or number of question. Inquiries not answered in reasonable time should be repeated; correspondents will bear in mind that some answers require not a little research, and, though we endeavor to reply to all either by letter or in this department, each must take his turn.

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(6686) H. J. H. asks how to make aromatic sulphuric acid. A. Sulphuric acid, 3 1/2 fl. oz.; alcohol, 30 fl. oz.; mix. Add 1 1/2 oz. powdered cinnamon; powdered ginger, 1 oz.; digest for six days and filter.

(6687) H. N. says: Please inform me how to get rid of red ants; their stronghold seems to be in stone foundation of the building? A. 1. Powdered borax sprinkled about the infested places will exterminate both red and black ants. Powdered cloves is said to drive them away. Another plan is to grease a plate with lard, and set it where these insects abound. They prefer lard to anything else, and will forsake sugar for it. Place a few sticks around the plate for the ants to climb up on. Occasionally turn the plate bottom up over the fire, and the ants will fall in with the melted lard. 2. Use a small amount of oil of turpentine, run into the cracks with an ordinary sewing machine oil can.

(6688) E. Le Q. says: You would oblige me very much if you would state whether coal tar applied (just under boiling point) is a good substitute for paint for a new shingle roof? A. For a fair substitute for paint, take coal tar and lime (burnt, but not slaked), and boil them together in the proportion of 15 lb. lime to 100 lb. tar. Put it on hot. To pulverize the lime, sprinkle it with a little water and sift it. To avoid the tar boiling over, stir the lime in the boiling tar very slowly. The mixture must always be heated before putting on.

(6689) R. D. C. asks: What causes the lunar rainbow, visible at night in the Southwestern States, especially in New Mexico? It is visible on a clear, cloudless night, the moon not being visible. A. Lunar halos, coronas and rainbows, like those of solar origin, are produced by the reflection and refraction of the light of the moon in the condensing moisture in the air, which at the moment of formation of the halo or rainbow has become vesicular or converted into minute globules of water. This is observable in the daytime by a haziness of the atmosphere, but at night, owing to the darkness, the sky may appear cloudless and yet be overcast with the haze necessary for producing a rainbow or halo. The principles of refraction and reflection involved in this phenomenon are described and illustrated in works on meteorology and natural philosophy. The statement that the moon is invisible is not sufficient; the inference is that it may have been just below the horizon or partially hidden by clouds on the horizon.

(6690) L. M. G. asks: What is the highest average speed ever maintained by a train between London, England, and Aberdeen, Scotland, deducting stops? A. 540 miles in 512 minutes, or at the rate of 63 1/4 miles per hour continuous run. 2. What is the distance between said points by the road the feat was accomplished on? A. Five hundred and forty miles by railway from London to Edinburgh, via West Coast route. 3. What is the English record for long distance travel, time and points? A. On short runs, the greatest speed was 75 miles per hour. 4. What is the American record for long distance travel? A. 199 miles in 174 minutes, on D., L. & W. RR.; 147.84 miles in 130 minutes, 68 1/4 miles per hour, N. Y. C. & H. R. RR.; 510 miles in 470 1/4 minutes, 65 miles per hour, L. S. & M. S. RR. 5. On what road is the fastest regular train in the world run? A. The highest average speed for a 100 mile run is 72 miles per hour, and for the entire run between New York and Buffalo on N. Y. C. & H. R. RR., 64 1/4 miles per hour. The N. Y. C. & H. R. RR. probably lead in the fastest regular train service. See SCIENTIFIC AMERICAN, August 31, September 21, October 19, 26, November 2, 1895, for interesting details of high speed on railroads.