

RECENTLY PATENTED INVENTIONS.

Engineering.

CONDENSER.—Cary S. Cox, Spottiswood, Cal. To quickly condense the exhaust steam and prevent back pressure in the engine, this condenser comprises a shell through which air circulates, there being within the shell a drum having a steam inlet pipe and a water outlet pipe, a series of tubes connecting the heads of the drum with each other, each tube lined on its inner surface with a water-evaporating fabric, while a water sprinkler is arranged within the shell above the upper head of the drum. The construction is simple and durable.

Railway Appliances.

REFRIGERATOR CAR.—Ferdinand E. Canada, New York City. This invention provides for a novel combination of central and outer braces with insulating linings secured to them, adapted to form three independent air-tight chambers, whereby a maximum carrying capacity with a minimum of dead weight is obtained, the insulated condition being maintained for an indefinite period, so that fresh meats, fruits, and other perishable articles may be safely transported for long distances with an economical consumption of ice.

SWITCH.—Henry H. Matt, Long Island City, N. Y. This is an improvement in switches adapted to be operated from a moving car. A switch point is pivoted on a bed plate beneath which is a chamber where a horizontally tilting lever is fulcrumed and connected at one end with the switch point, a guide plate with parallel grooves and with a rail section being arranged adjacent to the switch point, while a lever fulcrumed in the guide plate projects into the grooves, a connecting rod extending from the lever to the lever of the switch point.

SWITCH OPERATING DEVICE.—William F. Dermody, Brooklyn, N. Y. This is a device to be operated from a car in motion, the invention also providing means for automatically resetting the switch point after a car has passed. A shifting arm is attached to the pivot of the switch point, there being a locking bar normally in engagement with the arm and counterbalance weights connected with opposite sides of the bar, while a shifting bar adapted to be operated by a passing car is connected with the locking bar between the weights. There is a lever at the opposite side of the switch point to the shifting lever of the locking bar, the second lever being connected with the shifting arm of the switch point.

TROLLEY STAND.—Eleazer F. A. Heastings, Avalon, Pa. This is an improvement in devices mounted on the cars of electric railways to support the trolley pole, and comprises a flat-topped base on which a bracket is journaled to turn horizontally, and with arms between which is pivoted a second bracket carrying the trolley pole, bow springs clamped to the lower bracket having their upper ends pivoted to opposite ends of the second bracket. The device presses the trolley wheel firmly against the wire, but is so flexible that the wheel easily follows the wire through its different elevations.

CAR FENDER.—Marguerite Maidhof and Victor F. Maidhof, New York City. This improvement comprises a scoop-like fender consisting of a platform and a back, pivotally connected with each other and covered by a solid top or suitable netting. Near the front end of the platform portion of the fender are wheels or rollers traveling on the track rails, and the fender is pivotally suspended from the car by a pivot extending centrally from its vertical back portion through a pivot plate on the under side of the car. The head of the pivot is pressed on by a spring to permit of an up and down movement with the jolting of the car.

SAFETY GUARD FOR CARS.—Joseph W. Betz, Brooklyn, N. Y. A fender frame is, according to this invention, hinged by its rear end upon the car below the car body, there being rollers on the lower side of the frame, a spring-pressed latch slidable from the platform, and a retractile spring engaging the car and fender frame. When not needed for service the front end of the fender is held up from the track, under the car body, but it may be instantly released to drop into position to catch a person struck by the car, inclining forwardly and downwardly.

Mechanical.

TIRE BOLT WRENCH.—Joseph E. Campbell, Fairfax Station, Va. This tool consists of a pair of pivoted jaws, one of the jaws carrying two swiveling wrench heads connected by gears and the other jaw slotted and having at opposite ends bearings for a turning crank, while a sliding frame with a clutch screw is arranged to be adjusted in line with either wrench head, and a detachable turning crank has its end adapted to pass through either of the bearings and be seated in one of the wrench heads. It is a simple and practical tool for quickly and conveniently removing the nuts and bolts which fasten the tires to the felloes of vehicle wheels, even when they become rusted together.

MAKING METALLIC BODIES.—Hartley C. Wille, Bethlehem, Pa. This inventor has devised means for making pipes, cylinders, etc., in such way as to avoid welding flaws and render the mass very homogeneous. It comprises the use of a horizontal revoluble mould through which extends an adjustable mandrel, while a receptacle is adapted to receive the surplus molten metal from the mould. The metal rotates with the mould, while the axis of the mandrel is stationary, the metal being subjected to compression as the mould rotates.

Miscellaneous.

JOINT FOR ELECTRIC WIRES.—James H. Curry, Wilkesburg, Pa. This is an automatic safety joint consisting of a box or support having two insulated anchorage pins, and two arms connected with the pins by a loose slotted connection with supporting seats for sustaining the arms when under tension, a bridge connecting the arms, and means for holding them out of electrical contact when they fall away from the bridge. The improvement is designed to prevent accidents when live

wires become broken or detached and fall in the street, the brake then automatically cutting off the current from the ends of the wire. The joint may also be used as a substitute for the bell-shaped supports now used on overhead electric lines.

WHEEL FOR BICYCLES.—George W. Smiley and Forest W. Dunlap, London, England. This wheel has a pneumatic cushion between its hub and rim, and the tire is connected with the cushion by thrust spokes movable radially independently of the wheel rim, but guided by the wheel rim, so that while the wheel will be laterally and radially stiff, the elastic cushion, by which resiliency of tread is obtained, is transferred from the external tire to a point intermediate of the rim and hub, where it is not exposed to injury.

COFFEE DRYING APPARATUS.—Richard P. Hocking, Mayaguez, Porto Rico. For drying coffee after the red shell has been removed from the berry, this inventor has devised a simple and inexpensive apparatus whereby the berry may be subjected to constantly recurring currents of heated air, the air then finding ready exit from the apparatus, but this exit being under complete control. As the drying chamber or cylinders revolved the berries are constantly changing position, every portion of their surface being presented to the drying agent.

ICE CREEPER.—James R. Russell, Hopewell Hill, Canada. A flat metallic plate bent in U form to encircle the edge of the heel has two forward and a central rear calk, the plate being attached to a moccasin or shoe heel by screws. When the creeper is not needed, a block of leather, wood or other material, is formed with recesses for engagement with the calks, this block being held in place by a clamping bar to cover up the calks and form a heel with smooth bottom.

GATE.—Emil Neuhauser, Gridley, Ill. This inventor has made an improvement in gates to be raised or lowered by levers at opposite sides, the opening and closing mechanism being adjustable to balance a long or a short, a heavy or a light gate, and the operating mechanism making it impossible for the gate to remain on a center. When the lever is operated to open the gate the latch is disengaged from its keeper, the gate being automatically latched on closing. The construction is simple and inexpensive, and the mechanism is not likely to be interfered with by rain, snow or ice.

DOOR CHECK.—Jacob Suter, New York City. This device consists of two rigid, pivotally connected arms, one pivoted to the door jamb and the other adapted for detachable pivotal connection with the door. From the latter arm a bar is projected adjacent to the door, and adapted to form a brace for the arm, there being means for locking the bar to the door. It is a simple device for locking the door partly open for ventilation, etc., or for locking it closed.

EXTENSION TABLE.—Joseph Bohr, Westphalia, Mich. This table when closed is very compact, but it may be easily opened or extended, and its construction is designed to be very simple and inexpensive. The supporting frame has recesses in its upper edge, and a leaf is adapted to slide beneath the table top, while there are supporting arms secured to the leaf and projections on the arms which lie upon the top of the supporting frame.

CIGAR PIERCER.—John W. Miller, Dayton, Ohio. This is a little machine for cutting lengthwise slits in cigar tips, instead of cutting off their ends, to facilitate smoking. It has a depending slotted socket, with depressible top, in which the cigar end is placed, when the depression of the socket actuates a pair of blades to push them into the socket and into the tip on each side, the parts returning to normal position as the cigar is removed.

FISHING APPARATUS.—Peter S. and Alfred J. Downie, Marinette, Wis. This is an improvement in apparatus for what is known as pound fishing, extremely strong wire nets being used, so arranged that they may fold one upon another, and be dropped to the bottom to escape drifting, winds, etc. The sections of the nets are connected with each other and with the supporting stakes in such manner that they are freely suspended. Before winter sets in the stakes are cut off beneath the ice line, and are spliced when spring opens.

GRAVE SIGNAL.—Hubert Deveau, New York City. This is a device to be applied to a coffin in which a person is buried, and connected with an air pipe extending to the top of the ground, where it enters a signal casing so arranged as to indicate the fact should the buried person revive and move in the coffin.

DESIGN FOR A BOTTLE.—Carlton H. Lee, Boston, Mass. The body of this bottle has in general the configuration of a human skull, and on the bottom is a representation of cross bones.

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.

THE DIATOM. By C. L. Peticolas. Richmond, Va. 24 page pamphlet. Price 10 cents.

Mr. Peticolas is well known as a microscopist and preparator of excellent slides of the Diatomaceae. This little pamphlet contains some accounts of the Virginia and New Jersey fossil deposits, with a catalogue of about 400 slides. The articles are reprinted from various microscopical journals.

LOCOMOTIVE MECHANISM FOR ENGINEERING. By H. C. Reagan, Jr. First edition, first thousand. New York: John Wiley & Sons. 1894. Pp. x, 296. Price \$2.

The author of this book, who is a locomotive engineer, has above all endeavored to make his book thoroughly practical. It is liberally illustrated and is arranged to a great extent on the following system: In the opening part of a chapter the consecutive text relating to the subject is given, and the chapter closes with a series of questions and answers. Numerous illustrations of engines

are given, as well as of their parts. The work appears to be thoroughly up to date and should be very well received.

THE STEAM ENGINE AND OTHER HEAT ENGINES. By J. A. Ewing. Cambridge: At the University Press. 1894. Pp. xiv, 400. Price \$3.75.

This volume is an amplification of the author's Encyclopaedia Britannica article on the steam engine. In the preface he states that it was written to serve as a university text book. It represents, from the standpoint of instruction as well as from that of theory, a thoroughly advanced and up to date treatise on the subject. Air, gas, and oil engines are included in its scope, although naturally the steam engine is the principal subject.

GAS LIGHTING AND GAS FITTING. By William Paul Gerhard. New York: D. Van Nostrand Co. 1894. Pp. 190. Price 50 cents.

Mr. Gerhard, the well known sanitary engineer, has here produced a very practical little work, written largely from the common sense standpoint and one which will prove of quite extended use. It is a book which may be read with benefit by the gas fitter and the private consumer.

A STUDENT'S TEXT BOOK OF BOTANY. By Sydney H. Vines. First half. London: Swan Sonnenschein & Co. New York: Macmillan & Co. Pp. x, 430. Price \$2.

This volume is the first part of a systematic treatise on botany for the use of students. It is devoted largely to morphology and the intimate structure of plants. The classification, however, occupying the second half of the work. In illustration, printing, and paper it leaves nothing to be desired, and when the second half is accessible, the student world will have at their command a most attractive treatment of the subject. The absence of an index in this volume, it is to be hoped, merely means that the complete index will appear in the second volume.

SCIENTIFIC AMERICAN BUILDING EDITION.

JULY, 1894.—(No. 105.)

TABLE OF CONTENTS.

1. An elegant plate in colors showing a half stone and half frame summer cottage erected at a cost of \$4,500. Perspective views and floor plans. Mr. H. Howard, architect, New York City. An attractive design.
2. Plate in colors showing a Queen Anne dwelling at Melrose, Pa., recently erected for W. H. Miller, Esq. Perspective elevation and floor plans. Cost \$8,500. Mr. A. M. Walkup, architect, Philadelphia, Pa.
3. Full page engraving of Nonsuch Palace.
4. A half-timbered house at Rosemont, Pa., recently erected for John H. Converse, Esq., at a cost of \$11,000. Perspective elevation and floor plans. Mr. T. P. Chandler, Jr., architect, Philadelphia, Pa. A handsome design.
5. Engravings and floor plans of a cottage at Jamaica, L. I., recently completed for B. S. Waters, Esq. A popular design of American style. Cost \$5,800 complete. Messrs. Daus & Osborne, architects, Brooklyn, N. Y.
6. Residence at Yonkers, N. Y., recently erected for Cheever N. Ely, Esq. Perspective elevations and floor plans. Mr. Augustus Howe, architect, New York. A pleasing design.
7. A dwelling at Hackensack, N. J., recently erected for Mrs. Maria Bogart. Perspective elevations and floor plans. Mr. W. L. Stoddard, architect, Tenafly, N. J. A model design.
8. A colonial cottage at Hartford, Conn., erected for W. F. Goody, Esq. An attractive design. Floor plans and perspective elevations. Cost \$4,750 complete. Mr. Henry D. Hooker, architect, New York City.
9. A residence at Edgewater, Ill., recently erected for G. F. Lange, Esq. Perspective elevations and floor plans. A pleasing design.
10. A residence at Bryn Mawr, Pa., recently erected for Prof. Herbert W. Smyth. Three perspective elevations and floor plans. Cost complete, \$6,500. Mr. J. C. Worthington, architect, Philadelphia, Pa.
11. A picturesque country cottage at Greenwich, Conn. Perspective elevations and floor plans. Messrs. A. H. Throp & W. S. Knowles, architects, New York City. An attractive design.
12. Design for a stairway.
13. Miscellaneous Contents: The passing of the carpet, illustrated.—Why not remodel the old home? illustrated.—Mott's "Sunray" steam boiler, illustrated.—Modern brick machinery.—The "Ideal" sash pulley, illustrated.—Improved wood working machinery, illustrated.—Elevators for the New Commercial building, Philadelphia.—Architectural wood turning, illustrated.—The Beverage cooker, illustrated.—The Variety wood worker, illustrated.—The "Monarch" fireproof partition, illustrated.—View of the Hotel Phoenix, Winston, N. C.

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Notes & Queries

HINTS TO CORRESPONDENTS.

Names and Address must accompany all letters, or no attention will be paid thereto. This is for our information and not for publication. 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. Buyers wishing to purchase any article not advertised in our columns will be furnished with addresses of houses manufacturing or carrying the same. Special Written Information on matters of personal rather than general interest cannot be expected without remuneration. Scientific American Supplements referred to may be had at the office. Price 10 cents each. Books referred to promptly supplied on receipt of price. Minerals sent for examination should be distinctly marked or labeled.

(6150) L. T. V. asks (1) how to find the amperage of lamps (16 candle power), 30 amperes at 110 volts being output of dynamo. A. The voltage of the dynamo fixes the voltage of the lamps as 110 volts. Then allowing 50 watts to 16 candle power, we have 50-110 or 0.45 ampere for the amperage of a lamp. Allowing for the loss in the wiring, it is safe to allow 60 lamps to the dynamo. 2. What is meant by ampere hour? A. One ampere of current flowing for one hour, or two amperes for half an hour, or half an ampere for two hours, and so on. 3. Can 110 volt lamp be used on a 50 volt circuit and 50 volt lamp on 110 volt circuit? A. No. The low potential lamps would have their filaments destroyed by the intensity of current due to so high a voltage, while high potential lamps on a low potential circuit would not become hot enough to give light.

(6151) E. F. C. writes: I have made a battery by placing a ring of electric light carbons around a rod of zinc. The carbons are all connected by a copper wire passing through them. I use sal-ammoniac solution. In a short time a bluish creeping salt forms upon the tops of the carbons and upon the wire and eats it off. The wire is above the board which holds the carbons. Will you tell me the name of this substance and how to prevent its eating the wire? A. You should have dissolved off the copper from the immersed portions of the carbon and then have coated the upper ends with paraffin applied hot. The green substance is a compound of copper, a basic oxychloride probably. It may be necessary to coat your connecting wires near the carbons also. Be careful not to destroy the contact between wires and carbon.

(6152) W. C. P. — Aluminum has but little more than one-half the strength of iron. The pressure that a cylinder will bear depends upon its thickness. Additional weight by air compression is one pound for each 13 cubic feet of free air compressed in the cylinder.

Communications Received.

"On Herr Dowe's Bullet-Proof Cuirass." By S. M. M. "On University of New York Building." By S. V.

INDEX OF INVENTIONS

For which Letters Patent of the United States were Granted

July 3, 1894,

AND EACH BEARING THAT DATE.

(See note at end of list about copies of these patents.)

- Abdominal supporter, B. F. Golding..... 522,366
- Abdominal supporter, M. A. Woods..... 522,394
- Advertising device, aerostatic, N. Burgess..... 522,505
- Alarm. See Fire alarm.
- Alfalfa track cleaner, Harris & Allen..... 522,205
- Analysator, E. J. Powell..... 522,438
- Armonia, apparatus for obtaining, L. Sternberg..... 522,357
- Axle, vehicle, W. H. Bustin..... 522,402