

RECENTLY PATENTED INVENTIONS.

Engineering.

STEAM ENGINE REGULATOR.—Fredrick W. Mount, St. John, Canada. This invention relates to governors adapted for use with engines operated in pairs, and provides a simple attachment to the ordinary shaft fly ball governor by which the cut-off of either of the engines may be accurately regulated and each engine thus made to do its appropriate part of the work. The regulator and governor are so arranged that they may be operated without stopping the engines, so that in case of a hot box or other slight injury to one engine a greater part of the load may be lifted to the other without interfering with the work.

HYDROCARBON BURNER.—William A. Minter, Peachville, Pa. This is a device adapted to convert a spray of steam, oil and air into a hydrocarbon gas and burn it in a combustion chamber. The burner is inexpensively made, easily controlled, and not liable to get out of order, and the arrangement of parts is such that the oil, hot and cold air, and steam, may be controlled by the several valves so that just the right proportions of each shall be admitted to the combustion chamber in steady streams, to be mingled and burned in the most efficient way to produce intense heat.

Railway Appliances.

CAR COUPLING.—George H. Conrad and Adam Winter, Pittsburg, Pa. With this device the coupling of meeting cars is automatically effected, and the uncoupling may be performed from the sides of the cars. The coupling is composed of but few parts, which are easily assembled and of great stability, and it can be used in connection with the ordinary pin couplers. The invention covers a peculiar arrangement and combination of parts, embracing several novel features.

CAR TRANSPORTATION CARRIAGE.—Alexander Bowie, Gallup, New Mexico. This invention relates to gravity plane railroads, and provides a carriage adapted to travel on the inclined track and receive a car from a side track for transportation on the plane. It has two truck frames connected with each other either rigidly or pivotally, so that in the latter case the rear or lower truck can assume a different angle relative to the incline of the track. Means are provided for regulating and controlling the velocity of the carriage moving on the plane.

Mechanical.

DIE PLATE.—Lewis C. Wetzel, Bellefonte, Pa. This die plate is provided with revoluble dies, each having in its periphery independent cutters, guide disks carried by the dies having in their peripheries recesses registering with the cutters. This improved die plate permits of quickly and conveniently changing the revoluble dies for different sized work, and removing the individual cutters of each die plate if worn out or broken, without disturbing the rest.

TOOL FOR TURNING PIPES, ETC.—Gustaf Englund, Seattle, Washington. A pair of pivoted jaws crossing each other is provided with slots, a handle being pivoted to the rear end of one jaw, and another pivot at the end of the handle adapted to move in the slots of the jaws. The improvement forms a convenient tool to effectively grip a pipe, axle, or other article, for use as a pipe wrench or for turning car axles to move the cars on the track.

NUT LOCK.—Michael F. Deininger, Brooklyn, N. Y. According to this improvement a locking nut screws in an opposite direction to the nut to be locked, and an interior polygonal flange formed on the locking nut engages a circular part on the nut to be locked. The device is simple, durable and very effective, and designed to securely lock axle nuts in place.

GRINDSTONE ATTACHMENT.—Jesse M. Clock, New York City. The stone is, by this invention, provided with a treadle mechanism, by which it may be easily turned by the foot, and the water, stone and tank attachments are so arranged that the stone may be kept thoroughly wet but will be prevented from spraying water on the person using it, while there are also bracket attachments by means of which certain forms of knives, such as those in the cutter bar of a mowing machine, and other forms of cutters, may be readily ground on a true and uniform bevel.

CLOTH STRETCHER AND DRIER.—William Bailey, Brooklyn, N. Y. This is a machine especially designed for stretching and drying shade cloth after the sizing has been applied to it. Its construction is such that the cloth may be quickly attached and will then be conveyed in a circuitous route through or over drying apparatus, the cloth being automatically stripped from the machine when it has been properly stretched and dried. A tank holds the sizing material, a regulated quantity of which is applied as the cloth is passed through sizing rolls.

Agricultural.

PLOW AND CULTIVATOR.—Madison A., William C., and Robert L. Randolph, Summerville, Mo. This is a combined gang plow and cultivator, designed to be very effective in operation, arranged for shallow or deep plowing, and adapted to be quickly changed from a gang plow to a cultivator and vice versa. To adjust the plow frame it is only necessary for the driver to move a lever in convenient reach of his hand, at the same time moving another lever with his foot, by which means the plows may be readily adjusted to the height desired.

SPRAYER FOR VINES, TREES, ETC.—Albert G. Provine, Puyallup, Washington. A hollow, tank-forming roller is journaled in a frame on which is mounted a pumping mechanism connected with pipes from the interior of the roller, while pipes extending along the sides of the frame are provided with spraying nozzles. The pumping mechanism is actuated by the drawing of the machine over the ground, to spray over vines, trees, and other vegetable growths a liquid solution for exterminating or destroying insect pests.

FRUIT GATHERER AND PRUNING IMPLEMENT.—Silas Chambers, Waco, Texas. This is a de-

vice having a pair of shears and a bag to receive the fruit attached to a long wooden handle, one blade of the shears being operated by a cord to cut off the fruit, which falls into the bag. The latter is detachable when the implement is to be used for pruning, and when the limbs are too thick for the use of shears they may be removed and a saw substituted.

Miscellaneous.

BRICK KILN.—Robert Garret, Freedom, Pa. This kiln is of simple construction and has a combined up and down draught designed to thoroughly circulate the heat among the ware in such manner as to quickly and evenly burn it at all parts of the kiln. The kiln body is preferably circular in shape, and beneath an air-tight floor are independent flue sections with bridge walls, forming heat chambers, each flue section connected with a furnace and communicating with vertical flues discharging into the interior of the kiln. A down draught is provided for by flues in the side walls, and the construction is such that the damp air may be drawn off from each kiln chamber during the operation of filling and during the time the green ware is in the kiln.

ARTIFICIAL FUEL.—Cornelius Cronin, Kingston, and Gwilym Edwards, Edwardsville, Pa. This is a fuel composed of several ingredients moulded or compressed into bricks, blocks or lumps, for use in stoves, furnaces, etc. Among the ingredients are specified proportions of culm, limestone, wood pulp and crude petroleum, the ingredients being ground together and a variable proportion of water added to facilitate the adhesion and mixing of the mass.

LOG PULLING APPARATUS.—Edmund M. Ivens, New Orleans, La. This is an apparatus especially adapted for pulling heavy logs out of swamp lands into lagoons or bayous. It comprises a movable platform carrying a driving mechanism and winding drums with independently operated brake devices, and fixed swamp or anchor sheave with pull rope, rope laying devices, and various other novel features. The apparatus is more especially designed to facilitate handling heavy cypress logs in Louisiana swamp lands.

AXLE BEARING AND HUB.—William D. T. Travis, Burlington, N. J. This improvement provides an improved connection between the axle bearing and the wheel, and forms a simple bearing which may be readily attached to either a new or an old axle, making it very strong, easy running, self-oiling, and very durable. It comprises a shaft chest adapted to be secured to the axle, and having means of supply at its upper side and a vent on its lower side, boxes being held removably within the chest, and a spindle turning in the boxes having one end projecting from the chest, the wheel hub being made fast to the spindle.

TURPENTINE TOOL.—Walter Watson, Fayetteville, N. C. This is a combination tool, comprising a double hacker and puller in a single instrument. It has a flat blade with its ends bent toward each other to form hackers, while the shank has a head at the lower end of which is a seat and a transverse rib at the upper end, the blade being detachable and reversible.

MOVING TRUNKS ON STAIRS.—William H. H. Hallock, West Hampton, N. Y. This improvement comprises a pivoted stair railing, with balusters having a rotary movement, and locking devices whereby the railing may be held perpendicularly or carried to a horizontal position in engagement with the steps of the staircase. Other novel features are also included, constituting a device which may be readily placed and locked upon the stair steps to form a rolling support whereby one may readily move a trunk or package up and down stairs.

RAIN WATER CUT-OFF.—Mathias A. Laeka, New Orleans, La. A swinging pipe, adapted to receive water from the rain spout and deliver it to the cistern, is so connected with a counterbalanced lever and an open water-receiving vessel that the latter will receive the first water washed from the roof, with the dust and dirt which may be washed off at the commencement of a rain, such water being directed away from the cistern, the flow being directed to the cistern after the water has become clean.

GUARD FOR DOORS, WINDOWS, ETC.—Laurence F. Ryan, New York City. This is a light frame device consisting of two telescopic folding sections, adapted to be readily fitted within a door or window opening, and constitute a barrier which will effectually prevent children from getting out. It is inexpensive and quickly fitted in place, and when not in use may be folded to take up but little room.

FIRE EXTINGUISHER FOR COTTON GINS.—Edward Northcraft, San Marcos, Texas. The gin, according to this invention, is provided with sliding valves for closing the top inlet and the lint chute, the valves being so connected that they may be promptly closed by the operator, whereby any fire within the gin will soon die out for want of air.

CONVERTIBLE FINGER RING.—Louis Gumbart, New York City. This is a ring made in sections, each section being capable of being employed as an earring, but the ring having the appearance of an ordinary ring when the sections are united. The changes may be quickly and easily made from one form of ring to the other.

SNUFF BOX.—Charles L. Powell, Weatherford, Texas. This is a device more especially designed for the use of those who take snuff by brushing it across the teeth, as is done in some sections of the country. The box has a brush-holding chamber, within which is a spring-pressed plunger, whereby the handle of the brush is pushed out when the box cover is removed, so that the user may always have the brush ready on opening the box to take snuff.

EASEL.—Maurice Schmirck, Fayette, Mo. A simple and durable easel, for the use of painters and others, has been provided by this inventor, the easel being readily adjustable to any desired angle, or extended for supporting large canvases. It consists of a rack pivoted on a stand, while an extension rack is fitted to slide on the main rack, and has fastening devices for locking a picture frame in place.

SPECULUM.—Henry Dickinson, Jr., Chappaqua, N. Y. This instrument has independent upper and lower sections, with means whereby the anterior ends of the sections may be made to diverge, either one more or less than the other, or both alike.

PUZZLE.—John C. Fields, Meadville, Pa. This device consists of a skeleton box or basket having open top and sides, in which is located a series of blocks having their faces in two colors, each block bearing the same colors, and the blocks having their faces further provided with one or more indicating marks colored to register with the same, the opposite, or the adjacent faces. The puzzle consists in causing similar faces only of the blocks to be presented by simply moving the blocks laterally or vertically, and without turning them.

Designs.

FONT OF PRINTING TYPE.—Robert S. Avery, Washington, D. C. This is a design for a font of phonetic printing type, consisting of forty-two characters, each having a distinctive phonetic value.

PEPPER OR SALT BOX.—Joseph Walter, New York City. This is a salt box in the shape of a recessed cork, such as has been used in a tightly sealed bottle, and ornamented on the top by a perforated cap. A further design of pepper or salt box by the same inventor consists of a representation of the neck of a bottle, with an even bottom and at the top a perforated seal.

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.

VADE MECUM. A work of reference for the use of architects, architectural iron workers, builders, blacksmiths, etc. Compiled and arranged by D. B. Dixon. With a comprehensive treatise on electricity. By Thomas G. Grier. Chicago: Laird & Lee. 1893. Pp. 480. Price \$2.50.

The best description of this work that we can give is to state that to some extent it covers the very wide ground embraced in Haswell. In other words, it treats of a very wide range of subjects. It contains an alphabetical table of contents and will fill its place with considerable satisfaction.

SCIENTIFIC AMERICAN BUILDING EDITION.

JUNE, 1893.—(No. 92.)

TABLE OF CONTENTS.

- Elegant plate in colors, showing the residence of Joseph P. Beach at Pine Orchard, Conn., erected at a cost of \$1,200 complete. Floor plans and two perspective elevations. Messrs. Munn & Co., architects, New York.
- Plate in colors showing the handsome residence of Seward W. Jones, at Newton Highlands, Mass., erected at a cost of \$9,000 complete. Perspective view and floor plans. Messrs. Rand & Taylor, architects, Boston, Mass. An attractive design.
- A handsome colonial dwelling on Beacon Hill, Boston, Mass. Two perspective views and floor plans. A model design. Messrs. Shepley, Ruten & Coolidge, architects, Boston, Mass.
- A Colonial residence dwelling at Montclair, N. J., erected at a cost of \$5,500 complete. Floor plans, two perspective view, etc. Messrs. Munn & Co., architects, New York. An excellent design.
- Engravings and floor plans of a dwelling at Elm Station, Pa., erected at a cost of \$5,200.
- A dwelling erected near Longwood, Mass. A modern design. Mr. Austin W. Pease, architect, Boston, Mass. Floor plans and perspective elevation. Cost about \$2,300.
- The First Congregational Church at Plainfield, N. J., erected and furnished complete at a cost of \$15,000. Mr. Oscar S. Teale, architect, New York City. Perspective and floor plans.
- A residence at Beardsley Park, Bridgeport, Conn. A very picturesque design, perspective elevation and floor plans. Cost \$5,500 complete. Mr. A. H. Beers, architect, Bridgeport, Conn.
- Views showing the exterior of the twelve-story Boyce Building, at Chicago, put up in thirty-nine days. The cost of the structure was \$300,000.
- The Fifth Avenue Theater, New York.—Views of the auditorium, the Broadway lobby, the Twenty-eighth Street foyer. Mr. Francis H. Kimball, architect, New York.
- Miscellaneous Contents: New lien law in California.—An improved spring door hinge, illustrated.—To estimate brick work.—Foul water main.—An improved woodworking machine, illustrated.—An improved scaffold truss, illustrated.—Sawdust building bricks.—Some beautiful arch work, illustrated.—Mineral wool in buildings.—Woodmantels, illustrated.—Sound titles for real estate.—Durability of cedar.—Tin from tin scrap.—Improved steam heater, 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.

Business and Personal.

The charge for Insertion under this head is One Dollar a line for each insertion; about eight words to a line. Advertisements must be received at publication office as early as Thursday morning to appear in the following week's issue.

Order pattern letters & figures from the largest variety. H. W. Knight & Son, Seneca Falls, N. Y., drawer 1115.

"U. S." metal polish. Indianapolis. Samples free.

Kemp's Manure Spreader, Syracuse, N. Y. See Adv.

Best drying machines. S. E. Worrell, Hannibal, Mo.

Universal and Centrifugal Grinding Machines.

Pedrick & Ayer, Philadelphia, Pa.

Wm. Jessop & Sons have a handsome display of steel in Mining building at the World's Fair.

All kinds of Perforating done in every kind of metal. F. Erdle Perforating Works, Rochester, N. Y.

The Improved Hydraulic Jacks, Punches, and Tube Expanders. R. Dudgeon, 24 Columbia St., New York.

\$5 gauge shows speed and all changes of engines, machinery, etc. G. T. McL. & Co., 120 Fulton St., Boston.

Stow flexible shaft. Invented and manufactured by Stow Mfg. Co., Binghamton, N. Y. See adv., page 270.

Screw machines, milling machines, and drill presses. The Garvin Mach. Co., Light and Canal Sts., New York.

Centrifugal Pumps for paper and pulp mills. Irrigating and sand pumping plants. Irvin Van Wie, Syracuse, N. Y.

Guuld & Garrison, Brooklyn N. Y., manufacture steam pumps, vacuum pumps, vacuum apparatus, air pumps, acid blowers, filter press pumps, etc.

Split Pulleys at Low prices, and of same strength and appearance as Whole Pulleys. Yocum & Son's Shafting Works, Drinker St., Philadelphia, Pa.

Perforated Metals of all kinds and for all purposes, general or special. Address, stating requirements, The Harrington & King Perforating Co., Chicago.

To Let—A suite of desirable offices, adjacent to the Scientific American offices, to let at moderate terms. Apply to Munn & Co., 361 Broadway, New York.

The best book for electricians and beginners in electricity is "Experimental Science," by Geo. M. Hopkins. By mail, \$4; Munn & Co., publishers, 361 Broadway, N. Y.

Canning machinery outfits complete, oil burners for soldering, air pumps, can wipers, can testers, labeling machines. Presses and dies. Burt Mfg. Co., Rochester, N. Y.

Competent persons who desire agencies for a new popular book of ready sale, with handsome profit, may apply to Munn & Co., Scientific American office, 361 Broadway, New York.

Send for new and complete catalogue of Scientific and other Books for sale by Munn & Co., 361 Broadway, New York. Free on application.

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.

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.

(5137) M. S. P. asks: 1. Will the hand power dynamo described in SUPPLEMENT 161 generate sufficient current to run the motor described in SUPPLEMENT 641? A. You can barely run it without developing much power. 2. Can the eight light dynamo be run by power from a windmill? A. Yes.

(5138) W. J. R. writes: Please tell me following in "Notes and Queries" in SCIENTIFIC AMERICAN: The question regards difference in density and resistance of the atmosphere in Mississippi Valley and Leadville, Col. Suppose a man weighs 150 pounds, and in jumping from a balloon in the State of Illinois must have a parachute 28 feet in diameter to come down safely, what size parachute must this same man have to descend from a balloon in Leadville, Col.? A. The atmosphere at Leadville being about 28 per cent lighter than in Illinois, will give a proportional less resistance to falling bodies. The parachute should, therefore, be made about 28 per cent larger area, or 33 feet in diameter.

(5139) "Devoted Reader."—Probably the best way to learn the watchmakers trade is to apprentice yourself to a thoroughly good watchmaker.

(5140) C. B. says: Suppose 1, 2, and 3 represent three tanks filled with water of equal depth, and are each 10 feet high. Diameter of the bottom is 24 inches in each. 1 is the same area at the top as at the bottom; 2 is three times the area at the top as at the bottom; 3 has one-fifth the area at the top as at the bottom. Is the pressure (per square inch) equal on all parts of the bottom of each tank, and is the total pressure on the bottom of each the same? A. The pressure is the same per square inch on the bottom of all the tanks. The total pressure on the bottoms is in proportion to their areas in square inches.

(5141) E. S. S. asks: 1. What battery is best adapted to run a motor for the longest period that carries a 10 inch fan? A. Probably the Bunsen battery is the best. 2. I have a porous cup that has holes in it, and it is lined on the inside with cloth, and a rod of carbon is in the center, and the jar is filled up around the carbon with some kind of black stuff. How can I repair the battery so it will work, and what is the black stuff around carbon? What is battery best adapted for? A. For a filling for your porous cell, try granulated black