

RECENTLY PATENTED INVENTIONS.

Engineering.

**EQUALIZING LOCOMOTIVES.**—John E. Hughes, Pine Bluff, Ark. To keep the engine from causing the wheel flanges to be cut by the shifting weight, a longitudinal bar is pivoted about the center of its length to the engine saddle, with its front end secured to the truck cradle, and a transverse bar has apertures in its ends and a projection on its lower surface to which the rear end of the longitudinal bar is pivoted, while threaded hangers secured to the springs pass down through the apertures of the transverse bar. The equalizing devices are readily adjusted to cause the truck to guide the engine from one side to the other as necessary.

**SUSPENSION BRIDGE.**—Arthur Sherry, Fayette, Miss. This invention provides for such construction that the body or floor of the bridge will be self-adjusting, accommodating itself to expansion and contraction, and a self-adjusting anchorage is likewise provided. The cables have a spring-controlled end movement, and a truss support connected with the pins has spring cushions, the entire construction being designed to be of a simple, strong, inexpensive character.

Railway Appliances.

**CAR COUPLING.**—John F. Tiner, Sutherland Springs, Texas. This is a device of the link and pin type, but with novel features to facilitate automatic coupling and safe uncoupling from the side of the car. In a vertical slot of the drawhead is pivoted a gravity block on which is loosely secured a lifting plate having a curved pin on its front, there being simple means to lift the pin and plate, while an elongated link is insertable in a horizontal slot intersecting the vertical slot.

**CAR SIGNALING APPARATUS.**—Charles Harold, New York City. This device comprises an alarm at the rear of a street car, to warn persons stepping from the car from attempting to cross other tracks. It is sounded by the driver or motorman at the forward end of the car, on the approach of a car from the opposite direction to pass the car on which the alarm is rung, so that persons crossing the street back of a stationary or moving car will be warned not to proceed until the second car has passed.

**END SUPPORT FOR CARS.**—Seth A. Crone, New York City. This is an adjustable support to raise the ends of cars in case of their sagging down, and comprises a double truss for each end of the sill, the truss including a sectional bottom knee brace, and a bracket extending from the sill forming an abutment for the lower ends of the kn brace sections. A socket engaging the forward end of the knee brace is attached to the end sill, and a truss rod engaging the socket extends upwardly over a post in the car, to then extend downward and form at its rear end a socket engaged by the rear end of the knee brace.

**CAR FENDER.**—William H. H. Diffenbach, New York City. In this fender a vertical gate having bars of spring steel whose lower ends come close to the track is pivoted to the front end of an extension frame forming part of the truck frame of the car, and when the gate is struck by a person or obstruction it swings so as to move down upon the track a fender platform, beneath the car platform, in a position to pick up anything in the path of the car. The device readily passes over switches and other track fixtures.

**CAR BRAKE.**—James H. Core, Etna, Pa. This is a safety or emergency brake for electric or street cars. Each brake consists of a shoe whose lower portion is adapted to engage the track rails while its opposite face is concaved to fit the periphery of the car wheel, and each shoe has a link shaft connected with lifting chains and levers. The brakes are held raised slightly from the track when in inoperative position, but on releasing a lever they fall to the track and the wheels run upon them.

Electrical.

**ANNUNCIATING TARGET.**—Otto Kauffmann, Sacramento, Cal. According to this improvement the target is made with independent movable rings, which, as well as the bull's eye, are each adapted to make independent electric contact to actuate an annunciator located close to the marksman, whereby the value of each shot fired will be immediately and automatically indicated, and no scorer is required. The annunciator also indicates when the target is struck on the upper or lower or right or left hand sections, to aid the marksman in taking aim for the next shot.

Mechanical.

**PORTABLE HYDRAULIC PUNCH.**—Elijah B. Cornell, Philadelphia, Pa. This punch is especially adapted for making apertures in the webs of railway rails, or in metal beams or plates for architectural, bridge and other iron work, and the punch is hydraulically withdrawn as well as hydraulically forced through the metal, both operations being quickly and readily accomplished. All the valve chambers are accessible for making repairs without taking the punch or pump apart.

**WATER WHEEL GOVERNOR.**—Winfield S. Libbey, Lewiston, Me. According to this improvement provision is made to control the gate-operating shaft by a mechanism which includes a battery and electro-magnet, the governor being connected with a centrally pivoted lever under the ends of which are spring contacts, there being a fixed contact beneath one of the spring contacts. The governor may also be connected with a tilting bar to accomplish similar results mechanically, without the intervention of a magnet, the mechanism operating positively in either case to govern the motion of the wheel with a minimum of variation.

**NUT LOCK.**—Jefferson D. Tynes, Fort Smith, Ark. This is of that class of nut locks made as spring washers, and consists of a single metal bar bent in a peculiar shape. The bar has its ends curved around to form a bolt hole, one of the ends being bent back outside the body portion with a reversed curve of uniform radius and sprung outwardly and terminating in a beveled end, while the other end forms a flat bearing.

**NUT LOCK.**—Francis W. Coleman, Rodney, Miss. This device comprises a U-shaped plate of spring metal, one limb of which is seated in a recess on the end of a nut and the other limb polygonally apertured to fit on a polygonal shaped end of the screw bolt. The improvement is very simple and cheap, and is designed to hold a nut of any size from reverse movement on a screw bolt.

**PLANTER.**—Cyrus N. Baker, Crawfordsville, Ind. This planter is adapted for potato planting, although it may be used to plant any kind of seed. It is very light and inexpensive, and will plant in single or double rows. A seed wheel rotates partially in the hopper and partially in a chute connected therewith, a spring-controlled shaft being operatively connected with the wheel, while a drive shaft with mutilated gear has intermittent driving connection with the spring-controlled shaft.

Miscellaneous.

**TELESCOPE, MICROSCOPE AND CAMERA.**—Robert L. Stevens, Vineland, N. J. This is a combination instrument with an extensible body portion having an object glass at one end, a telescope connection having an eye or microscope end piece, while an intermediate section has a fixed focal point and its body portion is provided with a plate-receiving pocket or slit in line with the fixed focal point. In adjustment for use as a camera the sensitized plates or films can be connected without necessitating the use of a dark room or a ground or focusing glass.

**GAS PRESSURE REGULATOR.**—Thomas C. McGrath, Bolivar, N. Y. This is an automatic device in which the flow of gas is controlled by a slidable spring-pressed hollow valve or cylinder having one or more lateral openings that serve as gas passages, the changing position of the sliding valve, according to the gas pressure, governing the pressure automatically.

**GAS BURNER.**—Charles E. Dressler, New York City. This is an improvement upon a formerly patented invention for a burner for heating purposes, permitting the user to turn the burner into any desired position to allow of using the burner in connection with a blowpipe and for other purposes.

**PRINTING PRESS PERFORATOR.**—Horace G. Miller, Punxsutawney, Pa. This perforator is adapted for attachment to the gripper bar, to be operated simultaneously therewith, a perforating knife being arranged to move upon a slideway, an end portion being held away from the slideway, while a side arm carrying perforating knives has a portion fitting into the space between the supporting bar and the end of the knife. The device is of simple and inexpensive construction, not interfering with the clearness of the impression, and readily adjustable to perforate the paper at the exact place desired.

**AUTOMATIC LIQUID MEASURE.**—James Cowan, Honolulu, Hawaii. This improvement comprises a tank centrally divided to form two compartments in which are rectangular tank floats, there being in each of the compartments an inlet valve at the top and valved outlets at the bottom, the floats being connected with lever devices by which the valves are alternately opened and closed. The apparatus is designed to automatically measure heavy or light liquid flowing through it, and is easily set for an operative condition in which the friction is reduced to a minimum.

**SKIFF OR CANOE PADDLE.**—Peder K. Mannes, St. Paul, Minn. This paddle has a bent shank portion from which projects a hand grasp, a ring or loop being pivotally mounted at the bend in the shank. It is especially adapted for use by hunters in boats, each arm being provided with a paddle which it will be unnecessary to lay down in firing the gun, and enabling quick rowing afterward toward the game.

**OIL CAKE TRIMMER.**—John S. Ovens, Buffalo Center, Iowa. To evenly trim the edges of oil cake and save the trimmings, this inventor has devised a machine in which are three revoluble cutters and a carrier adapted to be moved between them, the cake being pushed sideways on the carrier to trim its ends, and endwise to trim its sides.

**STORM CURTAIN FOR BUGGIES.**—Bernard Martin, McPherson, Kansas. This curtain is made in two sections, each shaped to cover one-half of the vehicle front from the top of hood to bottom of body, and also a side portion of the body, each section also having sight openings and one of them a driving flap, and each section having a cord to connect with a support in the vehicle body. The entire front and sides of the buggy may be quickly closed by the curtain when desired, and readily opened for exit or entrance, and it may be used as an ordinary apron in pleasant weather.

**CIGARETTE BOX.**—Andrew L. Ellett, Jr., Richmond, Va. This box has a sliding holder, with a flexible strip or pull piece attachment, by which one or more cigarettes may be drawn part way out of the holder for convenient removal. The strip or pull piece is attached at its inner end to the body of the holder and its free end projects beyond the outer end of the cigarettes.

**BOTTLE CUTTING APPARATUS.**—August Benson, Streator, Ill. This inventor has provided a simple and inexpensive apparatus whereby, with bottles blown in turn moulds, the bottle neck may be easily cut off by mechanism controlled by the foot of the blower, thus leaving his hands free to do other work, the neck being smoothly cut, leaving the bottle in good condition for finishing in the "glory hole." The cutter is movable in and out at the neck of the mould, a water supply delivering into the mould near the cutter, there being a mechanism for moving the cutter and a valve controlled by the movement of the cutter to regulate the water supply.

**ADVERTISING DEVICE.**—George M. Underwood, Orange, Mass. This device comprises a card holder to which are attached supporting arms, terminal rigidly attached clamps being formed of opposing jaws which are adapted to clasp harness saddle terrets, adjusting bolts working in the jaws. It may be conveniently attached to any ordinary harness for the advantageous

display of an advertising card at any point above a horse.

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 HUNT AIR BRAKE COMPANY INSTRUCTION BOOK.** Pittsburg, Pa.: The Hunt Air Brake Company. 16mo. Pp. 56. Illustrated. Plates.

This instruction book is intended to teach how to handle the Hunt air brakes system. It contains many excellent diagrams and in a pocket some loose folding plates, one of which is provided with a movable celluloid diagram illustrating the use of the Hunt air brake.

**HOW TO MAKE RUBBER STAMPS FOR PROFIT.** By J. Clark Barton. New York. 1891. 32 pp. Price \$1.

This book is written by a practical manufacturer of stamps and stamp outfits. Full instructions are given for the various methods of stamp making, from the original plaster of Paris method down to the latest and best press mould process. Illustrations are given of an excellent vulcanizer.

**AERIAL NAVIGATION.** By Daniel Hawkins, M.D. Toledo, Ohio. 1895. 8vo. Pp. 90. Plates.

Outlines the author's views on aerial navigation and describes his air ship.

**CURRENT HISTORY.** Second quarter, 1895. Buffalo: Garretson, Cox & Company. 1895. \$1.50 per annum; single copies, 40 cents.

This cyclopedic view of current history contains articles on "Argon and its Discovery;" "The Income Tax Decision;" "The Silver Question;" "The Yellow War;" "The Cuban Revolt," etc. This publication affords reliable information in condensed form on the events of the day.

**ELASTICITY A MODE OF MOTION.** Being a popular description of a new and important discovery in science. By Robert Stevenson, C.E., M.E. San Francisco: Industrial Publishing Company. 1895. 8vo, 61 pp. Diagrams. Price 50 cents.

An essay on the elasticity of motion, with true and approximate cause of universal gravitation.

Any of the above books may be purchased through this office. Send for new book catalogue just published. MUNN & Co., 361 Broadway, New York.

SCIENTIFIC AMERICAN BUILDING EDITION.

SEPTEMBER, 1895.—(No. 119.)

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3. A dwelling at Bronwood Park, N. Y., recently erected at a cost of \$6,000 complete. Two perspective elevations and floor plans. Mr. J. M. Lawrence, architect, Mt. Vernon, N. Y.
4. A residence at Mt. Vernon, N. Y., recently erected at a cost of \$8,000 complete. Perspective elevation and floor plans. Mr. Walter F. Stickles, architect, Mt. Vernon, N. Y. An attractive design in the Colonial style.
5. A cottage at Bergen Point, N. J., recently erected at a cost of \$4,200. Mr. Wesley J. Havell, architect, New York City. Perspective elevation and floor plans. A neat design, showing some original and pleasing features.
6. A dwelling at Bedford Park, New York City. Two perspective elevations and floor plans. Mr. Edgar K. Bourne, architect, New York City. An attractive design in the English Gothic style.
7. A two-family dwelling recently erected at New Haven, Conn. Two perspective elevations and floor plans. Cost complete, \$5,080. Architects, Messrs. Stillson & Brown, New Haven, Conn.
8. St. Ann's Episcopal Church, Kennebunkport, Me. Perspective view and ground plans, also an interior view. Mr. H. P. Clark, architect, Boston.
9. A residence at Williamsport, Pa., recently erected for J. F. Fredericks. Architect, David K. Dean. Perspective elevation and floor plans. An attractive design.
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11. Miscellaneous contents: The Hayes metallic lathing, illustrated.—Neolith as a paint and decorative medium for relief work, illustrated.—Gas radiators, fire grates, etc., illustrated.—Improved heaters, illustrated.—Improved sash lock, illustrated.—American homes and the cabinet or parlor organ, illustrated.—The Laurie steel lath, illustrated.—The Austin & Eddy sash hanging attachment, illustrated.

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Notes & Queries

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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.

(6617) J. P. writes: 1. I am making a gas engine on the four cycle plan. Size of bore of cylinder is 3 1/4 inches. Please answer me the following questions through SCIENTIFIC AMERICAN. 1. How much should I compress the gas in the cylinder? A. The mixed gas and air should be compressed to from 1/2 to 1 1/2 its volume. 2. How much space should there be between piston head and cylinder head at end of inner stroke? A. The cylinder chamber should be 1/2 to 1/2 the stroke. 3. What proportion of gasoline vapor and air make the best explosive? A. One part gasoline vapor to 10 parts air is the best proportion. 4. About what will be the pressure per square inch in cylinder after explosion? A. About 100 pounds per square inch. 5. My cylinder is 5/8 inch thick, will it be strong enough to stand the pressure? A. Cylinder thickness is correct. 6. About how much power will this give? I recently took apart a medical battery and found the galvanic cell to consist of a round (metal tube I think) tube filled with a substance like paste, with resin poured in the end of tube to seal it. Can you tell me what this paste-like substance is and how to make this form of battery cell? A. About 3/4 horse power. It will pay you well to consult the latest work on gas engines by Donkin, fully illustrated, \$6.50 by mail. There are many forms of dry batteries, contents known only to the makers. The following are from "Scientific American Cyclopedic of Receipts, Notes and Queries," \$5 by mail. Dry.—A good effect can be obtained from a paste of plaster of Paris, 1 pound; oxide of zinc, 1/4 pound; saturated solution of chloride of zinc, enough to make a thick paste. They are very good for medical coils. Filling for Dry Batteries.—Charcoal, 3 parts; mineral carbon or graphite, 1 part; peroxide of manganese, 3 parts; lime hydrate, 1 part; white arsenic (oxide), 1 part; and a mixture of glucose and dextrine or starch, 1 part; all by weight. These are intimately mixed dry and then worked into a paste of proper consistency with a fluid solution composed of equal parts of a saturated solution of chloride of ammonium and chloride of sodium in water, to which is added 1-10 volume of a solution of bichloride mercury and an equal volume of hydrochloric acid. The fluid is added gradually and the mass well worked up.

(6618) C. G. D. asks: 1. Is it possible to superheat water? A. Water cannot be superheated. Superheating means a greater heat than is due to the pressure of evaporation, and is not applied to liquids. Vapors or steam may be superheated or given a higher temperature than is due to their evaporative pressure. A full boiler may be heated to any reasonable degree of temperature above 212°, but is subject to the steam pressure due to the temperature, as well also the enormous pressure of the expansion of the water, which no boiler can resist. 2. If a boiler is filled absolutely full and heated, will the water be raised to a higher degree than 212°? A. In all boilers making steam under pressure the water is at or very near the temperature of the steam; at 100 pounds pressure the temperature is about 338° F. Hot water circulating pipes have been in use with a water temperature from 500° to 600° F., but the pressure was in proportion to the temperature.

TO INVENTORS.

An experience of nearly fifty years, and the preparation of more than one hundred thousand applications for patents at home and abroad, enable us to understand the laws and practice on both continents, and to possess unequalled facilities for procuring patents everywhere. A synopsis of the patent laws of the United States and all foreign countries may be had on application, and persons contemplating the securing of patents, either at home or abroad, are invited to write to this office for prices, which are low, in accordance with the times and our extensive facilities for conducting the business. Address MUNN & CO., office SCIENTIFIC AMERICAN, 361 Broadway, New York.