

RECENTLY PATENTED INVENTIONS.

Electrical Devices.

POLE.—W. ROBERTS and C. ROBERTS, Springfield, Ohio. The invention relates more especially to such poles as are used for stringing electric circuit wires and the like. The pole can be braced equally on opposite sides, when for example, the pole is inclined on curves and the like. The device is adapted removably to carry a mast and cross-arms upon which the wires are strung. Messrs. Roberts have invented another pole or standard formed from concrete or other plastic substances adapted subsequently to harden, and having reinforcing tension members imbedded or partially imbedded therein, T-iron or similar elongated members, and having annular holding members encompassing the tension members, the poles being formed in sections secured together by a connection of special form.

WIRE STRETCHING AND SPLICING DEVICE.—P. O. LARSON, Kellys, N. D. The invention refers to devices for stretching and splicing broken telegraph and telephone wires, and is designed to do away with the necessity of using clamps, pulleys, etc., now commonly used for this purpose, which becomes necessary when wires are cut, or broken by accident, accumulation of sleet, etc.

Of Interest to Farmers.

DRAFT-EQUALIZER.—H. C. SCOTT, Ritzville, Wash. The aim of the invention is to provide an equalizer arranged to distribute the load to be hauled equally to the animals in the team, to reduce the friction of the working parts to a minimum, and to provide a comparatively short but very strong and durable equalizer not liable to get out of order nor cause entanglement of the animals when in use.

Of General Interest.

ANCHORING-BASE FOR POSTS.—P. T. BAILEY, Middletown, R. I. The base is capable of being readily placed in position, and one wherein when the base is in position which is within the ground, will be firmly and immovably anchored, while that portion above the ground, and which is adapted to receive the post, will admit of vertical adjustment of the post and also lateral adjustment of the post in any direction necessary to bring it in proper alignment.

METAL STAIR.—C. F. STEIBER, New York, N. Y. The invention especially relates to staircases which are formed of metal. The intention in this instance is to produce a staircase adapted to be formed of steel or similar material, and the invention relates especially to the form of the separate parts and the manner in which the stairs are built up therefrom.

GATE.—C. A. EIDSMOE, Beresford, S. D. One object here is to provide a swinging gate which may be adjusted to any degree of inclination above or below the horizontal, and retained in such adjusted position. Another object is to provide a gate comprising an adjustable frame, pivoted at one end to a post and having its free end adapted to be raised or lowered, and means for retaining the frame in its adjusted position.

SUCTION DEVICE FOR AIR, GAS, OR SMOKE PIPES.—A. CAUCHEMONT, 17 Rue de l'Aqueduc, Paris, France. The air in entering the apparatus at one of the openings reaches a pipe tangentially. This air produces a suction effect inside this pipe and the smoke, gases or vitiated air escape through the openings and pass to the annular space comprised between the pipe and the strips of the lantern. Owing to the relative vacuum produced by the wind at the rear of the apparatus, the smoke or gases are drawn outside in passing through the apertures in the lantern.

SUSPENSORY.—G. C. JOHNSON, Dillon, S. C. This suspensory embodies a scrotum support, and a waterproof attachment thereto of novel construction, which forms a receptacle for the member and affords convenient means for the introduction and discharge of liquid medicaments for the treatment and cure of a diseased organ.

Hardware.

COMBINED LEAF-CLIP AND LINE-MARKER.—E. A. BAGBY, Louisville, Ky. This spring-actuated clip is especially adapted to clamp upon a leaf of a book or manuscript, and also to grip the flat end of a flat lining strip having parallel side edges, so as to hold said strip extended across or lengthwise of the leaf or page and be disposed adjacent to a selected line thereon; and for changes in adjustment for locating the straight edge of the liner strip close to lines on the page successively, to facilitate the correct posting of accounts or transfer of statements, and executing work requiring exact reading of written or printed lines consecutively.

WIRE-FENCE TOOL.—B. B. WOOD, Helena, Mont. In the present patent the invention is an improvement in tools for use in building wire fences, and it has for a particular object the provision of a novel construction whereby to apply to the crossing wires of wire fences the clamp covered in a former patent granted to Mr. Wood.

SOCKET FOR SASH-CORDS.—F. DEGIORGIS, West Hoboken, N. J. The invention per-

tains particularly to means for use in securing cords to a sash, or for holding a sash cord when the sash is disconnected, as for instance when the window is being cleaned. The object is to provide a socket which greatly facilitates the attachment or removal of the cord but which is constructed in such a way as to effectually prevent any accidental displacement of the cord.

LEADER-BRUSH.—M. BLACKMAN, Jersey City, N. J. The object of the inventor is to produce a brush especially adapted for use in painting the inner side of leaders or rain spouts. In the operation of the device, it will feed small quantities of paint from the reservoir to the brush, and the parts are so arranged as to enable the device to turn the corners or bends of a leader.

Heating and Lighting.

GAS-METER.—W. F. ETZEL, Lowell, Mass. This invention relates to dry gas meter having alternately expanding and contracting measuring chambers. The object is to provide improvements in meters, whereby gas passes freely through the parts of the slide valve seats to and from measuring chambers, thus reducing the decrease of the gas pressure, incident to its flow through the meter, to a minimum.

Household Utilities.

BRUSH.—C. W. PATRICK, Phoenix, Arizona Territory. This brush is primarily intended for the bath, although with slight modifications it is adapted as a scrub brush for floors, wood-work, windows and scrubbing in general, where quick thorough cleaning is desired with the least possible exertion. For the bath, the brush has all the advantages enumerated when used as a scrubbing device, in addition to presenting a sanitary article effecting its own cleaning when in use.

INSECT-EXTERMINATOR.—MARGARET E. COCHRANE and J. J. COCHRANE, Jersey City, N. J. In this case the improvement refers more particularly to exterminators adapted to be used for destroying bed-bugs or the like, and each of which in general consists of a burner adapted to have one end connected to any suitable gas supply, and a pan movably carried by the burner and serving to receive the dead insects.

BATH-TUB ATTACHMENT.—NELLIE L. GILMORE and M. GILMORE, Phoenixville, Pa. This invention is an improvement in frames for use in application to bath tubs. The aim is to provide a frame which can be applied to and removed from the tub, and will afford facilities for holding a wash bowl and a soap dish. It will be found useful for general use, but especially so in boarding houses among the laboring classes.

MOP-WRINGER ATTACHMENT.—W. F. MCGLAUGHLIN, Denver, Colo. The purpose of the inventor is to provide a construction, wherein the mop may be twisted to express the water therefrom, without the necessity of using the hands in direct contact therewith. When the cloth has been sufficiently wrung, the motion of the handle is reversed to bring the cloth into its original position, after which the operation may be repeated.

Machines and Mechanical Devices.

PENCIL-MAKING MACHINERY.—F. P. DORIZZI, 66 Elm Grove Road, Barnes, Surrey, England. Mechanical means are provided for inserting the leads or other material preferably with the combination therewith of gluing means. Leading means comprise a series of hoppers arranged over a suitable bed along which the grooved boards to be leaded are slid and means connected to each of said hoppers for feeding a single lead or strip of other material to each groove in the board at the required moment.

PNEUMATIC HAMMER.—V. E. LANE, Berwick, Pa. Among the objects of this invention are the provision of a powerful down-stroke in connection with a cushioned back-stroke, to render the hammer, as far as practical, independent of specified pressure of air in order to make it operative; to facilitate the removal and replacement of the barrel; to improve lubrication of movable parts; to hold the rivet-set securely at the end of the barrel, to prevent accidents and the set from falling out.

SCREW-CUTTER.—A. R. WEISZ, New York, N. Y. The invention has for its object the provision of a screw cutting device which is simple in construction, effective in operation and durable in use, adapted to be readily sharpened, and so constructed as to be capable of being accurately adjusted to screws of different diameters.

CARRIAGE-DRIVE.—J. J. SULLIVAN, Eagle Mills, Ark. The invention is particularly useful in connection with saw-mill carriages and the like. An object is to provide a support for the piston rod of a carriage drive, so that the piston rod is prevented from sagging and thereby wearing the stuffing-box and other parts with which it comes in engagement, in an irregular manner.

LACQUERING-MACHINE FOR CANS.—C. B. HANTHORN, Portland, Ore. The invention refers to a machine for the purpose of lacquering cans. The object is to produce a machine which will operate automatically to receive cans which are fed to it, in such a

manner that the cans will be dipped in a bath of lacquer and dried before delivery from the machine.

FIRE-ESCAPE.—J. HEGEDUS, New York, N. Y. The object of the inventor is to provide a fire escape for permanent use on buildings, and arranged to allow repeatedly using the device for conducting people from any one of the floors of the building safely to the ground, and to permit the use of the device by firemen or others, for ascending to any one of the floors.

LINOTYPE-MACHINE.—C. ALBRECHT, Charlottenburg, Germany. One object of the invention is to provide means for reducing the wear and tear on the lugs of the matrices as they leave their magazine and enter the vertical channels. Another object is to improve upon the construction of the part or chute between the delivery mouth of the magazine and the vertical channels, particularly in machines designed for a plurality of magazines and where, therefore, the said part or chute is made movable.

Prime Movers and Their Accessories.

BALANCED VALVE.—W. ORD, Brooklyn, Ohio. The intention in this case is to provide details of construction for a valve which are practical and very efficient, and that enable the balancing of pressure on the body of the plug valve, so that leakage around the valve will be prevented, and the valve body be adapted for convenient adjustment to control the passage of fluid throughout.

Railways and Their Accessories.

RAILWAY-TIE AND RAIL-FASTENER.—P. E. FETTER and W. A. STICKLEY, Kenmare, N. D. One purpose of the inventors is to practically provide a construction of tie that will prevent shifting in the road bed, and to provide a smoothness of track that will lessen resistance, thereby saving property, and also to provide a rail lock that will hold the rails more firmly than spikes, and admit of the necessary expansion and contraction of the rails.

Pertaining to Recreation.

ROLLER-BOAT.—R. E. SHARP, Newaygo, Mich. In this patent the invention relates to small pleasure boats or launches, and the object of the inventor is to produce a boat having a simple construction which will be economical to build, and having improved propelling mechanism and improved steering gear.

Pertaining to Vehicles.

COMBINED HEARSE AND PASSENGER-VEHICLE.—F. HULBERG, New York, N. Y. The invention has reference to power-driven vehicles, such as automobiles, and its object is to provide a new and improved combined hearse and passenger vehicle, arranged to accommodate a coffin and flowers in one compartment and passengers in a separate compartment.

COMBINED ODOMETER AND SPEED-OMETER.—R. G. SANFORD, Yonkers, N. Y. The invention has for its purpose to provide for the actuation of the measuring means in the same direction, irrespective of the direction of movement of the part measured; to dispense with the usual flexible shaft such as is employed when the meter is applied to a vehicle, and in general, to provide a construction having little or no tendency to vibrate.

NOTE.—Copies of any of these patents will be furnished by Munn & Co. for ten cents each. Please state the name of the patentee, title of the invention, and date of this paper.



Kindly write queries on separate sheets when writing about other matters, such as patents, subscriptions, books, etc. This will facilitate answering your questions. Be sure and give full name and address on every sheet.

Full hints to correspondents were printed at the head of this column in the issue of March 13th or will be sent by mail on request.

(12076) F. E. S. says: I am inclosing a copy of a report on the efficiency of a new kind of quadruple engine which is being built and placed on the market by a local concern. With 3.5 gallons of kerosene they developed, by brake test, 52 horse-power constantly for one hour. I am unable to find any efficiency tables for steam engines using kerosene for fuel. Can you tell me what the best machines now on the market do deliver? 3.5 gallons of kerosene develop 52 horse-power for 1 hour; 3.5 gallons kerosene weigh 23.57 pounds; 1 pound kerosene has 21,000 B. T. U.; 23.57 pounds kerosene have 494,970 B. T. U.; 494,970 B. T. U. equal 385,086,660 foot pounds; 52 horse-power is 102,960,000 foot pounds per hour. Fraction of the energy in the oil which is delivered by the engine is 102,960,000

— or 26.74 per cent. A. You are 385,086,660 unlikely to find tables of combined efficiencies of engines and boilers using oil fuel because

the method of testing the efficiency of an engine by the fuel consumed under the boiler had come to be considered an unfair criterion before much advance had been made with liquid fuel. There is no analogy whatever between the terms engine horse-power and boiler horse-power, the latter being an unsatisfactory term only used for want of a better. That the capacity of the accompanying boiler depends upon the relative efficiency as well as the capacity of the engine may be shown by the fact that a single-cylinder non-condensing engine may take as much as 30 pounds of steam per horse-power per hour, whereas a modern triple-expansion condensing may require as little as 10 pounds. At the same time your comparison of the power delivered in useful work with the B. T. U. contained in the fuel consumed is a perfectly legitimate one, and your figures are apparently correct. The figures are certainly unusually high, the best we know of, for any kind of fuel shows an efficiency little more than half as high based on fuel consumption per horse-power.

(12077) J. V. A. asks: I am seeking information on the question of water power. I wish to utilize the water in a stream running through a flat country, with hills about 300 to 400 feet high on both sides, but these hills are not the source of the creek's supply. Could you put me in communication with some one, or a firm, who could advise me as to the best method of obtaining from 12 to 15 horse-power from this creek, by hydraulic ram, to elevate water to the hills nearby to drive Pelton wheel, or undershot current wheel, or Poncelet's undershot wheel by damming up the creek, or any other method that may suit? You may be in a position to answer this question; if so, please let me know. I would require full details and plans of wheels, their construction and application to the creek, etc. (I wish to construct the wheels myself, if possible.) I am only a novice at using water power. The machinery I wish to operate from the stream is a Sisal hemp decortivating machine, and possibly a small circular saw. I inclose a rough sketch of cross section of creek, and some figures which were obtained at the same spot, which is a suitable one for the erection of the machinery in the event of your undertaking this question. A. Your method of measuring the flow of the water is quite reasonably approximate and, making due allowance for error and variation of the flow, we should say that you have just about enough water to generate 15 horse-power in the manner you suggest. A good Pelton or similar impact waterwheel should deliver 75 per cent at least of the theoretical power in a given fall of water, so for 15 horse-power you should have a fall and quantity of water with a theoretical power of 20 horse-power. The formula is $H.P. = 0.00189 Q H$, in which $Q =$ quantity of water in cubic feet per minute and $H =$ head in feet. Supposing you lift your water with a ram to a height of 100 feet above the stream,

$20 (H.P.) = 0.00189 Q \times 100$ or $Q = \frac{20}{0.189}$

106 cubic feet per minute nearly. A good ram with not more than 100 feet conveyance will lift about 1/14 of the water required to operate it to a height ten times that of the fall required to operate it, so that 106 cubic feet of water could be raised 100 feet by $14 \times 106 = 1,484$ cubic feet of water with a fall of 10 feet. Your flow at the rate of 66 feet in 15 seconds of a stream 11 feet wide and 7 inches deep represents 1,694 cubic feet per minute, so that you have a fair margin. The length of the drive pipe does not matter, provided you have the whole of the water required to drive the ram inclosed in a pipe for the whole height of the necessary fall, i. e., the dam need be only 5 feet high if there is a further fall of 5 feet from its foot to the point at any convenient distance downstream where the ram is situated. We should say that you could not get the requisite power with a current wheel, as its efficiency is extremely low. With a Poncelet or, better, a low-head turbine, you could, but we should say the first cost of dam and equipment would be higher.

(12078) H. R. P. asks: Will you kindly answer the following questions? What is meant by the term cycle in relation to gas engines? Why is an engine which makes two revolutions to every explosion called a four-cycle engine? How is it possible for any engine to have more than one cycle? A. The "cycle" of any engine is the complete sequence of operations gone through by the operating fluid; in the case of gas or other internal-explosion engines it consists of inspiration during one stroke, compression during one stroke, ignition, explosion, and expansion during one stroke, and exhaust during one stroke. The terms "four-cycle" and "two-cycle" are misleading, and should more properly be "four strokes to the cycle," etc., in fact on this account the term "four stroke-cycle" is now coming into use. In two-cycle engines, either by exploding the gas on both sides of the piston or otherwise, the two separate cycles overlap each other, and whereas each is exactly the same as in the four-cycle engine, one or other cycle is completed every two strokes. The term "two-cycle" has, however, the alternative sense that two separate cycles are used in operating the engine and, therefore, though a later term than "four-cycle" and derived from it, is less inaccurate.