

RECENTLY PATENTED INVENTIONS.

Agricultural Implements.

WEEDING APPARATUS.—B. F. CONKLE and J. T. HALL, Junction City, Ohio. These inventors have devised an improved weeding apparatus for use on railroads. The apparatus may be applied to an ordinary hand-car and it operates over the ties within and outside of the track. It also comprises an extension adapted to remove weeds from the portion of the track lying beyond the ties. This extension has hinged connection with the main frame so that it may properly operate on a sloping bank.

MACHINE FOR PULLING BEETS.—H. G. HORTCHRISS, Lyons, N. Y. This mechanism is adapted to be used with a topping machine or independently of it, and is so constructed that a series of teeth are pivoted upon a circular rotatable support and so controlled that as the machine advances the forward teeth trail upon the ground and drag the severed beet-tops to the side of the next row. Then the teeth are raised and held elevated until reaching the rear of the machine, where they enter the ground, and in their movement throw the beets out in the row, carrying them forward to the right, leaving the beets between the rows in clean condition, for gathering.

KNOTTER FOR GRAIN-BINDERS.—W. NEWMAN, Alexandria, S. D. The chief defect in ordinary binders is the passing of bundles without tying the knot necessary to bind them. This is due to causes more or less obscure. Generally it is owing to defects in the holding device for the twine and in the knotting-bill caused by faults of construction, wrong principles, wear, variations of thickness of the twine, and other causes. Mr. Newman effectually cures these faults, by providing an improved knoter for tying the twine in a knot after being passed around the bundle.

Electrical Devices.

CONDUCTOR.—G. E. TINKER, New York, N. Y. Comprised in this improvement is a conduit formed of a number of C-shaped brackets, having each at one of its vertical sides an opening therein, these brackets having downwardly-extending lugs, spaced and adapted to engage a non-conducting support. Around the brackets is a non-conducting sheathing, forming a complete tube, such sheathing having an opening therein conforming to the bracket openings, so that the shoe and its arm may be projected through these openings and engaged with a conductor-rail fastened to the brackets.

ELECTRIC LAMP.—G. STEIN, New York, N. Y. This invention relates particularly to improvements in small electric lamps designed for the use of physicians, surgeons, dentists, or the like in making nasal, mouth and other examinations, the object being to provide a lamp so constructed that either a continuous or intermittent light may be had.

Engineering Improvements.

ROTARY PUMP.—M. W. PETERSON, Wright, La. Mr. Peterson's invention is an improvement in that class of rotary engines or pumps in which a rotatable cylinder or piston is arranged within an eccentric chamber and provided with one or more sliding wings or blades against which the motive fluid acts.

COMBINED GOVERNOR AND GAS AND AIR MIXER FOR EXPLOSIVE-ENGINES.—W. F. MEISTER and W. S. PATTIN, Marietta, Ohio. This invention relates to engines of the explosive type, and the improvement consists of a peculiar governor-valve adapted to feed a measured quantity of explosive mixture to a compression-chamber. It is not liable to get out of order or be disarranged by an unskilled attendant.

VALVE-GEAR.—P. S. BOSTWICK, Woodbine, Iowa. The present invention relates to steam-engines, such as described in a former patent granted to Mr. Bostwick. In this case the intention is to provide a gear actuated from the reciprocating cross-head, and arranged to permit minute adjustment of the cut-off mechanism to run the engine as economically as possible.

STEAM-ENGINE.—P. S. BOSTWICK, Woodbine, Iowa. The object in view in this case is the provision of an engine, easily reversed, and arranged to utilize the power developed in the cylinder to the fullest advantage in transmitting the power to the main shaft without producing dead-center positions and dispensing entirely with the use of a pitman and crank on the main shaft.

CONDENSING LOCOMOTIVE.—D. R. IVETT, Whitebear, Minn. In the present invention the exhaust-steam from the valve-chests is subjected to the action of jets of cold water injected under pressure by pumps supplied with cold water from the tender or other source. The partially-heated water is mechanically forced back to the tender by another set of pumps, while any spent steam after condensation is subjected to compression and forced under pressure back into the steam-space of the boiler. Salient features of the invention may be utilized in stationary and traction engines.

ROTARY ENGINE.—G. P. BREED, Rockelm, and E. L. HAWN, Olivet, Wis. The invention relates to a rotary engine comprising a casing forming a circular passage equivalent to the

engine cylinder, in which are arranged two pistons carried on disks loose on the engine-shaft. When the disk moves in one direction the piston is connected with the shaft by suitable clutches, and when it moves in the other direction the piston is stopped by connection with the casing. In operation steam is admitted between the pistons and tends to force them in opposite directions. The clutches, however, work oppositely so that the one piston acts as an abutment while the other is in motion.

Hardware.

FRAMED PICTURE OR MIRROR-HANGING DEVICE.—E. L. SMITH, Chicago, Ill. The inventor in the present improvement has embodied novel means for attaching a flexible connection to a framed picture or mirror and a novel hook for the other end of the connection, whereby the frame may be conveniently and reliably hung from a fixed molding-strip.

OILER.—G. WILSON, Madelia, Minn. The compact portable oiler in this case is adapted for use in connection with bearings of all kinds, but especially with the parts of bicycles. There is a self-closing valve for the nozzle, opened by the action of the piston in forcing liquid out through the nozzle and which prevents leakage and back action of the liquid. A cylinder is provided in which the piston moves, and the former connects with the nozzle and a reservoir for liquid. There are means for returning the piston, and for supplying liquid to the cylinder while the piston is in its return position.

SASH-BALANCE.—M. BLOME, St. Charles, Mo. This improvement has for its object the provision of a construction easily and quickly applied to a window. It is capable of ready operation in order to facilitate the elevation of a sash, and is equipped with a positive locking device to hold a spring-driven drum under restraint until the time to raise the sash.

Heating Apparatus.

HEAT-REGULATOR.—W. PARKER, Neola, Iowa. This improvement relates to a regulator particularly adapted for use with lamps in incubators or the like; and the object is to provide a regulator very sensitive to changes in temperature, and easily attached to an incubator or other device in which an even temperature is to be maintained.

Mechanical Devices.

SAWING-MACHINE.—J. T. MARSH, Farmer City, Ill. Ripping, cross-cutting, beveling, mitering, etc., are done by this machine. A gage-board is so applied to the movable top of the machine that it is adapted to be set at different angles for different kinds of work. A carrier supports the free ends of long boards or other lumber while being sawed, the carrier and top being so connected that they move together. The carrier is adapted to be extended at distances from the top to adapt it to accommodate lumber of different lengths.

STRAINER-BELT.—C. EDGERTON, Philadelphia, Pa. The present invention is an endless conveyor-belt constructed to act as a continuous strainer to separate liquids from garbage and to resist the compressive strain of the rollers thereupon, in combination with a special construction of roller adapted to receive the chain-links which form a part of the strainer-belt, and is an improvement on two former patents of Mr. Edgerton, for treating garbage.

MEANS FOR MAKING BIFOCAL OPTICAL LENSES.—T. MUNDORFF, New York, N. Y. The object in view in this invention is to enable a one-piece lens having the integral high and lower powers required for near and distant vision to be produced practically, and with the same facility as ordinary one-power lenses, thus enabling opticians to fill prescriptions for bifocal lenses by furnishing articles free from objections urged against the common two-piece lens of this character.

Railway Improvements.

STATION INDICATOR.—J. J. HEEBKE, Olean, N. Y. The invention relates to a station or street indicator, or station register, whereby to display in a conveyance in plain view of all passengers, the name of the next street or station as the case may be, and which may be used in railway stations to announce the leaving time of trains for stations of a fixed route.

RAILWAY RAIL FASTENING.—R. G. MUSGROVE, Jackson, Miss. Means are provided in this invention for fastening railway rails to cross-ties in such a manner as to securely hold the rails in position. The fastening comprises a tie-bar placed under the rails and formed with abutments at the ends adapted to engage the outer sides of the opposite rails. Blocks bearing against the inner sides of the rails hold them firmly against these abutments. The rails are thus afforded a solid support offering a smooth track and doing away with the objectional hammering at joints. With this fastening it is impossible for rails to spread and where used on joints it takes the place of a wire connection to complete the electrical circuit through the tracks.

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.

Business and Personal Wants.

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Marine Iron Works, Chicago. Catalogue free.

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Blowers and exhaustors. Exeter Machine Works, Exeter, N. H.

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Handle & Spoke Mch. Ober Mfg. Co., 10 Bell St., Chagrin Falls, O.

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Mechanics' Tools and materials. Net price catalogue. Geo. S. Comstock, Mechanicsburg, Pa.

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Sawmill machinery and outfits manufactured by the Lane Mfg. Co., Box 13, Montpelier, Vt.

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Machine Work of every description. Jobbing and repairing. The Garvin Machine Co., 149 Varick, cor. Spring Sts., N. Y.

Inquiry No. 4313.—For machines for grinding sawdust and shavings into an impalpable powder.

Crude oil burners for heating and cooking. Simple, efficient and cheap. Fully guaranteed. C. F. Jenkins Co., 1103 Harvard Street, Washington, D. C.

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The Honoco razor strop made of paper. The perfect strop for a perfect shave. By mail 75 cents. Send for description. Hope Novelty Co., Bristol, R. I.

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The largest manufacturer in the world of merry-go-rounds, shooting galleries and hand organs. For prices and terms write to C. W. Parker, Abilene, Kan.

Inquiry No. 4316.—For makers of paper tubes.

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Contract manufacturers of hardware specialties, machinery, stampings, dies, tools, etc. Excellent marketing connections. Edmonds-Metzel Mfg. Co., Chicago.

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High class machinery built to order at reasonable rates. Address P. O. Box 607, Baltimore, Md.

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Inquiry No. 4320.—For makers of a metallic calendar pad stand.

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Inquiry No. 4321.—For manufacturers of mills or ovens used for making charcoal.

Manufacturers of patent articles, dies, metal stamping, screw machine work, hardware specialties, machinery and tools. Quadriga Manufacturing Company, 18 South Canal Street, Chicago.

Inquiry No. 4322.—For dealers in "Wheatstone's Dial Telegraph Instruments."

G. G. Haldane, Fremantle, Western Australia, importer of American novelties, specialties, imitation jewelry, etc. Manufacturers please send catalogues, quote prices and mail samples.

Inquiry No. 4323.—For dealers in phosphorescent sulphide of calcium.

WANTED.—To lease two 40 to 50 ton six wheel, or eight wheel or ten wheel, or Mogul locomotives. Send general dimensions and report on conditions with proposition. Georgia Iron and Coal Company, Chattanooga, Tenn.

Inquiry No. 4324.—For information as to the new telephones system lately devised.

ELECTRICAL TESTING.—If you wish to know the properties of any electrical instruments, materials or apparatus, the utility of an invention or the practicability of an idea, tests by us might be of great value to you. New York Laboratory, Lamp Testing Bureau, No. 14 Jay Street, New York. 8th Floor.

WANTED.—A manufacturer to make wire carrier and place it on the market in the United States and Canada on a royalty basis. It is an exceptionally all-round good article, and to the manufacturer that means business I will pay for making a number to place on trial to prove it. Address

J. G. Cofman, Comptche, Mendocino Co., Cal.

WANTED.—Structural steel engineer who has had at least five years' experience as contracting engineer for steel company, making a specialty of structural steel for fireproof buildings. Must be experienced in designing steel, soliciting orders and closing contracts. Must be a broad gauge man, capable of directing others and managing an office. Good salary and promotion to right man. Address Engineer, Box 773, New York.

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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.

(9058) G. A. S. asks: A claims that if a gun be fired from the rear of a rapidly-moving train, at a given point, in the opposite direction, and the velocity of the bullet is exactly the same as that of the train, when the train has traveled one mile distant from the point of discharge, the bullet will be one mile from the train, or at point of discharge. B claims that the bullet will be beyond the point of discharge, when the train has traveled the distance of one mile. Who is correct? A. For a full answer to your inquiry regarding a gun discharged from a train in the direction opposite to the motion of the train, see the SCIENTIFIC AMERICAN, Vol. 88, No. 19, Query 8997. A is right.

(9059) F. H. says: 1. Do you publish a SUPPLEMENT containing diagrams, and working drawings of a small transformer to change an alternating current of 110 volts to a direct current of the same or lower voltage? A. You cannot change an alternating to a direct current by a transformer of an ordinary type. A rotary transformer or motor dynamo is required. One part is driven by the current as a motor and drives the other as a generator to produce the direct current required. 2. I was running a small medical induction coil, the other day, with an alternating current of between two and eight volts. I had one of the handles of the secondary coil in my hand, and I happened to touch one of the binding posts of the primary with my other hand, when I received a smart shock. Can you tell me the reason? I did not know that there was any connection between the primary and secondary coils. A. When you touched the binding post of the primary of your coil while you held the end of the secondary in your hand, you made a connection by which the potential of the secondary could force a current through you to the primary. An induction coil frequently sends a spark from the terminal of the secondary into the primary unless the distance is too great to allow it.

(9060) R. C. W. asks: I desire a ready method of marking on glass so as to prevent the sale of stolen electric light globes. There is a method which appears to be simply an application of an electric arc pencil. Will you kindly enlighten me as to its requirements, or give some method suitable? A. The marking upon glass to which you refer as "electric script" is done by a wheel, which is rotated rapidly by a little motor and which engraves upon the glass by friction. There is nothing like an electric arc about it, so far as we are aware. An arc would melt or crack the glass instantly. A sand blast would etch glass very quickly and make any letter, word or design you might wish for identification upon the lamp bulbs.

(9061) J. C. S. says: Please give me the name or names of the chemicals used on glass to take a common photograph. State how I shall spread the fluid over the glass; under what conditions of light. After the photograph has been taken, what is done to the glass to preserve the picture, when the glass is exposed to the sun to print pictures on paper? A. Plates come ready prepared; amateurs do not make them. Negatives are not injured by the sun, in printing. Any amateur photographer would be glad to show you how developing is done. See our SUPPLEMENT catalogue for papers on photography.

(9062) E. A. L. asks: One day last summer I noticed that a thermometer registered about 98, but when placed in the draft of an electric fan it rose about five degrees, registering 103, although it was, or seemed to be much cooler in the draft. Will you please tell me the cause of this? A. On the face of this statement all we can say is that the thermometer rose in the current of air from the fan because the air was hotter which came from the fan than it was in the place where the thermometer had been. Air is not always cool because it feels cool; nor hot because it feels hot. Hot air in motion may cool one by carrying off the perspiration from the surface of the body. In that case the air would feel cooler than it actually is, and we should be deceived by our sensations. A thermometer would not be deceived, but would give the correct temperature of the air.