

RECENTLY PATENTED INVENTIONS.**Railway Appliances.**

LOCOMOTIVE SAND BOX.—John McDonald, Tokio, Japan. A steam chest made preferably in the form of a hollow disk is, by this invention, arranged on the under side of the sand receptacle, a pipe passing through the steam chest connecting at its lower end with the sand pipe leading to the rails, while a valve slides on the top of the steam chest to establish communication between the sand box and the pipe, an agitator secured on the valve extending into the sand receptacle. The construction is simple and durable, and the arrangement is such as to perfectly dry the sand, preventing its caking and insuring a continuous flow, at the same time permitting of placing the sand receptacle below or at the side of the boiler, instead of on top, as is now done.

TRAIN ORDER HOLDER.—Clarence E. Biddison, Goodland, Kansas. This is an improvement on a former patented invention of the same inventor, whereby the holder is rendered more simple and durable, and providing for them or expeditions and convenient inserting of the order and holding it in place, the device also displaying train orders or notices of any description. Combined with a receiving frame, from side to side of which a pintle extends, is a door frame holding a glass pane and having outward projecting loops sliding and turning on the pintle, around which are coiled springs bearing on the receiving and door frames, the door being normally held closed by the springs, which are compressed when the door is lifted up.

Mechanical Appliances.

TUBE SEAMING MACHINE.—Albert D. Prentice, New York City. This is a device for forming a secure double-folded locked seam on the adjacent edges of a blank of sheet metal as it is being formed into a cylindrical or other shaped tube. It consists of a composite die having a base piece on which is a converging channel die to commence the bending, a contracting die in which is a tongue shaping and flanging the tube, two flanging dies and a finishing die, all arranged to receive the blank consecutively, while a mandrel is longitudinally extended through the several dies.

PUMP.—Joseph Darling, Karns City, Pa. This pump is intended especially for use in deep wells, whether oil or water. Connection is provided with a trap valve at the bottom of the well, whereby the valve may be positively opened when the standing valve of the pump is inserted, being held open so long as such valve support remains in operative position, and closed on the removal of the standing valve. As such insertion and removal of the standing valve only occurs in some instances at intervals of about thirty days, there is practically no wear on the trap valve, which, when once inserted, will wear a long time without needing repairs.

SUCKER ROD LIFTER.—Lewis Vaughan, Summit City, Pa. The block or base plate of this device has a seat for the rod, a slot leading thereto, while a hanger is pivoted to the plate, and a latch having its shaft portion journaled to the base plate has a crank arm at its front end extending across the slot, a handle extending from a crank arm at its opposite end, whereby the latch may be released by the hand grasping the hanger. The device is especially intended for lifting the sucker rods of deep wells, and in practice two of the implements are used, one being engaged with the head of one sucker rod section, and the whole being lifted by suitable hoisting devices, to bring the head of the next lower section above the well tube, when the next lifter is applied.

PLIERS.—Walter J. Monteith, Albany, Oregon. This tool is composed of pivoted jaw levers having shanks curved inwardly in opposite directions and pivoted lever handles whose shorter arms are curved outwardly and oppositely and pivoted to the shanks of the jaw levers, the implement working on the principle of a toggle lever, the power becoming greater and the grip of the jaws more powerful as the jaws are brought together.

BEVEL.—Peter J. Mabye, Brooklyn, N. Y. This is a simple and inexpensive tool that may be used either as a square or a bevel. It has a bifurcated handle, with a transverse screw provided with a thumb nut at its outer end, and a segmental groove concentric with the screw, while a blade in the handle has a projection to enter the groove, the screw passing through a small aperture to permit the blade to swing, but prevent longitudinal movement, it being clamped in the desired position for a square or bevel by the screw and nut.

Agricultural.

PLANTER.—William W. Jones, Granada, Col. An auxiliary beam is pivoted at one end to the plow beam and has at its other end a drive wheel, the auxiliary beam carrying a seed box in which is a spring-pressed slide, there being a flexible connection between the slide and the axle of the drive wheel. The implement is designed to be simple, durable and inexpensive in construction, and adapted for quick and easy attachment to the beam of a double or a single plow, the construction of the seed box being such that any kind of seed may be dropped therefrom without portions of the seed adhering to the drop slide.

PLANTER.—John A. Handeland, Palouse City, Washington. Combined with a main frame having an axle on which revolves a supporting wheel journaled in its forward end, is an auxiliary frame pivoted in the main frame and carrying a seed-dropping mechanism. The implement is designed to be especially adapted for garden use, and is so constructed that it may be utilized for planting seed or for cultivating young plants, and when the planting mechanism is removed, the implement may be used as a wheelbarrow.

Miscellaneous.

ARTIFICIAL STONE.—Walter Nif, New York City. This invention relates to what are known

as "doublets," composed partly of strass or other artificial material and partly of genuine stone, the design being to minimize the color effects of the genuine stone and better preserve the color of the artificial body, while protecting it. Garnet is most largely employed for the facing, as it readily fuses with the artificial stones, and by this invention the genuine facing is made to cover the stone above the girdle, the major part of the covering being of uniform thickness and corresponding with the contour of the artificial body above the girdle.

ILLUMINATING TILE.—Charles W. Mark, New York City. Two patents have been granted this inventor for improvements in vault lights such as are used in sidewalks, roofs, etc., the inventions providing lenses for the tile which will not become easily obscured by dirt, which will be capable of diffusing a great amount of light, and by means of which the light may be thrown to one side as well as immediately beneath the lens. The lenses are secured in a frame in any of the common ways, and, according to one patent, a bull's eye is produced centrally on the under portion of the lens, while depending lips or lugs with inclined inner sides and vertical outer sides are arranged at right angles to the bull's eye, the lugs being cut away at the corners to provide for a greater diffusion of light. According to the other patent the lugs are of dissimilar lengths, and depend from a flat under surface, the lugs being arranged in rows according to the direction in which the light is to be reflected.

HAND STAMP TYPE HOLDER.—Taylor S. Buck, Brooklyn, N. Y. This holder is designed principally for India rubber type of a flat form with edge flanges, the holder consisting of a casing of tin or other suitable material open at the bottom and having side edge flanges. Within the casing is a spring-pressed follower to which the handle is centrally attached, the spring clamping the follower on the flanges of the type. The follower is readily moved back with one hand, for putting in or removing type from the holder, leaving the other hand free to handle the type.

SPIRIT LEVEL.—Reginald Forwood, New York City. This level consists of a four-armed casing having a cruciform slot, a four-armed or cruciform spirit glass being held in the casing, and having rounded corners at the points of intersection of the arms. True level indicators are provided above the center of the glass, the indicator consisting of wires or threads extending across the center of the opening of the casing, or the indicator may be formed of marks or lines made directly upon the center of the spirit glass. This device is designed to indicate the true level in every direction of a camera box or other object to which it may be applied.

BANJO.—Frederick Gretsch, Brooklyn, N. Y. This invention provides a means whereby the brackets usually employed on a banjo head may be dispensed with and the neck may be secured to the head in such a manner as not to weaken but to strengthen the head, with the object of lessening the cost and improving the quality of the tone. A sounding plate with a central opening constitutes the bottom of the head, to the under surface of which the neck is secured, while a clamping band encircles the body band, resting on the sounding plate, the clips engaging the clamping band being passed through the sounding plate and being provided with adjusting or locking devices.

BERTH SAFE.—John A. Brittain, New York City. This is a safe or locker especially adapted for use in connection with sleeping car berths or steamer or ship berths, and is adapted to be quickly and conveniently attached in any desirable position to virtually constitute a portion of the berth. The casing is preferably cylindrical, and a drawer properly partitioned to receive money, valuables, etc., is held to slide in it, a stop device limiting longitudinal movement, while guides prevent transverse movement, while means are provided for securely locking the drawer in the casing.

SWEAT PAD.—Harry Ryburn, Bloomington, Ill. This is a combined sweat and collar pad, which may be a stuffed cushion pad, or made of felt or other suitable material, but having at its center, or portion which rests on top of the neck, an opening, leaving narrow side strips connecting the pad sections on opposite sides. The opening is of a size to fit over an ordinary sore, allowing the ready application of a medicament, and is closed by flaps extending from opposite sides, the flaps being made tapering and held to close the opening by means of strings.

DOOR LATCH.—Ambrose H. Applegate, Phillipsburg, N. J. Combined with a casing provided with studs is a reversible frame engaged by the studs, a reversible latch having trunnions fulcrumed in the reversible frame, and a bar pivotally connected with the latch and actuated from the knob spindle. The device is simple and durable, and permits of an easy closing of the door, while it can be used on right and left hand doors without turning the lock upside down.

FENCE.—George P. Ruhle, Swengel, Pa. This fence is composed of a series of independent panels, constructed in the form of trestles, each separately anchored. Each panel is composed of three pairs of crossed posts having a rider rail in the top crotches and a lower crotch rail, both secured to the posts, two rails being secured to the posts near the ground parallel with the lower crotch rail, diagonal braces and base poles being provided, while an anchor stake driven into the ground is connected by a detachable wire link with the lower crotch rail.

WORK HORSE DRIVER.—Oscar M. Bryan, Wilson County, near Chanute, Kansas. A spring-pressed crank rod having its outer end bent at a right angle is provided with a cross bar carrying prods, a sliding rod mounted in a support being connected with the crank of the crank rod, a lever mechanism being provided for moving the sliding rod, forming a device applicable to all kinds of horse powers on which work horses are used. By its means the horses may be urged without a special driver, and the device may be adjusted so that, as applied to a pair of horses, if one horse is slow or lazy and the other quick and irritable, the slow horse may be urged without exciting the other.

CHIMNEY CONSTRUCTION.—Adolph Boettcher, South Stillwater, Minn. An inner tubular plate is adapted to fixedly encircle a chimney and has an annular outwardly and downwardly extending flange in combination with an outer tubular roof plate disconnected therefrom and extending under the flange, so that when the plates are secured in place the inner plate may move downward on the setting of a chimney without affecting the outer or roof plate. These attachments are designed to protect the adjacent woodwork, and permit the chimney to settle without breaking or cracking, thus maintaining it in a fireproof condition.

PNEUMATIC TIRE.—William R. Foster, London, England. This invention relates to tires of bicycles, etc., in which air is forced into the hollow rubber tire, under sufficient pressure to form a cushion that is more or less elastic, the invention providing therefor a novel form of valve to effectually close the orifice at which the air is forced in, in combination with a circumferential re-enforcing or constricting elastic band, the valve being such as to admit of being slightly opened to relieve the internal pressure, to suit the requirements or fancy of the rider, should the inflation be deemed excessive.

THRILL COUPLING.—John Cook, No. 1008 South Clinton Avenue, Trenton, N. J. The coupling piece provided by this invention consists of a plate having a rib at one end and a projecting flange at the other, the coupling bolt extending from the flange parallel with the axle and terminating in a laterally projecting lug. The thrills have transverse holes in the ends to fit the coupling plates, the holes having recesses in one side to fit the lugs of the bolts, which are engaged by cams on the thrills. The coupling is designed to be strong, durable and inexpensive, and easily attached or removed, while it also prevents the thrills from rattling, and may be so used as to hold the thrills in elevated position when the vehicle to which it is applied is to be stored.

ROAD CART.—States D. Palmer, Marshalltown, Iowa. A pair of bars connected at their rear ends to the axle and at their front ends to the body of a vehicle have at an intermediate point a spring connection with the shafts, made adjustable along the length of the bars. A plate attached to the vehicle body has a long bearing, and a bolt or rod extends through the plate and also through the ends of the bars, elastic washers or cushions being arranged about the bolt on each side of the bars. The improvement is more especially designed to relieve the body of a two-wheeled cart from horse motion, but may also be applied on four-wheeled vehicles.

TONGUE SUPPORT.—Thomas C. Churchman, Sacramento, Cal. A rod, the ends of which are secured to the hounds, is located above the pivot pin of the tongue, while a spring rod is bent upon itself to form two coils extending around the pivot pin of the tongue and the rod above the pivot, an upwardly inclined forward U-shaped member of the spring rod engaging with the lower face of the tongue while a forked rear member engages with the lower face of the axle. The device may be applied to any vehicle, and is designed to cushion the tongue, rendering its movement easy to the horses when the vehicle is passing over rough ground, while also practically relieving them of the direct weight of the tongue.

MOVING LIVE STOCK FROM BARN.—William Jones, Osceola, Neb. This invention provides an apparatus designed to facilitate the removal of live stock, especially horses, from barns, in case of fire or other emergency. The improvement consists mainly in hinging the stall partitions at their rear ends, so that their front ends can move laterally, latch devices being provided to hold them in normal position, while a chain or wire rope or cable is supported to move longitudinally in guides, the chain having rings or loops to which the horses are secured and being also connected with the latches of the stall partitions. At the ends of the barn are locks to prevent the endwise movement of the chain until it is designedly released, when it may be drawn upon to lead the string of horses out of the barn.

TEACHING ADDITION.—Arthur L. Gillis, Mount Pleasant, Iowa. This invention provides a casing with upper and lower shutters and vertically adjustable strips, with numbers of greater value alternated by numbers of less value for exposure through openings, to facilitate the work of an instructor in teaching mathematics. The device is designed to afford answers to every combination of numbers, the answers to be concealed from the pupils by a transverse slide until after the work is done, when, to test their correctness, the slide is moved and the answer exposed to view. The device saves the annoyance and unhealthfulness attending the use of chalk, and is calculated to interest and command the attention of young learners.

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.

PATENTS!

MESSRS. MUNN & CO., in connection with the publication of the SCIENTIFIC AMERICAN, continue to examine inventions, and to act as Solicitors of Patents for Inventors.

In this line of business they have had forty-one years' experience, and now have unequalled facilities for the preparation of Patent Drawings, Specifications, and the prosecution of Applications for Patents in the United States, Canada, and Foreign Countries. Messrs. Munn & Co. also attend to the preparation of Caveats, Copyrights for Books, Labels, Reissues, Assignments, and Reports on Infringements of Patents. All business entrusted to them is done with special care and promptness, on very reasonable terms. A pamphlet sent free of charge, on application, containing full information about Patents and how to procure them; directions concerning Labels, Copyrights, Designs, Patents, Appeals, Reissues, Infringements, Assignments, Rejected Cases. Hints on the Sale of Patents, etc. We also send, free of charge, a Synopsis of Foreign Patent Laws, showing the cost and method of securing patents in all the principal countries of the world. MUNN & CO., Solicitors of Patents, 361 Broadway, New York. BRANCH OFFICES.—No. 622 and 624 F Street, Washington Building, near 7th Street, Washington, D. C.

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.

For Sale—New and second hand lathes, planers, drills, shapers, engines, and boilers, belting, pulleys, and shafting. List sent free. W. P. Davis, Rochester, N. Y.

Presses & Dies. Ferracute Mach. Co., Bridgeton, N. J. Barrel, Keg and Hogshead Machinery. See adv., p. 28.

For best hoisting engine. J. S. Mundy, Newark, N. J. Best Ice and Refrigerating Machines made by David Boyle, Chicago, Ill. 170 machines in satisfactory use.

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

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

"How to Keep Boilers Clean." Send your address for free 96 p. book. Jas. C. Hotchkiss, 112 Liberty St., N. Y.

Wanted—Circulars, prices, etc., of windmills, pumps, farm tools. Address T. Tinne, Hall House, Hawkhurst Kent, England.

Rubber Belting, all sizes, 75% per cent from regular list. All kinds of rubber goods at low prices. John W. Buckley, 156 South Street, New York.

Guild & 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. Yocom & Son's Shafting Works, Drinker St., Philadelphia, Pa.

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.

Wanted to Purchase—Second-hand Hand Milling Machine; also, Screw Machine with Wire Feed, both similar to Garvin No. 2. Complete and in good order. Address "Machinist," P. O. Box 2939, New York.

Wanted—Some one to pay cost of taking out foreign patent on a device for affixing postage stamps and sealing envelopes. The device can be manufactured cheaply and sold for 50 cents each. For particulars address Wm. B. Shafer, box 247, Somerset, Pa.

A mechanical engineer, experienced in modern economical methods of manufacture, will be pleased to correspond with any party having responsible position open, who requires the services of a competent, energetic man. Address A. S. M. E., box 773, New York.

For Sale—U. S. copyright No. 418 W., on Dorais' "Tables Giving the Number of Days from One Date to Another." The most concise, handy, and correct reckoner offered to bankers and all financial institutions. Sold in Canada at \$3.50 per copy. Address proprietor, O. E. Dorais, Three Rivers, P. Quebec, Canada.

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.

(3191) J. B. asks: Does a lightning rod attract lightning? "A" says it attracts first and then conducts. "B" says it does not attract, but only conducts? A. It is supposed that the main function of a pointed lightning rod is to diffuse the earth's charge and thus prevent the violent union of the electricity of the clouds and the earth. The rod when struck conducts the charge to the earth.

(3192) C. M. N. asks for a receipt for making solution of copper that will, with a battery, make a deposit on iron sufficient for a base for a silver plate. A. To a solution of pure copper sulphate add slowly a solution of potassium cyanide until no more precipitate is formed. Wash the precipitate and collect. Dissolve two pounds of potassium cyanide in a gallon of water, then add as much of the cyanide of copper as the cyanide solution will dissolve. Finally, add about four ounces of potassium cyanide. The solution should be used warm. Care should be taken in handling the solution, and the fumes from it should be avoided.

(3193) D. W. asks (1) for the best way to cover a canoe. I would prefer using canvas, but do not know how to make it water tight. A. The following is recommended for waterproofing canvas: Boil 1½ lb. of castile soap (shaved up) in 15 gallons of water. In another vessel dissolve 1¾ lb. of alum in 15 gallons of water. Have both solutions nearly boiling. Immerse the canvas in the soap solution until it is completely saturated. Allow it to drain off, then run it several times through the alum solution. Allow the canvas to dry in the open air. Also you may use paraffine wax melted in with a hot iron. 2. Can I keep a gravity battery in a closed circuit continually with a burglar alarm? A. You can keep a gravity battery on a closed circuit, provided the resistance of the circuit is the same as that of the battery.

(3194) P. K. asks: 1. Can you tell me what kind of battery is best for a closed circuit or which kind is least apt to polarize? Is the cause of polarization faulty construction or bad management? Is the Minotto and its modification suited for a closed circuit? A. The gravity or Daniell's battery is best. Polarization is generally due to the collection of hydrogen on the negative element. It may be due to either con-