RECENTLY PATENTED INVENTIONS.

Engineering.

FEED WATER HEATER.—George T. Munday, Brenham, Texas. This heater has an arrangement of distributing troughs so located as to evenly distribute the water over tubes in thin streams or a thin sheet, to quickly heat it, the construction being such that the tubes and troughs may be easily removed for cleaning purposes. In operation the live steam circulates freely through the tubes, heating the water nearly to the temperature corresponding with the boiler pressure, any scale forming on the outer surfaces of the tubes falling upon a wire cloth screen from which it may be readily removed.

CARBURETER.—George G. Schroeder, Washington, D. C. This is a portable apparatus for carbureting atmospheric air by easily vaporizable liquid hydrocarbon or oil, the body of the apparatus resembling ordinary gasometers forming a part of gas plants, and consisting of an air receiver and gasholder of adjustable capacity. In its lower portion is a packing of sponge or other fibrous material which temporarily holds the liquid hydrocarbon and through which air is drawn and then forced back again, to form gas suitable for illumination or heating. The sponge or equivalent material is chemically treated to produce a superior quality of permanent gas, and the application of heat is unnecessary and entirely dispensed with.

Railway Appliances.

CAR COUPLING.—Philip Bogler, Alamosa, Col. This is a coupling of the drop pin and link type, adapted for the automatic coupling of two meeting cars, and permitting of conveniently uncoupling them from either side without having the trainmen go between the cars. A gravity block is pivoted in the chamber of the drawhead, which has top and bottom openings, the block having a forwardly extended toe, a recess adapted to hold the uncoupled link, and a table flange that is perforated to drop the pin when the block is rearwardly rocked, and sustain the pin at the rear of the perforation when the block is forwardly rocked.

ANGLE COCK.—William J. Waldron, Fort Worth, Texas. To prevent tampering with the air brakes of any car of a train, or the turning off of the air at the rear end of the tank of the engine, without first having the release made by the engineer or some one in charge of the engine, this inventor has devised an improved angle cock, and also provided a locking device adapted for attachment to the bottom of any angle cock or valve now in use. A handled valve or plug turning in the angle cock has an opening in its bottom in which is adapted to enter the piston rod of a locking device connected with pressure under control of the engineer and independent of the train pipe.

Electrical.

ELECTROLYTIC APPARATUS.—Charles W. Fielding, London, England, and Louis B. Walker, Elizabeth, N. J. To facilitate the separation of precious metals from base metals, and to separate from metals generally foreign metals or materials, this apparatus has, in combination with anode and cathode plates, spherical blocks of non-conducting substances, there being upper and lower blocks, the upper blocks of a pair having a flexible connection engaging over the top of the plate and the lower blocks being suspended from the upper blocks. The blocks bear at one side against an anode and at the other side against an adjacent cathode, and each cathode is placed in close contact with an anode, so that no electrolyte in the tank can pass between them.

ELECTRIC WIRE SLEEVE CONNECTIONS.—Samuel Olsen, New York City. To facilitate the twisting of these connections this inventor has devised a tool that may be operated with a back and forth movement, similar to that of a ratchet wrench, thus avoiding the complete circular movement necessary with the tool commonly employed in this work. The movable jaw is automatically drawn toward the other jaw by a spring, and extended outward from the shank are push pins, which the operator presses against with his thumb or finger to release the tool from a sleeve and secure a new hold.

STEAM GAGE.—John O'Connor and C. A. Turner, New York City. This steam gage is arranged with a dial over which an index travels to indicate the steam pressure in the boiler, and an electric contact is arranged in the path of the index, including an electric circuit and an electrically operated device controlled by the closed circuit. The excessive rise or fall of the steam pressure in the boiler will be at once indicated and an alarm sounded, and on the excessive rise of pressure the valve or damper will be opened to reduce the draught through the chimney.

BOILER ALARM.—The same inventors have devised an alarm to give warning of the excessive rise or fall of the water in the boiler. In a cylinder having its upper and lower ends open to the boiler adjacent to the water level rises and falls a float, there being at the upper and lower ends of the cylinder stems adapted to be moved outwardly by pressure from the float, and these stems engaging contacts which include an electric circuit and suitable alarm devices. The device is very simple and inexpensive, readily applicable to boilers of various kinds, and is capable of adjustment to sound the alarm at any desired water level.

Mining.

CONCENTRATOR.—Patrick H. McGowan, Denver, Col. This concentrator is for working all valuable minerals having greater gravity than their gangue, especially free milled gold, ores from stamp mills, auriferous gravel or sand placer dirt. The pan has a bottom of annular steps descending toward the center, where there is a discharge opening, each step having at its inner edge a standing flange or dam, while a rotary disk has depending agitators over the steps of the pan, a conical distributer forming the top of the disk and a feed hopper opening upon the distributer. Each of the annular steps is provided with readily removable receptacles containing quicksilver.

Mechanical.

LUBRICATOR.—Clarence W. Nash, Union Bridge, Md. This is an oil cup in which the feeding of the oil is effected by the intermittent opening of a valve automatically operated by the momentum or centrifugal action of the valve when mounted on the wrist pin of a crank or other revolving part. Within a suitable casing adapted to be screwed upon a wrist pin or other support is the oil cup, extending centrally through which is a sleeve and nut through which slides a valve stem projecting above the top of the nut and carrying a conical valve below, playing between its seat in the casing and the superposed lower end of an adjustable stop sleeve.

STONE DRESSING MACHINE.—James M. Malone and James D. Perkins, Marble Hill, Ga. This is a machine of strong and simple construction, to dress stone for forming columns and provide them with straight or twisted flutes on their peripheries. The machine is in the form of a planer on which reciprocates a bed above which is an adjustable tool carrier, there being spindles in bearings on the bed to support the stone, as well as a rack and mechanism for revolving one of the spindles, the rack being held stationary during part of the stroke of the bed.

EMBROIDERING MACHINE.—Arsène Carpentier, Caudry, France. This machine permits the application of the Jacquard mechanism with perforated cards to the automatic operation of the frame for carrying the fabric, and dispenses with the special attendant to guide or operate the pantograph in reading the design, enabling the production to be augmented and rendered more economic. A reciprocating actuating frame is movable independently of the work holding frame, but may be coupled therewith, and movable droppers of different width are arranged between the actuating frame and a reciprocating operating device to control the extent of the reciprocating movement of the actuating frame, there being mechanism for selecting the droppers.

SHEET METAL SEAM.—Gustavus F. Bauman, Louisville, Ohio. For sheet metal stove pipes and similar articles this invention provides an improved seam of such a kind that the operator may readily close the sides of the article so that the seam will not be exposed to the heat passing through. It is an external longitudinal closing seam terminating near its ends in a lock seam, one of the members having an inwardly and backwardly turned flange engaging a slot in the inner portion of the other member, and the springy nature of the sheet metal drawing the two members into proper position after engagement.

LAST.—Arthur M. Leighton, Everett, Wash. This is an adjustable last for cobblers, especially adapted to facilitate repairing boots and shoes, fitting varying sizes and widths and the contours or indentations of the insole produced by the feet of the wearer. It has an adjustable toe plate and heel piece, with an intermediate part having pivotal connection with the toe plate and notched connection with the heel part, there being also a detachable bunion piece and various other attachments.

Agricultural.

LANDSIDE FOR PLOWS.—George C. Christenson, Newberg, Oregon. According to this improvement, the landside is made with a bottom edge whose heel is beveled upward and rearward to form a fulcrum for swinging the plow in a vertical plane when bearing on the handles. It is designed to give the plowman better control of the plow and prevent it cutting too deep into the ground when plowing on hills or uneven ground, and also to make it easier to pass the plow point back into the ground when the plow jumps out, as in ground having roots, rocks, etc.

Miscellaneous.

VULCANIZING WOOD.—John T. Lloyd, New York City. To prepare wood with a compound of creosote and other antiseptics to resist animal or vegetable attacks, this inventor has devised a treatment which consists in subjecting the wood in a closed chamber to the direct action of a still or stagnant body of live, wet steam, at a temperature of from 325° to 500° F., whereby the substances contained in the wood are converted into insoluble antiseptic compounds, which are held and permanently fixed in the fibers by the steam pressure, carbonizing of the wood being prevented.

FIFTH WHEEL.—Samuel K. Paden, Pulaski, Pa. This is an improvement on a formerly patented invention of the same inventor, according to which the skeleton upper part of the fifth wheel has a recessed circular rim and a flat diametrical bar with an annular boss projecting downward from its center, there being parallel flanges projecting upward from the sides of the bar and parallel vertical reach flanges having a web or bottom bar all constructed integrally. The improved construction gives great strength to the center of the upper part of the fifth wheel when it is most required, and the upper and lower parts turn freely on each other and may describe a complete circle, although held firmly together by clips.

VEHICLE WHEEL.—Alexander Pinover, New York City. To make a very strong wheel, particularly adapted for bicycles, tricycles, etc., and a wheel in which new spokes may be readily inserted in place of broken or bent ones, is the object of this invention, according to which the hub consists of two similar conical shell portions, the base portions of the two sections having grooves, and when secured together, forming sockets for the ends of the spokes, which are held in place by screws. The spokes are preferably tubular, and their outer ends are seated in metal sockets or thimbles in the wooden rim.

CORNER IRON FOR FRAMES.—Matthew Lynch, New York City. This is a flat triangular plate having two integral depending flanges, each corner iron having an oblong aperture whose edges slightly converge, and adapted for engagement by a stud on either end of a connecting link. The improvement is especially adapted for stiffening the corners of light wooden frames supporting scenery on the stages of theaters, and for detachably locking together any desired number of such frames when required.

LEVELER AND GRADER.—Daniel W. Jones, Salt Lake City, Utah. The frame of this machine is carried by front and rear rollers, and on the frame are posts which support a top or seat beam. A lever beam carrying at one end a scraper is pivoted between the rear posts, and treadles are connected with the front end of the lever beam where they may be pressed on by the feet of the driver, to bring the scraper hard against the ground. The scraper is adjustable by means of chains to different angles, thus making a grader, and the scraper may be removed and replaced by other tools such as rake heads, markers or furrowers, etc.

MEAT HOLDER.—Charles P. Loughridge, Nevada City, Cal. This is a simple and durable device, more especially designed for conveniently and firmly holding a ham while cutting slices or sawing a bone, without danger of the ham slipping or moving on the table. It consists of a frame of two metal plates adjustably held on each other and formed with downwardly extending flanges at one end to engage the sides of the table, the other end of one plate having an upward bend to engage the side of the ham, while a pin on the other member engages the shank of the ham and yet permits of conveniently shifting it as desired.

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Notes & Queries

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(6952) J. E. S. says: There is a worm or borer working in the tops of trees in some of the apple orchards in this section; it gnaws off the limb square, so that it drops over. We found one limb with a hole in the heart extending up. Upon splitting the limb with a knife we found the worm. I send section of the limb containing the worm, also other samples of limbs cut off by the worms. Will you please tell us, through the columns of the SCIENTIFIC AMERICAN what the worm is and how to destroy it? A. Answer by the United States Department of Agriculture. Upon examination the twigs prove to be infested with the common twig pruner, known scientifically as Elaphidion parallelum. There is no perfect remedy against this insect, and the best plan will be to collect and burn the twigs as soon as they fall, in order to kill the worms which they contain. It will also be a good plan to cut off from the trees and burn all the twigs which show the least sign of infestation.

(6953) T. W. L. T. asks if amalgamated zinc will resist the action of a bichromate of potash solution. Will amalgamated zinc have the same effect as plain zinc in battery for temporary lighting purposes? A. The zinc is attacked and will be soon dissolved in great part if left in the solution. Always use amalgamated zinc; plain zinc is quite unsatisfactory and dissolves rapidly by local action, evolving a disagreeable odor and mechanically disseminating acid in the form of fine spray.

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