RECENTLY PATENTED INVENTIONS.

Engineering.

FURNACE.—John T. Jenkins, Massillon, Ohio. A gas inlet leading to the combustion chamber of this furnace has checker brick outside the chamber to spread the gas, the gas inlet being substantially horizontal where it connects with the combustion chamber, and there being a series of jet openings for discharging hot air into the chamber above the gas inlet. When the furnace is started the gas and air are admitted in proper proportions, increasing according to the heat in the chamber until the desired temperature is reached, the gas and the air blast issuing from the jets striking each other a short distance fr m the bridge wall, so that the heat will expand in the combustion chamber and in the working chamber or hearth.

RELIEF VALVE.—Andrew L. Harrison, Wilmington, N. C. This is an improvement more especially designed for use on air pumps of condensing engines, to insure an easy seating of the inlet and outlet valves to prevent excessive wear of the valves and the lining in the air pump. The invention consists of one or more air valves for the water delivery valve to permit the escape of air previous to and separate from the discharge of the water through the water delivery valve.

Railway Appliances.

HOPPER BOTTOM CAR.—Richard Blackstone, Central City, South Dakota. This invention relates to drop bottom cars for carrying coal, ore, etc., and provides for the protection of the door-suspending chains from the material loaded in the car, thus permitting an easy opening of the drop bottoms. In the car is a chain-guiding tube having at its upper end a flange for attachment to the housing of the chain beam, the lower end of the tube being bent to conform to the side flooring of the car, while a roller in the lower end of the tube guides the entrance of the chain.

CAR COUPLING.—Frank Vaughan, of Elizabeth City, N. C. This coupler comprises two balls connected by a chain or rod, there being openings in the balls to receive a pin. In the drawheads are mortises to receive the balls, the mortises being open at the top to permit the ball to drop in, and having apertures leading to the front for the chain or rod connections. A ball holder has a pivoted arm or portion provided with a cup ball receiver in which is a central pin adapted to enter the opening in a ball, the receiver oscillating from the position in which it retains the ball to that from which it will release the ball. When the drawheads meet and are retracted the ball receiver tilts to drop the ball into the approaching drawhead and complete the coupling. For uncoupling, a special device is provided for readily lifting the ball out of the drawhead.

Electrical.

ELECTRIC RAILWAY.—J. A. Folsom, Minneapolis, Minn. The improvement for which this inventor has obtained a patent is applicable equally in an overhead or an underground conduit system. The invention provides for carrying the line wire in a conduit made of insulating material, and also adapted to carry the feed wires, one wall of the conduit being made of leather, sheet rubber, or other flexible material yieldingly held; through this wall extend the supports of a trolley conductor, held normally out of contact with the line wire, but forced into contact therewith, to make the circuit, by the passage of the trolley. The improvement affords complete protection to the line wire and feed wires, obviating all danger from contact with electric light, telegraph and other wires, and prevents waste of current.

Mechanical.

JACQUARD LOOM MECHANISM.—Frank Charcot, Paterson, N. J. To greatly increase the efficiency of the Jacquard loom, and lessen the wear and tear on the loom harness, have been the objects of this inventor. The invention consists principally of a stationary grate, and two griffs mounted to slide toward and from each other in such a manner that the upper movable griff moves the hooks in engagement with the stationary grate, and the lower movable griff receives the hook from the grate and moves it downward to lower the corresponding heddles. The invention covers novel details and combinations of parts and the construction is simple and durable.

WRENCH AND WHEEL LIFTER.—James Robertson, Perth, Canada. This is a combination tool consisting of an arched frame having a bearing member at its outer end, a spindle projected inward from its opposite end and having an outwardly extending handle which has a transverse socket-like bearing in which is journaled a rotary wrench mechanism, including nut clamp members. The device is more especially designed for removing axle nuts and lifting the wheels of vehicles when the axle is to be lubricated.

Agricultural.

CULTIVATOR.—Clyde T. Eldredge, Kirkwood, Ohio. This invention provides means by which the plow or cultivator beam may be carried either to the right or left and will remain in the position in which it is placed, there being no strain on the operator following or attending to the shifting of the beams. In connection with each beam is a balance spring, holding the beam in the position in which it is placed, and counteracting its tendency to move again to the center line. The spring is simple and durable, and its construction is such that it may be readily applied to any cultivator, and will act the moment the beam is carried to the slightest extent either to the right or left.

COTTON PLANTER.—Leonidas M. Rhodes, Warrenton, Ga. This machine comprises a wheel-supported frame on which is a hopper adjustable in relation to the wheel, a sleeve with a hub inclosing and being adapted to be locked on the wheel shaft, on which is a head in contact with the sleeve. A furrow opener is attached to the forward end of the beam, and as the planter is pushed along by hand its wheel keeps the seed constantly agitated, the construction being such that the seed may be dropped in greater or less quantities as desired. The invention is an improvement upon a former patented invention of the same inventor.

HAY OR HOG RACK.—William H. Long, Washington, Ill. This is an improvement in hay wagons with hinged skeleton sides for adjustment from an inclined to a vertical position to adapt the wagon for transporting small stock, as swine, sheep and calves. A side rack is supported on the side beams and has a flexible or hinge connection with a device adapted to slide through the bed, the device having a stop plate which comes in contact with the bed when the rack is inclined outward.

Miscellaneous.

WATER COOLER.—Edward T. Green, New York City. This cooler has a central ice chamber entirely separate from a hermetically sealed water-holding portion, a peculiarly constructed valved funnel being used to fill the cooler with boiling hot filtered water. At one side of the cooler is an attached vessel partially filled with a liquid disinfectant, and as the water cools, creating a vacuum in the top of the cooler, air is drawn in through a pipe extending from the outside into the disinfectant, through which it bubbles up and passes into the top of the cooler, so that no possible contamination of the water can take place either by ice or rain.

BEDSTEAD.—John J. Dugan, Salem, Oregon. The end and footboards of this bedstead are each formed of a single piece of bent pipe, and the side boards are connected to them by T couplings, while angle irons connect the head posts and foot posts by means of angle irons terminating in end straps bolted to the couplings. The bedstead is especially adapted for use in prisons, etc., and has but few parts strongly put together, there being no legs or other pieces which can be wrenched off and used as weapons.

BOOKBINDER.—Nathan D. Wolfard, Hartsville, Ind. This is an improved device for binding into book form pamphlets, periodicals, manuscripts, etc., and comprises binding strips of sheet metal, each sheet doubled upon itself to form a fold in which a section may be held, while outwardly extending flaps are perforated to receive connecting devices, which are preferably ring-like pieces of wire, by which the sections are held together.

SUPPLY AND WASTE PIPE.—William A. Eberhart, Asbury Park, N. J. This invention provides a simple sanitary and convenient arrangement of pipes and valves by which one orifice in a fixture may be used for the inlet, outlet and overflow, the construction and arrangement of the pipes being such that no waste water can possibly stand in them. The system of pipes is designed to be easily controlled and afford a perfectly clean water supply and perfect drainage.

LUMBER TRUCK.—Howard Daniels, Atlanta, Ga. Two patents have been granted this inventor for a truck for use in connection with his patented lumber piling machine. The truck has tilting stake sockets at each end adapted to receive the end stakes, means for tilting the sockets to incline the entire load, and self-adjusting compensating boards attached to the stakes to take up any space that might be left between the last tier of boards and the end stakes. The lumber can be piled upon the truck upon edge or vertically, instead of flat or horizontally, enabling one to pile larger loads upon the truck and insuring vertical draught passages through the pile. The truck may be quickly and easily unloaded without going on top of the pile. The second invention provides a simpler construction of stake sockets, strengthening also the entire truck, a rigid socket receiving the stake and a locking device holding it normally in a vertical position, the locking device being thrown back to permit the tilting of the stake as desired.

LUMBER PILING MACHINE.—This is another invention of the same inventor, and the machine has an intermittently swinging conveyor frame to which boards are delivered by an inclined feed chute, a rocking catch lever holding the courses in position, and the frame being operated by intermittent pinion, clutch and cam-engaged lever. The machine piles lumber upon edge as it comes from the mill, on trucks, to be carried to the drying kiln, distributing the spacing strips between each course of lumber, making air passages for the entire height of the pile.

WAGON OR CART.—William C. Read and Ben Hager, Salt Lake City, Utah Ter. A vehicle for carrying melted asphaltum and other substances which need to be kept warm or hot to remain properly fluid is provided by this invention. The wagon or cart body has double sides, ends and bottom, affording a water space surrounding the wagon body, and connected with a pendent water drum, below which is a burner connected by a pipe with an oil reservoir on one end of the wagon. The water reservoir is provided with a vent cock, and with a water and steam gauge and pop cock.

VEHICLE RUNNING GEAR.—Johann Urbanek, Frankfort-on-the-Main, Germany. According to this invention rearwardly extending frames carrying at their lower ends small accessory wheels are pivoted beneath the vehicle, radius bars extending downward from the vehicle adjacent to the frames, and draught traces connecting with the axles of the vehicles and with the radius bars. The improvement forms an attachment which may be applied to carts and other vehicles to enable the wheels to pass readily over stones and other obstacles, the meeting of such obstructions throwing the draught on the accessory wheels to lift the main wheels over the obstructions.

WHEEL.—Herman E. Kuhner, Davenport, Iowa. This wheel is formed of two flanged sections, one of which has radially extending spoke sockets open at one side and adapted to be closed after the spokes have been inserted. A strong, cheap and durable metallic wheel may thus be made, suitable especially for use on agricultural machines, and one which can be easily put together and taken apart.

STREET SPRINKLER.—Charles A. Clark, Portland, Oregon. This invention provides a stationary system of sprinkling which shall be a fixture in the streets. It comprises a series of pipes laid below the surface, and connected with perforated sprinklers or spray nozzles at the street surface, protected by hinged guard plates, which are thrown back before the water for sprinkling is turned on.

PNEUMATIC TIRE.—George Pickel, Berlin, Germany. An improved valve for the inflation of the tubes of pneumatic tires has been designed by this inventor, the valve keeping the tube tightly closed when it is inflated, to prevent leakage, and providing for readily and rapidly emptying the tube when desired. A transverse rotatable plug fits in an aperture of the inflating tube, the plug having a transverse and a longitudinal bore, and a valve freely movable in the transverse bore, while a pressure gauge communicates with the longitudinal bore, the plug having a shoulder forming a seat for the valve.

HARNESS.—Isaac N. Darr, Monticello, Ill. This is a light and simple harness especially adapted for use on trotting horses. The saddle consists of two straps, one behind the other, each provided with belly girths, and the rear one serving as a surcingle, a thill strap extending forward for connection with the front end of the thill, and a trace strap extending rearward to connect with the thill or whiffletree. The harness may be used in connection with the ordinary bridle, but the breast plate or collar, the usual breeching, and the customary traces are dispensed with.

HORSESHOE.—David Gingold, New York City. This shoe has a central sole or guard plate, a semi-elliptical toe piece, a transverse heel piece, and transverse ribs between the toe and heel piece, filling material of cork, rubber, leather, or other substance, being held between the ribs and between the ribs and the toe and heel pieces. The shoe is designed to be perfectly balanced, to prevent the horse from slipping, to guard the hoof and prevent the picking up of nails, etc.

BRIDLE BIT.—Will C. Wittmann, Lincoln, Neb. In this bit the cheek rings are fitted to slide on the month bar to engage the sides of the animal's cheek, crossed connections making an effective leverage uniting the cheek rings with the reins, while bit rings forming levers are held at the ends of the mouth bar, the bit rings forming a loose support for the crossed connections. The pressure on the side of the mouth and lower jaw prevents the animal from holding the bit, thus facilitating the holding of vicious animals and strong pullers.

BOOT FOR ANIMALS.—Lindsley H. Smalley, Coon Rapids, Iowa. This boot fits the animal's leg below the fetlock, extending from the fetlock to the hoof, and below the fetlock on the outside of the boot is held a horizontal ring composed of a series of rollers. An animal provided with this boot, on passing the foot over a barb wire or other obstruction, can conveniently withdraw the foot, the wire not coming directly in contact with the foot, and the rollers readily rolling it off as the foot is withdrawn.

STOVE.—Peter Frank, Portland, Mo. In this stove a heating drum is arranged below the fire box and a flue above the fire box, there being a flue or connection leading from the fire box to the drum and upright flues leading from the drum up along the opposite sides of the fire box and opening into the top flue. The invention covers novel details of construction and combinations of parts, whereby the stove is designed to have increased heating capacity.

CHIFFONIER TURKISH BATH.—Andrew J. Cross, New York City. This bath has the appearance of a readily movable piece of furniture, its case being so constructed that when not in use it will occupy but little space, while it may be readily expanded to comfortably accommodate the bather. Dry heat is used, afforded by a gas burner or lamp, and the case has a suitable door, an opening for the neck, a second door swinging outward from one side of the case, and a folding extensible hood secured to the door and to the case to open and close with the door.

INK BOTTLE STOPPER.—Gustavus R. Weed, Orange, N. J. The ink funnel of this device is seated in an elastic diaphragm forming the top of a compressible air chamber, from which an air tube and an inner ink tube extend downward through the centrally apertured stopper of the bottle. When a slight pressure is applied by the pen a small quantity of ink is drawn up the ink funnel for use, the main body of the ink being practically sealed to prevent evaporation and keep out dust.

EUCHARISTIC WATER CRUET.—Leo C. Baudet, Mount Vernon, N. Y. Within this cruet is held a liquid cylinder at the upper end of which is a spring casing, while a pusher rod carries a tightly fitting plunger head, whereby a certain predetermined amount of water may be forced through a discharge pipe extending out beyond the lip of the cruet. The device is designed to facilitate the dispensing of an exact minimum of water for admixture with wine at the offertory of the eucharistic service.

VEIL CLASP.—Clarence M. Day, New York City. This is a clasp or brooch of oblong shape, resembling when closed a hinged sleeve or collar button. It may be made either plain or ornamental, of metal or other material, and is mainly designed to hold a veil on the back of a lady's hat without directly pinning it on, the clasp not requiring to be removed with the veil, but virtually being part of the trimming of the hat. The manufacture of this pin in large quantities has been commenced by Messrs. Stone Bros., No. 535 Broadway, New York City.

HAT.—Isabella Shepard, Niles, Mich. This hat is provided with a fabric strip having its lower edge exposed and formed with a series of loops, such as is afforded by a piece of gimp, whereby a hair pin may be passed through the strip loops at any desired point, and a pin need not be thrust through the hat to hold the latter on the head.

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.

HYMNS AND METRICAL PSALMS. By Thomas MacKellar, Ph.D. Philadelphia: Porter & Coates.

This book consists of selections of sacred verse evidently made on no other basis than that of satisfying the deeply devotional spirit of the author. Those in sorrow and affliction cannot fail to find here much that is comforting. The book is also an excellent specimen of severely good and refined taste typographically, its author having been for many years at the head of one of the largest type foundries in the world.

ORNAMENTAL IRON. Chicago, Ill.: The Winslow Bros. Co. 1893. Oblong 4to. 141 photogravure plates.

The Winslow Company are noted for the excellence of their ornamental iron, and buildings all over the country contain specimens of their work, which is highly artistic, as the present volume fully testifies. The plates are beautifully executed and the book is a charming art volume. Stairways, balconies, railings, and newels seem to be a specialty of the firm, and forty plates are devoted to them. Some of the designs for elevator inclosures and elevator cabs are very beautiful. We notice that a great deal of the wrought iron work is Bower-Barffed.

EXPERIMENTS ON MAGNESIA ALBA, QUICKLIME, AND OTHER ALKALINE SUBSTANCES. By Joseph Black, M.D. 1893. Alembic Club Reprints, No. 1. Edinburgh: W. F. Clay. 12mo. Pp. 47.

Black's paper on "Magnesia Alba," etc., was first published in 1755, and was afterward reprinted several times, but even the reprints have become very scarce. This paper was one of the foundations of chemistry as an exact science. This book places within the reach of every student of chemistry a model of clear reasoning and of inductive investigation, which is second in this respect to nothing in chemical literature.

PHOTOGRAPHIC MOSAICS FOR 1893. Edited by Edward L. Wilson. Profusely illustrated. 1893. New York: E. L. Wilson. 12mo. Pp. 282. Price 50 cents.

The text in the present volu e of "Mosaics" is very good, a large proportion of the articles having been written by well known amateurs, while Mr. Wilson has performed his task of selection with excellent results. The illustrations are in half tone, many very good. The roll of contributors includes Dr. Janeway, W. K. Burton, Dr. Liesegang, Dr. J. J. Higgins, Dr. J. M. Eder, Leon Vidal, E. L. Wilson and others.