RECENTLY PATENTED INVENTIONS.

Engineering.

STEAM GENERATOR.—Frank C. Romkey, Toledo, Ohio. This invention consists principally of a gas-producing furnace, the fuel in an incandescent state resting upon a revolving grate, while connected with the combustion chamber is one or more evaporators, and a water jacket held on the furnace discharges into the evaporators. The construction is designed to be simple and durable, and the water in jets is evaporated to mix with the products of combustion arising from the burning fuel in the furnace.

GENERATING MOTIVE POWER. — The same inventor has been granted another patent on an improved method and apparatus for economically generating motive power from oil, gas and water, for driving engines or other motors. It consists in compressing and mixing air with a liquid fuel, such as oil, in an air compressor, then forcing this mixture under pressure into a burner in which it is burned, passing the products of combustion into water to generate steam, and mixing the latter with the products of combustion. The apparatus consists principally of a boiler connected with a water supply and a burner, and a compressor forcing a mixture of air and oil or gas into the burner to be burned, the products of combustion passing into the boiler.

SCREEN AND CONVEYER.—Micajah T. Singleton, Arcadia, Fla. This is a combination apparatus for screening sand, gravel, etc., washing, screening, and conveying the material at one and the same time. The screen, mounted on a suitable frame, is formed of series of longitudinally aligned wedge-shaped links, rabbeted and overlapped at their adjacent ends, rods extending through the ends and connecting the links of the several series, while tubular washers on the rods space the series of links apart, the outer series being spaced by wider links. A transverse imperforate carrier belt extends between the upper and lower runs of the endless screen, and the entire apparatus is adapted to be boxed in to prevent waste. The screen is universal in its application and may be placed upon a cylindrical frame and used as a revolving screen.

DITCHING MACHINE. — Ottis Hughes, Lock Spring, Ind. A machine designed to automatically dig a ditch and lay tile in it is provided by this invention, a vertically movable bit and shovel being mounted in a portable frame, and a scraper arranged to push the earth from the shovel, with earth shields pivoted on the sides of the frame. An engine and boiler are located on the front portion of the main frame, and the shovel blade is caused to elevate the earth from the bottom of the trench and carry it opposite the ejector or shovel scraper. The tiles are laid by being adjusted and dropped down through a depending spout pivoted to the rear portion of the machine.

COFFER DAM.—Elmo G. Harris, Little Rock, Ark. This improvement is designed to combine the simplicity and economy of the open coffer dam with the efficiency of the pneumatic caisson. The dam has at the bottom of its walls a continuous chamber open at the bottom, the outer wall reaching to a greater depth than the inner wall, and connections are provided by which air can be forced into the chamber to drive down the water and enable men to enter and operate. By this means it is designed that subaqueous structures may be more readily and more economically built, and existing submerged structures conveniently strengthened or enlarged.

WATER WHEEL. — James C. Walker, Waco, Texas, The wheel casing, according to this improvement, has two inlet ports arranged side by side and opening into the same inlet pipe, there being two hinged gates with valves for opening the ports alternately by the action of the gates, and a wheel having inclines upon its periphery for acting upon the gates. The wheel is a solid steel disk, with buckets attached to its outer edge and supported by inclined webs or flanges. According to this improvement it is designed that the energy of the water shall act upon a series of peripheral buckets on the principle of hydraulic pressure, in contradistinction to that of mere impact and momentum.

Railway Appliances.

CAR COUPLING. — Alfred R. Heath, Covington, Ind. This improvement relates to that class of couplers in which a pivotal coupling hook is employed having a vertical movement for engaging a transverse pin or shaft on an opposing car. The coupling hook is carried by a rock shaft on which are weighted arms to normally maintain the hook in position to couple, and a presser arm or cam on the shaft at the point engaged by the hook of an opposing coupling, the rocking of the shaft serving to depress the hook thereon, while the presser arm on the shaft serves to disengage therefrom the hook of an opposing car, the invention also embracing other novel features.

RAIL CROSSING. — Smith S. Leach, Cambridge, Mass. This invention is designed to provide a simple practical device adapted to form a rail crossing at any angle, making each rail of such crossing continuous when in service and also connectable to a switch or signal stand for manipulation. Combined with a base plate and intersecting track rails thereon, there being spaces between aligning track ends at points of intersection, is a sliding block for each rail intersection and a triangular projection which may be moved with the block to align with either of the crossed rails on their inner edges, guide flanges being connected to the rail sections and blocks and devices that will coact to move all the blocks and flanges simultaneously.

Agricultural.

PLOW.—Ocran D. Bunt, Bowdon, Ga. A spring fender which will readily accommodate itself to the varying surface of the soil is provided by this invention, the fender being quickly and easily attached to and adjusted upon a plow or removed therefrom. Upon a bar projecting laterally from the beam is adjustably secured the rearwardly bent portion of the spring fender bar, which is bent vertically upward and rearward at its forward end the fender being carried upon the rear end of the bar, and being vertically, transversely, and longitudinally adjustable to accommodate itself to all irregularities of the soil.

HAY STACKER. — Thomas Collins, Forks, Pa. Combined with a post upon which is swiveled a frame is a platform adapted to receive hay pivoted on the frame, and having a sliding and extension frame to which cables are attached, one drawing the frame outward and the other forcing it upward, while a locking mechanism connects the platform with the swiveled frame. The device is adapted to be erected in a mow or shed, or in a barn, or wherever hay or straw is to be stacked, receiving the latter directly from the fork, and being manipulated from the wagon to distribute the hay or straw to any side of the stack, without the assistance of a man on the stack to direct the distribution.

CALF WEANER.—Francis G. Powers, New Salem, Kansas. This device consists of a skeleton spring frame, the upper portion of which is divided and the extremities provided with soft pads or balls, while an apron is pivoted to the lower portion of the frame, and a spring-controlled shaft is held therein, whereby the two pads may be carried outward or inward in direction of each other. When placed in position the apron falls down over the mouth and effectually prevents the animal from nursing, but when the animal holds its head in the natural position for feeding or grazing the apron swings outward, out of the way.

Miscellaneous.

MUSIC RECORDER.—Juan B. Calcano i Paniza, Caracas, Venezuela. This is a recording mechanism for musical instruments, pianos and organs especially, in which a series of levers have link connection with the keys and are provided with marking blocks or crayons, fingers extending downwardly between the levers, and a tape being held to revolve under tension beneath the crayons. As each key is pressed a mark indicating the note produced is made upon the tape, and the length or duration of the sound is indicated by the graduations. A key is provided whereby the marks made may be quickly and conveniently read and transcribed in the usual notes employed in reading and writing music.

DISTANCE MEASURER AND REGISTER.—Victor Ml. Armenta, Santa Marta, Colombia. This invention relates to surveying instruments, and provides an instrument in which a wheel, journaled in a suitable frame, has on one or both faces a graduation indicating linear measurement in meters and subdivisions or yards and subdivisions, whereby accurate measurements are made as the wheel is moved over the ground. On every revolution of the wheel a projection engages a lever forming part of a registering device, another projection operating a striker, so that a bell is sounded simultaneously with the actuating of the registering device. The frame may be connected with or form part of a vehicle moved by animal or other power over the ground.

CARPENTER'S LEVEL. — Herman R. Winkelmann, Oakland, Fla., and Adam C. Perkins, Macon, Ga. This is a combination plumb and level with an adjustable inclinometer and novel brace scale therefor, to indicate the degree of bevel to be given to the ends of diagonal braces in framed structures, and the slope of cuts for the ends of rafters having different elevations from a horizontal plane, while a compass is also provided to facilitate the location of foundation walls, side walls, etc. The level stock is preferably made of hard wood, two feet long, longitudinally divided into two pieces of equal thickness, detachably secured together.

DRAWING BOARD.—Junius D. McCabe, Coraopolis, Penn. This board consists of a stationary frame provided with a head supporting a quadrant adjacent to the edge of a circular drawing board turning on the frame, and provided at its outer edge at each ninety degree point with a vernier reading to minutes. The board is designed to be simple and durable in construction, arranged to conveniently plot surveys from notes, using either bearings or angles, while also serving as a revolving drawing board for different purposes.

FRAME BUILDING. — John A. Boyd, Houston, Texas. This invention provides a method of construction designed to be inexpensive, the frame of the structure consisting essentially of studs, wall plates, sills, joists, tie beams and rafters, so formed that the several parts may be readily detached one from the other and packed for transportation. The building thus formed is substantial and adapted to either temporary or permanent purposes, while being readily erected and quickly taken down without injury. It is especially adapted for erection in out of the way places where skilled labor is not to be had, as skilled workmen are not required to locate the parts and put up the work.

VAPOR BURNER.—Logan W. Everhart, Chanute, Kansas. This improvement comprises a retort having attached burners which may be readily placed in the fire pot of a stove, range, or boiler furnace, for cooking and water-heating purposes. The retort is also arranged for the vaporization of water flowing in passages therein, with exit in a discharge pipe adjacent to the vapor discharge pipe, the steam issuing in jets into the vapor jets, and the vapor, steam, and external atmosphere intimately commingling to form a good suction draught and produce an intense and smokeless flame. The generator is of simple construction, very easy to clean, and can be manufactured at a small cost.

DISH WASHER. — Eliza A. H. Wood (deceased; John P. Gallaway, Tavares, Fla., administrator) and Minnie Wood Gordon, Bloomfield, Fla. This is an oblong sheet metal receptacle, having a closely fitting removable cover, and a heavy loose lid sliding inside and adapted to rest upon the dishes to bind them sufficiently to prevent disarrangement. A low-down faucet is provided for the drainage of water, and the receptacle is adapted for ready connection with a simple form of cradle, with the aid of which the entire device is rocked, so as to cause a thorough and rapid circulation of hot soapy water through the dishes and other ware being washed, thus effecting a thorough cleansing with safety and in a convenient manner.

SHOVEL.—Hanford Reynolds, Gifford, Ill. This is a special form of shovel adapted for use in cleaning out tank heaters and feed cookers. It has a base plate having a flange or side wall on its back and one end, the flange or wall having beveled ends, and a handle extending vertically from the base. The shovel is strong, durable and cheaply made, and is adapted to be easily inserted beneath the grate of a heater and cooker to scoop up the ashes.

TAG HOLDER.—John W. Barton and William J. McNabb, Blue Rapids, Kansas. This device is preferably made of sheet metal in the form of a narrow fluted strip, bent over at its ends, and fashioned intermediately to form a tag-holding plate, with a slideway or pocket for the entry of a card or other tag. It is particularly adapted to be slipped on pantaloons kept in stock and piled up for sale, promoting convenience of handling by the salesman, and forming also a pantaloons protector.

CONSTRUCTION OF LEGGED ARTICLES.—William J. Humphreys, Crozet, Va. This invention covers a mechanism to render tables and other articles self-adjusting to floor inequalities, comprising two separate and independent vertically sliding rods, between which is a horizontal equalizing bar or lever, there being operating devices at the ends of the bar and upper ends of the sliding rods to permit the bar to be moved by one rod when the other rod moves oppositely to the first rod. The use of the device is designed to cause tables, bureaus, washstands, etc., to rest evenly and solidly upon the floor at all times.

VEHICLE SPRING SEAT ATTACHMENT.—John W. Haney and William A. Owens, Garden Valley, Texas. This improvement is designed to be readily applied and afford a simple means of holding spring seats perfectly steady without in the least interfering with the action of the springs, such seats generally wearing out quickly because the bolts and springs become displaced or broken by the lateral motion of the seat. On the inner sides of the spring bars are keepers through which slide vertically uprights, and diagonal braces extend from the uprights to the under side of the seat, the braces moving through slots in the keepers when the seat is moved vertically.

WAGON.—Paul H. Munroe, Plainfield, Ill. The body of this wagon is mounted on crank axles carried in the wheels, the cranks of the rear axle being connected directly with the wagon body by spiral springs, a novel form of fifth wheel being mounted on the forward axle and supporting the body, while spiral springs are secured to the cranks of the forward axle and to a frame on the fifth wheel. The spiral springs are adjustably connected to the body, which has the advantages of being low down and open at the sides, so that the wagon may be easily loaded and unloaded. The construction of the fifth wheel and the frame and springs connected with it is designed keep the springs always in a definite position in relation to the axle.

SLEIGH. — Olaus A. Normann, St. Oloff, Minn. The body of this sleigh has on its under side a bolster to which the knees are pivoted, springs being secured to the ends of the bolster and connected by cross bars secured to the body, while there are rods secured to the runners and links pivoted to the rods and springs, springs being also hinged to the upper ends of the runners and to the forward part of the body. This sleigh is designed to be cheaply built, not to capsize easily, and to conform to the inequalities of the road without jumping, while being so flexible that it will ride very easily.

SIDE APRON FOR BUGGIES, ETC. — Thomas H. Joyce, Bath Beach P. O. (Unionville), N. Y. This is an apron designed to be attached to the bows and seat of buggies and light vehicles, to protect the occupants, the aprons being so hung as to be independent of the lap robe, etc., while being easily moved out of the way.

NOTE.—Copies of any of the above patents be will 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.

THE CENTENNIAL ANNIVERSARY OF THE CITY OF GALLIPOLIS, O., October 16-19, 1890. Columbus, O.: The Ohio Archæological and Historical Society. Vol. III. 1891. Pp. 326.

The report of the recent centennial celebration of this growing Western city is contained in this volume, the third of the publications of the society named, and a good testimonial to the good work which it does in recording the early history of the State of Ohio.

CORNELL UNIVERSITY: HER GENERAL AND TECHNICAL COURSES. By Frank C. Perkins. New York: John Wiley & Sons, 53 East Tenth St. 1891. Pp. 77. Price $1.50.

By the liberal use of very beautiful photogravures, this little manual presents us with an excellent view of life and work at Cornell University. It includes views and description of the prominent lecture rooms, laboratories, etc., with portraits of many of the professors, instructors, and founders. A short description accompanies each plate.

THE SEPARATE SYSTEM OF SEWERAGE: ITS THEORY AND CONSTRUCTION. By Cadey Staley and George S. Pierson. Second edition. Revised and enlarged. New York: D. Van Nostrand. 1891. Pp. 281. Price $3.

The essence of the separate system of sewage is the use of sewers for sewage only, except so far as the introduction of a certain amount of roof or surface water may appear desirable for flushing purposes. This work, with its numerous tables, illustrations, rules of good practice and examples of specifications, seems eminently practical and well adapted for the practical engineer. The financial question receives, too, ample treatment, it being recognized that finance and good engineering are very intimately related. The agitation for sewage systems is fast spreading among our smaller towns, hitherto deprived of such adjuncts to health and convenience. It is believed that this work is most timely, and will prove of the greatest value.

ELECTRIC TOY MAKING FOR AMATEURS. By T. O'Conor Sloane, Ph.D. New York: Norman W. Henley & Co. Pp. 140. Price $1.

This is a little book designed to be very helpful to the amateur in the line of experimentation and construction, pointing out the best means and methods of following out special ideas in many directions, and showing the limitations within which electric toy making is at present pursued. The book has chapters giving comprehensive and concise information upon batteries, magnets, motors, spark and induction coils, etc. Among the toys specially described are the electric dancer, magnetic toys, the electric hammer, and electric insects. A very practical portion treats of electric batteries from common materials, and how to manage them so as to secure good results.

PRACTICAL TYPEWRITING. By Bates Torrey. New York: Fowler & Wells. Pp. 156. 8vo. Price $1.

This is a book arranged for self-instruction, school use, and lessons by mail, containing also general advice, typewriter expedients and information relating to allied subjects. The book is primarily devoted to a lucid presentation of the "all finger" method, which leads to operation by touch. Many forms and examples are given of reportorial, legal, business and figure work, and there is a chapter on typewriting for the blind.

CATALOGUE OF THE T. H. CHUBB ROD CO. Post Mills, Vt. 1892. Pp. 93. Price 25 cents.

This elegantly illustrated catalogue will, we believe, be warmly welcomed by the world of fishers. The manufacture of the Chubb rods has already been treated of in our columns. In the present catalogue not only rods and the miscellaneous goods of the gentle art are described, but eight colored plates of artificial flies give a standard value, which it is unusual to find in catalogues. Nearly three hundred artificial flies are beautifully portrayed in chromo-lithographs.