

## RECENTLY PATENTED INVENTIONS.

## Engineering.

**BRIDGE WALL FOR BOILERS.**—George W. Hayton, Brooklyn, N. Y. To securely hold and lock in place the bricks employed in making the bridge walls of boilers, preventing their being broken or knocked out by the firemen in raking the fires, this invention provides for the use of bricks having in their faces projections and recesses, whereby they are adapted to interlock with each other, while a key brick is made with grooves registering with corresponding grooves in adjacent bricks, keys being driven into the registering grooves. The set of bricks forming this improved bridge wall may be readily set up by a fireman or other unskilled person, and in case one set burns out, another may be readily set up by the attendant without the use of mortar.

**STEAM BOILER INDICATOR.**—John Parker, Bradford, England. This invention is for a simple and inexpensive device to indicate excessive rise and fall of the water level. A frame in which is arranged a float is connected with a tubular extension through the boiler shell, the float being at one end of a fulcrumed lever whose other end carries a counterbalance weight. Within the tubular extension inside the boiler is a valve seat engaged by a valve on the lever, and the undue fall of the water level raises the valve from its seat, permitting the water or steam to flow through the bore of the extension, and through a connected pipe outside, to give warning to the attendant. The device may also be arranged to give warning of an undue rise of water.

**RAISING SUNKEN VESSELS.**—John R. Grant, New York City. This invention relates to raising sunken vessels by inflated bags in the hold, and provides improved bags and attached parts whereby the bags may be inflated as desired without leakage of air or danger of bursting, or the closing of the air inlets by the folds of the bags. The bags have each an inner and outer shell of fabric, with two reinforce plates secured to its inner and outer sides and having orifices matching an orifice in the bag, gaskets being interposed between the plates and the shells. The air distributing pipe is so arranged that all the bags on a vessel will be uniformly inflated, that the vessel may be properly raised without listing.

## Railway Appliances.

**CONVERTIBLE CHAIR OR SKAT.**—James M. Osgood, Boston, Mass. A seat or chair for day use, which may be readily converted into a berth for night occupation, is provided by this invention. A seat portion, upholstered on both sides, is mounted to rotate in a seat frame, a back frame recessed at opposite sides being pivotally connected to the seat portion, and an upholstered back section in each of the recesses is pivotally connected with the upper portion of the back frame, whereby they may be swung into or out of the recesses to form backs or a berth. The alternating seats are somewhat differently constructed, according as they are to be convertible into an upper or lower berth, and the improvement also comprises sectional partitions by which two staterooms are practically formed, one for the upper and the other for the lower berth.

**DUST SCREEN FOR WINDOWS.**—Hugh B. Shotts, Shawneetown, Ill. This is a screen especially adapted for use in connection with car windows, being readily applied at either side of the window frame and held in position by the sash, or being applied on the outside of the car on the panels between the windows. It has a box body with hooded top and bottom escape openings, an upright on the inner front portion of the body having a rib adapted to enter a sash groove, and the ends of the upright being recessed to receive the bottom rail of the sash. The screen is designed to prevent the entry of dust and cinders at an open window, and also causes a gentle draught of air from the car out through the window when the car is in motion.

## Mining, Etc.

**MINING CAISSON.**—James M. Thorp, College Park, Cal. For mining the bedrock of rivers this invention provides a caisson that may be readily transferred from place to place, and which enables the miners to work directly on the river beds. The caisson is supported by floats which form a double hull boat, arranged with rails, a framework and platform, whereby the caisson may be moved about and considerable space worked without moving the floats. It comprises an outer casing with lower work chamber open at the bottom, there being a fixed chamber portion and a vertically movable chamber portion. Bucket shafts open at the bottom into the working chamber and at the top in airtight chambers, from which chutes lead outwardly, workmen descending to the working chamber through an air-lock shaft.

## Mechanical.

**SAWING MACHINE.**—Daniel J. Taft, Leon, Ky. An attachment has been devised by this inventor for automatically feeding and adjusting staves and similar articles to the saws in such a manner that the desired amount of surplus is cut off from either or both ends of the article. Two pivoted guides are mounted to swing in unison, and are engaged by the ends of the article to shift it transversely to bring the ends in proper position for the saws. The guides are readily set to proper position, and their free ends extend under a press roll which holds the staff in place while passing to the saws, another roll preventing the cutoff staff from being lifted while passing rearward between the saw blades.

**GAGE FOR SEWING BELTS.**—John Gregory, Newark, N. J. To properly locate wire lacing on a belt, a simple and inexpensive gage has been devised by this inventor, consisting of two hinged sections having front and rear plates connected by bars outwardly arched and diagonally placed, the two sets of bars producing the effect of a thread. Gage bars are fitted to the arched portions of the gage sections, the bars having outer convex and inner flat faces, and one bar engaging the top face and the other the under face of the belt. In attaching lacing with this gage the strands alternately vary in length, one strand being short and the other longer.

## Miscellaneous.

**BICYCLE HANDLE BAR AND BRAKE.**—Manuel A. Roso, New York City. This invention is for a strong, light and readily adjustable handle bar, whose ends may be made to stand in any desired position, and with which is combined a brake device to be operated by the handle bar. The stem or upright portion is clamped and adjustably held in the upright portion of the steering post in the ordinary way, a hollow head receiving the screw-threaded ends of horizontal tubular arms, in which are journaled a horizontal tube whose opposite ends receive the handles. Within a sleeve on the ends of the handles are flanges with serrations engaged by spring bolts on the hollow arms, the bolts acting as latches in adjusting the handles to desired position. In the hollow head is a sprocket wheel, and a chain and wire connection leads from it through the forward post and diagonal lower brace to a brake lever fulcrumed on the lower fork, and carrying a brake shoe adapted to engage the tire. On disengaging a spring catch on the handle bar, the brake may be applied by simply pressing down on the handles.

**BICYCLE BRAKE.**—William L. Stewart, Wilmerding, Pa. According to this improvement, the braking pressure is applied on the bicycle tire through a brake cylinder covered with canvas or similar material, the brake cylinder rotating more or less on contact with the tire, which it is designed not to injure in any way. The cylinder has a fixed and a removable end in which are central openings for the passage of trunnions of an inclosed bearing block having semicylindrical seats, each bearing on the top of a friction roller engaging the inner periphery of the cylinder below its center, the outer ends of the trunnions being engaged by a yoke from which an operating rod extends upward conveniently near the handle bar. By pressing down on the handle of the operating rod the brake cylinder is brought into engagement with the wheel tire, and the braking force is equal to the pressure between the friction rollers and the inner surface of the brake cylinder.

**BICYCLE GEAR.**—Christian A. Meister, Allentown, Pa. The hub of the rear wheel, according to this invention, has at opposite ends a large and a small sprocket wheel connected by sprocket chains with a large and a small sprocket wheel turning loosely on opposite ends of the crank shaft, the latter wheels having inwardly projecting hubs adapted to be engaged by a clutch sleeve. This sleeve has a circumferential groove receiving a loose collar connected with a clutch lever at whose upper end is a handle movable in a clip on the frame of the bicycle, the handle being held in engagement with opposite sides of the vertical brace bar. To change from a high to a low gear, or vice versa, it is only necessary to push the handle from engagement with one side into engagement with the other side of the frame.

**PRINTING APPARATUS.**—Joseph B. Mockbridge, New York City, and Julius G. Hocke, Bayonne, N. J. This invention is for an apparatus more especially for use in checking freight, to print characters on shipping receipts, etc., at the same time issuing a separate check or ticket with duplicate characters. It has two sets of type wheels, each comprising a series wheel, a consecutive numbering wheel and an indicating wheel, the corresponding wheels being connected with each other to rotate in unison, while a rod actuated by the operator, and connected mechanism, imparts motion to platens swinging toward and from the type wheels. Any desired number of impressions may be made on the document and on the paper reel, the impressions being consecutively numbered alike on both.

**STARTING GATE FOR RACE TRACKS.**—Phillip McGinnis, Brooklyn, N. Y. This invention relates to devices for aligning and holding horses in proper position for starting on race tracks. It comprises posts at opposite sides of the track on which are brackets and sleeves supporting carriers and arms to which are attached barriers. The latter preferably consist of flexible material, such as leather, and are readily detached from the arms by the pressure of a horse against them. When the barrier or gate is in lowered position, the horses are aligned against it, the starter at the proper time pushing downward on a lever which releases a counterbalance and swings upward the arms, removing the barrier.

**GATE.**—Amon W. Chilcott, Stewartsville, Mo. This invention is for a gate which may be adjusted vertically in such a way as to raise its swinging or free end any desired distance from the ground, permitting the passage of small stock and enabling the gate to be easily operated when there are snow drifts. A crank shaft has one of its crank arms in link connection with an extension from the gate, the second arm being connected with a lock lever, while shifting arms extending beyond opposite sides of the gate also have a link connection with the lock lever. In opening and closing, the gate passes a dead center and will be locked in either its open or closed position, from which it may be released and swung in either direction by levers placed at opposite sides of the road or path crossed by the gate.

**ELEVATOR DOORS AND SAFETY DEVICES.**—Lucius N. Reed, Fulton, Ill. To operate the vertically swinging doors of elevator shafts, and automatically lock the elevator, should the hoisting rope break, the mechanism provided by this invention comprises a vertically movable rod having chain connections with the doors, and from which a cable extends around a pulley at the base of the shaft, the cable being attached to another pulley on whose shaft is an operating lever. Eccentrics mounted on shafts carried by the elevator car are adapted for engagement with brake strips arranged at opposite sides of the shaft, there being on the shafts segment gears, on one of which is a weighted extension, a holding device for which comprises a pivoted plate operated by atmospheric pressure, whereby the car will be automatically locked in the shaft should it commence to move downward too rapidly.

**FUNNEL FOR DUST COLLECTORS.**—Franz Prokupek, Milan, Italy. This device, which has also been patented in many foreign countries, has within its shell or body a number of vanes to break the current

of air passing through, there being a fixed truncated cone supported on the vanes, and within the fixed cone a flexible cone adjustably held and adapted to receive atmospheric pressure and capable of being deformed to gradually contract or completely obstruct the lower orifice of the fixed cone. The device is adapted for weak as well as for strong currents of air, the funnel being mounted on any ordinary dust collecting apparatus, and the funnel and collector forming only a single apparatus after mounting.

**WINDOW SHADE ROLLER AND BRACKET.**—George M. Parsons, Carson, Nev. According to this improvement the spring of the spring roller may be quickly and conveniently placed under the desired tension when the roller is in position in its brackets, and the winding of the shade may be the more readily accomplished as the roller may be definitely turned but a partial revolution, an entire revolution, or a number of revolutions as required. In an offset member of the bracket is located a tension head forming practically a ratchet, and a spring shaft in the roller is connected with a winding disk at the end adjacent to the bracket, the arrangement being such that, by turning a key connected with the outer end of the tension head, the spring of the roller is placed under compression.

**SLIDING DOOR AND CURTAIN SUPPORT.**—William Abraham, Fairchild, and William Schroeder, Augusta, Wis. This improvement comprises a slotted tube forming a track in which travels a grooved ball, its groove registering with the slot of the tube, while a hanger formed of overlapping hook-shaped members engages the ball and extends through the slot to carry the door, curtain, etc. There is a pivot for the hook members and a washer on the pivot, to clamp the door or curtain in place between the washer and the pivot end of the hook members. The device is very neat and not liable to get out of order.

**FOLDING TRESTLE.**—Thomas A. Clarke, Portland, Oregon. This invention is for an improvement on a formerly patented invention of the same inventor, the trestle being designed to support a table or like articles, and to be readily set up or folded for storing away. It has a main post with oppositely arranged lower recesses in which are pivoted legs, there being also leg braces, while pivoted to the upper end of the post are outwardly extending arms. The stand when set up has five points of support, and is very firm.

**REMOVABLE BACK FOR RAZORS.**—Samuel H. Barrett, Wallace Groves, and Jent C. Brown, Woodhull, N. Y. This device consists of a straight back adapted to lie along the permanent back of the razor, and having at each end downwardly extending spring fingers by which the bar may be removably attached to the razor. The side edges of the bar are extended beyond the razor to engage the honing surface and more decidedly tilt the razor, the invention being especially useful where the permanent back of the razor has worn down from long service.

**DRAWER GUIDE.**—Torvald Hanson, Eau Claire, Wis. To compensate for shrinkage and wear of a drawer and the parts in which it slides, in furniture, store fixtures, etc., this invention provides laterally adjustable guides consisting of loosely contacting strips from which project threaded studs, contact bars attached to the case having apertures to receive the studs, and there being nuts on the studs between the contact bars and guide strips. The nuts are readily adjustable by a wrench bent to the required form.

**CONTAGIOUS GERM INCINERATOR.**—Helen S. Whitton, Fruitvale, Cal. This is a portable incinerator more especially adapted for consuming the discharges from diseased lungs, and comprises a vase-like shell covered by a close-fitting lid, and within which is a chafin dish. The incinerator is effected by means of an alcohol or other lamp in the base of the shell, there being an annular draught passage around the thin walled chafin dish.

**PUNITIVE CHAIR.**—Sanford J. Baker, Oakland, Me. This is a chair made of metal slats, in which the occupant is to be held in sitting posture, though not bound, the chair forming substantially a cage secured on a wheel base, to be drawn to and left on a public square. It is designed for the confinement of drunkards, tramps, or other objectionable persons or criminals, the occupant being visible from the sides as well as the front. A table is secured to the front of the door and food is placed there for the occupant.

**SIPHON RECEPTACLE.**—John Nagel-dinger, New York City. To preserve fermentive liquids in their natural state by means of carbonic acid gas, and by the same means produce a siphonage from the vessel of any desired quantity of the liquid, is the object of this invention. A cap having a pendent carbonic acid receptacle extends down into the siphon receptacle, the cap having a closely fitting exterior jacket of non-corrosive material in which is a pressure regulator, which may be set to a predetermined amount of pressure, whereby every glass of liquid drawn will be as sparkling as the first glass. The device is simple and inexpensive, and especially adapted for preserving beer, wines, mineral waters, etc.

**CAROUSEL.**—Milton T. Weston, Kenton, O. This is a merry-go-round in which the frame and mast are tubular, and the mast may readily be made vertical, although the base rests on an inclined surface. Simple and inexpensive means are provided for driving the machine, and there is an independent driving mechanism for each carriage, the mechanism of one carriage, although stopped or no matter how worked, not interfering with the movement of the machine as a whole.

**CATCH BASIN.**—Martin J. Nelles, Chicago, Ill. This is a cylindrical basin, made in sections of tiles cemented together in horizontal tiers, each tier or row having a continuous top groove and a continuous bottom tenon, and the adjacent edges having ribs and grooves forming socket joints. The basin is indestructible by sewer gas or acid, takes but little mortar or cement, and may be built with less labor than the ordinary brick structure. A cracked or broken tile may be readily replaced by another, the several plates being of like size and form, so that any one may be used in any tier.

**FOUNTAIN SPITTOON.**—John C. Blair, Louisville, Ky. For attachment to dentists' chairs or separate supports, this improvement comprises a bowl in which a concave disk is arranged as a false bottom, a waste conduit extending down from a central aperture in the disk, while the inlet communicates with a space that separates the disk from the bowl proper. An upward flow of water is provided for to flush the bowl.

**WATER CLOSET.**—Miguel Morell, Santa Barbara, Cal. The casing of this closet is provided with connected flush and discharge pipes, and an interior case or pan containing a central receiving basin fits closely but removably therein. The closet is automatic in its action, and the parts are so constructed that they may be readily taken out for examination and cleaning.

**DESIGN FOR SHADE ROLLER TIP.**—William B. Shaw, Brooklyn, N. Y. This tip is in the form of a thin metal ferrule, having a longitudinal depression forming a channel in one side, with an annular flange near its outer end.

NOTE.—Copies of any of the above patents will be furnished by Munn & Co. for 10 cents each. Please send name of the patentee, title of invention, and date of this paper.

## NEW BOOKS AND PUBLICATIONS.

**COIL AND CURRENT, OR THE TRIUMPHS OF ELECTRICITY.** By Henry Frith and W. Stepney Rawson. London: Ward, Lock & Company, Limited. 1896. Pp. 294. Price \$1.25.

Mr. Frith is known already as an author in the field of popular science. This book is of the same type, and the associated authors present the entire field of electricity and electrical engineering in popular form. It is liberally illustrated and its interest is increased by the fact of the subject being treated from the Continental as well as English standpoint. It gives a specially good account of what is being done abroad in electrical engineering, we being too apt to forget that there are wonderfully active developments in electrical engineering in constant progress on the other side of the Atlantic Ocean. The book, we feel, deserves warm commendation. On page 241 we notice the reproduction of a SCIENTIFIC AMERICAN cut of a simple form of microphone due to Mr. George M. Hopkins. The author, however, omits the proper credit either to the originator of the very simple and satisfactory form of microphone or to the journal first publishing it.

**PRINCIPLES OF MECHANISM. A Treatise on the Modification of Motion, by Means of the Elementary Combinations of Mechanism, or of the Parts of Machines.** For use in college classes, by mechanical engineers, etc. By Stillman W. Robinson. First edition, first thousand. New York: John Wiley & Sons, London: Chapman & Hall, Limited. 1896. Pp. xv, 309. Price \$3.

In this volume we have at last something which has long been due the inventor—a thoroughly scientific treatise on mechanical movements. They are treated from the standpoint at once of theory and practice, and the work embodies the substance of lectures given by the author during the past twenty-seven years. As the work is largely addressed to those more conversant with the drawing board than with mathematics, an effort has been made to treat the subjects from the standpoint of graphics rather than of pure analysis, which feature will popularize the work. The illustrations may be divided into two classes; diagrams, mechanical drawings of mechanisms, and, most interesting of all, process reproductions of actual models. We feel that we shall be true prophets in bespeaking a large and long continued sale of this work among those interested in practical mechanics.

**CHEMISTRY FOR ENGINEERS AND MANUFACTURERS.** A practical text book. By Bertram Blount and A. G. Bloxam. With illustrations. 1896. Volume III. Chemistry of Manufacturing Processes. London: Charles Griffin & Company, Limited. Pp. 484. Price \$4.50.

The title page tells the story of this work. By authorship alone its character is guaranteed. The range of subjects treated within its less than 500 pages is very great, and the distribution of the subjects is so wide, the authors seeming not to be biased in one or the other branch of manufacture, that it really seems a most satisfactory production. We notice in the chemical equations, however, a certain amount of carelessness which shows itself in the indiscriminate use of subscript and full size multipliers of elements; but this criticism is a very minor one and we warmly commend the work to our readers. An unusually good table of contents, a short bibliography, and a really model index of over forty pages, with the numerous illustrations, and graphic, bond and plain formulae, add no little to the value of the work. A single title may be cited to illustrate its thoroughness. Under oils, resins and varnishes, the subject of birdlime is awarded a paragraph, giving its chemical composition.

**THE WHEREWITHAL; OR, NEW DISCOVERIES IN CAUSE AND EFFECT.** Townsend. Price \$1.

This work presents a system of thought and the composition from such general headings being given under which any subject can be printed. This system involves the idea of treating any topic from the standpoint of its causes and sources, its essentials, associations, incidents, and effects. What it illustrates and the conclusions it leads to are included in seven headings termed by the author "questioners." It reminds one of the divisions of a speech, the exordium, narration, proposition, argument, and peroration. There is no question that much is to be gained by adhering to such formulae, and the wherewithal system will do much to assist in the presentation of any subject to the mind of an investigator or to his auditors.