

## RECENTLY PATENTED INVENTIONS.

## Engineering.

**STEAM BOILER FEEDER.**—Bernard Devlin, Jersey City, N. J. This is an automatic feeder, in which a drum communicating with the steam and water spaces of the boiler has a float valve to cut off the supply of steam from the boiler a piston device being arranged in connection with a valved water supply pipe, the device having a self-opening relief valve, while a steam supply pipe connects the drum with the valve-controlling piston device.

## Railway Appliances.

**CAR COUPLING.**—Justin E. Clark, Andover, Mass. In this device the drawhead with a hook or horn, and a peculiar form of bail-like link is pivoted to the drawhead, a yoke-like latch having its ends pivoted to the link, with means for raising the link, which may at any time be thrown out of the coupling position to permit of the drawhead being used as an ordinary link coupler, while the device is operable from the top or the sides of the car.

**CAR COUPLING.**—Benning Rowell, Badger Mills, Wis. The drawhead is, according to this invention, movable vertically at its forward end, suitably held suspension rods extending down along opposite sides of the drawhead, and their ends being held in a plate on its under side, forming a simple and convenient construction by means of which the drawhead mouths may be readily set up or down as desired.

**VESTIBULE CAR.**—John H. Kirkham, Niles, Mich. Combined with the contacting frame of the car are horizontal rods connected with elbow levers, the latter being also connected with buffer springs, with other novel features, whereby the contacting frames of opposing flexible portions are held in constant contact and sudden jars are relieved, the mechanism consisting of few and simple parts that can be readily applied to vestibule cars now in use.

**CAR BUFFER.**—Seely W. Ashmead, St. Louis, Mo. Combined with buffers adapted to be located as usual at opposite sides of the drawhead are friction rollers or balls held to revolve therein and projected out therefrom, a lubricator communicating with the recesses in which the balls revolve, forming an anti-friction buffer by means of which the wear and grating and grinding of the ordinary buffer are avoided.

**CROSSING FOR CABLE RAILWAYS.**—James P. Orr, Pittsburg, Pa. According to this invention the two cables crossing each other are combined with a frame adapted to be raised and lowered, with two sets of pulleys arranged thereon, one set supporting one of the cables while the other passes under the other set of pulleys, the arrangement being such as to bring the crossing cables near each other, at the same time preventing the cables from coming in contact.

## Mechanical.

**TRAVELING CRANE.**—Charles Davy, Sheffield, England. This invention is designed to dispense with the tumbler bearings usually employed as supports of the driving shafts, and provide means whereby sliding connection may be maintained with a shaft mounted in ordinary fixed bearings, whether it be the main or transverse driving shafts, which transmit power to the hoisting crib.

**LAYING OFF WOOD WORK.**—Robert G. Love, Richmond, Va. This invention provides a machine for laying off and marking the stiles of shutters and doors and similar work, preparatory to cutting the mortises therein by a mortising machine, in order to save labor by doing the work more expeditiously than can be done by hand and insure exactness and accuracy in the joiner work, the machine being simple and inexpensive, and operable either by a treadle or by power.

**BARREL HOOPING MACHINE.**—Frank Glankler, Memphis, Tenn. This invention covers a peculiar construction of the ring or annular platen whereby the hoop is not driven entirely on the barrel, but is allowed to project a little beyond the chine or ends of the staves, so that when the barrel is set away or stored for future use it may be subsequently tightened by driving the hoop all the way on, the cracks which might appear from shrinkage being thereby closed to make a tight barrel.

**SHINGLE SHAPING MACHINE.**—Daniel W. Williams, Fortuna, Cal. Combined with a vertical chute above a sliding support is a shaper having forwardly projecting arms provided with inner shoulders to move the support from under the chute after the shaper has acted on the shingle, and outer shoulders to return the support on the back stroke, the machine dressing the shingles to the required width and cutting their ends to such form as may be desired.

**COUCH ROLL FOR PAPER MACHINES.**—Frederick W. Miller and John J. Newman, Elkhart, Ind. This is a suction couch roll, with a shaft having hollow ends adapted to be connected with suction devices, journaled boxes forming the heads of the roller and an annular chamber being formed about the heads, the roll having a porous cover, and ports connecting the annular chamber with the hollow shaft, the roller being also adapted for use as a revolving suction box when placed in any suitable position on a paper machine.

**RULING MACHINE ATTACHMENT.**—William C. Smith, Brooklyn, N. Y. Transversely rocking forks or links are pivoted to vertical standards at opposite sides of the frame, and a pen beam with arms at its ends is mounted on the forks or links, there being mechanism for reciprocating the pen beam, whereby paper may be tinted or ruled in wavy lines at a small cost, producing effects heretofore usually accomplished by lithography.

**GRIPPER FOR JOB PRESSES.**—George W. Banks, Philadelphia, Pa. This invention provides a means whereby the grippers may be set without the aid of a wrench or similar tool, and so that when they

are set they will be retained in a positively fixed position upon the gripper plate and rendered incapable of lateral movement until purposely adjusted.

**THEATRICAL APPLIANCE.**—Joseph Arthur, New York City. This invention embraces a novel construction and combination of parts employed to produce a scene representing the interior of a saw or planing mill, machinery usual in such establishments appearing in full operation, giving to the scene a most realistic effect.

**APPARATUS FOR TREATING COTTON SEED HULLS.**—Emil Bohn, Galveston, Texas. By means of this apparatus the hulls are successively ground, screened and stirred, and the ground product directed by an air blast over pocketed chutes, where the coarse, heavy particles are separated from the fine, light particles, the former being discarded and the latter used as paper stock.

**TYPE WRITING MACHINE.**—Philip P. Wenz, Meadville, Pa. The type wheel of this machine has the letters arranged thereon in combinations such as follow each other in words of common use. By a novel construction and arrangement of parts a single letter or portion of a word may be printed at one operation of the type hammer.

**LASTING MACHINE.**—Charles E. Goss, Brooklyn, N. Y. In this machine novel means are provided for opening and closing the grippers and for shifting them horizontally, to insure proper stretching of the upper and even fit upon the last preparatory to its being tacked. The tacks are released singly from tubes by the upward movement of the drivers.

## Agricultural.

**PLOW ATTACHMENT.**—Archibald B. De Bruce, Arkansas City, Ark. A plate is arranged a suitable distance forward of and above the mould board, of the same form and general size as the mould board, the under surface of the plate being convex and not smooth, the design being to compress the soil turned up by the plow, and so that it will all pass easily between the mould board and plate, preventing the soil sticking to the mould board.

**PNEUMATIC MILKER.**—Julius T. Pomeroy, Edgerton, Wis. A pail with suitably packed cover has connected therewith a simple form of air pump, whereby a partial vacuum may be readily created in the pail, and from the top portion of the pail extend four rubber tubes, provided with nipples and spreaders at their outer ends, the air pump being operated when these nipples are in place for milking, sections of glass in the rubber tubing permitting the operator to see when the milk is flowing freely into the pail, and the milk being thus saved from all contamination.

**GRAIN SCOURER.**—Peter Provost, Minneapolis, Minn. This invention covers an improvement on a former patented invention of the same inventor, the machine having a cylinder in which three hopper-shaped screens are arranged one above the other, there being a revolving shaft with beater arms in the upper section, a disk with conical lower portion on the shaft in the second screen, and a brush on the shaft in the lower screen, whereby the grain may be thoroughly cleaned and all the dust removed.

## Miscellaneous.

**NURSING BOTTLE.**—James W. McKinnon, New York City. This nursing bottle is so constructed as to avoid all corners, depressions, or cavities in which milk is liable to collect and sour, and to enable the bottle to be thoroughly cleaned with little labor, and to allow of the free circulation of air after such cleansing or while the bottle is not in use.

**BUCKLE.**—Benjamin H. Day, Jr., West Hoboken, N. J. This is of the class of lever buckles for holding straps and other flexible connections and having a hinged tongue, and its novelty consists in making the tongue of spring metal of corrugated or U shape at the back of its clamping portion, so that it will readily adapt itself to different thicknesses of straps and exert a spring pressure upon them.

**PUMP WATER CLOSET.**—William D. Baxter, Brooklyn, N. Y. This is a water closet adapted particularly for yachts and marine vessels, but capable of use wherever there is a water supply. Two pumps connected with the closet operate respectively to alternately flush the bowl and draw out the contents of its soil pipe for discharge to a place of deposit, all odors in the meantime being effectually prevented from coming back through the soil pipe.

**TABLE.**—Edwards A. Reed, Oliver Springs, Tenn. This invention is an improvement in collapsible tables, the construction being such that while the article is stable when in use, it is capable of being compacted to economize space in shipping or stowing away and to permit of its being carried through narrow doors or crooked and cramped passages, and in which the legs are not liable to shift out of place, either when folded or let down.

**BURNER.**—August F. Reinhold, New York City. This burner is particularly adapted for burning oil for heating or lighting purposes, and is designed to be safe and practically odorless, having a non-conducting, concave and apertured plate above the flame, and one or more perforated heat-absorbing and radiating plates held below the top and around the wick tube or flaming point.

**RADIATOR.**—Arthur J. Brown, Edward Brown, Jr., and Dennis Shay Bellefonte, Pa. This invention relates to steam and hot water radiators built up in sections of a double tubular circulating and return character, and the radiator has a male and female steam-parked slip joint between the sections, with a novel construction of the sections and arrangement of their inlets and outlets, affording a most perfect circulation and quickly heating the radiator.

**FREEZING BOX FOR ICE MACHINES.**—Henry Rea, Jr., and Joshua L. Clark, Pittsburg, Pa. This invention covers a novel construction and arrange-

ment of parts in which a box or tank is subdivided with a series of parallel cells by means of hollow partitions through which a refrigerating liquid is made to circulate, in order to freeze the water into slabs of ice in the intervening cells.

**GUN CHARGE INDICATOR.**—Gideon K. Pheatt, Toledo, Ohio. According to this invention the gun is provided with pins that will not appear when the barrel is empty, but will project from the upper and lower surface of the gun when the barrel contains a shell, accurately indicating both to the sight and touch whether or not the gun contains a cartridge, and preventing accidents occasioned by the discharge of guns not supposed to be loaded.

**EAR TRUMPET.**—Frank M. Blodgett, New York City. The receiver or bell of this trumpet is of volute form, its outer curve having a gradually increasing radius, and the inner curve being of appropriate size to fit snugly around the back and over the top of the ear, so that the trumpet stays in place without holding, while the outer surface of the tip which enters the ear has a covering of soft India rubber to protect the ear and in a degree adhere to it to assist in holding the receiver in place.

**LEAF TURNER.**—James E. Pellow, Sierra City, Cal. This is a music turner with one or more shafts, each carrying an arm adapted to hold the free end of a leaf, while there is a spring-actuated roller for turning the shaft, a locking device to lock it, and means whereby, on pressing a button, the locking device is released, the shaft is turned from right to left, turning the leaf.

**SPOON.**—Martin L. Schoch, New Berlin, Pa. This spoon has a spring-pressed scraper adapted to move on the spoon bowl, with means for regulating its movement, by means of which all sticky and adhesive substances may be quickly and easily removed from the bowl without the use of an additional instrument.

**GATE OPENER AND CLOSER.**—Frank W. Kumball, Milford, Ill. A lever bracket-like projection from one side of the gate is connected with cords arranged to run in reverse direction to or beyond opposite sides of the gate, and constituting pull devices for starting the gate in opening and closing it, a spring connecting the projection with the back or hinge gate post, and operating to complete the opening or closing of the gate.

## SCIENTIFIC AMERICAN BUILDING EDITION.

## NOVEMBER NUMBER.—(No. 61.)

## TABLE OF CONTENTS.

1. Plate in colors of a modern dwelling of pleasing design at West End, Chicago. J. De Howarth, architect, Chicago. Floor plans, perspective view, sheet of details, etc.
2. Elegant colored plate showing perspective view of a \$1,400 cottage at Chicago. Two floor plans, sheet of details, etc. Architect J. M. Young.
3. Design for an entrance hall.
4. An attractive dwelling at Hollis, Long Island, erected at a cost of \$6,000 complete. Perspective view and floor plans. Schwietzer & Diemer architects, New York.
5. A neat looking cottage at Humboldt Park, Chicago. Cost \$3,200. Photographic perspective view and two floor plans.
6. A colonial house erected for Mr. C. A. Hutchings, at Montclair, N. J. Cost \$5,000 complete. Floor plans and perspective elevation.
7. A Flemish cottage erected in Philla Park at Wayne Pa., at a cost of \$5,500 complete. Perspective view and floor plans.
8. A house erected at Elm Station, Pa., at a cost of \$5,200. Photographic perspective view and floor plans.
9. Perspective elevation and floor plans of a handsome cottage at South Orange, N. J. Charles B. Atwood, New York, architect. Cost \$13,000 complete.
10. Engraving showing a block of economical brick houses erected at Philadelphia, Pa. Cost \$2,000 each. J. M. Stillor, of Philadelphia, architect. Floor plans and perspective.
11. Perspective and floor plans of a Lake Side cottage at Minnetonka, Minn. Cost about \$1,000. W. H. Dennis, architect, Minneapolis.
12. Miscellaneous contents: Some of the merits of the ARCHITECT AND BUILDERS EDITION OF THE SCIENTIFIC AMERICAN.—The air supply.—The Alhambra.—Decoration of entrance hall, illustrated.—Questions on construction.—The Henry Martin brick in chime, illustrated.—Buckeye Portland cement. A government contract for woodworking machinery.—Architects' and carpenters' transit, illustrated.—Improved dwelling houses, illustrated.—Dumb waiter and hand power elevators. Improved double blind wiring machine, illustrated.—An improved boiler for power and heating, illustrated.—Resistance to fire of wood posts.—An improved door spring, illustrated.—An improved hot air furnace, illustrated.—The Taylor "old style" roofing tin.

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## NEW BOOKS AND PUBLICATIONS.

**GEOLOGICAL SURVEY OF NEW JERSEY.** Final report of the State geologist. Vol. II. Trenton, N. J. 1889. Pp. x, 642.

In this second volume of the final report of the lamented Prof. Cook, mineralogy, botany, and zoology are comprised. It amounts to little more than a catalogue of the subjects, with the localities or places where found, given under many of the titles. It is needless to say that it will be of great importance and interest to those scientists to whom it is particularly addressed.

**SEWAGE DISPOSAL WORKS.** A guide to the construction of works for the prevention of the pollution by sewage of rivers and estuaries. By W. Santo Crimp. London: Charles Griffin & Company, Philadelphia: J. B. Lippincott Company, 1890. Pp. viii, 277. Price \$7.50.

A subject of importance, and one which is daily acquiring new importance in the suburbs of our large cities, is that of sewage disposal. In this work the different plans adopted in England are elaborately explained and illustrated. It is offered as a guide for the construction of works for large and small cities, and illustrates a subject which is only at the present day beginning to acquire its proper position in sanitary engineering in this vicinity. Numerous folding plates illustrate the subject.

**PRACTICAL BLACKSMITHING.** By M. T. Richardson. Vol. III. New York: M. T. Richardson. 1890. Pp. i, 307. Price \$1.

We welcome most heartily the appearance of the third volume of this excellent treatise on a subject neglected by most technical authors. The numerous illustrations and detailed instruction are such as to bring this very practical science well within the understanding of all. The most experienced blacksmith will receive many hints of use and value upon points in his trade.

**THE CIDER MAKER'S HAND BOOK.** A complete guide for making and keeping pure cider. By J. M. Trowbridge. New York: Orange Judd Co. 1890. Pp. 119. Price \$1.

Judging by the many inquiries made about the manufacture of cider, there is every reason to believe that the present work will be acceptable to a large number of readers. It has several illustrations, and many tables of data are appended to it.

**DUST AND ITS DANGERS.** By T. Mitchell Prudden. G. P. Putnam's Sons. New York, London, 1890. Pp. iii, 111. Price 75 cents.

Dr. Prudden's exhaustive work on bacteria gives his emanations on the subject of dust and its disease germs a peculiar value. The most practical methods of analysis were applied to determine the quantities of dust and of germs growing thereon, from which numerous illustrations are given, showing the results obtained under a microscope.

**WOOD'S MEDICAL AND SURGICAL MONOGRAPHS.** William Wood & Company, New York, 1890. Pp. 201. Price \$10 a year, single copies \$1.

In this, the first number of the sixth volume of this very valuable series, the human foot, modern cretation, and aphasia are treated. We have before this reviewed the series, and need only say that this number yields nothing to the others in interest and beauty of illustration. The colored plates and the very practical outline drawings appeal to the laity almost as much as to the medical world.

**ELEMENTS OF PLANE AND SPHERICAL TRIGONOMETRY.** By Edwin S. Crawley. Philadelphia: J. B. Lippincott Company, 1890. Price \$1.

This work is supposed to comprise the subject of trigonometry as far as treated in the college course. The method adopted has been to give the first portion in detail and later on to throw the student more upon his own resources. It includes both plane and spherical trigonometry.

**THE LIGHTING IN PHOTOGRAPHIC STUDIOS.** By P. C. Duchochois. New York. Pp. 88.

A practical work on the various modes and appliances used in lighting sitters in photographic studios. The general principles to be observed in making portraits; methods of distributing the light, the construction of the skylight, devices for screening and shading the light; backgrounds and their relation to the sitter; the use of orthochromatic plates in portraiture, are all fully described and explained. The book is designed for the practical photographer, and contains much useful information compressed into a small space.

**THE DEVELOPMENT OF GELATINE DRY PLATES.** A practical manual for the amateur. By Rev. W. H. Burbank. Brunswick, Maine. Pp. 92. Price 75 cents.

The book covers thirteen chapters, explaining the general principles of development, illustrations of developing room conveniences, giving formulas of the various developers, describing methods of washing, fixing, intensifying, and reducing negatives. There are also supplementary notes, formulas, and tables for reference which will prove very useful to any amateur desiring to know all about development. The book has the merit of being free from strictly technical terms and is easily understood, and the directions to be followed in developing a plate are carefully and concisely written. As a whole it is a desirable and useful addition to photographic literature.

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