

## RECENTLY PATENTED INVENTIONS.

## Railway Appliances.

**CAR COUPLING.**—Henry C. Bugg and Edward B. Loomis, Memphis, Tenn. Combined with the drawhead and coupling pin of the ordinary type is a crank rod mounted across the end of the car, and having a forwardly projecting bent arm, the outer end of which is connected to the pin, while a spring catch on the car engages the crank arm when it is raised. This forms a simple lifter for the pin, to be operated from either side of the car, while another transverse crank rod has a forwardly extending arm terminating in a lifting plate beneath the drawhead, the plate being adapted to readily engage a link to guide it into the drawhead, the whole forming a simple device to facilitate the coupling of cars without endangering the safety of the trainmen.

**CAR COUPLING.**—Hamlin G. Russell, Lincoln, Ill. (deceased, David Gillespie, Lewis J. Sims, and Lydia A. Russell, executors). The drawhead of this device is pivoted in a housing, to which are secured springs engaging the drawhead, which has a hook-like extension or nose on one side, while a coupling hook is pivoted in the opposite side, a spring secured to the hook engaging the drawhead. The device is designed to be of simple and durable construction, capable of an automatic coupling action, and of being quickly and readily uncoupled from the top or sides of the car, while the connection made is a yielding adjustable one, the springs performing the double functions of draw and buffer springs.

**CAR COUPLING.**—William H. Violet, Grand Junction, Col. The drawhead of this coupling may be of the ordinary form, the device permitting automatic coupling and the uncoupling of the cars without the brakeman going between them, while there is also an auxiliary pin support which does not operate except when the pin is raised without withdrawing the link. This provision is made for cases where it is desirable to so adjust the coupling pins of a train that, when the cars are bumped or pushed together, they will become uncoupled when the engine pulls out.

**VENTILATING CARS.**—Albert Minnick, Colton, Cal. This invention is more particularly designed to provide means for ventilating cars used for transporting fruits, vegetables, meats, fish, etc., the improvement consisting in the peculiar construction and arrangement of sliding doors moving over openings in the end of the car. Both inner and outer doors are provided for the openings, to prevent the contents of the car from freezing when the weather is cold, and the arrangement is such as to prevent all choking of the parts by cinders and gripping and binding from wet weather, while both the inner and outer doors can be quickly and easily adjusted as desired.

**CAR TRUCK.**—Ferdinand E. Canda, New York City. Instead of the body of the car being carried from the center of the truck bolsters, as heretofore, this invention provides for having the car body suspended by an improved form of stirrups carried by the car truck and struts attached to the car bolster. The truck is swiveled on a king bolt, but no part of the weight of the car or its load is carried in the center of the truck, the entire load being carried on the four side bearings or stirrups of each truck. The construction is such that the trucks adjust themselves readily to the curves of the road and the irregularities of the track, at the same time acting as equalizers to the body and avoiding shocks common to the ordinary trucks.

**SPIKE.**—Charles D. Walcott, Russia, Herkimer County, N. Y. This is a special form of spike designed to hold a rail firmly in place to give greater resistance to lateral pressure and vertical vibratory motion, while being easily made. The body of the spike is round in cross section, but on one side are two projecting ribs, opposite which is a third rib, preventing the spike from turning as it is driven. The head has a lip of the ordinary form of the standard railroad spike, and the point is beveled off or curved on the same side as the lip of the head.

## Mechanical Appliances.

**JACK FOR REPAIRING MACHINES.**—George W. Crouse, Lexington, N. C. This jack consists of two screw rods arranged in line with each other and mounted to turn in heads held adjustably on a table or bench, one of the screw rods having a fixed clamp adapted to engage one end of the bed plate or other portion of the machine being operated on, while the other end of the part being repaired is held by a clamp turning loosely on the second screw rod. This jack is very simple in construction and is more especially designed for conveniently examining, taking apart, cleaning and repairing sewing machines and similar machinery.

**PEGGING JACK.**—George Dorwart, Philadelphia, Pa. This invention covers a novel construction and combination of parts to facilitate the fastening of the boots or shoes on the jack, and bringing the work into the most convenient position for the operator, while it also has an extensible toe piece to enable the shoes to be clamped firmly in position without injuring them, the toe piece adjusting itself to the various movements of the shoe while the work is going on in such manner as to prevent the uppers from being scraped or otherwise injured.

**SCREW PRESS.**—Theodore J. Ashby and Archibald D. Melton, Sebree, Ky. This invention relates to that class of presses in which the plunger is carried upon a screw shaft, providing therefor a novel combination and arrangement of parts, constituting a simple, cheap, and efficient mechanism for reciprocating the plunger.

**SAW SET.**—Jacob P. Beck, Lock Haven, Pa. This is a simple device which may be used to set any kind of saw, and can be operated with great rapidity. It has parallel jaws with projecting teeth, curved arms being fixed to each jaw and pivoted together, while lateral levers are pivoted to the opposite ends of the arms, the levers having their inner ends pivoted together and their outer ends provided with

handles. Pawls extending parallel with the sides of the jaws correct the alignment of the teeth of the set and of the saw and prevent endwise slip of the set.

**THROAT PIECE FOR SAWS.**—Thomas B. Demston, Peru, Ind. This is an improvement for use on sawing tables or stands used in connection with scroll and band or jigger saws for cutting out ornamental or bracket work, sawing out the centers of sewing machine tables, etc. It is a yielding throat piece standing not lower than or a little above the top of the saw table, and capable of remaining as close to the working saw as if the latter were still; when depressed to a level with the top of the saw table by the weight of the piece being sawed, it will have an automatic backward and forward movement due to the rake or pitch of the saw.

## Agricultural.

**SULKY CULTIVATOR.**—John F. Taylor, West Park, N. Y. This cultivator is more especially designed for the cultivation of grapevines, being adapted to effectually break the ground close to and between the vines and the posts. It has laterally swinging auxiliary cultivator frames pivoted at their forward ends to the outer sides of the main frame, which has pivoted swinging levers connected by links with the swinging frames, whereby the teeth or plows may be quickly and conveniently adjusted to or from the main frame and will be firmly held in both the outer and the inner positions.

## Miscellaneous.

**CARTRIDGE LOADER.**—Willis E. Phillips, Saguache, Col. This is a simple and rapidly operated machine, comprising a box having compartments below which is an apertured slide, in combination with an operating lever adapted to engage opposite ends of the slide, a spring-pressed follower, a plunger, and other novel features. The machine is designed to deliver a required charge of powder and shot into a shell, and also insert the wads between the powder and shot and over the shot. The cartridge is completely loaded by two strokes of the lever, there being one thin wad and two thick wads placed on the powder and only a thin wad upon the shot.

**ORDNANCE BRAKE.**—Johannes Krone, Essen, Germany. This is an improved form of hydraulic brake, of simple and durable construction, designed to offer a uniform resistance on the ordnance on recoil, while it permits of withdrawing the fluid, on the firing of the ordnance, at the back end of the cylinder. The recoil of the piece of ordnance is received by a part of the brake that is movable with the top carriage, and works with a fixed cylinder a movable piston and with a fixed piston a movable cylinder, the invention consisting of a tube arranged in the brake cylinder to change the area of the passage or escapement connecting one side of the piston with the other.

**SHIP'S PUMP.**—Albert H. Lowell, Woodford's, Me. This invention provides a pump designed to be set in operation by the movement of a ship, being automatic in its action, as the vessel pitches fore and aft, while it can also be readily set to operate when the vessel has a side roll only. The sucker rods are connected to the outer extremity of horizontal arms attached to a ball centrally seated in a cylindrical socket, and depending centrally from the ball is a pendulum rod carrying at its lower end a weight, the pendulum being set in motion by the rocking of the vessel, and thus operating the arms and sucker rods. Spring buffer plates are arranged to prevent the too violent motion of the pendulum.

**PIPE JOINT.**—Patrick Brown, Philadelphia, Pa. This invention provides a joint for steam, water, oil and other pipes, which will allow for the free expansion or contraction of the pipes, and for their axial rotation without strain upon the joint. The engaging end of one pipe has an enlarged screw-threaded chamber and a concave seat, while the other pipe has an outer flange to fit within the chamber, a washer back of the flange fitting the concave seat, and a fibrous packing back of the washer, and a nut inclosing the washer and packing has a screw thread engaging the screw thread on the chambered portion of the adjacent pipe, an inner back flange being constructed to hug the flanged pipe in rear of the packing.

**LUMBER PILING MACHINE.**—Howard Daniels, Greenville, S. C. This is a machine for piling lumber on cars preparatory to being dried in a kiln or otherwise, and has a main frame adapted to receive a car, and on which travels a vertically movable frame with supports to receive the lumber, with a raking device to rake the boards off the supports and place them on the car, spacing strips being placed between the different layers. The machine can be regulated to suit the capacity of a mill, and is so constructed as to quickly and evenly pile the lumber, depositing the separating strips in a uniform manner, while only requiring the attendance of a single operator.

**MECHANICAL ALARM.**—Laban Lewis, Canadensis, Pa. This is a device which automatically fires cartridges at stated intervals during the day or night, for scaring persons and animals away from fields, gardens, houses, etc. It consists of a wheel mounted to turn and provided with a series of barrels arranged in a circle and adapted to receive cartridges, while a hammer actuated by clock work fires the cartridges successively at such periods as have been previously determined upon, and for which the apparatus has been set.

**STAND FOR TYPE CASES.**—Robert Mercer, St. John's, Newfoundland. This is a foldable stand for printers' cases so made that the cases may be readily adjusted to any desired angle or inclination, and the stand itself raised or lowered to suit compositors seated or standing, or workmen of different heights. It has pivoted folding legs and a vertically adjustable rail carried by one of the legs, while a frame pivoted to the rear leg rests on the rail of the front leg, the upper face of the frame having inclined planes. The stand has no offsets likely to interfere with a compositor while at work or while passing by the stand,

and the construction is designed to be very simple, strong and durable.

**NEWSPAPER HOLDER.**—William C. Roberts, Sausalito Cal. A device composed preferably of wire, in combination with a suitable support, is provided by this invention, the holder portion being of such shape that it may be styled a hand. A hooked arm or brace projects outward from the support, whereby the angles of the fingers may be changed as desired, the whole forming a simple and readily adjustable device to hold a newspaper or book in position for reading when a person may have both hands occupied as when eating, knitting or doing many kinds of work.

**REED ORGAN.**—William E. Leighton, West Pembroke, Me. Combined with a series of reed chambers, each having an upper and lower row of reed cells alternately arranged, is a vertical valve stem for each series of cells, and horizontal keys or levers along which the lower ends of the valve stems are adjustable. By this improvement the reed cells are fully covered by the reed valves to prevent leakage of wind, and the reed chambers may be constructed to take up the least possible space.

**WATCH JEWEL HOLDER.**—Frank R. Cunningham, Ware, Mass. This is a simple tool for grasping and holding the jewels of watches while being cleaned, and consists of a bar of wood bored transversely and slotted at one end to form spring jaws, a strap extending from one jaw to the other and being connected with an eccentric lever for drawing the jaws together.

**RUBBER SHOE.**—James A. Brittain, Leadville, Col. This shoe is patented as an improved article of manufacture, and has, around the upper edge of the usual foot opening, a continuous or endless metal spring embedded within the material. The spring serves to stiffen and strengthen this part of the shoe, insuring a close yet elastic fit, preventing the tearing of the rubber down the sides of the shoe, and doing away with the necessity of using the ordinary steel shank.

**COLLAR AND NECKTIE HOLDER.**—George F. Carruthers, Winnipeg, Canada. This is a simple holder which can be readily attached to a shirt at the back for retaining the collar and necktie in proper position. It consists of a base plate having a stud at its upper end and a safety pin at its lower end, while there is a curved spring tongue between the stud and the safety pin, the tongue being struck up from the material of the plate.

**HANDLE BAR FOR BICYCLES.**—William J. Matern, Bloomington, Ill. Ordinarily the handle bars of safety bicycles are perfectly rigid, so that the vibrations tire the hands and arms in riding over rough roads. This invention provides a handle bar which will yield vertically, and not jolt the hands and arms, and when lifted upon by the hands, as is usually done by the rider in going up hill, will be as rigid as the ordinary bar. This improved handle bar is made of flat spring metal, with a supplemental strip or spring clamped to its upper side.

**ROLLING CHAIR AND CHILD'S CARRIAGE.**—Albert Rudolph, New York City. This is a combination device in which two leg frames on wheels are pivoted to spread or fold, while a back frame is pivoted between and held adjustably on one leg frame, a seat frame being pivoted to the back frame, a foot rest hinged to the front of the seat frame, and a prop frame is provided. The improvement is designed to afford a compact, light, strong, and shapely construction, which may be quickly converted into a child's carriage or a rolling chair for an invalid, and be folded in small space when not in use.

**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.

**A MANUAL OF THE STEAM ENGINE.** For engineers and technical schools. Advanced courses. Part I. Structure and theory. By Robert H. Thurston. New York: John Wiley. 1891. Pp. xx, 871. Price \$7.50.

Professor Thurston's idea of an advanced course in engineering is certainly a very high one, as is evidenced by the magnitude of the first volume now under review. It is enough to say that the structure, philosophy and thermodynamics of the steam engine in practice and the ideal one are very elaborately developed, with tables and formulae.

**A COURSE OF EXPERIMENTS IN PHYSICAL MEASUREMENT.** Part IV. By Harold Whiting, Ph.D. Boston: D. C. Heath & Co. 1891. Pp. 901 to 1226.

This volume brings to a close Dr. Whiting's excellent work, the preceding portions of which we have already reviewed in these columns. The fourth part is designed for the teacher, and contains appendices and examples for his use. Thus the first chapter gives notes on the construction of a student's laboratory and the care of the instruments, Dr. Whiting's principles appearing in directing a practical working system, rather than minute care of the instruments. Students' note books, report forms of experiments, an exhaustive list of experiments, with statement of apparatus required for each one, the doctrine of averages and of probable errors, are among the salient topics. In many respects this will appear the best volume of the series. Its index, of nearly 33 pages in extent, is a feature worthy of all commendation.

**MESSAGE PRIMER.** By Sarah E. Post, M.D. Pp. 51. New York: The Nightingale Publishing Co. 1891. Second edition. Price \$1.

This work treats of the technique of massage and is written as a primer for nurses. The text is elucidated by photoplates and engravings illustrative of the different processes of massage. A series of questions on the text closes the work, making it convenient for use in training schools.

**PHYSIOGRAPHY.** By J. Spencer, B.Sc., F.C.S. London: Percival & Co. 1891. Pp. vii, 229. Price \$1.

In its brief compass this work covers a wide range of subjects, from matter and its properties, through mechanics, physics, geology, meteorology, to geodetic science. It is designed for use by a specified department of the English educational system, and although cast for so definite a horizon, should meet with some acceptance here.

**PHILLIPS NEWSPAPER RATE BOOK.** The John F. Phillips Advertising Co., New York, N. Y. 1891. Pp. 180.

The principal papers of the United States and Canada are described seriatim under the cities of their publication. The data given includes day of publication, date of establishment, subscription price, circulation, size, width of column, length of column, rates for advertisers and address. All these particulars and similar ones as fully as possible are given for the different journals. It is obviously a convenient manual for the publisher and advertiser.

**THE SEXTANT AND OTHER REFLECTING MATHEMATICAL INSTRUMENTS.** By F. R. Brainard, U. S. Navy. New York: D. Van Nostrand Company. 1891. Pp. 120. Price 50 cents.

To engineering students preparing for hydrographic work, as well as to those interested in navigation, this little manual will, we believe, be thoroughly acceptable. With its limitations as to accuracy, the sextant fills a field which for many years to come it will probably hold against all comers, and a manual devoted to it and allied instruments is very welcome.

**HOW TO BECOME AN ENGINEER.** By George W. Plympton, Am. Soc. C.E. New York: D. Van Nostrand Company. 1891. Pp. 218. Price 50 cents.

The question answered in this work is very frequently propounded by young aspirants, and Professor Plympton has done real service in producing this convenient manual. His own long course of training in preparing young men in the profession gives him a peculiar authority in the field of the book. He shows what is required here and abroad, and gives a thoroughly practical view of the difficulties to be overcome before success is attained.

## SCIENTIFIC AMERICAN

## BUILDING EDITION.

## OCTOBER NUMBER.—(No. 72.)

## TABLE OF CONTENTS.

1. Elegant plate in colors of a colonial residence recently erected at Fordham Heights, N. Y. Two perspective elevations, floor plans, etc. Cost complete \$9,000. Messrs. Walgrove & Crails, of New York, architects.
2. Handsome colored plate of a residence at West Brooklyn, N. Y. Perspective view, floor plans, etc. Cost \$3,000.
3. A very pretty cottage costing \$3,400, erected at Springfield, Mass. Floor plans, elevations, etc.
4. A beautiful modern residence at Bridgeport, Conn., erected at a cost of \$7,500 complete. Plans and perspective elevation.
5. A suburban cottage at Fordham Heights, N. Y. Cost complete \$6,000. Perspective and floor plans.
6. View of the new Lucas Building, Philadelphia, Pa. Mr. Willis G. Hale, architect.
7. A dwelling at Longwood, Mass. Cost \$6,423 complete. Floor plans, perspective elevation, etc.
8. A villa recently erected at Rochelle Park, N. Y. Cost \$7,800 complete. Plans and perspective.
9. Carriage house and stable of excellent design, erected at "Belle Haven," Greenwich, Conn. Estimated cost \$2,200. Ground plans and perspective view.
10. A cottage in Rosalie Court, Chicago. Estimated cost \$3,600. Perspective and two floor plans.
11. A row of Philadelphia houses ranging in cost from \$7,500 to \$5,800 each. Perspective and plans.
12. A carriage house at Newark, N. J. Cost \$3,300 complete. Plans and perspective.
13. View of the Masonic Temple being erected at Chicago. A twenty story building. Messrs. Burnham & Root, architects. A magnificent structure.
14. A dwelling at Newark, N. J., recently completed at a cost of \$9,000. Floor plans and perspective.
15. Half page engraving of a gateway at Newport, R. I.
16. Miscellaneous contents: Proportion in architecture.—Improved hand circular rip saw, illustrated.—Improved hand resaw, illustrated.—Improved hot water heater, illustrated.—Porches, windows, stairs.—Cook's luminous level tube, illustrated.—Fox's barb wire post, illustrated.—The Sykes metallic roofing.—The "Florida" steam and hot water heaters.

The Scientific American Architects and Builders Edition is issued monthly. \$2.50 a year. Single copies, 25 cents. Forty large quarto pages, equal to about two hundred ordinary book pages; forming, practically, a large and splendid MAGAZINE OF ARCHITECTURE, richly adorned with elegant plates in colors and with fine engravings, illustrating the most interesting examples of Modern Architectural Construction and allied subjects.

The Fullness, Richness, Cheapness, and Convenience of this work have won for it the LARGEST CIRCULATION of any Architectural publication in the world. Sold by all newsdealers.

MUNN & CO., PUBLISHERS,

361 Broadway, New York.