

## RECENTLY PATENTED INVENTIONS.

## Railway Appliances.

**CABLE RAILROAD SYSTEM.**—Leonard Cutshaw, Denver, Col. This invention consists principally of an endless still cable and a double track, the cars traveling along one track and returning on the other, while the cable is carried forward intermittently by the cars themselves, owing to the rolling off of the cable on the drum, the cable being moved by each car a distance equal to that part of the cable passed around the drum. Palleys carrying weights are adapted to engage part of the still cable to automatically take up and compensate for slack in the cable incident to taking cars on and off, while a special device is provided for placing the cable on and off the drums of the cars, and automatically clamping and releasing it.

**CATTLE CAR.**—Ferdinand E. Canda, New York City. Movable partitions or gates are provided by this invention, for use in cars which it is desired to employ to transport cattle one way and freight the other, such partitions, when not employed to divide the car into stalls, being moved to positions beneath the car roof. The partition is in skeleton form, made of bars united by links, the bars being operated by a novel style of endless chains, and sliding in vertical and inclined ways, the partition being readily placed in the desired position or moved where it will be at rest out of the way by means of a novel operating mechanism.

## Electrical.

**AUTOMATIC WEIGHING SCALE.**—John V. Davis, Ashland, Ky. Combined with the scale beam and its poise is a shunt circuit electric motor mounted on the scale beam, gears connecting the motor with the poise for adjusting it, while a set of mercury cups is provided for establishing connection between the outside circuit wires and the field magnets of the motor, and a set of contacts with reversed poles for transmitting a reversed current to the armature of the motor. In a scale thus arranged the poise runs out to the point of exact balance on the scale beam from the mere application of the load, thus automatically indicating the weight, and, if desired, printing or recording it.

## Mechanical.

**RATCHET WRENCH.**—William H. Haire, Morristown, Tenn. This is a tool designed for use in any manner in which an ordinary wrench may be employed, while it is made to be conveniently manipulated right or left in very limited spaces. The wrench has a stationary and a movable jaw, an adjusting screw turning in the fixed jaw being fitted to a threaded opening in the movable jaw, while the handle is held to revolve around a stud projected from the fixed jaw, a cap block on the upper end of the stud having a toothed periphery engaged by the spurs of a spring-pressed dog pivoted upon the handle.

**BEVELING MACHINE.**—Michael O'Gorman, Jersey City, N. J. This is a machine designed more particularly for beveling glass, and the shaft or arbor which carries the grinding disk has various adjustments for changing the angle or pitch of the disk, the disk shaft being journaled in an adjustable carriage held in the main frame so that the adjustment of the grinding disk may be easily effected. Combined with the grinding disk is also a counterpoise adapting the disk to be held in contact with the object being beveled by a yielding pressure, to obviate danger of breakage from a hard substance accidentally coming between the glass and grinding disk.

**HUB BORING MACHINE.**—Theophile Paquette and Frederick R. Child, Webster, Mass. An externally threaded tube is mounted between the up-rights of a frame, while an operating nut travels on the tube and clamping jaws are pivoted to its front end, a nut and a screw-threaded boring tool spindle passing through the nut and tube. The machine is designed to be simple and durable in construction, and to quickly and accurately bore the hub of a wheel.

**RAILWAY DRAWING HEAD.**—Samuel W. Hildreth, Voluntown, Conn. This is an evener for cotton-working machinery, designed to produce a uniform sliver and prevent the cotton from clogging the back and front rolls in case the belt on the cone pulley slips. The invention covers a novel combination and arrangement of parts whereby a uniform speed is given the front rolls and calender rolls, and a uniform tension is given to the trumpet, affording the same weight of cotton sliver whether the carding comes into the railway head too light or too heavy.

**LATHE MECHANISM.**—Martin C. Boltenbacher, Bloomington, Ind. This is a table-operating mechanism for lathes employed to turn the spokes of vehicle wheels, where the wooden blank is secured between spindles whose bearings are attached to a reciprocating table which carries the blank inward against rotary cutters. The improvement covers a novel combination and arrangement of means for operating such a table, enabling the operator to work the lathe with greater ease than by the means heretofore employed.

**DRIVING MECHANISM.**—Thomas S. Barvia, Calgary, Canada. A lever is pivotally connected with a crank arm on one of the trunnions of the device to be driven, and a link pivoted on a bracket is pivotally connected with the lever, forming a simple mechanism for driving churns, boats, etc., and one in which a dead center position is readily avoided.

**GROOVE CUTTER FOR BORED WELLS.**—Joseph L. Addis-n, Quaker City, Ohio. This invention provides a machine for boring lateral channels from the main bore of a well, while maintaining an open exit for the product. A cylindrical casing is supported at any desired point in the well and adapted to be revolved on its support, the casing carrying a flexible chain provided with a cutting bit at its lower or outer end, the chain and bit being forced laterally outward from the casing while the latter is revolving, thereby cutting a horizontal groove or channel around the casing.

## Agricultural.

**HAY RAKE AND LOADER.**—Van Rensselaer Cole, Republic, Ohio, and Charles W. Neikirk, West Lodi, Ohio. This is an implement designed to be attached by its tongue to a wagon body, when, as the wagon is drawn forward, rear rake teeth gather up the hay, which is conducted by a reel to an elevator, consisting of endless belts and their slats, and delivered to the wagon body. The attachment is designed to be operated with a minimum expenditure of power, and dispenses with the ordinary drive and supporting wheels, substituting therefor a reel.

## Miscellaneous.

**LETTER BOX.**—Charles A. Whelan, Aspen, Col. This box is preferably of metal, and has a rounded top with a hinged and locked door at the lower portion of one of its ends, under the control of the mail carrier. An oscillating cylinder is hung on trunnions in the box, a cut-off door being operated by the cylinder to prevent access to the bottom of the box when the cylinder is rotated to open the top of the box for the deposit of letters or packages, thus forming a simple and secure street letter box.

**PORTABLE DARK ROOM.**—James H. Markley, Brooklyn, N. Y. This device consists of a casing open at one side, and closed by hinged end doors, an extension hinged to the bottom and a hood-supporting frame hinged to the top, the frame and extension being constructed to swing toward each other and be concealed by the doors when closed. The casing has shelves for chemicals, a water tank, etc., and the construction is adapted for convenient transportation, to be quickly set up by photographers wherever needed, and furnish a convenient and ready means of developing plates in order to get a satisfactory negative before leaving the place of taking the picture.

**POCKET KNIFE.**—William Schmachtenberg, New York City. This invention provides an inexpensive method of making a neat, well finished knife, of a substantial character. The two side lining plates and an integral back plate are formed of a sheet metal blank, and an intermediate lining plate, for four-bladed knives, is engaged at one end with a lip on the back plate. The blades are held by a transverse rivet, and springs for the blades are engaged at one end by the blades and near the other end by a transverse key pin, which passes through the lining plates and presses the springs against the blades.

**BICYCLE OIL CAN HOLDER.**—Loring H. Bannister, Youngstown, Ohio. This holder is made of a single plate of elastic sheet metal, cut to have two pairs of clasp limbs, one of which has base flanges, while the middle portion of the holder is bent to embrace a cycle standard. The clasp limbs are adapted to removably hold an elongated cylindrical oil can seated on the base flanges, screw bolts and nuts retaining the holder and oil can upon the cycle frame, the can being quickly placed in firm position and readily removed.

**ROLL PAPER HOLDER AND CUTTER.**—Ezra E. Staninger, West Salem, Ill. This is a device adapted to carry two rolls of paper of different widths, to form wrappers for packages of different sizes, in connection with which independent knives are used, one for each roll, while a single intermediate bar serves to carry springs which keep both knives forced up against the rolls. The paper is drawn from the roll as required, and is then torn or cut off by pulling it sideways over the cutting edge of the knife, which is spring-pressed against the roll.

**SHOE.**—Gustav Schultz, New York City. This is a novel form of shoe specially designed for the use of people having weak ankles, or those with whom the instep is sunken or caved in, to project inwardly. The shoe is made with a sole extending outward at its inner edge beyond the line of a normal sole, and provided with a heel stiffener, the inside of which is extended forward to the ball portion.

**FIRE ESCAPE.**—Carl G. Grunz, Grand Island, Neb. This device comprises an extensible frame, with the upper member mounted to slide in the lower member, a drum being pivoted in a frame on the extensible frame, and a drum at the base of the latter, with means for turning the drums and a rope ladder made in sections extended over them. The escape is placed near a burning building and the extensible frame is raised by means of the drums and connecting cables, when pivoted bridges are dropped into the door and window openings of the building for the occupants to escape and descend by means of the rope ladder.

**FIRE ESCAPE.**—Robert M. Yorks, St. Paul, Minn. This escape consists of a collapsible ladder made up in sections, so that it may be easily adapted to the height of any building, the sections being adapted to be hooked together. A cross bar is adapted to be attached to the ladder when it is within the room, and the cross bar has wardrobe and hat hooks and a suitable brush holder, making the escape a convenient household article. It is designed to be collapsed so as to occupy but little space, so that it may be readily stowed away within a room, or it may be permanently attached to the wall if desired.

**PACKAGE ELEVATOR.**—Burtis Van Hennik, New York City. This is a device for use in connection with printing presses, whereby packages of paper to be printed may be conveniently elevated from the floor and placed at the side of the feed table and transferred thereto. The device is adapted to be set up in any press room, occupying space not heretofore utilized, and can be constructed and erected at a low cost, and attended by unskilled labor.

**DOOR OR WINDOW SCREENS.**—Marian A. Baldwin, Pueblo, Col. This invention provides a screen attachment, to render the screens impervious to wind, dust and cold, and one which is durable, inexpensive, and readily applied. It consists of a fabric casing, formed of canvas, ticking, felt, or similar article, adapted to inclose the screen, one side of the casing being left open for the introduction of the screen, while the ends and sides of the casing have flanges to serve as weather strips.

**GATE.**—Frank Williams, Cisco, Ill. This invention provides an improved sliding gate adapted to be operated by one approaching it in a vehicle from either direction, and also designed for easy movement by one upon the ground. Novel features of construction are introduced to facilitate the movement of the gate, and prevent interference therewith on account of snow and sleet, while the gate is light, strong, and inexpensive.

**BEATER AND MIXER.**—John W. Condon, Rochester, Ind. This is a machine for confectioners' use, the invention covering a peculiar construction of the driving gears, in combination with the mixing and beating devices, to adapt the machine for many different uses. It gives the high speed required to revolving beaters to beat the whites of eggs; for whipping cream it gives a rapid motion in the center of the cylinder and a slow motion at the circumference; while in mixing icing and pound cake, where a low speed is needed, and in mixing jelly roll and sponge cake, requiring an intermediate speed, the machine may be readily adapted to give just the required service.

**BREAST COLLAR.**—Thomas W. Fisher, Helena, Montana. This is an improved collar for the harness of draught animals, so constructed as to obviate constriction upon the windpipe and blood conduits in the animal's neck, and transfer the load strain to the shoulders. The invention also furnishes means for the quick application and removal of the breast collar and attached harness in putting on or taking off the harness.

**HORSE COLLAR.**—Silas T. Marlette, Niagara Falls, N. Y. This invention covers a novel construction and combination of parts, in which the side sections, to which the hames are fitted, are joined by connecting pieces lapped together and secured by fastening devices, the construction bracing the parts from independent movement to the front or back. The fastening bar has a handle arm secured by a spring catch, and the collar can be readily adjusted to any desired size.

**HORSE TRAINING BLIND.**—Brewster A. Long, Troy, Penn. This blind has a main portion provided at its lower edge with a rearwardly projected flange, along the edge of which is a cushion to fit closely against the face of the animal. The blind is so formed as to shut out all view forward and to the side, at the same time leaving the horse's eyes exposed to the air and light, and not obstructing the view to the rear, being designed, in training horses to trot, to give a proper knee action, prevent interfering in front, and obviate forging.

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SCIENTIFIC AMERICAN  
BUILDING EDITION.

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1. Plate in colors showing a cottage on Lombard Avenue, Chicago. Two floor plans, perspective elevation, etc. Estimated cost \$2,800.
2. Colored plate of an attractive residence erected at Bridgeport, Conn. Cost \$6,900 complete. Floor plans and two additional photographic elevations.
3. A cottage costing \$2,700 complete, erected for Mr. R. H. Keller, at Rutherford, N. J. Three elevations and plans. Mr. U. D. Peck, architect, Rutherford, N. J.
4. Photographic view and two floor plans of a cottage at Austin, Chicago. Estimated cost \$3,300.
5. A row of new dwellings on West 83d Street, New York. Cost of each house \$30,000 complete. Messrs. Berg & Clark, New York, architects.
6. Cottage recently erected at New Haven, Conn. Cost \$6,850 complete. Floor plans and photographic perspective elevation.
7. An attractive dwelling erected at Yonkers, New York, at a cost of \$6,000. Photographic elevation and floor plans.
8. Two photographic views of the beautiful residence of Mr. Noakes, on Riverside Park, New York City, a colored view of which appeared in the March issue.
9. Sketch of a sixteen story office building to be erected at Chicago. Cost \$750,000.
10. Sketch of a water-cooled building. One of the novelties proposed and patented for the World's Fair at Chicago.
11. Recently erected English houses. Plans and perspective views.
12. Miscellaneous contents: How to catch contracts.—Toggle bolt for electrical and other fixtures, illustrated.—Composition for retarding the setting of plaster.—Quarrying marble.—The education of customers.—Iron and steel for building purposes.—An improved sanitary earth closet, illustrated.—Stamped metal ceilings, illustrated.—The Plaxton hot water heater, illustrated.—A hot water heater for soft coal, illustrated.—An improved woodworking machine, illustrated.—An improved casing for steam pipes, illustrated.

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## NEW BOOKS AND PUBLICATIONS.

**PRACTICAL GRAINING, WITH DESCRIPTION OF COLORS EMPLOYED AND TOOLS USED.** Illustrated by forty-seven colored plates. By William E. Wall. Philadelphia: House Painting and Decorating Co. 1891. Pp. 59, xiii. Price \$2.50.

The eminently practical nature of this work and the beautiful colored plates used in the illustration of the text entitle it to full commendation. The colored plates are of unusual merit, the reproduction of the wood effect being really surprising. A full description of tools, graining machines, transfer paper, etc., is given.

**BOSTON SOCIETY OF NATURAL HISTORY. Guides for Science Teaching. No. VIII. Insecta.** By Alpheus Hyatt and J. M. Arms. Boston: D. C. Heath & Co. 1890. Pp. xxiii, 300.

This most excellent work is issued under the auspices of the Boston Society of Natural History, forming the eighth of their guides for science teaching. It goes through the orders of insect life systematically and, in thirteen plates, gives the analyses or description of typical specimens thereof. While a guide for science teaching, it will be of use for all serious students of entomology.

**THE THRESHOLD OF SCIENCE.** A variety of simple and amusing experiments illustrating some of the chief physical and chemical properties of surrounding objects, and the effects upon them of light and heat. By C. R. Alder Wright. With numerous illustrations. Philadelphia: J. B. Lippincott Company. 1891. Pp. xxi, 389. Price \$2.

While many things in this work are open to criticism, it will be found a useful work to the student and experimenter. Its numerous illustrations and popular treatment of the subject bring it within the capacity of ordinary scientific readers. Many of the titles of the articles partake too much of the old idea of natural magic, such as "To Turn Water Apparently into Milk by the Breath." In his treatise on soap films, too, some details are wanting, the use of the condensation chamber in the blowing tube not being spoken of. He also adheres to the term "radiant heat," now being dropped by many advanced physicists. What we have said in criticism of the work cannot affect its value, which is so great that we can afford to overlook many of its minor defects.

**MUSHROOMS: HOW TO GROW THEM.** A practical treatise on mushroom culture for profit and pleasure. By William Falconer. New York: Orange Judd & Co. 1891. Pp. 172. Price \$1.50.

The practical side of mushroom life is given in this excellent little work. The author describes in detail the methods of growing the edible fungus on a large and small scale, in special houses or in dwelling house cellars. He reviews the relative advantages of the different methods of laying down beds, dividing and planting spawn, and the influence of temperature and general conditions on the crop. A strong plea is made for the profitable nature of the culture of mushrooms and for the readiness with which it can be carried on for family use or for sale of the product. The book is illustrated where required, and seems to fill a distinct place in agricultural literature.

**THE QUARTERLY REGISTER OF CURRENT HISTORY.** Published by the Evening News Association, Detroit, Mich. Vol. I. No. 1. Price \$1 per year.

The object of this magazine, the first number of which has just been published, is to provide a current history of the times, in such form that it may be readily preserved. Each subject will be treated briefly, and will be made as readable as possible. A very wide range of subjects has been selected. Such a work as this would be invaluable to those who have not the time or opportunity to read the daily papers regularly or who wish to preserve a record of our own times. The first number unfortunately does not contain an index, but this defect will undoubtedly be remedied, either in future issues or at the end of the year. In size and general appearance it resembles the monthly magazines,