

## RECENTLY PATENTED INVENTIONS.

## Railway Appliances.

**CAR COUPLING.**—Thomas H. Smith, Bowie, Texas. This invention is for an improvement in couplings of the Janney type, providing some novel features designed to afford increased efficiency, and enabling the trainman from the side of the car to set the coupling to disconnect it from another of the same style. The construction is very simple, the coupling consisting substantially of but three main parts, which may be cast into form and used as shaped in the mould, the facility of manufacture rendering the coupling inexpensive and well adapted for general use.

**CAR FENDER.**—John D. Schmidt, New York City. This fender may be readily attached to or detached from either end of the car, and is of such construction that it swings to follow the track as the car passes around curves, its front portion running on pilot wheels and they being held firmly to the track at all times, so that the fender will not ride upon or over an object in the path of the car. A straight bar connected by hinges to the car platform forms the rear portion of the fender, and the pilot consists of a framework of slats or strips connected to a rear bar by chains and springs, enabling the pilot to move bodily to one side of the center of the car, allowing one side also to be pressed back nearer to the car than the other, the springs returning the pilot to its central position after the curves are passed.

## Bicycles, Etc.

**BICYCLE PROPELLING DEVICE.**—William G. Calderwood, Minneapolis, Minn., and David W. Edwards, Los Angeles, Cal. While the bicycle may, according to this improvement, be propelled in the ordinary way, provision is also made for its propulsion by compressed air, single acting air pumps beneath the handle bar being operated by rocking the latter to compress air in a reservoir of moderate cross section, but which occupies the whole central portion of the frame. The handle bar is used in the ordinary way to steer the front wheel, and may be locked to prevent rocking to operate the pump, but in using the compressed air to aid the rider, a valve is opened permitting the compressed air to pass to a motor on the rear wheel, the motor having wings or blades against which the compressed air is directed.

**BICYCLE BRAKE.**—Charles J. Staberg and Carl J. Pihl, Brooklyn, N. Y. The brake mechanism proper of this improvement is connected with the sprocket wheel on the crank shaft, a link extending from there to a pivotal brake adapted to be pressed upon the tire of the rear wheel, such pressure depending on the force applied in back pedaling, and being released as soon as the pedals are rotated forward. The device weighs but little, is not conspicuous on the machine, and it also enables the rider to stop pedaling and coast with his feet upon the pedals without applying the brake, the pedals then being used as coasting pins.

## Mechanical.

**CUTTER HEAD.**—George A. Ensign, Defiance, Ohio. A superior woodworking tool is provided by this invention, one more especially designed for shaping the inner sides of vehicle wheel felloes. The cutter head is made in two duplicate sections, adapted to be mounted on a shaft or on a pedestal which carries the spindle of the knife setter, an arm carrying the setting tool. The knives are so held that their cutting edges engage the work at a very effective angle, chip-breaking plates preventing the riving or tearing of cross grained stock, and there being spaces for the chips to fly readily from the cutters without clogging.

**WELL PUMPING POWER.**—George W. Grimes, Bluffton, Ind. A power designed to reduce the friction to a minimum, and with which a series of surrounding wells may be simultaneously pumped, is provided by this invention. The base sills are arranged in the form of a triangle, a post carrying a cap piece being extended upward from a base beam, and brackets secured to the base sills supporting sleeves, while eccentrics are mounted to rotate around the post. The pump actuating rods or lines engage ring plates on the eccentrics, and the entire construction exhibits simplicity and compactness, its rigidity adapting it for use where great strength is required.

**SCREW THREAD GAGE.**—Burnside E. Sawyer, Athol, Mass. This is a device consisting of a handle to the end of which are pivoted a series of toothed blades or gages adapted for insertion in small and large threaded bores or sockets, and for use in all other practically accessible places, furnishing in compact and convenient form all the pitches in ordinary use. In practice the several blades will bear numbers indicating the particular standard gages on their respective edges, the numbers running in order corresponding to the graduation of the gage teeth.

## Miscellaneous.

**TYPEWRITING MACHINE.**—Manuel S. Carmona, Mexico, Mex. This invention provides a machine in which only five keys need be employed, and with which and the connected mechanism all the signs, letters, figures and characters used in writing may be properly brought into action, the machine being designed to operate as rapidly and with as good results as other machines which have a key for each letter or character. With the five keys three characters may be brought into action by striking one or more keys at a time, it not being necessary to look at the keys in writing at high speed, and one hand only need be used, thus allowing the hands to be used alternately. The machine is of simple construction, of small size and light in weight.

**A DEVICE FOR UNITING RUBBER HOSE, ETC., TO NOZZLES AND OTHER OBJECTS.**—John T. Duncan, Toronto, Canada. A split tubular spring band, according to this invention, is formed with inwardly extending beads, the band being arranged to be opened up to permit of springing it upon the hose, upon which it closes, when released, by its own resiliency, causing the

beads to press the flexible material of the hose into corresponding recesses on the device on which the hose is to be fastened. There are apertures near the middle of the band and near the edges of the split to be engaged by a lever in properly opening the band and springing it upon the hose, the device being very simple and requiring but little skill on the part of the operator.

**LAMP CHIMNEY.**—Herbert R. Hill, Herkimer, Kansas. A chimney which may be handled without leaving finger marks on the polished glass is afforded by this invention, and the chimney may also be placed on or removed from the lamp when hot without burning the fingers. The chimney has in its base portion two opposite concavities, ground to be rough, and in these concavities are glued pads of felt, cloth, wood, or similar material.

**TOASTER.**—James F. Elliott, Manson, Iowa. This is a simple, easily manipulated device to facilitate toasting bread and other food products, permitting one to properly expose the article to the fire on all sides without bringing the hands uncomfortably near. The invention consists principally of a wirelike basket formed by two leaves pivotally connected to receive between them the article to be toasted, a crank shaft extending from one of the leaves to a handled frame, while a manually operated crank rod is connected with the crank arm.

**ROPE LADDER.**—William P. Buckley, Oxford, N. Y. This is a ladder more particularly designed for use as a fire escape, both in a permanent form, where it is attached to and made part of a building, or in portable form, to be carried by travelers for attachment to any building. The two side ropes are connected by tubular rungs through which and through each of the side ropes is passed a bolt, there being on the ends of the bolt semicircular washers to fit closely about the rope. Placed at frequent intervals on the rope are blocks of wood to hold the ladder away from the building.

**PRINTING FABRICS.**—George Stokes, Philadelphia, Pa. This invention is for an improved method and apparatus for preparing warp yarns for colored or pattern fabrics, more especially for tapestry and Brussels carpet, velvet and round wire. The apparatus comprises a series of sets of printing mechanisms with which the yarns contact only at a point of impression, a steam box, a bath and a drier, the yarns passing successively from one to the other, whereby different portions receive different impressions, which are then fixed, washed and dried by one continuous operation, effecting a great saving in time, labor and machinery.

**ADJUSTABLE GARMENT PATTERN.**—Abram O. Hancock, New Orleans, La. A chart for draughting the waists of women's dresses is comprised within the scope of this invention, which consists in a certain construction by which the pattern is adapted to universal measurements. The patterns are provided with a series of adjustably connected templates, by extending or contracting which on each other the measurement of the waist may be adjusted.

**CHAIN LINKS.**—William H. Griffith, New York City. Three patents have been granted this inventor for three different patterns of links formed of a single piece of wire, in the first form the end portions of the wire being shaped into interlocking eyes located substantially central between the ends of the links, the eyes being so shaped and arranged with relation to opposing abutment shoulders of the wire body that increased strain upon the chain serves to clamp tighter both extremities of the wire upon the opposing shoulders, rendering it impossible for the two ends of the wire to pull apart or become loosened and forming a chain of great strength and durability. Another form of link is of simple elliptical pattern, bent out of a single piece of wire without welding the ends, the link being a double one, of parallel folds, with the ends crossed and interlocked at one end of the link. In several forms of these links the portion where the ends of the wire are secured is designed to be swaged or drop forged in suitable dies. A third pattern of link, also of a single piece of wire, is in what is known as the figure eight pattern, made by bending to the proper shape and connecting the ends by wrapping or tying without welds; two thicknesses of wire lie in the fork of each loop and one thickness of wire lies in each obtuse angle on the outside between the loops, forming a very compact knot and making a strong link in which the ends are secured by double and symmetrically arranged wraps.

## Designs.

**BICYCLE RACK.**—Adelbert O. Blethen and William J. Evans, Minneapolis, Minn. The upright of this rack is of bottle or demijohn shape, with elongated openings in its lower portion, horizontal side members extending up a short distance from the base, there being near the top of the upright panels for labels, etc.

**HAT PIN.**—Mary A. E. Hackett, New York City. This pin is formed with a long and a short straight portion, and intermediate bow or arch portion, enabling it to be readily passed through the hair and yet retained therein, being entered into the hat at opposite sides.

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## NEW BOOKS, ETC.

**THE HYDRAULIC GOLD MINER'S MANUAL.** By T. S. G. Kirkpatrick. With illustrations. Second edition, revised and enlarged. London: E. & F. N. Spon, Limited. New York: Spon & Chamberlain. 1897. Pp. 46. Price \$1.

This work was originally intended to convey information on mining elevated banks by means of hydraulic pressure, but as much attention has been attracted to river and placer mining, much has been added to this new edition which will be found useful to those who

embark in the latter kind of mining. A short table of gems and precious stones which commonly accompany gold in river beds is appended. The work appears to be a practical one, and the main facts are modified, though the circumstances remain the same for the treatment of auriferous sands from whatever source they are derived.

**"WORK" HANDBOOKS.** A series of manuals. By Paul N. Hasluck. London and New York: Cassell & Company. About 150 pages each. Price 40 cents each.

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## SCIENTIFIC AMERICAN BUILDING EDITION

OCTOBER, 1897.—(No. 144.)

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1. Handsome engravings, showing the exterior of the Corcoran Art Gallery at Washington, D. C., erected from designs of Mr. Ernest Flagg, architect, New York City.
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3. A modern residence at Richmond Hill, L. I., recently erected for Mr. Roth, at a cost of \$5,500 complete. Perspective elevation and floor plans. A design with many excellent features. Mr. H. E. Haugaard, architect, Richmond Hill, L. I.
4. Colonial residence at Montclair, N. J., recently erected for Isaac N. Rutgers, Esq., at a cost of \$10,000 complete. Perspective elevation and floor plans; also an interior view. Mr. Christopher Myers, architect, New York City.
5. Perspective elevation and floor plans of some modern houses at Binghamton, N. Y., recently erected for G. N. Balcom, Esq., at a cost of \$2,000 complete. An attractive design. Mr. A. H. Doolittle, architect, Binghamton, N. Y.
6. Suburban residence at Overbrook, Pa., recently erected for Charles Scott, Esq. Two perspective elevations and floor plans. A design treated in the English style, half stone and timber, with many excellent features. Mr. W. L. Price, architect, Philadelphia.
7. Suburban dwelling at Newark, N. J., recently erected for James Cadmus, Esq. A pleasing design in the Colonial style. Perspective elevation and floor plans.
8. Modern dwelling at Prohibition Park, S. I., recently erected for Albert Wadhams, Esq., at a cost of \$3,000 complete. Two perspective elevations and floor plans. An attractive design for a suburban dwelling. Mr. John Winans, architect, Prohibition Park, S. I.
9. A cottage at Chevy Chase, Md., recently erected for L. D. Meline, Esq. An attractive design, simple in treatment and pleasing in appearance. Architect, L. D. Meline, Chevy Chase, Md. Perspective elevation and floor plans.
10. A residence at Prohibition Park, S. I., recently erected for Frank Burt, Esq. Perspective elevation and floor plans; also an interior view. A pleasing design, with many excellent features. Mr. John H. Coxhead, architect, Buffalo, N. Y.
11. A gambrel roof cottage at Newton Centre, Mass., recently erected for Messrs. Alford Brothers. Perspective elevation and floor plans. An artistic design. Mr. Charles L. Isenbeck, architect, Boston.
12. Miscellaneous Contents: The overproduction of tall office buildings.—Concerning Colonial architecture in New York.—Old Colonial ironwork, illustrated.—Ventilation of gas-heated rooms.—An efficient steam saver, illustrated.—Improved weather strips, illustrated.—Artistic hardware, illustrated.—New parlor door hanger, illustrated.—An ingenious color combination chart.—"Colophite."—A refrigerator for private residences, illustrated.

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(7217) G. G. S. asks: A cast iron ring has a cross section  $1\frac{1}{2}$  inches in diameter. The length of the axis of the cylindrical ring is 36 inches. How many ampere turns will be required to drive 50,000 lines of force through it? A. 1080 ampere turns. 2. Suppose there are 450 turns on it, how many amperes must be driven through the coil? A.  $24 \frac{450}{1080} = 2.4$ . 3. What

progress has been made in the production of electricity direct from coal? A. No progress by burning the coal. By chemical action in a cell electricity has been generated from carbon, as a laboratory experiment, but not commercially. See articles in SUPPLEMENT, Nos. 629, 826, 1016, 1072 and 1107, price 10 cents each prepaid by mail.

(7218) J. B. S. H. asks: For information as to the use of oil by vessels during a storm at sea, for the purpose of quieting the waves, etc. A. This subject is treated of in SUPPLEMENTS 449, 590, 739, 775 and 898. Price 10 cents each, by mail. We refer you to the new SUPPLEMENT catalogue, sent free, for reference to additional numbers.

(7219) G. A. H. asks: Will you give the solution and explanation of the following? Find the radius of a sphere having a capacity of one farad, having given the ratio of the electrostatic to the electromagnetic system as  $3 \times 10^{10}$  cm. A. The capacity of an isolated sphere, i. e., a sphere so far removed from other bodies as to be unaffected by them, is equal to its radius in centimeters when that capacity is expressed in electrostatic units on the C. G. S. system. The capacity of the earth is about 630,000,000 electrostatic units, or about 700 microfarads. A sphere, whose capacity is 1 farad, is then to the earth in the ratio of 1,000,000 to 700, a number easily calculated, since the radius of the earth at the equator is about 638,000,000 centimeters. See "Lessons in Electricity and Magnetism," by Silvanus P. Thompson, \$1.50, pp. 257, 345, 352. The mathematical demonstration is far too long for Notes and Queries. See any good work on the theory of electricity—Nipher's "Electricity and Magnetism," Cunningham's "Theory of Electricity."

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