RECENTLY PATENTED INVENTIONS.

Railroad Appliances.

CAR COUPLING.—Edward P. Eastwick, Jr., New York City. This coupler is of the class having knuckle connecting links, and provides means whereby the strain on the drawhead caused by a buffing blow is made much less than usual, from the special construction of the knuckles and drawhead, and whereby the locking pin may be readily raised from the side of the car.

CAR TRUCK CONNECTION. — Aaron Twyman, Pullman, Ill. This invention provides for attaching a car body to a truck by parallel or jointed bars around the pivotal center of motion of the truck, leaving an open space at the center of or within the attachment which may be utilized for the convenient placing of a motor or grip, or other purpose, the king bolt and center plates being dispensed with.

CAR DOOR.—Henry Alsop, Chicago, Ill. This door is intended for stock and general freight cars, etc., and is formed with a bridge-like section or portion loosely or pivotally connected at its lower edge with the car, so that, when released, this section will be free to turn outward to and upon a platform or chute, forming a bridge for the passage of stock into or out of the car, or over which to roll hand trucks.

RAILWAY CAR. — Gerald P. Warren, San Antonio, Texas. In this car the ends or vestibule portions are constructed with their outer sides in movable sections, and bullet proof, with port holes, the arrangement being such that these portions can be quickly closed to make a fortified chamber wherein passengers will be protected against train robbers.

BELL CORD ATTACHMENT.—George A. La Fever, Selkirk, N. Y. It consists in a carriage mounted on a guiding bar supported in a horizontal position in the car above the bell cord, and provided with a device for clamping the cord and severing it in case of an unusual movement of the cord, preventing it from being drawn rapidly through the car and endangering passengers.

HOT AIR GENERATOR. — Emmet M. Crandall and Thomas H. Turner, St. Joseph, Mo. It is especially adapted for locomotives, to furnish hot air for heating the cars of a train, the generator being fitted in the smoke arch, and consisting of a ring-shaped hollow casing perforated by short pipes for the passage of heat and smoke, while the casing has an outwardly opening funnel for the entrance of air, and a pipe connected with the cars of the train.

Engineering.

MINING DRILL. — John P. Paynter, Pomona, Kansas. A frame carrying an engine is mounted to travel on a track, the engine operating a transverse cutter shaft, with a drill of novel construction, especially adapted for undercutting coal in small seams, cheapening the cost of mining, and relieving the miner from his most difficult work.

VACUUM ENGINE.—John R. Cameron, Pittsburg, Pa. This invention covers a novel construction, whereby a given body of air is rarefied by heat and allowed to escape as it expands, while the remaining body of air is then suddenly cooled to create a partial vacuum, the device giving continuous automatic action, affording means for operating a piston within a cylinder.

Mechanical.

LATHE. — Joseph K. Koons, Montgomery, Pa. This lathe is made with movable supports for the centers or work holders, whereby the work in the operation of the lathe will be moved as it is rotated toward and from the tool, making a convenient means for turning ovals and oval shafting, or for turning bodies having elliptical cross sections.

DRILLING AND CENTERING TOOL.—John E. Ketchem, Morrillton, Ark. This is a tool intended especially for watchmakers' use, and has a spring by which a steady feed pressure may be exerted on either the center marker or the drill, either of which may be conveniently applied to the machine, and the pressure can be regulated and adjusted to properly feed the tool in working in different materials.

SAW MILL FEED.—Alois Lang, Atlanta, Ga. This construction has a combination of disks secured edgewise to each other and upon shafts driven from the saw shaft wheel, a shifting lever engaging a wheel sliding upon a shaft, while there is a lever having a cam-shaped pivoted end for moving the wheel to and from the disks, with other novel features, designed to overcome certain objections in this class of mechanism.

Miscellaneous.

CUTTING HAIR. — Marcus Klein, Chicago, Ill. This invention relates to an apparatus combining a comb and a pair of scissors so connected and arranged together as to be adjusted for scissors of different sizes, and also for regulating the length of the hair cut.

ORNAMENTAL BOX.—Mendel Baskam, New York City. It is composed of united panels forming the side and end walls of the box, each being made of slotted tubes holding an inner plate, an outer glass plate, and an interposed ornament, the panels being secured to a bottom, making a cheap box with the ornamentation fully protected.

MUSIC BOXES.—Gustave J. Jaccard, New York City. This invention relates to mechanism for stopping and starting and governing music boxes, and consists principally of a duplex stop acting upon the countershaft, so that there will be less strain and less wear upon the vertical shafts which carry the stop arms.

OIL FEED FOR LAMPS. — Christian Sieghold, Salinas, Cal. The lamp is provided with a valve in its bottom, connected with a float contained by the body of the lamp and a pipe leading from the valve opening to an oil reservoir, making a simple and effectual device for uniformly supplying lamps with oil.

CARPET STRETCHER AND TACKER.—Austin F. Lamb, Stockbridge, Vt. It has a stationary bar and a sliding bar with forked and serrated end, a pivoted frame on the end of the sliding bar, a bar adjustably secured in the frame, and a tacker carried on the end of the latter bar, whereby carpets may be easily stretched and fastened down.

OIL TANK.—John C. Dilworth, Pittsburg, Pa. This invention relates to metallic oil tanks used by dealers, provided with a pump, and an opening through which waste oil is passed back into the oil chamber, and provides a strainer cup therefor, with filtering material, and a strainer pocket, with which it will be impossible for even the finest particles of dirt to enter the oil, while the strainer can be easily cleaned.

ALBUM CLASP. — Louis B. Prahar, Brooklyn, N. Y. A spring pawl is held within a pocket, which has a button extending outward, a plate being adapted to slide within the pocket, and having ratchet teeth engaging the pawl, with a stop for the plate, making a clasp designed to be ornamental as well as useful.

CHEWING GUM LOCKET.—Christopher W. Robertson, Somerville, Tenn. This is a locket having hinged sections and anti-corrosive linings, for holding, with safety and convenience, chewing gum, confections, or medicines, etc.

TOBACCO PIPE AND CANE. — George H. Coursen, Baltimore, Md. This invention provides a pipe that will be of the usual shape, either ornamental or plain, but forming the upper portion of a walking cane, from which it is detachable, the bowl constituting the handle of the cane and the stem a portion of the stick.

TOBACCO PIPE.—George F. Golquitt, Purcell, Indian Ter. This invention consists of a pipe provided with a storage chamber having an opening leading into the bowl, and with a valve for closing said opening, the design being to prevent the nicotine and other unhealthy substances from entering the smoker's system.

SCIENTIFIC AMERICAN BUILDING EDITION.

JANUARY NUMBER.—(No. 39.)

TABLE OF CONTENTS.

1. Elegant plate, in colors, showing perspective view of a one story Southern house, costing two thousand two hundred dollars. Floor plans, etc.
2. Plate, in colors, showing a block of economic brick dwellings. Floor plans, elevations, with details, etc.
3. The Washington Building, New York City. Full page engraving.
4. Design for the new post office and revenue office, Sacramento, Cal.
5. The new government building at Binghamton, N. Y.
6. Plans and elevations for a two thousand five hundred dollar cottage.
7. The Tacoma Building, Chicago. Half page engraving.
8. A seaside summer house. Cost, about five thousand dollars. Plans and perspective.
9. Church of St. Paul, Luton. Half page engraving.
10. A dwelling near Newark, N. J., recently erected at a cost of about five thousand five hundred dollars. Plans and perspective.
11. View of the main entrance to Melrose Park, near New York.
12. A house for five thousand five hundred dollars, lately erected at Flatbush, Long Island. Plans and perspective.
13. A residence recently erected at East Orange, N. J., at a cost of five thousand four hundred dollars. Perspective and floor plans.
14. A Queen Anne cottage at Flatbush, Long Island. Cost, eight thousand dollars. Plans and perspective.
15. A cottage lately built at Flatbush, near Brooklyn, N. Y. Cost, six thousand dollars. Floor plans and perspective.
16. Design for an English cottage.
17. Construction of mills. Section of mill showing construction of two floors and roof.
18. Engravings and plans of some economical houses, ranging in cost from three hundred to one thousand dollars.
19. Miscellaneous Contents: Construction and finish of house flues.—Iron roofs.—Restricting heights.—Traction over different pavements. — Dry rot in timber. — The ancient cataract of the Hudson.—Wall plastering.—Mineral wool as a filling.—A new form of drain pipe, with sketch.—Natural gas lighting.—Lane patent door hanger.—Automatic temperature regulators, illustrated.—The Prindle metallic wire packed unions, illustrated.—Architectural wood turning, illustrated.—Filling the hollow spaces in walls and floors of buildings.—Terra cotta lumber.

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.

Business and Personal.

The charge for Insertion under this head is One Dollar a line for each insertion; about eight words to a line. Advertisements must be received at publication office as early as Thursday morning to appear in next issue.

Screw machines, milling machines, and drill presses. E. E. Garvin & Co., 139-143 Center St., New York.

New Patent for Sale—Inventor wishes to sell patent on improvement in safety catches for elevator. Apply W. Muller, No. 290½ Lafayette St., Newark, N. J.

All books, app., etc., cheap. School of Electricity, N. Y.

Belting.—A good lot of second hand belting for sale cheap. Samuel Roberts, 369 Pearl St., New York.

Wanted—Single stand steam hammer, new or second hand, 400 to 600 pounds. Give maker's name and price. P. O. box 324, Chicago, Ill.

Patent Salesman Wanted—A big opportunity on an invention of rare merit in the hardware line. Established. Best of reasons for selling. Address James A. Wilmot, Saco, Maine.

Dies, moulds, patterns, models, engraving, etc., to order. Chas. A. Bailey, designer, Middletown, Conn.

Air compressor for sale cheap. Also steel tanks, iron rail, cars, etc. Address The Buffalo Wood Vulcanizing Co., Buffalo, N. Y.

Pratt & Letchworth, Buffalo, N. Y., solicit correspondence relative to manufacturing specialties requiring malleable gray iron, brass, or steel castings.

For the latest improved diamond prospecting drills, address the M. C. Bullock Mfg. Co., Chicago, Ill.

Link Belting and Wheels. Link Belt M. Co., Chicago.

Presses & Dies. Ferracute Mach. Co., Bridgeton, N. J

Perforated metals of all kinds for all purposes. The Robert Aitchison Perforated Metal Co., Chicago, Ill.

The Holly Manufacturing Co., of Lockport, N. Y., will send their pamphlet, describing water works machinery, and containing reports of tests, on application.

No. 11 planer and matcher. All kinds of woodworking machinery. C. B. Rogers & Co., Norwich, Conn.

Iron, Steel, and Copper Drop Forgings of every description. Billings & Spencer Co., Hartford, Conn.

The Improved Hydraulic Jacks, Punches, and Tube Expanders. R. Dudgeon, 24 Columbia St., New York.

Safety Elevators, steam and belt power; quick and smooth. The D. Frisbie Co., 112 Liberty St., New York.

Tight and Slack Barrel Machinery a specialty. John Greenwood & Co., Rochester, N.Y. See illus. adv., p. 28.

Rotary veneer basket and fruit package machinery. I. E. Merritt Co., Lockport, N. Y.

Double boring machines. Double spindle shaping machines. Rollstone Machine Co., Fitchburg, Mass.

Duplex Steam Pumps. Volker & Felthousen Co., Buffalo, N. Y.

☞ Send for new and complete catalogue of Scientific and other Books for sale by Munn & Co., 361 Broadway, New York. Free on application.

Notes & Queries

HINTS TO CORRESPONDENTS.

Names and Address must accompany all letters, or no attention will be paid thereto. This is for our information, and not for publication.

References to former articles or answers should give date of paper and page or number of question.

Inquiries not answered in reasonable time should be repeated; correspondents will bear in mind that some answers require not a little research, and, though we endeavor to reply to all, either by letter or in this department, each must take his turn.

Special Written Information on matters of personal rather than general interest cannot be expected without remuneration.

Scientific American Supplements referred to may be had at the office. Price 10 cents each.

Books referred to promptly supplied on receipt of price.

Minerals sent for examination should be distinctly marked or labeled

(192) T. K., New South Wales, asks information for grinding and setting a hollow ground razor. A. Razors that have been in use until the edge is rounded by strapping can be brought to a flat bevel on the edge by placing them on a perfectly flat hone or other fine-grained stone, with a little thin oil, as lard oil or fine machine oil, letting the back always rest upon the stone, and with small circular motions of the hand without pressure grinding down the bevel until the stone marks meet on both sides in a thin feather edge. The regular razor hone as imported through your cutlery trade from England is the best. The finest washed flour emery laid on a flat piece of wood with glue and pressed down with a flat piece of iron or plate glass, or a strip of flour of emery paper glued to a strip of wood and pressed upon a flat iron or piece of glass, will answer the purpose. In using the emery stick always draw the razor backward from the cutting edge to prevent catching and hacking the edge against any uneven particles of emery. For a strap use a strip of fine, even calf skin, glued to a piece of wood, on which rub a little paste made of oxide of iron (rouge) mixed with olive oil. Draw backward and keep the heel or back of the razor in contact, so as not to round the edge. Oxide of tin or putty powder mixed with oil also makes a good razor strap paste. The skin of a horse's tail is very highly recommended for razor straps.

(193) G. P. asks how chimney stacks (factory, etc.) are built so as to gradually taper toward the top (and how everything is kept plumb). Also how the gradual lessening of the bricks is managed. A. The insides of nearly all tall chimneys are parallel and vertical. They are carried up by plumb bob and long plumb line for correction in the usual way of mason's practice. The outside batter is carried up in detail by a plumb bob set for the angle, which is verified by actual measurement of the diameter every section of a few feet. The batter is brought in by cutting a brick on each second, third, or fourth outside course, the joints usually allowing for considerable drawing in of the batter for several courses. The same practice is also used for thinning the wall, with rule measurement for regulating the thickness all around. The boss mason or architect usually furnishes the computation for batter diameters by sections. If there is any doubt as to the vertical lines of the chimney during the progress of the work, a plumb line is let down the center and measures taken at top and bottom in each direction of its sides.

(194) E. D. F. writes: Can you give instructions through your valuable paper for painting photographic pictures on convex glass, also on plane glass? Also, how can the original photo. be preserved? A. Soak the pictures in water and attach with starch paste to a concave glass such as can be bought at the art stores. After they are dry, rub down with pumice stone until nearly transparent, hold against the light, and paint them. Soak with castor oil when they are dry; pour off excess of oil and place a second glass against the back, and bind edges securely with paper or cloth, using gum tragacanth. Or you may flow dammar varnish on the glass, and after soaking the picture stick it to the glass while the varnish is still tacky. When all is perfectly dry the paper can be almost completely rubbed off with a wet finger, leaving the picture. Paint, and flow a second time with dammar varnish. In both cases attach the picture to the convex surface. Practice on flat glass with valueless pictures first. The original photograph is destroyed.

C. J. C. is referred to latter process, in answer to his query.

(195) J. W. asks (1) the difference between the working of a high pressure and low pressure engine. A. The main difference between a high pressure and a low pressure engine is that the latter works with a partial vacuum on the preceding side of the piston, made by condensing the steam and thus adding about 13 pounds to its effective work for every square inch of the cylinder area. We recommend you to read the "Practical Steam Engineer's Guide," by Edwards, $2.50, which we can mail for the price. It contains a full description of all kinds of steam engines. 2. The largest engine in the United States. A. The largest single cylinder engine is near Bethlehem, Pa., at the Lehigh zinc mines, used for pumping.

(196) G. C. H.—We have no further information in regard to clover hullers than that contained in articles quoted. Prof. Sweet, of Cornell, now in Syracuse, N. Y., designed the straight line engine. It takes its name from its outward appearance. Automatic engines are so called because the ordinary governor valve is dispensed with, and the governor so arranged as to act directly upon the motion of the slide valves. The slide valve moves upon a flat surface, while a rocking valve (Corliss and similar) makes a partial revolution in a cylindrical steam chamber. The variation in prices of engines mostly corresponds with peculiarities and complexity in construction, also in finish. Some engines of the same size cylinders vary very much in the weight and value of the material. Your 1½ inch belt at 200 feet per minute represents 3 horse power.

(197) B. F. C. asks: How is a piano case polished or finished or smoothed before it is put together, or rather how is it prepared to varnish? Is it not done with emery belts or belts of some kind? A. The polish finishing of piano cases requires experience to assure success. The cases are first smoothed with a planing machine or hand planes, and then are scraped and smoothly sandpapered. They are then stained, and a "filler"—a rosewood paste for instance—is carefully rubbed in, to completely fill the pores of the wood. A rubbing coat of varnish is then applied, this coat really being four or five coats applied four or five days apart. When thoroughly dry this rubbing coat is rubbed down perfectly smooth with ground pumice and felt rubbers and water. Then a flowing or finishing coat of varnish is skillfully applied, and when dry it is fine-rubbed and rottenstoned, using water and the palms of the hands in this operation, which removes all scratches and leaves a bright polish, which is completely finished by rubbing off with oil. In finer classes of work a "scraping" coat is applied after the filler is rubbed into the pores, and when dry this scraping coat (which is really four or five coats of varnish applied four or five days apart) is carefully scraped off by steel plate scrapers, a delicate operation, then the rubbing coat above named is applied, and later the flowing coat and oil finish. The original smoothing is not done by emery belts, but by machine or hand smoothing planes, scraping and sandpapering. It requires about three months' time to polish a piano case, and the work should be intrusted to skillful, experienced hands.

(198) J. S. asks: 1. Will you describe the method usually employed of manufacturing plaster of Paris? A. It is made by grinding and heating gypsum. 2. Can it be made in any other way than by burning gypsum? A. It is made by no other method. 3. What books describe "burning lime" or "burning alum," or making plaster of Paris? A. Spons' Encyclopedia, which we can supply for 75 cents in parts, contains treatises on plaster of Paris and lime. The burning of alum is described in the United States Pharmacopœia, which you can consult in any drug store.

(199) W. A. S. writes: I am in want of an electro-magnet which will lift, say 4 pounds, a distance of about ⅝ inch. Can you give me any information as to where I can get a description of such a magnet, giving the dimensions of the different parts? I would also like to know if a Leclanche battery of two cells would operate such a magnet in good shape. A. Your battery is rather weak. The larger the magnet core for the same number of ampere turns, the more powerful will your magnet be. A ¾ bar of iron wound with No. 18 wire until 1 inch to 1¼ inch thick should give good results.

(200) J. W. K. asks for a cement to fasten rubber to iron. A. Soak pulverized shellac in ten times its bulk of strong aqua ammonia for three weeks, when it will become a transparent mass. Spread upon both surfaces to be cemented, and press together and allow to dry. First clean the iron by immersion in hydrochloric acid 1 part, water 4 parts, for two or three hours, and wash free from acid in hot water.

(201) M. E. S. asks: 1. Will the fluctuating motion of a windmill answer well to drive the eight light dynamo of SUPPLEMENT, No. 600? A. It will not. 2. What sized storage battery will be required

© 1889 SCIENTIFIC AMERICAN, INC.