

## RECENTLY PATENTED INVENTIONS.

## Engineering.

**HYDROCARBON BURNER.**—John W. Coone, Thompson, Pa. This is an attachment for an automatic engine having a hydrocarbon burner for generating steam, and consists of a small boiler with heater and steam pipe connection to the atomizer of the burner used in heating the engine boiler, dispensing with the air pump and providing an effective substitute which will operate the injector until the engine boiler contains sufficient steam to operate the injector.

**PROPELLING VESSELS.**—Ernst W. Gram, Las Vegas, New Mexico. The hull of the vessel is, according to this invention, made with a stern of peculiar recessed construction, adapted to accommodate a pair of paddle wheels having vertical axes and arranged to work within opposite sides of the recessed stern, while a screw propeller on a horizontal axis works centrally within and through a reduced portion of the stern in rear of the paddle wheels. The recessed construction of the stern is designed to secure efficient action for the upright paddle wheels, in addition to the action of the screw propeller in their rear, the paddle wheels also affording great facility in turning or steering.

## Railway Appliances.

**FROG.**—David Horrie, Antigo, Wis. Combined with a shifting rail pivoted on a bed plate to swing laterally and align with main track rails or side track rails, is a transverse draught bar, a tripping bar, a latch dog, an elongated bracket plate which the latch dog is pivoted on, and a device to slide the latch bar longitudinally, affording a switch or track crossing designed to dispense with frogs, and afford means to automatically lock the shifting frog rail in connection with a main track and release it in a similar manner when the frog rail is thrown to align with a side track or a track that crosses the main track.

**CAR COUPLING.**—George B. Benjamin, Danbury, Conn. This device has a fixed horizontal upper jaw whereon a coupling pin is pivoted by one end, and adapted to fold forwardly or rearwardly in a channel of the jaw, a lower jaw being jointed to the upper jaw by its rear end, and slotted to receive and interlock with the pin, while a slide bar is adapted to normally retain the lower jaw parallel with the upper jaw by its gravity, and depress the engaged lower jaw when the bar is lifted. Cars provided with this improvement will couple automatically, while the coupling may be released from either side or the top of the car.

**CAR COUPLING.**—Frank G. Nixon, Chalk Mound, Kansas. The drawhead of this coupling has a chamber open on top and in front, and contracted to form a narrow front passage with forward shoulders and a narrow rear recess, into which extends a spring, while a spring-actuated push bar is located in a groove in the bottom of the chamber, and a link journaled in the rear recess has a rearwardly extending finger, and a transverse shaft is journaled in the drawhead beneath the push bar, an eccentric on the shaft engaging the bar. This coupling is designed to be automatic in action, while it can also be used in connection with the ordinary link and pin coupling.

## Electrical.

**TELEPHONE TRANSMITTER.**—Philip Fitzsimmons, Birmingham, Ala. This device has a carbon electrode in the shape of a pencil or flat bar, having its ends tenoned or reduced in size and entered in sockets in carbon blocks fastened to the supporting board, so that it may readily vibrate from the action of the sound waves. This transmitter has no diaphragm, and is constructed without any box or case, so that it may be readily transported and hung up like a picture frame at different points in a building. It is designed to give a clear tone and full volume of sound, enabling one to hear at a distance from the transmitter.

## Mechanical Appliances.

**PLANING AND SIZING MACHINE.**—Hiram N. Berry, Meridian, Miss. Two horizontal parallel beams constitute the main frame of this machine, between which are journaled the feed rollers carrying the lumber through it, the machine being adapted to receive lumber from a saw mill on live rollers, and reduce the lumber to exact transverse sizes, planing its surface as it passes through. The invention may be used in connection with a mill sawing green or dry lumber, sizing and planing dry lumber of any width or thickness, or it may be used as a separate machine, disconnected from any saw mill.

**MECHANICAL MOVEMENT.**—Werner Sues, Washington, D. C. Shafts at oblique angles to each other have gear teeth secured upon them by universal joints, with guides to hold the wheels in position to mesh, whereby two shafts arranged at oblique angles and in a common plane may be geared together without the intervention of bevel gears. The invention also provides for two shafts to be arranged at oblique angles and not in a common plane, and to be geared without the use of bevel gears. The guides are carried by arms projecting from a plate below the wheel or pulley, or upon arms projecting horizontally from a vertical wall, or descending from a ceiling, like hangers.

**GAUGE.**—Charles W. Morrill, Butte City, Montana. This is a simple and inexpensive implement designed to be movably attached to a rule square blade, yard stick, or other graduated measure of length, and afford means for marking off parallel lines on any plane surface. It is constructed of metal and provided with a table having a border flange and a guide flange, a yoke clamp being secured on the table and a set screw in one of the limbs of the clamp.

**SAW MILL CARRIAGE.**—Jacob Bickhart, Cadillac, Mich. This invention relates to a side throw mechanism for saw mill carriages, especially to the carriages of band saw mills, providing a simple and durable means whereby the carriage, with log attached, may be conveniently and expeditiously set away from

the saw proper distance after the slab or board has been cut, to enable the sawyer to gig back the carriage without danger of throwing the saw from its pulley by reason of a sliver, knot, or other projection on the log engaging with the back of the saw. A rock shaft is mounted in supports below and independent of the carriage, and has arms engaging the carriage body, while means are provided for operating the rock shaft.

**WHEEL LUBRICATOR.**—Tolbert J. Robison, Curwensville, Pa. This is a lubricator for car wheels, loose pulleys, etc., the wheel hub having a transverse open ended oil chamber or receiver, with openings leading to the axle box, in combination with a plug having a longitudinal bore and externally threaded at its outer end, there being a valve outside of the plug, with a stem entering the bore, while a spring bears against the inner face of the valve and presses it away from the plug. The device is simple and effective and not liable to get out of order.

## Agricultural.

**PLANTER.**—Adolphe Kleiser, Portland, Ala. This is an improved corn and cotton seed planter, designed to drop the corn or seed at predetermined intervals, and provide means whereby the cotton seed will be separated before being dropped. This implement is especially adapted to plant some corn between the cotton, about fifteen to eighteen feet apart, in order not to injure the cotton crop, the implement planting the corn and the cotton seed at the desired intervals.

## Miscellaneous.

**DESK CABINET.**—George C. Harding, Chicago, Ill. This is a composite cabinet structure intended for use on the writing desks of business men, etc., providing a neat appearing and inexpensive receptacle for the various requisites of such a desk, in the way of ink bottles and wells, pen and pencil racks, postage stamps, rubber bands, paper fasteners, sealing wax, band stamps, and the like. The cabinet also includes a perpetual calendar adapted to be easily set by an ordinary pencil or stylus.

**ENVELOPE MOISTENER, ETC.**—William E. Brown, Kansas City, Kansas. This is also a stamp feeding, attaching and detaching device, as well as an envelope moistener. The base carries a moistening sponge, for dampening the corner of an envelope, and there is a vertically adjustable flap-moistening device for dampening the gummed flap, with a stamp-carrying and feeding reel, and a swinging platform on which the envelope rests when the stamp is fed and attached, the platform being adapted to be swung away from the base, whereby the attached stamp is detached from the adjoining one. All the parts of the device are detachable, permitting it to be neatly packed in a small space.

**ADVERTISING DEVICE.**—Charles Cleveland, Denver, Col. Combined with a base plate on which is mounted a frame is a cylinder inclosing the frame, and having an inwardly extending annular plate with depending rails, shafts being mounted in the frame and having pulleys to engage the cylinder rails. Advertisements are designed to be attached to the outside of the cylinder, and as the latter is revolved various advertisements are brought to view in a novel manner designed to attract attention.

**DENTAL Mallet.**—William H. Dibble, Brooklyn, N. Y. This mallet has a tube with a central opening for the admission of air, a plunger sliding in one end of the tube, while a spring-pressed plunger is held in its opposite end, with means for connecting the plunger and plunger, so that the plunger will operate the plunger when near the end of its stroke. The mallet is designed to be operated with one hand, and has a back action, so that the plunger will deliver a blow when moving toward the operator, thereby enabling him to work conveniently on the back part of a tooth.

**MUSIC HOLDER.**—Simeon T. Walker, Olathe, Kansas. This is a device to be applied to various styles of music racks, to hold books or sheet music in position thereon, and hold the leaves of the music open as desired. It consists of horizontal arms supported on each side of the rack, with blocks longitudinally movable on the arms, the blocks having extensions and inwardly projecting spring fingers secured to the extensions to clasp the music. The holder may be adjusted to any sized sheet or book, and means are provided for conveniently throwing light on the music.

**LATCH.**—William H. Bell, New York City. Combined with a casing having a bolt opening and inclined slide ways at opposite sides of the opening, is a latch head having wings at its sides, the outer ends of the wings being beveled. The construction is such that, by pulling or pushing the door in the direction in which it is hung to swing, the door may be opened without turning the knob, thus facilitating its being readily opened by persons carrying parcels or having their hands occupied. A lock is also provided with a keeper or locking bolt in addition to the ordinary latch, the bolt and latch to be simultaneously operated in the same manner.

**SPRING HINGE.**—Walter R. Webster, Pine Grove, Cal. This is a device for automatically closing the lids of water closets the moment that the seat is unoccupied, and is applicable to any form of closet. Spring hinges connect the casing and the lid, the springs of the hinges being coiled in opposite directions, and blocks attached to the seat are connected with the hinges, whereby when the lid is raised the seat is lowered, and when the lid is lowered the seat is raised.

**WATER CLOSET LIDS.**—This is another invention of the same inventor for a device for automatically closing the lids of water closets, and retaining the lids in closed position the moment the seat is unoccupied, the device being simple and durable and capable of convenient attachment to the seat and cover of any form of closet.

**WHIFFLETREE HOOK.**—Albert C. French, Monmouth, Ill. This hook has its forwardly

projecting portion bent to incline not only upwardly but also to project inwardly relatively to the length of the whiffletree, while its inward and upper end has two curved horns at right angles to the forward part of the stem portion of the hook. The device is more especially intended for horse or draught agricultural implements and machines, to prevent the cockeye on the end of a harness tug from working off the hook or becoming accidentally detached.

**FOLDING METAL COT OR BEDSTEAD.**—Edwin F. Tilley, Brooklyn, N. Y. This invention relates to an improvement on a former patented invention of folding iron bedstead, affording an improved construction of the folding parts in connection with an angle iron main frame within which the legs and their stays close when shut. A simple and inexpensive bedstead is thus provided, which admits of being contracted when folded into a very shallow depth of space and flat form to facilitate transportation, while it is very substantial when unfolded and set up for use.

**WASHING MACHINE.**—William H. Haire, Morristown, Tenn. This machine has an agitator frame composed of a single bar of metal bent into elongated rectangular form, having its side limbs flattened oppositely and perforated for pivotal support, a handle being loosely mounted on the upper cross bar of the agitator frame. The body of the machine is an elongated rectangular chamber, preferably of galvanized sheet iron, wherein the water may be heated for washing the clothes.

**IRONING TABLE.**—Herbert M. Landers, Marshfield, Pa. This is a collapsible table having a flat top with a recessed strip fixed to its under side, a pair of legs being pivoted to one end of the strip, while a pair of legs pivoted to the table top is adapted to extend diagonally across the other legs, braces pivoted to the longer legs having at their upper ends a rod adapted to slide in the recessed strip, and links connecting the braces with the shorter legs. This table may be folded in very small compass, and quickly and easily placed in position for use.

**HAT GUARD.**—William H. Thompson, Winnipeg, Canada. This guard is in the nature of a combination lock adapted to be secured to a hat in such a manner that when adjusted in its locked position it will prevent the placing of the hat on the head, and also form a convenient means for attaching a holding chain. The device is likewise adapted for use in connection with the ordinary springlock or clasp of valises, portmanteaus, etc.

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## SCIENTIFIC AMERICAN BUILDING EDITION.

JUNE NUMBER.—(No. 68.)

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1. Plate in colors of a handsome residence on Riverside Park, New York City. Floor plans and elevations. Architect Mr. Frank Freeman.
2. Colored plate illustrating a row of brick dwellings at Newark, N. J., costing about \$3,000 each. Perspective elevation, floor plans, etc. E. S. American, Newark, N. J., architect.
3. Engravings and floor plans of a double residence on Washington Heights, New York City. Cost \$20,000 each. A very picturesque design.
4. A dwelling at New Haven, Conn. Cost \$8,000 complete. Perspective view, floor plans, etc.
5. A colonial cottage erected for Mr. C. W. Macfarlane at Elm Station, Pa. Cost \$5,300 complete. Floor plans and perspective view.
6. Design of a modern interior. A comfortable hall and staircase.
7. A picturesque cottage erected for George W. Childs, Esq., in his Villa Park at Wayne, Pa. Cost \$7,200 complete. F. H. & W. L. Price, Philadelphia, architects. Plans and perspective.
8. A tower house recently erected at Elm Station, Pa. Cost \$4,600 complete. Floor plans, perspective elevation, etc.
9. A row of low cost colonial houses erected at Roseville, N. J. Cost complete \$2,000 a house. Plans and perspective view.
10. An English cottage erected at Elm Station, Pa. Cost about \$4,000. Perspective and floor plans.
11. Sketch of a farm house recently built in Steuben County, New York, at a cost of \$675.
12. Miscellaneous contents: Simplicity in furnishing and decoration.—Weight as a test of strength in timber.—Architect of the Woman's Building of the Columbian Exposition, Chicago.—Redwood for interiors.—The Richmond heater, illustrated.—Some new designs in radiators, illustrated.—Improved plumbing appliances, illustrated.—Bent glass.—Improved woodworking machinery, illustrated.—A strong and light lawn fence, illustrated.—The "Heatcook" range, illustrated.—The H. W. Johns liquid paints.—A new roofing metal, illustrated.

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## Notes &amp; 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.

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Books referred to promptly supplied on receipt of price.

Minerals sent for examination should be distinctly marked or labeled.

(3050) E. J. F. asks: 1. A fox is due south of a hound any distance ( $d$ ), and runs due east at any rate ( $r$ ). The hound runs always directly toward the fox at any ( $R$ ). How far does the hound travel before he overtakes the fox? What is the equation to the curve he describes? A. It would be a hyperbola or some curve of that order. The relative speed of the hound and fox would affect its nature. Theoretically, the hound would only catch the fox by departing from the original curve. 2. I notice in SCIENTIFIC AMERICAN the list of patented inventions, etc., appears but for one day in a week. Are patents issued only on one day each week? If not, why is the list given for only one day? A. They are issued only on one day, Tuesday, of each week.

(3051) E. H. asks how to make copper into a pliable body, into a mass like putty. I wish to get a pliable metal for moulding if such a thing is possible. A. Precipitate copper from a solution of the sulphate by adding zinc thereto. After washing, mix with concentrated sulphuric acid in a porcelain mortar. Add about double the weight of copper or metallic mercury. When the amalgamation is complete, which must be accelerated by rubbing, wash out the last traces of acid. A slight heat brings this to the consistency of wax.

(3052) W. H. B.—The number of applications for patents made in England, for the year 1890, was 21,300. The number of applications made in the United States for same period was 41,000.

(3053) J. T. C.—Send your name and address.

(3054) A. M. asks for a white substance or composition nearly approaching gutta percha in its properties. It must be no heavier than gutta percha and rebound like it when struck against a hard substance, but must not have anything of the nature of India rubber in its composition. Chlorine is said to bleach gutta percha into a white substance like ivory. I have tried liquid chlorine, but it does not have any effect. A. We would suggest celluloid or zylonite as answering your requirements as well as anything we know of. The following process is said to bleach gutta percha. Dissolve in 20 times its weight of boiling benzol, add one-tenth part plaster and agitate from time to time. After two days' standing decant the perfectly clear solution. Add it little by little to twice its volume of 90 per cent alcohol, agitating continually. The gutta percha is precipitated white.

(3055) C. T.—Reading an article in vol. 64, No. 17, on "Water Power in Motion," an argument arose as to whether there was any friction of water on pipe. Suppose we have 100 feet head and 100 feet of pipe, or 100 feet head and 400 feet of pipe, with the same