

RECENTLY PATENTED INVENTIONS. Engineering.

STEAM ENGINE.—William F. and Eugene W. Cleveland, Rounthwaite, Manitoba, Canada. This is an engine of simple construction, designed to afford a higher than usual degree of efficiency by reducing to a minimum back pressure in the cylinder. It has a main and a supplementary exhaust pipe, the ends of the pipes being alongside each other, and the upper end of the main pipe extending above the upper end of the supplementary pipe, and creating suction over the latter, removing atmospheric pressure and securing a more prompt and perfect exhaust.

CONSTRUCTING SEWERS, SUBWAYS, etc.—Harry P. McDonald, Louisville, Ky. This inventor provides an apparatus comprising a pair of telescopic shells, the rear one having an annular shoulder pressing against the line of the conduit, the sections being independently or simultaneously forced forward or in opposite directions. Means are provided for temporarily sheathing and applying a permanent cement lining, peculiarly arranged plunger or feed devices setting the sheathing and compressing the concrete as the sheathing and cutter carrying means are forced forward. A carrying mechanism is provided for removing the loose earth and bringing into position the concrete for lining.

GENERATING AND APPLYING VAPORS.—Oreon S. Rhodes, East Stroudsburg, Pa. This improvement is for the generation of vapors of volatile liquids and driving motors thereby, the boiler fluid being preferably a fixed oil boiling at a high temperature, giving great heat without corresponding pressure, and the vapor being generated from a volatile liquid combined with a soluble gas, a volatile liquid, or a liquefied gas. The boiler and engine form but one machine, both making use of the same boiler fluid, the construction being such that the fuel is utilized to the greatest advantage and the danger from explosion is reduced to a minimum.

Electrical.

ANTISPARKLE COMMUTATOR COMPOUND.—John R. Davis, New Iberia, La. To prevent sparking at the commutator of a dynamo, this inventor provides, for application on the commutator, a compound containing a fatty substance mixed with a good conductor of electricity, the mixture being hardened by chalk. The compound is designed to reduce the wear of both the commutator and the brushes, while preserving a uniformly good contact, so as to obtain a steady flow of electricity.

Mechanical.

WRENCH.—Matthew C. Gay and Joseph Heard, Arcadia, Fla. According to this improvement a fixed head and hinged jaw are detachably connected, so jaws for pipes or for nuts may be interchangeably used, the connection being so effected that the pivot portions of the hinged jaw are guided and slip longitudinally into their seats, moving with such seats in the tilting movement of the jaw. In one tool is thus afforded a pipe wrench and a nut wrench, the device being also simple, inexpensive and durable.

TACK MACHINE.—Russell Hathaway, Elbridge G. Paull, and Cyrus D. Hunt, Fairhaven, Mass. This machine has two cams operating two levers carrying the leader and lazy knives, the cams actuating the leader knife and maintaining the lazy knife up and still while the edge of the plate is turning down, the improvements consisting principally in the form of the lazy cam, the form of the gripping cam, and the centering of the gripping lever. The machine is designed to be run at a high speed with good feeding of the plate, the following of its cam by the gripping lever, and diminution of the wear of the leader knife.

Agricultural.

SICKLE BAR.—James Smith, Granite Canon, Wyoming. This invention provides for a construction of the cutter or sickle bar to materially lighten the draught in mowing grass and harvesting grain, the bar being so made that it may be used for trimming edges as well as for cutting grass. The bar has a series of overlapping disk cutters and means for rotating adjacent cutters in opposite directions and reversing the direction of rotation, each of the alternate cutters being adapted to co-operate with either of the cutters between which it is located.

PLANTER.—John W. Shore, Angola, Ind. This machine is adapted to plant two kinds of seed alternately if desired, the seed being delivered to a chute to conduct it to the ground, and the planting being uniform as to distances apart and the number of seeds or grains delivered at a time. The shoe carrying the chute makes the furrow and covers the seed, and also allows for the vertical adjustment of the chute, springs holding the shoe in yielding contact with the ground.

STAKE FOR PLANTS, FLOWERS OR TREES.—Theron N. Parker, Quick, Iowa. This is an improvement in devices for tagging plants, trees, etc., by florists, nurserymen and others. This stake has a number of wire legs whose upper ends are twisted together, one of the lengths of wire extending up above the others and being bent at its upper end to encircle the stalk of the plant. A sheet metal tag is attached by wire to the top bend.

Miscellaneous.

PHOTO-MECHANICAL PRINTING.—Edward G. D. Deville, Ottawa, Canada. To change the continuous tones of an original into tones formed of black and white dots by a screen placed in front of the photographic plate, this inventor has devised a new kind of screen, furnished with alternate opaque and transparent squares, disposed like the squares of a chess board.

ADJUSTING BEAT OF CLOCK PENDULUMS.—Fred. F. Richey, Topeka, Kansas. This is a leveling attachment for a clock mechanism controlling the pendulum and verge to such an extent that it will act properly even though the clock should be considerably out of plumb. The device consists of a weighted swing-

ing frame of a novel character arranged to carry the verge, and is applicable to any form of clock mechanism. It is simple, durable, and inexpensive.

VACUUM PAN.—Alphouse F. Gaiennie, La Fourche, La. This invention provides an improved separator for use on evaporators to save liquid carried by the vapors, and for use in separating oil and grease from exhaust steam. The improvement consists principally in the placing of one or more cone-shaped plates in the path of the vapors, within a suitable casing, there being a receiving receptacle at the lower edge of each plate into which pass the liquids separated from the vaporstriking the plates, such liquids being returned to the mass boiling in the evaporator.

CHOCOLATE DIPPERS.—Cyprien Goussier, New York City. Two patents have been granted this inventor, one of which is for an appliance for dipping stick chocolate and other elongated forms of candy. It comprises a frame with cross wires formed into loops and transverse brace wires, forming a simple and inexpensive device which may be made to fit odd shapes and hold the sticks so that they may be readily dipped into a chocolate solution, the device holding a comparatively large quantity of candy. In the other dipper, comprising a frame with cross wires and series of rings, provision is made for securing and dipping a large quantity of creams at a time, the creams being so held that practically their entire surface is exposed while being dipped.

CLAMP FILING DEVICE.—Edward W. Farnham, Chicago, Ill. (C., B. & Q. R.R.) This is a file holder and binder in which the files are stacked on a tray provided with cord clamping devices, there being an independent cover with cord for winding around the holder, and one of the ends of the cord being removably secured in the clamping devices, which, with the cord, furnish a guide to retain the files in place. The device is a very simple and inexpensive one to facilitate compact and secure filing, and large orders for it have been placed by the railroad offices in Chicago.

MATRESS HOLDER FOR BEDS.—Elizabeth Calkins, St. Joseph, Mo. For holding the bedding, etc., in place, in folding beds when they are turned up, this inventor provides a simple and inexpensive construction, applicable to beds of all kinds and readily adjustable for different thicknesses of bedding. The holder is attached to the bed rail, and has jaws which engage the upper and lower sides of the bedding. The holder consists of two sections, one having a lug engaged by a pivoted notched locking plate on the other section, to hold the sections adjustably locked.

SCIENTIFIC AMERICAN BUILDING EDITION.

DECEMBER, 1895. (No. 122.)

TABLE OF CONTENTS.

- 1. Elegant plate in colors showing a residence in the Colonial style recently erected at East Orange, N. J., at a cost complete of \$11,000. Three perspective elevations and floor plans, also an interior view. An excellent design well treated. S. W. Whittemore, architect, East Orange, N. J.
2. A Colonial house at Madison, N. J. Perspective elevation and floor plans. Cost complete \$5,500. Architects, Messrs. Child & De Goll, New York City.
3. A Colonial dwelling at Montclair, N. J. Two perspective elevations and floor plans. Architect, W. E. Bloodgood, New York City. A unique design.
4. Two perspective elevations and floorplans of a house recently erected at Brick Church, N. J., at a cost of \$2,700 complete. A pleasing design. Architect, Mr. F. R. Hassman, Orange, N. J.
5. View of the new City Hall, Philadelphia, which has been erected at a cost of over \$20,000,000. The building is of white marble and covers four and a half acres. Is absolutely fireproof. The height of this building is 547 feet 3 1/4 inches, being, with two exceptions, the highest building on the earth. The exceptions being the Washington Monument and the Eiffel Tower. The next highest building on earth is the Cologne Cathedral, which is 510 feet.
6. View of the facade of the magnificent new Boston Public Library, Boston. Architects, Messrs. McKim, Mead & White. New York City.
7. Residence at Bensonhurst-by-the-Sea, L. I. Two perspective elevations and floor plans. Cost complete, \$3,500. Architect, S. S. Covert, New York City.
8. Perspective elevations and floor plans of a cottage at Oakwood, S. I., recently erected at a cost of \$2,800 complete. An attractive design.
9. Miscellaneous Contents: Testing house pipes and drains.—A combination bathtub and washstand, illustrated.—The permanence of modern dwellings and public works.—An improved steam and hot water heater, illustrated.—Moving a large factory.—How to fix paper on drawing boards.—A quick water heater, illustrated.—Improved toilet room fixtures, illustrated.—A single track parlor door hanger, illustrated.—An improved furnace grate, illustrated.—Cements in mason work.—An improved furnace, illustrated.—A regenerative gas heater, illustrated.—Improved woodworking machinery, illustrated.

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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. Buyers wishing to purchase any article not advertised in our columns will be furnished with addresses of houses manufacturing or carrying the same. 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. Literals sent for examination should be distinctly marked or labeled.

(6632) I. J. C. asks for a formula for giving a platinum finish on copper. A. The appearance of platinum may be given to copper by immersion in a bath composed of 1 3/4 pints hydrochloric acid, 7 1/2 ounces arsenic acid, and 1/4 ounces acetate of copper. The article must be cleaned before immersion, and left in the bath till it has the color of platinum.

(6633) A. W. F. asks how to make lye on a small scale. A. Hickory ashes are the best for making common washing soft soap (when it is not desirable to use the potash lye), but those from sound beech, maple, or almost any kind of hard wood except oak, will answer well. A common barrel set upon an inclined platform makes a very good leach, but one made of boards set in a trough in V shape is to be preferred, for the strength of the ashes is better obtained, and it may be taken to pieces when not in use and laid up. First, in the bottom of the leach put a few sticks; over them spread a piece of carpet or woolen cloth, which is much better than straw; put on a few inches of ashes and from 4 to 8 qt. lime; fill with ashes, moistened, and tamp down well—tamp the firmest in the center. It is difficult to obtain the full strength of ashes in a barrel without removing them after a day's leaching, and mixing them up and replacing. The top should be first thrown off and new ashes added to make up the proper quantity. Use boiling water for second leaching. This lye should be sufficiently strong to float a potato.

(6634) T. O'B. says: Can you give me a quick process for making vinegar? A. In this process dilute alcoholic liquor, to which one thousandth part of honey or extract of malt has been added, is caused to trickle down through a mass of beechwood shavings previously steeped in vinegar and contained in a vessel called a vinegar generator. It may consist of a large oak hogshead or barrel furnished with a loose lid or cover, a few inches below which is fitted a perforated shelf, having a number of small holes loosely filled with packthread about six inches long, knotted at the upper end to prevent their falling through. Several small glass tubes, long enough to project slightly above and below the shelf, are also fitted in perforations in the shelf to serve as air vents. The vessel at the lower part is pierced with eight or ten holes equally distributed around the sides at about 6 inches above the bottom to admit of the entrance of air. A small siphon tube, the upper curve of which is an inch below the air holes, serves to carry off the liquid as fast as it accumulates at the bottom. The alcoholic liquid, at a temperature of 75 degrees to 83 degrees Fah., is run in on the shelf and slowly trickles down through the holes by means of the packthread, diffuses itself over the shavings, slowly collects at the bottom, and runs off by the siphon exit. The air enters by the lower holes, passes freely through the shavings, and escapes by the glass tubes. The temperature within the apparatus soon rises to about 100 degrees Fah., and remains stationary at this point, while the action goes on favorably. The liquid generally requires to be passed three or four times through the cask before its acidification is complete.

(6635) J. B. asks: How much more power, if any, would be required to propel a bicycle (safety) one mile, having a front sprocket wheel of 5 1/2 inches in diameter, 18 teeth, and with a rear sprocket wheel of 2 1/2 inches in diameter, 9 teeth, than one having both the front and rear sprocket wheels 5 1/2 inches in diameter, with 18 teeth each; large wheels, 28 inches in diameter, equal conditions prevailing, excepting as to time required? A. As power is derived from both pressure and velocity, the condition named in the relative sizes of the wheels will make no difference in the actual power required to drive the bicycle. The large wheel sprocket must run faster, and with little feet must make more treads with lighter pressure for a given distance, than in the ordinary form as first named. The only value of the last named combination is on steep, rising grades.

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INDEX OF INVENTIONS

For which Letters Patent of the United States were Granted

December 17, 1895,

AND EACH HEARING THAT DATE.

(See note at end of list about copies of these patents.)

Table listing various inventions and their patent numbers, including items like Air brake, Axle box, Bicycle, and various mechanical devices.