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Curtis Pressure Regulator and Steam Trap. See p. 142.

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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 This is for our information, and not for publication.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. 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.

(1) S. & C. ask how to keep the frost, moisture, etc., off plate glass windows. A. Only by keeping the inside air dry, or by innersash made tight, so that the air in window inclosure will be cold, and ventilated from the outside. A partial remedy is to have venting openings in the top of the window casing.

(2) M. M. A. asks if there is any hand power for propelling small boats that gives more speed than a pair of oars. A. We know of none that gives as good results as oars.

(3) W. S. C. asks why it is that some steam gauges are made larger than others. A. Only as a matter of taste. The small gauges are quite as reliable as the large ones, all being tested for the same pressures as indicated by their faces.

(4) F. B. S.—The so-called malleable iron is not fit to make castings of; it is as difficult to melt as wrought iron. You may melt steel at a very high heat. We recommend you to confine your work to the melting of soft gray iron. Good cast iron scrap mixed with charcoal or Scotch pig will make good, sound castings. See Greenwood on Steel and Iron, which we can mail you for \$2.00.

(5) J. G. M. asks: 1. What pressure is produced in compressing 1 cubic foot of air into 1/2 cubic foot of air and 1/4 cubic foot of air? A. 1 cubic foot to 1/2 cubic foot, 15 pounds pressure; 1 cubic foot to 1/4 cubic foot, 30 pounds pressure. 2. Can this be done with a 20 inch Buffalo blower driven by hand? If not, how can it be done? A. It cannot. It requires a piston pump made for compressing air, which is on sale by the steam pump trade. 3. What pressure will ordinary 1/2 to 3/4 inch gas pipe stand? A. 1/2 or 3/4 inch gas pipe, if properly welded, will stand 1,000 pounds per square inch and upward.

(6) O. C. M. writes: I have a small flat steel article which needs protection from rust. Tinning alone will not answer the purpose. Galvanizing alone will do well, but is not quite bright enough to appear well. How would it answer to first galvanize and then tin? A. You can tin over the galvanizing without removing all the zinc by immersion in the tin bath, a thin coating of zinc and iron alloy remaining on the work; but the tin bath will soon deteriorate by absorption of the free zinc. If you can afford to renew the tin bath often, you will succeed.

(7) E. N. C. writes: A number of mechanics of this place respectfully ask: Does the entire boiler pressure come on the valve (of the ordinary slide valve engine) without reaction? A. The entire steam pressure is upon the valve. This is only partially balanced by the varying pressure on the other side of the valve, and the slight exhaust back pressure.

(8) W. & S. ask how to distinguish iron from steel. A. By breaking and comparing crystallized surface, or by immersing in nitric acid 1 part, water 3 parts, for a few minutes. Steel will show a homogeneous, granular surface. Iron will show a streaky or fibrous surface, or try whether the article is susceptible of tempering.

(9) D. P. B. asks how to prepare printer's ink so as to print on muslin with wooden type. A. Thin with boiled linseed oil, if it be absolutely necessary, but by doing the work slowly, and with the skill a good printer would exercise, you will get a better color if this can be avoided.

(10) W. F. E. asks how the acid for etching glass is made, that leaves the glass white and semi-opaque. A. See the article on "Fluoric Acid, its Preparation and Use in Glass Engraving," contained in SCIENTIFIC AMERICAN SUPPLEMENT, No. 380.

(11) G. M. asks a receipt for making yeast to manufacture vinegar by fermentation. A. Boil 9 ounces of hops with 3 pails of water, put 9 pounds of good flour in a tub, and strain enough of the hop water over it to make it into a stiff paste, beat it up thoroughly, strain in the rest of the hop water into the paste, let it stand until lukewarm, then add 4 1/2 quarts of stock yeast. It will rise 1 to 3 inches, but do not disturb it until it drops.

(12) G. Z. asks (1) whether there is any method of restoring paper which has been acted upon by oxalic acid, which was used to remove carmine ink stain, and turned the paper yellow. A. If the fiber of the paper has been destroyed by the acid, which is most likely, you cannot restore it. A little gum water may restore the finish of the paper. 2. What library contains the most books on chemistry? A. The library

of Columbia College, corner 49th Street and Madison Avenue.

(13) C. A. C. writes: I am making a paper canoe, and I would like to have the receipt for making a waterproof shellac or varnish that will stick the edges of the paper together. A. One quarter of an ounce crude gutta percha dissolved in carbon disulphide to the consistency of mucilage.

(14) C. L. S. wants a receipt for liquid stove blacking. A. Pulverized blacklead 1 pound, turpentine 1 gill, water 1 gill, sugar 1 ounce.

(15) E. H. C. asks the market value in New York or Brooklyn of the metal molybdenum or the mineral molybdenite. A. Metallic molybdenum has a value of about \$50 a pound, but as there is no demand for it, it is unsalable, except in small quantities for museums or collectors. The mineral molybdenite is salable only to dealers in minerals.

(16) I. S. F. wishes to know the contents of a wall measuring 3 feet by 12 feet by 30 feet. A. The wall contains 1,080 cubic feet. If it is a rubble stone wall, it will be measured by the perch of 25 cubic feet, and will contain 43 1/2 perches. If it is masonry, it will be measured by the foot cube; and if brickwork, by the number of bricks it contains, viz., 24,300.

(17) E. E. S. asks: 1. Will you give some kind of wash or stain for brickwork that will protect the brick and not wash off without oil, and be permanent? A. To make a good wash for external purposes, rinse 1 1/2 bushels of white lime with 3 pecks of hydraulic cement (say Rosendale or Portland) and add sufficient water and color as may be desired. Another is formed of 1/2 bushel of slaked quicklime mixed with 1/2 pound of sulphate of zinc, 1 pound of common salt and 1 gallon of sweet milk. 2. What is understood by a sounder (telegraphic) of 20 ohms? Does it mean 10 ohms on each spool and 20 on the pair? Or does it mean 20 ohms on each spool? A. A sounder of 20 ohms means one having a total resistance of that current on both bobbins. 3. Will a core made of 1/4 inch iron wire do for magnet core on 20 ohm sounder? A. It would.

(18) A. B. B. says: I have a pound and a half of No. 18 cotton covered wire. Will you please inform me how I can make a continuous spark coil for gas lighting? A. You need much more wire. About five or six pounds of No. 24 magnet wire, wound on a bundle of short iron wires, eight inches long and an inch in diameter, will give good results.

(19) C. J. M. asks: 1. Can it be possible that permanent magnets could be so constructed so as to generate an electric current (without friction or motion), the same as cell or fluid battery? A. Unless our present theories are all wrong, it is impossible. We believe nothing can be done by experimentation in this direction. 2. Where can I obtain electric lamps such as described in SCIENTIFIC AMERICAN of October 16, 1886? A. Trouve, of Paris, makes such a lamp. Address Stout-Meadowcroft Company, 82 Fulton Street, New York, for general information as to electric lamps.

(20) G. W. C. asks how to preserve whole peaches so as to retain their natural size and color? A. Peaches are thus prepared for show purposes by submitting them to a bath of sulphur gas and a liberal use of antiseptics.

INDEX OF INVENTIONS

For which Letters Patent of the United States were Granted, October 26, 1886,

AND EACH BEARING THAT DATE.

[See note at end of list about copies of these patents.]

Table listing inventions and their patent numbers, including items like Adding machine, Air and gas compressors, Air brake, Ammonia and illuminating gas, Animal trap, Auger, Axes, Axle boxes, Axle, vehicle, Bag, Bag fastener, Bale ties, Barrel, Battery, Bed, Bedclothes holder, Bedstead, Bell, Belt clamp, Blue, soluble laundry, Boiler, Boiler furnace, Boilers, Bolt, Book or show case, Bottle capping machine, Bottle, ink, Bottle, nursing, Bottle stopper, Bottle stoppers, Bottle stoppers, machine for forming wire balls, Bottle stoppers, machine for forming wire balls for J. G. Rehfuss, Bottles, machines for wiring corks in, Bottles, wicker case for, Brake, Braze, Brazing tubes, charging spoon for, Brick for facing walls, Brick machine, dry press, Bronze or other powders, apparatus for distributing, Burglar alarm system, Burner, Button cuff, Button fastener, Button fastener, A. Hall, Button fastening, A. J. Shipley, Button for pants, elastic suspender, Button, separable, A. H. Graves, Calipers, Camera obscura, Car brake, Car brake, electro magnetic, Car brake, A. S. Nadow, Car coupling, E. Beaudin, Car coupling, S. D. Locke, Car coupling, J. P. Ketteringham, Car coupling, S. D. King, Car coupling, A. W. Phillips, Car coupling link, D. Tufts, Car starter, Car wheel, R. N. Allen, Car wheel, cast steel, Car wheels, machine for rolling, Carding machines, Carpet stretcher, Carriage spring, Carrier, Cart, hand, Case, Cash carrier, Cash indicator and recorder, Cash register and indicator, Caster, furniture, Centrifugal machine, Chair, Chamfer knife, extension, Chopper, Churn, Chute for feed mangers, Clamp, Clamping device, Clasp, Clay, clay shale, etc., machine for disintegrating, Clay reaper and pulverizer, Clothes rack, Clutch and brake for power presses, Clutch, friction, Coat, Coffin, Colter, Colter, rolling, Condenser, Condenser, surface, Cork holder, Cotton chopper, Cotton cleaning, dust trunk for, Cotton gin, Counter, revolution or stroke, Coupling, Cuff holder, Cultivator, Cultivator, D. V. Carhart, Cultivator, J. N. Procter, Cultivator, C. J. Robson, Cultivator, J. R. Suter, Detector, Displaying device for primary scholars, Ditching machine, Door opener, electrical, Door spring, Draw bars, manufacture of, Drier, Drill, Drying house, Dust pan, Ear drum, artificial, Egg tester, Elastic fabric, Electric battery, Electric conductors, reel for, Electric current indicator, Electric distribution, system of, Electric lighting apparatus, Electric machines, reversing gear for dynamo, Electric machines, safety attachment for dynamo, Electric time detector, Electric wires, underground conduit for, Electro magnetic regulator, Embroidery frame and stand, Engine, Evaporating apparatus, Eyeglasses, Fabric, Fanning mill, Feathers, machine for treating, Feed trough, Feed water heater, Feeder, self-regulating boiler, Fence wire stretcher, Fences, machine for making picket, Fertilizer distributor, Fifth wheel, File, paper, Fishing boat and connection therefor, Fishing reel, Flour chest and sifter, Fluid discharging apparatus, Fly catcher, Folding machine, strip, Folding table and stool, Food compound, Frame, Rock drill frame, Fuel, device for the conduction of liquid, Fuel, device for the consumption of liquid, Funnel stand, Furnace, Furniture pad, Gauge, Game table, Garment fastening device, Gas burner, regenerative, Gas engine, Gas governor, Gauge, See Sliding gauge, Game table, C. S. Tilt, Garment fastening device, S. Blumenkrohn, Gas burner, regenerative, C. M. Lungren, Gas engine, P. Murray, Jr., Gas governor, G. E. Lockwood,

Gas regulator, C. M. Lungren... 351,387
Gate. See Railway crossing gate. Wire gate.
Glass and vitreous or porcelainous products...

Railway tie, metallic, E. C. Davis... 351,488, 351,499
Railway transfer table, J. N. Kaufholz... 351,449
Railways, automatic switch for street, J. Hope...

Wire, machine for wrapping coils or bundles of, J. A. Dixon... 351,684
Wire rods, making, F. H. Daniels... 351,364, 351,365
Wood surfaces, machine for smoothing, B. D. Whitney... 351,676

DESIGNS.
Badge, J. F. Kelly... 16,963
Basin slab, wash, W. Bun ing, Jr... 16,949

TRADE MARKS.
Canned corn, McConnell, Clancey & Co... 13,760
Cigars, F. Turner... 13,765
Coffee, roasted, H. C. Lows... 13,769

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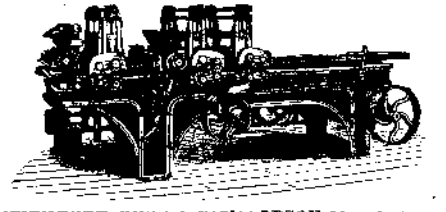
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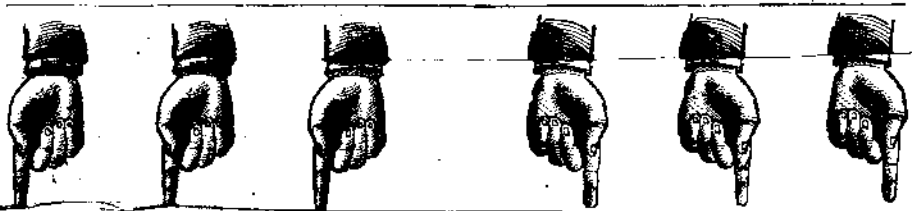
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TO THE STEEL MANUFACTURERS OF THE UNITED STATES OF AMERICA.

UNITED STATES NAVY DEPARTMENT, WASHINGTON, D. C., Aug. 21, 1886. The attention of all steel manufacturers of the United States is hereby invited to the requirements of the Navy Department in the way of armor-plates and heavy gun forgings, for the prosecution of work already authorized by Congress.

This advertisement invites all domestic manufacturers of steel to specify, in competition with each other, upon what terms they will engage to prepare for the production of and produce the forgings and armor-plates required for modern ordnance and armored ships; and no bids will be considered except such as engage to produce within the United States either all the gun-steel or all the armor-plate (or both) specified in this advertisement; nor will any bid be accepted unless accompanied by evidence satisfactory to the Department that the bidder is in possession of, or has made actual provision for, a plant adequate for its fulfillment.

Bids are hereby invited for supplying this Department with the under-mentioned material: About 1,310 tons of steel gun-forgings, of which about 825 tons will be for guns of six inches caliber, 70 tons for guns of eight inches caliber, and 815 tons for calibers between ten inches and twelve inches (both inclusive). These forgings are to be delivered rough bored and turned, and when in that state the heaviest forging which enters into the construction of a gun of each of the desired calibers will be about as follows:

Table with 2 columns: Diameter (6-inch, 8-inch, 10-inch, 12-inch) and Weight (3 1/2 tons, 5 tons, 9 1/2 tons, 12 1/2 tons).

All these forgings must be delivered within the following times from the closing of a contract, viz.: For 6 inch guns, 25 within one year, and the remainder within 18 months. For 8 inch guns, within two years. For 10 inch and larger guns, within 2 1/2 years. Preference will be given for earlier deliveries.

Also, about 4,500 tons of steel armor-plates, to be of the best material and manufacture, shaped accurately after patterns to fit the form of each vessel for which intended, and of such sizes as may be required, varying somewhat as follows: 20 feet by 8 feet by 12 inches thick. 17 1/2 feet by 8 feet by 17 inches thick. 17 1/2 feet by 4 1/2 feet by 8 inches thick. There will also be thin armor-plates.

For information concerning shapes and weights of the gun forgings and armor-plates, what parts must be manufactured in sets, time of delivery of each set, the chemical, physical, and ballistic tests, which the metal must sustain in each case, and for all other particulars, apply to the Chief of Bureau of Ordnance, Navy Department, Washington, D. C.

Each bid upon armor-plate must specify the time within which the bidder will engage to make delivery; and preference will be given to earliest proposed deliveries. Proposals must be in duplicate, sealed and addressed to the Secretary of the Navy, Navy Department, Washington, D. C., the envelopes indorsed "Proposal for steel gun-forgings and armor."

They will be received at the Navy Department until 12 o'clock M. on the 10th day of December, 1886, at which hour the opening of the bids will take place. The right is reserved to waive defects in the form of, and to reject any or all bids.

Ten per cent of the contract price will be retained from the payment for each article delivered, until the contract, as far as relates to articles of that class, shall have been completed. Separate bids may be submitted for the gun steel and for the armor, if any manufacturer so desires; but bids covering both will receive preference, other things being equal.

Bids will be compared in two classes. First. Gun Forgings. Second. Armor-plate. And the total sum for which, and the time within which the whole of the material covered by each class will be produced and delivered, are to be stated. WILLIAM C. WHITNEY, Secretary of the Navy.

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