

Business and Personal.

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Pat. for Sale, Cheap—"Walking Motion" S.M. Treadle...

Pulleys, Shafting, Adjustable Hangers, &c. Send for Price List...

Steam Boiler and Pipe Covering—Economy, Safety, and Durability.

Mill Men—For the best Gang Edger and Rippling Machine...

As Sup't or Draughtsman—Familiar with marine work...

A practical Speed Counter—Can be carried in the vest pocket.

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2nd Hand Portable Engines, 8 to 20 H.P., thoroughly overhauled...

For Sale—English and French Patents on an article now successfully introduced...

A Machinist and Draughtsman of 13 years' experience as Manager...

County and State Rights for Sale of a valuable Patent.

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The best Gold Pens in use are those made by C. M. Fisher & Co.

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Engines 2 to 8 H.P. N. Twiss, New Haven, Ct.

By touching different buttons on the desk of the manager, he can communicate with any person in the establishment...

Millstone Dressing Diamond Machines—Simple, effective, economical...

Nobody will buy the metal Truss with its pitiless Iron Finger.

Protect your Buildings—Send for testimonials. N. Y. State Roofing Co.

Woolen and Cotton Machinery of every description for sale by Tully & Wilde.

Steam Engines—Special Machinery, Shafting, Pulleys & Hangers.

L. & J. W. Feucht wanger, 55 Cedar St., N. Y., Manufacturers of Soluble Glass.

Pat. Double Eccentric Cornice Brake, m'fd by Thomas & Robinson.

Dean's Steam Pumps, for all purposes; Engines, Boilers, Iron and Wood Working Machinery...

Stove Patterns to order—Also, for sale a variety of new Styles.

Treatises on "Soluble Glass," \$1 per copy; on "Nickel," 50c. per copy...

Mining, Wrecking, Pumping, Drainage, or Irrigating Machinery, for sale or rent.

"Superior to all others"—for all kinds of work—Linet & Co.'s French Files.

Price only three dollars—The Tom Thumb Electric Telegraph. A compact working Telegraph apparatus...

Rue's "Little Giant" Injectors, Cheapest and Best Boiler Feeder in the market.

Brown's Coalyard Quarry & Contractors' Apparatus for hoisting and conveying material by iron cable.

Parties needing estimates for Machinery of any kind, call on, or address, W. L. Chase & Co.

Iron Steam Boxes for Steam Bolts & Veneer cutting Machines.

Partners Wanted—We want to find one or two good careful Managers who have capital...

For Solid Emery Wheels and Machinery, send to the Union Stone Co.

For best Presses, Dies and Fruit Can Tools Bliss & Williams, cor. of Plymouth & Jay, Brooklyn, N. Y.

Best Steam Traps made, non-freezing. Scotch Tubes and Engineers' Supplies, &c.

Steam Fire Engines, R. J. Gould, Newark, N. J.

All Fruit-can Tools, Ferracuta, Bridgeton, N. J. Lathes, Planers, Drills, Milling and Index Machines.

For Solid Wrought-Iron Beams, etc., see advertisement. Address Union Iron Mills, Pittsburgh, Pa.

Temples and Oilcans, Draper, Hopedale, Mass. Hydraulic Presses and Jacks, new and second hand.

Peck's Patent Drop Press. For circulars, address Milo Peck & Co., New Haven, Conn.

Small Tools and Gear Wheels for Models. List free. Goodnow & Wightman, 23 Cornhill, Boston, Ms.



A. E. C. can repair his meerschaut pipe by following the directions on p. 90, vol. 30. J. F. and others will find explicit information on the subject of sumac in any good work on botany.

C. H. F. says: 1. In a self-feeding stove, the pipe runs 8 feet horizontally from the stove, and then some 12 feet perpendicular into the garret...

J. E. W. asks: 1. Why can a gimlet pointed screw be driven more easily with a long screw driver than with a short one?

F. D. asks: 1. How can I get a good spring temper on steel wire? A. Temper in oil.

F. F. R. asks: 1. Will a common horseshoe magnet, if bent straight, have the same qualities as a compass needle...

C. A. W. says: 1. It seems to me that, in the present state of steam engineering, there ought to be rules for the construction of slide valves...

L. W. M. says: We conduct escape steam through our building with tin pipe, for heating purposes. The pipe is not painted inside.

R. H. says: In a shop heated with exhaust steam, conveyed through pipes made of galvanized iron, the heat does not seem to radiate...

W. asks: In estimating the heating surface of a vertical boiler, should the surface of those parts of the tubes be measured which project above the surface of the water...

T. J. McM. asks: How can I divide a given straight line into two parts, so that the square on one of the parts may be double of the square on the other?

T. C. W. asks: 1. Can you give me a recipe for making blackberry wine? A. Cook the berries slightly; let them stand until the next day.

E. E. B. asks: What course of study is necessary for a civil engineer? What books are necessary, and where can they be procured?

A. S. asks: How can I stop the leak in an aquarium? One of the glasses is cracked. A. Probably you can stop the leak by the use of marine glue.

T. E. asks: How can I ascertain the amount of any given element in any given mineral, for instance the lead in galena, or the zinc in blende?

R. C. G. asks: How can I tin pieces of iron wire? I have tried dipping them in melted tin, but cannot prevent their sticking together.

C. D. says: We have a private telegraph. My station would not work; upon seeking for the cause the copper insulated wire (running from the street wire into my cellar) was found corroded at the two ends of the cellar window where it touched the brick wall.

J. M. D. asks: What will be the advantage of inserting a 3/4 inch pipe into each end of a cylinder thereby making direct communication from one end to the other?

H. F. M. asks: 1. How many feet to the mile are there in a grade of three degrees?

G. R. E. says: 1. In your article on the initial velocity of projectiles on p. 400, vol. 29, you say that the circuit of the battery of the Bouton instrument can be closed or broken at will by means of a disjuncter.

G. E. W. asks: Is not the curvature of the earth for the first mile nearer six and a half than eight inches? Reckoning diameter eight thousand, and circumference twenty-five thousand miles...

L. W. M. says: We conduct escape steam through our building with tin pipe, for heating purposes. The pipe is not painted inside.

E. P. C. asks: In Bourne's mode of setting the eccentrics, what is meant by "the center of the eccentrics"?

A. B. D. asks: 1. What will remove black worms from the face? A. Friction with a rough towel has been highly recommended by some of our correspondents.

A. C. E. says: 1. I have a small library of about 400 volumes which I wish to arrange and catalogue. What is a good method for so doing?

J. G. asks: Why will a hollow cast iron cylinder sweat on the inside when a flame of illuminating gas is turned into it for heating purposes?

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