

but only the current induced by the diaphragm, is a positive, then a negative, current sent in the same direction, or a positive in one direction, then a negative in the other direction, for each motion of the diaphragm?

(19) R. S. asks: What is the difference between a German "loth" and an American ounce, or between a German and an American pound?

(20) R. A. S. asks: 1. Will you please tell me how high water will run in a siphon? A. About as high as it can be drawn with a pump, 26 or 28 feet.

(21) "Tinsmith" asks: 1. What is the difference between "coke tin plate" and "charcoal tin plate"?

(22) W. P. H. asks: 1. What kind of metal will demagnetize a horseshoe magnet? A. We know of none.

(23) G. T. asks: 1. Which is best, a 6 inch bi-convex or bi-concave, to view pictures in a box? A. The bi-convex.

(24) C. F. asks: 1. Would the galvanometer be deflected by a coil of wire that surrounds a strong bar magnet? A. Yes, if the bar were inserted or removed.

(25) S. Z. asks: 1. How can be determined the augmenting power of any microscope? A. It is found by dividing the minimum distance of distinct vision with the naked eye by the focal length of the lens or combination of lenses.

(26) A. F. H.—A new and useful combination is patentable though its elements are old, if the result of the combination is the product of the co-operative action of its elements, and not a mere aggregation of several results, each the separate product of one of the elements or groups of elements.

(27) A. asks: Would it be any advantage for a locomotive to have a glass gauge. Provided there were plenty of gauge cocks in proper places, would it assist an engineer to prevent his crown sheet from being burnt?

(28) C. K. asks what kind of a book to get to study cam motion, leverage, and mill gearing. A. Box on "Mill Gearing," and Fairbarin on "Mills and Mill Work."

(29) E. S. writes: I have tried to melt brass in a crucible in a common hard coal stove, but it would not melt, and not having a forge, I intend to make a small furnace to melt about 1 to 2 lbs. of brass.

(30) E. N. asks: Where shall I place a weight on a safety valve lever in order that the steam blow off at 80 lbs. pressure per square inch in the boiler? Diameter of valve is 2 1/4 inches, and weighs 2 lbs.; the lever is 3 1/2 inches from fulcrum to valve stem, and weighs 6 lbs.

(31) A. P. F. asks: Will a safety valve work well with a steel coil wire spring on top of valve exposed to heat of steam as soon as valve rises? We have one in that shape on steam fire engine, and when the steam raises the valve it will blow down the pressure 40 or 50 lbs., unless screwed down to get more tension on the spring; and if screwed down when hot from steam blowing off, will not rise until the pressure runs up 40 or 50 lbs.

(32) J. H. asks: 1. In what number and volume of the SCIENTIFIC AMERICAN is the diagram of Haeckel's theory of evolution? A. See vol. 34, p. 167. 2. In Knight's Mechanical Dictionary, page 90, an ammonia engine is described requiring only one quarter the fuel to gain the same pressure of steam.

(33) J. W. F. asks the number of gallons a still will hold, 6 feet in diameter, 25 feet long, filled to a depth of 54 inches. Still is set horizontal. A. 4,254 standard gallons nearly.

(34) J. R. F.—You will find an excellent article on the use of petroleum in steam boilers in SCIENTIFIC AMERICAN SUPPLEMENT, No. 82.

(35) C. K. asks what end of a telephone coil to attach to zinc pole of battery, in order to have the current increase the magnetism, when telephone and sounder of a Morse instrument are used on same circuit.

(36) F. A. M. asks: 1. Has either the Bell or Gray telephone been operated over the Atlantic cable? A. No. 2. What obstacles, if any, would there be to the success of such an experiment?

MINERALS, ETC.—Specimens have been received from the following correspondents, and examined, with the results stated: G. P. H.—It is a deposit of carbonate of lime, containing a small amount of phosphoric acid.

COMMUNICATIONS RECEIVED. Gary's Perpetual Motion and Neutral Line. We have at hand a few communications on the above, among them a column from Mr. Gary.

INDEX OF INVENTIONS FOR WHICH Letters Patent of the United States were Granted in the Week Ending April 15, 1879, AND EACH BEARING THAT DATE.

Table listing inventions granted patents, including items like 'Loom shuttle, T. E. Roberts', 'Loom temple burr roll, Prouty & Sprague', 'Lubricator, C. H. Parshall', etc.

Table listing inventions granted patents, including items like 'Centrifugal machine, Walker & Patterson', 'Chains, link for drive, C. W. Levalley', 'Cheese hoop, G. L. Freeman', etc.

Table listing inventions granted patents, including items like 'Sewer gas trap, P. Mihan', 'Sewing machine, J. Bigelow', 'Sewing machine treadle, Von Cort & Shepherd', etc.