

only could not have been so great as 84 tons; this weight probably included water in boiler and the tender with water and coal.

(4) W. C. J. writes: I have been experimenting on a plan for a steam gauge; I find it works well and cannot get out of order.

(5) C. W. K. writes: I wish to ascertain if there is any rule for finding the quantity of canal coal consumed, with the following data:

(6) "Subscriber" asks if it be safe to use an engine with 80 lbs. steam, the cylinder being little less than 1/2 inch thick the thinnest part.

(7) C. F. writes: It is said that 2 inch pipe will not discharge any more water under the same head than as many 1/2 inch pipes, said 1/2 inch pipes holding the same amount of water.

(8) D. K. E. asks: 1. Could a small steam engine (screw propeller) be put into an ordinary row boat 16x3 1/2 feet?

(9) J. N. L. asks: Is a 1 1/2 steam pipe sufficient to run a 9 inch cylinder, 16 inches stroke, steam engine to full capacity?

(10) E. J. C.—For information on artificial incubation see SCIENTIFIC AMERICAN SUPPLEMENT, No. 54.

(11) J. L. C. writes: I have a tank in my house supplied with water which communicates with a tank 101 feet off in a direct line by a pipe with 1 1/4 inch bore; the pipe goes down perpendicularly 3 1/2 feet from the house tank and up perpendicularly 5 1/4 feet into the outside tank;

(12) J. L. R. asks: 1. Which will yield the greatest amount of heat: 1 lb. of best coal, or 1 lb. of alcohol when burned to best advantage?

(13) S. C. C. asks: When a train of cars are rounding a curve, on which rail is the greater weight thrown, the inside or outside one?

(14) J. A. H. asks: What can I use to prevent the forming of scales in a boiler? I am compelled to use water from a well which furnishes lime water.

(15) A. H. G. writes: You say in your issue of January 4th, 1879, in obtaining horse power of an engine, multiply area of piston, by pressure of steam, by length of stroke in feet, by double the number of revolutions.

(16) J. H. R. asks: What is the number of threads to the inch in steam pipe? A.:

Table with 2 columns: Inside diameter of pipe, Threads per inch. Values range from 1/2 inch to 3 1/2 inch diameter.

(17) S. B. & H. W. ask why rotary engines are not more used. A. It is very difficult to keep them tight under continuous use, and in most of them steam cannot be worked expansively, therefore they are not economical.

(18) J. C. asks (1) if there is any way of keeping a cylinder, while in motion, and heated by steam, free from condensation.

(19) A. M. U. asks for a correct method for laying out a cog or spur wheel. A. See SCIENTIFIC AMERICAN, vol. 38, pp. 36 and 149.

MINERALS, ETC.—Specimens have been received from the following correspondents, and examined, with the results stated:

H. M. H.—The bead contains copper, lead, antimony, traces of bismuth, and silver. The crystals are anhydrite calcium sulphate.—I. B. R.—It is galena—lead sulphide. It probably contains a small quantity of silver.

COMMUNICATIONS RECEIVED.

Fence. By G. T. B. On the Wagon Wheel Question. By G. S. W. On the Gary Motor. By C. H. H.

[OFFICIAL.]

INDEX OF INVENTIONS FOR WHICH Letters Patent of the United States were Granted in the Week Ending March 4, 1879, AND EACH BEARING THAT DATE.

[Those marked (r) are reissued patents.] A complete copy of any patent in the annexed list, including both the specifications and drawings, will be furnished from this office for one dollar.

Table listing inventions with names and dates. Includes items like Air brake relief valve, Amalgamator, Animal trap, Axle nut, etc.

Table listing inventions with names and dates. Includes items like Cart body, Casting steel, Check register, Chuck, Clothes line support, etc.

TRADE MARKS.

Table listing trade marks with names and dates. Includes items like Ales, W. A. Miles & Co., Baking powder, Blood purifying medicines, etc.

DESIGNS.

Table listing designs with names and dates. Includes items like Boxes, A. Wuensch, Carpet, J. Forrester, Carpet, J. Campbell, etc.

English Patents Issued to Americans.

Table listing English patents issued to Americans with names and dates. Includes items like Bird cages, O. W. Taft, Chair, G. W. Archer, Carding engines, B. S. Roy, etc.