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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 This is for our information and not for publication.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.

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(6143) E. A. C. says: Given an old-fashioned breast water wheel 8 feet diameter, head and fall 6 feet, gate about 12 inches under top of water, what would be the proper speed of wheel at circumference? or the number of revolutions per minute to get best effect of water? A. The wheel should have one-half the rim speed due to the velocity of the water under the gate head, which is 8 feet per second theoretically, but practically only 6 feet. The wheel rim for best effect should have a velocity of feet per second, or 7½ revolutions per minute.

(6144) G. H. F. writes: Will you kindly decide a matter between A. and B.? A. asserts that the receiver of a rain gauge placed horizontal, gathers all the rainfall, even though the wind deflects the rainfall 45 degrees. B. claims such deflection (45 degrees) would cause a large portion of the rainfall to go over the receiver, as a less area would be presented to catch the rain. Which is right, and why? A. B. is correct. The effect of a slanting rain on the actual rain catch is the same as if the gauge was turned up to an equal angle for a vertical rainfall. The difference in area of gauge is equal to the difference of area between a circle and an ellipse, proportioned on the angle of descent of the rain drops.

(6145) F. J. H. asks: What is the best way to learn to read mechanical drawings? Is there any book that will give this information to one who does not care to take a course in drawing? A. There is no better way of learning to properly and correctly interpret the exact meaning of mechanical drawings than by making a study of mechanics and practice in drawing. Familiarity with drawings and personal explanation of their meaning from a draughtsman will do much to give you a general idea of the methods of expression in mechanical draughting, but it is only a superficial education. You can also do much toward this yourself by a study of books on draughting.

(6146) F. E. D. says: To settle a dispute will you please answer through your paper which has the most traction surface on the rail, a locomotive with 3½ feet drive wheel or one with 7 feet driver, the weight being the same? A. The larger wheel has the largest bearing surface, but as surface does not count in friction with a given weight, the smaller wheel will have slightly the greatest pull because of the increased bite on the rail, due to smaller bearing surface.

(6147) R. P. J. asks: 1. What should be the specific gravity of the liquid in storage battery? A. Uncharged 1·170; charged 1·210. 2. How long should 26 cells, each 4 plates, 4 inches by 5 inches, light one 16 candle power 50 volt lamp? A. Ten hours.

(6148) L. L. Y. asks: Please tell me how the gear of bicycles is calculated? A. Divide the number of teeth on the large sprocket by the number on the small, and multiply the quotient by the diameter of the driving wheel.

(6149) O. L. S. asks: 1. A says that No. 12 wire has only twelve times more electrical carrying capacity than No. 36 wire. B says that the electrical carrying capacity of No. 12 wire is more than twelve times greater than that of No. 36. Which is right? A. No. 36 wire, 0·04 ampere; No. 12 wire, 10·2 amperes. 2. What number of Crowfoot battery cells would be required to fuse No. 12 wire? A. It depends on the material of the wire and its length. In any case it would be a very large number. For copper wire allow.

Communications Received.

"On Mr. Garner and Simian Speech."

"On Nature's Most Invincible Creatures." By E. M. A.

"On a Sunken Double Tubular Railway Across the English Channel."

"On Isaac Pitman." By S. M. M.

"On the Black Calla." By B. L. P.

"On Reduction of Car Weight." By S. E. W.

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