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 This is for our information and not for publication.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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(9171) G. G. P. W. asks: Will you please answer the following question: Whether it ever blows so hard that a sea cannot rise. A. If a wind of a certain velocity will raise a sea of a certain height, a wind of a higher velocity will raise the sea higher. There is no velocity at which the effect of the wind would reverse itself and prevent the sea from rising. Such an idea is absurd. If the sea is running high and a wind arises which blows against the sea, it will soon beat it down, but will raise a sea in the direction of the wind very scon afterward.

(9172) E. A. E. says: In an explosive engine of the gasoline type, what would you consider essential to reach perfection? Cut-off where? When to explode? How soon after exploding should exhaust open? Why not use a double-ended cylinder, assuming such to be possible? When hydrogen gas is exploded, what is the name of the resulting gas? What is its relative gravity compared with hydrogen? What caloric energy does it possess? A. In reply to your question, we would say that, in an explosive engine of the gasoline type, the explosion should occur at the end of the compression, just as the piston is starting on its forward stroke. If the mixture of the gases is weak, so that an appreciable amount of time is necessary for the combustion to be completed, ignition should take place just a trifle before the engine reaches the dead point. If the exhaust valve is of sufficient size and the valve motion properly designed so that the burnt gases can be rapidly expelled from the cylinder, the exhaust valve should not open until just a trifle before the engine is on the forward dead point. It should open in time to allow the gases to escape sufficiently to bring the pressure almost to the atmospheric pressure before the piston starts on its return stroke. By cut-off we assume you mean the closing of the admission gases. This should not take place until the end of the stroke with the ordinary type of gasoline engine, because it is desirable to have a cylinderful of air and gasoline before the compression begins. A double-ended cylinder is not desirable in a gasoline engine of the ordinary type, because it very much increases the difficulty of keeping the engine cylinder cool and properly lubricated. It also complicates the valve mechanism. When hydrogen gas is burned or exploded in air, it forms H_2O, which is the chemical symbol for water. The temperature at the time the water is formed is always so high as to cause it to exist as steam. After this steam is sufficiently cool, however, it condenses into water. When one pound of hydrogen is burned, it produces 62,000 British thermal units. The resulting gas (steam) is nine times as heavy as hydrogen under the same pressure and temperature so long as the temperature is high enough to keep it in the state of a gas.

(9173) G. N. asks: Would it be possible to use a spark coil in wireless telegraphy? Can two powerful dry batteries be used for wireless telegraphy a distance of 50 feet provided a sensitive receiver is used? A. For wireless telegraphy an induction coil is required which has a primary and a secondary winding. These are properly called spark coils, but often a coil with only one winding is also called a spark coil. These will not transmit in good shape. With a sensitive receiver a coil giving a half-inch spark will transmit to a distance of 50 to 100 feet.

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Shafts, device for regulating the motion of rotary, Herrick & Rogers 737,627
Sheet metal can, I. E. Sexton 737,971
Shell, L. G. Roach 737,964
Shirt waist holder and skirt supporter, E. G. Brown 737,821
Shoe, ankle supporting, A. Posner 737,959
Shoe, sporting, D. J. Golden 737,920
Shoemaker's ironing device, Hayden & Packard 737,926
Shovel attachment, E. B. O'Connor 738,057
Shuttle and shuttle eye, P. P. Daudelin 737,714
Sifter, ash, W. H. Boyle 737,699
Skirt supporter, L. H. Flory 738,021
Snap hook, G. H. Steele 737,790
Socket wrench, C. E. Crattlof 737,902
Soda and barium sulphate, producing caustic, C. B. Jacobs 737,740
Sole for shoes, detachable, J. P. Steele 737,880
Spanner wrench, adjustable, J. C. Dufresne .. 738,015
Spark arrester, H. S. Wainwright 737,797
737,799 to 737,803
Speer regulator, W. C. Runge 738,125
Spinning frames, shipper lock for, H. A. & O. L. Owen 737,864
Springs, end clip or bearing plate for semi-elliptic, J. H. Evans 737,590
Stacker, hay, W. H. Robbins 737,663
Stanchion, cattle, J. H. M. Thompson 737,884
Stand. See Flower pot stand
Steam generator, H. J. Fisher 737,727
Steam generator, R. Schulz 737,782
Steam generator, E. J. Wood 738,143
Still, W. Maybury 737,756
Stitching and trimming machine, blind, McNeil & Sturtevant 738,054