



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 This is for our information and not for publication.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. Buyers wishing to purchase any article not advertised in our columns will be furnished with addresses of houses manufacturing or carrying the same. Special Written Information on matters of personal rather than general interest cannot be expected without remuneration. Scientific American Supplements referred to may be had at the office. Price 10 cents each. Books referred to promptly supplied on receipt of price. Minerals sent for examination should be distinctly marked or labeled.

(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 soon 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 H2O, 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.

INDEX OF INVENTIONS

For which Letters Patent of the United States were Issued for the Week Ending September 1, 1903, AND EACH BEARING THAT DATE.

[See note at end of list about copies of these patents.]

Abbrading shoe, J. M. Griffin 738,029 Acid apparatus for manufacturing sulphuric, J. B. F. Herreshoff 737,626 Acid, making sulphuric, J. B. F. Herreshoff 737,625 Aerial navigation, machine for, I. I. Morris 737,947 Air and water heating apparatus, C. H. Atkins 737,562

Table listing inventions with titles and page numbers. Includes items like 'Air or other similar brake, compressed, A. Chaboumont', 'Amusement apparatus, J. H. Maguire', 'Artillery heavy field, T. D. Smythe', etc.

Table listing inventions with titles and page numbers. Includes items like 'Embroidery frame, P. H. Walt', 'Engine, A. F. Hall', 'Engine igniter, gas, F. G. Hall', etc.

Table listing inventions with titles and page numbers. Includes items like 'Metronome, J. Brady', 'Milk pans, knee rest for, N. Huckins', 'Mixing apparatus, D. T. Sharples', etc.

Table listing inventions with titles and page numbers. Includes items like 'Mop, W. G. Browne', 'Mowing machine, O. Ellison', 'Mowing machine, A. T. Haynes', etc.

A	
5 Acres, (48 Lots) Cost	\$ 12,500.00
47 Lots sold for	22,992.50
1 Lot on hand worth	4,150.00
Profit	23,467.50
	10,967.50

B	
20 Acres, (192 Lots) Cost	\$ 40,000.00
176 Lots sold for	83,210.75
16 " on hand worth	7,275.00
Profit	50,485.75

C	
5 Acres, (48 Lots) Cost	\$ 6,389.16
39 Lots sold for	25,439.50
9 " on hand worth	5,500.00
Profit	24,550.34

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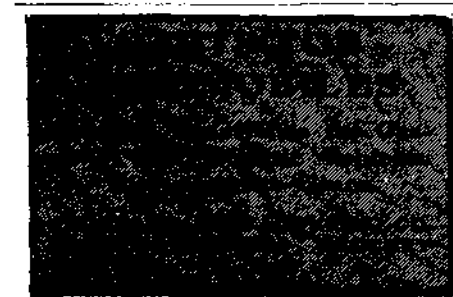
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Stovepipe fastener, R. H. Hodge	738,038
Stoves or ranges, tea shelf for cooking, W. A. Spicer	737,871
Strainer, feed-pipe, Vauclain & Greenough	738,088
Straining device, automatic, M. I. Lowry	737,752
Stump puller, F. M. Hawkins	737,925
Suspender trimming, E. R. Spencer	738,081
Suspending device, C. M. Piel	737,859
Switch operating mechanism, A. A. Tripold	737,885
Syringe pipe, V. C. Van't Woud	737,795
Table leg fastening, J. H. Robbins	738,124
Tablet and copy holder, combined writing, Loveless & Mulligan	738,049
Tag, shipping, J. C. Kimsey	738,042
Talking machine sound box, E. D. Gleason	737,733
Tap blanks, making, F. N. Gardner	737,833
Telephone drop switch, G. L. Gulliford	737,922
Telephone exchange system, W. M. Davis	737,715
Telephone receiver support, E. Bass	737,894
Telephone system, anti-induction method for, Condon & Barrett	737,710
Telephone systems, anti-induction method for, Condon & Barrett	737,710
Telescope, G. N. Saegmuller	737,872
Thermometer and making same, shielded clinical, S. C. Hirschberg	737,838
Thill support, U. C. Oblosser	738,121
Thresher, traveling, M. Ereckson	737,598
Threshing machine, H. Bethuy	737,898
Tie plate and rail brace, J. A. Cystrom	737,701
Tile, etc., glass facing, E. F. Chance	737,707
Tile making machine, W. A. Houts	737,841
Tiles, appliance for forming designs with, W. F. Meeker	738,051
Tire, E. B. Cadwell	737,702
Tire for vehicles, elastic, W. Balassa	737,816
Tire vehicle, A. Prinzhorn	738,064
Tool, combination, A. A. Waymire	738,130
Torpedo, railway, E. S. Lafferty	738,112
Toy, S. E. Miller	737,787
Toy, L. A. Allard	737,992
Transom lifter, T. A. Reidy	738,123
Tripod head, A. Marceau	737,755
Trolley, Nicholls & Smith	738,056
Trolley wheel, resilient multiple contact, E. S. Cobb	737,582
Trousers hanger, S. W. Bonsall	737,569
Trowel handle, detachable, F. H. Feraud	737,831
Truck, brick, G. Barrall	737,564
Truck, traction, H. H. Schenck	737,778
Trucks, constructing or forming car, Wright & Stebbins	737,810
Trunk rest, J. Willy	738,139
Tubes or rods, machine for profiling non-circular, J. Reimann	738,067
Tubing locking mechanism, telescoping, P. A. Bowen	737,570
Tumbler grinding machine, W. F. Altenbaugh	737,811
Turbine actuated by steam, J. W. Graydon	737,734
Turpentine, apparatus for the manufacture of, Billinger & Hallock	737,994
Twine holder, Peterson & Thompson	737,957
Typewriter actions, support for links of, O. C. Kayle	737,742
Typewriter machine, C. H. Shepard	737,786
Typewriter machine billing platen, J. A. Smith	737,877
Typewriter machine car or sheet holder, H. J. Halle	737,735
Typewriter machine card or sheet platen, H. F. Eckert	737,721
Umbrella runner and holder, J. H. Shepherd	737,787
Vaccine and preparing same, L. R. Parsons	737,656
Valve, J. B. Waring	737,681
Valve for water heaters, L. A. Krab	737,744
Valve, hopper closet, R. N. Gill	738,028

(Continued on page 195.)

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