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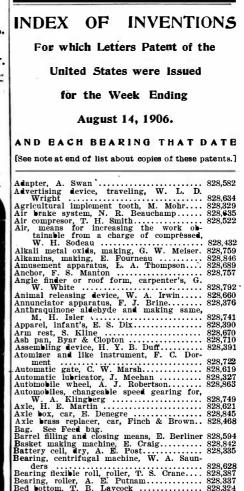
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Or is there any compensating strength given by electric welding or otherwise, to prevent the blowing off of the breech? A. At the moment of explosion, the pressure on the sides of the powder chamber, on the breech and at the base of the shell, is uniform per unit of area. The advantage of the wire-wound system is that the wire possesses a considerably greater tensile strength per square inch of section than the hoops used in the ordinary hooped system of construction, and there is also more certainty as to absence of flaws. Sufficient longitudinal strength has been secured in the latest guns by the use of powerful reinforcing hoops. Electric welding would decrease the strength of the gun if it were applied to the whole mass of wire winding.

(10096) W. V. says: 1. Will you please give a receipt for softening chilled cast iron castings so as to be able to drill or file same easily? A. Chilled cast iron can be drilled by the use of specially-constructed drills, or the chilled part of the casting can be made soft by packing in red hematite in pots or boxes, from which the air is completely ex-cluded, and heating them for a prolonged period. 2. Give a receipt for brazing cast iron. A. With reference to brazing cast iron, we would say that it is difficult for one who has not had a great deal of experience in doing this work to make a satisfactory job. It is necessary to file or grind the ends of the pieces of cast iron, so that they will make a proper scarfed lap-joint. Be sure that the surfaces are perfectly clean and bright. Use powdered resin as a flux and hard solder. When all is in readiness, apply the flux to the joint, put on a few small pieces of the solder and grip the joint tightly with a pair of blacksmith's tongs, the jaws of which have been heated to a bright red heat. The heat in the tongs is sufficient to braze the joint.

(10097) W. A. L. asks: Is there any other metal that can be used in a gravity bat tery besides zinc that will not dissolve? A. There is no way of obtaining electricity without using up some material. In the dynamo steam or water power is employed. In the bat-tery we usually burn up zinc. It is just as impossible to produce electricity without a disappearance of some other form of energy as it is to heat a house and still have the coal, or cool a refrigerator and still have the ice.





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(10093) J. O. D. says: Do you publish an Encyclopedia of Receipts and a book on patent laws? A. We recommend and can supply you with the "Scientific American Cyclopedia of Receipts, Notes and Queries,' last edition containing 15,000 receipts, 736 pages, cloth bound, price \$5: Our "Scientific American Reference Book," price \$1.50, gives the patent laws. Always give full name and address when corresponding.

(10094) Constant Reader says: A constant reader wishes to know if bodies drowned in the middle of the ocean will sink to the



bottom of the ocean, or remain stationary at a certain depth. You will oblige me greatly by answering these questions in your valuable paper. A. We do not answer unsigned communications as a rule. Always send your name and address. The name will not be published. The probability is that bodies would sink to the bottom, unless it was very deep. The specific gravity of the body is so nearly that of water, that slight water currents might keep it from sinking to the bottom. It would not stay there very long. however, as decomposition would produce gases which would distend the body and lower its specific gravity, and eventually bring it to the top.

(10095) J. G. B. says: I was much interested in your description, a few weeks ago, of the wire-wound gun, and I would like to ask if the exploding gases do not exert the same force between shot and the breech as they do between the sides of the gun; if so, where is the advantage of this form of gun?

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