



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 This is for our information and not for publication.

(9157) R. A. N. says: 1. What apparatus is necessary to install telephone apparatus on a telegraph line? We wish to use only transmitters and receivers and such other as is necessary, using the telegraph battery as battery for the telephone.

2. There is another telephone line on our poles; why is it that we can hear them talking while the lines are 18 inches apart? A. What you hear from one line to another is called "cross talk."

3. When the lines get crossed we can hear them talk by putting an ear close to the sounder. Why is it? A. The sounder of a telegraph has long been known to be able to receive a telephone message. It is because the sounder is affected by the waves and vibrates just as the diaphragm of the receiver does.

(9158) M. E. C. asks: I wish to put a telephone line from our house to one of our greenhouses a distance of about 320 feet. Will you please tell me the best way of running the wires underground? Are the lead-in wires durable enough to be buried directly in the ground or should they be run through pipes? A. The lead-in cables can be run by laying them directly in the earth. They are very durable unless a break occurs in the sheath.

(9159) A. H. F. says: I would like for you to answer these inquiries either by letter or through your Notes and Queries column. I would like to know at what speed a trolley can be run constantly or can it be run at the rate of 60 or 70 miles an hour, with stops at about 35 or 45 miles, without injury to the wires or trolley contacts, such as pulleys. I think it is impossible to run a trolley and keep proper contact at the rate as stated above. Can you tell me what line and where the highest speed is run and what distance runs are made without stops of about 35 or 45 miles? A. Trolley cars can be run constantly at any speed which they can attain at any time, if the roadway is safe and there is no break-down. There is nothing to prevent this in the trolley wheel or shoe of the contact with the third rail. Forty to fifty miles per hour has often been made for a short time, but cannot be maintained on any road because of stops and grade crossings with highways. An experimental track is in existence in Germany upon which over 100 miles an hour has been made. If there was any need of such a road electrical engineers would undertake to build and operate an express road with 60 miles per hour and stops at any interval desired. But there is no one to put up the capital for such a road, since it is not needed at present.

(9160) J. E. J. says: There are several gasoline engines in this town and the spark or battery gives us more trouble than a little. Will you please answer in Notes and Queries what is the best battery, liquid or dry, for a small (1 1/2 horse power) engine. Have you a SUPPLEMENT that gives full information? A. Dry cells are usually employed for sparking gasoline engines. See Hiscox's "Gas Engines" for a full treatment of the matter; price \$2.50 by mail.

NEW BOOKS, ETC.

CHEMISCH-TECHNISCHES REZEPTBUCH FUER DIE GESAMTE METALLINDUSTRIE. Von Heinrich Bergmann. Vienna: A. Hartleben. 1903. 12mo. Pp. 327. Price, \$1.50.

Mr. Bergmann has collected a great number of recipes which should be of value to the metallurgist, particularly since the recipes which he has gathered are such as have proven themselves of practical value.

EMERY GRINDING MACHINERY. A Text Book of Workshop Practice in General Tool Grinding and the Design, Construction, and Application of the Machines Employed. By R. B. Hodgson, A.M., I.M.E. London: Charles Griffin & Co., Ltd. Philadelphia: J. B. Lippincott Company. 1903. 12mo. Pp. 180.

An emery grinder is one of the most useful tools a shop can have, especially as a money saver. The present volume is an admirable contribution to the literature of money machine shop work. Unlike many English technical books, American practice is far from being neglected, and many of the best American types are shown.

WOOD. A Manual of the Natural History and Industrial Applications of the Timbers of Commerce. By G. S. Boulger, F.L.S., etc. London: Edward Arnold. New York: Longmans, Green & Co. 1902. 16mo. Pp. 369. 66 illustrations, 3 plates. Price, \$2.60.

About 750 woods are enumerated in this excellent book, including most of those which are practically known in general commerce. The information is of a very practical nature, dealing with the weights of wood, their hardness and color, odors and resonance, the defects of wood, seasoning of wood, the uses of wood, and a complete catalogue and an excellent bibliography.

INDEX OF INVENTIONS

For which Letters Patent of the United States were Issued for the Week Ending August 11, 1903.

AND EACH BEARING THAT DATE.

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

Table listing inventions with names and patent numbers. Includes entries like 'Acids, apparatus for making sulphuric or other, J. G. Graham', 'Advertising novelty, W. A. Demmon', 'Aerated liquid dispensing apparatus, J. J. McLaughlin', etc.

Table listing inventions with names and patent numbers. Includes entries like 'Brush-back drilling and filing machine, C. E. Klemming', 'Brush, electric, C. T. Richmond', 'Building block, H. E. Goodwin', etc.

Table listing inventions with names and patent numbers. Includes entries like 'Feet, device for preventing flat, C. L. Darby', 'Fence, D. F. Beard', 'Fence feeder and crimper, wire, M. D. Taylor', etc.