

## Answers to Correspondents.

**CORRESPONDENTS** who expect to receive answers to their letters must, in all cases, sign their names. We have a right to know those who seek information from us, besides, as sometimes happens, we may prefer to address the correspondent by mail.

**SPECIAL NOTE.**—This column is designed for the general interest and instruction of our readers, not for gratuitous replies to questions of a purely business or personal nature. We will publish such inquiries, however, when paid for as advertisements at \$1.00 a line, under the head of "Business and Personal."

All reference to back numbers should be by volume and page.

**A. A. S., of Boston.**—Why is spruce better than other woods for sound-boards? Because on account of peculiarities in its texture it is more sonorous at first and tends to become more so by use, its resinous matter probably being eliminated to some extent by continued vibration.

**W. M., of Minneapolis.**—What is the object of thumbing the vent while loading cannon? It is to prevent fragments of cartridge remaining in the gun, from being fanned into flame by currents of air.

**E. H., of Mo.**—All other things being equal the conductive power of lightning rods increase with the areas of their cross sections. Your conductors are not of the proper shape to insure the greatest efficiency, and they are not properly insulated.

**L. H. S., of N. Y.**—Your idea is not new and it is for many reasons impracticable.

**A. F. A., of Albany, N. Y.**—The water line of a vessel, in order to secure the greatest speed with the least expenditure of force, should form such a curve that the closing together of the water after displacement should tend to accelerate its motion, rather than to retard it. A water line of the shape you propose, would not admit of such acceleration.

**W. A. E., of Va.**—What is the object of making the hind-wheels of a wagon higher than the others? To bring the hind boister to a level with the front one, and to raise the box so as to let the fore wheels under in turning. The question would be more to the point if you asked the reason why the fore wheels were smaller than the hind ones.

**G. H. P., of N. Y.**—To tin small castings, clean them and boil them with scraps of block tin in a solution of cream of tartar. To copper them, clean and dip in a solution of blue vitriol.

**R. A., of Pa., says:** "In your reply to J. B. F., of R. I., page 39, current volume, you say, in a suction pump the pressure of the atmosphere can raise the water about 30 feet without mechanical power; the conclusion is obvious. What do you mean by this? Will the lift pump require the necessary force to raise a column of water 30 feet high and the suction pump require no force to do the same work if the bucket is 30 feet above the water? Would it not require the same power to lift a column of water 30 feet high whether the pump is lifting or suction?" If our correspondent would read carefully the paper he would find that his inquiries are fully answered. On page 23 of the same volume to which he refers a complete answer is given to his query. Sometimes it is necessary to answer twice on the same subject to meet the demands of correspondents.

**S. H. of Pa.**—The increase of the pipe at the upper end would increase the flow, but to calculate the percentage of increase would take too much of our time. You should apply to a hydraulic engineer.

**A. S. P., of Ohio.**—After you have exhausted the air from an air-tight box, it would rise providing it was lighter than the atmosphere, —not otherwise.

**C. H. H., of Mass.**—We have not kept the address of the party who made the inquiry, therefore we cannot comply with your request.

**J. S. M., of Me.**—We are not responsible for the statement to which you refer. You will notice that it is credited to the Times' correspondent.

**J. B., of Mass.**—We are of the opinion that the device by which you propose to regulate the expansion and contraction of the balance wheel of a watch, possesses knowledge of a patentable character.

**J. O. B., of Ohio,** says that in railroad repairing much labor and money is uselessly expended in packing the gravel as closely midway between the rails as at the ends of the sleepers, where the weight and wear come. As the gravel is shaken out from under the rails the sleepers are supported mainly at the middle and the road becomes uneven.

**J. B. S., of N. Y.**—There is no foundation whatever for the statement that the notes of birds and insects, the rippling of brooks and waves, the sound of the wind, etc., follow the intervals of the minor scale. It is one of those assertions repeated by some by reason of some supposed authority. Every good musician, with a sharp well cultivated ear, knows that it is utterly untrue, and those familiar with the science of acoustics declare it absurd.

**P. D., of Ohio,** answers, in regard to the inquiry as to the cause of the variation in the watches of railroad men, that the reasons are, 1st, the want of perfect equilibrium in the balance wheel; 2d, deficient adjustment of lever fork, roller jewel, and plate; 3d, escape wheel and pallet lock too hard or too easy. He states that these defects are more common in the fine English escapements than in the American or Swiss watches. When these parts are well adjusted a watch will keep time almost under any circumstances. A thickening of the oil, which may also affect the motion, is also mentioned by this correspondent as being caused by the steam, gas, and heat to which the machinists are exposed.

**P. C., of Ill.**—The sample of copper you sent us was found to contain no traces of silver. Of gold there were traces, but in so small a quantity that it would not pay to take it out. There is no premium offered for the finding of a large mass of copper. Eight pounds is a very small piece,—much larger pieces are frequently sent to this market.

**B. F. H., of Ind.**—It is a fact known to all who have had experience in handling heavy glass tubes that they frequently break, when they have been rubbed on their interior surface. Glass tubes for steam gages should only be cleaned by washing, using hydro chloric or nitric acid, or any other substance that will clean them without the necessity of rubbing. The reason of such fracture is that the glass of these tubes is in state of great tension; the inside surface being stretched, and ready to crack when the least scratch or abrasion is made on its surface. Some standard experiments in natural philosophy illustrate and explain the same thing; for instance, the so-called Bolognese flask and Prince Rupert's glass drops, a description of which may be found in some good text book on physics.

## Business and Personal.

The charge for insertion under this head is one dollar a line.

The patent sweet fern and chemical lacing, as made by J. H. & N. A. Williams, Utica, N. Y., is the best that is made, it will not mildew or become rotten.

Greatest invention of the age—a washing boiler by which clothes are washed in 4 to 6 minutes. A live partner wanted to obtain patent and exhibit at fairs this fall. Address Postoffice Box 209, Cedar Falls, Iowa.

Wanted—a situation by a competent manufacturing chemist of three years' experience in German factories. Address Box 3051, St. Louis.

Manufacturers of goods sold by hardware dealers will please address Daniel Clarke, Ipswich, Mass.;

To machinists—see advertisement of rule for screw cutting.

Where can I get steel casting guards or fingers for harvesters? also, rivets of good quality for the knife sections? also rolled iron finger bars? What is the relative standing, with agricultural men, of the two kinds of harvester rakes, viz: those, like Wood's, called platform rakes which remove the grain at right angles to the cutter bar, or those which remove it parallel to the cutter bar, known as sweep rakes? I. Lancaster, No. 77 N. Paca st. Baltimore, Md.

Wanted—iron foundries to manufacture my patent window curtain fixture. No fitting required. State price per pound. C. F. Knauer, Pittsburgh, Pa.

For sale—the patent right of A. Eagle's machine for mixing compositions. Patented April 16, 1868. Address A. Eagle, 48 Court street, Brooklyn.

Manufacturers of rice cleaners will address M. W. C., care of Leaycraft & Greenfield, New Orleans, with circulars and prices.

For descriptive circular of the best grate bar in use, address Hutchinson & Laurence, No. 8 Dey st., New York.

Parties wishing to contract for first class brass and composition castings, please address Radlon & Bond, Postoffice Box 733, Biddeford, Me.

Wanted—breech-loading shot guns made on contract, royalty, or shares. Address Box 786, Washington, D. C.

Peck's patent drop press. For circulars, address the sole manufacturers, Milo Peck & Co., New Haven, Conn.

A partner wanted—a gentleman of integrity and Christian character—with a capital of \$50,000 to \$100,000, to invest in the perfecting of new machinery. Address L. H. Soule, Mt. Morris, N. Y.

Millstone-dressing diamond machine, simple, effective, and durable. Also, Glazier's diamonds, diamond drills, tools for mining, and other purposes. Send stamp for circular. J. Dickinson, 64 Nassau st., N. Y.

Prang's American chromos for sale at all respectable art stores. Catalogues mailed free by L. Prang & Co., Boston.

For breech-loading shot guns, address C. Parker, Meriden, Ct.

Winans' boiler powder (11 Wall st., N. Y.), 12 years a standard article for preventing incrustations. Beware of imitations and pretended agents.

## NEW PUBLICATIONS.

## ENGINEER'S AND MECHANIC'S POCKET BOOK.

This valuable handbook, edited by Chas. H. Haswell, office No. 6, Bowling Green, New York, has reached its twenty-first edition. We do not hesitate to say that we have never before seen so much valuable information compressed into so small a compass. There is scarcely a subject in the entire range of mechanics, hydraulics, hydrodynamics, steam engineering, and the collateral sciences, that is not practically treated of, in clear and perspicuous style, without those abstract formulas and demonstrations which render large works of no avail to the ordinary mechanic. By the use of its tables a great saving of labor and time in any kind of work in which the principles of mensuration, strength of materials, or ordinary arithmetical computation are involved can be made. Mr. Haswell brings to bear upon his work a knowledge and judgment ripened by experience, and a stock of information gathered from the best sources both in this country and in Europe. The work is bound in flexible morocco covers, with a receptacle for loose memoranda, and a clasp. It should be carried in the pocket of every mechanic. We give it our unqualified commendation.

**METALLURGY OF IRON.** By H. Bauerman, F.G.S. A Treatise, with an Appendix on the Martin Process for Making Steel from the Report of Abram S. Hewitt, U. S. Commissioner to the Universal Exposition at Paris, 1867. First American Edition, revised and enlarged. New York: Virtue & Yorston, 12 Dey street, and D. Van Nostrand, 192 Broadway.

This is an important addition to the stock of technical works published in this country. It embodies the latest facts, discoveries, and processes connected with the manufacture of iron and steel, and should be in the hands of every person interested in the subject, as well as in all technical and scientific libraries.

**THE CRACK SHOT, or the Young Rifleman's Complete Guide,** being a treatise on the use of the rifle, with rudimentary and finishing lessons, including a full description of the latest improved breech-loading weapons, profusely illustrated, and containing rules and regulations for target practice, and directions for hunting game found in the United States and British Provinces, has just been issued by W. A. Townsend & Adams, New York. It will find a welcome place in the knapsacks of many sportsmen who at this season are exchanging the dust and noise of the city for sylvan shades and forest sports.

The **ECLECTIC MAGAZINE** for August is at hand, with its usual amount of rich literary entertainment. The elegant portrait of Hiram Powers, with which it is embellished, is by no means the least of its many attractions. E. R. Pelton, publisher, 108 Fulton street, New York.

**ATLANTIC MONTHLY.**—Ticknor & Fields, Boston. August number just out. For sale by all news dealers.

**PATENT OFFICE ILLUSTRATIONS.**—We are indebted to Messrs E. R. Jewett & Co., publishers, Buffalo, for advance sheets of the Patent Office illustrations from 62,847 to 64,986. This brings the work up to M., 1867.

The sixth number of the **WORKSHOP** is received. We should do violence to our sense of the sterling merit of this publication did we fail to heartily commend it to all lovers of art. The splendid engraving of the Pulpit of the Church of Santa Croce, Florence, by Benedetto da Majano, and its accompanying description, are alone worth the price of the number. Published by E. Steiger, 17 North William street, New York.

## EXTENSION NOTICES.

John Ross, of Brooklyn, N. Y., administrator of the estate of Charles Ross, deceased, having petitioned for the extension of a patent granted to the said Charles Ross the 17th day of October, 1854, for an improvement in grinding surface in mills, for seven years from the expiration of said patent, which takes place on the 17th day of October, 1868, it is ordered that the said petition be heard at the Patent Office on Monday, the 23rd day of September next.

Abigail L. Webster, of Binghamton, N. Y., administratrix of the estate of Benjamin B. Webster, deceased, having petitioned for the extension of a patent granted to the said Benjamin B. Webster the 3d day of October, 1854, for an improvement in musketo curtains, for seven years from the expiration of said patent, which takes place on the 3d day of October, 1868, it is ordered that the said petition be heard at the Patent Office on Monday, the 21st day of September next.

Samuel Van Syckel, of Titusville, Pa., having petitioned for the extension of a patent granted to him the 31st day of October, 1854, and reissued the 9th day of June, 1868, for an improvement in grate bars, for seven years from the expiration of said patent, which takes place on the 31st day of October, 1868, it is ordered that the said petition be heard at the Patent Office on Monday, the 12th day of October next.