During August and September an international exhibition is to be held at Utrecht, Holland, of articles for daily household use,—the principal object being to bring to the knowledge of the workmen such articles of household use, furniture, dress, food, and work of different countries, as, at a low price, unite usefulness with solidity. Articles of elegance and luxury are excluded. The co-operative associations of the continent appear to be much interested in this scheme.

The Pittsburgh *Evening Chronicle* says that nearly all the coal shipped to New York and New England, amounting to 9,000,000 tuns per annum, is obtained from Pennsylvania. Of this quantity, 3,500,000 tuns are shipped to New York, and the balance, 5,500,000 tuns, is conveyed in sailing vessels to various ports on Long Island Sound, and ports beyond. The production of coal in Pennsylvania and Maryland in 1867 was over 16,000,000 tuns, and is increasing at the rate of 2,500,000 tuns, or fifteen per cent per annum.

Francis Joseph, Emperor of Austria, is quite a mechanical genius. He has recently found time to construct a clock, a very ingenious piece of workmanship, which he has presented to his mother, the Archduchess Sophia. There is attached to this clock a gaudily-plumed cock, which crows every day at sunrise.

The Maine lumbermen complain that the water was so high early in the season that the mills could not be run, and that now the water has fallen so rapidly that a large amount of logs on the way to market must lie over till another season.

A rink company has been organized at Hartford, Connecticut, and the rink is to be built at once. It will be 200 feet by 80, will cover 16,000 square feet of ground, hold 6,000 people in a public meeting, and, as a rink, is to accommodate 800 skaters and 3,000 spectators. It will cost $20,000.

Commissioner Wilson, of the Land Office, has received intelligence setting forth the discovery of a valuable mine of cinnabar, about twenty-five miles northeast of the city of San Francisco, in township north of range No. 1, east of Mount Diablo meridian.

The observatory of the Colby University, at Waterville, is to be erected the coming season. It will probably be built on the hill in the rear of the Maine Central buildings, as the college grounds are subject to much jarring from the passing of trains.

The returns of the several railroad corporations in the State of Massachusetts, show that 24,916,021 passengers were transported by them for greater or less distances during the year ending November 30, 1868, and out of this vast number not one was killed or injured while occupying his seat, although several were fatally hurt while attempting to get on or off the trains while in motion.

WOODEN RAILS.—A company has been organized, so we are informed, at Stevens Point, Wisconsin, to construct several miles of wooden track railway. It is proposed to use hard maple, and to treat it with some preparation to harden the wood and to preserve it from rotting.

The new railroad line is now open *via* the Harlem Railroad to Lebanon Springs and Manchester, Vt., and Montreal. The trains leave Twenty-sixth street at 7 o'clock A. M., arriving at Lebanon, at 3:16 P. M., connecting at Rutland with the Montreal train.

"Geissler's tubes" are now no longer provided with wires at both ends for the electrical discharge, friction alone having been found sufficient to render the gas contained in the tubes luminous.

The Commandant of the United States Armory, at Springfield, Mass., is sending away 100,000 muskets which our Government has sold to the Turkish Government.

Dispatches from Ottawa, Ontario, state that the evidence given before the Committee on the Huron and Ontario Ship Canal, establishes the fact of the importance and practicability of that great work.

A Commission has been appointed by the Secretary of War to consider the proposed location of the Hudson River West Shore Railway upon the public lands at West Point.

The President of the Des Moines Valley Railroad reports that over $100,000 will be collected in duties on railroad iron at Keokuk during the present season.

The British Postoffice Department has completed its arrangements for purchasing all telegraph lines in the kingdom.

A new tin mine has been opened in San Bernando county, California.

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; beside, as sometimes happens, we may prefer to address correspondents 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 advertisemets at $1·00 a line, under the head of "Business and Personal."

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

C. T. L., of Ind.—Expert operators are able to transmit from 15 to 20 words per minute through the Atlantic Cable. The velocity with which a current or impulse will pass through the cable has been ascertained to be between 7,000 and 8,000 miles per second; the former being the velocity when the earth forms a part of the circuit and the latter when the earth formed no part of the circuit.

R. and B., of Pa.—We know of no substance which can be used to coat an iron tank for water, that can also be applied with a brush, and not affect the taste of the water at first, unless it be soluble glass. Good white lead paint will do very well indeed, after the taste has disappeared, but it takes some time before all taste will disappear. We have not seen soluble glass applied to iron and cannot tell whether it will adhere strongly or be liable to scale off. If good we think it will work well and be durable.

J. T., of Mich., asks the proper speed for a circular saw of 50 inches in diameter to run and do a good business, and if a saw of that kind requires more motion in feeding fast than it does in slow feed? Answer. A 50-inch diameter saw should make 750 revolutions per minute and do a good business. Fast feed requires more motion than that of slow.

E. E. P., of N. Y.—You can use the second pump as you specify, but the larger the pipes the greater the friction. In order that the two pumps shall work equally well, the main pipe from which the second branches out, should be one and a half inches in diameter, and the connection should not be right-angled but curved.

J. V. S., of Ohio.—It is not generally the pressure that breaks the glass tubes of water gages. It is their inability to withstand changes of temperature. They should be made of the best annealed Bohemian glass tubing. A common fault is to make them of too thick glass, which is much more likely to break than thinner glass.

T. C. P., of Ohio.—If we understand your communication, you are cutting off steam at half stroke, with a single eccentric, and get, as might be supposed, too much compression. A single eccentric cannot be used advantageously to cut off steam so early in the stroke. You should set your eccentric back and not cut off at less than two-thirds stroke. With the compression you will then have, you will not need to use lead.

C. M. R., of N. Y.—Your suggestions are mainly not new, but that steam might be advantageously adopted for towing boats in canals, properly constructed for that purpose, is beyond a doubt.

M. W., of N. Y.—You are right; a mechanic ought to read and study, as well as practice. You will find the best works on steam and engineering noticed in our new publication column as they appear.

B. M. R., of Pa.—The conducting power of a metallic rod is injured by partially burning it.

J. A. S., of Pa.—We do not wish to re-open the discussion on the theory of the tides. Your communication although ingenious and plausible is therefore respectfully declined.

W. H. W., of Ohio, asks, "if wheels of different sizes fixed to an axle will run on straight parallel rails without one of them slipping." They will not.

C. A. W., of Me.—The greatest strain on the gears of an engine lathe, is on the gear that runs the slowest.

G. D. M., of Del.—The construction of envelopes with a thread inserted in one end on the bottom, to facilitate in opening, is not new. It was patented in 1858. We returned your remittance by mail.

Business and Personal.

The Charge for Insertion under this head is One Dollar a Line. If the Notices exceed Four Lines, One Dollar and a Half per line will be charged.

APPLICATIONS FOR EXTENSION OF PATENTS.

STEAM GAGE COCKS.—Albert Bisbee, Chelsea, Mass., has petitioned for an extension of the above patent. Day of hearing, August 30, 1869.

CORRUGATED BEAM.—Richard Montgomery, of New York city, has applied for an extension of the above patent. Day of hearing Sept. 25, 1869.

ROOFING COMPOSITION.—James West, Syracuse, N. Y., has applied for an extension of the above patent. Day of hearing October 11, 1869.

NEW PUBLICATIONS.

THE PAINTER, GILDER, AND VARNISHERS' COMPANION. Containing Rules and Regulations in everything relating to the Arts of Painting, Gilding, Varnishing, Glass Staining, Graining, Marbling, Sign Writing, Guilding on Glass, Coach Painting, and Varnishing, Tests for the Detection of Adulterations in Oil Colors, etc., and a Statement of the Diseases to which Painters are peculiarly liable, with the Simplest and Best Remedies. Thirteenth Edition, Revised. With an Appendix, comprising Descriptions of a great variety of Additional Pigments, their Qualities and Uses, to which are added Dryers, and Modes and Operations of Painting, etc., together with Chevreul's Principles of Harmony and Contrast of Colors. Philadelphia: Henry Carey Baird, 406 Walnut street. Price, by mail, free of postage, $1·50.

The number of editions which this work has reached is a sufficient guarantee of its excellence without our saying a word in its praise. Had we room we could, however, point out perhaps as many praiseworthy feain it as could be culled from any other work of its size ever published. The appendix contains much new and valuable matter, and it, as well as the body of the work, is copiously indexed.

THE CENTENARY.

Such is the title given to a new monthly just commenced at Charleston S. C. The first number contains eighty-four pages, and gives abundant promise of success, so far as literary merit is concerned, the articles generally very readable. It remains to be seen how far the Southern people will sustain a first-class magazine. We wish it success.

SPRINGDALE ABBEY is the title of a new book from the press of Claxton, Remsen & Haffelfinger, of Philadelphia. It consists of extracts from the diaries and letters of an English preacher. Edited by Joseph Parker, D. D. We have found the book very pleasant and very interesting reading, in which is also combined useful hints and instruction presented in a taking style.

THE ECLECTIC, for July, contains two fine pictures—Landseer and his Connoisseurs, and Gutenberg 1400-1468; also a very choice contents of articles selected from the leading European magazines. We regard "The Eclectic" as one of the best serials extant. Terms of "The Eclectic"—One copy, one year, $5·00. Address E. R. Pelton, publisher, 108 Fulton street, New York city.

Recent American and Foreign Patents.

Under this heading we shall publish weekly notes of some of the more prominent home and foreign patents.

FERTILIZER.—F. C. Renner, Ladiesburg, Md.—The object of this invention is to provide for public use a cheap and easily-manufactured composition, which shall possess superior qualities as a fertilizer for corn, garden truck, and other vegetables and cereals.

ELLIPSOGRAPH.—Andrew Smith, Dayton, Oregon.—The object of this invention is to provide for public use a simple, cheap, and effective instrument for drawing ellipses, and so constructed that it can be easily adjusted to produce figures of any practicable size and shape.

MANUFACTURE OF ILLUMINATING GAS.—Robert Alsop, Philadelphia, Pa.—The object of this invention is to produce an illuminating gas, by impregnating common atmospheric air with the vapor of suitable hydro-carbon fluids, and is carried into effect by the employment of suitable apparatus.

TEA AND COFFEEPOT.—Nathan Lawrence, Taunton, Mass.—This invention relates to metallic tea and coffeepots, and consists in an improved handle, which will not become so quickly heated as the handles heretofore made for such articles, together with an improved construction of the bottom, to prevent it from melting, and an improvement in the method of forming the body of the pot.

GATE.—Jeremiah Snell, Evans' Mills, N.Y.—The object of this invention is to construct a simple and cheap farm gate, which can be conveniently attached and operated, and which, when thrown open, will be entirely outside of the gate posts, no part of it projecting into the roadway, so that, by no possibility, can a passing carriage come in contact with it.

SLEEP PRESERVER AND MUSQUITO GUARD.—Robert Themar, Sheboygan, Wis.—This invention relates to that class of devices adapted to protect the face, hands, etc., from the attacks of musquitos and other insects, and has for its object to provide the public with a simple, cheap, and light guard, which can be carried in a valise or hat box, and which can be placed over the head and arms during sleep, or at any other time, for the purpose indicated.

MACHINE FOR MAKING TWINE, CORD, ETC.—James McIntire, Hopewell Cotton Works, Pa.—The object of this invention is, so to improve the construction of machines for making twine, cord, etc., that the spool shafts can always be kept in gear, so as to run evenly and continuously, while the threads shall be twisted harder, and shall be guided properly and kept at the right tension in passing from the spools to the reel, whereby a better article of twine, etc., can be produced than heretofore.

STOVE PIPE.—Abel D. Cook, New Madrid, Mo.—This invention has for its object to furnish an improved means by which the horizontal part of a stove pipe may be cleaned out without taking down the pipe, and without the chance of soiling or dirtying the carpet or room.

CHANDELIER REFLECTOR.—Charles F. Jacobsen, New York city.—This invention has for its object to furnish an improved double cone reflecting chandelier, for use in churches, theaters, parlors, and other public and private buildings, which shall be so constructed and arranged as to light the ceilings and walls, as well as the floor and body of the room, and which shall be so constructed as to soften the light, destroying the glare and diffusing it agreeably through the room, and at the same time be highly ornamental.

RANGE BOILER.—Andrew Bennett, Brooklyn, N. Y.—This invention has for its object to furnish an improved range boiler, the dome top of which shall be securely and strongly connected to the body of said boiler.

FIRE GRATE.—Leopold Bertsche, Jr., Allegheny City, Pa.—This invention has for its object to furnish an improved fire grate, which shall be so constructed and arranged that the bars, when burst out, can be conveniently taken out singly and replaced with new ones.

CHEMICAL COMPOUND FOR EXTRACTING PAINTS, OILS, GREASE, AND TAR FROM CLOTHS.—C. B. Skiff, Jersey City, N. J.—This invention has for its object to furnish an improved chemical compound, by means of which paint, oil, grease, and tar spots may be quickly and thoroughly removed from clothing, and other cloths, so as to leave no stain or spot upon the cloth.

FARM FENCE.—Cyrus Abbott, Iowa City, Iowa.—This invention has for its object to furnish a simple, strong, and durable fence, so constructed and arranged that the body of the fence may be supported free from the ground, so as not to be liable to decay from contact with the ground.

PICTURE NAIL.—Henry Hickman, Omaha, Neb.—This invention has for its object to furnish an improvement in picture nails, by means of which the cord will be securely held in such a way that the picture cannot be accidentally knocked down, and which shall, at the same time, hold the cord away from the wall and be in itself ornamental.

CULINARY VESSEL.—Henry Zachgo, Brooklyn, N. Y.—This invention has for its object to improve the construction of boilers, and other culinary vessels, in such a way that the cooking may be done in less time and with less expenditure of heat than is possible with vessels constructed in the ordinary manner.

SEED PLANTER.—George Banister, Hartford, Vt.—This invention consists in operating the machine by friction on a roller or wheel, and in the method of operating the slide, for discharging the seed, and in the plow and the method of gauging the same and covering the seed.