articles of a similar nature. The invention consists in operating stampers or dashers within the washing-tub, and also in attaching to the tub rollers which are made to act as a wringer for the clothes, and which form a part of the tub.

TUG OR TRACE-FASTENER.—Ira McAllaster, Milo, Mich.—This fastener or buckle consists of a frame having side-guards, which frame is fastened in any suitable manner to the outer end of the hame-strap, along its length, so that the tug or trace-strap can be drawn through it from end to end, and there secured by inserting a tongue into the proper aperture; that is at one end of a lever arranged to slide upon a cross-pin between the side-guards and in the direction of the length of the frame, wherein such tongue is fastened by running the opposite end of the lever up over the end of the frame, where the tug or trace enters.

HAND BINDING HARVESTER.—G. H. Spaulding, Rockford, Ill.—This invention consists of a box or grain receptacle, placed on the platform into which the grain enters through the bottom, being carried therein by the action of the rolling apron, forming part of the platform. The peculiar construction of the apron conduces to the perfect working of the device.

PLOW.—Andrew Gilmore, Phœnixville, Pa.—The invention is limited to a new and improved device for preventing the colter from clogging, and in connection with this, an adjustable handle.

TABLE CUTLERY.—N. W. Caughy, Baltimore, Md.—In this invention the knife or fork is made adjustable, and extensible in the handle, so as to serve for use at both the dinner and tea table.

WATER WHEEL.—Henry W. Shipley, Portland, Oregon.—The object of this invention is to obtain a wheel which will utilize the power of small streams of water to a degree not hitherto attained.

COFFEE POT.—John Zimmerman, Royalton Centre, N. Y.—In my improved coffee pot the coffee is subjected first to the action of the stream as it rises from the water in the pot to the condenser, and afterwards to the action of the condensed water flowing back to the pot from the condenser.

POTATO DIGGER.—Thomas W. Shepard, Hennepin, Ill.—In this invention a new form of mold or plow is used, and a new arrangement for regulating it, by which greater results are obtained with less power than in any other machine for the purpose.

STEAM COOKING APPARATUS.—John Zimmerman, Royalton Centre, N. Y.—In this invention a large number of cooking vessels are so constructed that they can be arranged one above another in a vertical cylinder, and a variety of materials, vegetables, meats, pastry, cakes, etc., can be cooked at the same time in the cylinder without interfering with each other, and with a single application of the steam.

REGISTERING YARD STICK.—W. P. Lupton and C. M. Talbot, Cadiz, O.—In this invention the operator registers the number of yards measured by pressing a knob projecting from the side of the stick under his finger as he measures each yard. The number of the tally is indicated by figures appearing through a small aperture in the back of the yard stick.

AUTOMATIC STEAM VALVE FOR INJECTORS OR FEEDERS FOR STEAM BOILERS.—Richard Gornall, Baltimore, Md.—This invention is a new device designed to be applied to a steam boiler, whether connected with an engine or not, and automatically to regulate the flow of steam from the boiler to a pump or injector, the steam thus escaping being used to work the pump or injector, and feed the boiler, entirely independent of the action of an engine.

SCHOOL DESK AND SEAT.—C. Thurston Chase, Albany, N. Y.—In this invention the seats and desks are so supported that each one is connected with all before and all behind it in the row. The same construction which affects this object renders the seat much easier to enter and leave. The seats are also provided with hinged bottoms, opening upward and inward.

TIDAL OR SELF-ACTING ELEVATOR.—Philip Weck, Brooklyn, N Y.—This invention relates to a device for elevating water and other articles by the rising and falling of the tides, and is designed to be perfectly self-acting, and to effect a great saving in labor and expense in elevating articles in places where the tides ebb and flow in any material degree.

WASHING MACHINE.—G. Reneky and J. Keiss, Cedar Falls, Iowa.—This invention has for its object to furnish an improved washing machine, simple in construction, easily operated, and doing its work quickly and thoroughly.

CULTIVATOR.—C. G. Petengill, Hebron, Me.—This invention has for its object to improve the construction of cultivators so as to make them more easily adjustable, and more effective in operation.

CLEANING BOILER FLUES, ETC.—Joel M. Wheeler, Oxford, Conn.—This invention has for its object to furnish an improved means for cleaning the tubes, flues, tube boxes, etc., of steam boilers easily, conveniently, and thoroughly, which may be applied without hauling the fires, or while the ship is under way., and which cannot injure the flues, or cause them to leak.

WASHING MACHINE.—John Mitchell, Newark, Ohio.—This invention relates to an improved washing machine, and consists in the insertion of ribs in the end of the machine, between which and a vibrating weighted dasher provided with pounders alternating with said ribs, the clothes are squeezed, and effectually washed and cleansed.

CAR COUPLING.—A. Hillman, Stratford, C, W.—This invention has for its object to furnish an improved car coupling, simple, strong, and reliable in construction, not liable to get out of order, which shall be self-coupling, and which may be readily attached to an ordinary draw bar and bumper head.

HARROW.—John Aiken, Warner, N. H.—This invention has for its object to furnish an improved harrow, so constructed and arranged that it will adjust itself to pass over roots, stones, or other obstructions, without having to be raised from the ground; that it will relieve itself of rubbish, and that it may be made light, while at the same time it will do its work better than the ordinary heavy harrows.

HAY FORK.—J. S. Gochnauer, York, Pa.—This invention relates to an improvement in hay forks, in which two tines are made in one piece, two lifting toes being employed which are simultaneously operated by means of an oscillating bracing roller and a spring lever.

SORGHUM EVAPORATOR.—Noah Clouse, Buffalo Village, Pa.—This invention relates to a new sorghum evaporator, which is so arranged that the sorghum goes through the whole process in separate vessels, so that each vessel can be cleaned after it has been emptied, and can be made ready for further operation without stopping or retarding the process in the other vessels.

STEAM ENGINE GOVERNOR.—Oliver A. Kelly, Slatersville, R. I.—The object of this invention is to obviate the violent changes and consequent fluctuations in the quantity of steam admitted to the piston, and is especially designed for engines that are regulated by the main valves.

IRON SAFE.—William Gardner, New York city.—This invention consists in a novel construction of the door of a safe, which is so made as to more effectually resist the action of fire and burglars, and also in the employment of a false bottom for the purpose of conveniently and securely fixing the safe to the floor of the chamber in which it is placed, without affecting its fire and burglar proof qualities; also in an arrangement for more securely locking the door to the case or frame of the safe.

LOCK.—Jacob Wertsbaugher, La Grange, Ind.—This invention has for its object to furnish an improved lock, strong, durable, and simple in construction, which cannot be picked, and of which no impression can be taken to enable a false key to be made.

TRUNK.—Thomas Smith, Brooklyn, N. Y.—This invention relates to a new extension trunk, which is provided with a tray or trays having hinged bottoms, which tray can be secured in an inverted position upon the cover of the trunk, extending the same and forming a new compartment for packing goods. The bottom of the tray becomes in this position the cover of the trunk extension.

SEAT RISERS FOR VEHICLES.—John R. D. V. Linton, New Bedford, Mass.—This invention relates to a new kind of seat risers or seat legs now used on wagons, carriages, sleighs, and vehicles of any description. The invention consists in the use of cast metal risers in place of the ordinary wooden risers or supports, such risers, when made of cast metal, possess great and important advantages over wooden ones, in beauty, convenience, and cheapness.

SEED PLANTER.—John Stark, Thomasville, Ga.—This invention relates to a new machine for planting all kinds of seed, from the largest to the finest sorts, and for spreading pulverized manure, as well as for preparing the ground for the reception of the manure and seed and for covering the furrows made and for rolling the land.

BURIAL CASE.—Robert F. Hill, Philadelphia, Pa.—This invention relates to a new manner of constructing burial cases so that they will be strong and commodious. The invention consists in making the cover hollow, and not flat, as usual, thereby permitting the body of the case to be shallower, and the consequent better display of the face and head of a deceased person. The head can then be laid upon a pillow, so as to project above the case, and will still not come in contact with the lid when the same is closed.

CHECK REIN ATTACHMENT.—M. A. Gates, Troy, Pa.—This invention has for its object to furnish an improved check rein attachment for harness, so constructed and arranged that the horse can be unchecked or allowed to drink without its being necessary for the driver to get out of the carriage The invention consists in a strap running along the back strap of the harness guide rings attached to the back strap. To the forward end of the said strap is attached the check-rein hook, and to its rear end is attached a ring which, when the horse is checked up, is dropped over a hook attached to the rear part of the back strap or to the crupper strap. The ring of this strap is removed from the hook to allow the horse to drink and attached to it to check him up by means of a small hook attached to the but end of the whip.

LOCOMOTIVE LINK.—Thomas J. Rowley and Wm. Poland, Chillicothe, Ohio—This invention relates to an improvement in the construction of links for locomotive and other engines, and consists in a link formed of a single bar on which the box slides, which bar is stiffened by a side bar connected with the tumbling shaft.

HANGING WINDOW, SASH, DOOR, OR VENTILATING FRAMES TO CARS, ETC.—Wm. B. Dunning, Genesee, N. Y.—This invention consists in so hanging a window, door, or ventilating frame within the body of a car or other land conveyance, that it can be swung in either direction, that is either on the right or left, according to the direction in which the car, etc., is moving or as may be desired, to allow ventilaton and at the same time prevent the entrance of dust to the inside of the car.

NUTMEG GRATER.—W. W. Owen and D. C. Kelly, Muskegon, Mich.—This invention relates to a grater for grating nutmegs and similar substances, and consists of an L or T shaped pipe of tin or other metal with a spiral spring soldered at one end to a perforated grater plate which fits into the pipe; a small thumb rod is fastened to this grater and passes through the cross piece of the pipe. A grater wheel moves round on a wire axis secured to a plate borne on the pipe.

NEW PUBLICATIONS.

TODD'S YOUNG FARMER'S MANUAL, Vol. 2. How to Make Farming Pay. By S. Edwards Todd.

With full practical details of farm management, character of soils, plowing, management of grass lands, manures, farm implements, stock, drainage planting, harvesting, etc. One handsome post octavo volume, beveled boards, finely illustrated, and contains upwards of 400 pages. Post paid, $2.50

Also a new edition of TODD'S YOUNG FARMER'S MANUAL, Vol. I.: The Farm and the Workshop, with practical directions for laying out a farm, erecting buildings, fences, farm gates, selecting good farm and shop tools, and performing farm operations. Fully illustrated. One handsome post octavo volume, beveled boards, 460 pages. Postpaid, $2.50.

Each volume distinct by itself, and sold separately. The experienced practical farmer will find the above works useful to him, although the author intends them more especially for the young farmer, as their titles indicate. The works are both copiously illustrated, showing improved farm tools, implements for cultivating the soil, fences, etc. The above works are both published by F. W. Woodward, at the office of the *Horticulturist*, 37 Park Row, New York.

PHOTOGRAPHIC MOSAICS. For 1868. Philadelphia: Benerman & Wilson.

This excellent little annual, by M. Cary Lea and Edward L. Wilson, is brimfull of choice extracts relating to improvements and best suggestions in photography.

THE SCHOOL DAY VISITOR.

A monthly magazine for the young, has been enlarged and improved $1.35 a year. Published in Philadelphia, Pa.

ATLANTIC MONTHLY. Boston: Ticknor & Fields.

The December number is just out. For sale by all the news venders Subscription price $4 per annum.

THE BOSTON WEEKLY ADVERTISER.

This excellent journal has entered upon a new volume—its fifty-eighth—and comes to us enlarged and improved, in quarto form, headed *The Thursday Spectator and Boston Weekly Advertiser*. We are glad to observe that prosperity and progress still attend the efforts of its proprietors.

LEAF PRINTS. By C. F. Hines. Philadelphia: Benerman & Wilson.

This is a neat little volume illustrating a very simple method of copying the forms of all kinds of leaves. The process consists substantially in making a photographic print of the leaf upon paper so prepared as to be sensitive to light. The method of preparation and printing are exceedingly simple and may be practiced by ladies. The results are very beautiful.

HISTORY OF THE MICROSCOPE.

Probably no person has contributed more towards the popularization of the microscope than Dr. Hogg, whose book bearing the above title has been ten years or more before the public. The present is a new and enlarged edition, rewritten and greatly improved. It is illustrated with some five hundred engravings explanatory of the construction of the microscope, views of the different styles manufactured, illustrations of their use, of the methods of preparing specimens, dissection, mounting, collecting, etc. Nothing could be more complete for the student or observer than the instructions of this valuable work, The wonders revealed by the microscope are both astonishing and endless. The study is most fascinating, while as an amusement for the leisure hour it is not only delightful but beneficial. If our young men and women could be induced to devote but a small portion of the time now wasted in gossip, idle conversation, or dissipation, to instructions such as may be easily realized from the microscope, they would make rapid advances in social and mental improvement. Dr. Hogg's book is probably the most popular of any upon the subject. Fifty thousand copies have been sold. The new edition is published by Routledge & Sons, 416 Broome street, N. Y.

A HISTORY OF WONDERFUL INVENTIONS. By John Timbs.

This will be found a most readable and valuable book. Every person who aspires to be well informed ought to be posted concerning the great inventions of modern times, their nature, names of the inventors, date, their progress and value. The accounts here presented concerning the early history of the mariners' compass, the barometer, the art of printing, the telescope, warfare, illuminating gas, steam engine, machine weaving, electric telegraph, and other inventions, each seem to form a separate romance of rarest interest. We wish that the facts concerning these things, their authors and projectors, could be generally fixed in the minds of young men. They could draw from them many lessons of encouragement and cheer, as showing how the men of toil in former days worked out the greatest problems of science and achieved the most extraordinary success. Beautifully illustrated. Published by Routledge & Sons, 416 Broome street, N. Y.

THE FAMILY SAVE-ALL.

This is the title of a new book relating to the economy of the kitchen, the larder, and the household generally. It contains the best recipes for cooking, from the smallest dishes up to the most difficult, with directions for the saving and reuse of very many substances that are commonly wasted. It is proverbial that people waste more than they consume. If the directions for family economy here presented were generally observed in this country, the resultant saving would be sufficient to pay off the national debt in less than five years. Price $2. Published by Peterson, Philadelphia. Sold by the New York News Company.

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 50 cents a line, under the head of "Business and Personal."

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

J. B., of La., says: "I observe in your issue of Nov. 30th a notice of the presentation of a glacial theory by J. W. Reid, in which he advances the idea that the temperature of the northern hemisphere has been decreasing for 500 years. Is this correct? I thought the contrary was the case and that our winters were milder than those known to our forefathers." It is very common to hear accounts from the oldest inhabitants of the severity of winters in days gone by, but the average yearly temperature for a century past would, we doubt not, show a slight gradual decrease, and the remains of animals and plants which now flourish in tropical regions prove without doubt that the temperature of the northern hemisphere was once warmer than at present. This is not at all inconsistent with the supposition that it was also, at some time, colder than at present, for in looking into this subject we must deal with ages and not years.

J. H. B., of Pa., asks: "How many gallons of water will be required per minute to run machinery demanding 60 H. P., with an overshot wheel of 16 feet diameter? How many gallons of water will a water wheel of 60 H. P. raise per minte 40 feet high with the best pump now in use?" 75 gallons per second falling through one foot is a horse-power; that is 75x60 4,500 gallons per minute must fall through one foot for a horse-power, and this quantity falling through 16 feet will give 16 H. P. Hence for 60 H. P. 4,500x60-16ths=16,875 gallons are necessary; add to this about 35 per cent for friction. waste, etc., and you will have the required amount. As a horse-power is 33,000 lbs. raised one foot high in one minute the second query can be answered by simple calculation. Deduct from the result about 12 per cent for friction of pump, loss, etc., and the amount of water 60 H. P. will raise 40 feet high will be given.

G. W. G., of Pa., asks for a cement to secure the brass tops to carbon oil lamps. We have never found any difficulty with a cement of plaster of paris, The tops of all kerosene lamps are thus secured.

R. H., of Ohio, says, in relation to preventing scale in boilers—without injury or foaming—that the Anti-Incrustator Powder of H. N. Winans, 11 Wall street, New York city, is the most reliable article he has ever heard of and the cheapest.

Business and Personal.

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

EXTENSION NOTICES.

Chauncey D. Woodruff, of Toledo, Ohio, having petitioned for the extension of a patent granted to him the 7th day of March, 1854, for an improvement in suspending eaves troughs, for seven years from the expiration of said patent, which takes place on the 7th day of March, 1868, it is ordered that the said petition be heard at the Patent Office on Monday, the 17th day of February next.

James H. Sweet, of Pitsburgh, Pa., having petitioned for the extension of a patent granted to him the 14th day of March, 1854, for an improvement in hanging of the griping jaw of spike machines, for seven years from the expiration of said patent, which takes place on the 14th day of March, 1868, it is ordered that the said petition be heard at the Patent Office on Monday, th 24th day of Febnary next.

Ellsworth D. S. Goodyear, of North Haven, Conn., having petitioned for the extension of a patent granted to him the 28th day of March, 1854, for an improvement in processes for treating india-rubber, for seven years from the expiration of said patent, which takes place on the 28th day of March, 1868, it is ordered that the said petition be heard at the Patent Office on Monday, the 9th day of March next.

Henry B. Myer, of Cleveland, Ohio, having petitioned for the extension of a patent granted to him the 19th day of September, 1854, reissued the 3d day of May, 1850, and again reissued the 8th day of October, 1861, for an improvement in converting railroad car seats into beds or lounges, for seven years from the expiraton of said patent, which takes place on the 19th day of September, 1868, it is ordered that the said petition be heard at the Patent Office on Monday, the 25th day of May next.

Willis Humiston, of Troy, N. Y., having petitioned for the extension of a patent granted to him the 4th day of April, 1854, and reissued the 6th day of March, 1868, for an improvement in candle mold apparatus, for seven years from the expiration of said patent, which takes place on the 4th day of April, 1868, it is ordered that the said petition be heard at the Patent Office on Monday, the 16th day March next.