

ENGINEERING INVENTIONS.

A safety water gauge valve has been patented by Mr. Peter Barclay, of East Boston, Mass. This invention provides a valve of which one section will be automatically seated in case the glass should be broken, and in which the other section may be turned down upon its seat, thus releasing the section which is closed.

A car coupling has been patented by Mr. Francis M. Hewett, of Beirne, Ark. The drawhead has hinged spring-actuating jaws which engage with one end of a double-headed coupling bar, the other end of the bar being held in a similar manner within the drawhead of the adjacent car, the device being operable from either side of the car to release the coupling bar.

A car coupling has been patented by Mr. Edward McC. Reynolds, of St. Louis, Mo. The coupling hook or drawbar is adapted to be pivotally supported between its ends, its forward end having means for coupling with a meeting drawbar, and its rear end having a hook or shoulder to engage against the rear side of a suitable shoulder or bearing on the drawhead, with other novel features.

AGRICULTURAL INVENTION.

A gopher cultivator has been patented by Mr. Thor. O. Thorson, of Elliott, Ill. It is so constructed that the shovels may be given any desired inclination that the nature of the ground and character of the work demands for successful cultivation, the invention covering various novel features of construction and the combination of parts.

MISCELLANEOUS INVENTIONS.

A snow shoe attachment has been patented by Mr. Benjamin C. Woodbury, of Patten, Me. It is a flexible hinged foot, or toe and heel attachment, designed to give freedom to the working of the foot, without restricting the turning of the snow shoe by the foot.

A passenger elevator has been patented by Mr. Seth K. Humphrey, of Faribault, Minn. It has an endless chain passing over sprocket wheels, of which one is rotated, platforms fastened on the chain, and guides for holding the platforms, making an elevator especially adapted for carrying employes in factories, mills, etc.

A vegetable slicer has been patented by Mr. David F. McDonald, of Lake Butler, Fla. It is so made that the gauge plate serves also as a rest plate or support on which the vegetables rest, and as the carriage reciprocates, the vegetables will be cut into slices and drop on a plate, whence they may drop into any suitable receptacle.

A curtain fixture has been patented by Mr. Robert P. Trimble, of Oregon, Mo. This invention covers an improvement on a former patented invention of a curtain shade and lambrequin fixture of the same inventor, and consists of a peculiar construction of the castings, with reference to the cheaper production of the fixture.

A folding ladder has been patented by Mr. William S. Ethridge, of Paluxy, Texas. It is so made that it can be arranged for use for a protected way through which parties may pass, being especially applicable for use in mines, and for a fire escape, while it may be folded in small space for convenience in storing and transportation.

An expansible lunch box has been patented by Mr. John S. McGuire, of Bayonne, N. J. Combined with telescopically sliding box like sections, with a cover on the upper section, are adjustable straps and buckles for connecting the cover with the lower section, making a box which can be enlarged as desired and contracted when not in use.

A counting attachment for thrashers has been patented by Messrs. Jefferson C. Rand and Edwin Thompson, of Maynard, Iowa. This invention covers a novel construction and combination of parts in a practical adding or counting device to be used principally for tallying the measures of grain in connection with thrashing machines.

A faucet has been patented by Mr. William B. Rodman, of Norfolk, Va. It is particularly adapted for use with stationary basins, and is so made that either or both hot and cold water may be made to flow from one spout and be controlled by one handle, and the flow be increased or diminished, or the proportions changed, as desired.

A reel for harvesters has been patented by Messrs. J. Calder Cunningham and George A. Cunningham, of Washington, Kansas. Combined with the reel and its driving mechanism is an adjusting and holding mechanism, the invention being an improvement on a former patented invention of the same inventors.

A hitching device has been patented by Mr. Willard G. Thorpe, of St. Paul, Minn. The invention embraces combining with the vehicle a weight having a connection for securing it to the horse, the connection being disposed over a guide on the vehicle, with a detent where by the force of the weight may be held clear of or be freed to secure the horse, as desired.

A folding table for paper hangers has been patented by Mr. Edward M. Addaman, of Jersey City, N. J. It has a folding top and folding end supports, and is so made that the top and supports can be readily unfolded and the table set up for use, or quickly folded into compact form for removal, the table when set up being firmly braced and supported.

A dumb waiter has been patented by Mr. Garrett M. Emerick, of Brooklyn, N. Y. This invention covers a novel construction and arrangement of parts in an elevator which is perfectly protected against the falling of the car, and in which the descent of the car can be easily controlled, while it may be stopped and held in any desired position, even when heavily loaded.

A water elevator has been patented by Mr. Monroe Stevens, of Shelman, Ga. It is designed

to elevate water from a well in a bucket in such manner that when the bucket has reached its highest point it will be automatically engaged by a hinged chute, and the water emptied through the bottom of the bucket into the chute, the apparatus being operable by a wind-mill.

A photographic accessory has been patented by Mr. John W. Tinsman, of Kirksville, Mo. It comprises a novel form of clamping frame, with other details, for exposing on the floor or about the base of a subject grasses, weeds, or grain, or other vegetable products, including cut flowers, to give a rural or ornamental appearance to the picture when photographed.

A device for holding cans has been patented by Mr. George W. Hill, of Stark's Point, Washington Ter. It is a device for holding cans, casks, barrels, and similar receptacles in such way as to facilitate emptying them, and consists of a bracket or frame adapted to be attached to a wall, with a spider-like bottom to be supported in such bracket, with other novel features.

A continuous dough press has been patented by Mr. Justin J. Langles, of New Orleans, La. Plain rollers are journaled in a frame to revolve toward each other, with a trough arranged between them, its sides in close proximity to the rollers, and with an aperture in its bottom and dies in the bottom of the trough, for pressing dough in continuous strips or sheets.

A fish trap has been patented by Mr. Abner H. McDowell, of Progress, Va. It differs from the ordinary trap principally in having the guide hood at the rear end of the trap and a box on the side, the improvement being simple and inexpensive, and such as can be attached to any trap already in the water, whereby the fish may be caught at low or high tide, and safely retained without danger of being stolen.

A medical compound for dyspepsia, etc., has been patented by Mr. Albert Marx, of Baltimore, Md. It consists of water pepper, root ginger, garden melisse, peppermint leaves, pennyroyal, lobelia inflata, rosemary, cramp bark, golden seal, blood root, prickly ash bark, wahoo bark, capsicum, golden rod, horseradish, and other ingredients, in certain proportions and prepared after a described manner.

A temple plate for power looms has been patented by Mr. John J. Honan, of Fall River, Mass. It has a slotted bottom plate having at one end a lug, with a slot between the lug and the body of the plate for the passage of the selvage of the woven fabric, with other novel features, the improved plate being one which can be attached to all kinds of temples, especially the well known Dutch temple.

A leveling rod has been patented by Mr. Walter J. Ritchie, of Lima, Ohio. It is so constructed that the engineer or surveyor may read the elevations in feet and fractions of a foot through the telescope attached to a leveling instrument at a distance of a thousand feet or more, thus keeping his own record and dispensing with reports of such elevations from the rodmen.

An apparatus for distilling wood has been patented by Mr. Gasper Hunziker, of Cloverdale, Cal. It embraces a cage on wheels for running the wood on rails into an oven having a specially constructed bottom to aid in the passage of the heat and escape of the products of distillation, with various other novel features, being an improvement on a former patented invention of the same inventor.

A grain weighing apparatus has been patented by Mr. Le Roy C. Tryon, of Marseilles, Ill. It has a stationary hopper with a sliding bottom operated by a measuring receptacle pivoted on the weighing beam, and connected with the mechanism for returning the receptacle after dumping the measured grain, making a machine that will automatically weigh and measure grain with great accuracy.

A trousers stretcher has been patented by Messrs. Walter A. and Harrison S. Rollins, of Chicago, Ill. It has end clamps, side bars arranged in pairs, joint bars pivotally connected at their opposite ends with inner ends of the side bars, and means to secure the joint bars in different adjustments with reference to the side bars, making a convenient device for restoring distorted garments to their proper shape.

A permutation padlock has been patented by Messrs. Marshall B. Palmer and Clark S. Mudge, of Germantown, Neb. The main frame has recessed side faces to receive disks formed with slots which extend from the peripheral edges of the disks inward toward the center, with other novel features, making a strong and simple lock, very difficult to open unless one has the two combinations necessary.

An automatic egg boiler has been patented by Mr. George L. Dale, of New York City. It has inner and outer chambers so arranged that the eggs will be subjected to sufficient heat to produce a proper coagulation of the albumen, but not subjected to so great a heat as usual, whereby the albumen is made hard, instead of soft and creamy, as designed by the use of this invention.

A combined cart saddle and yoke has been patented by Mr. Thaddeus Ivey, of Ashpole, N. C. The invention consists in the peculiar construction and arrangement of a yoke suspending the tongue or shafts by a chain, and having a peculiar adjustable connection with the saddle sustained upon the backs of the two horses, the device being one which can be used in conjunction with the ordinary traces and singletrees.

An automatic grain weighing scale has been patented by Mr. Henry Cutter, of North Wilbraham, Mass. Combined with an oscillating lever are weighing beams loosely connected with the lever by S-shaped hooks, grain boxes supported on the beams, and a pivoted grain spout adapted to connect alternately with the grain boxes, and operated from the oscillating lever, with other novel features, the scale being simple and durable.

A zinc casting machine has been patented by Messrs. Joseph J. Smith, of Jamaica, N. Y., and Charles A. Janson, of New York City. It is specially adapted for making zinc beds used for separat-

ing the iron magnetic folds of dynamo electric machines from the iron bed plates, and provides for the core being held firmly in place in the flask, no pressure being required to force the fluid metal into the mould, and producing castings rapidly of very superior quality.

A grain weighing apparatus has been patented by Mr. George P. Jameson, of Abingdon, Ill. Combined with a spring weighing scale is a counter-balanced grain cylinder, lugs on the sides of the cylinder engaging hooks carried by adjustable lever arms, so that when the uppermost compartment of the cylinder is filled with a certain amount of grain the lugs are disengaged from the hooks, with other novel features, the machine being also adapted for weighing other substances.

A piano tuning pin has been patented by Mr. Fred E. H. Goodenow, of Springfield, Mo. It has a fixed collar, and there is a fixed bushing in which the pin turns, washers being held on the pin and against the top and bottom of the bushing, a clamping collar being held on the pin and turning with it, while there is a nut for pressing the clamping collar against the lower washer, the pin being securely held in place and not materially influenced by changes of temperature.

A cotton gin has been patented by Mr. Benjamin Andrews, of New Orleans, La. The saws employed are much thinner than those in ordinary use, and they are clamped between spacing frames having a continuous periphery, the stock being fed into the top of the roll box, the seed, etc., dropping out of the bottom, the first grade of stock being delivered to the brush and passing out of the back of the machine, while the second grade separates by being thrown down between the saws and brush.

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How often do we drag on, day after day, with nought especially to complain of, but general debility and perhaps some weakness of the lungs? We feel conscious of the latter because we take cold so easily, and any cough we may get seems to stick so closely to us, and we feel an occasional soreness in the chest. The former does not apply to any specific ailment, for we cannot localize our trouble so as to give it a definite name, yet we feel such a general good-for-nothingness, that we call it by the generic name of "general debility." If we are feminine, we feel that this term embraces our misery, and there are so many like ourselves we are easily understood. But what would we not give to find relief? A patient living in Boston Highlands, Mass., in a letter of November 6, 1885, says:

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The charge for insertion under this head is One Dollar a line for each insertion; about eight words to a line. Advertisements must be received at publication office as early as Thursday morning to appear in next issue.

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The Hall Steam Pump Company, 91 Liberty Street, New York, has issued a new catalogue, very finely illustrated. It contains cuts and descriptions of a large variety of steam pumps, simple and compound, adapted to a variety of purposes; also combined boiler and power pump and independent condenser and pump. Instruction to those ordering pumps is given, with directions for setting up pumps; also useful information for engineers and others.

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We are sole manufacturers of the Fibrous Asbestos Removable Pipe and Boiler Coverings. We make pure asbestos goods of all kinds. The Chalmers-Spence Co., 419 and 421 East 8th Street, New York.

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Curtis Pressure Regulator and Steam Trap. See p. 364.
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The Improved Hydraulic Jacks, Punches, and Tube Expanders. R. Dudgeon, 24 Columbia St., New York.
Safety Elevators, steam and belt power; quick and smooth. D. Frisbie & Co., 112 Liberty St., New York.

Tight and Slack Barrel Machinery a specialty. John Greenwood & Co., Rochester, N.Y. See illus. adv., p. 23.

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Notes & Queries

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.
References to former articles or answers should give date of paper and page or number of question.
Inquiries not answered in reasonable time should be repeated; correspondents will bear in mind that some answers require not a little research, and, though we endeavor to reply to all, either by letter or in this department, each must take his turn.
Special Written Information on matters of personal rather than general interest cannot be expected without remuneration.
Scientific American Supplements referred to may be had at the office. Price 10 cents each.
Books referred to promptly supplied on receipt of price.
Minerals sent for examination should be distinctly marked or labeled.

(1) **J. T.**—For the horse power, multiply the area of the piston by the mean engine pressure, which is always something less than the boiler pressure, and may be computed by knowing the point of cut-off. This product multiply by the speed of the piston in feet per minute. Divide the last product by 33,000 for the horse power. Your engine probably indicates 23 to 25 horse power. Exact instructions cannot be given for setting the eccentrics of your traction engine without the exact measure of the lap and plan of lever connection. Place the crank on the center and the cams exactly opposite to each other with their central line leaning forward in the direction in which the crank is moving, sufficient to open the port at or near the time of passage of the crank over the center, is a general rule, from which a trial can be made. For casehardening, see SCIENTIFIC AMERICAN SUPPLEMENT, No. 23.

(2) **W. M.**—The brazing of iron and steel is readily accomplished by first cleaning the surfaces that are to be brazed free from scale or rust and make them to fit closely, as the brass or copper used for brazing does not flow well into open spaces. Rub the surfaces to be united with borax and water, then tie the parts together with iron wire or in any other convenient manner. Sprinkle the edge of the point with pulverized borax and tie on a piece of ordinary yellow brass large enough to fill the joint. Sprinkle the brass with borax powder, and place the work in a forge fire with the brass on the upper side, and heat gently until the brass melts and draws through the joint. Copper may also be used in the same way, it being very suitable and strong for iron. Good tough brass is best for steel.

(3) **J. P. B.** writes: Some three weeks since, a large barn containing baled hay was burned in this place. The fire was first seen near the floor of the loft, and there were several layers of bales of hay above the fire. The day was warm, although a strong wind from the north. We are anxious to know the origin of the fire. Will baled hay become heated so as to become ignited and take fire? A. Baled hay that has not been well cured is liable to heat and ferment; and if packed closely in a barn, its spontaneous ignition would be possible. A box packed with damp sawdust has been known to ignite in the central portion of the sawdust. A short time since, we saw a smoking barrel rolled out of a store and broken open. It was filled with sawdust as a packing for telegraph insulators. The sawdust on the outer side next the barrel was wet, the interior was charred. The report was that the barrel had been received the day before as freight, and had been wet in a shower. Cotton in bales stowed as freight in ships has been known to take fire. A wet bale was probably the cause.

(4) **M. R. W.** asks for a weight motor that could be cheaply constructed, to develop a one horse power for about five hours at a time, and whether such motor would be practicable for continuous use. How heavy weights would be required? Also the power needed to drive the works of large tower clocks where weights are used? A. Efforts to utilize large weight

motors generally cause loss of both time and money. To maintain a horse power for five hours will require the descent through 30 feet of space of a weight of 1,650 net tons, to which must be added a large percentage for the friction of the machinery. To wind up the weight requires a full horse power for 5 hours and enough more to overcome the friction. The friction alone of such contrivances is almost unavoidably very great. The power to drive an ordinary tower clock is comparatively small, always depending upon its size and perfection. A one man power for half an hour will run the clock a day or a week, according to its construction.

(5) **O. S. P.**—For casehardening large pieces of steel, a box of cast or wrought iron should be provided large enough to hold one or two of the pieces, with sufficient room all around to pack well with the casehardening materials, which may be leather scrap, hoof shavings, or horn shavings, slightly burned and pulverized, which may be mixed with an equal quantity of pulverized charcoal. Pack the pieces to be casehardened in the iron box so as not to touch each other or the box. Put an iron cover on the box and lute with clay. Heat gradually in a furnace to a full red, keep at an even temperature for from 2 to 4 hours, raise the heat to a cherry red during the last hour, then remove the cover and take out the pieces and plunge endwise vertically in water at shop temperature; 2 per cent of hydrochloric acid in the water improves its tempering qualities and gives the metal an even gray color.

(6) **J. T.** writes: This bank is heated by steam, and the air is oppressively dry. Is there any device on the market for introducing steam into rooms in a noiseless way? A. You may take steam from the radiators with a very minute air valve. This will have an odor. A better way is to have small tin boxes fastened against the pipes behind the radiator in such a way as to allow of removal for cleaning. Keep them full of clean water.

(7) **M. N. B.** asks (1) how to take down the rust of old cast iron and steel machines, which have not been in use for ten years. A. Scrape off all rust scales, boil in strong caustic soda and water to remove grease and oil. Then dip in a bath of hydrochloric acid 1 part, water 4 parts, for a few hours or until the rust is removed. Wash in hot water, then dip in strong hot lime water and dry. 2. A receipt for japanning small hooks. A. String the hooks on fine wire dipped in thin japan varnish, and hang in an oven heated to 200° to dry. If varnish is too thick, thin with turpentine.

(8) **J. T. T.** writes: We are having iron castings made in which we cast a 3/4 inch wrought iron rod, and we find after the casting is cold that the rod is loose. How can this be prevented? A. Tin the rod or such parts as are required to adhere.

(9) **Subscriber** asks what chemical preparation becomes ignited on coming in contact with water. A. Metallic potassium. It is very dangerous, as it explodes when thrown upon water. Phosphide of calcium ignites when moistened.

(10) **O. D.** asks (1) if an induction coil would be injured by using too many cells to operate it. A. Yes; you must be very careful not to use too strong a current. 2. How can I get a copy of the Smithsonian report? A. Address your representative in Congress, or the Secretary of the Smithsonian Institution, Washington, D. C.

(11) **A. J.** asks: What acid is used in engraving on glass, causing the picture to appear as if ground? A. Hydrofluoric acid is used in glass etching, and the sand blast is often used to effect the result described.

(12) **H. A. R.** asks: 1. Can you tell, as closely as possible, what lengths of No. 28 (B. & S. gauge) copper and German silver wire represent one ohm, according to the standard determined by the Paris congress, read of not long ago? A. Of No. 28 copper wire 67.542 feet are given as corresponding to 1 ohm resistance. This is only approximate in practice, as every particle of impurity affects the conductivity of wire. The resistance of German silver varies also with its composition. The relative resistances of German silver and copper are given as 21:17 (German silver) is to 1:616 (annealed copper). 2. Why is the E. M. F. of Daniell's cell sometimes given as 1.079, 1.105, and 1.122 volts? Is the first the actual working E. M. F. and the last two potential or chemical E. M. F.? A. The E. M. F. of a Daniell cell varies with the solutions used. 3. Will a differential galvanometer do to measure the E. M. F. of a battery by Wheatstone's method? What is a convenient resistance for such a galvanometer? A. For Wheatstone's method any sensitive galvanometer will answer. A good galvanometer, giving resistances, etc., is very fully described in SCIENTIFIC AMERICAN SUPPLEMENT, No. 638. 4. Will a gravity Daniell do for measuring, or has it too high resistance, and what form of the same cell has the lowest resistance with least polarization? A. A good Daniell standard battery is described in the SCIENTIFIC AMERICAN, vol. 56, No. 24, page 370. The gravity is not suitable for a standard. A large sized porous cup Daniell has the lowest resistance for a non-polarizing battery.

(13) **C. H.**—The position of foul air in a room depends entirely upon its kind. The foul air caused by the escape of gases (as coal gas) rises to the top of the room, and the carbonic acid gas from burning gas or a stove is only carried to the top of a room by the heated currents.

(14) **O. E. V.** asks how the world is weighed and its density and mass computed. A. The density, mass, or weight of the earth was found by the observed force of attraction of a known mass of lead or iron for another mass; or of a mountain by the deflection of a torsion thread or plumb line. In this manner the mean density of the earth has been found to be from 4.71 to 6.56 times the weight of water, 5.66 being accredited as the most reliable. The weight of a cubic foot of water being known, and the contents of the earth being computed in cubic feet, we have but to multiply the number of cubic feet by 5.66 times the weight of 1 cubic foot of water to obtain the weight of the earth in pounds, or units of gravity at

its surface, which is the unit usually used. Another method of determining the mean density of the earth is founded on the change of the intensity of gravity in descending deep mines.

(15) **A. R. D.**—Professor C. V. Riley makes the following reply: The twig of *Euonymus (latifolia?)* sent is infested with a scale insect, *Chionaspis euonymi*, Comstock, described and figured Rep. Dept. Agr. 1880, page 313, plates v., Fig. 3, xvii., Fig. 2. It is common on *Euonymus*, and has also been taken from orange in Louisiana. Those remedies which have been successful against scale insects infesting orange trees will prove successful against this. The most successful wash is the kerosene emulsion, made by either of the following formulae:

1. Kerosene..... 2 parts.
Milk..... 1 part.
Sour milk (not buttermilk) is preferable, as the emulsion is more stable when thus made. Instead of milk, water can be used by adding a small amount of soap. The proportions remain about the same. The following formula is a very convenient one to use for small quantities:
2. Kerosene..... 2 quarts.
Water..... 1 quart.
Whale oil soap..... 1/2 pound.

In either case the milk, or soap and water, should be heated to boiling, and with the latter the soap thoroughly dissolved, then the kerosene added while hot, and the mixture thoroughly agitated until it forms a homogeneous mass of cream-like consistency. It can be agitated by churning, shaking, or otherwise, but where a force pump is at hand, the most convenient method is to pump the liquid back in upon itself violently, forcing it through a small nozzle. This continued for five to fifteen minutes will produce a good emulsion, if proper care has been taken in preparing the mixture. The emulsion will remain stable for an indefinite period, and should be diluted only as wanted for use. The strength required varies for different insects, also some plants will bear it stronger than others. This wash can safely be used on orange 1 part to 10 of water. The treatment should not be repeated until first application has had time to be effectual, say ten days or two weeks. It is best not to apply during freezing weather. On a small scale application may be made with brush or cloth, but the most convenient and effective method is with force pump, using a fine spray nozzle like the cyclone or some other good nozzle. The treatment of such insects has been fully discussed from time to time in my official reports, and especially in Hubbard's report on Insects Affecting the Orange.

(16) **P. G.** asks: What kind of paint can I use to keep cold water iron tanks from sweating? A. Thoroughly dry and clean the tanks. Paint with 2 coats Prince's metallic paint in boiled linseed oil, first coat to be dry before painting second coat. No paint will entirely prevent sweating, but it does diminish it.

(17) **A. M. D.** asks if the use of sal soda to clean the scale and grease from a steam boiler would be detrimental to the boiler. A. Sal soda and caustic soda are both used for cleaning boilers. They are not injurious. See also for other boiler cleaners, "Davis on Boiler Incrustation," which we can furnish for \$2.00.

(18) **R. W. J.** asks if one 2 inch pipe will carry more water than four 1 inch pipes, all things being equal. A. Area of 2 inch pipe equals 3.1416 inches; area of four 1 inch pipes equals 3.1416; the internal surface of 2 inch pipe=6.2832; the internal surface of four 1 inch pipe=12.5664; the coefficient of discharge for one 2 inch pipe is .6664; the coefficient of discharge for four 1 inch pipes is .1884. These figures give the proportionate discharge of one 2 inch pipe or four 1 inch pipes for any length.

NEW BOOKS AND PUBLICATIONS.

POPE'S ESSAY ON MAN, WITH RESPONDING ESSAY, MAN SEEN IN THE DEEPENING DAWN. By Caleb S. Weeks. Fowler & Wells Co., Publishers. Paper. 25 cents.

On one page is given Pope's grand essay, and on the opposite page Week's responding essay—the latter being written in like form, like meter, and with the same number of lines as the original. It is designed to explain and amplify the prototype in the light of the learning and philosophy of the present century.

STANDARDS OF LENGTH AND THEIR PRACTICAL APPLICATION. Edited by George M. Bond. The Pratt & Whitney Company, Hartford, Conn.

This book affords a resume of methods employed, by the enterprising company publishing the work, for the production of standard gauges, to insure uniformity and interchangeability in every department of manufactures. It includes reports by Professor William A. Rogers, the Committee on Standards and Gauges of the American Society of Mechanical Engineers, and other valuable information, all illustrative of the great care and thoroughness with which the company conduct their manufacture of standard gauges.

The Pope Manufacturing Company has issued a calendar for 1888, in pad form, with blank for memoranda on each leaf. Upon each slip also is printed something pertaining to cycling, a collection of quotations illustrating the popularity and universality of cycling.

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AND EACH BEARING THAT DATE.

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