

**RECENTLY PATENTED INVENTIONS.**  
**Of Interest to Farmers.**

**GRAIN TRANSFERRING DEVICE.**—E. B. STAUFFER, Wichita, Kan. The improvement relates to self-feeders for threshing-machines. The object is to provide a transferring device or power-pitcher for carrying grain in the straw from a stack or the like to the self-feeder of the threshing-machine in such manner that the grain passes in even uniform layer to the self-feeder to insure a continuous and proper feeding of the grain without the aid of manual labor.

**CUSHION FOR BALL-AND-SOCKET JOINTS.**—C. B. PINCKNEY, Brunswick, Ga. In this patent the invention is an improvement in cushions for ball-and-socket joints, and is especially designed for use in mowing-machines and harvesters, having for an object the avoidance of the extreme wear ordinarily experienced in the use of ball-and-socket joints.

**Of General Interest.**

**OIL-SHELL.**—C. A. GLOVER, Bellport, N. Y. The shell is adapted to contain oil and to be fired from a cannon or mortar over a body of water to distribute oil thereupon at a point distant from the shore and is so constructed that during the major portion of its flight the outlet for the oil will be closed but automatically opened at or about the time the shell strikes the water, thereby permitting the oil to spread upon the rough element and quiet it.

**POLE-SPLICING DEVICE.**—F. N. DRANE, Corsicana, Texas. The device is for use in splicing telegraph or other poles to timbers, concrete, or the like. Clamping means are provided by which the main pole may be firmly secured to a new butt, replacing the original butt that may have become rotted in the ground, thus obviating the expense of a new complete pole. Means are provided by which new poles too short but otherwise good may be spliced to useful lengths.

**CALCULATOR.**—K. H. J. MARCKWORT, Guatemala, Guatemala. The invention pertains to calculators, such as shown and described in the application for Letters Patent of the United States formerly filed by Mr. Marckwordt. The object of the present invention is to provide a calculator designed for quickly and accurately carrying out a large number of arithmetical calculations, such as calculating wages, volumes, multiplication, degrees of alcohol, lumber measurements, degrees of sugar pulverization, and the like.

**FOLDING SHAVING-BRUSH.**—H. M. RYNEHART, New York, N. Y. The purpose of the invention is to provide a construction of shaving-brush wherein while the handle remains attached to the body of the brush at all times the handle may be closed around the body of the brush when the brush is not in use to shorten the brush and protect the bristles.

**HORSESHOE.**—J. F. ROBINSON, Rockaway, N. J. One purpose here is to provide a construction of horseshoe of rubber having a metal skeleton core of horseshoe-shape, the ends of the core being connected by a bar member, so as to strengthen the shoe at its heel-section, the core being made of malleable or soft iron, so that after the rubber is cast upon the iron the shoe may be contracted or expanded to neatly fit the shape of the foot to which it is to be applied.

**INSECT-TRAP.**—Q. R. JONES, Yosemite, Ky. This invention pertains to improvements in devices adapted to attract and destroy insects—such as mosquitos, moths, and the like—the object being to provide a device of this character which will be simple in construction, and convenient for use in sleeping-rooms and the like. It can be readily cleaned.

**Hardware.**

**HINGE.**—S. N. STEVENS, North Chelmsford, and E. P. FLANDERS, Lowell, Mass. The invention is particularly applicable to those used for the support of blinds or shutters. Its principal object is to provide a hinge embodying means for securing the blind at various angles. The improvement renders it difficult to raise or open the blind from outside.

**Heating and Lighting.**

**AIR-HEATER.**—E. T. SLAUGHTER, Kansas City, Mo. The invention is an improvement in air-heaters in which cold or relatively cool air is passed over or through a drum or other form of casing heated by a gas or other burner, the air escaping in a heated condition into the room in which the heater is located or into a pipe leading therefrom to another room. Greater efficiency in the utilization of heat and economy of construction of the heater are obtained.

**Machines and Mechanical Devices.**

**GAS-GENERATING RETORT.**—T. L. STEWART, Oakland, Cal. The device is especially adapted for use in connection with gas-engines, heating, lighting, or other uses for which gas may be applied. When used to produce gas for use in gas-engines, the heat in the waste gases drawn off through the exhaust-pipe may be used to convert the gasoline, distillate, crude or other hydrocarbon oils into gas for such use and for any other purpose for which gas is desired.

**BOAT-PROPELLING MECHANISM.**—R. RUTHERFORD, Montaville, Ore. An operator seated on the stern-sheets of a boat or, if de-

sired, two operators, one seated on the stern-sheets and one on the after-thwart, may, through means of a transverse handle and its connections, rock the walking-beam, imparting a rotary movement to a crank-shaft and to a propelling-shaft, coupled thereto. In this manner the propeller may be rapidly driven.

**SAWING-MACHINE.**—B. E. HARRELD, Eldon, Iowa. In this instance the invention is an improvement in machines in which the saw is reciprocated horizontally by cranks and means are provided for raising and lowering the saws to allow the insertion of a log or stick beneath them and to place them in working position thereon.

**MACHINE FOR MAKING FENCE-POSTS.**—R. L. DENNISON, Kansas City, Mo. In the present patent the invention is an improvement in machines for making concrete articles, and is especially designed for the manufacture of fence-posts from shale and other plastic material. The interiors of the mold-boxes are conformed to the post produced, and taper from end to end.

**Prime Movers and Their Accessories.**

**ROTARY ENGINE.**—F. NELSON, Driscoll, N. Dak. The construction of this rotary engine comprises two cylinders communicating with each other, in which two rotators are mounted. These rotators are formed with teeth which intermesh so that the rotators rotate in opposite directions. Each rotator is formed with projecting piston heads at diametrically opposed points on its face, also midway between these heads with grooves adapted to receive the piston heads of its fellow rotator. Steam may be admitted either above or below the point of engagement of the rotators, thus governing their direction of rotation. Spring-pressed packing plates are provided between the ends of the cylinder and the rotators.

**CURRENT-MOTOR.**—J. W. LAURENT, Spokane, Wash. The invention refers to improvements in motors operated by the water of flowing streams, the motor being especially adapted for elevating water for irrigating purposes, the object being to provide a current-motor that will be self-regulated to the rise and fall of the water and that may be operated by a comparatively light current.

**Railways and Their Accessories.**

**RAIL-JOINT.**—ANNA E. BEMAN, Fargo, N. D. In the present patent the invention has reference to railways; and its object is to provide a rail-joint arranged to allow ready expansion and contraction of the adjacent rails and to prevent the undesirable clicking when the car-wheels pass over the joint. The joint is practically sufficiently flexible to accommodate the usual movement of the rails.

**AUTOMATIC AIR-BRAKE FOR CARS.**—W. J. DANKEL, Pittsburg, Kan. The inventor improves upon that form of air-brake in which the piston-rod which actuates the brake-lever carries a piston, which plays between two air-chambers one on one side containing compressed air, which in expanding applies the brake, and the one on the other side of the piston being connected through a valve with the train-pipe, so that when the pressure within the latter is reduced by the engineer, the pressure within the communicating air-chamber will be reduced and will allow the preponderating pressure in the chamber on the other side to expand and by advancing the piston apply the brakes.

**Pertaining to Recreation.**

**MERRY-GO-ROUND.**—G. B. MCKINNEY, Barry, Ill. In this instance the object of the invention is the provision of a new and improved merry-go-round arranged to allow one or more of the passengers to readily propel the merry-go-round without requiring undue physical exertion on the part of the operators.

**ARTIFICIAL BAIT.**—L. P. GIBSON, Little Rock, Ark. In the present invention the improvement has reference to fishing; and its object is to provide a new and improved artificial bait arranged to readily spin or revolve around the hook whenever the device is drawn through the water as in ordinary fly-casting.

**Pertaining to Vehicles.**

**TRACTION DEVICE FOR VEHICLE-WHEELS.**—H. S. WEAVER, Butler, Pa. Though applicable to vehicle-wheels generally this invention has reference more especially to wheels for automobiles and the like, involving the use of cushioning or pneumatic tires; and one of the principal objects of the invention is to provide means for preventing slipping of the wheel when the vehicle or machine is being propelled over soft or muddy ground.

**Designs.**

**DESIGN FOR A HAMMOCK-VALANCE.**—D. W. SHOYER, New York, N. Y. This designer has produced a ruffle for a hammock, and on the cotton-corded material are woven a continuous line of dancing bears in grotesque habiliments. A fringe is added to the valance and it gives a graceful finish to the design.

**NOTE.**—Copies of any of these patents will be furnished by Munn & Co. for ten cents each. Please state the name of the patentee, title of the invention, and date of this paper.

**Business and Personal Wants.**

**READ THIS COLUMN CAREFULLY.**—You will find inquiries for certain classes of articles numbered in consecutive order. If you manufacture these goods write us at once and we will send you the name and address of the party desiring the information. In every case it is necessary to give the number of the inquiry.

MUNN & CO.

**Inquiry No. 8557.**—Wanted, to purchase live silk worm or other larvae in cocoons, in small quantities.

**Inquiry No. 8558.**—Wanted, manufacturers of dishwashers for family use.

**Inquiry No. 8559.**—Wanted, makers of outfits for the distilling of water for drinking purposes, with capacity of about 50 gallons per hour.

**Inquiry No. 8560.**—Wanted, machinery for the manufacture of alcohol from molasses, sugar and apples.

**Inquiry No. 8561.**—Wanted, a machine for making emblems from pennies.

**Inquiry No. 8562.**—Wanted, names and addresses of auction grocery firms.

**Inquiry No. 8563.**—Wanted, a machine for cutting canvas.

**Inquiry No. 8564.**—Wanted, the name and address of the manufacturers of "The People's Typewriter."

**Inquiry No. 8565.**—Wanted, name and address of manufacturers of miniature lead castings representing animals, charms, shoes, etc.

**Inquiry No. 8566.**—Wanted, names and addresses of firms manufacturing cheap premiums for putting in prizes for popcorn, etc.

**Inquiry No. 8567.**—Wanted, the name and address of the manufacturer of the Commonsense Sash Pulley.

**Inquiry No. 8568.**—Wanted, manufacturers of meerschaum and French briar pipes fitted with amber stems.

**Inquiry No. 8569.**—Wanted, a machine for filling tin cans, holding about 18 ounces, 5 inches high, having screw cap over a nozzle about 3/4 inch in diameter.

**Inquiry No. 8570.**—Wanted, an apparatus for stamping designs on leather, wood, plush, paper, etc.

**Inquiry No. 8571.**—Wanted, manufacturers of a feather renovator.

**Inquiry No. 8572.**—Wanted, parties engaged in operating plants for the reduction of old tin, such as cans, for the purpose of separating tin and solder.

**Inquiry No. 8573.**—Wanted, manufacturers of the following: The Magic Flute, The Humanotone, Peerless Sharpener and Can Opener, Moving Picture Top Phantasmagoria.

**Inquiry No. 8574.**—Wanted, the address of parties or firm making or prepared to make moulds for school crayons, soaps, etc.



**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. Buyers wishing to purchase any article not advertised in our columns will be furnished with addresses of houses manufacturing or carrying the same. 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.

(10357) A. M. asks: 1. I have made motor described in SUPPLEMENT No. 641 and it runs perfectly as a motor, but will not generate any current when driven as a dynamo. It is series wound. Please let me know the remedy. A. Small motors very often are not wound so that they will excite their own fields and they cannot be used as dynamos, except by disconnecting the field and using a battery to excite the field. 2. Would there be any practical way to run it on 110-volt alternating lighting circuit? A. No.

(10358) H. M. W. writes: We understand there is an easily prepared paper which may be used for the finding of the negative and positive poles of an electric wire. Will you kindly inform us how to make this paper and whether it will keep? We only wish for a small quantity. A. We give below two methods for this purpose, both of which are easy. First method: Dissolve sodium sulphate, a teaspoonful, in a half pint of water, in which also dissolve about the same quantity of potassium iodide and of starch. To dissolve the starch the water must be heated. Soak white blotting paper in this solution and dry it. Cut it into strips of any convenient size; a half inch by two inches is suitable. Keep the paper in a dry place such as a tin box or a glass bottle. To use, moisten a strip and place the two poles upon it, nearer together or farther apart, according to the voltage of the current. A dark spot will appear at the positive pole. Second method: Dissolve 15 grains of phenolphthalein in a half ounce of common alcohol. Dissolve also 20 grains of sodium sulphate in 4 ounces of water. Soak blotting paper in the first solution and drain off the superfluous liquid. Then soak it in the second solution and dry it. Afterward treat it in the same manner as in the first method. A red spot appears at the negative pole.

(10359) B. S. writes: Our church steeple of Hillcrest is about 160 feet high, is slate roofed or covered and the top consists of a sheet iron ornament some 12 or 15 feet; the church is of brick. The steeple

has been struck and badly damaged by lightning within 3 years, although it stood for 20 odd years before it was first struck. It is thought by some that the large number of overhead telephone wires that go right by the church and the telephone station just across the street tend to attract lightning, which strikes the steeple first, it being a considerably higher point. Some contend that proper lightning rods would prevent damage, while others claim that lightning rods are incapable of carrying the great amount of electricity forming such a bolt of lightning. A. 1. We should not dare to have a building with an iron top disconnected with the earth metallically, as is this church spire. It is an invitation to a visit of the lightning. The lofty Washington Monument, in Washington, was struck and damaged till its metal tip was grounded by a lightning rod, since which it has been repeatedly struck, but without damage. Suitable lightning rods certainly are of service in protecting a building. We should suppose that the telephone wires were a partial protection to a neighborhood. 2. Is it a fact that no suction pump will pump or draw a greater height than 33 1/2 feet before entering the pump, or in other words, before passing through the valves? If water can be raised a greater height by such a pump before it passes through the pump valves can you tell what distance it can be drawn and what causes the limit if there is any? A. A lifting, or as it is sometimes called, a suction pump, can raise water no more than 28 to 30 feet. Theoretically 34 feet is the limit to which the pressure of the atmosphere can push water up a tube with a vacuum above the water. No pump can exhaust the air above the water perfectly, hence no pump can get water 34 feet above the level of the water below. The pump lifts the air off the water in the pipe; the air outside the pipe pushes on the water in the well and pushes it up into the partial vacuum in the pipe below the valve of the pump. For this see any text-book of physics under pumps in pneumatics.

(10360) C. E. T. asks: 1. I am thinking of making a small direct-current dynamo, and would like to know the formula and meaning of the symbols for wrapping and determining the size of wire to be used in order to get a given voltage and current. A. Perhaps the simplest book for calculating the parts of a dynamo is given in "Practical Electricity," price \$2 by mail. There is, however, no easy road to designing dynamos and motors. The best way for the amateur to go about the building of a dynamo is to select the size of machine he requires and buy plans for it all worked out. Many such designs have been published in the SCIENTIFIC AMERICAN and other periodicals and in books. We have frequent occasion to recommend such to our correspondents. They can be had very cheap. 2. I would also like to know the name of a good reliable varnish or lacquer for using on articles of steel or iron so they will stand a good deal of handling and to be kept in a damp place so as they will not rust. A. A good lacquer for rough ironwork is made with 6 parts asphaltum dissolved in turpentine, 1 part shellac dissolved in wood alcohol; mix and thin with turpentine or wood alcohol. For bright steel or iron, a shellac and mastic varnish is much used; 10 parts shellac, 1 part mastic dissolved in wood alcohol. Color with any of the aniline dyes. Blue is much in use.

(10361) G. P. M. asks: What are the true primary colors? A. Primary colors are the colors into which white light is separated by the dispersion of a prism. Those named by Newton are red, orange, yellow, green, blue, indigo, and violet. Artists reduce these to three—red, yellow, and blue. Scientists generally consider red, green, and blue to represent the primary color sensations, and in one theory there are supposed to be three sets of nerves in the retina which can respond to these three colors. The idea of three primary colors is that from the combination of these three all hues may be produced which are to be found in white light.

(10362) E. A. writes: Please give me an explanation of the following phenomenon: During a rainstorm a click or brief ring of the telephone bell is frequently audible. It is evidently due to the lightning being coincident with it. But how does the lightning produce the effect? Also, why may a spark often be seen shooting from five to twenty feet from the 'phone? Is it harmful? Please answer the following questions: What chemicals are used in the makeup of a Mesco dry battery cell? Please explain the chemical action. Is the cell affected by heat or cold? Are the chemicals injurious to the body if handled? A. The clicking of electrical apparatus during thunderstorms is due to the action of the lightning flashes upon the lines. When they are struck there will frequently be a flash from the wires, even though the lightning arresters do their work properly. The lightning produces the effect because it is an electric discharge, the same as the usual current, only much more intense. It is not entirely safe to handle electrical apparatus during a thunderstorm, when the wires are strung upon poles, though the lightning arresters usually protect the instruments. We have not the formula for the composition of the Mesco dry cell. It probably contains the same materials as the Leclanche cell, since all dry cells are modifications of this form of cell. These cells are very little affected by heat