

both physalia and velella members of the Siphonophora. The latter is very common in this latitude in August, coming with great regularity, being blown in on the prevailing west wind. The writer has seen the Santa Catalina channel so covered with these mimic craft, all sailing on the starboard tack, that the water so far as the eye could reach glistened with their satin leg of mutton sails. Nearly all which were examined held delicate shrimps in their short tentacles, while some had captured tiny fishes. Velella is a perfect raft with a horizontal sail always set; the hull, as it may be termed, is a mass of concentric compartments which communicate with one another, making so buoyant a disk that it never leaves the surface. On the upper side rises the glass-like sail, or frame, covered with a delicate blue membrane. On the lower surface the tentacles hang around a central mouth. A number of different appendages add to the interest of this animal ship. In some works it is figured beneath the surface, but this is impossible; the raft is always on the surface, with the sail set; and if a wind be blowing the velella is carried along over the sea, a mimic ship in every sense of the word, dragging its short tentacles, which seize and overpower small animals by the aid of the lasso darts they bear. Velella is harmless, but its ally Physalia, which is supported by a beautiful bubble, is one of the most dangerous of all the jellyfishes. The specimens observed in this portion of the Pacific were not over two inches and a half in length; but in the Gulf of Mexico they appear to attain their maximum size of five or six inches, with tentacles from ten to thirty feet in length. The sail when retracted is a simple ridge; but when physalia wishes to move it elevates a crumpled mass of pink-tinted satin and a sail is seen extending the entire length of the bubble, an effective organ of locomotion in a good breeze, the movement tending to bring the tentacles to within a foot of the surface, these poisonous, and indeed deadly, organs to fishes, being towed along as would a fisherman's bait. Small fry bite at them, and so virulent is the poison that they roll over dead, when they are hauled up to be absorbed by the body mass.

The most interesting feature of the jellyfishes, taking the one shown in the accompanying illustration as a type, is their development. Late in the summer yellow masses are seen through the disk; these are the eggs, particularly noticeable in the common Cyanea. The first stage of the latter is carried about in the mouth folds of the parent, and is then known as the panula, a minute elongated spherical body covered

with cilia or hair-like organs. It now escapes and assumes a pear shape and becomes fixed to the bottom at one end. The upper or free portion now appears to divide, and small tentacles are seen, the object resembling a small hydra. This upper portion in the jellyfish Aurelia now seems to divide itself up into a series of fringed platters, which break off, become distinct jellyfishes, and so swim away.

"Scorching."

A sad story appeared in The New York Times of June 11. A young bicyclist was running a race with a trolley car. When he showed signs of tiring, the jeers of the men on the car spurred him to renewed effort, which was further encouraged by the favoring smiles of the ladies at his renewed efforts. Then came the tragedy. The onlookers, sitting at their ease in the car and themselves risking nothing, "saw him regain what he had lost, go forward. * * * Blood was pouring from mouth, ears and nostrils, and he was badly cut and scratched"—and dead! No wonder that the reporter has occasion to add that, after the part they had played as unintentional causes in this tragedy, "the young men and the young women slowly returned to their car. The young men did not jeer again. The young women had no heart to smile." This principle of "record-breaking" and of insatiable attempts to outdo others is the bane of the age. It is urged that it is the very life of progress. We do not think so. There would be just as much real progress—nay, more—in all careers of life if men would leave off pitting themselves so eternally against each other and put themselves instead against their own best without regard to what others might have done or be doing. Let each man strive in every walk and relation of life to attain the best of which he is capable, with due regard to the harmony of his own best interests, and let him neither mind if he is distanced by others on the one hand, nor be satisfied though he beat all the world on the other, yet fall short of the standard of his own capabilities. So will the harmonious progress of the race be better assured than by all the "record-breaking" and "scorching" possible.—The Sanitarian.

Septic Skirts.

The streets of our great cities are not kept as clean as they should be, and probably they will not be kept scrupulously clean until automobiles have entirely replaced horse-drawn vehicles. The pavement is also subjected to pollution in many ways, as from expector-

ation, etc. Enough has been said to indicate the source and nature of some of the most prevalent of nuisances of the streets and pavements, and it will be generally admitted that under the present conditions of life a certain amount of such pollution must exist, but it does not necessarily follow that this shall be brought indoors. At the present time a large number of women sweep through the streets with their skirts and bring with them, wherever they go, the abominable filth which they have taken up, which is by courtesy called "dust." Various devices have been tried to keep dresses from dragging, but most of them have been unsuccessful. The management of a long gown is a difficult matter, and the habit has arisen of seizing the upper part of the skirt and holding it in a bunch. This practice can be commended neither from a physiological nor from an artistic point of view. Fortunately, the short skirt is coming into fashion, and the medical journals especially commend the sensible walking gown which is now being quite generally adopted. These skirts will prevent the importation into private houses of pathogenic microbes.

The Current Supplement.

The current SUPPLEMENT has an unusually large number of interesting articles. "The New Waterworks Extension in Glasgow" is by J. A. Stewart. "Iron and Steel Rails in America" is by Robert W. Hunt. "American Engineering Competition, V." deals with ore supplies and transportation. "Persia and Its Capital City" is an elaborately illustrated article. "Some of the Resources of the Philippines" is by G. D. Rice. "Panoramas of the Exposition of 1900" deals with the Stereorama and the trans-Siberian panoramas. "The Reaction Breakwater as Proposed for the Opening of the Southwest Pass of the Mississippi River" is by Prof. Louis M. Haupt.

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RECENTLY PATENTED INVENTIONS.

Bicycle Attachments.

BICYCLE-LAMP HOLDER.—EUGENE E. HENRY, Stamps, Ark. In this lamp-holder is found a new departure in a very simple and ingenious contrivance by which, when the rider is about to turn a corner, the lamp is swung around faster and to a greater extent than the fork is turned. The lamp-bracket is mounted to turn in a frame or support clamped to the fork, and small chains extend from the lamp-bracket to the steering-head, the arrangement being such that, in addition to swinging with the fork, the lamp-bracket turns on its own axis to throw the light around the corner.

BICYCLE-SUPPORT.—HUGH H. COOTE, Phoenix, Ariz. This support is of the type which may be carried on the bicycle, and the legs thrown down by springs, when it is desired to support the wheel. The novelty lies in the general construction and arrangement, which the inventor has designed with a view to decrease weight and promote convenience in adjusting the support.

Electrical Apparatus.

ELECTRIC SIGNAL AND FIRE-ALARM.—DAVID GEYWITS, Rome, N. Y., and WILLIAM STILL, Utica, N. Y. This invention merits the consideration of hotel men. It provides for awakening guests at the hours requested, the receiving of an answering ring from the guest to avoid disputes, the automatic sounding of an alarm at the hotel office in case of fire in any of the rooms, and permits the sounding from the office of an alarm in each room in case of fire. At the office a clock and a switch system are provided so that a pin inserted to correspond with a given hour and a given room will cause the clock to ring the bell in the guest's room. In the absence of an answering ring from the guest, the signal may be repeated. If a fire occurs in any room, a thermostatic circuit closer sounds an alarm at the office. A single switch device enables the hotel clerk to alarm the guests in all the rooms at once, in case of fire.

ELECTRIC ARC-LAMP.—JAMES E. DAVIDSON, Butte, Mont. In the new lamp devised by this inventor, there are disclosed a number of important improvements to a full understanding of which a copy of the patent should be examined. The carbons are prevented from "bucking" or bobbing up and down; a slight movement of the armature of the regulating magnet imparts, through special connections, an increased throw to the carbon so that the movements of the latter are much more sensitive, and a means is provided which is designed to make the burning out of the magnets impossible.

TROLLEY-HARP.—EDWARD G. JOHNSON, Brigantine, N. J. Instead of mounting the trolley-wheel in a fixed position on its shaft, as usual, the harp mentioned permits the wheel to slide on its shaft in order to follow the conductor, as in turning a curve, and springs are provided on the shaft, at each side of the wheel, which return the latter to the normal position.

Industrial Arts.

APPARATUS FOR CUTTING GLUE.—CARL WOLFF, New York city, N. Y. An automatic machine,

having this title is noticeable for the arrangement of knives, the belts which feed the blocks of glue and the belts for carrying the cut slices to the dryer or elsewhere. Parallel knives have their edges facing upward, one projecting above another in step form, and the vertical runs of two belts grip the blocks of glue or gelatine and feed them forcibly to the knives. From the base of each knife a separate downwardly inclined conveyor belt is arranged the belts running one above another and of different lengths, all terminating adjacent to a horizontal conveyor which may lead to a dryer.

DUST COLLECTOR.—LOUIS C. MEYEROTT, Evansville, Ills. The important adjunct of the dust collector, in modern flour mills, to collect and dispose of the flour dust in the air, is the subject of constant improvement. A type of apparatus for this purpose consists of frames or drums covered with cloth through which the air is passed. The one referred to above includes a horizontal drum in which separate compartments are formed by the cloth, the compartments being collapsible and as each in its turn comes uppermost, its sides are collapsed by a cam and then suddenly forced outward by a spring to jar the cloth and free it of the dust, which then falls into a trough having a conveyor screw.

CALCINING FURNACE.—GODFREY HUGHES, El Paso, Texas. This patent relates to ore calcining furnaces and discloses a novel manner of passing the ore through the calcining flume or chute. The latter is inclined and has a series of dumping plates, which are acted on by a traveling chain having trips. The ore is received, from an elevator, on the top and falls step by step to successive plates. The flames from the furnace rising through the chute serve to thoroughly calcine the ore by the time the latter has reached the outlet provided at the bottom. The rapidity of the travel of the ore may be regulated as required.

Railway Cars and Appliances.

RAILWAY-CAR.—THOMAS L. STATE, Detroit, Mich. A car, patented by this inventor, is provided with two floors, the lower one comprising a parlor, reception room, state-rooms, etc., and the upper one arranged with sleeping berths and baggage compartments. The improvements comprise, besides the general features referred to, a special arrangement of the sills and transoms, as well as a new form of convertible seat.

DOOR HANGER AND TACK THEREFOR.—JOHN C. GABEL, JR., Onarga, Ills. This inventor has patented a door hanger and tracks of the class in which provision is made for moving the door laterally into the door opening in addition to the longitudinal sliding movement. In the opening and closing of the door, only a longitudinal pressure is necessary, the track and hanger serving to guide the door into and out of the opening.

RETAINING VALVE.—JOSEPH S. LAPISH, Salt Lake City, Utah. As an improvement on a prior patent relating to the same subject, this inventor has patented a new form of retainer valve for retaining the air pressure in the brake cylinder while the auxiliary reservoir is being recharged, and the new form is so arranged that

no waste of air can occur in the supplying of air to the retainer cylinder and the operations of controlling the leak port.

CAR COUPLING.—MARK A. BROWN, Douglas, Ga. A car coupling out of the conventional lines is the subject of a patent to this inventor. He employs on one car a coupling hook having an arrowhead at one end, and this is engaged by peculiar spring retainers on the opposite car, which are stated to be effective in preventing uncoupling on curves. The hook is made reversible and may co-act with an ordinary link and pin coupling.

Steam, Gas and Lighting.

BOILER-FEEDER.—HENRY J. DAVIS and others, Birmingham, Ala. This apparatus is automatic in its action and maintains the water level at any predetermined height. A chamber in communication with the boiler contains a float which falls as the water level lowers and permits entrance of water to the chamber by first controlling the entrance of steam to the water chamber and then exhausting the steam to reduce the pressure in the water pipes and thus permit the inflow of water. The rising of the float by the charge of water in the water chamber acts to admit steam from the boiler, equalizing the pressure and causing the water to flow into the boiler by gravity.

GAS BURNER.—MICHAEL B. CAEMODY, Zanesville, Ohio. This invention is noticeable in providing a feature of marked improvement in fuel-gas-burners, for the purpose of regulating the gas supply in the interest of efficiency and economy. The gas supply pipe delivers to a gas chamber divided into compartments and the mixing tube for the air and gas is similarly divided. Thus gas from one compartment and its complement of air may be delivered to the burner, or two or more compartments may be utilized according to the heat required. The invention is also designed to prevent the flame from running back in the mixing chamber.

CALCIUM-WICK LAMP.—ANDREW PLECHER, Savannah, Ga. A new type of lamp has been patented of this inventor. The light is produced by a lime wick or tube which draws up the oil by capillary action, and oxygen gas which is caused to issue from a perforated ring and impinge against the wick, the burning of the oil causing the incombustible lime wick to glow with a brilliant incandescence.

LAMP BURNER.—WILLIAM HARRIS, Mound Bayou, Miss. This inventor arranges a pressure strip to be pressed by a set screw against the wick of a burner, to hold the wick securely, and also with the object of limiting the amount of oil consumed and enabling the lamp to burn without a chimney if desired. The invention is mainly intended for signal and railway lanterns which are required to burn a long time without being charged.

Mechanical Devices.

COTTON-PRESS.—SILAMON McLEAN, Bingham, S. C. The development of the roller cotton-press is one of the comparatively recent fields inviting the American inventor, and true to his reputation he confines himself

here as with other mechanical problems to no set lines, but endeavors to produce various embodiments of the principle involved. In the McLean press the cotton is fed through the feed rollers into a baling box which oscillates beneath a series of rollers arranged in the arc of a circle, so that the cotton is compressed in layers. The follower of the box is carried by a screw mechanism being provided to turn the screw and cause the follower to recede gradually as the bale is formed. A very ingenious feature is a means for automatically governing the follower in its descent according to the pressure of the bale.

PERFORATOR.—GUSTAVUS A. EVANS, Nelson, B. C., Canada. In the practical operation of perforating attachments of job printing presses difficulty is not infrequently experienced in insuring a proper register of the punches with the perforations in the bed piece, in freeing the perforated sheets, and in preventing accumulation of the punched particles in the bed piece. To remedy the defects, the present patentee modifies the punch bar and bed piece so that the former is properly guided and yieldingly engages the bed piece; he provides a novel clearing bar which first presses on the paper to clamp it securely, then yields to permit the punches to pass, and, as the punches withdraw, the bar acts to dislodge the sheet from the punch bar. The punched particles enter a groove having its ends so formed as to permit the particles to free themselves.

MECHANICAL MOTOR.—GEORGE S. ZENT, Little River, Kans. This motor is of that class in which a descending weight operates a train of gearing, and the improvements provide a special transmitting and regulating mechanism for applying the power of the motor by means of a walking-beam to operate two pumps or similar devices.

POWER-MACHINE.—DAVID W. REYNARD, Morris, Pa. For driving bicycles or other machines, this inventor has patented an apparatus in which he employs the principle of two hand or foot levers at opposite sides of the machine to be alternately pressed downward. The special transmitting mechanism is designed to avoid dead centers and effectively apply the power.

Miscellaneous Inventions.

ATTACHMENT FOR FEED BAGS.—HENRY BARK, Yonkers, N. Y. In the different attempts to prevent waste of oats from a feed-bag by the horse tossing his head, the bag itself has been variously modified. The inventor above referred to employs the ordinary bag, suspended as usual, and provides a crescent-shaped guard to be secured to the extreme upper end of the bag, at the back, the front of the crescent having a strap to go around the horse's nose.

TOY MUSICAL INSTRUMENT.—ROBERT PITT, St. Lewis, N. C. This inventor has produced a new form of musical toy, into which air is blown through a tube at the side and causes a loud musical sound by means of two specially constructed perforated diaphragms at the ends of the instrument.

TRUNK-HANDLE.—BERTNIE M. WHITE and FRANK A. HORT, Gordon, Neb. In the handling of trunks, the

pinching of the fingers between the handle and the trunk body is frequently experienced. To prevent this, the handle above noted is so connected by its ends that when gripped it slides outward in diagonal slots in the securing devices and so as to stand out from the trunk body.

FURNITURE-SPRING.—EDWARD A. SEABURG, Seattle, Wash. A system of springs devised by this inventor provides a series of supporting springs in square arch form, and a superposed series of standards resting on the springs and connected together at the top by webbing.

BANANA-CRATE.—ANTONIO and JOHN SANSONE, Keokuk, Iowa. For shipping bunch bananas and also other fruit, the above-mentioned crate affords a safeguard against injury to the fruit by providing an outer frame and an interior suspended bag, which is spaced from the rigid frame and centered by circular series of flexible connections with the frame at different points.

BRACELET.—WILLIAM F. SIMON, West Hoboken, N. J. The improvements in articles of jewelry keep pace with other devices and reflect the universal tendency to embody new mechanical ideas. In a bracelet patented by this inventor, a strip of metal is crimped or corrugated and coiled spirally, whereby new ornamental effects are produced and increased flexibility obtained.

TRAP.—THOMAS H. TAYLOR, Luzerne, Pa. This trap is designed to kill small animals instantly, and to this end the inventor provides a pivoted bait plate with one end turned up to form a jaw, and a spring frame which, when the trap closes, will spring downward, striking the animal and causing it to be caught between the frame and the jaw of the bait-plate.

POST HOLE DIGGER.—JAMES L. CATES, Senatobia, Miss. On the post-hole digger patented by this inventor the shank has a special socket for receiving a detachable handle which has a peculiar shape to enable it to be used as a wire-stretcher.

Designs.

PUMP-BASE.—ARTHUR E. HUNT, Nichols, N. Y. In this pump-base an interior tubular extension rises from the inlet opening at one side of the center and the outlet opening is at the top at the opposite side. The sand, etc., thus has an opportunity to settle.

FIREPLACE REGULATING-PLATE.—HENRY PANNILL, Petersburg, Va. This patent presents a new design for plates for regulating the draft in fireplaces, the plate being rectangular in form, corrugated from end to end, and scalloped in three of its edges, elongated slots being formed in the plate for use in connection with a suitable damper-plate.

ANTI-RATTLER FOR THILL-COUPINGS.—WILLIAM H. PARDEE, Antigo, Wis. The device patented by this inventor is intended for use in connection with the wire anti-rattlers, and shows a new shape of the bearing block.

ELECTRIC-LAMP HOLDER.—WILLIAM ROCHE, Jersey City, N. J. A novel campaign novelty has been patented by this inventor, consisting of a cup-shaped holder for a small electric lamp, the holder having an attaching pin, and at the front of the cup the portrait of a political candidate may be placed.

RECEPTACLE.—FRANK F. HOLLAND, Portland, Me. This design relates mainly to a unique shape of metallic ice cream cup to be used at soda fountains in connection with the popular handled holders.

FABRIC-TRIMMING.—THEODORE SCHIESS, New York city. This inventor has patented a new design of edging for trimming, the distinguishing feature of which is a zigzag line of stitching at each side, with tufts and knots at the outer connecting points.

NOTE.—Copies of any of these patents can 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.

NEW BOOKS, ETC.

FLASHES OF WIT AND HUMOR. By Robert Waters. New York: Edgar S. Werner Publishing and Supply Company. 1900. 12mo. Pp. 186. Price \$1.

Mr. Waters has written a merry little book in which is attractively presented the humor of the world's cleverest men. He has sometimes missed the point of a good story and sometimes failed properly to translate the sayings of foreign wits. On pages 33 and 120, the French adage, "Qui se ressemble s'assemble" has been misquoted, an error that might have been avoided by employing the good English proverb, "Birds of a feather flock together." On page 53, the pun on Napoleon's name, "non tutti, ma buona parte," uttered in reply to the statement, "all Italians are perfidious," has been incorrectly translated "not all, my good fellow," instead of "not all, but a good part," thus missing the point entirely. These are only trifles, hardly noticeable among a host of clever sayings.

TOPOGRAPHIC SURVEYING. INCLUDING GEOGRAPHIC, EXPLORATORY, AND MILITARY MAPPING. By Herbert M. Wilson. New York: John Wiley & Sons. 1900. Octavo. Pp. xxx. and 900. Price, \$3.50.

The book contains, in concise form, all the data necessary to a knowledge of topographic surveying. The methods elaborated are chiefly those developed in recent years by the great government surveying expeditions. The work will be of assistance to the engineer who may be called upon to conduct an exploratory survey in an unknown region, or to make a detailed photographic map as a preliminary to construction. Descriptions and examples of the methods to be employed and the essential tables required in computation are included in the volume.

LE GRANDE EPITOME. A Fundamental Principle and its Immediate Facts Relating Man to the World. A Sequence. By C. A. Bowsher. 16mo. Pp. 19.

Business and Personal.

Marine Iron Works. Chicago Catalogue free. "U. S." Metal Polish. Indianapolis. Samples free. Yankee Notions. Waterbury Button Co., Waterbury, Ct. Handle & Spoke Mch. •ber Mfg. Co., 10 Bell St., Chagrin Falls, O.

Most durable, convenient Metal Workers' Crayon is made by D. M. Steward Mfg. Co., Chattanooga, Tenn. Machinery designed and constructed. Gear cutting. The Garvin Machine Co., Spring and Varick Sts., N. Y.

Ferracuta Machine Co., Bridgeton, N. J. U. S. A. Full line of Presses, Dies, and other Sheet Metal Machinery. The celebrated "Hornsby-Akroyd" Patent Safety Oil Engine is built by the De La Vergne Refrigerating Machine Company. Foot of East 138th Street, New York.

The best book for electricians and beginners in electricity is "Experimental Science," by Geo. M. Hopkins. By mail, \$4. Munn & Co., publishers, 361 Broadway, N. Y.

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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.

Buyers wishing to purchase an 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.

(7936) M. S. asks how to stop cross talk on two grounded lines running parallel for six miles. A. The complete remedy for cross talk on a grounded circuit is to remove the ground and put up a complete metallic circuit properly crossed. If this is not feasible the common return system may be used, which will save wire. In this system a single return wire is made to serve for all the lines on the poles. You will find the various methods of putting these up described in Miller's "American Telephone Practice," which we can furnish you for \$3 by mail, and which should be in the hands of every telephone man.

(7937) A. M. W. writes: Is an undershot waterwheel placed between two floats, in a ten mile an hour current practical to run a pump for sprinkling garden and lawn, water to be elevated thirty feet? Would two floats twelve inches square and twelve feet long made of plank, and securely fastened at right distances apart at each end to allow the wheel to run between them, have buoyancy enough to hold the wheel and pump? Can you advise me of anything published on the subject or give me any information as to size of wheel or pump the most practical? A. The float as described with a light wheel 5 feet diameter working directly on the pump from its crank, will supply a large quantity of water for garden irrigation at the elevation stated. A 5 foot wheel should make 30 revolutions per minute and operate a pump 1 1/2 inches diameter by 5 inches stroke double acting and should pump 2 gallons per minute 30 feet high. Wheel should be 3 feet wide, buckets 8 inches wide. See SCIENTIFIC AMERICAN SUPPLEMENT, No. 799, on "Current Wheels and Raising Water," 10 cents mailed.

(7938) A. L. N. asks: 1. As an electric motor in fact is a magnetic motor, and as the strength of a magnet decreases as the square of the distance, would not an electric motor be more efficient less the air gap was made, only to insure free running of the armature? Would not the same prove true regarding dynamos also? A. The armatures of all dynamos and motors are made to run with as narrow an air gap as possible. This is because so much is lost in forcing the "lines of force" through the air. They flow through iron with much greater ease. 2. What kind of metal would be best to use in an electrophorus with a disk of resin 1/2 inch thick and 12 inches diameter? A. Any kind of metal can be used as a plate of an electrophorus. Tinned sheet iron is good. 3. Is an electric current in the science of to-day considered to be a vibration of the molecules of the conductor or what? A. An electric current is believed to be a disturbance of the ether of space. 4. If sufficient heat could be procured to fuse carbon, would it crystallize and become diamonds? A. Carbon has been fused and vaporized. It becomes carbon again when it cools. It is believed that enormous pressure is needed to enable carbon to become diamond. 5. As an electric current under certain circumstances causes matter to be lighter or in other words, diminish the attraction of the earth on some, would it not be practicable to utilize said action to overcome gravitation say in airships? A. If an electric current can overcome gravity it might be used to lift an airship. 6. Is there more than one kind of electricity? It must be, because the behavior of sparks from a running belt, a battery, or a dynamo seems to be as different to each other as different fluids or gases. A. There is only one electricity. 7. If gold can be separated to simply copper and lead, can not said metals be combined to make gold? A. If gold can be separated into copper and lead, these metals could be combined into gold. 8. What is auric acid, and how is it made? A. We do not know what auric acid is. 9. Can a body be dissolved or separated to its elements, said elements sent by an electric wire to another place and then reassembled? A. We do not know any instance in which a body has been decomposed by electricity and its elements sent to another place to be reassembled again by the same power.

(7939) L. R. D. asks: 1. Could an electrical current of a high voltage, but of a low amperage be connected to one of a high amperage, to form a current of a high voltage and a high amperage. A. No. 2. Could two motors be connected in series each 1/2 the voltage but all the amperage. A. Yes, if direct current is used. 3. What size wire should I use on 2 pole armature Edison dynamo to obtain the highest amperage? I am not particular about the voltage; should it be shunt wound? A. The little machine is wound in all probability to the best advantage as it is. It is a motor, and will not probably act as a dynamo unless you use a battery to excite the fields.

TO INVENTORS.

An experience of over fifty years, and the preparation of more than one hundred thousand applications for patents at home and abroad, enable us to understand the laws and practice on both continents, and to possess unequalled facilities for procuring patents everywhere. A synopsis of the patent laws of the United States and all foreign countries may be had on application, and persons contemplating the securing of patents, either at home or abroad, are invited to write to this office for prices, which are low, in accordance with the times and our extensive facilities for conducting the business. Address MUNN & CO., office SCIENTIFIC AMERICAN, 361 Broadway, New York.

INDEX OF INVENTIONS

For which Letters Patent of the United States were Issued for the Week Ending

AUGUST 7, 1900,

AND EACH BEARING THAT DATE.

[See note at end of list about copies of these patents.]

Table listing inventions with names and dates. Includes entries like Acid, amido sulfonic, J. Turner; Advertising apparatus, J. A. Kennedy-McGregor; Aerator, milk, D. D. Kimberlin; Air brake, automobile, L. H. Reynolds; Air power apparatus, marine, A. M. Becker; Air purifying apparatus, R. H. Thomas; Alarm, burglar, fire, etc., J. H. Gorges; Alloy, Clamer & Hendrickson; Alloy for anti-friction bearings, etc., Hendrickson & Clamer; Asphalt, machine for separating rock, J. Phillips; Asphaltic material, apparatus for extracting and refining, A. F. L. Bell; Automatic tank, W. Wayman; Autotruck for kargage, ashes, etc., J. C. Anderson; Awl, sewing, Espéy & Harris; Axle lubricator, J. E. Ludwig; Baby exerciser, C. E. Latsch; Bag, See Water bag; Bag fastener, H. Adams; Bag filling machine, M. Bates; Bag holder, A. J. Hurd; Bags, purses, satchels, etc., frame for, L. B. Prabar; Bait, artificial, R. B. Cantrell; Banana shipping case, J. Jackson; Barrel swing, G. L. Edgerton; Battery, See Electrical battery; Bearing, H. Fernstrom; Bearing for bicycles, etc., spring, F. L. Koehler; Beer cooler, G. Danges; Bell striker, E. D. Rockwell; Belt fastener, J. Hill; Bicycle, J. C. Roberts; Bicycle handle bar, McAluiff & Hicks; Bicycle mud guard, F. H. Welch; Bicycle saddle and tool carrier, combined, R. J. Dooley; Billiard table, R. W. Moffett; Binder and pad holder, temporary, V. C. Routzahn; Bit, M. McNalley; Bleaching by electrolytic chlorine water, T. Jespersen; Blower, fan, R. Burns; Boat attachment, Howe & Leavitt; Boiler, See Steam boiler; Boiler, G. S. Strong; Boiler, N. P. Towne; Boiler tube plug, S. J. M. Berthel; Boiler without device, B. F. Keeney; Boilers, automatic circulating system for steam, C. C. Upham; Book, manufacturing sales, L. G. Reynolds; Boot or shoe, ventilated, J. J. Pearson; Boring bar, expandible, Brown & Haddock; Bottle filling machine, F. M. Keller; Bottle, non-refillable, J. M. Urellles; Boundary post, K. Schmeisser; Bowing, See Bow; Box, See Bread box; Metal box; Paper box; Brake, See Air brake; Electric motor brake; Vehicle brake; Brake setting and signaling apparatus, automatic, C. Bergmann; Brake shoe, J. Stromeyer; Brake apparatus for cutting altar, T. M. Mulkerins; Bread box, altar, T. M. Mulkerins; Bread or cake knife, J. Hamilton; Bread or cake pan, W. Vossbeck; Bridge, E. R. Woodruff; Broom, F. R. Jay; Brush, hand, etc., means for attaching, F. & G. Bauerle; Bubbles, apparatus for making soap, G. Kraft; Buckle, belt, L. J. Ritter; Burglar or fire alarm, F. D. Wallace; Burner, See Gas burner; Butter, etc., cutter, Hardant & Anderson; Cabinet, H. G. Roth; Calculator, G. J. Gnaul; Cam wheel, F. E. & F. Wells; Can and means for dosing same, G. H. Dunbar; Can case, M. L. Keyes; Can opener, B. E. Pinnell; Can top and wiper, W. S. Bristol; Car brake gear, railway, Schaffer & Howard; Car, charging, F. D. Allen; Car coupling, D. Hawkins; Car coupling, W. McDonald; Car coupling, G. W. Smille; Car end gate, stenetic mining, L. S. Morrow; Car hand strap, street, T. E. Wardwell; Car, street railway, G. Moore; Carbonated beverage, E. Funk; Carriage, Klovstad & Jonsen; Carriage, electric, C. A. Lindstrom; Case, See Banana shipping case; Burial case; Egg case; Packing case; Casket rest, T. W. Coughlin; Casting machine, automatic, R. G. Collins; Castings, means for identifying metal, R. E. Coleman; Cement, artificial, L. H. Merceron-Vicat; Chain, See Chain; Machine for manufacturing weldless, W. Ailes & Gross; Chair, See Reclining chair; Revolving chair; Separable chair; Chair, A. C. Greene; Chair seat, combination cooler and bent wood roll, F. A. Dennett; Chair seat support, H. Morton; Chamber pot, etc., T. Hawkins; Churn, T. J. Cheney; Cigar wrapper, F. E. Fonseca; Cigarette machine, F. J. Lindstrom; Cigarette making machine, P. J. Lechander; Circuit closer, J. Meara; Cistern cleaner, De Mont & Garwick; Clamp, See Detachable clamp; Clamp, A. Carlson; Clean, See Cistern cleaner; Window cleaner; Closet, Lamp; Dry closet; Clothes wringer, R. Wells; Clutch mechanism, F. G. Hobart; Clutches, etc., shifter for, A. C. Pessano; Coal leveling machine, S. Gorton;

Table listing inventions with names and dates. Includes entries like Coal separator, J. R. Richardson; Coin assorting, delivering, and recording apparatus, S. S. Boyd; Coin holder, J. B. Mercer; Collar, apparel, L. F. Adt; Collar, apparel, W. A. Pine; Comb, G. A. Wolf; Concentrator, W. H. Washburn; Controller, E. M. Fraser; Conveyor, portable, J. A. Brown; Cooking utensil, A. Smith; Cooler, See Beer cooler; Copal guns, assolving, G. C. Lyman; Cord fastening device, O. Wallman; Corn husking machine, M. H. Madsen; Cotton elevator and distributor, pneumatic, T. C. Eberhardt; Cotton press, W. W. Krutsch; Coupling, See Car coupling; Pipe coupling; Crane, Morgan & Taylor; Crane, Seaver & Wellman; Crane, S. T. Wellman et al; Crate, folding, Taylor & Moore; Crusher, See Ore crusher; Cup, See Drinking cup; Current transmission, system of alternating, J. H. F. Gorges; Currents, into continuous current, and vice versa, apparatus for transforming alternating, Hutin & Leblanc; Currents into continuous currents, and vice versa, transforming alternating, Hutin & Leblanc; Curtain and portiere fixture, G. A. Johnson; Cutting elliptical holes, machine for, J. S. Worth; Detachable clamp or name plate, S. J. Cobean; Dish washing machine, G. S. Blakeslee; Dividers, W. A. Bernard; Dock, sectional floating, W. Jamieson; Door bell and alarm, portable, A. L. Shore; Door shut-off attachment, W. T. Johnson; Draught equalizer, J. A. Beltz; Drier, See Film drier; Dry closet and incinerator, F. P. Smith; Drunk machine, R. Simon; Drill, See Grain drill; Mining drill; Drinking cup, magnetic, H. A. Parkyn; Drum, hot air, J. F. Beck; Dust collecting apparatus, curtain for, Dwight & Ruetschi; Dust collector, M. Morse; Dust collector, L. Walder; Dust guard, automatic, Nyland & Lindt; Dye, black sulfur, ribs, & Kaltwasser; Egg case, portable, H. Lyday; Egg storing tray, J. Lyday et al; Electric cable, G. I. Nisbett; Electric conductor crossing, suspended, J. Floyd; Electric conductor switch, suspended, J. Floyd; Electric lock, H. G. Carleton; Electric motor, E. Schickler & Schrottko; Electric motor brake, C. A. Lindstrom; Electric motor starting device, J. H. F. Gorges; Electrical battery, C. E. Keenan; Electrical distribution system, E. E. Frischmuth; Electrical driving machine, Joseph & Schreier; Electrolytic cell, J. Hargreaves; Electrolytic cells, cathode for use in, J. Hargreaves; Elevator, See Cotton elevator; Hydraulic elevator; Elliptic spring, C. I. Dupont; Engine, See Explosive engine; Gas engine; Pumping engine; Rotary engine; Traction engine; Engine igniter, explosive, L. Witry; Engine starting device, explosive, R. R. Von Falter; Engine vaporizer, gasoline, J. G. MacPherson; Engines, electric spark for gasoline, J. G. MacPherson; Engines, fuel receptacle for gasoline, G. L. Reentsierma; Engines, oil separating apparatus for steam, L. A. Cooper; Envelop safety fastener, T. Hawkins; Excavation, apparatus for constructing lines of, W. D. Washington; Excavator, steam, D. R. French; Exercising apparatus, electric conductor for, Crocker & McDonald; Exhibition structure, H. F. W. Lyons; Explosive engine, rear compression, H. A. Bertheau; Extension platform, Seymour & Kahler (re-issue); Eyeglasses, H. O. Chase; Eyeglasses or spectacles, J. Vilanch; Fabric, See Wire fabric; Faucet and filler for receptacles, H. J. Valentine; Faucet attachment, bottle, H. A. Knight; Feed rack, J. Morris; Feed trough for horses, G. E. Combs; Fence post, J. G. Robinson; Fence weaving machine, wire, A. E. Blashill; Fence, wire, P. A. Reid; Fertilizer distributor, E. Oubre; Fifth wheel, vehicle, J. G. MacPherson; File, letter, H. E. Kooze; Film drier, roll, W. H. Smithers; Fire extinguisher, J. Braunwalder; Fireproof arch center, G. B. Waite; Fishing pole attachment, F. J. Ditchey; Flue, W. A. Gay; Flue scraper, L. V. Tucker; Fluid heating and sterilizing apparatus, Waterhouse & Forbes; Forges, blast producing apparatus for, N. Tingley; Frame, See Picture frame; Quilting frame; Fuel, artificial composite, Fitts & Zingz; Fuel, producing artificial, W. P. Taggart; Furnace, R. Schmitt; Furnace fuel feeder, F. N. Spear; Furnace grate, H. Truesdell; Fuse block, L. A. Keith; Game or toy, E. H. Allison; Gas burner, J. E. Tatham; Gas engine, E. C. Wood; Gas generator, acetylene, A. C. Finstein; Gas generator, acetylene, I. L. Harris; Gas generator, acetylene, J. Lawrence; Gas generator, acetylene, J. W. Lawrence; Gas generator, acetylene, E. F. Smith; Gas generator, acetylene, C. Verwer; Gas generator, acetylene safety device for acetylene, F. H. Harriman; Gas meter, prepayment, E. F. Griffiths; Gate, J. F. Glidden; Gate, J. N. Salmon; Generator, See Gas generator; Steam generator; Glass or vitreous pipe or tubular bodies, apparatus for forming, Howe & Wetmore; Glass prism plate, G. Fugman; Glass, prismatic rolled sheet, C. C. Hartung; Glue heater, F. N. Hastings; Glue spreader, H. E. Francis; Grain drier, See Elevator; Grain drill attachment, W. Falconer; Graining machine, plate, G. Wishart; Gramophone sound box, G. K. Cheney; Grating, safety, H. W. Kingsbury; Grip, friction, H. M. Sackett; Gun attachment, Fell & Wheelon; Gun level quadrant for high elevation, J. K. Wagon; Gun, device for promoting growth of, R. W. Evans; Handpiece, C. C. Lusby; Hand rest, F. H. Thier; Handle bar, adjustable, G. P. Rishel; Hanger, See Shaft hanger; Harness rosette, J. E. Pfueger; Heat or cold, electrical detector for, J. Meara; Heater, See Glue heater; Heater shield and ventilator, combined, A. B. Shantz; Hinge, L. Bader; Hinge, H. R. Clark; Hook, See Snap hook; Hop bleaching and drying kiln, J. & A. B. C. Dowdell; Horseshoe, soft tread, Kennedy & Duncan; Hose, J. F. McGuire; Hose supporter, E. H. Hake; Humidifier, R. C. Ulbrich; Hydraulic elevator, G. H. Evans; Ice cream freezer, J. A. E. Anderson; Impact motor, W. H. Pfeiffer; Indicator, See Temperature indicator; Joint, See Pipe joint; Rail joint; Joint bearing, Lee & Mellor; Joint seating machine, A. D. Catlin; Kitchen utensil, H. Wieser; Knife, See Bread or cake knife; Knife guard, W. J. Stewart; Ladder, extension, A. T. Kingsley; Lamp, acetylene gas, G. A. Moore; Lamp, electric, F. A. Keck; Lamp, electric arc, J. S. Nowotny; Lamp, electric arc, T. Spencer;

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