RECENTLY PATENTED INVENTIONS.

Bicycle-Appliances.

SHAFT-BEARING.—Byron E. Foss, Chicago, Ill. This bearing for crank-shafts comprises a casing open at one side and adjustable in diameter. Bearing rings are normally seated in the ends of the casing and are longitudinally open at one side. On the shaft are bearing-collars; and on opposite sides of the bearing-collars retaining-collars have their edges turned inwardly. These retaining-collars form the side walls of raceways in which balls roll. End caps for the casing also have raceways, one wall of each being turned toward the other. Balls also roll in the latter raceways.

REST.—Alexander G. Shields, L'Anse, Mich. The bicycle-rest comprises members adapted for attachment to a bicycle-frame, one of the members having outwardly-extending lugs with which legs are pivotally connected. Downwardly and outwardly inclined blocks between adjacent lugs govern the angle of the legs relatively to the bicycle. A member adapted to be secured to the bicycle-frame has clips to receive the legs when folded.

Railway-Contrivances.

SWITCH.—Charles Troup, Watseka, Ill. The present invention is an improvement upon an operative mechanism for pivoted switch-rails, patented by the same inventor. With the fixed and switch rails a tripping device is connected, adapted to be acted on by car-wheels. A rod extends alongside the track and is connected with automatic mechanism for shifting the switch-rails. When a locomotive or car passes over the siding, traction is applied to the rod and hence to the automatic mechanism, whereby the switch-rails are thrown from their normal position into position for the siding.

ADJUSTABLE SEAT.—Thomas B. Mason, Trenton, N. J. The object of the invention is to provide a seat for motormen. The seat consists of a standard universally mounted so as to have free movement in any direction and provided with a bicycle-saddle secured to a tubular post resting on a spring surrounding the standard so that there will be no jar. When it is necessary for the motorman to rise, the saddle will be carried up with him by the expansion of the spring. The saddle is adjustably secured in position by a clamp.

COLLAPSIBLE SEAT AND HEAD-REST.—Henry S. Kidd and Michael H. Depue, Washington, N. J. This invention provides a seat and a back for use on railway-car seats, so as to provide a support for the head of a traveler. The seat and back are furnished with a pillow upon which the head may be reclined. The improved chair may be very compactly folded and placed in the casing or cover, so that the entire device may be conveniently carried in a valise or hand-satchel. The chair can also be used on the sea-shore.

Miscellaneous Inventions.

ELECTROMEDICAL APPLIANCE.—John E. Freeman, Beard, Ky. The appliance has a belt with a non-conducting front and back portion. Electrodes are located on the outside of the belt, and have fastenings extending into the space between the front and back portions of the belt. A wire is located between these portions of the belt and electrically connects the electrodes. The fastenings of one electrode extend through the belt to the outside in order to form a means for connecting the belt with a source of electricity.

ARTIFICIAL BAIT.—Edward T. Dukes, Quitman, Ga. This inventor has provided an improvement in artificial bait which, when drawn through the water, will move like a minnow. The bait has a body composed of a thin plate of aluminium resembling a minnow and twisted spirally to insure its rapid rotation when drawn quickly through the water. Fin-like projections are provided to aid as propellers in securing the desired rotation. The hooks are arranged in pairs on each side of the axial line and are so attached as to offer the least resistance to the rotation of the bait-body and to be readily removed and replaced.

HYDRAULIC-DREDGE.—Peter Kirk, Kirkland, Wash. This machine for dredging gold-bearing sands and gravel covered by water comprises a vertical rotary mast and two horizontal supporting arms. A vertical hydraulic pipe is adjustably mounted on the upper arm and passes through the lower arm. The pipe has inner and outer tubes with a boring-head at its lower end. On the lower arm a turning mechanism for the hydraulic pipe is mounted. At the upper end of the hydraulic pipe is a receiver provided with pipes for carrying away the sand and gravel. There are no valves and working parts; and the machine carries the full power of suction and force to any depth required.

SASH-LOCK.—George E. and Lowell Parker, Newark, N. J. The present invention provides an improvement in locks for securing upper and lower sashes together, so that they cannot be raised or lowered without first freeing the lock. The locking mechanism is inclosed within a casing having bearings for two locking-bolts which cross each other at right angles. One of the bolts is adapted to enter a recess or hole within one of the sashes and the other bolt is adapted to enter recesses or holes in the window-casing. These two bolts are each provided with a central yoke or crank, which cranks mutually engage with each other, so that one bolt may be reciprocated by turning the other.

DETACHABLE CONNECTION FOR ELECTRIC FIXTURES.—Stacy G. Read, Bridgeport, Conn. On the stage it is often a matter of importance quickly to change the incandescent lamps, in which operation the usual screw and socket are too inconvenient. In the present invention a fixed base is used having two parallel grooves. Two metal plates connected with the feed-wires are secured to the face of the base outside the grooves and project over the major part of their width. A socket-base has two projecting L-shaped arms in electrical connection with the conductors of the fixture, which arms enter the grooves and engage the plates so that the fixture can be quickly slid into and out of place.

HARNESS-BUCKLE.—James A. Gavitt, Waitsburg, Wash. The harness-buckle provided by this inventor is especially adapted for use as a trace-buckle, but can be used equally well upon light or heavy harness. The construction is such that the buckle can be cheaply manufactured and can be readily manipulated to effect a connection or disconnection between two straps. The buckle is entirely free from springs and can be operated as readily with gloved as with ungloved hands.

JACK.—Charles W. Doane, West Lake, La. This jack comprises a body portion in which a lifting-screw is adjustable. A ratchet mechanism operates the lifting-screw, which mechanism includes a lever provided at its outer end with spaced lugs and with a block arranged centrally. An extension handle is adapted to be received between the lugs and is provided with fingers ranged to embrace the block. The jack can be operated upwardly or downwardly, and can be used for pushing heavy weights along a floor or for lifting a telegraph-post.

SIGNAL-LANTERN.—Thomas M. Crepar, Swan River, Minn. To provide a lantern for use on railroads, vessels, docks, and the like is the purpose of this invention. The lantern comprises a burner and two globes of different colors, one of the globes being fixed relatively to the burner and the other globe being movable into an active position around the burner for the lantern to display a danger-signal, or into an inactive position for the lantern to display a safety-signal.

BOAT FOR LAND OR WATER.—Jean P. Bouleseque, Manhattan, New York city. This invention provides a combination boat and wagon. The hull of the vessel has a driving-shaft, the ends of which are adapted to receive supporting-wheels. A truck is detachably connected with the forward portion of the boat and is provided with a steering device. A propeller-shaft is adjustably geared with the drive-shaft; and the drive-shaft is, in turn, connected with a motor. Storage-chambers are provided for power. The motive agent used is compressed air.

CONCENTRATOR.—Joseph Woodham, Longbeach, Wash. The invention is an improvement in concentrators adapted particularly for use in connection with placer deposits. The concentrator consists essentially of a rocking, curved trough having angularly-shaped riffles extending across its bottom and stirring projections or pins projecting upwardly from its bottom. The swinging motion will cause the pins to pass back and forth through the water, while the water, by reason of its inertia, will be at rest. Consequently, the material is continually stirred, so that the gold may readily settle to the bottom and thus be collected beneath the riffles.

CARBONATING APPARATUS.—John Walter, Savanna, Ill. The apparatus is more especially designed for carbonating mineral waters and other liquids, and is composed of a receptacle provided with an inlet for the liquid to be carbonated, in which receptacle a float is located which controls a liquid-supply valve. A pipe extends through the float and is provided with openings in the upper and lower portion of the float, to fill the latter with gas and drain the liquid therefrom.

NECKTIE.—Gustave Selowsky, Manhattan, New York city. The tip of the collar-band of a necktie is so made that it can be utilized entirely for engagement with the fastening-pin of the tie. The band is made shorter than usual, thereby economizing in material, but is nevertheless so arranged that it can be applied to a greater range of variously-sized collars than formerly.

DEVICE FOR MAKING CIGARETTES.—Joseph B. Popenhagen, Chicago, Ill. This invention provides a portable device for making cigarettes, which device can be comfortably carried in the vest-pocket and can be used in direct connection with a tobacco-pouch. The device may also be temporarily attached to the pocket of a garment, so that the tobacco may be drawn from its pouch, packed in a shaping-section of the device, and passed from the section into a wrapper of the usual type prepared to receive the packed material.

PUZZLE.—John J. O'Brien, Manhattan, New York city. The puzzle comprises a box and a die; the box being so arranged that after inserting the die, it will be difficult to discharge the die from the box. Only a person familiar with the puzzle can thus displace the die.

SMELTING-FURNACE.—Joseph V. Otten, Iola, Kan. In the general method of using natural gas for fuel in zinc-smelting, there is an enormous waste and considerable expense. The present invention reduces the cost of constructing and operating smelting-furnaces by dispensing with the use of a blower-plant, the initial pressure of the natural gas (350 pounds per square inch) being found sufficient to draw in all the air necessary through properly-constructed burners. The inventor also produces a soft, glowing, flame heat in the retort chamber and avoids all blowpipe action. The flue-openings are so arranged that the heated gases pass between and around each bank of retorts before passing out at the flue-opening, which is opposite the heat-side of the retorts.

THEATRICAL APPLIANCE.—Frederic S. Lotto, Manhattan, New York city. A patent has been granted to this inventor for an appliance which, when all its parts are assembled, will represent a piano. By pulling upon cords or ropes, the casing will fall apart, several loosely-hanging strings will be disclosed, and the piano will apparently be completely demolished; nevertheless a perfect instrument arranged in the case will remain intact.

GATE-LATCH.—William A. Jeffers, Mulberry, Ark. In a casing having a slot in its wall, a slide is mounted having shoulders working in the slot to limit the slide's movement. Keeper-fingers project outwardly from the slide, and a latch is mounted on one of the fingers and adapted to swing against the other. A pin is movably mounted in the casing and is adapted to engage any one of a series of openings in the slide so as to hold the slide adjustable. The latch can be conveniently adjusted to suit the variations in the position of the gate, and can hence be arranged to compensate for the sagging of the gate.

DEVICE FOR SEALING PACKAGES.—Henry M. Humphrey, Plainfield, N. J. The paraffin or wax paper package has its upper edges brought together and bent upon themselves to form a fold. A sealing-plate is provided, having a flange between which and the body of the plate the fold is received and upon which fold the plate is firmly and immovably clamped, whereby a package hermetically sealed will be produced which can be opened only by cutting or tearing off the material of which it is made.

SASH-CORD FASTENER.—Richard Bohrisch, Chicago, Ill. The fastener has two cheek-pieces adapted to lie on each side of the sash-cord and furnished with bolt-holes through which a fastening-bolt may be passed. A finger secured to each cheek-piece is adapted to engage with the sash. A yoke joins the cheek-pieces with each other. By means of this fastener the cords may be disconnected so that the sash can be removed from the frame.

LACING.—Peleg J. Congdon, Providence, R. I. This lacing is applicable to shoes and corsets, and is provided with a stiffener in the form of a split tube located at the tip of the lacing, the split clamping a side of the lacing, and giving a neat appearance to the whole.

Designs.

LAP-ROBE.—Mrs. Maggie B. Showen, Macon, Mo. The lap-robe is designed to rest in use upon the seat of a vehicle, to extend down below the front of the seat to the bed of the carriage, then forward. A returned portion extends up sufficiently high to protect the lap of the rider, and is provided at its sides with flaps which protect the rider at the opposite sides of the vehicles.

RATCHET-BAR FOR WINDOW-FASTENERS.—William L. and Charles T. Fields, Cedar Bluff, Va. One face of the ratchet-bar is composed of a series of gradually-inclined and abruptly-ending surfaces which form shoulders adapted to receive a latch on the sash so as to hold the latter at various elevations. Below the series of inclined surfaces is a flat protuberance with the lower edge of which the latch is adapted to engage when the sash is closed so as to hold the sash in such position. The bar is also provided with a scalloped edge.

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.

NEW BOOKS, ETC.

LEXIKON DER METALL-TECHNIK. Redigirt von Dr. Josef Bersch. Vienna: A. Hartleben. 1899. 6–10 installments. Price, paper, 70 cents each.

DIE MODERNE CHEMIE. Eine Schilderung der Chemischen Grossindustrie. Von Dr. Wilhelm Bersch. Vienna: A. Hartleben. 1899. 6–10 installments. Price, paper, 70 cents each.

With the tenth installment both of these works have now been half completed. At the appearance of the very first parts it was evident that these books would be exceptionally broad in scope and exhaustive in treatment. The first halves as a whole certainly deserve the unstinted praise which they have received, and the remaining portions, we trust, will meet with the same favor.

MODERN PLUMBING, STEAM AND HOT WATER HEATING. By James J. Lawler. New York: Chiswick Publishing Company, 18 Rose Street. 1899. 8vo. Pp. 397, 300 illustrations. Price $5.

The author has had many years of practical contact with mechanics in the construction of steam and hot water plants and plumbing work, and he has very wisely decided to elucidate his text with a large number of diagrams reproduced on a large scale. The result has been a work which can be used to advantage by every plumber even though he may not be a sanitary engineer. It is specially adapted for the plumber, the heating engineer, the builder and the architect, and all of them are sure to find something which will prove of value to them.

HEAT AND HEAT ENGINES. A Study of the Principles Which Underlie the Mechanical Engineering of a Power Plant. By Frederick Remsen Hutton. New York: John Wiley & Sons. London: Chapman & Hall, Limited. 1899. Pp. xxi, 553. Price $5.

This volume supplements "The Mechanical Engineering of Power Plants" by the same author. In the present volume he deals with the question of design of apparatus and treats the subject in a thorough and scientific manner. Probably no one is better fitted than Prof. Hutton to deal with the subject on which even great authorities have failed. It is a most admirable book which we can confidently recommend to all except beginners who have some difficulty in understanding mathematics, but as a reference book for them it will be invaluable.

LANDSCAPE GARDENING. Treatise on the General Principles Governing Out-Door Art. With Sundry Suggestions for Their Application in the Commoner Problems of Gardening. By F. A. Waugh. New York: Orange Judd Company. 1899. Illustrated. Pp. viii, 152. Price 50 cents.

An excellent little book on the subject has been needed for some time. There are wonderful opportunities open to all architects and gardeners and we regret to say that in the majority of cases these opportunities are lost, because people do not know how to analyze or understand a landscape. The perusal of this book while it will not make landscape gardeners, will put the reader in the possession of the broad facts which underlie the science and will thus enable him intelligently to lay out small private grounds.

Public Improvements is the title of a new bi-monthly periodical published by the Florence Publishing Company, of 21 Park Row, New York city. It is an excellent paper devoted to municipal engineering. It contains a number of very readable articles and is not too technical. The subscription price is $2 per annum.

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 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.

(7722) J. R. E. asks: 1. Is there any definite relation between the length of a static spark and the voltage? A. There is a relation between the voltage and length of spark given across an air gap, but not a simple relation. You will find something on this point in Thompson's "Electricity and Magnetism," price $1.40 by mail. Also an article in the "Proceedings of the American Institute of Electrical Engineers," vol. x, giving voltage and spark length. 2. Do the uranium salts fluoresce to any extent under influence of the X rays? A. The simple salts of uranium do not fluoresce strongly in Roentgen rays. 3. Would it be possible, by suspending a suitable collector at a height of 500 or 1,000 feet, which is connected to a terminal and Leyden jar, and to another terminal and Leyden jar connecting a ground wire, to obtain a static discharge? A. Certainly, if the air was charged to any extent. At any time there would be considerable electrification of the balls. You only describe a modification of Franklin's experiment with the kite, an experiment which we should advise you not to repeat during a thunderstorm.

(7723) W. V. asks: If an ounce of iron and a ton of iron should be dropped from the same height at the same time, would they both reach the ground at the same time? A. This matter was put to the test of experiment by Galileo at the Leaning Tower of Pisa early in the 17th century, with two balls of lead, weighing one and ten pounds respectively. The followers of Aristotle had taught for centuries that the balls would fall in proportion to their weights, the heavier one falling the faster. Galileo pointed out the fact that the lighter one would reach the ground first because the air would resist the fall of the larger one more than it would that of the smaller. He had previously demonstrated the law of falling bodies that the velocity under the action of gravity is independent of the mass of the body. Experiment confirmed his position. The small ball reached the earth first. In a vacuum all bodies fall with the same velocity, through any distance. As a practical statement, it may be taken as true that small dense bodies will conform to the theoretical laws, falling any distance less than 200 feet, in the atmosphere. But with an ounce and a ton there would be a perceptible difference. The ounce ball would fall the faster. Facts like this are now-a-days demonstrated by even elementary students in almost every class in physics in the country.

(7724) H. M. G. asks how to make an ever-ready pad for rubber stamps. A. The following is said to be a cushion that will give color permanently. It consists of a box filled with an elastic composition, saturated with a suitable color. The cushion fulfills its purpose for years without being renewed, always contains sufficient moisture, which is drawn from the atmosphere, and continues to act as a color stamp cushion so long as a remnant of the mass or composition remains in the box or receptacle. This cushion or pad is too soft to be self-supporting, but should be held in a low, flat pan, and have a permanent cloth cover. The composition consists preferably of 1 part gelatine, 1 part water, 6 parts glycerine, and 6 parts coloring matter. A suitable black color can be made from the following materials: 1 part gelatine glue, 3 parts lampblack, aniline