## RECENTLY PATENTED INVENTIONS.

### Bicycle Appliances.

BRAKE.—Frank H. Mayer, Denver, Col. The object of this inventor is to provide a brake which may be quickly applied by the rider by tilting the seat or saddle, thus obviating the necessity of using the hands or feet to stop the wheel. The brake comprises a clip provided with a tubular portion having opposite openings and a rocking-shaft mounted in the tubular portion of the clip, the seat-spring being adapted to be secured in the rock shaft and project through the openings of the tubular portion of the clip. By throwing his weight on or toward the rear portion, the rider causes the rocking shaft to operate the brake. The device is applicable to all kinds of vehicles.

CHAIN-ADJUSTING DEVICE.—Alexander Pinover, New York city. In this invention the connection between the rear fork member and the lower brace is provided with a circular opening into which disks are designed to engage. Each disk has an opening eccentric to its center, the opening of one disk registering with another. Each disk has an annular flange to engage against the outer surface of the connection. Means are provided for clamping each pair of disks together. To adjust the tension of the chain, the disks are rotated in their bearings, thus acting on the sprocket, and after adjustment they are clamped in place. By taking hold of the step the disks on both sides may be simultaneously operated, connections having been provided for that purpose.

COIN-OPERATED LOCK FOR WHEELS.—Erich Schmidt and Adolf F. Schneider, New York city. The object of this device is to provide means whereby a bicycle rider may securely lock his wheel by dropping a coin into a proper receptacle. The casing of the device comprises a keeper provided with a gate. A lock is carried by the casing, the bolt of which is adapted to engage the gate of the wheel-keeper. A lock-lever prevents the withdrawal of the key from the lock and is adapted to receive a coin from a coin-receptacle. A plunger is arranged to move the coin in a direction to raise the lock-lever from the key so as to enable the wheel to be removed.

### Railway Improvements.

RAIL-JOINT AND NUT-LOCK.—Michael Mullins and Cephas Fleming, of the United States Army. This rail-joint fastening and nut-lock has angle-iron fish-plates with a foot extending beyond the rail-base down toward the tie and with spike-receiving notches in the outer edge. One of these plates has squared bolt-head recesses about its bolt-holes and the other plate has an outwardly-projecting rib or lip at its upper edge. A nut-locking-plate fits the angle of the latter fish-plate with its upper edge beneath the rib or lip and has squared recesses adapted to receive the nuts on the bolts, the walls thereof being removed to expose the upper outer corners of the nuts. The lower flange of the nut-locking plate has notches corresponding with those in the fish-plates to receive the spikes, and also has an under concave groove extending longitudinally, which permits the plate to yield and prevents the spikes from being pulled out.

FOG SIGNALING APPARATUS FOR RAILWAYS.—Herbert Tomlins, London, England. The improvements in this apparatus have for their objects to render the operation and firing of the fog-signaling apparatus automatically dependent on the position of the semaphore signal, to guard against two or more signals being fired in succession by the same train and to guard against the danger of a misfire. The explosive signaling apparatus is provided with a revolving cartridge-holding disk having pairs of cartridge holding chambers or barrels arranged circularly. The two members or barrels of each pair are on the same radius. A breech-block is common to the two chambers or barrels and is hinged to swing outwardly toward the circumference when opened. Firing-pins for the barrels are yoked together and a firing-hammer is adapted to act on both firing-pins.

PNEUMATIC SWITCH-THROWING MECHANISM.—George R. Bartholomew, Ridge, Pa. This switch-throwing mechanism is operated by compressed air, and is controlled by the engineer from a moving locomotive. The mechanism comprises a cylinder connected to the switch points to operate them in either direction, a piston connecting the mechanism with coupling members located along the track, and a check-valve between the cylinder and each of the coupling members. A releasing valve is located in the air-cylinder, set to open at a pressure below the working presure and to close by the working pressure. Means are provided whereby the connection may be temporarily made from an air-supply on the engine to the pipes leading to the cylinder.

### Engineering.

ROTARY ENGINE.—Alejandro Stephens, Guadalajara, Mexico. The engine of this inventor consists of a cylinder in which a segmental abutment is loosely mounted and formed with sections at its steam-pressure end, the sections having their ends oppositely inclined and the end of one section bearing upon the end of another section. The cylinder is mounted in a tubular hub having steam-chambers formed in its inner walls. These chambers have communication with the interior of the cylinder. Piston-valves in the cylinder are adapted to engage over the inner ends of the communications. A tubular valve in the hub portion has steam inlet and exhaust ports. Means are provided whereby the movement of the piston-valves imparts a rocking movement to the tubular valve.

### Electrical Improvements.

SIGNALING DEVICE.—Frank B. Taylor, Edgar E. Salisbury and Albert E. Dean, Tacoma, Wash. The purpose of this invention is enable a central operator to turn in automatically any one of a number of call-boxes desired on a single circuit and at the same time to signal the subscriber without disturbing or signaling any other subscriber on the circuit. Means are also provided for testing the outlying-boxes from the central station. The apparatus is provided with an indicator-wheel having a series of holes near its circumference, and a series of pins extending radially from the circumference, the number of pins being equal to that of the number of holes. A plug is inserted into any one of the holes and a spring-contact plate in the main circuit is adapted to be moved by the plug to break the circuit. An armature-lever is actuated by the current through the main circuit, and forms part of a local circuit. This armature-lever forms a circuit-closer for the local circuit and also provides a stop for the indicator wheel by engaging with one of its pins. An electro-magnet is located in the local circuit and coacts with a motor armature-lever. A ratchet wheel is carried by the indicator-wheel. Spring-pressed ratchet-bars are pivotally connected to extensions from the motor armature lever and engage with the ratchet wheel.

INCANDESCENT LAMP.—Otto H. Michaelson, Charleston, W. Va. The object of this inventor is to provide a lamp in which the globe and its base may be separated for the purpose of cleaning or replacing a broken filament with a new one, and then assembling the parts. In this lamp the base, which is composed of insulating material, has an annular groove in its outer end and is secured in a metal shell. Conducting wires extend through the base piece and a ring of insulating material is located in the shell. On this insulating-ring a metal ring is mounted and is connected to one of the wires. The other wire connects with another metal ring in the insulating ring. The globe has a channel around the wall of its open end, which is engaged by a packing ring in the groove of the base. A sufficient bending pressure separates the parts at the packing joint. After cleaning or replacing a carbon, the parts may be assembled.

### Miscellaneous Contrivances.

FLUSHING APPARATUS.—Henry Haynes, Philadelphia, Pa. In this apparatus a water-supply pipe leads into a tank provided with an opening at the bottom. A plate having a valve-seat is supported within the tank above the opening, forming a cap for the outlet end of the supply pipe. A discharge pipe is fitted in the tank-opening and is provided at its top with an apertured cap having a valve-seat formed therein. Connected valves are provided, one valve being arranged to close the outlet for the water-supply pipe and the other valve being arranged to close the inlet of the discharge pipe. One valve seats when the other is unseated. A pull-rod is connected with the valve whereby the valves are operated.

FILE AND BINDER.—Adolph A. Hunziker, St. Louis, Mo. This invention is adapted for use in account books employing a series of separate leaves. The object of the invention is to improve the construction of the fasteners for the leaves, whereby the latter may be conveniently and quickly removed. The file and binder comprises covers connected by a back and fasteners for the leaves arranged on one of the covers adjacent to the back. The fasteners consist of bent or curved members pivoted together in a recess in the cover and having interlocking engagement at their free ends.

SUSPENDER CLASP.—John V. Janin, Goldbasin, Wash. This suspender clasp comprises two clamping members slotted at like ends and hinged together near their opposite ends. A coiled spring engages with its limbs the members near their hinge to spread them normally apart. A detent hook on one member is adapted to be brought into engagement with an edge of the other member to hold the two members in clamped position against the stress of the spring. The clasp grips the edge of a trousers waistband and without injury holds the garment in connection with a pair of suspenders.

HANDLE.—Frederic Read, Brooklyn, N. Y. According to this invention, a handle is pivoted eccentrically on a bail and has a preponderance of material on the same side of the pivot as the center. The material is so disposed that the diameter through the pivot shall be longer than a line drawn through the handle at the pivot perpendicular to the diameter, whereby the fingers of the user have a purchase to press inward on the diameter to hold the bail adjacent to the palm.

OIL-WELL TUBING ATTACHMENT.—Andy C. Smith. Sigel, Pa. This invention is an improvement in oil-well apparatus and in connection with the ordinary packer usually employed in gas-producing wells, provides means by which a discharge of the sediment is secured from above the packer before removing the latter. The improvement comprises a packer having a left-hand thread on its upper end. The tube is fixed to and projects upward from the packer and is provided at its upper end with a downwardly facing shoulder. The tube has an opening and the cover-sleeve sliding on the tube is provided at its lower end with a left-hand thread to engage that of the packer. This sleeve has, furthermore, at its end an internal upwardly facing shoulder to engage that at this upper end of the tube. The cover-sleeve being independent of the packer, it may be moved without affecting the packing operation.

VIOLIN OR MANDOLIN CITHERN.—Alexander Wascinski, Jersey City, N. J. This instrument is similar to a violin in that it is played with a bow and to a mandolin in that the strings are picked and sounded in quick succession. The instrument is provided with a bow guide extending transversely of the strings on one side. Movable dampers normally engage the strings on the other side. Means are provided for removing the dampers from the strings. The bow used consists of a toothed strip of soft rubber carried by a body. The teeth of the bow produce by their engagement with the strings the mandolin effect.

TRIANGLE.—Benjamin W. Trunk, St. Joseph, Mo. In this drawing-triangle an opening extends through the hypotenuse from the outer to the inner edge thereof and into an adjacent side. An edge or section is hinged to the triangle at one of the acute angles. A pin is located in the opening of the hypotenuse. A protractor is carried by the hinged edge or section and is fitted to slide in the openings. This protractor is formed at its free end with a lug which engages with the previously mentioned pin to limit its outward movement. A spring in the opening of the hypotenuse bears against an edge of the protractor and a thumb-screw in the latter side may be made to cause the spring to press upon the protractor to hold it in adjusted position.

DUMPING SCOW.—Natt Stickney, Bradford, Mass. This dumping scow is provided with a well open at the bottom. A receptacle is pivoted at its ends in the hold and has its discharge side arranged to overbalance the opposite side, so that upon releasing the receptacle from a normal position it will automatically turn on its pivots into a dumping position and discharge the load. Means are provided for locking the receptacle in a dumping position.

HOSE-SUPPORTER.—Dora Harrison, Lansing, Mich. The purpose of this invention is to provide a hose supporter which can be quickly and easily adjusted to attach or release the hose. The invention consists essentially of an attaching device provided with an eye, a loop hung in the eye, a pneumatic ball and a link connecting the ball with the eye.

APPLICATOR.—Cyril P. Brown, Spring Lake, Mich. This instrument comprises a cylinder, a spindle held against end movement in the cylinder, a plunger mounted to travel on the spindle and a tube secured at the outlet of the cylinder having ports in its sides near its outer end. A cap is mounted on the tube, has a closed outer end and is provided with similar ports in its sides capable of being brought into register with the ports in the sides of the tube.

CLOSURE FOR COUPLINGS.—Joseph Muhr, Dunkirk, N. Y. The object of this invention is to provide a closure for unused couplings to prevent the passing of dust, cinders, etc., into the train pipe, triple valves and other parts, and to prevent twisting of the coupling-hose. The closure comprises an arm mounted to swing, and formed with a spring-pressed cap having an upwardly turned flange. As soon as the coupling members are separated, the spring swings the arm and its cap over the opening in the member to which the device is attached.

### Designs.

ANTI-RATTLER.—Frank P. Johnson, Danville, Pa. This patent relates to the shape of the wire body of the well known Johnson Anti-Rattler. The design provides for a curved loop that bears on the thill-iron, hooks or eyes at the opposite ends for carrying a yoke that engages the axle-clip and intermediate spring-coils.

NOTE.—Copies of any of these patents will be furnished by Munn & Co. for 10 cents each. Please send the name of the patentee, title of the invention, and date of this paper.

## NEW BOOKS, ETC.

DIGEST OF DECISIONS OF LAW AND PRACTICE IN THE PATENT OFFICE OF THE UNITED STATES AND STATE COURTS, IN PATENTS, TRADEMARKS, COPYRIGHTS AND LABELS, 1886 to 1898. By Amos W. Hart, of the Bar of the District of Columbia. Chicago: Callaghan & Company. 1898. Sheep. Pp. 385. 8vo. Price $6.50 net.

Mr. Hart's digest combines under one cover the decisions of the Federal Courts, the Commissioners of Patents and of the State Courts, and in this respect is an improvement over prior works and will be of great assistance to the profession, as well as to inventors and the owners of patents and trademarks. The sources chiefly drawn upon by Mr. Hart are the Official Patent Office Gazette, unpublished decisions of the Commissioner of Patents and the Federal Reporter. The work includes critical and historical notes which in many cases serve to link the present with the former practice and in a large measure dispense with a more extended research. The index contains upward of five hundred chief titles and nearly double the number of sub-titles, which evidences the scope of the work. Mr. Hart's long experience dictated the new classification adopted by him, which is designed to facilitate reference to the different subjects within the wide range of the work.

TWENTY-NINTH ANNUAL REPORT OF THE AMERICAN MUSEUM OF NATURAL HISTORY, CENTRAL PARK, N. Y. New York: Published by the trustees. 1898. Pp. 127. Paper, 8vo.

Besides the reports that inevitably find place in publications of this character, there appear a series of valuable notes regarding the scientific explorations now in the field as the result of the enterprise of this institution, and also of explorations that are expected to be undertaken in the near future. There are the usual lists of exchanges, donations, purchases, etc., and a number of interesting illustrations of objects (fossil) now in the museum.

ANGEWANDTE ELEKTROCHEMIE. Dritter Band. Organische Elektrochemie. Von Dr. Franz Peters. 13 Bogen Octav. Mit 5 Abbildungen. Verlag von A. Hartleben, Wien. Paper, $1.

The third volume of Dr. Peters' "Applied Electro-Chemistry," now lying before us, shows the same general excellence of treatment and the scholarly qualities so characteristic of the first two volumes. Steadily the author has kept in view the plan he adopted in the previous portions of his work. Nothing has been omitted which be are even remotely on the electro-chemist's art. Innumerable authorities are constantly referred to and cited in the many foot-notes. The chemistry of carbon, which essentially constitutes organic chemistry, by reason of its extremely involved reactions, presents difficulties to the electro-chemist far greater than those of inorganic chemistry. It is the purpose of this volume to remove whatever doubts may exist in the chemist's mind on various phases of the subject and in clear, terse language to explain the chemical changes which accompany many of the reactions. Important as the results hitherto obtained may be, nevertheless, we may be permitted to hope that the future successes of electro-chemists may be productive of even greater and richer benefits than those of the past.



## 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.

(7457) J. D. asks: Would it increase or diminish the power of a double engine 8 inches by 10 inches, with driving band wheel 54 inches in diameter, 12-inch face, driving a 24-inch pulley, by using a smaller diameter band wheel? If so, in what proportion? A. At the same engine speed, you will diminish the power delivered by making the band wheel smaller. If you run the engine faster, to give the same speed to the second shaft, the power will be the same; all in consideration of the same quantity of steam used in both cases. A larger amount of steam used by using the same cut-off and full throttle will give more power under the higher speed.

(7458) W. C. L. asks: If the measured resistance of a line is 130 ohms, how many cells of battery giving an output of 1½ volt ½ ampere will it take to work four 150 ohms relays? Making the total resistance 730 ohms. What is the base of calculation? Should the internal resistance be greater than the external, and why? A. The number of cells required to work your line depends, not so much on the resistance of the instruments as on the number of turns of wire in the relay magnets. As relays are usually wound, you will probably require 6 to 8 cells. The external resistance of a circuit should be much greater than the internal resistance of the battery, if you would have your battery last any time. When these two resistances are equal, the battery gives its largest current, but runs down very fast.

(7459) E. M. asks: How can I produce a plane, polished surface on mineral specimens, to show the color and texture of the mineral? A. If the mineral is hard, it may be reduced to a plane surface by means of a carborundum wheel, kept wet with water, or by rubbing it on an iron plate supplied with carborundum in the form of a coarse powder, kept wet. It may be smoothed with a finer carborundum wheel or with finer powder and finally polished with rouge or putty powder and water applied with a pitch lap.

(7460) A. P. Y. says: Some years ago I saw an answer to one of your correspondents how to detect sewer gas. As I remember it, some chemical was exposed in a vessel, and, if sewer gas existed, it became discolored. Can you give directions for making the test? A. 1. A suspected joint in a sewer or drain pipe may be tested by wrapping it with a single layer of white muslin, moistened with a solution of acetate of lead. As the gas escapes through the meshes of the cloth it will be blackened by the sulphur compounds. 2. It is usual to detect gas escapes by applying a lighted taper or candle to the suspected place of leakage. This is dangerous, and many explosions have thus been occasioned. A safer mode is as follows: Mix dark soap and water in the proportion of 2 pounds of the former to 5 or 7 pints of the latter. The sticky paste or liquid so obtained is ready to be applied by the brush to the gas pipe, when, if an escape is taking place, bubbles will readily be seen on the liquid; thus the positions of the gas escapes are indicated without any danger.