

A Dog on the Witness Stand.

The Richmond, Va., *Enquirer* states that a Mr. Spears was recently before the police court in that city, charged with keeping a vicious dog, and the animal was ordered to be killed. Subsequently, however, the execution of the sentence was suspended, as the evidence upon which he was convicted was *ex parte*, and a new trial granted. When the case came up again, a large number of persons testified as to the good character of the dog, and the whole matter resolved itself into the fact that he had scared the gentleman, who complained of his attacking him, by rough play. Nevertheless, to make assurance doubly sure, at the request of his master, the dog was put upon the stand to testify in his own case. On being asked if he would bite any one, he uttered a peculiar noise and shook his head. He was then asked if he would bite if his master set him on, and replied in the affirmative by nodding his head and barking. When asked if he would bite the Court, he replied in the negative. Several other questions were asked him, and his answers and actions exhibited the greatest intelligence. It is needless to say that he was honorably acquitted.

Resharpening Files.

Well worn files are first carefully cleaned with hot water and soda; they are then placed in connection with the positive pole of a battery, in a bath composed of 40 parts of sulphuric acid and 1,000 parts of water. The negative is formed of a copper spiral, surrounding the files but not touching them; the coil terminates in a wire which rises toward the surface. This arrangement is the result of practical experience. When the files have been in the bath ten minutes, they are taken out, washed, and dried, when the whole of the hollows will be found to have been attacked in a very sensible manner; but should the effect not be sufficient, they are replaced in the bath for the same period as before. Sometimes two operations are necessary, but seldom more. The files, thus treated, are to all appearances like new ones, and are said to be good for 60 hours' work. M. Werdermann employs twelve medium Bunsen elements for his batteries.

New Lighthouses.

A Baltimore firm, under contract with the government, have in course of construction two lighthouses, one of which is destined for Hunting Island, and the other for Morris Island, South Carolina. The one for Hunting Island is entirely of cast iron, and is one hundred and thirty-six feet high and twenty-seven feet in diameter. The one for Morris Island will be one hundred and fifty feet high; the lantern brackets, the gallery, and the lantern are of cast iron, the tower being of brick. The roofs of both the lighthouses are of copper, and each is to be supplied with a spiral stairway.

E. A. says (in commenting on the following statement in our recent articles on "Dentistry": "The teeth may possibly be removed by patiently sawing and cutting the vulcanite away from the pins"): "Teeth can be easily and quickly removed by holding them in a spirit lamp until the vulcanite is softened a little around the pins, and the teeth pushed off, using a cloth to protect the hand; but they will come off entirely clean and in much less time than they can be filed, to say nothing of the cost of the teeth."

Recent American and Foreign Patents.

Improved Car Coupling.

Richard Hopkins, Frostburg, Md.—The coupling is pivoted loosely to the lateral front piece of a frame, which is pivoted by arms to staples of the drawhead. The arms of a rod frame swing along the sides of the drawhead, and carry a bottom piece, which extends across the under side of the drawhead, and defines the extent of motion in raising the pin for uncoupling, and also weights the same, to cause the dropping of the coupling pin after the uncoupling mechanism is released. The rod frame is hung to hook-shaped levers, which are pivoted to the car frame, and connected by elbow-shaped extensions to the forward projecting lever. The device is operated at the top of the car by a lateral crank rod and lever connection, with a crank shaft and wheel supported in a top frame.

Improved Adjustable Bed.

Albert F. Supplee, Nelsonville, O.—This is a mattress-supporting frame divided in the middle longitudinally; also divided in three sections transversely, and hinged together, and supported by springs upon two middle supports and two end supports. The whole is so arranged on springs and provided with adjusting levers that either end or side of the bed may be raised and supported higher than the opposite side or end.

Improved Box and Bale Hook.

John W. Knight, Galveston, Texas.—This invention consists of a guard or shield of leather or equivalent material, combined with the handle and shank of the hook used for turning or otherwise handling bales and boxes, to prevent the hands from rubbing or pressing against the bale or box, and thus becoming injured. The guard is so applied to the hook that (when, by lifting the box or bale, the hand is pressed toward the said box or bale) it will be interposed to protect the hand from the rough surface, as well as from any accidentally projecting corners, nails, or crews.

Improved Book-Supporting Attachment for Tables.

William H. Patterson and Ole Swensen, Cresco, Iowa.—A spindle holds the book holder directly in front of the writer. The book holder is adjustable along the bracket by a slotted foot and a binding screw. A lamp holder is held so as to throw the light of the lamp on the book on the holder to be copied from, as well as the one on the table to be written in. A couple of weighted arms are jointed to the book holder, hanging down in front of it, so that the weights will rest on the book and keep it open. The bracket can be shifted around the stand in case it may be wanted to do so, and it can be taken off and put on readily for convenience in adjusting the parts. An inkstand holder is also provided.

Operating Steam Engines by Compressed Air.

Jacob B. Van Dyne, Louisville, Ky.—This invention relates to a new method of charging steam boilers with a compressed medium of air or gas for instantaneous use, and is more particularly applicable to the boilers of steam fire engines. It consists in admitting a high pressure of air or gas into the boiler above the water when required, and operating the engine by the compressed medium while steam is being generated, the compressed medium furnishing a motive power which is instantaneously available, and which, owing to the expansion of the air or gas by the heat, is sufficiently continuous to run the engine until reinforced by the steam, without any intermission.

Improved Bale Tie.

Henry B. Jones, Burton, Texas.—The key consists of a head, a short shank, and a radially projecting bit, having sharp corners to clutch the fibers of the bale. The key is inserted in keyhole slots in the ends of the hoop.

Improved Grain Binder.

James McNeal, Chauncey, Ill.—This invention consists of a pair of gripping arms, in combination with a sewing machine needle and shuttle and looping hooks, so contrived that they gripe the gavel, compress it, and pass it across the needle hole into a bight of the twine, and hold it while the twine is being tied by the sewing machine devices.

Improved Bed Lounge.

Ferdinand Braun, New York city.—This sofa bed is readily thrown into open or folded position for use as bed or sofa or lounge, all the parts being firmly and securely connected. A hinged section has a longitudinal sideboard hinged thereto and a fastening rod pivoted to the board, with a hinged top piece for retaining the same rigidly in open inclined position.

Improved Horse Hay Rake.

Solon H. Bushnell, Fairport, N. Y.—Collars placed upon an axle are secured adjustably in place by set screws which pass in through projections. Upon the other side of the collars are formed projections to receive the ends of the rake teeth which are held by set screws which pass in through the side of the said projections, and press against the said teeth. By suitable mechanism the draft strain may be made to hold the rake teeth down to the ground with more or less force, as circumstances may require; and other apparatus is provided which, as the rake teeth are raised to discharge the collected hay, prevents the hay from being raised by and with the rake teeth, and causes the hay to be promptly dropped, thus preventing the teeth from becoming clogged and the hay from being scattered.

Improved Wheel for Vehicles.

George Cornwall, Plainfield, N. J.—The rim of sheet metal has a groove in the face of half a circle; also sockets upon the inner periphery for the reception of the spokes. The last screw deep into the hub, so as to enter the socket, and then screw out again sufficiently to screw them in the rim. The tyre of the wheel is made of round vulcanized rubber, nicely fitting in the groove.

Improved Dust Cap for Watch Regulators.

Wenzel H. B. Schmidt, Napa, Cal.—This is a dust cap arranged to cover and shield the hair spring and regulator hand, and the more delicate portions of the watch movement. It is a metallic frame, enclosing a transparent plate, and is tightly fitted down on the plate and over the bridge, and fastened by square-headed screws. These screws have each an eccentric washer under the head, which, when the cap is fastened, are turned by means of a watch key on the narrow flange of the cap frame, which securely holds the cap in place.

Improved Chemical Fire Extinguisher.

Jacob B. Van Dyne, Louisville, Ky.—This invention relates to certain improvements in chemical fire extinguishers, and consists in the combination of two invertible fire extinguishers, supported upon wheels, and connected with a common discharge pipe by intermediate flexible pipes provided with detachable caps. It consists further in the combination of a swiveled screw rod, a frame, and a nut for the purpose of forming a stopper for the acid vessel, and also in the combination of a detachably locked acid vessel with an acid vessel holder, permanently attached to the shell of the extinguisher.

Improved Plow.

August Ihringer, Calvert, Texas.—This invention relates to means whereby the beam of a plow may be elevated or depressed at the front end, according to the depth to which it is intended that the plow shall run, and held securely at several points of adjustment.

Improved Bureau or Dressing Case Bedstead.

Mark Crosby, Boston, Mass.—The object of this invention is to provide a bedstead in combination with a bureau or dressing-case, so constructed and arranged as to fold in the latter when not in use, and be disposed in a small compass and out of sight. It consists in the combination of a bureau having bottom and rear recesses, with a bedstead having a hinged head section, the said head section sliding in ways into the bottom recess, and the other portion folding in a vertical position in the rear recess. The lower portion of the bureau is also provided with a hinged leaf, which, when the bedstead is drawn out, adds to its length.

Improved Nozzle.

James H. McConnell, New York city.—The nozzle is swiveled to the bulb of a shut-off cock. A plug is inserted through a hole in the side of the bulb, which hole is closed by a screw cap, so formed that its outer surface may be continuous with the surface of the bulb. Upon the inner end of the nozzle is formed a segment, which gears with a segment upon the top of the plug. By this construction, by turning the nozzle in one direction, the plug will be turned to allow the water to flow through the said nozzle; and by turning the nozzle in the other direction, the water will be shut off.

Improved Table.

Louis Postawka, Cambridgeport, Mass.—The head pieces, which are long enough to extend across the table and serve for two legs, are connected by a tenon, fitting in a socket, and are attached to the frame by bolts which pass up to sockets in the upper side of the frame. The posts are mounted on foot pieces which receive the two legs of each end, which, together with the head pieces, form side frames, and the two frames are connected by a stretcher, screwing into them by right and left threads. Mr. Postawka is the patentee of an ingenious and useful improvement in piano stools whereby the seat is raised and lowered by turning a knob at the side, in place of rotating the seat.

Improved Sash Fastener.

Thomas L. Shaw, Laurinburg, assignor to himself and Hugh G. Fladger, Lilesville, N. C.—This invention consists of a pivoted sector-shaped latch piece, which is guided in ribbed inclosing plates, and acted upon by a strong spring bolt for forcing curved V-shaped arms, with tapering ends, into notches of the window casing or sash frame, for retaining the sash in any position, and locking the same. Particulars regarding this invention may be obtained by addressing H. G. Fladger, Lilesville, N. C.

Improved Pianoforte Attachment.

John W. Brackett, Boston, Mass.—This is an improved organ pedal attachment to pianos, which affords the organist and pupil all the advantages of the organ for practice, enabling them to gain the technique of both the piano and organ at the same time. A set of organ pedal trackers, levers, and stickers is combined with the keys of a piano, and stops and their levers are also provided, in connection with the trackers of the device. The value of this invention consists primarily in the facility afforded to students of obtaining practice in the use of the feet in pedaling, and thus acquiring an indispensable qualification for playing the organ when the latter instrument is not accessible.

Improved Faucet for Oil Cans.

Edwin A. Jackson, New York city.—This faucet is arranged entirely within a bell-shaped base part, with faucet barrel and spout, which is soldered to the can. The plug is provided with a hinged and recessed finger piece, to be thrown up for the purpose of turning the plug, and locked in downward position over a spring of the spout for closing securely the faucet.

Improved Slide Valve for Steam Engines.

Henry Bolthoff, Central City, Col. Ter., assignor to himself and James Clark, same place.—This slide valve is composed of two parts, connected with two eccentrics on the main shaft. The eccentrics are so arranged on the shaft that the parts are simultaneously moved in opposite directions. The valve is so set as to about half open the main port, more or less, as the case may require, when the crank is on the center. The upper part is moved in an opposite direction, consequently the full opening is made in less than the usual time required by the ordinary valve. The upper part has on the inside of each port an adjustable jaw, for the purpose of increasing and decreasing the size of the ports for cutting off steam at any point of the stroke that may be desirable.

Improved Quilting Attachment for Sewing Machines.

William H. Null, Blandinsville, Ill.—This invention includes apparatus for adjusting the legs toward and from each other, to vary the height of the quilt to adjust it to the machine, and to set the benches so that the frame will descend a little to facilitate the feeding. The quilt is attached to rollers, held against turning by a friction band, lever brake, and holding pawl; and one roller has a ratchet, ratchet lever, and pawl for turning it to draw the quilt from one to the other as the work progresses. The quilt is stretched in the direction of the seams by hooks, cords, and a lever, the cords passing over suitable guides, to be operated alike by the lever to stretch evenly at both ends, and the lever being provided with a catch button, to hold it when pulled back to stretch the quilt.

Improved Battening.

John Loppacker, New York city.—The boards are connected by the cleat pieces, and their edges are grooved. Grooves and rabbets of the cleat piece receive tenons of the boards, and a cleat, which overlaps the latter, is held tightly thereto. The lower side of the cleat piece is flush with the lower sides of the boards. By this mode, the boards and cleat pieces are securely locked together, and the possibility of leakage is avoided.

Improved Bottle Stopper.

Joel B. Miller, Rondout, N. Y., assignor to himself and August Yost, same place.—This stopper is located inside the bottle, and has a bale or handle hinged to the top. It is provided with an enlarged upper end, designed to prevent the stopper from falling to the bottom of the bottle, and also to serve as a handle to facilitate the drawing of the device into the neck.

NEW BOOKS AND PUBLICATIONS.

CHEMICAL AND GEOLOGICAL ESSAYS. By Thomas Sterry Hunt, LL.D., F.R.S., etc., etc. Boston, Mass.: James R. Osgood & Co.

Dr. Sterry Hunt has for many years been a highly valued contributor to our current scientific literature, both on account of his learning and attainments and his uniformly graceful and pleasing style. In collating these papers, published originally in magazines or read before scientific associations, he has given us a book of permanent value to the history of contemporary Science; and in it he enunciates many original views and theories, some of which have been justified by actual discovery by himself and other investigators. The paper on "The Theory of Chemical Changes" deserves especial commendation as a model of popular scientific exposition.

THE COMMON FROG. By St. George Mivart, F.R.S., etc. Lecturer on Comparative Anatomy at St. Mary's Hospital, London, Author of "The Genesis of Species," "Elementary Anatomy," etc. Price \$1. New York: Macmillan & Co.

From the days of Galvani and Volta, the batrachian has always been a martyr to Science; and on this ground, as well as for its remarkable metamorphosis from a fish to an amphibious animal, it deserves the closest study. Mr. Mivart discusses thoroughly and well the whole of the delicate organization which makes the frog so useful for physiological experiments, as well as the number and variety of its relations to other classes of animated nature.

THE BLOWPIPE: a Guide to its Use in the Determination of Salts and Minerals. Compiled from Various Sources by George W. Plympton, C.E., A.M., Professor of Physical Science in the Polytechnic Institute, Brooklyn, N.Y. Price \$1.50. New York city: D. Van Nostrand, 23 Murray and 27 Warren streets.

Professor Plympton's earlier work on blowpipe analysis has long been recognized as a standard authority; and the volume just received is equally valuable as a text book, while its modern date and comprehensive arrangement make it the manual, *par excellence*, of analysis by the dry method. It is well illustrated, and will be read and consulted by practical scientists as well as by pupils and students.

THE USE OF THE STEAM ENGINE INDICATOR, or Practical Science for Practical Men. By Edward Lyman, C.E., M.A.I.M.E., etc. Price \$1, postage paid. Published by the Author, New Haven, Conn.

The use of the indicator is becoming daily more general, and there is need for precise and detailed description of its theory and mechanism which we find excellently given in the treatise before us. Some useful and original tables of pressures at various points of stroke, under steam cut off at different proportions of piston travel, are given, as well as cards showing the merits and faults of engines of all varieties, as displayed by the unerring indicator.

A PRACTICAL AND CRITICAL GRAMMAR OF THE ENGLISH LANGUAGE. By Noble Butler. Price \$1. Louisville, Ky.: John P. Morton & Co.

We have to give the highest commendation to this new edition of a standard work, which epitomizes the very numerous and complex rules of formation of our parts of speech in a clear and forcible manner. It is accurate and precise in all its definitions; and the examples are selected with great judgment. A better grammar cannot be put into the hands of the young; while its judicious elucidation of many disputed points will give it interest to students of all ages.

EATING FOR STRENGTH: a Book comprising the Science of Eating, Receipts for Wholesome Cookery and Drinks, and Answers to Questions. By M. L. Holbrook, M.D., Editor of "The Herald of Health," etc. New York city: Wood & Holbrook, 13 & 15 Light street.

This book is a collection of much useful information on the important subject of diet, and contains many practical directions for the preparation of wholesome food.

ILLUSTRATED GUIDE TO THE CINCINNATI EXPOSITION, and Catalogue of the Fine Arts Department. By Daniel J. Kenny. Price 25 cents. Cincinnati Gazette Company.

This book is excellently arranged, and contains much useful and instructive information, besides the matters printed in its title.

A PRACTICAL THEORY OF VOUSSEUR ARCHES. By William Cain, C.E. Price 50 cents. New York city: D. Van Nostrand, 23 Murray and 27 Warren streets.

This useful handbook is No. 12 of Van Nostrand's "Science Series."

Inventions Patented in England by Americans.

[Compiled from the Commissioners of Patents' Journal.]

From October 17 to October 28, 1874, inclusive.

- AXLE BOX.—C. A. Hussey, New York city.
- BOX NAILING MACHINE.—J. H. Foster et al., Chicago, Ill.
- CAR COUPLER.—J. D. Mills, Alexandria, Va.
- CUTTING SCREW THREADS.—N. W. Frost, Cohoes, N. Y.
- CUTTING TEXTILE FABRICS.—W. F. Jobbins et al., New York city.
- DRYING LUMBER.—G. A. Woods, Cambridgeport, Mass.
- ENGINE DRAFT, ETC.—W. O. Cooke, New York city, et al.
- IGNITION FUSE.—W. A. Leonard, Boston, Mass.
- LADY'S GARMENT.—O. P. Flynt, Boston, Mass.
- MARINE GOVERNOR.—E. T. Jenkins, Williamsburgh, N. Y.
- PAPER BAG MACHINE.—G. S. Lewis, Springfield, Mass., et al.
- POTATO DIGGER.—L. A. Aspinwall (of Albany, N. Y.), London, England.
- POTATO PLANTER.—L. A. Aspinwall (of Albany, N. Y.), London, England.
- PUMPING APPARATUS.—J. E. Prunty, Baltimore, Md.
- ROTARY ENGINE.—A. J. Works et al., New York city.
- UMBRELLA, ETC.—R. S. Spencer, New York city.
- WASHING MACHINERY.—L. A. Aspinwall (of Albany, N. Y.), London, E. g.
- WEAVER'S SPOOLS.—E. H. Bryant, Boston, Mass., et al.
- WRET STOP.—S. B. Capen, Boston, Mass.