RECENTLY PATENTED INVENTIONS.

Electrical Devices.

LOCKING NUT.—L. STEINBERGER, New York, N. Y. This invention relates to locking-nuts, and more particularly to a form of locking-nut admitting of general use and peculiarly applicable in instances where it is desired to lock a nut used in electrical features and especially for the purpose of securing wires in position. It may be applied in any position and practically in any place and upon any work or to any structure where bolts provided with revoluble nuts may be needed.

CIRCUIT-BREAKER.—S. WATERBURY, Schenectady, N. Y. The improvement relates to circuit-breakers and more particularly to those which may be operated both manually and automatically, its principal objects being to secure independence between the two operating mechanisms, so that the closure of the circuit by hand will not interfere with its again automatically opening, and to otherwise improve the apparatus.

Of Interest to Farmers.

HAY-PRESS.—E. W. KELSEY, Collierville, Tenn. The type referred to here is that of the "rebounding-plunger" press. The purpose of the inventor is to provide an economic form of press operated by horse-power, and to provide a single double-cam-faced operating-lever for the plunger-shaft which has a direct action and which operates with the least possible friction and which also acts upon the plunger-shaft almost immediately upon its return from its pressing-stroke.

Of General Interest.

CABINET.—FANNIE WOLF, Jersey City, N. J. This cabinet is for use in stores in lieu of shelving, and comprises a plurality of boxes for holding goods, the boxes being arranged in tiers or normally one upon another, the object of the invention being to provide a simple means for raising the several boxes in a tier and supporting the box or boxes above the one from which it is desired to remove articles after said box is lowered from those above it.

GARMENT-RACK.—FANNIE WOLF, Jersey City, N. J. In this case the invention has reference to improvements in racks for displaying cloaks and other garments, the object being the provision of a rack of simple and novel construction on which the garments can be suspended and displayed to customers to the best advantage.

HOSE-SUPPORTER.—A. M. WILSON, Cherokee, Iowa. The aim of the present invention is to provide a supporter and belt for the same arranged to provide an abdominal pad without danger of forming wrinkles and binding the wearer on walking, stooping, or bending sidewise; to obviate the use of undesirable metallic connecting-pieces and to form a convenient means for the attachment of the supporter straps of ordinary construction or such as described in a former patent granted to Mr. Wilson.

MEANS FOR TYING BLOOD-VESSELS.—A. W. FRENTZEN and J. SCHOEMAKER, Leyden, Netherlands. This improvement obviates a former disadvantage by forming the loop separately and thereupon placing on the nippers with which the vein is gripped, the ends of the thread being then pulled to close the loop. The loop slides along the nippers toward the rounded end of the latter, by which the vein is held. Reaching the end the loop slides onto the vein and is then drawn tightly together. To prevent the loop taking unfavorable position on the nippers, the latter are provided with an abutment in form of a finger, spring, or the like which keeps the loop from changing position on the instrument.

Hardware.

KNIFE.—W. F. WATSON, Tidioute, Pa. The principal object in this instance is to provide means for automatically locking the blade of a knife, especially of that form known as a "jack-knife," in open position. Although especially adapted to jack-knives, it can be used for any kind of a knife having a movable blade. For accomplishing this object means is provided which is inexpensive and which does not add a single piece to the jack-knife of ordinary construction.

VISE.—J. F. MCLEAN, Montreal, Canada. In this case the invention relates to improvements in vises, particularly vises of the "quick-acting" type, in which a pair of jaws are arranged to be freely and quickly closed onto an object, after which they are moved to closer engagement with said object by means of a screw or other mechanical device.

Household Utilities.

MOP-HEAD.—M. HARTMAN, Upper Sandusky, Ohio. In this instance the invention has reference to improvements in mop-heads made of mop-jam, wicking, or other suitable material and a holder for the same, and the object of the inventor is to produce a simple, cheap, and efficient mop-head and holder which can readily be applied to a handle and can be easily packed and conveniently shipped in large quantities.

NEEDLE-THREADER AND PINCUSHION.—H. G. WILMERLING, New York, N. Y. The purpose of the invention is to provide a construction of needle-threader comprising a tubular body made in telescopic sections for the reception of needles and a head constructed mainly of glass, the glass section being provided with an opening to receive the eye-section of a needle, which latter opening is at right angles to and crosses the needle-opening, whereby such a smooth surface is presented to the thread that it can be quickly and conveniently passed through the eye without any danger of chafing the thread. The base for the body of the threader is in the form of a cushion.

Machines and Mechanical Devices.

SNOW LOADER AND UNLOADER.—J. O. LINDEN, Prophetstown, Ill. This machine cleans snow from streets or roads and loads the snow into a wagon, from which it may be unloaded at any suitable place, the object being to provide a machine so constructed that the loading and unloading will be practically automatic and in which the working parts may be controlled from the driver's seat.

RAZOR-STROPPING MACHINE. — E. G. KAUFMAN, Yonkers, N. Y. The invention relates to machines in which the strop is manually actuated to rock a shaft connected with the clamp employed for holding a razor in contact with the runs of the strop. The object is to provide a machine more especially designed for stropping ordinary handled razors and arranged to permit convenient insertion and removal of the razor and to insure easy rocking motion of the razor-clamp to bring the cutting edge of the blade into proper contact with the runs of the strop.

PNEUMATIC BRUSH-FILLING MACHINE.—J. MORRISON, JR., Troy, N. Y. The inventor provides improved devices for use in filling brushes and he is enabled to utilize advantageously pneumatic means for showering the bristles upon the dies which are provided with holes for receiving the tufts. He arranges a screen in connection with the die to facilitate the assembling of the tufts. Economy of manufacture results more particularly when the pneumatic showering devices are used.

Prime Movers and Their Accessories.

HYDRAULIC MOTOR.—J. SCHROEDER, Davenport, Iowa. This invention pertains to improvements in hydraulic motors, the object being the provision of a motor of this character that may be operated with comparatively low water-pressure and having a novel valve-controlling mechanism, and, further to so arrange the parts that there will be no dead-centers.

Railways and Their Accessories.

HOSE-COUPLING FOR CARS. — D. P. FAHRNEY, H. E. DORAN, and G. A. NEWTON, Springfield, Mo. The purpose of the invention is to produce a coupling which will couple automatically when the cars are brought together and which will have a desirable flexibility, adapting the device for the passing of curves and enabling it to accommodate itself to roughness in the road-bed. The purpose is to provide efficient means for connecting the air-hose and other hose which should run through the train.

RAILWAY-BRAKE.—W. H. WOOD, Lloyd Street, Petersburg, South Australia, Australia. The invention relates to brakes for railway-trucks and other railway-vehicles, and comprises a brake-gear whereby the brakes may be applied to or lifted from the wheels from either side of the vehicle by hand-power. The several parts are so situated and connected that they do not in any way interfere with the side, end, or bottom doors of the vehicle. The hand-levers whereby the brakes are applied have a horizontal movement only and can be operated as a vehicle passes.

RAIL-JOINT.—C. K. FREER, Memphis, Tenn. This improvement pertains to railroad-rails; and its object is to provide a new and improved rail-joint arranged to securely fasten the abutting ends of the railroad-rails together. The joint is comparatively simple and durable in construction, and its parts can be readily assembled to insure a strong joint and support for the meeting ends of the railroad-rails.

Pertaining to Vehicles.

SPEED-INDICATOR FOR MOTOR-CARS AND OTHER VEHICLES.—R. M. RUCK, 44 Thurloe Square, South, Kensington, London, England. Mr. Ruck's invention has reference to speed-indicators for vehicles (more particularly motor-cars), and it has for one of its main objects to provide in connection with the "excess-speed" indicator, means whereby to enable the speed at which the vehicle is at any moment running to be more readily ascertained than heretofore.

WHIFFLETREE-HOOK. — J. R. HUGHES, Chama, New Mex. Ter. The inventor employs an appliance comprising duplicate reversely-disposed hooks of special embodiment for engaging therewith of a specially-constructed double cockeye having a tug for attachment to or connection with the end of an ordinary harness-trace. The embodiment is such that when this cockeye on the trace-tug is applied to or connected with the said hooks it is practically impossible for the same to become accidentally disconnected therefrom, irrespective of the directions or angles assumed by the tug under ordinary conditions of operation.

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

Business and Personal Wants.

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

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Marine Iron Works. Chicago. Catalogue free.

Inquiry No. 8223.—Wanted, addresses of manufacturers of all kinds of machine planes and molders for steam engines.

"U. S." Metal Polish. Indianapolis. Samples free.

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For bridge erecting engines. J. S. Mundy, Newark, N. J.

Inquiry No. 8225.—Wanted, the address of the makers of the Ferguson road carts.

Handle & Spoke Mchy. Ober Mfg. Co., 10 Bell St., Chagrin Falls, O.

Inquiry No. 8226.—Wanted the manufacturer of the machine for making elbows for stove-pipe and gutters.

I sell patents. To buy, or having one to sell, write Chas. A. Scott, 719 Mutual Life Building, Buffalo, N. Y.

Inquiry No. 8227.—Wanted, makers of paper fiber and wood fiber tanks, about 20 feet to 30 feet long by 15½ feet wide.

The celebrated "Hornsby-Akroyd" Patent Safety Oil Engine is built by the De La Vergne Machine Company. Foot of East 138th Street, New York.

Inquiry No. 8228.—Wanted, machinery for making wooden toothpicks.

Manufacturers of patent articles, dies, metal stamping, screw machine work, hardware specialties, machinery tools, and wood fiber products. Quadriga Manufacturing Company, 18 South Canal St., Chicago.

Inquiry No. 8229.—Wanted, electric welded wire hoops, galvanized gas pipe crosses large enough to receive ⅜-inch pipe with one end cast heavy enough to turn a ball race around the opening to receive the gas pipe and large enough to retain 3-16-inch ball, also steel plate 3 16 inch thick.

Automobile experts are in constant demand at high salaries. Our seven weeks' course is the most thorough and practical, fitting men to drive, handle and repair Day and evening classes. Special course for owners New York School of Automobile Engineers, 146 West 56th Street, New York.

Inquiry No. 8230.—Wanted, manufacturers of chest handles, hinges for washing machine, also gas pipe.

Inquiry No. 8231.—For manufacturers or dealers in wire for making ornamental novelty.

Inquiry No. 8232.—Wanted, manufacturers of charcoal burners, for making charcoal out of refuse wood; also for makers of stump pullers.

Inquiry No. 8233.—Wanted, the manufacturer or dealer in the patented device for recording notes of music.

Inquiry No. 8234.—For manufacturers of "knuckle-joints" or device used in a similar manner.

Inquiry No. 8235.—Wanted, manufacturers of centrifugal gas-cleaning apparatus, of the Edward Theisen type, such as used in Europe.

Inquiry No. 8236.—Wanted, dealers in pearl-bearing mussels, also in asbestos.

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.

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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.

(10061) G. B. W. asks: 1. Does the magnetic field of an inductor dynamo rotate just as if the field coil were fastened to the inductor? A. No; we think the type you name does not. 2. In a slotted armature does the field have to cross an extra wide gap due to the depth of the slot? A. No; the air gap is smaller in a slotted armature. The lines follow the iron in preference to the air, and do not pass out at the bottom of the slots. 3. Does a conductor cut the lines of force or do the lines of force cut the conductor? That is, do the lines of force break on one side of the conductor and reunite on the other when it is swept through the field on the armature of a dynamo? A. Lines of force are not like threads, to be cut. They are not of material substance, and are not cut in any such sense. The wire passes through the field and is resisted in doing so with a force which has a certain value and effect in generating an electric current which is well expressed by the convention of imaginary lines. The lines are as imaginary as the earth's equator. 4. Is there an arc lamp which does not throw shadows because of the up-and-down rods by the side of the carbon? A. Lamps have been made which do not throw shadows. There need be but a small conductor to carry the current to the lower carbon.

(10062) W. B. asks: In a recent issue in Notes and Queries, 5.846 deg. F. is given as the latest figure for the melting point of platinum. Is this misprint for 3.846? A. No; the error in the melting point of platinum arose from using a temperature which was in Fahrenheit degrees as if in Centigrade degrees. The melting point of platinum is given variously from 1775 deg. C. to 2200 deg. C., which would be equivalent to about 3200 deg. to 3992 deg. Fahr.

(10063) S. C. asks: 1. Please let me know the amount of iron wire which is necessary for the core of the armature of the simple motor described on page 500 in "Experimental Science." A. About a pound of wire is required. 2. Would the carbon plates made by the process given on page 705 be all right for the plunge battery on page 401? A. Yes, if well made; but we do not advise an amateur to attempt the manufacture of carbons. He cannot obtain very good results, and they are very cheap in the market. 3. How much bichromate of soda is required for one charging of the same battery? A. To every 6 quarts of water take 3 pounds of sodium bichromate and 1 quart of strong sulphuric acid.

(10064) B. H. G. asks: Please inform me through your Notes and Queries the principle and details of the radiometer? A. The radiometer is a heat instrument. Light has no connection with it. It consists of a glass globe, usually about two inches in diameter, exhausted to a suitable degree. Within is a steel pivot upon which revolves a cross arm carrying four vanes of aluminium, one face of which is blackened by carbon. When heat falls upon the vanes the black faces absorb more than the bright and are hotter. The molecules of air coming in contact with the black faces are heated more than those coming in contact with the bright faces and rebound with more force. The reaction of this rebound causes the vanes to revolve with their black faces in the rear. The globe itself has been made to show a tendency to rotate in the opposite direction to the vanes, this being due to the bombardment of the inner surface of the glass by the stream of molecules which rebound from the vanes. Thus the radiometer is a heat engine, transferring heat from the black side of the vanes to the surface of the glass opposite. A satisfactory explanation of the phenomenon is given in Barker's "Physics," price $3.75 by mail. See also SUPPLEMENTS 13, 37, price ten cents each. 2. Please state also whether energy exists in light, and to what extent. A. Light and heat are now classed together as radiant energy by scientists, and the energy of both is measured by absorbing some material and determining the heating effect it produces. The energy of light as light has not been measured by any mechanical effect which it can produce.

(10065) J. L. M. asks: What is the most practical and least expensive process to produce, as near as possible, an absolute vacuum in a chamber containing about four cubic feet? Will it require a greater capacity of power to empty a large space than it will a smaller one? A. To exhaust so large a space it will be necessary to use a mechanical air pump. It is not possible to produce an absolute vacuum by any means of exhaustion. It will, however, not require any greater power to empty a large reservoir. It will require more time.

(10066) A. L. N. asks: 1. Are there any known substances, preferably metal, which allow some kind of gas to pass through, about the same as light through glass? If so, which? A. We do not know any such metal or substances. The molecules of any gas are much too large to pass between the molecules of a metal. Red-hot cast iron will allow some gases to escape through it, but not with the ease with which light passes through glass. 2. Are there any known substances, preferably metal, which will change temperature, when immersed in some gas? If so, which? A. Powdered antimony or heated copper foil will burn with the evolution of light if dropped into a jar of chlorine gas.

(10067) E. V. V. writes: I have had some little trouble in convincing a man that ice forms on the bottom of a running stream of water, but having seen the same I know I am right. Would you kindly answer same in your valuable paper? A. Anchor ice is often to be seen fastened to the stones on the bottom of a stream, and also to the timbers around a mill. Very frequently mills are stopped by the anchor ice during a very cold snap.

(10068) H. W. J. says: 1. Is concrete made wet stronger than if made dry? A. Concrete should be made wet. It will be a great deal stronger than if made dry. 2. Are concrete walls made of the common form of concrete blocks non-porous? A. Concrete walls of common concrete blocks are porous. 3. Are walls made with oyster shells liable to fail on account of the shells bursting? A. It is somewhat difficult to answer this question, as there are a great many ways in which oyster shells could enter into building material successfully. 4. Is the proportion 1, 3, 5 considered about the proper one for concrete? A. The proper and standard mixture for concrete is 1 part Portland cement, 3 parts clean sharp sand, 5 parts fine crushed stone.

(10069) R. L. M. asks how to make Pharaoh's serpents. A. These are little cones of sulphocyanide of mercury which, when lighted, give forth a long, serpent-like, yellowish brown body. Prepare nitrate of mercury by dissolving mercury dioxide in strong nitric