

ble the strains on the apparatus. The inventor improves speed regulation of rotating parts by providing devices for throttling the motive-fluid supply.

#### Railways and Their Accessories.

**CAR-SEAT.**—F. BENNETT and S. A. WALKER, New York, N. Y. In this patent the invention refers especially to a car-seat of that class in which the back is made to shift from one position to another, so as to reverse the seat, and in which the seat proper is made to change its inclination in correspondence to the change in the position of the back. It resides in a certain novel manner of mounting the back or the back and seat to attain these results and in a peculiar arrangement of the foot-rest with respect to the mounting devices.

**RAIL-JOINT.**—C. J. SHEA, Freeport, N. Y. Mr. Shea's invention is an improvement in that class of rail-joints in which bolts, nuts, and fish-plates are dispensed with, the meeting ends of the rails being provided with interlocking tongues or projections. He has devised a construction and arrangement of parts whereby rail ends are so engaged as to be more firmly supported vertically and also held in more rigid alignment laterally.

**RAILROAD-SWITCH.**—L. L. LAKE, Fontanet, Ind. This invention is designed to dispense with frogs as ordinarily used. It provides a special construction of switch which leaves the main track smooth and unbroken when the main line is open and in which the switch-rail is raised slightly above the main track where it crosses the rails of the main track and has an adjustable crossover-section which in one position leaves the main rails open and continuous and in another position laps over one of the main rails and carries the wheels of the cars over the main rail onto the siding or diverging track.

**RAIL-JOINT.**—J. W. ENRIGHT and E. J. ENRIGHT, New Orleans, La. In this instance the improvement has reference to railway construction, and concerns itself especially with rail-joints. The object of the invention is to produce a rail-joint of simple form which will operate without necessitating the use of bolts and nuts to hold the abutting ends of two rails firmly together.

**RAILWAY-RAIL JOINT.**—H. C. BREWSTER, C. A. DUTHERAGE, and W. L. GLIDDEN, Shreveport, La. In this patent the invention is an improved means for connecting and supporting the meeting ends of railway-rails. It is more particularly an improvement in forms of truss connections and braces in which slidable wedges are employed to enable the parts to be readily tightened in order to preserve a rigid or unyielding support for the rails.

**LOCOMOTIVE FIRE-BOX.**—J. NILSSON, Fremont, Neb. The object of this invention is to so construct the fire-box and connected parts of a locomotive as to enable the contents to be dumped at will from the cab. To this end he employs in connection with the dumping ash-pan an operating device for the grate and ash-pan, such device passing into the locomotive-cab, so as to be readily operated by the engine-driver or his assistant.

**CAR-COUPLING.**—S. E. JACKMAN, New York, N. Y. This improvement relates to cars traveling on inclined or switchback railways, such as are used in places of amusement, and the object is the provision of a coupler arranged to safely couple adjacent cars to allow the cars to readily travel over sharp curves and steep inclines of the track without danger of the cars becoming uncoupled or jumping the track.

#### Pertaining to Recreation.

**ADJUSTABLE LEG FOR BILLIARD-TABLES.**—C. D. SEYMOUR, Rensselaer, N. Y. The purpose in this improvement is to provide simple and readily-operated means for raising and lowering the legs of billiard-tables or like articles of furniture for the purpose of leveling the bed or top of the article, it being possible to expeditiously and conveniently bring about such adjustment with little exertion.

**TOY PISTOL.**—L. H. HINAMAN, Port Jervis, N. Y. In operation the handle is drawn backward, pulling the plunger to the rear against the resistance of the rubber band, and the recess in the curved arm engaging the pivot-bolt retains the hammer in elevated position and the plunger at the rear of the barrel. The projectile being dropped in the open end of the barrel and the cap placed in the cap-seat, a pull on the trigger will elevate curved arm and release hammer and explode cap. The plunger is drawn forcibly forward projecting a marble with considerable force.

**VELOCIPÈDE.**—F. M. THOMPSON, East Liverpool, Ohio. The object of the present invention is to provide for excluding the connections between the front and rear legs from view and for supporting the front of the sulky in such manner as to relieve the strain of such support from the imitation figure of the horse and to provide for a spring connection between the upper and lower leg-sections and for an adjustable seat for the sulky. It relates especially to that class of such devices which is represented in a former patent granted to Mr. Thompson.

**GAME APPARATUS.**—H. E. HENWOOD, New York, N. Y. Mr. Henwood's invention pertains to game apparatus, and more particularly to those in which various chance combinations in cards, dice, or the like may be

secured by means of appropriate operating and controlling mechanism. His principal objects are to provide a convenient and effective apparatus of this character for agreeable diversion.

#### Pertaining to Vehicles.

**VEHICLE FOR EXHIBITING GOODS.**—E. LEFÈVRE, Berlin, Germany. The interior space of this vehicle is divided by means of partitions in such a way that spaces or compartments are formed which are visible from outside. These compartments are intended to be utilized as show-windows and to be dressed with exhibits. The vehicle may also serve for transportation of goods and other purposes. The arrangement can be provided in vehicles of all sorts, even hand-vehicles, and is in no way confined to vehicles drawn by animals or operated by mechanical power.

**DEVICE FOR PREVENTING ACCIDENTS.**—C. MATHEWS, Coalmont, Ind. The principal objects in this invention are to provide means for readily and quickly detaching draft-animals from a vehicle and for simultaneously applying a brake to stop the vehicle if it is going at a high rate of speed, and at the same time to provide means for effectually guiding the vehicle after the horse is detached.

**VEHICLE-WHEEL.**—M. G. BABE, New York, N. Y. In this instance the invention relates to an improvement in vehicle-wheels, particularly wheels for automobiles and like vehicles; and the purpose of the construction is the provision of a wheel in which dishing strain is avoided and in which all necessary eccentric vibrations may take place at the center of the hub-section of the wheel when the wheel is in action.

**VEHICLE.**—J. J. FURCHTBAER, Joetta, Ill. The aim of the inventor is to provide a vehicle arranged to permit easy traveling, especially over rough surfaces, and capable of being used as a sled, skate, and the like. The device is very simple and durable in construction and allows the carrying of heavy loads with comparatively little power or exertion on the part of the person drawing the device forward.

**AUTOMATIC WAGON-BRAKE.**—E. F. VEATCH, Palco, Kan. This improvement in operation is entirely automatic. The brake may be easily applied to an ordinary wagon and may be used with or without a bed, being equally efficient in both cases. It is simple in construction, and is not liable to get out of order. Since considerable strain is brought to bear upon no part, the danger of breakage is reduced to a minimum.

**THILL-COUPLING.**—C. VIVES-NAVARRO, Ponce, Porto Rico. The principal objects of the invention are to provide means whereby the exertion of the pull upon the thills or tongue will be yieldingly resisted, so that the sudden starting up of the draft-animal will not cause a sudden jolt of the vehicle and so as to relieve the animal and vehicle from sudden strains of all kinds; also to provide similar means for causing the same kind of a resistance when the animal backs or the vehicle is pushed toward it.

**VEHICLE-BRAKE.**—D. GRUBE, Pike County, Ind. Mr. Grubb's invention is an improvement particularly in that class of brakes in which the brake is automatically set by the holding back of the team in descending an incline. The means for use in setting brakes by hand is an important feature, as when desired the handle-lever may be fitted at its socketed end on an upwardly-projecting arm, the handle-lever being secured in any desired adjustment by a rack. This handle-lever may also be utilized to lock the brakes free of the wheels.

#### Designs.

**DESIGN FOR A SANDWICH-SIGN.**—J. J. MEYER, New York, N. Y. This ornamental sign comprises a design representing a sausage partly covered by a roll or cheese sandwich placed on a flat broad surface. The top end of the frankfurter is pierced with three oblong holes. The sign carrier looks through the upper apertures and the whole is supported by shoulder hangers and waist band.

**DESIGN FOR AN ASH-TRAY.**—A. Q. WALSH, New York, N. Y. This new, original, and ornamental design represents an ash-tray of circular form. Upward continuation of the well-rounded sides at the front constitute a partial hood, the rest and greater part remaining open. The tray shows considerable depth, its bottom is flat, and a very graceful downward-curved handle is riveted at the back end of the tray.

**DESIGN FOR A BRACELET.**—C. S. HURD, Newark, N. J. In this case the design is for a bracelet exteriorly ornamented with leaves and flowers on a mottled background. Six slightly prominent scroll-worked shields are placed at regular intervals around this beautiful article.

**DESIGN FOR A FINGER-RING.**—J. L. HERZOG, New York, N. Y. In this ornamental and unique design the top of the ring is set to hold two dog heads, one on each side of the setting. The heads are in alignment, back to back, and slightly separated by a deep depression in the setting. The paws on which the heads rest hang over the curve of the ring.

**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. **MUNN & CO.**

Marine Iron Works. Chicago. Catalogue free.

**Inquiry No. 7703.**—For parties who can manufacture heavy ditching machinery, and to undertake the manufacture of a tested and novel machine.

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

**Inquiry No. 7704.**—Wanted, addresses of manufacturers of candle-making machinery.

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

**Inquiry No. 7705.**—Wanted, manufacturers of hydraulic presses.

Drying Machinery and Presses. Biles, Louisville, Ky.

**Inquiry No. 7706.**—Wanted, makers of cross-arm pins for telephone and telegraph use.

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

**Inquiry No. 7707.**—For makers of brick and hollow concrete block machinery.

WANTED.—Purchaser for Monazite, Molybdenite and Wolfram. Apply Monasite, Box 773, New York.

**Inquiry No. 7708.**—For makers of shoe cobbler tools.

FOR SALE CHEAP.—Steam power shop nearly new, in sleepy, isolated village. H. Sage, Waterbury, Conn.

**Inquiry No. 7709.**—For makers and installers of ice plants.

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

**Inquiry No. 7710.**—For makers of hand power and horse power machinery for sawing wood.

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

**Inquiry No. 7711.**—For makers of milking apparatus.

WANTED.—Ideas regarding patentable device for water well paste or mucilage bottle. Address Adhesive, P. O. Box 773, New York.

**Inquiry No. 7712.**—Wanted, a feather renovator.

I have for sale the U. S. and all foreign rights of new patent improvements in Water Tube Types of Boilers. Great economizer. J. M. Colman, Everett, Wash.

**Inquiry No. 7713.**—For makers of soundboards (reedboards) for organs.

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

**Inquiry No. 7714.**—For makers of plan and ball-bearing casters and malleable iron wheels and axles of all sizes.

FOR SALE.—Patent for absolutely non-refillable bottle. Simple in construction, perfect in operation. Will cost only a trifle more than regular whisky bottles. Apply to James Clausen, 2525 Rauschenbach Ave., St. Louis, Mo. Patented Dec. 12, 1905, No. 865,917.

**Inquiry No. 7715.**—Wanted, makers of Venetian iron work and accessories.

PATENTS.—Wanted, the service of a patent expert and experienced specification writer. No one need apply who has not had a thorough education along technical lines, and who has not had experience in patent practice. Munn & Co., 361 Broadway, New York.

**Inquiry No. 7716.**—For manufacturers of pumps or ditchers that can be run by 1/2 h. p. engine.

#### NOTICE.

To the Inventor Members of the American Manufacturing Co., 113 Adams St., Chicago, Ill. As I have information that would be of interest to inventor members of the American Manufacturing Co., I would like to enter into communication with said inventor members, not holding office, with the sole object of placing them in charge of information which will materially protect their interests. Inclose stamp when writing. Fred L. Wakefield, Chester, Vermont, an ex-stockholder.

**Inquiry No. 7717.**—For manufacturers of glazing glass for glazing leather.

WANTED.—High-class machinists and tool makers. Good wages. No labor troubles.

Driggs-Seabury Ordnance Corporation, Sharon, Pa.

**Inquiry No. 7718.**—For manufacturers of steam bread-baking machinery.

**Inquiry No. 7719.**—For manufacturers of brick-making machinery.

**Inquiry No. 7720.**—For manufacturers of machinery for making excelsior.

**Inquiry No. 7721.**—For manufacturers of knitting machinery.

**Inquiry No. 7722.**—Wanted, address of party willing to manufacture and place on market, on a royalty basis, a new flying toy.

**Inquiry No. 7723.**—For manufacturers of mills or instruments for pulverizing lime or marble into impalpable powder.

**Inquiry No. 7724.**—For manufacturers of extremely fine sieves for impalpable powder.

**Inquiry No. 7725.**—For manufacturers of instruments for amusing people.

**Inquiry No. 7726.**—Wanted, address of party manufacturing telephone receiver cushions.

**Inquiry No. 7727.**—For manufacturers of confetti-making machines.

**Inquiry No. 7728.**—For manufacturers of shaving machines for men.

**Inquiry No. 7729.**—For manufacturers of watchman's detector.

**Inquiry No. 7730.**—Wanted, address of parties manufacturing matches.

**Inquiry No. 7731.**—For manufacturers of solid rubber balls, from 1 to 3 inches in diameter.

**Inquiry No. 7732.**—For manufacturers of lifting and conveying apparatus for conveying different size boxes, barrels, etc., up and down and horizontally.

**Inquiry No. 7733.**—For manufacturers of hand-driven printing presses with accessories.

**Inquiry No. 7734.**—Wanted, address of parties dealing in Smith & Stokes automatic paper box machines.

**Inquiry No. 7735.**—For manufacturers of merry-go-rounds.

**Inquiry No. 7736.**—For manufacturers of small toy engines castings in brass and iron.

**Inquiry No. 7737.**—For manufacturers of small acorn-shaped watch protectors.



#### 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.

(9870) H. J. B. asks: 1. I wish to learn why, in building the A. C. dynamo described in SUPPLEMENT 1558, the fields are wound on brass tubes. When in a medical coil we wish to cut out the magnetism of the core we slip a brass tube over the core, which takes up the lines of force and keeps them bound down within the tube. If the brass tube has such an effect in one place, why not in the other? A. Your idea that brass can stop magnetic lines of force is erroneous. There is no known insulator for magnetism. Iron and steel furnish an easier path for magnetic lines than any other substance. Hence if we wish to protect a magnet from external magnetism, we cover it with a box of iron. Other substances, such as brass, allow lines of force to pass with about the same difficulty as does air. Hence brass may be used as a spool for the field coils of a dynamo with no harm, especially when, as in this case, a strong spool is required. In the case of the medical coil, to which you refer, the action of the brass tube is not to screen or cut off magnetic lines of force at all. The interrupted current in the primary coil acts upon the brass or copper, or any other metal, in the tube which is slipped over the primary coil to produce in the tube currents of electricity, which are in the opposite direction to the primary current, and which for that reason cut down the magnetizing power of the primary upon the secondary. With the tube over the primary there is less current in the secondary; when the brass tube is drawn out the secondary current increases, but not because magnetic lines of force are cut off by brass. Eddy currents, opposing the primary, are produced when the tube is pushed over the primary, and cut down when the tube is withdrawn. There is not one effect in one place and an opposite effect from the same cause in another. The action in the two places is entirely different. If a continuous current flowed in the primary of a medical coil without interruption, there would be no eddy currents in the brass tube and no induced currents in the secondary. This is the way the current flows in the field magnets of the dynamo. The interruption of the primary current in the medical coil causes the eddy currents in the brass tube and the currents in the secondary coil. 2. If the armature should be wound with much finer wire, what would the effect be? A. A finer wire on the armature of the small alternator would cut down the amperes but leave the volts the same, if the same number of turns were put on; if more turns were put on the volts would be increased, and the amperes reduced more than in the first case. 3. Wherein does this alternating current differ from that generated by the glass plate machine or the induction coil? The dynamo described in SUPPLEMENT 1558 is said to give the same effect as the current from an ordinary medical coil, but the wire is much coarser. Does the field winding on the dynamo represent the primary of the coil? A. An alternating current is one in which the electromotive force rises from zero to its highest value, then falls through zero to a value as far below zero as it was previously above zero, rising again to zero. This series of changes constitutes a cycle. Cycles are repeated from 30 to 130 times a second in the various forms of alternating current. Neither the plate electric machine nor the induction coil as ordinarily employed acts in any such manner. Both of these have their electromotive force raised till a spark jumps across between the poles. The same action takes place repeatedly. The current is pulsating and not alternating. An alternating current will, however, produce spasmodic contractions of the muscles, just as a coil does. The field winding does not represent the primary of a coil. It furnishes a steady flux of lines of force through an armature. The armature revolving through this flux produces an electromotive force which is the cause of a current over the external circuit, doing its required work there.

(9871) A. B. D. asks: Please tell in the Notes and Queries column of the SCIENTIFIC AMERICAN, or otherwise, how to ascertain the candle-power of an arc lamp. Also how to make a small searchlight. A. It is not easy to measure the candle-power of an arc lamp, since it gives a varying amount of light in different directions. The mean spherical candle-power is the rated candle-power. This is the