

## RECENTLY PATENTED INVENTIONS.

## Railway Appliances.

**CAR COUPLING.**—Robert L. Breth, New Washington, Pa. This invention provides a coupling gate and a detachable frame adapted to be placed over a drawhead, in which a rubber buffer is fitted, there being a coupling hook and a lifting lever for the gate, the device being applicable to ordinarily constructed drawheads, and obviating the necessity of train hands going between the cars.

**CAR COUPLING.**—Alexander H. Grant, Hobart, N. Y. This is a construction by means of which the coupling pin may be held up in position for coupling, may be automatically coupled by the action of the link, will be prevented from jumping out of its seat, and will not become bent, and with which also high and low cars may be coupled.

## Electrical.

**TELEGRAPH SOUNDER.**—Frank L. Van Epps, Hudson, Mich. Combined with the armature lever and the standard, having registering curved recesses on their lower and upper surfaces, is a roller bearing piece in the recesses, whereby the bearing of the armature lever will be non-adjustable, and the wear of the armature lever will be automatically taken up.

## Mechanical.

**WORK REST FOR BENCHES.**—Alexander Watson, Brookline, Mass. This is an adjustable rest especially designed for use with wood-working machines, being a simple device for effectively supporting the back end of work at the face of the bench, while not protruding to tear or injure the workman's clothes, and one which can be readily adjusted and locked at any required position to support work of different dimensions.

**FEEDER FOR BAND SAWS.**—Abram B. Springstead, Kalamazoo, Mich. This invention relates to means for ganging and feeding the work, affording a convenient device for attachment to the work table, whereby annular or wheel segments of any desired radius may be readily cut from the stuff worked, and the ends of the stuff rounded to any desired curve.

**GIN SAW CLEANER.**—George P. Melchior, Bellevue, Miss. This cleaner consists of a shaft having a series of disks, and formed with peripheries of reduced thickness provided with laterally projecting rings of brushes, being an attachment permitting the gin to operate upon wet or damp cotton without clogging the saws and ribs and without injuring or napping the lint.

**SPRING MOTOR.**—Annie W. Pearce, Greenwood, S. C. This motor consists of a casing in which spring-actuated gearing is mounted, one of the gear shafts projecting at each side of the casing and having a disk with arms adapted to detachably connect the motor with the drive wheel of the machine to be driven, the device being adapted for use with sewing machines, dentists' and jewelers' drills, etc.

## Miscellaneous.

**OVEN THERMOMETER.**—John C. Voss, El Paso, Texas. Combined with a spindle having a lever and an index or pointer is a compound bar secured at one end and bearing at its free end against one side of the lever, the device affording an instrument for indicating the temperature of an oven, so that the fire may be regulated for different articles.

**MECHANICAL TELEPHONE.**—William W. Nichols, New York City. Diverging or radial flat metal plates are combined with the diaphragm, and held under constant tension in contact therewith by the line wire, to distribute the vibrations and relieve the diaphragm of strain, the line wire connection being made by a button resting centrally on the plates, a small stud or shank of the button passing centrally through the diaphragm.

**WATERPROOFING STRAW GOODS.**—Runyon Pyatt, Jr., New York City. This invention consists in a process of treating the goods to a bath of resin dissolved in water and sal soda, drying them, and neutralizing the effect of the alkaline solution by an acid bath, the process preserving the natural color and imparting a substantial body to the goods.

**FISHING NET FRAMES.**—John G. Landman, Brooklyn, N. Y. This invention relates to a hinge-screw coupling adapted more particularly for securing a collapsible net frame to a handle, preferably by a ferrule, and in distended condition for use, the device being also applicable for coupling and holding firmly other collapsible structures.

**FLOUR BOLT.**—John Johnston, Neenah, Wis. This invention provides for the movement of the sieve in any desired direction, and for it to be carried to and fro elliptically by means of shafts, while the hanger connections provide for a proper adjustment of the sieve frame, and by adjustably connecting the crank pins the path through which the sieve is carried may be varied according to the requirements of the material to operate on. In a further patent the same inventor shows a shaking bolt having some of the same general features, with a swinging hopper apron or plate, and with different means for suspending and adjusting the apron or plate, and imparting a circular or elliptical movement to the sieve.

**VEHICLE WHEEL.**—John O. Leck, Glen Elder, Kansas. Clips are secured on the approaching ends of the felly sections, with spaced teeth adapted to interlock when brought together, with a wedge fastening, whereby the tire, should it become loosened, can be set without heating or shrinking, and without removing the tire from the wheel.

**DOG FOR LOG CARS.**—Robert J. Thompson, Grandin, Mo. Combined with the bolster or cross beam of the log carrier are dogs pivoted near the opposite ends of the beam, push bars being connected at one end to the dogs, and toggle levers connected at their outer ends to the push bars, with an

operating lever with the pivoted ends of the toggle levers, whereby the logs may be retained in position and expeditiously released.

**WAGON END GATE.**—William R. Watt, Somerville, Tenn. This is a simple and durable fastening for locking the end gate, the invention consisting of a shaft mounted to turn and slide in the end gate and having a fixed head adapted to engage a recess in the cleat holding the end gate.

**WAGON BED.**—This invention, also by the above inventor, consists of L-shaped metallic cleats secured to each side of the wagon bed and forming a guideway for the end gate, the cleats each having at its outer end a bolt passing through the bed proper, and a nut screwing on the lower end of each bolt and against the under side of the bed bottom.

**HOISTING ATTACHMENT.**—John F. Schultz, New York City. This invention relates to an apparatus for loading barrels or boxes of ashes or garbage into collecting vehicles, providing therefor an elevator attachment capable of being transformed into sideboards and an extra tailboard, when not in use as a hoisting device, to form an extension of the vehicle body, and prevent its contents from falling off.

**SCAFFOLDING.**—Adolph Bitterly, Ottawa, Ill. This scaffold is made with two triangular legs or frames, having cross rods between their ends and removable bolts at their adjacent narrow ends, with other novel features, the construction being adapted for building chimneys, plastering, painting, etc., while being easily set up or taken down and packed in small space.

**BAG HOLDER.**—Frank A. Brown, Angelica, N. Y. This is a holder for bags while being filled, and is made of wires bent to form two outwardly and downwardly projecting side arms, terminating in hooks, and twisted and bent in the rear, forming loops, with a back having upper and lower extensions, the device being supported in position simply by hanging it upon a nail or the edge of a bin.

**HINGED HANDLE.**—Jacob Gerstle, Portland, Oregon. This invention provides a hinged handle designed for attachment to frying pans and other culinary vessels, the handle being adapted to fold down in compact form when the vessel is not in use, while it can be opened out and held in rigid position by a simple movement of a sliding fastener.

## SCIENTIFIC AMERICAN BUILDING EDITION.

MAY NUMBER.—(No. 43.)

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- Plate in colors of a summer cottage for one thousand two hundred dollars. Floor plans and page of details.
- Design for a bank building, with plan and view of interior.
- Perspectives and floor plans of an elegant residence at Bell Haven Park, in Greenwich, Conn. S. Edwin Tobey, Boston, Mass., architect.
- A mountain cottage lately erected at St. Cloud, Orange, N. J. Elevation and floor plans. Architect Mr. Arthur D. Pickering, New York.
- A dwelling at Springfield, Mass. Plans and perspective elevation. Cost eight thousand five hundred dollars.
- Engraving showing perspective elevation of a cottage erected at Roseville, N. J., at a cost of six thousand seven hundred and fifty dollars. Floor plans. F. W. Ward, architect, New York.
- Illustration and floor plans of a combined school house and country cottage erected at St. Cloud, Orange, N. J. Arthur D. Pickering, New York, architect.
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- A cottage built at Roseville, N. J., for six thousand seven hundred and fifty dollars. Elevation and floor plans.
- A cottage at Holyoke, Mass., lately erected for Howard A. Crafts, at a cost of three thousand one hundred dollars.
- View of Aurburndale Station, Boston and Albany Railroad, with plan of station grounds. H. H. Richardson, architect.
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## Notes &amp; Queries

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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.

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.

(872) E. T. W. asks for the receipt for marbleizing glass. A. It may be done by painting or by picking up color from the surface of water. For full description we refer you to articles on marbleizing wood and paper in Spones' Workshop Receipts, 1st series, which we can supply for \$2.

(873) W. I. L. writes: I wish to contact zinc with glass to bear considerable pull without parting. Can you suggest an inexpensive cement, composition, or any substance that will answer the purpose? A. Many receipts are given; 1 pound of shellac dissolved in 1 pint alcohol, with one-twentieth its volume of a solution of gutta percha in bisulphide of carbon, will dry quickly. A slow-drying one may be made thus: 2 ounces thick glue solution, 1 ounce linseed oil varnish or 3/4 ounce Venice turpentine; boil together.

(874) A. F. J. asks how to find the length of a chord when the length of the arc and radius is given. I want to put 16 pieces together to form a circle of 20 feet diameter. Also how to find the versed sine, and what will be the factors of the previous example? A. The best way is to do it by a table of circular

functions. Thus  $\frac{1}{2}$  circle =  $\frac{1}{2} \times 360 = 180^\circ$ . Twice the sine of one-half this angle is the chord; in your problem it must be multiplied by the radius, 10 feet, giving 45 inches. The cosine of one-half of the angle subtracted from the radius gives the versed sine, in your case 4.8 inches.

(875) C. W. S. asks how many foot pounds are obtained by the explosion of one pound of hydrogen gas mixed with the right proportion of air, also how many mixed with pure oxygen. A. One pound of hydrogen gas combining with eight pounds of oxygen gas will liberate 34,170 (Centigrade degrees) heat units. This multiplied by 1409 (pound degree Centigrade equivalent in foot pounds) gives 47,940,510 foot pounds. A small reduction must be made in practice for the heat absorbed in heating the nine pounds of steam produced. The result for air will be nearly the same.

(876) E. K. asks (1) what to use to dissolve boracic acid so as to make a concentrated solution of it, to use when cold, which will not precipitate. I want to use as anti-oxidizing soldering solution for gold. They have some way of dissolving it without using hot water, because it reprecipitates. A. Use hot glycerine or alcohol. 2. What is the best analytical qualitative chemistry, that is, for all around work? A. We recommend "Manual of Qualitative Chemical Analysis," by C. R. Fresenius, \$4. 3. Can you furnish me with a watch maker's manual? A. We can supply you with Saurier's "Watchmaker's Hand Book," \$3.50, also Saurier's "Modern Horology," \$16.

(877) Punjabe asks: 1. What should be the dimensions of an electric magnet so that it would attract and pull through a space of 1/2 inch or 3/8 inch a weight of about 150 pounds? What size and weight of covered wire should be wound on the magnet? A. In the SCIENTIFIC AMERICAN, No. 19, current volume, page 291, you will find a description of such a magnet as you require. 2. How many pairs of zinc and carbons, each 1/2 in. diameter by 6 inches long, all fixed close together without touching, and connected in series, and the whole immersed in a large vessel containing the ordinary bichromate solution, would operate the above magnet? A. Your proposed arrangement of battery is not advisable, better make 6 or 8 separate cells, each having a plate of zinc 3 x 8 inches and two carbon plates of the same size, or in lieu of the carbon plates use 10 or 12 carbon rods such as you describe. 3. I have a big horseshoe magnet (compound) built up of 8 plates each 1 1/2 inch by 1/2 inch. This magnet has lost its virtue through having been thrown to one side in a large store, and so neglected for some years. A little of its attractive power remains, but is very feeble. How could I make it regain its power? I have not the means of going through the ordinary magnetizing process, but I could get the use of a large dynamo, which lights our workshop, if it would answer the purpose. This you could please let me know, and how to go about it? A. You can remagnetize your magnet by placing its poles in contact with the poles of the electro-magnet before referred to.

(878) A. B. asks: 1. What weight would field magnets of motor in SUPPLEMENT, No. 641, be capable of sustaining if used as an electro-magnet, with same current as required to run motor? A. It depends upon the amount of current used. With 6 cells of plunging bichromate battery it would probably support 100 pounds. 2. How can I make an induction coil give a direct current? A. By arranging a commutator to correct the currents as they are discharged from the coil. 3. Is the commutator only necessary for reversing and stopping the current of the induction coil? A. No induction can take place with a continuous current. 4. Would a ridge of wood left in the center (where secondary is divided) of the spool answer the purpose of the insulating material? It would be easier winding, I think. A. It would answer the purpose if boiled in paraffine or wax. 5. I have pound and a half of size wire inclosed. Please state if it will answer purpose of secondary coil. A. Your wire will answer, but it is rather coarse. 6. Please give me the address of some reliable electrical supply company. A. Consult our advertising columns for dealers in electrical supplies.

(879) Interested writes: 1. I have a gold ring which has been near sulphur; the latter darkened the ring, in the engraving particularly so. What shall I do to restore it to former color without injuring stone, which is a cut "tiger's eye"? A. Polish with a brush, using whiting, soap, and water. 2. Is there any simple preparation that can be put on a photographic proof to prevent its fading? A. Soak in solution of hyposulphite of soda. It should properly be toned, but is generally not dark enough to give good results. Many formulae for toning have been given in our columns and in the SCIENTIFIC AMERICAN SUPPLEMENT. 3. I had a receipt for silver ink, but cannot find it. Can you give formula [for same]? A. Rub up silver leaf or silver bronze powder with honey and water.

(880) E. M. writes: I have made a Wimshurst machine, described in SUPPLEMENT, No. 548, which works splendidly, but the cement in setting cracked the glass; could you give me a formula for a satisfactory cement? A. Use the same cement, but interpose a piece of thin leather between the glass and its support. The leather should not be saturated with the cement, as it would when hardened render the leather very rigid.

(881) E. S.—You can run the dynamo described in SUPPLEMENT, No. 600, by means of horse power, by charging a storage battery, provided you are able to keep up a moderately even speed. It will take about 5 or 6 hours to charge the battery. For information on secondary batteries we refer you to Reynier's Voltaic Accumulators, price \$3.

(882) N. T. G. asks (1) what ingredients compose the liquid ink eraser used for erasing blots, etc., from paper. It is used with a camel's hair brush, and consists of one or more kinds of acid. A. We do not know the particular eraser you refer to, but you can thus use a solution of oxalic acid in water, removing the liquid from paper with a blotter, and making one or two applications. 2. A receipt for making solder, that we find sold by agents through the country, for