

## RECENTLY PATENTED INVENTIONS.

**SPRING SEAT.**—George E. McCormick and William B. McLean, Jamestown, North Dakota. This seat is designed for locomotive cabs, but is capable of other uses. It consists of two uprights connected by cross bars and provided with stops at their lower ends, side pieces pivoted to the uprights and engaging the stops, a flexible back and bottom secured to the uprights and side pieces, and springs projecting from the rear of the uprights and carrying a bar bearing on a support.

**AUGER HANDLE.**—Harry Naylor, Oil City, Pa. This handle is formed in two longitudinally adjustable sections provided with a grooved abutment and a loose rocking ring which clamps the bit shank against the abutment when the sections are forced toward each other, thus adapting the handle to clamp shanks of different sizes.

**CAN VENTILATOR.**—Albert W. Adams, Pittsburg, Pa. This device is designed for use on milk cans, to allow the animal matter in the milk to escape and prevent the milk from souring. For this purpose the can top has spaced apertures and is provided beneath the apertures with a shield having beveled ends and openings in said ends, the shield being of less diameter than the top.

**STOVE.**—John Werner, Brooklyn, N. Y. This stove contains a series of vertical pipes of different lengths, alternately arranged close together around its interior, thus forming the fire box. The pipes extend through the base at their lower ends and through the stove body at their upper ends, and support a grate above their lower ends. Substantially all the heat arising from the fuel may be utilized.

**FOLDING POULTRY CRATE.**—William Paschal, Rutherford, Tenn. This device is so constructed that it may be folded flat and compactly when not in use or in transportation, and when erected has no loose or unconnected parts. It is especially adapted for carrying poultry and other live stock. It affords free access of air and is light, strong and durable.

**DESKS.**—Mr. John M. Sauder, of Springfield, Ill., has patented an improved device for fastening desk tops and the backs and seat boards of school desks upon the supporting standards of the seat and desk. By means of this device the wooden desk top, the back, and the seat boards are interlocked with the metal standards or frames, securing an elastic connection between the wooden and metal parts of the desk, so that the expansion and contraction of the metal or the swelling and shrinking of the wood will be compensated for, so that cramping strains which would split the material or tend to loosen the frame will be avoided.

**FABRIC STRETCHER.**—Mr. Charles F. Flos, of Brooklyn, N. Y., has patented a frame for holding and stretching fabrics, which will suspend the fabric in proper position without injury to the material and without the assistance of cement or nails. The frame is also arranged to give to the fabric a suitable tension, so as to free it from wrinkles and creases. The sides of the stretcher are provided with beams having longitudinally extending gutters or shoulders to which is applied a clamp bar parallel with the beam, and adapted to press the fabric into engagement with the gutter or shoulder. Levers pivoted to the beams are employed for securing the required pressure.

**HARNESS.**—Mr. Lawson W. Hampton, of Elizabethton, Tenn., has recently patented an improvement in that class of harness in which traces and breeching are dispensed with and the attachment of the harness to the shafts of the vehicle is made by means of tugs connected with the girth and breast collar. The tugs are attached to a rod whose motion is opposed by a spiral spring. Harness of this construction permits of the free use of the hind legs of the horse, and diminishes the cost of a harness.

**CUTTING AND PREPARING WOOD.**—A novel method of cutting and preparing wood for ornamental and decorative purposes has been patented by Mr. Lewis W. Murch, of Medora, North Dakota. This method consists in cutting or sawing a log or limb having the bark thereon obliquely into blocks or boards. The blocks or boards thus cut form panel pieces which present a highly ornamental appearance, with the heart of the wood at the center, surrounded by the rings formed in the natural growth of the tree.

**WAGON BOX.**—An improvement in dumping wagon boxes has been patented by Mr. James M. Kimball, of Woodstock, Ill. This box may be carried on any ordinary running gear and may be used as a common wagon box. It is provided with means for dropping the load through the bottom, and for closing and locking the bottom leaves or boards after the load has been discharged. In the bottom of the box there is a cross beam and a center beam. Leaves hinged to the rear of the box and to the center beam form the bottom of the box. The box is provided with a series of catch levers and with releasing mechanism for withdrawing the catch levers, so as to allow the leaves to fall.

**WASH BOARD.**—John T. Lenoir, Columbia, Miss. The frame of this wash board is provided with a series of removable rectangular rubber bars having a rectangular slot for the greater part of their length; the bars consisting of two strips separated by spacing pieces at their ends, the spacing pieces having reduced, threaded extremities to pass through the side bars of the frame and receive lock nuts, the bars when in place resting at an incline one upon another.

**FLY BRUSH.**—Harvey Miller, Waterloo, Iowa. A circular casing is mounted to revolve on a door, the casing containing a volute spring which bears on a curved bar carrying a brush or brushes at its free outer end. By drawing on and releasing a cord wrapped around the casing, the latter and the brush are caused to revolve and drive away flies on and about the door.

**PAINT.**—George Walker, Jersey City, N. J. The ingredients of this paint are derived from the tar obtained by the destructive distillation of

wood, preferably hard wood. The first product of distillation is a light oil and acid water, a portion of which is removed. The remainder is further distilled, leaving a residuum resembling asphaltum and solid when cold; this latter is dissolved in the light oil acid water, producing an intensely black paint.

**CIGAR.**—Samuel Heilbronner, New York City. This cigar has a lateral bend produced in its body, such bent portion being reduced in size, giving the cigar somewhat the shape of a pipe, so that in use a portion of the nicotine will be concentrated at the bend of the cigar and will drop with the ashes. A further advantage is that the cigar may be lighted without flame coming too close to the smoker's mouth or mustache.

**TRUCK.**—Joseph M. Sill, Towanda, Pa. This is a two-wheeled hand truck, especially adapted for use in warehouses for handling seed, grain, and flour in bags. The leg braces are arranged to serve as runners which may slide on the floor when the loaded truck is suddenly stopped, and the racks, legs, and leg braces are all flush with the side bars, so that the truck may be brought close to a platform, the construction being such that the cost will be but moderate, while the truck will be strong and will occupy but little space.

**ANIMAL TRAP.**—John Picard, St. Paul, Oregon. This is a trap for catching moles, gophers, etc., in which a vertical spear is forced down by a spring into the mole passage to impale the animal. The spear is held up by a trigger arm hinged or pivoted at its upper end, the arm extending down to a position to be affected by the passage of the animal, so as to release the spear and allow it to descend. A trip plate connects the trigger to the spear rod, and the trigger is adjustable.

**TYPEWRITING MACHINE.**—David H. Taylor, Cincinnati, Ohio. This invention covers a novel construction and combination of parts in a typewriter in which capitals or lower case may be written by a single set of keys, avoiding the use of a capitalizing key. A double or two-part finger piece or key, the parts of which interlock for separate or simultaneous movement, is so arranged so that in writing lower case one part only will be depressed, but when it is desired to write capitals both finger pieces will be depressed, the finger pieces being connected with different sets of key levers.

Note.—Copies of any of the above patents will be furnished by Munn & Co., for 25 cents each. Please send name of the patentee, title of invention, and date of this paper.

## SCIENTIFIC AMERICAN BUILDING EDITION.

MAX NUMBER.—(No. 67.)

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- Sketch of a drawing room.
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- Sketch showing the new "Empire Theater" of Philadelphia, Pa., designed to be one of the most commodious play houses in America. Architect Angus S. Wade.
- Miscellaneous contents: Statuary marble.—John W. Root.—Ornament in architecture.—Steam pipe required for heating.—Painting ironwork.—Architectural foliage.—A luxurious bath.—Hardwood finish.—Decorations of the Hotel Metropole, London, England.—Oldest dwelling in the United States.—An improved gas engine, illustrated.—A sanitary laundry tub, illustrated.—Real estate investments.—American tin andterne plates.—An easily coupled door hanger, illustrated.—Architectural wood work, illustrated.—An improved scroll saw, illustrated.—Improved system of fireproofing, illustrated.—The new Bolton heater, illustrated.—The Sturtevant system of heating and ventilating school houses.—Finishing natural woods.

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## 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. 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.

(3031) I. E. writes: I have a valuable autograph written with lead pencil. Is there any way to prevent it from fading, and preserve it? A. It will never fade. To preserve it from erasure pour skimmed milk over it, or apply the regular fixative sold in art stores. An artist could apply it for you.

(3032) B. H. asks: 1. Please inform me whether, and if so how, I can remove lithographing from tin lard pails. We have some lard pails which are lithographed, and this portion of the pail is varnished over the lithographing. Do you know of any way by which I can remove this lithographing by using acids? A. Boil in caustic soda solution. 2. Are chemicals ever used, and how, for bleaching lard? A. To a limited extent. Treatment with hot borax or soda solution may be adopted. The chemical treatment of lard is often in the line of adulteration.

(3033) W. S. N. asks: What two chemicals or acids will ignite and cause a flame when brought together? A. Phosphorus and iodine after a few seconds' contact; also pure chlorine gas and Dutch foil or powdered antimony, water and potassium; and several others.

(3034) F. H. McL. asks: How is aqua ammonia or concentrated ammonia made? Could I make it in small quantities for ice making, ammonia to be 24° to 26° strength? What kind of apparatus is needed to manufacture it in 500 pound lots? A. It is made by passing ammoniacal gas through water. A still for cooling the ammoniacal gas and an absorbing tank, the whole inclosed, is all that is necessary. The unabsorbed gas can be used to partially charge other water. It is better to purchase it ready made.

(3035) W. L. G. writes: "Matter," says Professor Thomson, according to your issue of May 2, "was considered indestructible." Please explain his meaning more fully. A. Matter is considered indestructible according to most authorities. Professor Thomson seems to be formulating the old doctrine that the atom or molecule is a center of forces. This is rather an intangible theory, although many have adopted it.

(3036) C. S. H. asks: 1. What advantage, if any, is there in green prints over blue? A. It is principally a matter of taste. 2. Will any cheap wine do for the experiments described in SUPPLEMENT, No.

808? A. No; use a mixture of alcohol and water in equal parts, colored with cochineal and a very little ammonia.

(3037) C. F. H. asks: What will take sulphuric acid out of a vegetable matter dissolved in the sulphuric acid? A. Treat with carbonate of barium and water, or carbonate of sodium.

(3038) C. F. V. D. writes: To drill a large hole through glass, use a piece of maple wood turned in the lathe to the desired size. Take a common bit and bore into the end of the wood to the depth of one quarter of an inch; insert the wood into a common bit brace and fasten a piece of board with a hole in it to turn the piece of wood. Place the hole over the spot to be drilled and apply coarse emery powder. A three quarter or one inch hole can be bored in this manner in a very short time. I have found the wood superior to either iron or brass tubing for puncturing glass. The plate should be bored half way through upon one side, and the other half should be completed from the other side.

(3039) C. F. V. D. asks: 1. What kind of glass plates must I use in constructing a Wimshurst electrical induction machine, and how shall I test them for insulation? A. Use common window glass. Select sheets that are flat and free from wrinkles or bubbles. When the plates are completed, coat them with shellac varnish, and after they are apparently dry bake them in a warm oven, or allow them to remain near a stove or furnace for several hours. 2. What kind of glass jars to use in making Leyden jars, and how to test them for insulation? A. Use soda glass; if they retain the charge for a considerable time in dry weather in the winter, the insulation is perfect. If the charge escapes quickly, the insulation is defective. 3. What is the best flame to use (where gas is not economical) in doing such work as the so-called Bohemian glass blowers? A. Probably the best flame for your purpose is a gas-oil blowpipe flame.

(3040) New Yorker in North China asks in regard to strain, power, and friction of 9 inch manila rope with 2 blocks of 4 sheaves each, etc. A. The breaking weight for a 9 inch manila rope is 21 tons. No more than 5 tons should be allowed under any circumstance as a working load, 3 tons being the proper working load. Your pair of 4 pulley blocks, with the rope fast at the top block, will be equal to a safe load of 24 tons. The last or hauling rope sustains a load of one-eighth of the suspended load when at rest, or for 24 tons weight the pull is 3 tons plus the friction. You are correct in regard to the division of the total strain by the number of sheaves, as also on the 6 sheave lift; 10 per cent is rather large for the large iron blocks with iron sheaves. The friction on each sheave is the same, and as there are 6 sheaves, each bearing the same weight and under the same conditions, should have, with a 10 per cent assigned friction, an amount due to the pull on any one rope multiplied by the six sheaves. As the final pull for the 1½ tons was 560 pounds, 10 per cent of which is 56×6=336 pounds friction, which added to 560 is 896 pounds for the total pull while the load is being lifted.

(3041) H. H. G.—For an air blast you will require an air compressor, which will give you any pressure required. The sand blast is driven from an air compressor. Steam or belt from any other power may be used. The amount of power depends upon the pressure and quantity of air wanted.

(3042) W. C. F.—If you desire to make a Siemens armature for your motor, you should follow the general directions given in SUPPLEMENT 600 for the armature.

(3043) W. W. H. asks: Can double-covered paraffined wire be used to wind field magnets? Is plaster of Paris porous enough to make good porous cups? A. Double-covered paraffined wire is too heavily insulated for use in the field or armature. Double-covered magnet wire is used for that purpose. Plaster of Paris porous cups are of little value.

(3044) J. J. F.—The most powerful guns of American and foreign make can carry from 9 to 12 miles.

(3045) J. R. M.—Use thin shellac varnish for brass work. Use French polish for taking out scratches on varnished furniture.

(3046) W. L. C. writes: In the SCIENTIFIC AMERICAN SUPPLEMENT of March 7, 1891, you give a formula for the paste used in Gassner dry battery. You say plaster 3 parts. Please inform me what is meant. Also give E. M. F. of such a battery. A. In the formula for Gassner battery the term "parts" means parts by weight. The E. M. F. of this battery is about 1½ volts.

(3047) W. H. N. asks for the recipe for paste that is used by the Eastern stereotypers on the roller mounting machines. A. To 1½ gallons of water add 2½ pounds of Peter Cooper's glue, allow to stand overnight, after which place it on the fire and cook slowly for two hours. Take ½ pound best English Paris white, and one pint of flour, packed tight in the measure, place them together in a basin and add sufficient water to make the mixture the consistency of buttermilk, add this to the glue when cooked as above and allow the whole to cook for one hour, when it will be ready for use. For another receipt see our SUPPLEMENT, No. 773.

### Enquiries to be Answered.

The following enquiries have been sent in by some of our subscribers, and doubtless others of our readers will take pleasure in answering them. The number of the enquiry should head the reply.

(3048) URUSHIC ACID.—Will any one kindly tell me the constituents of this acid, which is the essential principle of Japan lacquer (Urushi-yama)? I want to know what acids it most strongly resembles.—N. K. D., London.

[We hope that some of our readers will answer this query.—Ed.]

(3049) F. W. H. asks: Can any kind of a sail boat, on the water, be made to go faster than the wind that drives the boat? The question is open for discussion by readers.