

RECENTLY PATENTED INVENTIONS.

Railway Appliances.

**LIFTING JACK AND TRACK LINER.**—Thomas McManus and George K. Smart, Atchison, Kansas. For conveniently and rapidly raising and shifting the rails and ties without injury to the track bed or track, these inventors provide a device consisting principally of a horizontal base or lining bar on which slides a hollow post or bar with or without roller bearings, a lifting bar adapted to support the rail sliding in the post. On the inside of the lifting bar, which carries a foot to support the base of the rail, are ratchet teeth engaged by a pawl having its pivot end in a recess in the lifting ram, which slides vertically in the lifting bar. For heavy tracks two jacks and track liners are preferably employed, the jacks being connected by a chain.

Electrical.

**PUSH BUTTON.**—Edwin A. Clark, Cleveland, Ohio. This button is made with a ferrule having an inwardly turned flange in which is a plug of insulating material carrying two contact points, a metallic cap with flaring sides having movement within the ferrule inside the flange, and being adapted to touch the contact and points, but being normally held away therefrom by a coiled spring resting on the insulating plug and pressing the cap outwardly. The device is very simple and inexpensive.

Mechanical.

**PULLEY BLOCK.**—Oliver Spitzer, Brooklyn, N. Y. To enable the operator to instantly lock the pulley or sheave, with the load suspended, or release the pulley when it is desired to hoist or lower the load, is the object of this invention. A star wheel on the pulley shaft is adapted for engagement by a pawl on one end of which is a shoulder against which a spring-pressed lever is adapted to abut, the lever being under the control of the operator, while a catch, also under the control of the operator, is adapted to engage the lever when its end is swung out of contact with the shoulder of the pawl. The device may be readily applied to any pulley block.

**HAMMER.**—Clarence McC. Eveleth, Plymouth, N. H. This is an improvement in hammers which have a claw for drawing nails, and provides a tool by which the nails may be drawn without marring the work and without bending the nails. A spring-pressed plunger, having a cushioned outer head, slides within a socket of the hammer head and a longitudinal recess in the handle, the plunger having notches or ratchet teeth on one side adapted for engagement by a spring latch when the plunger is withdrawn within the handle, or when it is in extended position, with its cushioned head bearing against the work.

**BRICK OR TILE CUTTING MACHINE.**—James C. Steele, Statesville, N. C. In this machine a cutter is movable transversely through the clay bar as it is fed out of the bar-forming mechanism, a support for the cutter being movable in the arc of a circle transversely to the clay bar, and there being mechanism for continuously reciprocating the support laterally and for oscillating the cutter at the necessary intervals. The machine is automatic in its operation, and the several parts are readily adjustable to cut the clay bar into different lengths.

**SLATE DRESSING AND SIZING MACHINE.**—Humphrey F. Morgan, Delta, Pa. In this machine a bed frame is movable vertically in guideways in a main frame, a toggle frame with which is connected a windlass shaft and lever supporting the bed frame. A carriage is movable on the bed frame, and independent weights are connected with and arranged to operate the carriage in reverse directions. The carriage is wide enough to permit several plates to be rested side by side thereon, and it is drawn under the polishing wheel as fast as the latter cuts its way on the surface of the slate, slates being ground or polished at each movement of the carriage back and forth.

**CONTINUOUS CIGARETTE MACHINE.**—Edward R. Colgin, Richmond, Va. This is a machine of simple and compact construction to which the loose tobacco is fed on endless aprons, and in which the filler rod-forming devices and the wrapping, and the pasting and cutting mechanism, are so arranged and connected as to positively and uniformly operate to form the cigarettes and cut them without reducing or marring the filler at the ends. There are also depositing and receiving devices whereby the cigarettes as they come from the machine are packed without any jar to cause the tobacco to crumble and drop out, making a bad-looking, unsalable article.

Agricultural.

**PLOW.**—William H. Mitchell, Glasgow, Ky. This is a combined right and left hand plow, the right and left hand point being carried by the same mould board upon a single standard, and one land side being used in connection with both points. The plow is capable of use on hill sides as well as upon level land, and is a right hand one going in one direction and a left hand one when traveling in the opposite direction, the change being brought about quickly by a reversal of the beam. Means are provided whereby the beam may be readily reversed upon the standard and held in any position necessary by a simple locking device.

**GRAIN SEPARATOR.**—Erastus E. Mendenhall, Thomasville, N. C. This is a machine especially adapted for separating wild onions, etc., which occasionally grow among wheat, from the wheat kernels. The machine has toothed and yielding surfaced separating cylinders between which the wheat and foreign substances are fed, the hard kernels of wheat being received in the elastic or flexible surface of the cylinder, while the soft foreign matters are taken up by the teeth of the separating roller or cylinder and carried to a separate chute from that in which the wheat is discharged.

Miscellaneous.

**SAVING COAL DURING COMBUSTION.**—David G. Stokey, Dallas, Texas. This invention pro-

vides a cheap and practical composition of ingredients for application to the fuel in a stove to intensify combustion, prevent clinkers, aid to burn the smoke, and effect a marked saving of the coal used as fuel. The composition consists of salt, charcoal, salt-peter, carbonate of zinc and borax, mixed in certain proportions with water and sprinkled on the coal. These ingredients, vaporized by the heat, assimilate with the carbon gas thrown off from the burning coal and render it more inflammable, thus effecting a more perfect combustion.

**TREE SAWING MACHINE.**—Frank Costa, Carbonado, Washington. This is a machine designed to saw standing trees. It has pivoted main and side bars, each with a device to secure it to a tree, a carriage on which is journaled a saw being slidable on the side bar, and a crank shaft on the carriage being geared to the saw, while gear wheels on the feed screw and the saw mandrel mesh with a gear wheel on the operating shaft, whereby the saw and its feed mechanism are simultaneously operated. The machine is so arranged that when used on a large tree it may be conveniently made to saw a kerf first on one side and then on the other.

**WINDOW CURTAIN HANGER.**—Charles M. Dilger and Henry Birnbaum, Rapid City, South Dakota. The hanger frame, according to this invention, is made in sections, adjustable one on the other, and with bearings for the roller, the frame being adapted to be raised or lowered on the window frame. By manipulating the cords the hanger may be raised or lowered to raise or lower the roller and the curtain or shade, so that light and air may be admitted directly through the upper sash.

**KNOTTER AND BINDER.**—Walter Connor, Toledo, Ohio. This is an improvement in devices for binding bundles and tying knots in the binding twine. It comprises a machine in which is a pivoted needle and a pivoted elbow lever, and a rod pivoted to both, there being a catch or holder on one end of a shaft on which is a pinion engaged by a rack on a tilting arm, a rod being connected to the tilting arm and elbow lever. The machine is hand operated, and facilitates the automatic tying of small bundles or packages, such as bunches of flowers, etc., the twine being severed after the knot is tied and a register made of the number of bunches tied.

**POT.**—Robert L. Steen, Lawrence, Kansas. In this pot it is designed to prevent all escape of steam, so that none of the valuable properties of the materials under treatment will be lost by escaping with the steam. A valve is made to close the spout, and weighted arms pivoted to the spout have their upper ends pivoted to the valve, stops secured to the spout limiting the outward swinging movement of the arms.

**FINGER PROTECTOR.**—Emma Grimes, Norfolk, England. This is a guard for the goods holding or guiding fingers in hand sewing. It is a tapered finger of soft rubber, having an opening at the finger tip, and an annular flange surrounding it, this end opening exposing a sensitive portion of the finger tip for use in manipulating the goods.

**POLISH COMPOSITION.**—William J. Birkenstock, New York City. This is a compound for polishing marble and other stones, one sufficiently fine and homogeneous to give a high polish and sharp enough to cause the polishing to be rapidly done, and intended to take the place of an ordinary grit. It is a composition in which are brass, lead, shellac and emery, prepared after a designated formula, and applied in the same manner as grit.

**SURGEON'S TABLE.**—Lyman G. Barton, Willsborough, N. Y. This table has independently movable leaves at opposite ends for the head and feet, and means for changing the angle of the table as a whole without altering the angle of the head and foot leaves in relation to the middle section; it also has various attachments for holding the limbs of a patient, and the parts of the table are very light and strong and readily separable. The table may be readily taken apart and folded in a very small compass.

**VETERINARY APPLIANCE.**—Joseph H. Gunning, New York City. This is a cannula designed to facilitate the breeding of a mare or other animal, and also affords an instrument which may be applied in the treatment of a wound.

**RAT TRAP.**—Joseph Klar and Frank H. Hall, Anna, Ill. This is an improvement on a formerly patented invention of the same inventors, and provides safeguards or locks of a simple form to prevent the animal when entrapped from leaving the compartment of the trap into which it may have entered. The invention affords a trap of inexpensive construction, and one in which the parts operate automatically.

**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.

NEW BOOKS AND PUBLICATIONS.

**THE ORIGINS OF INVENTION.** A study of industry among primitive peoples. By Otis T. Mason. With illustrations. London: Walter Scott, Ltd. New York: Charles Scribner's Sons. 1895. Pp. 419. Price \$1.25.

No subject has taken a more pleasing aspect with the advance of science than has anthropology. The present charming work, based largely on the collections of the United States National Museum, cannot be too warmly commended, for the young and old alike. A deeply interesting portion of it is that devoted to the manufacture of stone implements and the tools of aboriginal workers. One interesting point brought out is that the old stone worker would throw away, after a few blows, as many as ten bowlders before he could get one which would suit him. The results of Mr. Holmes' investigations are given here, with full illustrations. The work is written on the principle of studying the past as largely as possible by the light of the present, thus making what might be a dry science one of the most vivid interest. The art of war seems somewhat insufficiently treated, the chapter being very short, and, curiously enough, the boomerang is en-

tirely omitted; that is, as far as the index is concerned. On the whole, we feel that we cannot too warmly recommend the book.

**HANDBOOK OF THE TURF, A TREASURY OF INFORMATION FOR HORSEMEN.** Embracing a compendium of all racing and trotting rules; laws of the States in their relation to horses and racing; a glossary of scientific terms; the catch words and phrases used by great drivers, with miscellaneous information about horses, tracks, and racing. By Samuel L. Boardman. New York: Orange Judd Company. 1895. Pp. x, 303. Price \$1.

It is well to know a little of everything, so it is fair to assume that this dictionary, which is an alphabetical cyclopaedia, will receive a warm welcome from all interested in horsemanship. It seems as if the title hardly does it justice, as it really ought to be called a dictionary of equestrianism. In addition to the text proper, numerous quotations are given, and much specific information is printed in smaller type.

**THE BUILDING OF A NATION.** The growth, present condition and resources of the United States, with a forecast of the future. By Henry Gannett. New York: The Henry T. Thomas Company. Illustrated with maps, charts, and diagrams. 1895. Pp. xx, 252. Price \$2.50.

The particular subject of this work is treated definitely from the standpoint of the statistician and census expert. There are very numerous plates conveying, by the census system of colored areas, the greatest variety of statistical information. Many maps are given of the United States, each for the purpose of indicating some specific series of data. The book really represents a small census provided with comments requisite to develop its full utility. It is based on the census of 1890 and, of course, much of its information refers to previous years as well. In order to make it an actual history, the total rural and urban population of each census is carried back to the last century, and many of the tables of data begin in 1790 and end with 1890. Eleven different censuses, therefore, are made tributary to the volume. The table of contents and index leave nothing to be desired.

"The Bachelor of Arts" is the title of a new monthly magazine devoted to university interests and general literature. John Seymour Wood is the editor and Walter Camp and Edward S. Martin are associate editors, Henry G. Chapman, of No. 15 Wall Street, New York, being the business manager. The "advisory board" exhibits a long list of distinguished names from twenty-five different colleges and universities, and contributions to its pages are expected from many eminent writers. Typographically the new magazine is quite unique in its appearance, and its form is such that it may be readily carried in the pocket.

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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. 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.

(6560) W. H. K. says: Please advise through Notes and Queries, SCIENTIFIC AMERICAN, how to fasten rubber rollers used on clothes wringers which have been turned loose from shafts. A. 1. Clean shaft thoroughly between the shoulders or washers, where the rubber goes on. 2. Give shaft a coat of copal varnish, between the shoulders, and let it dry. 3. Give shaft coat of varnish and wind shaft tightly as possible with 5 ply jute twine at once, while varnish is green, and let it dry for about six hours. 4. Give shaft over the twine a coat of rubber cement, and let it dry for about six hours. 5. Give shaft over the twine a second coat of rubber cement, and let it dry for about six hours. 6. Remove washer on the short end of shaft, also the cogwheel, if the shaft has cogs on both ends. 7. See that the rubber rolls are always longer than the space between the washers where the rubber goes on, as they shrink or take up a little in putting on the shaft. 8. Clean out the hole or inside of roll with benzine, using a small brush or swab. 9. Put the thimble or pointer on the end of shaft that the washer has been removed from, and give shaft over the twine and thimble another coat of cement, and stand same upright in a vise. 10. Give the inside or hole of roll a coat of cement with a small rod or stick. 11. Pull or force the roll on the shaft as quickly as possible with a jerk, then rivet the washer on with a cold chisel. 12. Let roll stand and get dry for two or three days before using same. Cement for use should be so thick that it will run freely; if it gets too thick, thin it with benzine or naphtha.

(6561) G. S. W. says: 1. Give formula for making a washing compound. A. A washing powder for the finest white linen is a powdery mixture of 90 parts effloresced soda with 10 parts of hyposulphite of

soda and 2 parts of borax. 2. I want to manufacture a stove paste polish that is odorless and dustless and has good lasting qualities. A. Plumbago, 2 lb.; water, 8 oz.; turpentine, 8 oz.; sugar, 2 oz. Knead thoroughly and keep in tin boxes. Apply with a brush. 3. A recipe for making a good silver polish. A. Silver Polishing (Putz) Pomade.—Mix thoroughly 4½ parts vaseline with a few drops of essence of mirbane (nitrobenzole). Add to this by stirring 7¼ parts elutriated chalk, 1½ parts burnt hartshorn, 1½ parts pulverized ossa sepia (cattle bone). The mixture should be of the consistency of butter.

(6562) A. M. says: I would request you to send me a receipt for making condensed milk. A. Condensed milk is made by boiling milk in condensing pans in which the atmospheric pressure is removed. The process is described in detail in the SCIENTIFIC AMERICAN for July 12, 1890, April 19, 1894, July 13, 1899, and in SUPPLEMENT, No. 156.

Business and Personal.

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SCIENTIFIC AMERICAN BUILDING EDITION.

JUNE, 1895.—(No. 116.)

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2. An elegant plate in colors showing a cottage at Bronxwood Park, Williamsbridge, N. Y., recently erected at a cost of \$2,200. Perspective view and floor plans. Mr. A. F. Leicht, architect, New York City. A neat design.
3. A cottage at Flatbush, L. I., recently erected for W. K. Clarkson, Esq., at a cost of \$5,000. Perspective elevation and floor plans. Mr. Christopher Myers, architect, New York City. A picturesque design.
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