

## RECENTLY PATENTED INVENTIONS.

## Engineering.

**SAFETY VALVE.**—Erastus B. Kunkle, Fort Wayne, Ind. This is an improvement on a former patented invention of the same inventor, in which the valve body has a hood-shaped cap with a slide outlet, a cup-shaped valve being seated in the body, which contains a helical spring, the parts being so arranged that when the spring is once set, and the parts are put in position to lock a regulating screw in place, the parts cannot be tampered with without attracting the attention of those in charge.

**ROTARY SNOW PLOW.**—John W. Haughwout, Omaha, Neb. This plow has a wheel with a back plate from which extends a series of radial paddles, so as to form a central space on the back plate, where a cone is centrally secured with its base extending into the central space, reversible cutters being held on the front end of the paddles and the wheel being revolved by suitable means as the car holding the plow is pushed forward against the snow, whereby the snow is readily cut and discharged to either side of the track.

## Railway Appliances.

**RAIL JOINT.**—John B. Walker, Corvallis, Oregon. This is an improvement in that class of rail joints in which a joint piece or girder is applied beneath the abutting ends of the rails and secured to them by claws or flanges that embrace their bases, thus forming a bridge and support for the rail ends and also holding them in due alignment, the joint piece or girder being so constructed as to be superior for its purpose.

**DUMPING CAR.**—John Lawson, Michigamme, Mich. This is a car adapted mainly for use in mining work, but also adapted for other purposes, and has a rigid flaring top, with suitable means for dumping the car, and for returning it to the point at which it is loaded, easily discharging every piece of material with which it is loaded, while it is operated in such manner that it cannot break loose, is very strong, and inexpensive in construction.

## Electrical.

**MAGNETIC ORE SEPARATOR.**—Charles G. Buchanan, New York City. Combined with a hollow cylinder of magnetic material is a series of magnets within the cylinder connected to produce positive and negative poles in alternation around the circumference of the cylinder, while a commutator connected with the cylinder is adapted to change the direction of the current, and there is an ore-feeding hopper and stirrer to insure a uniform flow of ore to the separating cylinder.

## Mechanical.

**SOLDERING TOOL.**—Edwin L. Barber, Henrietta, Texas. This is a tool which requires no furnace to heat it, having in itself a reservoir for gasoline or other light hydrocarbon and a burner and a valve for regulating the combustion of the gasoline as required for the proper heating of the tool.

**DIE FOR MAKING BOLTS.**—Thomas J. Bush, Lexington, Ky. This is an improvement on a former patented invention of the same inventor, relative to making interlocking bolts, the improvement consisting of a die or drop forging machine of peculiar construction to shape the locking end of the bolt.

**SPINDLE DRIVER FOR SPINNING MACHINES.**—Samuel James and Jeremiah K. Sanders, Lebanon, Mo. This invention covers a novel banding and tension mechanism whereby the spindles in a section of the machine will be simultaneously rotated in the same direction by a single band, the tension being automatically regulated, while a self-feeding oiler enables the apparatus to be run longer without stoppage than has heretofore been possible.

## Agricultural.

**POISON OR FERTILIZER DISTRIBUTER.**—Charles K. Foster, Iola, Wis. This is a machine designed to drop the poison or fertilizer upon the hills only, and means are provided whereby the driver may cause the material to drop upon any hill out of the regular alignment, or cause it to be continuously spilled when the plants are high and spread from hill to hill, the invention covering a novel construction and combination of the several parts.

## Miscellaneous.

**WAISTBAND.**—Frederick Spitz, New York City. This invention provides for the making of a waistband strip adapted to be wound in a roll, the proper lengths wanted for use being cut therefrom for use as desired, eyelets being formed at frequent intervals in the strip, and independent elastic loops near the eyelets.

**GARMENT SUPPORTER.**—Spurgeon C. Scantlebury, Eastport, Me. This invention provides a slotted plate, with studs and a key, forming a device especially adapted for use as a hose supporter, but also applicable with other garments, quickly and easily applied, not liable to slip, and that will not tear the garment.

**RADIATOR.**—Arthur H. Fowler, Buffalo, N. Y. This is a construction to facilitate the circulation of steam or hot water to heat buildings, the radiator having hollow sections forming air spaces, with side passageways and air ducts, and other novel features, designed to give a larger heating surface proportionate to the height of the radiator than usual, while reducing the cost of construction and fitting of the parts, insuring tight joints, free from leakage.

**CASING TOBACCO.**—John C. Frost, Statesville, N. C. This invention covers an apparatus with a casing cylinder having perforated coil pipes for spraying a solution upon the leaves, rolls for pressing the leaves as they pass out of the cylinder, devices for removing foreign matter and scraps before the tobacco is cased, with means for cooking the casing solution by

steam heat, and always at a uniform temperature, all portions of the tobacco being treated alike.

**ROOFING MATERIAL.**—Joseph N. Hopper, Pawnee City, Neb. This is a new roofing material consisting of a layer of woven wire having its meshes filled with a plastic mass and with a backing of fabric saturated with a similar filling material and incorporated with the woven wire layer, whereby the whole is designed to be impervious to water, strong, flexible, easily repaired, and conveniently put up in rolls, the new article neither cracking from the winter's cold nor softening from the summer's heat.

**IRONING BOARD.**—Schooler C. Horn, Bladensburg, Ohio. This board has its sides and ends grooved, while a clamp with a top cross bar has its side and lower cross bars fitted to the edge groove of the board, to which a spring is secured having notches for engagement by the top cross bar of the clamp, the board being designed to facilitate properly shaping the bosom and neckband before the iron is applied.

**DOOR CHECK.**—John H. Minix, Eaton, Ohio. This device comprises an arm having a bearing to engage the floor, a handle by which the arm may be moved, and a spring to actuate the arm to adjust its bearing into and out of engagement with the floor, whereby the door may be held closed or partially open, as desired.

**HOMINY FLAKES, ETC.**—Jeremiah H. Little, Yellow Springs, Ohio. This invention covers an improved means of manufacturing hominy and corn flakes, while preserving their flavor, form and consistency, there being combined with the cooking vessel crushing rolls, a casing, a drying chamber, with shaking screens and a trough-like bottom, and means for forcing a hot air blast upward into the chamber.

**VEHICLE SEAT.**—James M. Johnson, Arneckeville, Texas. Side bars connected by a cross bar engage the top edges of the wagon body, and on the side bars are journaled shafts, each having two short cranks, to the outer ends of which springs are connected, the seat being supported upon opposite upper ends of the springs, the movement of one pair of springs tending to so regulate that of the other pair as to preserve the seat horizontally with an uneven load.

**FOLDING CUP.**—Hobart R. Haynes, Westminister, Mass. This cup is made of a series of spherical lunes hinged together at their ends and overlapping one another, forming a drinking cup of simple and durable construction which can be readily folded to take up but little room in a pocket, valise, etc.

**SLATE.**—Emma C. Hudson, Seattle, Washington. This invention provides an improved slate frame adapted to hold water and sponges for cleaning the slate, a tube to hold water, and with pockets for the sponges, being held in the slate frame.

**PERSPIRATION POWDER.**—Sarah G. Hall, Oklahoma, Oklahoma Ter. This is a deodorizing composition for application to the body, and is made of quinine and finely pulverized burnt alum, in specified proportions, the compound being generally harmless and designed not to interfere with healthy perspiration.

**MAIL BAG FASTENING.**—Stewart K. Davis, August F. Stockley and William I. Barnett, Buena Vista, Col. According to this invention the upper edges of the bag are formed into a roll, and sliding flexible levers encircle these rolled or doubled edges, a peculiar catch holding the levers together, making a fastening that is quickly operated, and designed to hold the sides of the bag so closely together that the smallest article cannot be abstracted.

**PAPER BAG.**—Charles W. Fishel and Frank E. Sweet, Carbondale, Col. Combined with a paper bag of ordinary form is an apron attached to one side, and a string with a loop at one end passed through holes in the apron, the bag being for the use of grocers and others, and the improvement saving wrapping twine and time in doing up packages.

**HEAD COVERING.**—Simon Tuch, New York City. This is a new article of wear for ladies' and children's use, having a cap-like body covered with pliable stays, a portion of the covering projecting outward and adapted to be flared or bent to vary the appearance of the article, so that it may be readily changed into different shapes without unfolding or separating any of the parts.

**BRACKET.**—George R. Nafis, Brooklyn, N. Y. This invention consists of a sleeve fitted to turn on a pole and an arm having an inclined slot through which passes a pivot pin on the sleeve, the arm being adapted to engage with its inner edge the side of the pole or to turn on the pin to form a convenient bracket for use on clothes racks, flower stands, book cases, etc.

**SIDEWALK.**—Julius F. Jaquet, Milwaukee, Wis., and William McAuslan, Brooklyn, N. Y. Combined with a series of bracket stands are elongated and perforated sills, on which are located and interlocked tread pieces, in connection with sliding clamping blocks and keys, the whole designed to form a walk quickly put in place or taken up for repair, and made of either wood or terra cotta and metal.

**PIER PROTECTOR.**—Agnew Moore, Missoula, Montana. A vertical roller is journaled at the apex of the pier, and side rollers at the sides, a plate being arranged angularly between the front and side rollers at each side of the pier, the improvement being designed especially to protect bridge piers from drift wood, logs, boats, etc.

**ADDING MACHINE.**—Eri F. Jewett, Newtown, Ohio. Combined with a case having a slot and a series of tapes with numerals is a card having two series of numerals oppositely and alternately thereon, an apertured plate, and other novel features, by which numbers may be rapidly and accurately added or subtracted in a mechanical way, requiring little mental process.

**FISH NET.**—Larence A. Johnson, San Francisco, Cal. This is a net with an interior trap, and provided with a spar fitted with wheels or whirls near the ends, whereby the net may be readily drawn over the bottom of a body of water, and may be conveniently hoisted aboard a boat or vessel, while the fish may be

readily taken from the net without interfering with the position of the trap.

**FISHING REEL.**—Elbert B. Porter, Penn Yan, N. Y. Combined with a driving crank and a driving spring is an intermediate planetary gearing by which the turning of the reel and the winding of the spring may be carried on simultaneously, the reel being detachable from the gearing, and a brake being provided for retarding the motion of the reel, and a drag to offer a slight resistance to its rotation and give an alarm.

**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.

**A NEW BUSINESS IN WALL STREET.** Roderick H. Smith, 6 Wall Street, N. Y. Pp. 85.

The author of this work has developed a plan by which he believes some certainty can be attained in dealing in securities. By confining operations to dividend-paying stocks, buying on declines and selling on small advances, handling small lots and dividing the risks, a method is figured out that seems to show a reasonable chance of steady realization. To elucidate the scheme tabular statements of dealings are shown which represent actual accounts. The author certainly succeeds in picturing the advantages of Wall Street as a field for speculation, whether his plan will work or not, may be to a conservative mind at least an object of surmise. Mr. Smith, who is the author of "The Science of Business," "Smith Business Chart," etc., has certainly produced in "A New Business in Wall Street" a most interesting and attractive little work.

**FIRST LESSONS IN METAL WORKING.** By Alfred G. Compton. New York: John Wiley & Sons. 1890. Pp. vi, 170. Price \$1.50.

In the present days of manual training in schools, a work emanating from the instructor in charge of the manual department of the College of the City of New York is of special value, and has an authoritative standing. Its illustrations and eminently practical directions fully carry out all anticipations.

## SCIENTIFIC AMERICAN

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## MARCH NUMBER.—(No. 65.)

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The charge for insertion under this head is One Dollar a line for each insertion; about eight words to a line. Advertisements must be received at publication office as early as Thursday morning to appear in next issue.

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## Notes &amp; 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.

(2870) C. A. W. asks: By what solvent can I obtain a clear solution of menthol up to 5 per cent? A. Dissolve in an essential oil, such as oil of cloves, and dilute with strong alcohol.

(2871) F. W. F. asks (1) for a good way to take the color from overalls without injuring them. A. If well dyed, it cannot be done. Chloride of lime might destroy the dye, but would tend to rot the cloth. If applied, it should be well washed out, and a dilute solution of sulphurous acid applied afterward. 2. For a good cement for holding glass together. A. Dammar varnish, or Canada balsam, or casein cements; see query 2740.

(2872) M. D. asks: By what theory of physics is the extreme cold produced and explained resulting from anhydrous ammonia and sulphuric ether? A. The evaporation of the fluids requires energy, which is absorbed from surrounding bodies as heat energy, and which heat is rendered latent or caused to disappear.

(2873) R. H. asks how sulphur dioxide gas can be cheaply made. A. By heating concentrated sulphuric acid and sulphur or charcoal in a flask and conducting the evolved gas into water. Hyposulphite of soda can be treated with dilute sulphuric acid in an evolution flask and the gas can be collected as above.

(2874) H. A. asks: Can you give me ingredients for a solution in which to dip a small round lamp wick, to retard charring? A. Try phosphate of soda or borax dissolved in water.

(2875) W. A. asks: I want to know whether a piece of brass tubing one thirty-second thick, pushed over a coil, will weaken the current, or will the current pass through the brass the same as it does through the paper core the wire is wound on? A. Use the brass tube.

(2876) F. I. M. asks: 1. What causes the thinning out of negatives (dry plates) in the fixing bath after development? I have Cramer's plates No. 50, and made up the solutions just as described, but spoiled 8 plates already. The trays are clean, the developing and fixing solutions kept separate, every care is taken, nevertheless said result. A. The thinning of the negative plate is due to the dissolving out of the unacted upon bromide of silver in the film, either by light or the developer. If plates are under-exposed, they are likely to develop thin. If over-exposed, the same result is obtained and the picture flashes out quickly. If you have