

## RECENTLY PATENTED INVENTIONS.

## Engineering.

**SAFETY STOP FOR ENGINE GOVERNORS.**—James Barclay, Sioux City, Iowa. This improvement consists of a stop adapted to support the governor sleeve when the steam is shut off, and to move from under the governor when the engine is running, the device being simple, durable, very effective, and automatic in operation. It is arranged to permit the governor, in case of accident, to drop sufficiently to throw the cams on the knock-off levers into action to prevent the cylinder from taking steam.

**LOW WATER INDICATOR FOR BOILERS.**—William H. Rodgers, Bay Side, N. Y. This invention provides a thermostatic device to indicate upon a dial connected with it the height of the water in the boiler, an improved construction being presented designed to reduce the cost of manufacture and simplify the device. An alarm device, governed by an electrical connection, is also connected with the indicator, to sound a signal when the water reaches too low a level.

**FIRE BOX FOR STEAM BOILERS.**—Michael E. Herbert, St. Joseph, Mo. This fire box has side water legs closed at their top, bottom, and ends, a supporting water leg connecting the rear ends, while a water drum connects the forward ends of the side legs near the bottom, and tubular grate bars connect the drum and supporting leg. The fire box is adapted to dispense with fire brick lining and is designed to support the forward end of the boiler, while its construction is such that it may be used with various sized boilers or fronts, and may be quickly and easily removed for repairs and another one substituted in its place.

**HOT WATER BOILER.**—This is another invention of the same inventor, providing a boiler of extremely simple and inexpensive construction, designed to be very effective and operated at a small expense for fuel. It has a hollow top or water chamber mounted upon a series of water tubes, whose connected lower ends communicate with longitudinal circulating pipes connected at their front and rear ends by transverse pipes. A water leg is disposed centrally in the body of the boiler, and drop tubes are projected from the rear portion of the hollow chamber, the water leg forming a bridge wall over the top of which the fire passes to circulate among the rear drop tubes.

**CONDENSING FUMES.**—Frederick Mueller, Butte City, Montana. This invention relates to devices for roasting ore, providing an apparatus for heating the metal-carrying fumes, to separate the fumes from the metal. Located one above another is a series of compartments through which the fumes are caused to circulate, each compartment being formed with a water-dripping device, and the top compartment being charged with a liquid from a suitable reservoir. The device can be readily applied to any furnace, flue, or chimney.

## Railway Appliances.

**CAR.**—Abram S. Desha, Nolton, Ark. This car has metallic sides and ends, with a lining attached by rivets, but with an interior space filled by mortar, while the floor and the top are of sheet metal. The car is burglar and fire proof, and is designed for use by railroad, express, and other companies, for carrying money and valuables. Ventilating openings in the top are adapted to be closed by gates, and the entire construction is simple and durable.

**CAR DOOR.**—This is a further invention of the same inventor, the improvement providing for two doors, one on the outside and the other on the inside of the car, the two doors being connected, and the construction being specially adapted for use on the burglar and fire proof car patented by this inventor. The outer and inner doors slide in the same direction, and the outer door is designed to be locked so that it can be opened only from the inside.

**STREET CAR SUPPLEMENTARY TRUCK.**—Bennett Price, Brooklyn, N. Y. These trucks each consist of an axle and two track wheels, to be located on the car below and nearer the platform than the main wheels, with upright screws and ratchet rigging for vertical adjustment. The improvement is designed principally to facilitate moving a street car over hose stretched across the track and similar obstructions, and also for use on the accidental breaking of a wheel or axle. By these trucks the car may be lifted so that its ordinary wheels will pass over an obstruction, the weight of the car during such movement being upheld by the supplementary trucks.

**CAR AXLE BOX.**—William Rader and Edwin Hunter, Allentown, Pa. This box has an improved sponge holder, a novel spring closer for the lid of the box, and improved means to restrain the escape of oil from the box at its inner side. The shell that forms a bearing for the journal of an axle is of the usual form, its location allowing for a suitable sponge-holding cavity beneath the journal.

**CAR COUPLING.**—James B. Baum and Oscar F. Sensabaugh, Durango, Col. The drawbar of this coupler is of the ordinary pattern, with a flaring mouth and aligning vertical openings, in which is suspended a novel form of pin, whose lower portion is so shaped that it may be raised by an entering coupling link. The coupling is simple, cheap, and strong, and designed to automatically couple with an opposing coupler, while uncoupling may be effected from the top and sides of the car.

**RAILWAY CROSSING.**—John R. Pfanz, Louisville, Ky. This invention provides improved constructions by means of which the intersecting rails are held in close contact with one another, the jolting or jarring of cars passing over the joint being entirely avoided, and a secure support being afforded for the short rails of the crossing. The main and cross rails are jointed, and by means of a bearing plate within the chair the sectional crossing rails are given an additional support, the plate being made adjustable to a certain extent by tightening the section of the chair.

**TRUCK.**—John Cornelius, Oakland, Md. In this truck the platform is movable vertically above the bed, and may be raised and lowered by a power mechanism

so constructed as to enable the depot hands to readily operate it. It is especially adapted for use where it may be desired to load heavy freight from one level to a higher one, as from the level of a platform to that of a car door.

## Electrical.

**FOOT WARMER.**—William E. Ulmer, Hoquiam, Washington. In a suitable box are holders for a number of electric lamps, the box having a slotted or apertured cover, and the heat generated being controlled by turning the lamps on or off. This foot warmer is adapted for use where a small area is to be heated, or where a small amount of heat is required locally, there being under each lamp a concave reflector to project the heat all in one direction.

**MAGNETIC TOOL.**—Jacob F. Standiford, Muscogee, Indian Territory. Combined with magnets and a casing is a vibrating armature extending across the upper ends of the magnets, the armature having a vertical aperture in line with the core of one magnet, through which loosely extends a tool holder, a spring throwing the armature away from the magnets, while the armature also raises the tool holder against the action of a spring. The improvement includes a battery circuit and means for closing the circuit when the armature lever rises, the tension of the actuating springs being regulated by set screws to afford perfect control of the stroke of the tool.

**HANGER FOR LAMPS.**—Samuel O. Larkins, Blair, Neb. This is a simple device for supporting incandescent lamps at any desired height, and which may be adjusted to support lamps and fixtures of different weights. The operative parts of this hanger are inclosed in a metal casing, having a lower tubular neck through which the lamp cord passes, the torsion of a spring counterbalancing the lamp and its shade. When the lamp is lifted the spring winds the cord, and the lamp is lowered by pulling it down against the resistance of the spring, which is thus wound. Should there be a short circuit in any of the parts, a cut-out wire will fuse and prevent injury to the hanger.

## Mechanical.

**OIL CUP.**—John U. Zur Linden, Billings, Montana. This invention relates particularly to automatic cut-off lubricators, where the oil is fed by a reciprocating plunger, and provides a device particularly adapted for attachment to locomotive crank pins, or to any revoluble shaft. The quantity of lubricant fed can be readily regulated without removing the device, and an auxiliary feeding device is provided whereby an additional quantity of oil can be quickly introduced and fed as desired. The oil cup has a passage in its shank in which is arranged a reversible reciprocating plunger rod, reduced for one-half its length, while valve disks are arranged upon the rod.

**LUBRICATOR.**—This is a further invention of the same inventor, for an improvement upon the lubricator previously described, and provides improved means for the adjustment of the plunger, and other novel features, to make a simpler and more efficient lubricator.

**PAPER FEEDING ATTACHMENT.**—Nicholas Lux, Topeka, Kansas. This is an attachment for automatically and accurately feeding paper to printing presses, ruling machines, etc. It is of simple and durable construction, and consists of a frame provided with legs, cams revolving on the frame and adapted to lift the legs off the paper, at the same time pushing the top sheet forward. The frame, with entire feeding attachment, is readily swung upward out of the way when it is desired to feed by hand.

## Miscellaneous.

**MOISTENING FURNACE AIR.**—Joseph A. Jeffery, Shell Lake, Wis. This invention provides an apparatus for moistening the air heated in a hot air furnace for delivery to the rooms of a building, the evaporation to be controlled by the temperature and humidity of the air entering the flues rather than by the heat of the fire pot. Evaporating pans are arranged in the furnace and connected with an outside water tank by means of a valve-controlled pipe whereby the water supply is regulated, the evaporating surface of the pans being increased or decreased as desired.

**SUGAR CANE MILL ATTACHMENT.**—John C. Riley, New Orleans, La. This invention provides a strainer and elevator for the cane juice, as it comes from the mill, preparatory to being pumped to pans or other vessels for further treatment, the trash or bagasse running with the juice being carried off previous to straining the juice. A casing is provided having a perforated plate upon which the juice is run, and scrapers are made to move over the perforated plate to scrape off any trash and bagasse deposited there by the juice.

**WHEEL.**—George P. Fisher, Bucyrus, Ohio. This improvement is especially designed for bicycle wheels, the wheel having a rim cushion composed of a series of hollow balls on which is fitted a tube with an internal circumferential groove or channel. If the tube be punctured in use, the balls will carry the rider on and prevent the collapse of the tire, or if one or more balls should be punctured or broken, the tube will sustain the rider.

**MECHANICAL INDEX.**—Andrew E. Carlson, Wallace, Idaho. This is designed to be more convenient for reference than the ordinary book form of index. It consists of a stand with a central vertical shaft, and a series of radially arranged wings attached to a cylindrical center and revolving on the vertical shaft, the wings being formed of metal frames with detachable cards bearing names slipped therein, and protected by a glass or mica facing. The index is designed to be made up in ornamental style, and to be set upon a desk or table.

**INCANDESCENT GAS LAMP.**—Joel G. Jackson, Minneapolis, Minn., and Addison L. Daniels, Marion, Iowa. This lamp is adapted to burn any of the gases from petroleum, giving a brilliant light without making any odor. The flow of gas is supplied centrally

and with a uniform current, just the exact quantity of air required being admitted to the air mixer, and the mingling being made thorough, while the burner is so constructed that a current of air is admitted to the middle of the flame, and the refractory mantle and its holder are so arranged that the mantle will not be unduly heated. The lamp has other novel parts, all provided with a view of obtaining complete combustion and rendering the light extremely luminous without odor.

**BICYCLE GEAR.**—Emil Gundelach, New York City. This is a differential gear especially designed for safety bicycles, whereby it will be easy to run the machine at a high speed on a good and level road, the gear being changed for a low speed for hill climbing. A countershaft is geared to the crankshaft, and a gear is laterally adjustable on the counter shaft, a third shaft geared with one of the bicycle wheels being adjustable toward and from the countershaft, and a cone or stepped gear being mounted on the third shaft. The change from one gear to the other is readily effected.

**TROUSERS STRETCHER AND SHAPER.**—Henry E. Featherstone, West New Brighton, N. Y. This invention provides an improvement in stretchers, consisting of an attachment whereby the trousers stretched will be given a curved line at the seam, representing the proper shaping of the trousers. The attachment is applicable to any form of trousers stretcher.

**THILL COUPLING.**—Andrew Hummer, Maria Stein, Ohio. This is a very cheap and simple device which may be applied to any vehicle, enabling the thills or pole to be quickly and securely attached to the axle or as readily detached without the use of any tools. Its construction is such that the thills or pole may be easily turned up and fastened out of the way. It is adapted to prevent all rattling, and may be adjusted to take up wear as it occurs.

**BUCKLE.**—George M. Aylsworth, Colingwood, Canada. This is an improvement in buckles used to adjustably connect parts of harness for draught animals, being convenient to adjust and simple and cheap in construction. This buckle obviates the need for a keeper loop on the strap to secure the end of the strap from flapping, and the buckle is very light, strong, and neat in appearance.

**BRIDLE BIT.**—Robert Sears and Lucien B. Lindsey, Spokane, Washington. This bit has end loops to receive the rein rings, a chin strap extending beneath and having a central pad to fit against the chin, the ends of the strap being adapted for attachment to a check rein, and other novel features. It is a simple and strong bit, readily applied to an ordinary driving bridle and to the mouth of a horse, preventing too great slipping of the main bit, and acting as a rest for the chin of the horse, so he can be checked up without discomfort and without injury to his mouth.

**ICE CREEPER.**—James F. Comfort, Kendall Creek, Pa. This invention provides a simple form of sandal adapted for use in coasting or walking upon frozen snow or ice. It consists of a toe piece and heel piece connected by an adjustable shank, the device being easily fitted to any ordinary sized foot, and thoroughly protecting the usual footwear, while enabling the wearer to walk easily over slippery and frozen places.

**SOLE OR HEEL PLATE.**—George J. Davison, Richmond, Va. This is a plate which is readily attachable to any portion of the sole or heel of a shoe, and instead of being thick and clumsy, as such plates usually are, it is light, being formed of thin tempered steel, and attached by barbs forming part of the plate, instead of by nails and screws. The plate has beveled edges and extensions, and the prongs are made to enter the sole at an angle, so that the plates do not interfere with the elasticity or spring of the sole.

**COOKING AND SMOKING APPARATUS.**—John S. and Charles E. Baker, Newberg, Oregon. This is a simple apparatus to facilitate the preparing and curing of meat in butchershops, etc., requiring but a small amount of fuel to do both the cooking and smoking. From the fire box the flue leads into a casing which forms a smoke house, and provided with hooks to support the meat, but a damper is provided by which the smoke may be passed to the chimney without passing through the casing. A kettle for cooking meats is arranged over the fire box, a pipe conducting the odors from the kettle to the chimney flue, so that no odors or gases from any of the parts escape into the room where the apparatus is located.

**COOKING UTENSIL.**—Tomas J. Clement, New Orleans, La. This device comprises a flat body portion provided with a handle, and with detachable fingers depending from its lower side, the fingers being adapted to be dipped in dough or batter, and then quickly held in hot grease for cooking. The fingers may be readily removed, and others of different forms substituted, giving any desired shape, and the articles cooked, such as doughnuts, crullers, waffles, etc., may be quickly and easily handled, or, if desired, they can be easily filled with jelly, lemon, cream, etc.

**DRIER AND CARBONIZER.**—Michael J. Spencer, Lawrence, Mass. In this machine for drying and carbonizing fibrous materials at a comparatively low temperature, the material treated is carried up within a casing by a series of aprons, a fan being connected with a pipe leading from the top of the casing, and the process being continuous at the will of the operator. The machine is different from any other for like purposes.

**ATTACHMENT FOR BEDS.**—Arie C. Wierenga, Zeeland, Mich. This is a device to prevent children from falling out of bed, and may be readily moved out of the way or fixed up in position to enable an ordinary bedstead to do service as a crib. It is made with angular hangers having a pivoted and sliding connection with the slats, a frame being so secured to the hangers that it may be held by them in an upright position at the bedside or in a horizontal position under the bed.

**DESIGN FOR A CARPET.**—William M. Daintrey, New York City. This design embraces a body and a border, the body consisting of scroll-shaped stems ornamented with leaf forms on a ground containing fragmentary sprays, while the border has a series of

figures in connected series, with scroll-shaped stems ornamented with leaf and branch forms, and festoon figures simulating roses.

## NEW BOOKS AND PUBLICATIONS.

**RESULTS OF DOUBLE STAR MEASURES MADE AT SYDNEY OBSERVATORY.** Under the direction of H. C. Russell, B. A., F.R.A.S., etc., government astronomer. Sydney: Printed by Turner & Henderson. 1891. Pp. 22.

A numerous list of double star measures as taken at the Sydney Observatory will be welcomed by astronomers, as giving their contributions to the astronomy of the Southern Hemisphere. The author has also forwarded us several of his pamphlets on scientific subjects, forming a reproduction of papers as read before the Royal Society of New South Wales during 1891.

**DUTY AND CAPACITY TESTS OF WORTHINGTON HIGH DUTY PUMPING ENGINES ON WATER WORKS AND PIPE LINE SERVICES.** Henry R. Worthington. New York. 1892. Pp. xxxii, 216.

The record of Henry R. Worthington and of his company in the annals of American invention is so meritorious that the present description of the Worthington engines, as erected throughout this country, and of their returns, is a legitimate tribute to technical literature. The book is fully illustrated and embodies a large amount of interesting matter. We note especially the paper on the great pipe lines from the oil regions to the seaboard, which is of popular as well as of technical interest.

**BROWN'S BUSINESS CORRESPONDENCE AND MANUAL OF DICTATION.** By William H. Brown. New York: Excelsior Publishing House. Pp. xvi, 350. Price \$1.

This work is made up of a number of sections of matter useful to correspondents. It includes advice to student of short hand and of type writing, and remarks on correct spelling, punctuation, abbreviations, etc. One chapter is devoted to a collection of quotations from different languages. Other chapters contain allied matter. Another part of the book is devoted to forms for every kind of business letter; another to law forms of great variety. Finally a number of literary selections are given, together with a "spelling list" of words which are supposed to be difficult to spell.

Any of the above books may be purchased through this office. Send for new book catalogue just published. MUNN & Co., 361 Broadway, New York.

## SCIENTIFIC AMERICAN BUILDING EDITION.

[MARCH, 1893, NUMBER.—(No. 89.)

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1. Elegant plate in colors, showing an attractive dwelling at Springfield, Mass. Floor plans and perspective elevations. Cost \$9,750 complete. E. L. Chesebro, architect, Springfield, Mass.
2. Plate in colors showing the residence of the Hon. John J. Phelan, at Bridgeport, Conn. Two perspective views and floor plans. Mr. A. H. Beers, architect, Bridgeport, Conn. An excellent design. Cost \$6,000 complete.
3. A dwelling at Springfield, Mass., erected at a cost of \$4,000 complete. Perspective views and floor plans. Messrs. Granger & Morse, architects, Springfield, Mass. A model design.
4. A cottage erected near Brighton, Mass., at a cost of \$2,800. Floor plans, perspective view, etc. A. W. Pease, architect.
5. Engravings and floor plans of a residence at Greenwich, Conn. A beautiful design in the Colonial style of architecture. Mr. W. S. Knowles, architect, New York.
6. A dwelling recently erected at Brookline Hills, Mass., at a cost of \$5,300 complete. A picturesque design. Perspective elevation and floor plans. Messrs. Shepley, Ruton & Cooledge, architects, Boston.
7. Sketch of a tasteful design for a three-family cottage, to cost about \$4,500.
8. Plans and elevations of an English cottage of quaint and pleasing design.
9. View of the Fifth Avenue Theater, New York. A splendid example of modern architecture in the style of the Italian Renaissance. Together with a portrait and biographical sketch of Francis H. Kimball, architect, New York City.
10. Miscellaneous contents: Paving estimates.—World's Fair items.—Painting the World's Fair buildings.—Drawing instruments for colleges, etc., illustrated.—A tasteful fireplace design, illustrated.—An improved steel spring hinge, illustrated.—Vegetable growth in water mains.—American machinery in London.—A foot radiator valve for hot water radiators, illustrated.—New tin plate plant.—An improved furnace, illustrated.—Cincinnati woodworking machinery.—An improved door hanger, illustrated.—A big heater company.

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