

RECENTLY PATENTED INVENTIONS.

Engineering.

CAR COUPLING.—Daniel B. Davis and Josiah J. Fisher, Laramie, Wyoming Ter. This invention provides a means of coupling cars without passing between them, also for elevating the drawhead or adjusting it laterally, and for sustaining the coupling pin in an elevated position when the cars are uncoupled.

AUTOMATIC CAR BRAKE.—Willard R. Wood, Jr., Hedgeville, N. Y. A gear wheel is secured to one of the axles, with which a segmental gear wheel is adapted for engagement, yielding bearings carrying the segmental gear wheel, and a double wedge engaging the yielding bearings, and operated from the brake staffs so as to move the segmental gear wheel into and out of mesh with the wheel on the axle.

RAILWAY SWITCH.—Henry Lesly, Birmingham, Ala. The switch frame is pivoted and consists of pointed rails and suitable cross pieces, with an arm having slots and a projection in combination with a connecting rod, whereby either switch frame may be operated independently of the other by the same lever, or both switch frames may be operated simultaneously in opposite directions.

HYDROCARBON MOTOR.—Oscar Bruner, New York City, and Emil Capitaine, Berlin, Germany. This invention relates to motors worked by a mixture of air and finely divided oil, petroleum, or naphtha, an appliance being arranged within the piston for dividing or sprinkling the oil or naphtha, while the air is caused to pass with great velocity through the appliance into the cylinder, in the direction of the cylinder cover.

GAS COMPRESSING PUMP.—Thomas Farnsworth, San Antonio, Texas. This is a compressor pump for use in connection with refrigerating machines, all parts being open to the action of water or other cooling medium, preventing the gas from becoming superheated and producing more pressure than is required, while the construction is simplified.

WELL SINKING MACHINE.—William B. and Joseph R. Coffin, Bliss, Neb. This invention covers a novel construction and arrangement of parts, the tube to be used in drilling the well to be operated by hydraulic pressure, while the tube itself is made to form a permanent part of the well after water is reached.

ROCK DRILLING TOOL.—James W. Wyckoff, Marquette, Mich. The drill has a cutting head with an operating face formed with acute angular opposite ends and side cutting edges, whereby, when reciprocated, the drill holes will be made long in proportion to their width, and the rock will be split off in merchantable blocks or slabs, requiring less labor in finishing or dressing the quarried stone.

AIR COMPRESSOR.—Emil Kaselowsky, Berlin, Germany. This compressor combines with a water jacket externally ribbed initial compression cylinders, open at their upper ends, and a final compression cylinder within the jacket, with other novel features designed to improve the construction of apparatus for pumping and compressing air.

Miscellaneous.

FOLDING BED.—Walter T. Green, Clinton, Mo. This is a bed of which the casing may be a dressing case or other article of furniture, the bed being of simple and economical construction, wherein the bedding will be contained within the bed when folded up, while the body of the bed is so light as to be readily manipulated with but little effort.

TELEGRAPHY.—Percy F. Jamieson, Batavia, Ohio. This invention provides a telegraph system in which the key used in sending messages will automatically close the circuit as soon as released by the operator, thereby avoiding the necessity of switches and the inconvenience arising from leaving the line open.

STOVE LID.—William A. Martel, South Orange, N. J. This lid is formed with a network disk and a ring having vertical pins which pass through holes in the disk and project above it, to constitute a support for a pan or kettle, being specially adapted for use over an oil flame, whereby the heat will radiate freely and the soot be prevented from escaping.

PUMP.—William Keast, Russell Gulch, Col. This invention relates to an improved valve-operating mechanism to be applied to the suction box of a pump formerly patented by the same inventor, whereby all springs are avoided, and the operating rods will not be distorted in operation.

BURGLAR ALARM.—Janko L. Mikich, Dallas, Texas. It is a door and window burglar alarm which can be conveniently carried from place to place and readily put in position for use, a cartridge being detonated by the tripping of the alarm, as a door or window is opened, when the alarm has been placed in position adjacent thereto, the invention being especially useful for travelers.

VEHICLE WHEEL.—Gunder Olsen, Houghton, Dakota Ter. The hub and connected parts of this wheel are so arranged that, by a slight movement of the hub and parts, a force is exerted on the spokes and felly to tighten or loosen the ties, the wheel being also so constructed as to exclude dust from the journal.

PRINTING TELEGRAPH.—George V. Sheffield, Schenectady, N. Y. The invention consists in a transmitter formed of two rollers to carry forward a perforated sheet, spring-actuated fingers and line wires corresponding to them, with other novel features, for sending messages telegraphically in the form of a printed strip or stencil, with an attachment for making an audible signal for each letter printed.

BOUQUET HOLDER.—John G. S. Smith, Rome, Ga. This invention consists of a small bottle supported on a shield, adapted to be secured to clothing or drapery by means of pins held in the shield, whereby the stems of the flowers are supplied with water and kept fresh a long time.

SNAP HOOK.—Charles E. McClintock, St. Joseph, Mo. This hook has a spring-actuated tongue prolonged beyond its pivot through the back of the hook, and provided with a thumb piece by means of which the tongue may be operated.

LAMP FILLER.—Marion W. Paxson, Virginia City, Nev. This is a filler which may be attached to an oil can and the valve opened, when, by pressing on the sides of the can, the oil may be started and caused to flow, being an improved device for drawing oil from a can by siphon action.

STAR FINDER.—Hubert R. Johnson, Natrona, Pa. An arm is mounted to turn on a suitably constructed tripod, the upper part of the arm supporting a clamping screw on which turns an upwardly extending arm carrying a screw with an arm supporting at its upper end a disk with degrees and subdivisions, the instrument being used in connection with a table in which the north polar distances and the right ascension of each star or other heavenly object are given.

FOUNTAIN RULING PEN.—Julius G. Zwicker, Austin, Minn. Combined with the two jaws and a tubular handle is a centrally arranged feed tube, with yoke-shaped piece and screw nut for adjusting the jaws, a swiveling thimble, and other novel features, avoiding the necessity of frequently refilling the pen, preserving the adjustment of the jaws, and being economical of ink.

DENTAL ANODYNE.—Robert I. Hunter, Norfolk, Va. This is a compound designed to be employed for allaying the sensitiveness of decayed teeth, and consists of cocaine, chloral, and other ingredients, used in proportions and after a manner described.

ROAD CART.—Lewis J. Lyman, Manhattan, Kansas. To the axle are secured the two side bars to the rear ends of which the ends of the rear spring are attached by flexible connections, which suspend the spring and permit it to swing in all directions, with other novel features, whereby the body is relieved of much jar and motion and rendered much easier riding than the common road carts.

CLOCK STRIKING MECHANISM.—Chaim Aronson, Brooklyn, N. Y. This is an improvement adaptable to clocks operated either by springs or weights, whereby the full hour is struck at every quarter hour, the mechanism for driving the minute and hour hands being of any approved construction.

NIGHT LIGHT ATTACHMENT.—James and William J. Stratton, Brooklyn, N. Y. This invention relates to an improvement on a formerly patented invention of the same inventors, improving the connection between the stand and the lamp socket, facilitating an adjustment to throw the light at different angles and upon different objects as desired.

LOCK HINGE.—Thomas Spriggs, Mitchell, Kansas. This is a door check for holding doors in different open positions, a socket piece being mounted on the door frame and a socket piece on the door, in combination with a vertically sliding bolt having locking projections adapted to engage the socket pieces, and a lever for operating the bolt.

SHOE FASTENING.—George T. Stevens, Auckland, New Zealand. The shoe is made with a stiffening at the top to sustain the strain of the laces, and provide means whereby the shoe may be conveniently and readily expanded at the top for the insertion of the foot, and will then be expeditiously laced by simply drawing upon the projecting extremities of the straps.

FUMIGATOR.—John S. Dillman and William B. Kyle, Moscow, Idaho Ter. This is a device for forcing poisonous fumes or gases into holes in the earth to destroy gophers, rabbits, or other burrowing animals, being an exterminator consisting of an air and smoke pump, and a fire box arranged for easy connection, so as to be readily operated with straw or wood and sulphur.

WASHING MACHINE.—Cyrus R. Crane, Housatonic, Mass. The machine consists of a series of tanks, each having a separate water supply and separate overflow, and with revolving rollers, being particularly designed for use in various bleaching operations wherein the fabrics are treated in continuous lengths.

TWO-WHEELED VEHICLE.—Emery W. Baxter, Burr Oak, Mich. The body of the vehicle is made with curved side bars, each formed of two curved plates, preferably of steel, bolted or riveted together, and between them, at the bottom of the body, are curved plates, preferably of cast iron, with bolts to which the slats are secured, a guard being attached to each plate to hold the yoke in place.

WAGON GEAR.—Robert Fernandez, Brooklyn, N. Y. An elliptical spring mounted on the head block supports the body in the usual manner, while this spring is relieved by a semi-elliptical spring arranged central to the wagon, the lower half of this semi-elliptical spring being secured to the upper fifth wheel by a clip, the invention covering also other novel features.

COCKEYE.—John H. Charters, Ekalaka, Montana Ter. The device is preferably made of a flat plate stamped with slot for attachment to the trace, and with two other connected apertures, one of which is of sufficient size to pass readily over the head of a headed bolt on the end of the singletree, the other aperture being of about the same diameter as the shank of the bolt.

HORSE COLLAR.—Alexander McKenzie, Auburn, Ontario, Canada. This collar has a rim, designed to be a practical substitute for hames, and to compel the pad to essentially retain its shape under all conditions until rendered worthless by constant use, while the construction is intended to be simple and economical.

WATER HEATING MANTEL.—Jacob Friedlander, Memphis, Tenn. The mantel, having a grate fireplace, is built with hollow portions and connecting pipes projecting beyond its face, other pipes built in the chimney breast connecting with the hollow

portions, while air openings and a water inlet are provided, making a mantel which will effectually aid in heating the room without generating foul or dry air.

SELF-BINDERS, ETC.—Edwin B. Karn, Britton, Dakota Ter. This invention is in the nature of a roller tension device for self-binding harvesters, but which is also designed to be applicable for general use, the invention covering a peculiar construction and arrangement of devices operating under a rolling friction, whereby the tension is not likely to break the cord or twine if lumpy or weak in places.

PIANO ACTION.—Joseph C. Price, Baltimore, Md. This invention provides simple constructions for lifting the rear ends of the keys when the soft pedal is operated to correspond with the movement of the hammer rest, effected by such movement of the soft pedal, so as to preserve the elasticity of the keys and cause all parts to work in harmony.

BOX FRAME BENDING MACHINE.—Sylvester Valentine, Hagerstown, Md. It is specially designed for bending into shape previously prepared wood, and has a work bed with a fixed or stationary section and a series of folding sections actuated by a lever, to dispose the bed sections at right angles to each other, with an automatically retracting gauge, means for effecting individual movement of the sections, and other novel features.

ICE CUTTER.—Daniel Williamson, Sunbury, Pa. It is a hand cutting machine, slowly propelled by means of a crank, the same power also operating the cutting chisel, for cutting grooves upon the surface of the ice upon rivers, to facilitate its division into regular blocks preparatory to harvesting.

SHOW CASE AND BIN.—William V. Young, North Clarendon, Pa. The case or bin has a contracted bottom chamber provided with a chute having a valve or cut-off, in combination with a scoop having its bowl fitted to the bottom chamber, and having an adjustable false head at its inner end, being designed to facilitate dealing out the contents of the bin as merchandise.

SCIENTIFIC AMERICAN BUILDING EDITION. JANUARY NUMBER.—(No. 39.)

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1. Elegant plate, in colors, showing perspective view of a one story Southern house, costing two thousand two hundred dollars. Floor plans, etc.
2. Plate, in colors, showing a block of economic brick dwellings. Floor plans, elevations, with details, etc.
3. The Washington Building, New York City. Full page engraving.
4. Design for the new post office and revenue office, Sacramento, Cal.
5. The new government building at Binghamton, N. Y.
6. Plans and elevations for a two thousand five hundred dollar cottage.
7. The Tacoma Building, Chicago. Half page engraving.
8. A seaside summer house. Cost, about five thousand dollars. Plans and perspective.
9. Church of St. Paul, Luton. Half page engraving.
10. A dwelling near Newark, N. J., recently erected at a cost of about five thousand five hundred dollars. Plans and perspective.
11. View of the main entrance to Melrose Park, near New York.
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16. Design for an English cottage.
17. Construction of mills. Section of mill showing construction of two floors and roof.
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19. Miscellaneous Contents: Construction and finish of house flies.—Iron roofs.—Restricting heights.—Traction over different pavements.—Dry rot in timber.—The ancient cataract of the Hudson.—Wall plastering.—Mineral wool as a filling.—A new form of drain pipe, with sketch.—Natural gas lighting.—Lane patent door hanger.—Automatic temperature regulators, illustrated.—The Prindle metallic wire packed unions, illustrated.—Architectural wood turning, illustrated.—Filling the hollow spaces in walls and floors of buildings.—Terra cotta lumber.

The Scientific American Architects and Builders Edition is issued monthly. \$2.50 a year. Single copies, 25 cents. Forty large quarto pages, equal to about two hundred ordinary book pages; forming, practically, a large and splendid MAGAZINE OF ARCHITECTURE, richly adorned with elegant plates in colors and with fine engravings, illustrating the most interesting examples of Modern Architectural Construction and allied subjects.

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NEW BOOKS AND PUBLICATIONS.

THE PRINCIPLES OF THERMODYNAMICS, WITH SPECIAL APPLICATIONS TO HOT AIR, GAS AND STEAM ENGINES. By Robert Rontgen, Teacher in the Polytechnic School at Remscheid. Translated, revised, and enlarged by A. Jay Du Bois, Ph.D., Professor of Dynamic Engineering in the Sheffield Scientific School of Yale College. In two parts. Part I. General principles, hot air and gas engines. Part II. Heat, steam, and steam engines. With 103 wood cuts in the text. Second edition. John Wiley & Sons, New York, 1888. Pp. xx, 707. Price \$5.

The work opens with two lectures of Professor Verdet on the mechanical theory of heat, giving popular and scientific expositions of this important subject. The investigation of heat engines forms the subject proper of the second lecture, and it also gives a very complete review of those applications of the new theory which lie outside the domain of physics, and especially of mechanics. The part of the work on thermodynamics, immediately following the lectures and notes, contains the mathematical treatment of the subject of heat, and is presented in an elementary form well suited to beginners, demanding of them only a knowledge of algebra and the simplest principles of mechanics. Following this portion, we have another valuable feature of the work, in the application of the theory of heat to all the more important cases arising in practice. This has been so fully and completely done as to make the work extremely valuable as a book of reference. Numerous practical examples have also been given, with the reduction and heat tables necessary for their rapid solution. An abstract from Mons. Pernolet's work, "L'Air Comprimé," follows, containing, among other things, a diagram of practical value, inasmuch as the important quantities—initial pressure and degree of expansion—can be directly obtained from it for an engine consuming a given quantity of air and of a given horse power. Zeuner's theory of superheated steam is another of the valuable additions to English engineering literature contained in this new work. In the portion relating to superheated steam, as in other portions of the work, the practical bearings of the subject have received full consideration. There is also a summary of the principle which should govern the construction of the steam engine. A complete calculation of a proposed engine is given, taking into account the action of the steam in the cylinder, the proper degree of expansion and compression, the cross section of steam passages, the theory of the crank, the dimensions of journals and flywheels, the mean effective pressure for overcoming the resistance of friction and for working the cold water and air pumps, the consumption of steam and fuel per hour, and the cost of a horse power per hour. Complete steam tables are given, both for English and French measures.

ELEMENTS OF MACHINE DESIGN. By J. F. Klein, Professor of Mechanical Engineering in the Lehigh University. The Comenius Press, Bethlehem, Pa., 1889. Pp. vi, 208.

The subject of scientific design of machinery elements, including gearing, bolts and nuts, screw threads, keys, belt gearing, rotating pieces, bearings, and connecting rods, is very fully treated in this book, with full formulæ and many illustrations of parts. The illustrations are on bond paper, and are designed with special reference to be made subjects of studies for mechanical draughtsmen. At the end of the book a number of supplementary tables for calculating gearing are given. The work, in a short compass, contains an immense amount of material and illustrates a type of book which should be in the hands of every intelligent machinery constructor.

ALGEBRA, AN ELEMENTARY TEXT BOOK, FOR THE HIGHER CLASSES OF SECONDARY SCHOOLS AND FOR COLLEGES. By G. Chrystal, M.A., late Fellow and Lecturer Corpus Christi College, Cambridge; Professor of Mathematics in the University of Edinburgh. Part I. Adams & Charles Black, Edinburgh, 1886. Pp. xx, 542.

The first part of this elaborate work, following the general order of algebraic treatises, goes through fractions, ratio and proportion, equations, series, logarithms, interest and annuities. Although purporting to be merely an elementary text book, the fact that the first part comprises nearly 600 pages gives some idea of the thoroughness with which the matter is treated by the distinguished author.

LA TELEGRAPHIE ACTUELLE EN FRANCE ET A L'ETRANGER. Par L. Montillot, Paris, J. B. Bailliere et Fils, 1889. Pp. viii, 334. 131 illustrations.

This book, liberally illustrated, treats of the different kinds of telegraph apparatus in actual use, the subject of batteries and their arrangement with particular reference to telegraphic uses, and various designs for poles and general line installations and many practical details make up the work. A rapid apparatus of the Wheatstone type and multiple transmission apparatus and marine telegraphy are included. A portion of the work is devoted to the telephone.

ELEKTRISCHE APPARATE, MASCHINEN UND EINRICHTUNGEN. Von W. E. Fein. Stuttgart, 1888. Pp. xii, 292. 297 illustrations.

A large series of electric apparatus for which the author of this work is responsible is described in its pages. The different pieces of apparatus are described, each one in the order of its production as regards time, beginning with the year 1867. The dynamo-electric machine is described. Through successive years the work carries us down to July, 1887, under which date a new form of a bipolar dynamo-electric machine is given. Between these two dates a great variety of apparatus is