

RECENTLY PATENTED INVENTIONS.

Electrical Devices.

TELEPHONE SYSTEM.—BURTON R. DODGE, Post Mill Village, Vt. This invention is a party-line telephone system by which any one of the several subscribers may sound a signal for a certain one of the remaining subscribers and, having signaled, this subscriber may converse without the intervention of a central office. The system has two metallic main leads and a number of stations. Each station comprises a talking circuit, a signaling circuit, and a telephone switch alternately closing the circuits. The signaling circuit has a ground-tap and a bell for signaling. A generator and a resistance are provided, the resistance being in parallel with the generator and in series with the bell. The talking circuit also has a switch to hold the resistance normally in the closed circuit and capable of throwing the bell into such circuit to the exclusion of the resistance.

Engineering Appliances.

VALVE.—EMILIO ZERTUCHE, Puebla, Mex. The purpose of this invention is to provide a valve designed to control the flow of a liquid and to arrest such flow at a predetermined period. The valve has an outlet tube with a valve-casing at its end tapered outwardly. Within the casing a valve is located. A valve-operating device moves longitudinally of the outlet and is arranged to engage the valve. This operating device is also arranged to engage the tapering surface of the casing, whereby this surface will form a stop for the valve-operating device. The tube is designed to act by gravity. When it is raised the valve is unseated and liquid can flow through; when it is allowed to fall, the valve is seated and the tube closed.

Miscellaneous Inventions.

DUST GUARD FOR CAR-AXLE BOXES.—JAMES S. PATTEN, Baltimore, Md. This invention is an improvement in that class of dust and oil guards in which two plates, having opposite concave edges, embrace a car-axle and are held in working contact therewith by means of suitably arranged springs. The dust-guard is formed by upper and lower aligned sliding members. One end of a spring bears upon the upper member, the lower portion being attached to the lower member. An intermediate portion projects from the latter whereby the springs are adapted to press laterally on the guard.

WIRE-STRETCHER.—GEORGE M. DOYLE, Jonesville, Va. To provide a tool which may be operated with great power to stretch wire in either direction, which may be quickly and securely anchored to a post, and which may be utilized in uniting the ends of wire sections, this inventor devises a frame having longitudinal guides for the stretcher-bar furnished at its opposite ends with folding hooks and having at points near these ends rearwardly-projected offsets provided with spurs extended toward each other and having the hooks adjacent to the offsets. To the main frame a chain is secured at one end between the offsets and is arranged at its other end to engage the proper one of the hooks on the main frame. The stretcher-bar is movable lengthwise in the guides of the main frame, and has at its opposite ends the stretching hooks and between these ends a rack-bar. A stretching-lever is meshed with the stretcher-bar and operates the working parts.

MUSIC-BOOK HOLDER.—CALEB D. HALE, Alpha, Md. This music-book holder has two telescopic sections with guided longitudinal movement. The upper surface of the outer section forms a rest. At the outer end of each section a head is carried. Within the inner section and connected with the heads to draw the sections together, a spring is arranged. On each section a post is carried and on each post a lever is fulcrumed. At the outer end of each section and engaging the lever, a spring is supported which keeps the lever firmly pressed down upon the music.

COMBINED SLEIGH AND BOAT.—LEONARD WEBER, Roslyn, Wash. This combined sled and boat is provided with means adapted for propelling it either on land or on water. The runners of the sled serve also as floats or boats in the water and the propeller is adapted to work on or in snow and also in water. In the free space between two parallel floats, a shaft carrying propellers arranged at different points in its length is mounted. To the end portions of the shaft vertically slidable rods or hangers are attached. Levers and rods are provided for adjusting the hangers vertically. There are also means for connecting the rods intermediately.

KEYBOARD FOR TYPEWRITERS.—BATES TORREY, Weymouth, Mass. To promote convenience of attack or touch by the fingers, this inventor provides a keyboard in which the keys are arranged to conform with the anatomical structure of the hand, and in which the operator can locate the keys without the necessity of looking at the keyboard. The keyboard comprises right and left groups of keys, there being four rows of four keys each. The central keys of each row are elevated above the others on each side, so that the group presents an arch form. Each of the keys back of the front row is arranged diagonally to the one in front of it, and two supplemental keys are located between the two divisions of the front row and project forward to be used by the thumbs.

DEVICE FOR RETURNING TYPEWRITER CARRIAGES AUTOMATICALLY.—WILLIAM R. JACKSON, JR., Augusta, Ga. The improved carriage for typewriters provided for by this invention is so constructed as to be returned and the paper shifted for a new line, either by the carriage reaching the end of the line or by the operation of a shifting key. The invention consists essentially of a cylinder having its piston connected with the carriage, the cylinder being connected by suitable pipes having a valve therein with an exhaust chamber or reservoir from which the air is exhausted by any suitable means. The valve, which is located between the cylinder and the exhaust chamber, is connected to the ordinary mechanism of the typewriter, so that it will be opened by the forward movement of the carriage when it has reached the end of the line. It is also connected with a lever-key which may be operated by hand to return the carriage from any point. The carriage is also provided with a lever acting as a stop to check the carriage at the end of the return, and is connected with the paper feeding mechanism, so that the feed-roller is ac-

tuated thereby at the end of the return, thus feeding the paper the amount of spacing between the lines. The device can be applied to any typewriter without changing the mechanism.

TRACE-HOLDER.—GERHARD BAUMANN, Monmouth, N. J. The trace-holder provided for by this inventor comprises a socket fitting over the end of a whistle-tree. Within the reduced outer portion of the socket and adjacent to a partition abutting against the tree, jaws are pivoted at their inner ends. The free ends of the jaws are curved and project normally through slots or openings in the front and the rear of the reduced outer portion of the socket. A spring inclosed in the socket engages the jaws to hold them normally projected in position through the slots or openings already mentioned.

DISPLAY CABINET.—FRANK E. HALDEN, Winthrop, Minn. To provide a cabinet especially adapted for the exhibition of laces, embroideries and the like, this inventor has devised a cabinet comprising a base and a top, a central fixed section from which the base and top are projected at the ends, and end sections hinged to the fixed section and adapted to close within the extended portions of the base and the top. In each of the sections at the front and at the rear, standards are secured. With the standards in the several sections supporting bars are slidably connected. For the supporting bars locking devices are provided. In each section of the cabinet convoluted racks are located and carried by the supporting bars for the purpose of receiving the material to be displayed.

CAN-OPENER.—FRANK E. GOWEN, Norrie, Colo. This can-opener consists of a base formed with concentric circles all in the same horizontal plane. A standard is mounted on the base and is provided with recesses on one of its side edges. A hand-lever carries the cutter, and is formed with an opening by which it is received on the standard to rest in any one of the recesses. A spring is secured to the lever, extends in the opening and is adapted to press against the side of the standard opposite the recessed side.

ENDLESS BAND OR CORD.—JEREMIAH H. MURPHY, Flatonia, Tex. The endless band or cord provided by this inventor consists of a number of tubular bands. Each band incloses in its central portion the ends of the adjacent bands, these inclosed ends meeting. The band is designed to combine great strength and durability, to prevent undue friction by having smooth joints, to reduce shrinkage or expansion to a minimum and to prevent slipping or breaking.

SHIRT.—PAUL SCHOEN, Glens Falls, N. Y. In order that the heat coming from the body may find a ready outlet, this inventor provides a shirt having its bosom formed of a backing of open mesh fabric and a series of independent plaits, each secured along one longitudinal edge to the outer surface of the backing and overlapping one another.

DEVICE FOR REMOVING PAINT AND VARNISH FROM SURFACES.—BENJAMIN F. AIKEN, Freetown, Mass. The purpose of this invention is to combine a burner, a tank for supplying the burner with fuel and adapted to serve as a handle, and a scraper whereby an implement or tool may be provided capable of being operated by one hand, if necessary, and of removing the loosened varnish or paint. The device comprises a reservoir to which the burner is connected, a filling plug removably connected with the reservoir and having a valve-controlled passage and a pump. This pump consists of an elastic bulb provided with a shank arranged for connection with the filling-plug. The shank has a passage adapted for communication with the passage in the filling-plug, the inner end of the shank serving as a valve to establish and cut off communication between the bulb and the reservoir.

BOX-FASTENER.—JOHN W. EVANS, Greenville, Mo. In order that a cover may be both removably fastened and hinged to a box, this inventor provides a transverse bar secured to one end of a box and extending horizontally therewith and forming a handle. A staple is driven in a recess in the upper surface of the bar and below the upper surface of the box. A rigid pin projecting downwardly from the cover is bent downwardly and upwardly to form a hook which is adapted to fit snugly within the recess and to lock with the staple.

Designs.

PUZZLE BOX.—JOSEPH H. MCCARVILLE, Armath, Ia. The essential feature of this design consists of a box having longitudinal and transverse intersecting partitions forming chambers communicating with one another by passage-ways in the partitions. The puzzle consists in attempting to roll a ball through the various passage-ways without allowing it to enter any of the chambers.

ENVELOP.—ROBERT M. JOHNSON, Hainesport, N. J. The free edge of the sealing-flap in this envelop is provided at one end with a lip forming a continuation of the free longitudinal edge of the flap and meeting a corner of the body of the envelop at which the flap is attached. The envelop can be readily opened by lifting the lip and tearing the paper along the upper edge of the flap.

EAR FOR VESSELS.—THOMAS LOYND, Worcester, Mass. The features of this design consist in a base, neck and a head. The base is laterally elongated and the neck rises from the upper portion of the base between its ends. The neck is so curved as to extend at its upper portion beyond the vertical plane of the upper surface of the base. The head is in the same vertical plane with the upper portion of the neck and its upper portion is stepped, being formed with a vertical extension at one side and a convex surface at the opposite side meeting the extension at its base. An opening there is, in the head below the point where the extension and curved surface meet.

WINDOW-CLEANER.—PAUL R. CUMMING, Kansas City, Mo. The leading feature of this design consists in a head delineated by two concentric segmental plates, one plate terminating at the sides in oppositely-inclined aprons and the other plate terminating in similar oppositely-inclined aprons. A filling is placed between the segmental plates and is provided with diverging skirt-sections. The filling is provided with corrugations on its outer face. For ready manipulation, a claw-handle is provided.

TRIMMING.—LOUIS L. RUFF, New York city. This design consists of a series of parallel-spaced strands interwoven with crossing strands and forming the body of the fabric. Festoons overhang the front of the first-named strands and interloop at their beginning with the crossing strands, the adjacent festoons crossing each other. Some of the festoons are plain strands, while the strands of others are wound spirally round a core.

ANTI-RATTLING PLATE.—CHARLES T. REDFIELD, Glen Haven, N. Y. In this design a tongue-like wing is deflected from the plane of the main or base portion of the plate. At one end of the base portion an upright flange is provided, having a notch in its upper edge. At the other end of the base portion an upright slightly-inclined wing is provided whose upper edge is bifurcated and furnished with lateral projections. The opposite edges of the base portion are curved nearly from end to end on lines simulating the line of beauty.

NOTE.—Copies of any of these patents will be furnished by Munn & Co. for 10 cents each. Please send the name of the patentee, title of the invention, and date of this paper.

NEW BOOKS, ETC.

THE TWENTY-SIXTH ANNUAL REPORT OF THE BOARD OF DIRECTORS OF THE ZOOLOGICAL SOCIETY OF PHILADELPHIA. Incorporated March 21, 1859. Read at the annual meeting of the members and loan-holders of the society. Philadelphia. 1898. Pp. 24.

PROSPECTING FOR MINERALS. A practical hand book for prospectors, explorers, settlers and all interested in the opening up and development of new lands. By S. Herbert Cox. With illustrations. London: Charles Griffin & Company, Limited. Imported by J. B. Lippincott Company. 1898. Pp. 239. Price \$2.

The aim of this volume is to give a sketch of those subjects which underlie the calling of the prospector, and not encroaching to any extent upon the province occupied by the science of mineralogy and geology or the arts of mining and metallurgy. The work contains exactly the information which would be prospectors are always asking.

CANADA'S METALS. By Prof. Roberts-Austen. London: Macmillan & Company. New York: The Macmillan Company. 1898. Pp. 46. Price 75 cents.

The present volume is an important lecture on the metals of Canada by one of the greatest mineralogists in the world. It will undoubtedly tend to make the mineral wealth of Canada better known.

PARTIAL REPORT OF WORK OF THE AGRICULTURAL EXPERIMENT STATIONS OF THE UNIVERSITY OF CALIFORNIA. For the years 1895-96, 1896-97. Being a part of the report of the Regents of the University. Berkeley, Cal.: University Press. 1898. Pp. x, 455.

THEORY AND CALCULATION OF THE CANTILEVER BRIDGES. By R. M. Wilcox, Ph. B. New York: D. Van Nostrand Company. 1898. Pp. 108. Price 50 cents.

This volume replaces the original number of the Van Nostrand Science Series, bearing the title "Theory and Calculation of Continuous Bridges," by Prof. Mansfield Merriman, which was published in 1875. The continuous girder that was so extensively built in Europe prior to 1875 has now gone entirely out of use, except for revolving drawbridges, and the cantilever bridge has taken its place. Indeed, the modern cantilever bridge is simply a continuous girder with the chords cut—a form of construction which lacks most of the theoretical objections of its ancestors and at the same time possesses the very great advantage over simple trusses of erection without false work. The author is instructor in civil engineering in Lehigh University, and the book presents as clearly as possible the theory and methods of conducting calculations in the construction of the cantilever bridges.

PRACTICAL TOOL MAKER AND DESIGNER. A treatise upon the designing of tools and fixtures for machine tools and metal working machinery. By Herbert S. Wilson, M. E. Philadelphia: Henry Carey Baird & Company. 1898. Pp. 207. Illustrated. 8vo. Price, postage free to all countries, \$2.50.

This book comprises modern examples of machines, with fundamental designs for tools for the actual production of work, together with special reference to a set of tools for machining the various parts of a bicycle, etc. A new book upon tool making has been needed for some time, and the author appears to have succeeded very well indeed with his task. Few tool makers seem to have a great experience in more than one or two lines of tools, and to become a general workman necessitates traveling from shop to shop, where various kinds of machinery is being built. This the author has actually done, and the present work gives the experience which he has gained. The intention is to publish methods, as this is far more important than detail, and the dies, jigs, special fixtures, etc., given in this book are intended for a groundwork for elaboration and variation according to conditions. The book is fully illustrated with well selected engravings and line drawings.

LIGHT AND FIRE MAKING. By Prof. Henry C. Mercer. Doylestown, Pa.

This beautiful pamphlet consists of extracts from an address made at various places by Prof. Mercer and forms a part of a series known as "Contributions to the American History of the Bucks County Historical Society." It is filled with interesting half tone engravings showing lamps and methods of lighting of all kinds and in all ages. The writer must indeed have a valuable collection. The illustrations of fire making are no less interesting than those devoted to lighting, the engrav-

ings of the latter being made from actual experiments, where the various methods of making fire are clearly shown.

INDUSTRIAL ELECTRICITY. By A. G. Elliott, B.Sc. London: Whittaker & Company. New York: Macmillan Company. 1898. Pp. 149. Illustrated. 18mo. Price 75 cents.

The present work belongs to the legion of books which attempt to deal in non-mathematical language with the many and various applications of electricity and does not call for special comment.

REVIEW AND BIBLIOGRAPHY OF METALLIC CARBIDES. By J. A. Matthews. Washington: Smithsonian Institution. Smithsonian Miscellaneous Collections, No. 1090. 1898.

LIGHTING BY ACETYLENE GENERATORS, BURNERS AND ELECTRICAL FURNACES. By W. E. Gibbs, N.R. New York: D. Van Nostrand Company. 1898. Pp. 141. 16mo. Price \$1.50.

The literature upon acetylene in book form has been limited to a few French books of more or less value. The present work draws freely upon the French sources, but various American generators are not neglected, and the author's statements are interesting. All those who are working upon the problem of generators for acetylene gas will find this book useful.

THE PUBLIC CHARITY BAZAR FIRE. By E. O. Sachs.—NEW YORK FIRE DEPARTMENT. By Hugh Bonner.—FIRE-RESISTING FLOORS USED IN LONDON. By F. R. Farrel. London. 1898. Pamphlets issued by the British Fire Prevention Committee, Waterloo Place, Pall Mall, London.

The committee which issues these pamphlets is doing excellent work in disseminating information regarding faulty construction and the best method of preventing it, as well as detailed studies of fires and fire departments. The subject is a very interesting and important one, and the literature devoted to it is nothing like as extensive as it should be.

YEAR BOOK OF THE SCHOOL OF ARCHITECTURE OF THE UNIVERSITY OF PENNSYLVANIA. Published by the Architectural Society. 1898. 12mo pamphlet. Pp. 64.

The present pamphlet is filled with plans and elevations showing how various problems are treated. The designs are excellent for the subjects proposed, but it is not at all likely that the young architect will have occasion to design a monumental "villa on an island," a "crematory," a "circular belvedere," or a "covered bridge in a park." Such designs are probably intended to bring into play the imagination of the student, but they are rather impractical. The book is beautifully printed and the half-tone engravings are excellent.

NESTS AND EGGS OF NORTH AMERICAN BIRDS. By Oliver Davie. Columbus, O.: The Landon Publishing Company. 1898. 8vo. 765 illustrations. Pp. 548. Price \$2.25.

The text of the present book, which is the fifth edition of this work, describes the characteristic habits of the North American birds, with special reference to their nest, habits, and eggs. The illustrations are introduced simply to give the beginner an idea of the characteristic forms, etc., of the birds, together with their environments. The book will prove of particular value to a beginner.

HAY FEVER AND ITS SUCCESSFUL TREATMENT. By U. C. Hollopeter, A.M., M.D. Philadelphia: P. Blakiston's Sons & Company. 1898. Pp. 98. Price \$1.

The author of this book may be regarded as a specialist in cases of hay fever; so that he is particularly well able to write concerning it. The work is nearly all devoted to the all-important point in this interesting disease—the successful treatment. A complete bibliography is appended.

ANNUAL REPORT OF THE UNITED STATES LIFE SERVICE FOR THE FISCAL YEAR ENDING JUNE 30, 1897. Treasury Department Document. 8vo. Washington. 1898. Pp. 512.

MEMORIAL OF ROBERT MCCORMICK. Being a Brief History of His Life, Character, and Inventions, including the Early History of the McCormick Reaper. Chicago. 1898. Pamphlet. Pp. 61.

THE TELEPHONE: OUTLINES OF THE DEVELOPMENT OF TRANSMITTER AND RECEIVERS. By William J. Hopkins. New York: Longmans, Green & Company. 1898. Pp. 83. Price \$1.

In the introduction to this little book, Prof. Hopkins states that it "is offered without apology." It needs none. It has excellently treated the subject of telephones with the aid of those instruments only which have demonstrated their efficiency by long service. The book was primarily written for men engaged in practical telephone work, but it was the author's intention that his work should also serve as the basis for a lecture course to students. The book is, however, essentially a technical book and presupposes a general comprehensive training in mathematics and electrical science in general. The work is of particular value to telephone specialists, since it is the only book devoted entirely to the technology of transmitters and receivers.

"What Correspondence Instruction is and how it has Brought about an Improvement in Technical Books" is a neat little booklet which has just been issued by the International Correspondence Schools, of Scranton, Pa. It gives precisely the kind of information which prospective students are looking for. Often they do not know whether correspondence instruction is adapted to their needs or not. We think that this pamphlet will tend to enlighten them on the subject of education by correspondence.