

## ENGINEERING INVENTIONS.

A throttle valve has been patented by Mr. Edwin W. Luce, of Bolivar, N. Y. This invention, construction, and arrangement of parts in a throttle valve is simple and durable in construction, and is designed to permit access to the working parts under any pressure of steam or water.

A globe or other valve has been patented by Mr. Edwin F. Briggs, of Brooklyn, N. Y. This invention covers a novel construction and combination of parts to dispense with a stuffing box in valvular structures, while providing against objectionable leakage, or so subduing the leakage that the escaping fluid or vapor will be relieved of force or pressure before it reaches an outlet.

A railroad switch has been patented by Mr. Walter R. Coppedge, of Floyd Court House, Va. Switching rails are combined with the main line rails, the switching rail at one side being made in sections that are hinged together, one of the sections being mounted on a pivot bolt and normally held so that its end adjacent to the main line rail shall be in a lower plane, with other novel features, whereby the main line will be always open.

A car coupling has been patented by Mr. Thomas B. Nutting, of Morristown, N. J. It has a slotted drawhead, a pivoted coupling hook having a pin and slot connection with the drawhead, the coupling link fulcrumed upon the coupling hook pivot, and carrying a rod engaging a shoulder on the coupling hook, the coupler being automatic and being also designed to couple with the ordinary form of link and pin coupling.

A rotary engine has been patented by Mr. Herman Knebel, of Birmingham, Ala. There is a rotary piston in a casing, with cams or inclines leading up to the head of the piston, an auxiliary cylinder being connected with and receiving steam from the interior of the casing, there being also a sliding blade, auxiliary piston, and various other novel features, in an engine designed to be easily controlled and reversed, and economical in the combustion of steam.

A cable grip for railways has been patented by Mr. Thomas O. Cooper, of Wilmington, Del. Combined with the car axles are bars having guide slots, a laterally adjustable frame with horizontal projecting arms fitting in the slots, vertical guides on the inner side and a vertically adjustable grip moving in the guides, with means for raising and lowering the grip, and other novel features, the invention being an improvement on a former patented invention of the same inventor.

## AGRICULTURAL INVENTIONS.

A plow has been patented by Mr. Andrew J. Smith, of Wheatland, Oregon. This invention relates to turn plows, and provides a construction whereby the plow may be converted by a simple adjustment into either a single or double plow, having peculiar means for connecting and bracing the parts, by which it is made both light and strong.

A stacker has been patented by Mr. Marion A. Heinlen, of Lemoore, Cal. Combined with a pivoted and swiveled derrick post upon a truck is a sliding frame with a derrick arm pivoted thereto, with means for raising and lowering the frame and swinging the derrick arm, the apparatus being simple and durable and specially adapted for stacking hay or grain in the field.

## MISCELLANEOUS INVENTIONS.

A lounge has been patented by Mr. James W. Reynolds, of Brooklyn, N. Y. This invention covers a novel construction and combination of parts composing the head and foot of the lounge, in connection with its body, whereby the lounge can be easily and conveniently changed into a bed.

An oil press cloth has been patented by Mr. Thomas Bennetts, of Brooklyn, N. Y. This invention provides for making the press cloth of two layers of substantially equal size folded upon each other and united to form a partially open folded edge, or a finished slit having the edges loosely united by a suitable stitch.

A nut lock has been patented by Mr. Samuel H. Ray, of St. Louis, Mo. The nut is formed with an eccentric groove, a washer having a flange projecting over the nut, and a key fitting in the groove of the nut and engaging the flange of the washer, the lock being readily applied, and preventing any backward movement or loosening of the nut.

A desk has been patented by Mr. Charles Emmel, of Cambridge, Mass. It has on its body a hinged top or lid, with plates hinged to the lid to swing at an angle to the hinge, and stop lugs on the hinged plates adapted to engage the body, with other novel features, making an article of furniture adapted for use either as a table or a desk.

An axle nut has been patented by Mr. George B. Lumpkin, of Lexington, Ga. This invention provides a simple and easily operated device by which to take up the wear of the hub box of a vehicle, and cause the box to fit properly at all times between the inner flange of the axle arm and the nutscrew on the outer end of the arm.

A weather strip for doors has been patented by Mr. James K. Patterson, of Crete, Neb. It is of sheet metal, and hinged by a peculiar spring hinge and an ordinary butt hinge to a cleat fixed by screws to the outer face of the door near its lower edge, and is designed to automatically close to the door sill as the door closes, for excluding rain, snow, wind, etc.

A draught equalizer has been patented by Mr. Eli R. Parker, of Wyoming, Ontario, Canada. This invention covers a novel combination and arrangement of parts designed to afford a draught equalizer of great strength and simplicity, adapted to plowing in orchards, working a horse power, and in other situations requiring a short doubletree, and for other purposes.

A padlock has been patented by Messrs. Charles D. Smith and Robert H. Thompson, of Hartsell's, Ala. It is a comparatively inexpensive combination lock, which cannot be opened by one not knowing its interior construction, and how to operate its bolts or pins, and a button at the outside of the lock, certain features of the invention being also applicable to flat plate locks.

An aerial vessel has been patented by Mr. William N. Hutchinson, of Wellesbourne, Bideford, Devon County, England. Combined with the skin or envelope of a balloon is a compressor, acted on by weight or spring power, to press against the inflated balloon with an approximately constant pressure, whereby the skin or envelope is kept distended and free from plaits.

A washing machine has been patented by Messrs. David C. Barnard and Edward L. Wallace, of Lockport, N. Y. Its construction is such that the clothing may be manipulated as desired without being touched by the hand, and the clothing being washed can be kept from contamination by the dirt previously washed out, the invention covering various novel details and combinations of parts.

A fodder press has been patented by Mr. George H. Clemmer, of Arcanum, Ohio. Combined with a base are two presser heads, one mounted to slide on the base toward the other, there being an operating lever pivoted to the base and a connecting rod pivotally connected at one end to the operating lever and at the other end to the sliding presser head, the press being very powerful, efficient, and convenient.

A fruit evaporator has been patented by Mr. William S. Plummer, of Rochester, N. Y. Its construction is such that different rows of trays containing the fruit may be forced along in such order as to obviate the placing of green fruit under partially evaporated fruit, and the fruit which evaporates the fastest may be forced forward out of the evaporating chamber without disturbing the other rows.

A dish washing machine has been patented by Phebe Ella Cox, of Readington, N. J. It consists of a water tank with a dish car mounted on casters, to be wheeled to and fro a short distance in the tank, the car having partitions, and there being various novel features, whereby water may be made to rush through upon all the dishes it contains, carrying off deposited matter through the perforated partition walls and end openings.

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## NOVEMBER NUMBER.

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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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## NEW BOOKS AND PUBLICATIONS.

ELECTRICITY FOR PUBLIC SCHOOLS AND COLLEGES. By W. Larden, M.A. London: Longmans, Green & Co. 1887. Pp. xx, 475.

This work is a convenient treatise on magnetism and electricity. The subject is very fully treated, and presented in very attractive shape. It is illustrated with the familiar cuts, some of which show some signs of use. The subject of practical tests and experiments is extremely well presented. It may be safely and confidently recommended to those wishing a manual for study and reference. It is very fully indexed.

ASTRONOMY BY OBSERVATION. By Eliza A. Bowen. New York: D. Appleton & Co. 1886. Pp. 90.

This work is an attractive one in its style of production. It includes numerous star maps, colored plate of spectra and other diagrams, all beautifully presented. The principal star charts are in a blue sky, the stars being white. Their completeness and appearance leave nothing to be desired. Several beautiful views of "moon scenery" give a vivid idea of the landscapes of the satellite, Saturn and the other planets are duly figured. Sun spots, granules, and pores of the sun's surface are treated of at considerable length. The text

gives a very lucid account of astronomy, and the whole work is highly to be commended, as converting what is ordinarily considered a dry subject into a very vivid and interesting one.

ANNUAL REPORT OF THE BOARD OF REGENTS OF THE SMITHSONIAN INSTITUTION, TO JULY, 1885. Washington: Government Printing Office. 1886. Pp. xviii, 996.

This report contains the financial statement, list of correspondents and of institutions to which the Smithsonian Institution publications are sent. After this class of information, reports on the year's work in astronomy, physics, and cognate branches of natural science by different authors are given. This forms an admirable review of the progress of science, and the work can be warmly commended to our readers.

QUANTITATIVE CHEMICAL ANALYSIS BY ELECTROLYSIS. By Dr. Alexander Classen. Translated by William Hale Herrick, A.M. New York: John Wiley & Sons. 1887.

To the chemist who has kept abreast of the analytical methods of the day, it is only necessary to say that this is a *resumé* and collected description of "Classen's Methods" to recommend the book. The electrolytic separations devised by this chemist have met with such success, and have filled so real a void in analytical work, that they have everywhere met with the highest praise. His beautiful precipitation of metallic iron from the solution of its oxalate is especially a noteworthy step in modern analysis. The work is illustrated with cuts of batteries, apparatus, etc., while many tables or results testify to the admirable correctness of his methods.

BULLETIN OF THE UNITED STATES FISH COMMISSION. VOL. VI., FOR 1886. Washington: Government Printing Office. 1887. Pp. 495.

This volume is a collection of over 136 monographs on ichthyological subjects. The catalogue of its contents is far too extensive for us to notice in a review of this length. The introductory notice bears a melancholy interest in its signature, the name of the lately deceased Spencer F. Baird. The subjects treated range all the way from "A Man Killed by a Sword Fish" to "Report on Examination of Clupeoids," etc. Hence it seems obvious that there is something in the book to please all tastes.

THE MANUAL OF PHONOGRAPHY. By Benn Pitman and Jerome B. Howard. 200,000th. Cincinnati: Phonographic Institution. 1887. Pp. 144.

This is a short manual on the well known Pitman system of phonography, giving many practical exercises and plates for dictation or practice.

SIXTH ANNUAL REPORT OF THE UNITED STATES GEOLOGICAL SURVEY TO THE SECRETARY OF THE INTERIOR. 1884-85. By J. W. Powell. Washington: Government Printing Office. 1887. Pp. xxix, 570.

This elegant publication, forming a massive quarto volume, cannot be adequately treated of here. In typography and plates of fossils, it leaves nothing to be desired as regards perfection of production. It gives one's patriotism an impulse to find the scientific work of the United States so creditably presented to the world. It includes, besides the director's report, administrative reports by leading authorities engaged in the work of the survey. Among these may be noted Mr. Henry Gannett, Professor Rafael Pumpelly, Professor N. S. Shaler, Dr. F. V. Hayden, Professor O. C. Marsh, and many other well known names who be found as authors of papers on various subjects. The illustrations comprise 65 plates and 57 figures in the text.

A TREATISE UPON CABLE OR ROPE TRACTION. By J. Bucknall Smith, C.E. London: Engineering; and New York: John Wiley & Sons. 1887. Pp. xii, 195.

This work gives a reasonably full compilation of the generalities of cable traction. Starting out as an English writer, he feels obliged to use the word "trams," but very sensibly attacks it as wholly indefensible. Mining and railway rope haulage are considered first; then specific examples are described, such as the California roads, those of other parts of the United States, and New Zealand, and European roads; then the cost of constructing and working the system, general considerations, and the manufacture of wire ropes are given. In an appendix the City of London and Southwark Cable Traction Subway and the Glasgow Underground Rope Railway are described. The work is well printed and includes 76 illustrations.

A POCKET ATLAS OF THE WORLD. 1887. Ivison, Blakeman & Co., New York and Chicago. Pp. 224.

In this little work, which is sold for the modest price of twenty-five cents, is contained a complete atlas of the world.

THE STORY OF METLAKAHTLA. By Henry S. Welcome. Illustrated. Saxon & Co., London and New York. 1887. Pp. xiv, 488.

In this book are detailed the achievements of Mr. William Duncan, who established a settlement among the Indians near Alaska, civilizing them and bringing about most excellent results as a missionary. This story is a most remarkable one, and is of uniform tenor of success and prosperity until the Anglican Bishop of the region interfered. Then trouble arose, and the conduct of the Bishop is bitterly complained of in the book. The last proposal of the missionary seems to have been to move his people to the United States, as it appeared that disension and consequent failure was to be the outcome of the conflict between him and the church authorities. The story is a curious and interesting one.