

**ENGINEERING INVENTIONS.**

A railway switch has been patented by Messrs. William J. Davies and William Penglase, of Stoneville, Mich. This invention combines pivot track sections, rods, levers, and swinging switch rails, to make a switch requiring neither frogs nor guard rails, to be adjusted by turn buckles placed on the rods, so the swinging sections can be firmly locked.

A railroad gate has been patented by Mr. Austin Lowe, of Minneapolis, Kan. It is made to close with weights, and has springs to receive the impact of the car or locomotive in opening, with yielding rails that sink under the weight of the cars, operating spring latches to hold the gate open until the last car has passed, when the rails rise, release the latches, and allow the gate to close.

**AGRICULTURAL INVENTIONS.**

A corn planter has been patented by Mr. Frank H. Ryback, of Riverside, Iowa. It has a seed dropper operated by sliding clips, worked by levers having daggers which enter the ground and thus move the clips, whereby the seed dropper is operated independent of the wheels.

A corn shocker has been patented by Mr. Edward W. Comegys, of Edesville, Md. The body of the machine is mounted on truck wheels, and it is provided with appliances to gather corn and stalks on the field, either at the time of cutting or afterward, to hold the corn while being tied in bundles, to carry the bundle to the shock, and to stand it up against the shock.

**MISCELLANEOUS INVENTIONS.**

A stump puller has been patented by Mr. James L. Martin, of Decker's Point, Pa. Combined with a supporting frame are hooks, levers, and grips, put together in a special way to give great power for extracting stumps, elevating rocks, and similar uses.

A pump has been patented by Mr. Lawrence A. Kelly, of Dayton, Washington Ter. It is double acting, and the discharge pipe forms the piston rod, receiving a reciprocating movement from a double rack driven by the rotation of a semi-cogless pinion, with guide plates for keeping the rack in position.

A coffin has been patented by Mr. John C. Meyer, of New York city. The box and lid are provided with an exterior coating of plastic material, on the outer surface of which ornaments are produced in relief, the object being to produce a casket that is elegant in appearance and durable at a moderate cost.

A combined belt buckle and cup has been patented by Mr. Walter R. Johnston, of Sherbrooke, Quebec, Canada. The combination also embraces a removable interior box adapted for holding various tools or implements so they may be conveniently carried on the belt.

A log turner has been patented by Mr. Joshua Evered, of Duluth, Minn. It has a pivoted cylinder divided into two compartments, with a piston in each, a valve in the journal, and a toothed log rolling bar connected with the upper piston, making a steam actuated machine for rolling logs.

A rock drill has been patented by Mr. Andrew McConnell, of Pittsburg, Pa. Its special feature consists in a mechanical movement by which the reciprocation of the drill rod is accomplished in a very simple manner, the drill being adapted to be operated by hand by prospectors, or by power for general uses.

A gang plow has been patented by Mr. Henry W. Wynne, of Dominion City, Manitoba, Canada. This invention covers a special construction whereby a gang of plows may be made complete in itself suitable to be attached to and carried by any pair of wagon or cart wheels, with means for raising and lowering the gang, and for canting the plows from side to side.

A wardrobe bedstead has been patented by Mr. Robert Mitchell, of Atlanta, Ga. It is made with the head board of the bed hinged to the wardrobe, and in two sections hinged to each other, with a mosquito canopy adapted to fold down on the bed and into the wardrobe, so the whole may be quickly and easily folded into the wardrobe.

A weight cord and attachment for windows has been patented by Mr. Edward T. Bradbury, of Mahanoy City, Pa. The block is of a size to be inclosed by a cavity in the sash, and is so made that in case the cord requires to be shortened, this may be easily and quickly effected without interfering with the raising or lowering of the window.

A pumping machine for stone saws has been patented by Mr. Fred R. Patch, of Proctor, Vt. This invention provides a pump and distributing apparatus for supplying a mixture of sand and water for stone saws, and regulating the same according as the stone stands high or low in the gang, without undue waste or spattering.

An adjustable plaque stand has been patented by Mr. Emile Blaesius, of New York city. It has curved and hook legs, in one piece, with a crosspiece and vertically adjusting rear leg held in an opening made in the crosspiece, making an adjustable support for pictures, to hold them at the proper angle or pitch to show to the best advantage in any light.

A pneumatic tool has been patented by Mr. James S. McCoy, of Brooklyn, N. Y. The invention consists principally in forming the lower end of the striker with air passages or recesses to facilitate the exhaust of the air, so that the striker in its downward movement will not be unevenly resisted by the air in the piston chamber.

A pruning shears has been patented by Mr. Isaac M. McKay, of Pomona, Cal. A pair of levers have an arm extending beyond the pivot joint, with blades attached to the levers and arms in such manner that the blades draw in opposite directions when they close, to shear cut more effectually than other shear cutting shears.

A paper mould for casting stereotype plates has been patented by Mr. Louis H. Allen, of New

York city. The mould is formed by using side bars of a less thickness than the height of the type to receive the side parts of the matrix paper, and placing thin side bars over these parts, to make moulds with square shoulders for producing stereotype plates with finished sides.

A means for operating doors and shutters has been patented by Mr. Eliab Perkins, of St. Joseph, Mo. By this invention doors and shutters are so hung as to slide or roll, and for their separate movements racks and pinions are suitably arranged, combined therewith being a windlass with ropes connecting as may be desired, so that all may be moved together.

A lubricating composition has been patented by Mr. Albert A. Martinez, of New Orleans, La. It is made of Central American scrap rubber or caoutchouc, ground alum, plumbago, and rosin soap, with crude or refined black oil, rock oil, or coal oil, combined and mixed in certain proportions and after a specified manner, so that it will resist a very high degree of heat.

A combination tool has been patented by Mr. William B. Kennedy, of Silver Reef, Utah Ter. The invention consists of a boring tool stem, to which are attached by hinges a series of different tools, the interior of the stem having also a spring socket to receive the tools, and the exterior of the stem having spring holders to hold the tools.

A washtub has been patented by Mr. George W. Crouse, of Lexington, N. C. It is so arranged that the washer, consisting of a pair of rolls, may be shifted higher or lower in the tub, while there are lids at each end to prepare the clothes for washing and receiving them afterward, with various other novel features.

A tag and tag fastener has been patented by Mr. Ovid W. Conner, of Wabash, Ind. It consists in a combination of a card or ticket, a self engaging hook, preferably a double one, either barbed or plain, for attachment of the tag to goods, and a cord or like flexible connection directly connecting the hook with the card or ticket.

A washboard has been patented by Mr. Henry C. Carter, of Montclair, N. J. Combined with the frame of the washboard, having sockets or holes, is a removable and reversible protector, constructed to also form the upper cross beam or guard of the board, and having pins or tenons adapted to fit the sockets or holes.

A railway cable bridge system has been patented by Mr. John G. Ogden, of Chicago, Ill. By this invention a continuously running cable may pass over a bridge draw, whether it be open or closed, and while it is being opened or closed, continuing along the route from both ends of the draw, so that cars with cable gripping devices may be moved to and over the draw by the cable.

A hook buckle has been patented by Mr. Victor Berthelot, of Cannon Store, La. The buckle frame has notch forming steps on one side, with a bar hinged to the opposite side of the frame with a leg to enter the notch, a locking device on the frame being adapted to engage the hinged bar, the buckle being cheap and practical and easy to shift upon strap or canvas.

An apparatus for the manufacture of illuminating gas has been patented by Mr. Frederic Egner, of St. Louis, Mo. The method of making water gas by this invention differs from former processes, in that, instead of alternately heating the fuel and then supplying steam to be decomposed, the steam and air go into the same furnace together, bituminous coal and coke mixed being preferred to work with.

A pole or shaft for vehicles has been patented by Mr. Theophile Lauzon, of Long Island City, N. Y. This invention relates to coupe stay couplings for drawbars and shafts with stationary and hinged plates having pin sockets and rabbeted ends, and the construction is such that the shafts and drawbars can be readily attached to the stays and detached therefrom.

An electric organ action has been patented by Mr. George G. Wacker, of New York city. Combined with a pneumatic valve is an electromagnet having two separate air channels connected with the wind chest and pneumatic lever, with a ball valve held below the bottom of the tubular core of the magnet to reduce friction, avoid binding parts, and dispense with springs.

A machine for doubling and twisting silk and other threads has been patented by Mr. Joseph E. Tynan, of Paterson, N. J. It has certain novel features in the feeding and stop mechanism, and in the construction and arrangement of the spindles, to facilitate the manufacture of "tram" and all varieties of twist, in which the threads are fed from the spools or bobbins, doubled, and then twisted or spun. The same inventor has also obtained a patent for a machine for throwing silk, covering a mechanism for revolving the spindles and to arrest their movement in case the thread breaks, in which single threads are twisted, doubled, and respun by a continuous operation.

An automatic stop valve for gas and oil pipes has been patented by Messrs. William F. Cosgrove and Ernest F. Jennings, of Jersey City, N. J. It is made with a hollow plug having a central stem and a spiral spring resting against the screw cap of the plug to cause it to drop with certainty when released, the couplings being designed to be connected with pipes so that should a fire occur the pipes will be automatically closed, and prevent the escape of oil or gas.

A tricycle has been patented by Messrs. Tomas P. and James B. Hall, of Toronto, Ont., Canada. Combined with a reach or tube are driving wheels and levers for operating them, foot boards on the levers, racks on the foot boards, and pinions on the shaft, there being an upright steering tube on the reach connected with the steering wheel, the design being to construct a vehicle which can be operated, steered, and controlled very easily.

A slitter shaft for paper cutting machines has been patented by Mr. H. Bridgman, of Pittsfield, Mass. Combined with a hollow shaft are cutter disks and a tubular screw adapted to act on one of the disks, a screw spindle passing through the tubular screw

adapted to act on the other cutter disk, with hand wheels on the ends of the spindle and the tubular screw, with other novel features to adapt a machine to cutting paper into strips.

A well cover has been patented by Messrs. Henry P. Bullock and Henry B. Cook, of Jonesborough, Texas. Combined with a sliding cover are pivoted levers united by a step and connected by a bar with the cover, there being also connected therewith a trough or spout, the whole so arranged that the cover can be moved back by stepping on a step in front of it, and moves back to automatically close the well when the pressure is removed.

A process of making plates or masses of carbon has been patented by Messrs. Samuel J. Coxeter and Heinrich Nehmer, of 23 Grafton St., East, Middlesex County, Eng. The carbon is first mixed with an alkaline silicate to form a pasty mass, which is dried and immersed in a solution to remove the alkaline silicate and precipitate the silica intimately among the carbon, then the composition is boiled in water and dried, making what is termed silico-carbon.

**Business and Personal.**

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**NEW BOOKS AND PUBLICATIONS.**

BALLOONING; ITS HISTORY AND PRINCIPLES. By G. May. New York: D. Van Nostrand.

With the many experiments now being constantly made to adapt electricity to new uses, probably its possible application to aerial navigation has been most often talked about. This fact has drawn no small share of public attention to what has been done in the past in the way of ballooning, the interest in which it is the design of this brief treatise to satisfy. The results of past work in this field are concisely set forth, and the problems of aerial navigation are brought down to the most recent experiments of French and German investigators.

PRINCIPLES OF ECONOMY IN THE DESIGN OF METALLIC BRIDGES. By Charles B. Bender. New York: John Wiley & Sons.

This is a work designed to assist those who have to make projects of great bridges, treating of the theoretical quantities and comparing some of the more important types of bridges in this regard. The author's facts and reasoning go far toward making an absolute demonstration of the statement that those types of bridges having a theoretical minimum quantity of material are in reality the best and most useful ones, but the importance of properly computing the actual strength of the iron or steel used, as well as the strains, is carefully pointed out. The book puts nearly all questions in the form of mathematical formulæ, but they are for the most part of an elementary nature for all who have had any experience as engineers in bridge building.

MOISTURE AND DRYNESS; OR, THE ANALYSIS OF ATMOSPHERIC HUMIDITIES IN THE UNITED STATES. By Charles Denison, A.M., M.D. Chicago: Rand, McNally & Co., 1885.

In this reprint of a paper read before the American Climatological Association, Dr. Denison urges the claims of coldness, variability, and stimulation, as against their opposites, warmth, equability, and enervation, in the climatic treatment of phthisis. Instead of taking as a standard of comparison the relative humidity of the atmosphere, he refers all climates to the absolute humidity, or the weight of aqueous vapor in a given volume of air, irrespective of temperature or other local or variable conditions. This furnishes undoubtedly a truer standard, since the point of saturation of the atmosphere varies so widely with the temperature; but the hygienic conclusions from such an evaluation must be drawn cautiously to be in accordance with medical experience. Two sets of maps are given, showing respectively the average cloudiness and the absolute humidity of the air over the entire United States during the four seasons of the year. By this method of analysis, Dr. Denison reaches the conclusion that the great natural sanitarium for the consumptive is found on the high desiccated plateaus of the far West. The clear atmosphere, the warm sunshine, and the increased respiration caused by greater altitude give, in his opinion, the best possible conditions for the cure of pulmonary complaints. Many who have still a good word to say for the South will yet be interested in the comparison instituted, though they may not agree entirely with the conclusions.

GAS ENGINES. By William Macgregor. New York: D. Van Nostrand.

This book discusses the principles and gives very full details of the lines of experimenting on which the gas engine has been brought to its present stage of development. The rapidity with which the gas engine has come into general use within the past ten years, a fact that is even more noticeable in England than here, has caused much attention to be given to its improvement, and the consideration here given to the various methods of using gas as a motive power covers nearly all that has been done abroad in this line up to the present time.

*Received.*

METEOROLOGICAL OBSERVATIONS AT THE ADELAIDE OBSERVATORY, (AUSTRALIA,) FOR 1882. By Charles Todd. Adelaide: E. Spiller.

JOURNAL AND PROCEEDINGS OF THE ROYAL SOCIETY OF NEW SOUTH WALES FOR 1884. Vol. XVIII. Edited by A. Liveridge. Sydney: Thomas Richards.

THE CANADIAN TEXTILE DIRECTORY, 1885. Montreal: E. B. Biggar.