

RECENTLY PATENTED INVENTIONS.

Pertaining to Apparel.

NECKTIE ATTACHMENT.—W. A. BAUER, Philadelphia, Pa. The purpose of the invention is to provide an attachment to a four-in-hand or other tie, scarf, or necktie, and an accompanying device whereby to conveniently and expeditiously shift the tie when used in connection with a turn-down collar, to bring the knot at the proper position relatively to the front of the shirt.

Electrical Devices.

MACHINE FOR CASTING BATTERY-GRIDS.—J. A. SMITH, New York, N. Y. The metal being ready, it is poured into slots and apertures. It finds its way through the slots and passages crossing the same, thus forming a grid. The operator now depresses the most convenient treadle. The rods being thrust obliquely upward cause the lifting bars to raise all of the various movable matrix bars. This disengages the newly formed grid and raises it from the fixed matrix bars which engage it and to which it may have tendency to cling. His foot is now removed and thus allows the plate to be removed from the machine.

TROLLEY.—A. S. JANIN, New York, N. Y. One of the purposes of this invention is to provide a trolley of very simple, durable, and economic construction, wherein the frame is of such shape that in itself it acts as a guide for the wire to and from the contact roller, and as a fender for the gearing and joints of the frame.

Of General Interest.

PAPER AND LETTER HOLDER.—A. D. ALBRECHT, Greenville, Ill. The invention pertains to devices for holding newspapers, letters, and similar articles. The object is to produce a device which can be readily mounted upon a wall or post for the purpose stated. The body of the device is of a construction which adapts it for being formed of stamped sheet metal.

POCKET CHECK-BOOK.—F. C. RHODES, New York, N. Y. The invention refers to check books such as business men carry in their pockets for drawing checks against their bank deposits. The object of the improvement is to produce a check book having a construction which especially adapts it for carrying the balances forward as checks are made out and torn off.

FLUSH-VALVE.—J. W. KENNEDY, Missoula, Mont. The principal object of the invention is to provide a reservoir connected with the bowl of the water closet, valves admitting water from the inlet pipe to the reservoir and to the bowl, the water supply being shut off when the water in the bowl reaches a predetermined level. By the use of the invention it is impossible for the water to overflow the bowl.

URINARY APPARATUS.—D. GIROUARD, Leominster, Mass. The purpose of this invention is to provide novel details of construction for a urinary apparatus, which are simple, practical, and efficient in service, and adapt the devices for convenient and comfortable wear upon the person continuously, if necessary, ready for instant service as occasion requires.

REGULATED AUTOMATIC SWINGING CHECK-VALVE WITH OVERFLOW ATTACHMENT.—O. E. NOBLE, Hobart, Okla. The invention relates to a check valve to be placed somewhere near the foot of an elevated tank or similar reservoir that is not high enough to afford sufficient pressure in case of an extended fire, when it is desired to put direct pressure from the fire pump, and also to prevent the elevated tank or similar reservoir from overflowing.

STORAGE-CABINET.—U. W. MASHTAB, New York, N. Y. The object of this invention is to provide a cabinet which is supplied with ventilating means for keeping the air pure and free from the gases which are formed as cigars ferment. A further object is to provide a device having perforated walls spaced from the sides of the casing, and ventilating openings, this construction facilitating the circulation of the moistened air.

PUMPLESS STEAM-SPRAYER.—C. D. SXTON, Boise, Idaho. The objects of the invention are to apply the solution (which is applied to trees and other vegetation for the killing of different kinds of infection) from a tank under steam pressure in a cold or hot state, to prevent the condensing of the steam in the tank when a cold solution is used, to fill the tank when empty by suction caused by the condensation of the steam therein and to provide for the thorough mixing of the solution while in the tank, as well as the heating thereof.

DESK.—H. M. LEISE, Washington, D. C. In operation the slide rods are normally pressed upward by their springs to unlocked position, and will immediately unlock the drawers when the cover is even slightly opened, such movement moving the bolts away from the upper ends of the rods so the latter may rise under the influence of their springs. To unlock the drawers without raising the cover, the key may be inserted in its proper lock and turned to retract one of the bolts named, in which event corresponding drawers will be unlocked without requiring the cover to be lifted.

Hardware.

TOOL.—H. E. PASTORIUS, Colorado Springs, Col. In this patent the invention is an im-

provement in tools of the character which are foldable within a handle when not in use, and its object is to provide a tool of this nature which will retain its rigidity with the handle when in operative position after hard and constant usage.

SAFETY-RAZOR.—J. H. FLAGG, New York, N. Y. In this construction all of the parts save the blade are attached together so that there is no liability of any becoming lost. The edge of the blade which is not being used is concealed and protected, so that it cannot contact with any object to injure the latter or dull the former. The guard is adjusted in a simple manner, and is itself provided with a cup, preferably integral therewith, to receive the latter from the blade.

Heating and Lighting.

STEAM-GENERATING APPARATUS.—J. ATWOOD and G. ESCHER, Washington, D. C. The invention is an improvement in steam heating apparatus, and particularly in the means for generating the steam. The boiler is provided in sections with hot air flues receiving the heat directly from the burners and extending up through water legs, and thence laterally through tubes connecting the sections, and circulating within the sections, and thence passing out between the same. It is especially designed for use with gas and for suspending from the ceiling of a room, the apparatus being comparatively small.

GAS-GENERATOR.—W. THOMAS, Vancouver, British Columbia, Canada. This apparatus generates producer gas, water-gas, or carbureted water-gas, as may be required. It is adapted to work under suction or pressure, and for utilizing various forms of gas-producing fuel, such as low grade coal, coke, tar, oil, peat, saw-dust or refuse-wood, garbage, and other organic substances.

MANUFACTURE OF FUEL BRIQUETS.—D. BENNETT, Battle Creek, Mich. The intention in this case is to provide improvements in the manufacture of briquets from peat and other similar materials, whereby the resinous and like substances contained in the material is distributed uniformly throughout the material, to insure the formation of a briquet capable of burning uniformly and of utilizing the units of heat to the fullest advantage.

HEATING APPARATUS.—T. J. PORTER, Sacramento, Cal. The purpose of the inventor is to provide a practical heating apparatus, which affords convenient economical means for simultaneously heating a number of hard bowlders, or cobbles which is the preferred rock material, a sufficient degree for their subsequent disintegration by application of water; and finally crushing in a suitable machine.

CIRCULATORY SYSTEM FOR FURNACES.—B. L. WORTHEN, Tucson, Ariz. Ter. More especially the invention relates to furnaces of the various types used for metallurgical processes, such as reduction of ores. The more particular object is to utilize the waste heat of the water contained within the water jacket so as to improve the general efficiency of the furnace, and also prevent the otherwise objectionable effects of the heat.

HEAT-REGULATOR.—G. L. HOPPING, Longbeach, Cal. The invention relates to linotype and other machines requiring an even temperature of molten metal, air, or other fluid. The object is to provide a regulator, simple and durable in construction, sensitive in operation, and arranged to control the flow of gas to the burners, irrespective of the gas pressure.

FURNACE-ROOF.—F. MILLIKEN, New York, N. Y. The invention is an improved roof, more especially designed for open hearth steel frames, and having for an object primarily to provide for the expansion and contraction of the roof in both a longitudinal and transverse direction. The roof will operate to deflect the heat to the bath of the furnace and have a natural tendency to remain tight at the joints, and prevent escape of heat.

Machines and Mechanical Devices.

BOX-LOOM.—B. FUHRER, Scranton, Pa. The object of the invention is to provide a loom in which the picker mechanism receives an auxiliary shifting motion besides the regular picking motion, so as to cause the picker to push the shuttle back into proper position in the shuttle box, in case such shuttle has passed onward beyond the box and rendered the subsequent raising and lowering of the box difficult and dangerous to the mechanism of the loom.

WIRE-FENCE STRETCHER.—W. HOPPER, Jefferson, Iowa. The invention refers to certain improvements in devices for stretching wire fences while the wire is being secured to the fence post, and more particularly to that type of stretcher in which a clamping mechanism is employed in connection with clamping means, whereby the latter is prevented from becoming disengaged during the stretching action.

SEPARATOR.—F. PARDEE, Hazleton, Pa. The machine separates substances differing in specific gravity or frictional resistance, wherein the utilization of frictional resistance is employed in connection with gravity, particularly in the separation of coal from slate. One purpose of the invention is to provide a separator so that different kinds of substances submitted to its action will be automatically divided or assorted.

FIRING MECHANISM FOR GUNS.—J. R. BLOCKER, Austin, Tex. The invention relates

to fire arms and especially to double-barrel shot-guns, the more particular object being to employ a single trigger and parts associated therewith, so arranged that the operator may have complete control over the order in which the barrels are successively discharged and in which any predetermined order may be changed at will without the necessity for opening or "breaking" the gun.

WEIGHING-SCALE.—J. H. MCLEOD, La Salle, and A. MCLEOD, Peru, Ill. The scale is automatic in its action and intended for the weighing of grain, coffee, cement, and other materials, and is of the type in which a hopper is provided with a partition forming the hopper into compartments, each of which has a swinging bottom; and approved mechanism is provided for opening and closing the swinging bottoms alternately. One compartment empties when a predetermined amount of material has been received by the adjacent compartment and is made ready for receiving the material.

Prime Movers and Their Accessories.

ROTARY ENGINE.—T. HOKANSON, Newark, N. J. This invention relates to certain improvements in rotary engines adapted to be operated by steam or any other motive fluid under pressure, and relates more particularly to improvements of that type having a piston carried by a rotary piston wheel and movable through an annular chamber normally subdivided by a sliding abutment.

Railways and Their Accessories.

CAR-FENDER.—J. P. WOODCOCK, New York, N. Y. A purpose in this case is to provide a very simple, durable, and economic form of fender capable of application to the truck of any car, which fender will be beneath the platform and will perfectly safeguard a person or object struck from contact with the wheels of the truck.

RAILROAD CROSS-TIE.—W. BOYER, Valentine, Neb. The improvement refers to cross ties for railroads formed of metal. When such ties are cast into form, it is difficult to render them solid throughout their bodies, and in consequence such ties are liable to break; furthermore, resilience, which is desirable in a metal tie, is very slight in such ties as are formed in one piece by casting or other analogous means.

CAR.—B. F. BRUMAGHIM, Mount Hope, W. Va. The dumping car has the bottom inclined in opposite directions from the center and doors are provided at the sides of the car for outlet of material. The doors are operated by a system of links and levers to which motion is given by means of wheeled brackets at the sides of the car near the top. The wheels of the brackets are adapted to travel on guide rails at the point where the load is to be dumped; the track rails at the point of dumping are depressed or the guide rails mentioned are raised for the automatic operation of the car doors.

Pertaining to Recreation.

AMUSEMENT DEVICE.—H. A. BRADWELL, New York, N. Y. One of the purposes here is to provide a device so constructed that a platform or table is caused to revolve within an inclosure having cushioned or buffer sections, and wherein receptacles for passengers have independent movement on said platform, the receptacles having cushioning sections adapted for engagement with each other and the rebounding sections of the inclosure.

DEVICE FOR HANDLING AMUSEMENT-CARS.—A. F. BLAVATI, Freeport, N. Y. The more particular purpose of this inventor is to provide means for readily handling the cars employed. The invention comprises apparatus for lifting a car from one level to another, so as to bring the support of the car into registry with a railroad truck, then tilting the supporting mechanism so as to cause the car to glide obliquely downward along the track.

ROWING APPLIANCE.—W. F. JAMES and W. T. DEACON, Velasco, Texas. This appliance is for use in row-boats, and is of the character which embodies oars each made in two sections pivoted together, and so supported that when the oars are pulled, the handles and blades thereof move in the same direction, whereby the operator faces the bow in propelling the boat and is thus enabled to observe the direction of travel.

Pertaining to Vehicles.

PNEUMATIC HUB.—J. DUCHAN, Elizabethport, N. J., and R. DUCHAN and J. DUCHAN, Vienna, Austria. The object of this invention is to provide a pneumatic hub which will be simply constructed with a view to enabling the pneumatic cushion to be readily removed or replaced when desired. The invention is expected to be especially useful in connection with automobiles and similar vehicles.

VEHICLE-WHEEL.—L. H. BARRY, Durango, Mexico. In this instance the invention refers to improvements in vehicle wheels of the class having metal spring tires, the object being to provide a wheel of this character that will be comparatively light, yet strong and serviceable, and that will meet all the requirements of a cushioned tire.

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



HINTS TO CORRESPONDENTS.

Full hints to correspondents were printed at the head of this column in the issue of August 8th, or will be sent by mail on request.

(10833) T. W. A. asks: I have been making a dry battery which when it is just finished shows from 22 to 26 amperes, but after standing a while, say from 5 to 7 days, will only show 5 or 6 amperes. What is the cause of it, and how can I remedy it? The cell is of the ordinary size, 22 x 6 inches, made of a zinc can lined with paper soaked in a solution of water, sulphuric acid, and bichromate of potash, carbon in the center of can surrounded by a mixture of coke dust, bichromate of potash, sal-ammoniac, graphite, sulphuric acid, and water, all packed in tight and sealed at the top with tar. Would you kindly tell me how, if possible, it can be made so it will not lose its strength so soon? A. The cell you describe is not a dry cell at all. It polarizes and cannot be sealed up and left to itself. The bichromate of potash and the sulphuric acid should be left out, and the cell made to conform to the instructions for making dry cells. The sulphuric acid will act continuously on the zinc whether the cell is in use or not. A dry cell is one which may be left on open circuit without deterioration. Yours cannot be left in that way. We can furnish you full and accurate directions for making dry cells in the SCIENTIFIC AMERICAN SUPPLEMENT Nos. 1363 and 1387, price ten cents each.

(10834) P. C. T. says: What are the best thermo couples? What are the best for high temperature? What are the best for high temperature, not alloys? Will careful riveting answer? Of what metal should rivets be? Does amount of surface in contact at ends determine amount of current at any given temperature? Are thin strips as efficient as thick, or does thickness make any difference? Does amount of current depend on width for any temperature? Does a varying range of temperature produce a greater voltage or amperage, or both? Does current increase at a uniform rate with increasing range or difference of temperature? Is a limit reached before destruction? Can you give me some particulars in regard to sizes and references of temperature for producing a given current? The thermopile mentioned in connection with new gas lamp (issue May 30, 1908), it says copper, aluminum, and nickel are used. Does it mean copper with either? A. All the questions regarding the thermopile may perhaps be disposed of by the statement that there is no thermopile of a commercial character on the market. It may almost be said that the thermopile is simply a delicate heat-measuring instrument. A few years ago one was placed on the market for charging small storage batteries and such light work as running sewing machines, but the company making it soon went out of business. Thermo-electric batteries, adapted to certain operations in chemistry, made abroad, can be purchased. One of these, giving 4 volts with 66 elements, is quoted in a dealer's catalogue at \$105. This would be a very expensive mode of getting an electric current. The largest voltage which we have noted is given by the alloy of copper 60 and nickel 40 parts, which is called constantin, and an alloy consisting of antimony 122 and zinc 65 parts, but this gives only a small voltage. It will withstand a high temperature, about 900 deg. Fahrenheit. The joints of thermocouples for high temperature must be riveted or welded. Any metal will answer for the rivet. The size of the bars acts to reduce resistance and thus increase amperes, but has no relation to the voltage. Mere difference of temperature does not increase the voltage necessarily. There is for every couple a temperature of inversion, at which the current begins to decrease, and when the hot junction is as much above the temperature of inversion as the cold one is below that temperature, the current becomes zero. If the hot junction is heated still higher, the current is reversed and flows in the opposite direction. As to the sizes to be employed in making a thermo-electric battery, rather small bars will of necessity be selected because of the large space which will be taken up by large bars. A quarter-inch bar would seem to be sufficient if you wish to experiment in this line. The principles of the subject may be found in the higher textbooks of physics, such as Carhart's, price \$1.50, and Watson's, price \$3.50. Only two metals are employed in one instrument.

(10835) S. K. H. asks: 1. What is the theory of the working of an electrolytic detector? A carbon needle detector? A. The electrolytic detector has its resistance increased by the passage of a current. A microscopic examination shows that metallic particles are detached from the positive electrode and deposited on the negative electrode, until a bridge is formed which reaches from one electrode to the other. An oscillating current disrupts this bridge and renders the electrolyte non-conducting. This is fully explained in Mavor's "Wireless Telegraphy," price \$2.00. 2. What is the output in volts and amperes, and frequency