

painting. Others were contributed by professed inlayers. The inlayers' work showed parabolas and allegories and they had much of pure gravity, and the only advance was in the ingenuity and richness of the borders. Beccafumi improved the technical processes by letting marble into the large plate of marble, using green marble for grass, yellow marble for earth, dark blue for negro slaves, and parti-colored fragments for ornaments and jewels. Strange to say, the effect is remarkably good, and it cannot be judged by the ordinary canons of criticism. In later subjects a step further was taken, and the effect of a black and white cartoon was obtained by using a gray marble which produced the heavy shadows. The lights were obtained by using light marble, and the dark features by black marble. The joints were most artificially concealed, and the transition from light to dark was shaded with engraved lines exactly as one might shade a drawing. The result is remarkably curious and pleasing. The landscapes are filled with incident and are highly finished. The severity and decorative abstractness which the old designs had maintained were now almost wholly lacking, and the conditions of the material were defied. The consequence is a surprisingly entertaining performance, which, while scarcely a true work of art, must be admired on its merits, and the history of Siena is really written in her pavement, which shadows her glorious promise, her rise, and the long delay of her inevitable doom.

A Department of Mineralogy and Mining.

Representative Osborne has introduced into Congress a bill providing for the establishment of an executive Department of Mineralogy and Mining. These subjects in the United States are of such great importance that there should certainly seem to be a legitimate field for the creation of another department. "That there shall be established at the seat of government an executive department to be known as the Department of Mineralogy and Mining, the objects of which shall be to gather and diffuse among the people of the United States practical and useful information pertaining to mining in all its branches. Said department shall be under the supervision and control of an executive officer to be known as the Secretary of Mineralogy and Mining. Said officer shall be appointed by the President, by and with the advice and consent of

the Senate. There shall be an Assistant Secretary of Mineralogy and Mining. The Secretary of Mineralogy and Mining shall receive the same salary as is paid to the secretaries of the executive departments of the government. The Geological Survey, as at present established, together with all records, maps and apparatus now connected therewith, shall be transferred to and made a part of the contemplated new department. This act shall go into effect and be in force on the fourth day of March next succeeding the day of its final passage."

Ship Canal Progress.

Among the ship canal projects which are making the most progress is the Russian canal from the Baltic to the Black Sea, work on which was commenced last spring. Four years will be required to complete it. It will be 1,080 miles long and 217 feet wide at the top and 117 feet wide at the bottom, and the depth will be 28½ feet. The canal will be lighted entirely by electricity, and the total cost will be estimated at about \$100,000,000.

The Manchester ship canal has interested Belgians in a similar project for the benefit of the capital, Brussels. The project is now to make Brussels a great maritime port, with a basin of great size, to accommodate shipping. The canal will be about 75 miles long. The Belgians are among the greatest canal builders in the world, and a great deal of their commerce is carried on by means of twenty-nine canals.

The project of the Florida ship canal is still in abeyance. The total length of the Florida canal, as surveyed, is 108 miles.

The project for the canal to connect the Bay of Biscay with the Mediterranean does not seem to have made any progress. If this canal should be built, it would be 327 nautical miles long, and would be of immense importance for strategic purposes.

The Kaiser Wilhelm canal, between the mouth of the Elbe, on the North Sea, and Kiel, on the Baltic Sea, is, however, more than paying its expenses, says The Sun, and the income of the Manchester canal is slowly increasing.

The extremely useful Isthmus of Corinth canal, which is only a little over three miles long, saves from one hundred to two hundred miles of the journey to Constantinople, and obviates the dangerous passage

around Cape Matapan. It has not been utilized as yet as much as had been expected.

Trial of the New Submarine Torpedo Boat.

M. Lockroy, the French Minister of the Marine, has communicated to the press the fact that the new submarine torpedo boat "Gustav Zédé" succeeded in torpedoing with a dummy torpedo the French battleship "Magenta." He states that all on board the warship were in a state of great excitement, watching the surface of the sea; suddenly the cupola of the submarine boat appeared abreast of the battleship and about 4,000 yards distant. Before the guns of the warship could be trained upon her small antagonist, the submarine boat disappeared beneath the water. The "Magenta" was then ordered to steam ahead, and while she did this a blank torpedo from the submarine boat struck the warship below the water line.

The Current Supplement.

The current SUPPLEMENT, No. 1206, contains many most interesting articles, as "Coast Telegraphs and Space Telegraphy," by Rollo Appleyard. "Old Time Sugar Making in Louisiana" is an interesting article by Prof. H. S. Maring. "The Paris Cycle and Automobile Exhibition" is illustrated by engravings which show new types of carriages. "The Ethics of the Babylonians and Assyrians" is a lecture delivered by Prof. Morris Jastrow of the University of Pennsylvania and specially revised by the author. "The Evolution of the Strawberry" is an important paper by Prof. L. H. Bailey. The third lecture of Prof. Lewes on "Acetylene" is also given and is accompanied by most valuable tables. An article on "Typewriter Ribbons" completes the paper.

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RECENTLY PATENTED INVENTIONS.

Bicycle-Improvements.

BICYCLE—WINDSOR O. CAMPBELL, Sulphur Springs, Ark. This invention provides independent pedal movements of the lever type, which afford means to adjust the length of the stroke of each pedal-lever while the bicycle is in motion. The invention also embodies novel quick-pitch screw connections for the pedals, with motor-gearing to drive the rear traction-wheel, and provides two-part traction-wheels and two-part tires for such wheels, together with means for joining the parts of the wheels quickly and holding the tire thereon.

Engineering-Apparatus.

VARIABLE GOVERNOR CUT-OFF FOR ENGINES—MARTIN O. ARNEGAARD, Hillsborough, N. D. In the present automatic cut-off governor, are included a vertically slidable shaft at the lower end of which a bar is so pivoted that its angle can be adjusted to the shaft. A rock-shaft having a crank, carries a guide for this pivoted bar, and is operatively connected with the valve-gear, in order to control the speed of the engine.

Mechanical Devices.

ELEVATOR AND CONVEYER—GEORGE HAISS, New York city. This invention provides an apparatus by which material, such as coal, may be raised and conveyed horizontally, and dumped automatically at any desired point. To this end, the inventor employs an endless bucket-carrier, two runs of which are vertical and two runs horizontal. The lower horizontal run has a distributor for filling the buckets, so that the material is lifted to the upper horizontal run, where it may be dumped at any point and into any receptacle.

METRONOME—JACOB C. DOERFER, Denver, Colo. Connected with a spring-motor driving a pin-cylinder, are sounding devices operated from the pin-cylinder. To control the speed of the motor, a governor of the wind-wheel type is employed. In order to decrease the speed of the governor, brushes having graduated bristles are employed, which are moved toward and from the governor from the motor.

DENTAL-PLUGGER—ROBERT BLUM, Corpus Christi, Tex. The dental plugger has a tool or plugger point operated to deliver either a forward or backward blow by the action of a mallet block slidable in the casing or hand-piece, and propelled by a pneumatic engine or pump, which produces a pulsating or alternately expansive and exhaustive action on the body of air within the chamber of the hand-piece of the plugger.

Railway-Contrivances.

RAILROAD CROSSING—ERNEST H. HINER, Rogers, Ark. The rail-connection devised by this inventor, is adapted for use at the points of intersection of railroad-rails, and consists of a casing having a bearing, and slots concentric with the axis of the bearing. Depressible arms extend above the slots and have movable connection with a suitable support. A turntable is journaled in the bearing and carries a rail-section. There is an operative connection between the turntable and the arms, the connection comprising parts extending through the

slots of the casing, and adjustable with the arms to different points of the slots, whereby the angle between the arms can be varied to correspond with the angle of the intersecting rails to be connected by the turntable rail.

REFRIGERATOR-CAR—ANDREW J. MCARTHUR, Gainesville, Fla. The purpose of this invention is so to construct the ice-tanks of a refrigerator-car, that a large area of ice will be exposed to the interior of the car, in order that the heat of the load will be quickly condensed. Each of the ice-tanks has a circulating-coil extending along the wall of the car. A perforated pipe extends through the pair of tanks and has connection with the coil. Under each tank a tray is placed, the trays being connected by a pipe. One of the trays has a trap connection with the circulating coil. An overflow pipe extends from the coil at a point adjacent to the trap. A drain-pipe is connected with the lower portion of the coil.

STATION-INDICATOR—RUDOLF SPERBER, Seattle, Wash. A cheap and simple arrangement has been provided in the present invention, whereby the streets or stations will be automatically indicated, the mechanism thereof being connected with and operated from the car axle. Means are provided for reversing the direction of movement of the belts at the end of the road. A bell is provided which is sounded at each change of street or station to call the attention of the passengers to such change.

Miscellaneous Inventions.

DISGUIISING UNPALATABLE MEDICINES—DANIEL F. DAVENPORT, Americus, Ga. This improved preparation for disguising unpalatable medicines is composed of balsam fir, shellac, alcohol, and olive oil. The pasty mass thus formed is heated and allowed to cool, and is then reduced to small particles and reheated.

SHELVING—JAMES M. LIPPINCOTT and CLINTON S. HALL, Oakland, Ill. The purpose of these inventors is to furnish means for utilizing the space between the top of the ordinary shelving and the ceiling of the room by providing a shelf-section which can be moved vertically to a point above the fixed shelves and then moved laterally to a point above the fixed shelving. The vertically and laterally movable shelving-section has projections to enter guideways having vertical and lateral wings receiving projections at both the upper and lower ends of the shelving section. A counterbalanced cord has a movable connection with the shelving section whereby the stress of the counterbalance will not hinder the lateral movement of the shelves.

DIAPHRAGM FOR GAS-METERS—JOHN HEARNE, Brooklyn, New York city, and CHARLES LAWSON, Boston, Mass. Diaphragms for gas-meters have been hitherto attached at their upper and lower edges to two similar metal rings, and constructed of two sections or pieces united by lap-seams. But this construction rendered them less flexible at two or more points and liable to leakage. The present invention provides a ring diaphragm, formed from a single seamless piece of leather. The improved diaphragm is free from these objections.

APPARATUS FOR DRAWING PUMP-RODS FROM WELLS—JOSEPH E. GARVER, Rollersville, Ohio. In oil-fields it is often necessary for repairing or cleaning to draw the pump-rod from the well. This is usually done

by means of a windlass operated by horse-power, a process which is not only slow, but inconvenient. The present invention seeks to provide means whereby the usual pump-power may be used for raising the rods. With this end in view, the inventor employs the horizontal movement of the rod or cable operated by the pump, to rotate a winding drum from which a rope extends to a connection with the rod to be drawn.

LUGGAGE-CARRIER FOR PACK-ANIMALS—JOHN CALVERT, Dayton, Ohio. In this luggage-carrier for pack-animals, a back section is provided formed of parallel bars. To the back section and transverse bars a bottom section is hinged. Pivotal mounted braces between the back and bottom sections brace the latter. Chains are used in connection with the upper ends of the parallel bars of the back section. Hooks provided with rings engage the cross-trees of a pack-saddle, whereby the luggage-carrier on the pack-saddle can be moved.

FLUE-STOPPER—BERNDT E. BENGSTON, Axtell, Neb. The flue-stopper consists of curved plates placed one upon the other, their concave surfaces facing. Between the cap or cover plate and the opposing curved plate a connection is provided. A guide-device is secured to the curved plates and extends through the cover-plate. The cover-plate can be forced in the direction of the curved plates, to expand the latter, and in this manner to close the passage through the thimble.

HASP-LOCK—WILLIAM M. VALENTINE, Glen Cove, N. Y. With a hasp is connected a locking-bar which is provided with a latch-head and which has sliding and pivotal movement upon the hasp. A keeper is adapted to receive the latch-head. Gravity lock-levers operated by a key are provided for the lock-bar and are located between the bar and hasp. A projection from the lock-bar is arranged for engagement with the lock-levers. By reason of this construction, the hasp-lock can be made to serve either as a latch or as a lock.

ACETYLENE-GAS GENERATOR—MYRON E. SPRAGUE, Plymouth Union, Vt. The novel feature of this generator is found in the peculiar construction of the automatic cut-off valves. Above the generator a water-reservoir is placed, from the top and bottom of which, pipes lead to the generator. The reservoir has one of its sides in the form of a diaphragm. At the side opposite the diaphragm, the reservoir has a valve-seat in which a valve having a spring-controlled valve-stem is adapted to be seated. Water is fed to the carbide below by means of one pipe, and a portion of the gas generated is conducted by the other pipe to the reservoir. When the pressure becomes excessive, the diaphragm is pressed outwardly against the spring on the valve-stem and forces the valve against its seat, thus shutting off water from the carbide. When the pressure is reduced, the diaphragm by its action opens the valve and permits more water to flow through. By varying the tension of the spring the valve can be made to shut off the water at any desired gas-pressure.

PNEUMATIC CARRIAGE-BRAKE—DANIEL P. SAMMIS, New York city. The purpose of this invention is to provide a mechanism for operating brakes upon carriages, which mechanism shall not require rods or similar devices to connect the brake-operating levers with the brake-shoes. With this object in view, the brake is operated by means of an air-cylinder. An air-pump is provided, which is located at any point convenient to

the driver and provided with a lever which may be operated either by hand or foot. The air-pump and the air-brake-cylinder are connected by a pipe.

GATE—OLIVER E. POTTER, Cameron, Miss. This gate is provided with improved mechanism for being opened from a distance, without dismounting from a horse or carriage. The gate is composed of two halves pivoted to swing toward and from each other, connections being provided so that the halves may be swung together. Upon the pivot of one half, a pulley is mounted. About the pulley a cord is passed. A bar mounted to reciprocate adjacent to the pulley has the cord attached to the ends thereof. Bell-crank levers are attached to each end of the bar and by their means the gate is either opened or closed.

SUPPORT FOR MATTRESS-FRAMES—LOUIS PETRILLA, Brooklyn, N. Y. This invention provides such a support for the frames of spring or other mattresses that, when a mattress is in use, the weight will be equally sustained at each corner, thereby preventing the mattress's sagging and becoming permanently depressed at such places where a person is accustomed to lie. The invention also provides a spring or yielding support for woven-wire or similar mattresses, and a means for tightening the springs and the supports when desired.

APPARATUS FOR MAKING MOLDS FOR STONEWARE OR EARTHENWARE-JARS—CHARLES KETTRON and FRED V. MAXWELL, Macomb, Ill. Heretofore it has been deemed impracticable to form a jar of clay or of like substance with a thread on its neck, the main difficulty being to form a suitable mold. These inventors have devised a method of forming a mold of plaster-of-Paris or other suitable substances to shape the top and neck of a jar, that portion of the mold adapted to shape the neck being provided with internal screw-threads.

TONGUE-SUPPORT—EDWIN JARRELL, Riverdale, Kan. This invention is an improvement in tongue supports for wagons, and seeks to provide a simple construction which can be adjusted to suit the vehicle and the horses, which will automatically adjust out of gear in dumping the wagon, and which can be easily re-adjusted after the dumping is effected. The inventor provides a spring connection between the wagon and the tongue, link connections between the spring and the tongue, and an abutment for throwing the spring off the center or out of gear to free it from its supporting connection or position with respect to the tongue.

Designs.

VEGETABLE-MASHER—CHARLES VAN WINKLE, Rutherford, N. J. The vegetable-masher comprises a bottom made of wire netting, the wires forming cutters, and a handle connected with the bottom. In using the device, the operator moves the bottom into contact with the vegetables, so that the vegetables are cut by the wires. The cut portions pass up through the meshes to allow a further descent of the bottom and consequent mashing of the vegetables. The masher is raised and lowered as many times as may appear necessary to mash the vegetables properly.

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.