Some Curious Inventions.

The editor of our French contemporary, La Vie Scientifique, M. Max de Nansouty, describes in a rather entertaining manner some curious patented inventions which have recently come to his notice.

One of the patents which attracts his attention has been granted to the Improved Electric Glow Lamp Company, of London, for an improved process of treating incandescent lamps to obtain peculiar lighting effects. The outer surface of the bulb is coated with a mixture comprising an alkaline silicate, silicon, cryolith, and any desired mineral color. Depending upon the particular mineral employed, green, red, orange or any colored light is obtained by the transmission of the rays through the coated glass.

Linen has always been proverbially known for its softness to the touch, but two inventors, MM. G. Florin and H. Lagache, desire to make it still softer to the touch and therefore subject it to a very peculiar process. When the linen has lost some of its softness by the chlorine bleaching process it is first treated with an alkali, whereby the acids which it contains are neutralized. The linen is then immersed in an aqueous solution containing the salt of a tetravalent metal. After this treatment the linen is exposed to the air and becomes as soft as can be desired.

In order to render wall paper impermeable to the moisture that often oozes through the walls of a dwelling, Wilhelm Antony has taken out a German patent for a process whereby the paper is enabled to withstand the action of water. Unsized paper is treated with a solution of rubber in petroleum, and then with a camphorated solution of collodion. Not only is this paper impermeable to water, but it will also resist the attacks of microbes and fungi.

It is not always the easiest matter in the world to slake lime properly. Sometimes too much water, and sometimes too little is used. Sometimes the boiling is too violent; sometimes it is not violent enough. In a German patent W. Olschewsky states that the slaking can be very nicely controlled by adding fine wet sand to the quicklime.

A new method of preserving eggs is the invention of C. Utescher. The eggs are first given a thin coating of paraffine and are then immersed in lime water. The process is so simple that the inventor maintains that its effectiveness can be easily verified by actual experiment.

A formula for a bleaching agent is given in a recent American patent. The vegetable fibers to be treated are impregnated with a solution of soap or a silicate, caustic soda, oil and water. The fibers are then subjected to the action of steam. According to its inventors, Charles F. Cross and G. A. Parkes, of London, this process bleaches rapidly without in any way deteriorating the goods.

AN AUTOMATIC CAR TIPPLE FOR MINE RAILWAYS.

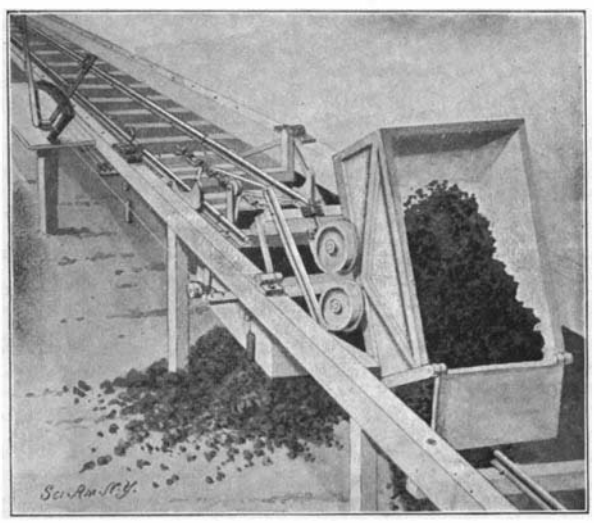
A means for automatically dumping railway-cars successively is the subject of an invention for which the firm of Miller & Geske, of Seattle, Wash., have received a United States patent. The novel feature of the invention is a tipple of such construction that one car is automatically pushed off the tipple by the car next following, which latter car is then dumped in its turn.

The tipple comprises a counterbalanced rocking cradle, the rail-sections of which register with the track-rails. Wheel-chocks are pivoted vertically on the cradle so that they may swing into and out of the path of the car-wheels. The chocks are pivotally connected by links with a sleeve on a longitudinally-reciprocal, spring-pressed rod. The spring-pressed rod holds the chocks normally in operative position. At the rear of the rod a roller is carried, engaged by a tipple lever fulcrumed on the bed of the road.

Each tipple on the line is designed to be actuated by an operating lever. Each operating-lever is connected by a cord with the first-mentioned tipple lever. The tipple-lever furthermore carries a cord connected with a crank on a rock-shaft mounted in the bed of the railway and having an arm arranged to be struck by the car and thrown down.

The rail-sections of the tipple and of the main track may be rigidly held together by latch plates mounted to slide at each side and connected in pairs. The latch-plates are pivotally connected by links with the previously-mentioned spring-pressed rod, so that they are normally thrown into inactive position.

When an operating-lever is pulled to the left, the tipple lever is thrown so as to move the longitudinal rod against its spring, thus throwing the chocks outward and the latch plates into active position. The cradle is thus adjusted so that a car may pass over it unobstructedly, and is also horizontally locked. This movement of the operating lever slacks the cord extending from the tipple lever to the crank of the rock-shaft, thus permitting the crank to fall so that a car may pass over it. But when the operating lever is thrown to the right, the tipple lever will be allowed to assume the position which will permit the chocks to swing inward into active position and the latch plates to move backward into inactive position under the influence of the spring-pressed rod. The cradle will then be allowed to tilt. When a car rolls on a tipple thus adjusted, it first strikes the upwardly-projecting arm of the rock-shaft, during which time the latch-plates will be thrown into active position and the chocks moved out. When the arm has been passed, the parts will return to their positions and the car in rolling on the tipple will engage the chocks and be arrested. The loaded car will then be dumped by its weight, and returned by the counterweight when emptied. When the next car comes along, the upwardly projecting arm will be again thrown down, the chocks

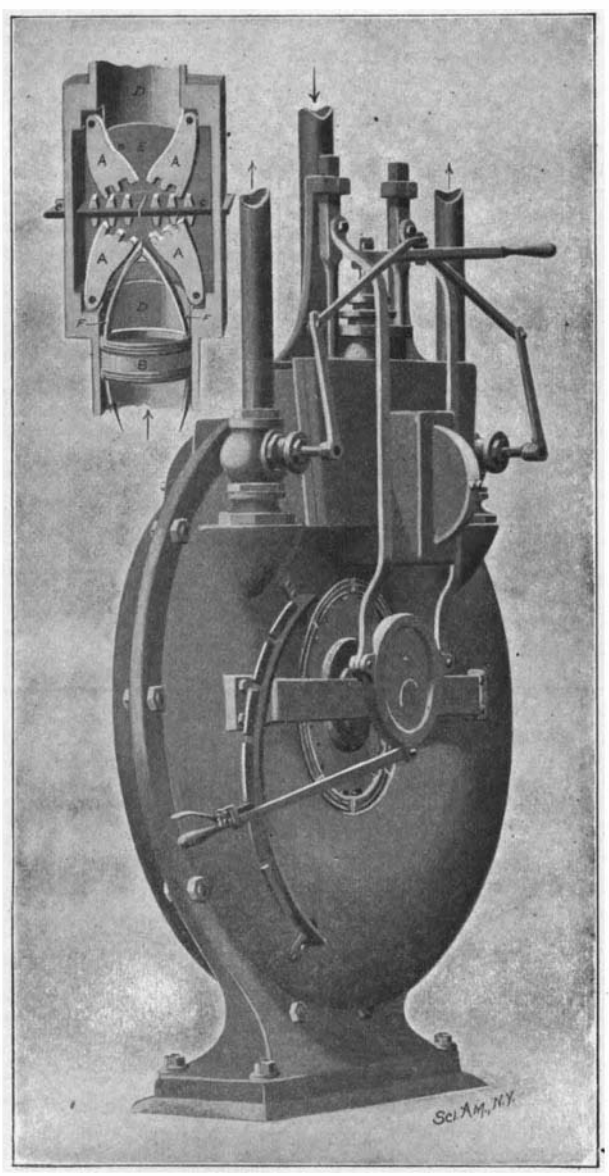


THE MILLER-GESKE AUTOMATIC CAR-TIPPLE.

momentarily opened, and the latch-plates operated. The loaded car strikes the empty car, and before the chocks can move in, the empty car will be driven off the tipple. The loaded car will now be passed onto the tipple, stopped by the chocks, and dumped. The entire action is automatic, it being necessary only to lock or unlock the tipple by actuating the operating-levers. The invention is certainly ingenious and should attract the favorable attention of mining engineers and contractors engaged in excavating.

A NEW ROTARY ENGINE.

Chief among the difficulties which have stood in the way of the production of a successful rotary engine have been those of providing a satisfactory form of valve-gear, steam-ports for the admission and control of the steam, and a suitable sliding abutment to support the reaction of the steam within the cylinder. The accompanying engraving of a rotary engine invented by Robert Sanderson, of Halcyon Hot Springs, B. C., Canada, shows an ingenious attempt on the part of the designer to overcome these difficulties. The piston, *B*, is fitted steam-tight within the cylinder and is provided at both of its faces with V-shaped cam-shoes, each formed by rods fastened to the piston and curved inwardly toward each other. At the upper part of the cylinder casings are arranged in each of which sliding gates, *C*, are fitted. These gates move toward and from each other and serve to close the cylinder so as to form an abutment for the steam pressure. The approach of the piston is utilized to throw the gates into open position—an end attained by forming the gate, *C*, with teeth meshing with the teeth of pivoted cams, *A*, arranged in pairs on each side of the gates. As the piston approaches, the cam shoes, *F*, will spread the cams, *A*, thereby moving the gates, *C*, apart to allow the passage of the piston. The gates are returned to their normal position by means of springs which are not shown in the engraving.



THE SANDERSON ROTARY ENGINE.

The valve mechanism employed to control the steam comprises two steam-chests, carrying valves which command feed-ports arranged in the cylinder at opposite sides of the gates. The valves are moved by connecting-rods attached to the valve-stems and to an eccentric-strap working on an eccentric fastened to the engine-shaft. The throw of the eccentric can be regulated by an arm working with a quadrant held on the cylinder and disposed eccentrically to the shaft, so that by the adjustment of the arm the eccentric will be regulated to increase or diminish the movements of the valve. Steam is led into one of the valve-chests, depending upon the direction in which the piston is to be turned. Exhaust-valves are provided which are thrown in time with the valve regulating admission to the two valve-chests.

Improvement in the Goldschmidt Method of Alumino-Thermic Welding and Casting.

The Goldschmidt process has the disadvantage that it generally requires the use of skilled labor, especially for the welding of rails. With a new modification which has just been made public, an ordinary workman can easily effect a good weld; and the time required for making the mold and running the metal need not be greater than that necessary for jointing a rail, including bonding with copper by the usual method. The "thermit" mixture (of which 1 kilogramme yields 450 grammes of molten iron) is placed in a crucible made of iron plate lined with refractory material, mounted on a substantial tripod and closed at the bottom with one or more small iron plates, according to the quantity of "thermit" used. The "thermit" is covered with a layer of kindling or priming mixture, and an iron plate having a central hole, through which the charge can be ignited by means of a fuse, is placed over the whole. The crucible thus prepared is placed with its tap-hole immediately above the gate of a refractory mold built around the ends of the two rails to be jointed, which are so clamped together that the surfaces to be welded are pressed against each other. When all is ready, the charge is ignited, and in a few seconds the contents of the crucible should become fluid, and melting away the supporting iron plates, should flow into the mold and make the required joint. In this process it is the molten iron which first enters the mold, and the molten corundum slag floating on the top passes out last, instead of first as in the older teeming process. The method lends itself well to the jointing of rails already laid, and insures a sound electrical contact; it is of no use, however, for rails of which the ends are worn, as it does not assist in checking the hammering of the wheels on the rails. The process cannot well be applied to the welding of tubes, as the hot metal is liable to melt its way through the tube at first contact; it is, however, very suitable for the repair of broken shafts or axles, and is especially recommended for use on board ship, as the appliances required are exceedingly simple and convenient.

The temperature of the electrical incandescent lamp has been determined by the French physicist Janet, of the Paris Academy of Sciences. To preserve the heat radiated from the carbon filament of the lamp is a matter of great difficulty, since the filament is separated from the atmosphere by a vacuum. Janet has determined from investigations made with four different lamps, that the filaments attain a temperature varying from 1,610 to 1,720 deg. C. It is remarkable that so high a temperature in an incandescent lamp radiates so little heat. Nevertheless, the radiation is sufficiently pronounced to bring water to the boiling point.

In order properly to harden small articles made from steel it is necessary to treat them individually in a manner that requires experience and skill. Even under the most favorable circumstances considerable loss is entailed, due principally to unevenness in hardening. A St. Louis inventor, Mr. Charles J. Johnson, has discovered that by submerging an article, after it has been formed, at a cherry red temperature, in a solution of sal soda, resin, water, and animal oil, all difficulties are overcome, and that each article is given its proper durability, strength, and elasticity.