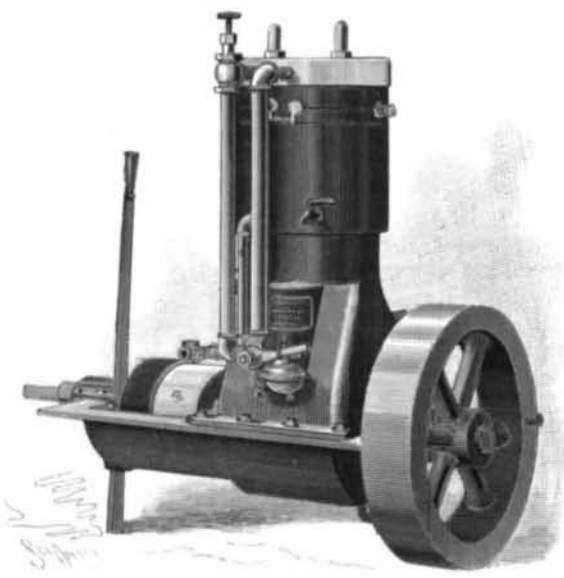
THE KING GASOLINE LAUNCH ENGINE.

The simple, compact, quiet running engine shown in the accompanying illustration is manufactured by the Charles B. King Company, of Detroit, Mich., the type having been adopted and its principal features developed as a result of extended experience with gasoline motors. The impulse is given at every second revolution only in each cylinder, whereby the products of combustion are expelled by the return stroke of the



THE KING GASOLINE LAUNCH ENGINE.

piston, the exhaust being rendered perfectly silent by passing out under the water, and the incoming charge is received into a clean space where no burnt products remain. This arrangement increases the effectiveness of the explosion and enlarges the range of the mixture, the engine being also more positive in its action and not requiring the careful adjustment necessary with many other types. The flywheel is easily turned by pulling out the relief rod, two slow revolutions being enough to start the engine, and no hand crank being required. The electric igniters will last as long as the engine and do not require care or attention. The use of oil cups is entirely dispensed with, all the working parts, cylinders included, being copiously oiled by the dashing of the cranks through the oil in the crank case, the oil used being "crank case oil," costing fifteen cents per gallon. An outside supply chamber indicates the oil level and shows when it is necessary to replenish the supply. The reversing gear is made a part of the engine, and the use of a propeller with reversible blades is avoided. The engine shown in the illustration is rated at 6 horse power, but is said to develop 7½ horse power, its weight being 700 pounds. The King exhibition launch, running on the Detroit River, affords a good exemplification of the capabilities of these engines. The launch is 33 feet long and has a speed of 10·6 miles per hour.

AN IMPROVED BICYCLE BRAKE.

The accompanying illustration represents in detail the principal parts of an improved bicycle brake manufactured by the Hay & Willits Manufacturing Company, of Indianapolis, Ind., Fig. 5 showing the complete device as applied, from which it will be seen that the brake mechanism is entirely within the hub. Fig. 1 shows the axle with its friction cone of vulcanized fiber and Fig. 2 the steel sleeve or socket in which the cone is inserted inside the hub casing, the thread at one end indicating the manner in which the cone is brought to a friction bearing by means of its keyed connection with the sprocket, as further shown in the broken-away portion of Fig. 4. Fig. 3 represents the hub casing, inclosing the bearings completely and protecting all parts from dust. The brake is applied by a slight back pressure on the pedals, causing a limited reverse movement of perhaps one-sixth of a revolution on the rear sprocket. There are, as will be seen, no springs of any kind in the device, the brake action being entirely controlled by the pedals, leaving the rider free to use his hands to control his machine, and when the brake is applied at the top of a hill the rider may coast in the usual way, the brake not being released until a forward pressure is exerted upon the pedals. The wheel is checked slowly or rapidly, according to the amount of pressure used in back pedaling, and the brake is released by the application of the same amount of power by pedaling in a forward direction, and, of course, a stop can be made as readily on a slippery or asphalt road as on a dry pavement. The brake is not visible on a wheel, except as its presence may be indicated by a slight enlargement of the rear hub, and thus in no way detracts from the appearance of the machine.

Rich Alaskan Islands.

Large ledges of copper and gold ore have lately been uncovered on Gravina, Annette and Revillagigedo Islands, on the southeastern Alaska coast. Prospectors declare that these, together with Mary and Prince of Wales Island, contain mountains of rich ore that will make their ultimate possessors immensely wealthy. Many claims have been located on Gravina, and prospectors are rushing in from Puget Sound. The Wragel and Juneau ledges are ten to fifty feet wide, rising frequently above the level of the ground, making their development very easy. Where the work of development has been begun, the value of the ore has increased beneath the surface.

Solis Cohen, who has just returned from the islands, says The New York Times, declares that hundreds of thousands of tons can be milled or shipped to smelters without sinking shafts. Not only do the ledges extend from tidewater to the mountains in the interior, but they are also found beneath salt water. Some of these have been blasted open at low water and found very rich in gold. The islands have good harbors, where ships can call for cargoes of ore, as well as numerous mill sites and waterfalls from which power may be obtained for operating stamp mills.

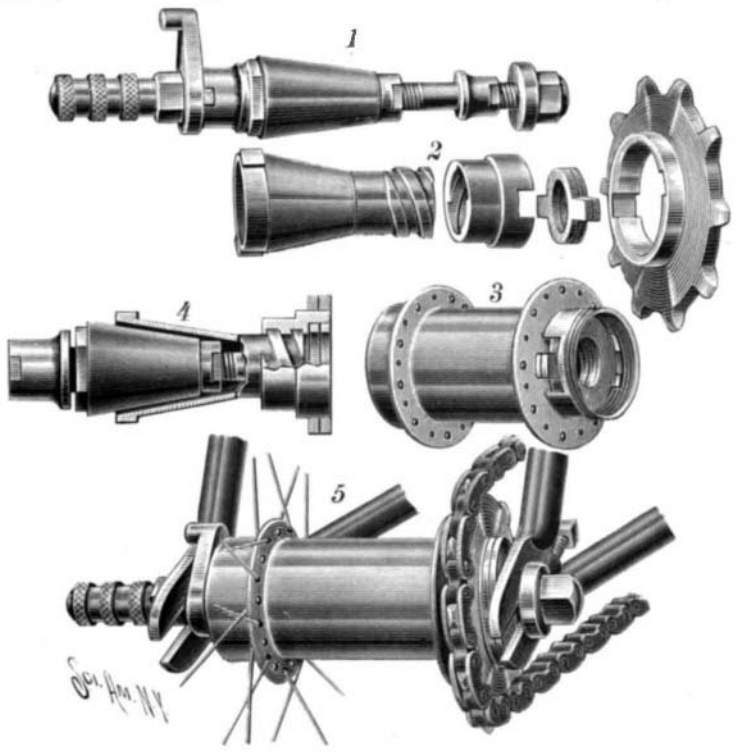
The immediate opening of mines rivaling or exceling those about Juneau is expected on these islands. Gravina, the richest, lies along Nicholas Passage and Tongas Narrows, extending from four miles opposite New Metlakahtea to sixteen miles above Ketchikan.

Trolley on the Canals.

A meeting of the Cataract General Electric Company was held January 10, to consider the beginning of work under the company's charter, which permits the establishment and operation of an electric motive system along the State canals for the supplying of power to boatmen. The company has had an engineer prepare plans and specifications for the installation of an electric cableway for sixty miles along the Champlain Canal, from Whitehall to West Troy. The charter was granted several years ago, but if it is decided to carry out the plan submitted for the Champlain Canal, that will be the first work the company has undertaken to do. The cableway system proposed, it is understood, is an alongshore trolley, from which power will be supplied to motors that will haul the boats. If the proposed plan is accepted, the details of operation will probably be publicly explained. If it is a success, the problem of canal transportation is likely to be settled for some time to come.

The Current Number of the Supplement.

The current number of the SUPPLEMENT, No. 1151, contains the conclusion of Prof. Octave Chanute's "Gliding Experiments." This is one of the most important papers on the subject of aerial navigation which has been published in a long time. Like the former papers, it is illustrated by engravings made from instantaneous photographs showing the apparatus in all stages of operation. There are ten engravings in the present number. There is also an article on the "Modern Distillation of Wood for the Production of Acetic Acid, Wood Spirit and Acetone in the Pure Form." Literature upon the distillation of wood is limited. There is also an illustrated review of Prof.

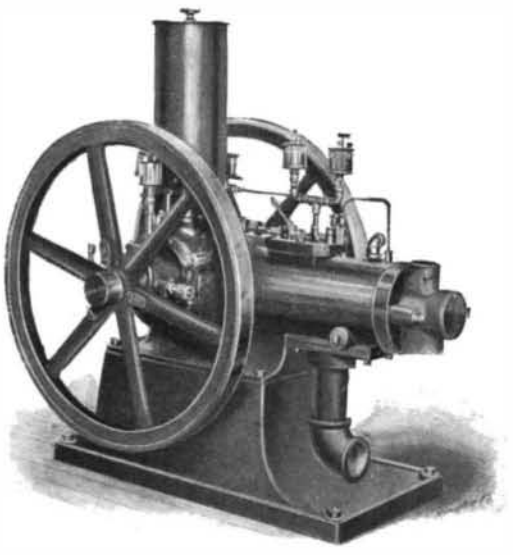


THE WILLITS AUTOMATIC REAR HUB BICYCLE BRAKE.

Lanciani's "Ruins and Excavations of Ancient Rome," and a paper by Mr. Penrose, "The Orientation of Greek Temples," and the number is concluded by a lecture by Prof. Rufus M. Jones on "Telepathy."

AN IMPROVED KEROSENE ENGINE.

The illustration represents a simple, safe and reliable engine, for which patents have been recently granted in the United States and several European countries. It is the invention of Carl W. Weiss, and is manufactured by August Mietz, of No. 87 Elizabeth Street, New York City. The basis of the explosive charge is supplied in liquid form, to be vaporized and mixed with the proper proportion of air in the engine, and a primary feature of the invention has been to produce an engine in which the fouling and clogging of the working parts so common in engines of this class shall be largely reduced, the entire construction, also, being exceedingly simple. A closed oil tank of a capacity of ten hours' run is screwed to the engine cylinder above the crank chamber, and from this tank, through a small copper tube, the kerosene is forced into the cylinder and then vaporized and mixed with the proper quantity of air, the speed being kept uniform under different loads by varying the number of kerosene injections, which is effected by means of a simple governor in connection with an eccentric on the main shaft, the quantity of each injection, however, remaining constant. In engines above ten horse power a variable charge governor is used. The water-jacketed working cylinder has an unjacketed explosive chamber in which the



THE MIETZ & WEISS KEROSENE ENGINE.

temperature is always so high that the engine is self-igniting after it has been started, the oil as it is fed from the nipple being caught by a blast of air entering from the compressor and blown in the form of spray against the heated surfaces, by which it is vaporized, at the same time that the necessary volume of air is furnished to form the explosive mixture. In running at full power, the explosion and impulse occur at each turn of the crank shaft, the cutting out of an injection by the governor, and consequent omission of an explosion, constituting a method of governing by which the consumption of oil is proportioned to the actual power developed by the engine. It is estimated that with kerosene at seven cents per gallon, this engine may be run at an average cost of ¾ cent per horse power per hour. It is silent and smooth running, and the inclosure of the crank shaft, and the absence of all gears, cams and shafts, obviate danger to inexperienced attendants. The engine is free from the smell usually so objectionable a feature of oil engines, and all the working parts are protected from dirt and dust.

Weather News by Trolley Car.

The distribution of news by means of the now ubiquitous trolley cars has already been attempted in various ways, and chiefly in the line of advertising, outside the car as well as inside. In some cases, enterprising stores have mounted their notices on the trolley poles, like sails or pennants. The idea has also been successfully carried out by putting little flags or signs on cars when the circus is in town or when the ice will bear in the parks. In some places the cars in bad winter weather have carried signals notifying public school children as to whether school will be open or not. Of somewhat the same nature is the plan now being carried out on the Akron, Bedford and Cleveland suburban trolley line of displaying weather signals, says The Electrical Engineer. The plan is for the local weather bureau to notify the road of the successive and prospective meteorological changes, and for the cars as they go out to mount the appropriate signal in the shape of a tin flag symbol. Steam railroads have already tried this useful plan, and it is evident that the trolley cars can be even more efficient as distributers of such news quickly over large local areas. Cars running out into rural districts will be specially serviceable in this way.