

Automobile News.

Apart from the desirability of obviating the danger which attends the use of the highly volatile petroleum spirit in oil engines for motor-car purposes, the question of the difference in cost of the heavy oils and the spirit is of quite sufficient importance to encourage inventors to persevere in the direction of producing an engine which can utilize ordinary lamp oils without causing a nuisance and without becoming clogged up by oleaginous deposits resulting from combustion. According to the Engineer, still another method is working at the Sheffield Technical College and elsewhere with good results. In this case a new type of carbureter—the Moorwood-Bennet—is used, in which the oil, and not the air, is heated, and the air is caused to percolate through the former. In this instance a residue remains in the carbureter, but is not allowed to enter the motor cylinder; thus the exhaust is free from vapor and odor. The residue can be discharged at intervals.

Automobile goggles are a hideous necessity, and are particularly obnoxious to women automobilists. In order to provide an effective guard for the eyes which will be somewhat more sightly than the usual contrivance, various expedients have been resorted to. Paper fans, or screen-like masks, with designs of neatly-drawn heads, have been proposed by one ingenious artist. But the specimens which he produced, although greatly admired, were too artistically impractical for the purpose of the chauffeur. Ladies found that the faces (portraits of Bernhardt, Rejane, Yvette Guilbert and other celebrities) were wonderfully attractive, but that they were by no means an adequate protection when the pace was fast and the dust flew up. Still another artist conceived the idea of using beaten silver masks representing the countenances of Greek goddesses. Although the faces of Artemis and Pallas were just as pleasing to look upon as those of French actresses, their weight was found to be unbearable. A milliner now comes along with a "creation" which springs, not from any artistic idea, but from a true appreciation of what is needed. He—for it is a man—has invented a mica veil perfectly transparent and yet absolutely dust and air proof. The veil is tied over the hat like the ordinary gauze fabric, and lends itself to manipulation just as readily. That the veil should sparkle and shimmer fantastically in the sunlight is by no means an objection.

M. Camille Jenatzy, a French automobile engineer, has devised a combination electric and petrol motor on the same vehicle. The system is economical and ingenious in its design. The apparatus comprises an internal combustion petrol engine, of which the flywheel on the crankshaft is replaced by a dynamo which acts as a flywheel at the same time as it sends current into a storage battery. The advantage claimed is that the petrol motor need only be of just sufficient power to propel the vehicle on the level at the highest desired speed, and that the energy stored in the battery can be utilized in the second (electric) motor when additional power is required. By this arrangement the petrol consumption is reduced by about 50 per cent. The car can be started by the electric motor, provided that a store of energy is present, and when the car is started the petrol engine can be thrown into gear. M. Camille Jenatzy, on a racing vehicle fitted with this electric-petrol combination motor, has covered a kilometer at the rate of 65 miles an hour, and has also made satisfactory trial with a public service omnibus weighing about five tons. Messrs. Lohner & Co., of Vienna, are also building automobiles propelled with electric-petrol motors, but which are entirely different in design from the Jenatzy apparatus. In the Lohner system an ordinary Daimler petrol engine drives a dynamo, which in turn operates electric motors on the hubs of the two front wheels. It is claimed that this arrangement gives a higher efficiency than the usual transmission through a change-speed gear. When full power is not wanted for immediate use, there is an arrangement by which part or all of the power of the engine may be diverted to storing energy in accumulators.

An exhibition is soon to be made on the Boulevard of this city of a new style of motor vehicle by Mr. C. L. Dorticus, lately perfected by him, which it is thought will be of special interest to automobilists, since it is an electric vehicle, without batteries, said to have a running limit of 150 miles without stop, and capable of being speeded anywhere from 5 to 30 miles an hour. This is at least three times the distance that any of the autocars now on the market are supposed to travel without having to stop to recharge batteries or replenish fuel. The inventor states that the operator of his machine can, after a delay of about ten minutes and the expenditure of a few cents at the most obscure country town, be ready to proceed another 150 miles. The new auto, it is stated, resembles a light runabout wagon in appearance, weighing altogether less than 800 pounds. There are said to be no gear wheels or chains visible or concealed in

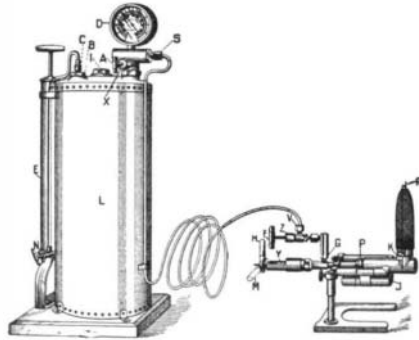
the whole make-up, and the running is noiseless and easy, the vehicle being under the perfect control of the operator at all times.

A NEW STEREOPTICON LIGHT.

The apparatus herewith illustrated is an improved form of a hydrocarbon burner in combination with a glow mantle of the Welsbach order, for the production, by the use of ordinary kerosene oil, of a brilliant white light particularly adapted for lantern illumination, as well as forming an artificial actinic light for photographic purposes. We are advised that it has lately been introduced by Williams, Brown & Earle, of Philadelphia, Pa.

The essential feature consists in vaporizing minute quantities of kerosene oil in a heated state under air pressure, which in mixing with air burns in the form of a gas and renders a mantle over the burner highly incandescent. The complete apparatus is quite light, easily set up and is readily put into operation.

The small air cylinder, *L*, carries at the bottom on the interior the kerosene oil (which should be of the best quality) under an air pressure of fifty pounds to the square inch, maintained when necessary by an attached bicycle pump, *E*. A small pressure gage, *D*, at the top registers the pressure. The oil is forced up by the air pressure through a tube extending in the interior to the bottom of the cylinder through a regulating valve, *X*, on the exterior and a very small spring coiled wire pipe to the burner, and the supply there is regulated by another valve, *F*. From this valve the oil passes through a hot tube at *P*, and is admitted by a needle opening further along in the form of a vapor to the concentric Bunsen burner located just to the front of *P* (not shown), which consuming part

**IMPROVED LANTERN HYDROCARBON-BURNER.**

of the vapor constantly keeps the tube hot; the rest continues to the main burner located under the mantle, *R*, at *K*, and burning the gas there renders the mantle incandescent. *Y* is the needler for the purpose of keeping the needle aperture clear.

To start the burner it is necessary to heat for a few minutes the vaporizing tube, *P*, which is done by igniting a small quantity of alcohol placed in the supplemental cistern, *J*, suspended underneath the vaporizing tube. Small inlet air tubes are arranged on each side of the inlet burner tube.

It will thus be seen that it is a very economical light to maintain.

Some English Bicycle Novelties.

The English Humber Company has brought out a novelty in the way of frame construction which it is hoped will attract buyers during the coming summer. It is a cross frame with double members in lieu of the lower main tube. This pattern is also shown with a spring attachment, the steering post working up and down inside a coil which is said to take up any vibration in the handle bars.

The Enfield Cycle Company has adopted a frame in which the ordinary diamond is stiffened by the use of extra tubes, one of which connects the bridge of the chain stays with the saddle pillar tube, while the other passes to the lower part of the head.

Searching for Baldwin.

A searching party is to be sent out to hunt for the Baldwin-Zeigler expedition. The steamer "Frithjof," which conveyed the Baldwin party to Franz Josef Land, has been chartered for the purpose. She will leave Tromsø on July 1, under the command of Capt. Kjeldson, her former captain. From Tromsø the "Frithjof" will go to Camp Zeigler, on Alger Island, 80 degrees 24 minutes north latitude. At this camp Baldwin's last instructions will be secured, after which the auxiliary expedition will proceed northward.

News of widespread desolation comes from Guatemala; all the towns, villages and plantations of the rich section of the country have been destroyed by earthquake. The loss of life is said to have been slight, owing to the easy means of escape offered by the low houses. The earthquakes are due to the activity of the Chingo volcano. Great damage was wrought in Solola, Santa Lucia, Nahuala and San Juan.

Electrical Notes.

At Stangfjorden, in Norway, a factory for the treatment of turf by electrical methods has been erected, and 400 kilowatts energy are now utilized in this manufacture. The process is patented by T. Jebson, and is dependent upon the use of the electric current for heating purposes, in specially designed retorts. The turf is first dried, and formed into blocks by pressure, the water contents in this way being reduced to 20 per cent. The dried blocks are then inclosed in the retorts, and heated to the requisite temperature by the internally placed resistance coils. A gas useful for heating and illuminating purposes is obtained, while a tarry liquid also distills over, which can be worked up for paraffine, ammonium sulphate, and methyl alcohol. The turf charcoal remaining in the retorts is a useful substitute for either wood charcoal or gas-coke. The electrical installation at Stangfjorden comprises five 128 horse power turbines, direct-coupled to five dynamos of equivalent size and capacity. The current from these is used for heating the retorts, while a separate turbine supplies the requisite mechanical power. The 12 retorts are designed to deal with 1,000 centners of air-dried turf per day.

A curious parallelism is presented between the well-known Hoepfner process for the extraction of copper from its ores and compounds, and a method just patented by Paul Bergsøe of Copenhagen for the electrolytic recovery of tin from scrap and waste alloys. The Hoepfner process, it will be recalled, depends upon the varying valence of copper, and consists in bringing a salt of copper in its higher state of oxidation into contact with the ore, whereupon copper passes into solution and the solvent is reduced from the cupric to the cuprous condition; this solution is then electrolyzed with insoluble anodes to deposit one-half of its metal, restoring the remainder to its original valence and reconstituting the solvent. Bergsøe reacts upon tin-bearing materials with stannic chloride, and subjects the stannous salt formed to electrolytic treatment as above, restoring its valence and solvent power, and recovering an amount of metal equivalent to that dissolved. Both methods are simple, and indeed identical in theory. The Hoepfner process has encountered in practice the very serious obstacle of a low reaction velocity—a solvent action so slow as to render its application to the most commonly occurring ores of copper, the sulphides, of doubtful practicability. From this defect the new process is free, for the stannic salts are energetic solvents. The successful treatment of tin scrap, however, has proven in the past a difficult problem, not only on account of its very low tin content, but because of the tendency of the iron to pass with the tin into solution. As applied to this purpose, therefore, the value of the new process is to be demonstrated.—*Electrical World.*

The conversion of the Mersey Tunnel Railroad to electric traction, by the British Westinghouse Electric and Manufacturing Company, Limited, is rapidly approaching completion. This railroad, upon which at present steam traction is utilized, has never been a paying concern and has passed through many vicissitudes. Yet the traffic over the railroad is sufficiently heavy to render it remunerative, and it is anticipated that by the utilization of the more economical electric system of haulage this end will be attained. The present steam traction, which necessitates the provision of an elaborate system of ventilation, is so abnormally expensive that there is no possibility of any profit being made. The Westinghouse Company, convinced that the railroad would pay if electricity were adopted, approached the directors of the company and offered to effect the necessary conversion at a cost of approximately \$3,175,000. The railroad is being reconstructed upon the third-rail system, the current rail being laid in the center of the existing track. The Board of Trade, however, have insisted that the track rails shall not be utilized for the return current, as is generally the case, so a fourth rail is being laid outside the track. The necessary conversion is being carried out without interfering with the traffic, the third and fourth rails being laid at night, during the suspension of traffic. The current is being conveyed from the generating station to the tunnel by means of huge cables. The rolling stock is to be similar to that at present in use upon the Central London Electric Railroad. A large generating station is being erected at the Birkenhead terminus of the line. It is an imposing building of brick with stone facings, and is 145 feet in length by 135 feet in breadth and 74 feet high. It is divided into two departments, the generating and boiler houses, respectively. The station is now ready for the reception of the generating plant and machinery, which are being manufactured at the Pittsburg works of the Westinghouse Company of this country. There will be three generators of 600 kilowatts each, and two of 200 kilowatts each, capacity, the necessary steam power being supplied from nine Stirling boilers. The trains will be run with a voltage of 550, the same as that by which the electric cars in Liverpool Street are propelled.