

NEW IN-BUILT ELECTRIC MOTOR WHEELS FOR AUTOS.

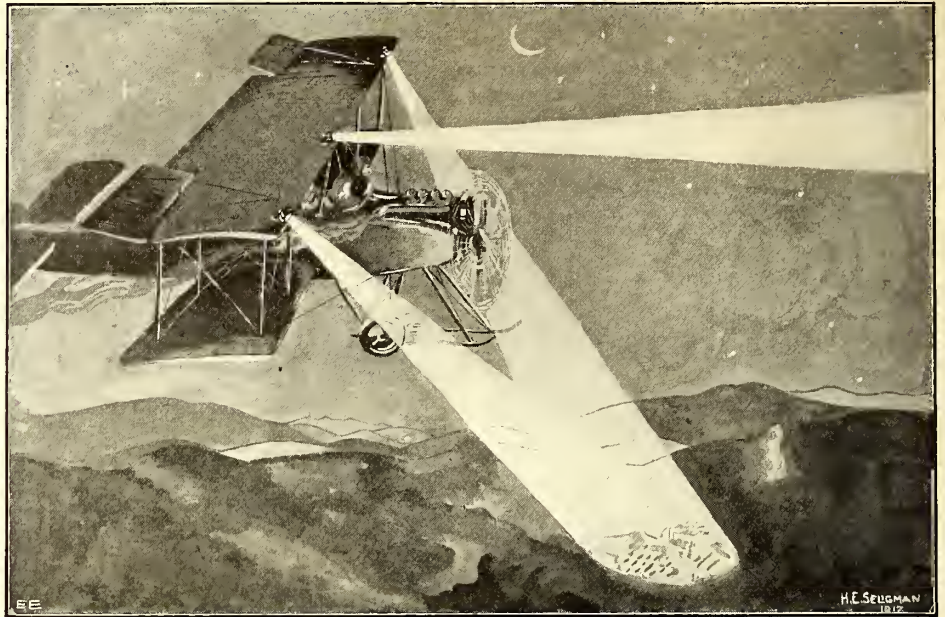
The average, and in fact most all gasoline auto trucks, drive thru their two rear wheels. However it has been found that when the total weight is evenly distributed over all of the drivers that a maximum tractive effort is attained. An example of this principle is seen in the design of modern locomotives. One of the four-wheel drive and steer designs which has been adapted to use on trucks for loads from three to ten tons makes use of four electric motors, which are ingeniously slung in the wheels themselves. The accompanying illustration shows the method of locating the motor between the two concave disks which serve as spokes and motor guard at once. On the opposite ends of the motor are two gears, alike and equidistant from the center or pivoting point of the motor. One of these pinions meshes in one of the big gears carried at the periphery of the large disks, and the other, on the opposite side, with the other gear on the second disk. It is thus evident that, as the motor revolves, one pinion *pushes down* on one gear as the other *pulls up* on the second gear, thus equalizing the strain and distributing the pulling effort evenly. The wires carrying current to the motor are brought in thru the axle and thus are thoroly protected. Hand holes are provided in the disks to permit access to the motors but they are so designed that they will run under very difficult conditions without overheating or developing other motor troubles. Each motor has a rating of three horsepower with an overload capability of 200 per cent, giving the truck a possible horsepower of 36 in an emergency—and of this amount 97 per cent, or approximately 35 horsepower, is delivered to the wheels at a point where it will do the most good—at the rim.

With the motive power thus direct geared to the wheel, with a 25 to 1 gear ratio, there is no transmission to contend with, and the problem of steering with all four wheels is simply a matter of linking steering arms so that all four wheels are controlled by the steering wheel, as all four wheels are mounted on swivels with the power wires leading in thru the spindles. The four-wheel steer gives a much shorter turning radius than it is possible to obtain with a front-wheel steer, and thus gives the truck greater mobility on crowded or narrow streets. The electric motors thus fitted to the wheels may be energized by storage batteries; an efficient method when the daily run

Night Flying Now Made Possible

To reduce the dangers of night flying the Sperry Gyroscope Company has perfected a lighting outfit, to be carried in addition to the full equipment of automatic control devices, safety appliances and other in-

knob, which is placed within easy reach of the pilot's hands. This device may be used as a means of signaling, and the lights can be made to focus on any given point, when the pilot is ready to make his landing.



Lawrence Sperry, the Well-Known Inventor of the Automatic Aeroplane Stabilizer, Has Recently Accomplished Some Excellent Night Flying by the Aid of Three Powerful Electric Searchlights. These Proved Invaluable in Selecting a Landing Spot.

struments to insure the pilot a sufficient amount of safety. Three 50 candlepower searchlights are attached to a special fitting on the upper entering edge of the biplane which Mr. Lawrence Sperry has been using in night flying experiments at Amityville, L.I., for the past few months.

The searchlights are mounted in parabolic reflectors which, it is claimed, increase the candlepower to 40,000 for each lamp. The fitting which secures the lamps to the upper plane is designed so that it can be tilted in the vertical plane by turning a

The electric current is supplied by a generator of 150 watts capacity, which is driven by the air pressure at approximately 4,000 revolutions per minute. A storage battery is provided which is automatically thrown into circuit, in case of an accident to the generator.

The machine Mr. Sperry has been using is also equip with the Sperry automatic pilot and synchronized drift indicator. This drift set was of great advantage to Mr. Victor Carlstrom in his flight from Chicago to New York.—*William Shannon.*

which the current necessary for the four motor wheels is supplied thru a drum type controller. It has been found practicable to install two of these motor wheels on the front axle of an ordinary truck or wagon, supplying current from a storage battery. The rear wheels are the regular truck or wagon wheels. The superior flexibility of such a drive system is apparent.

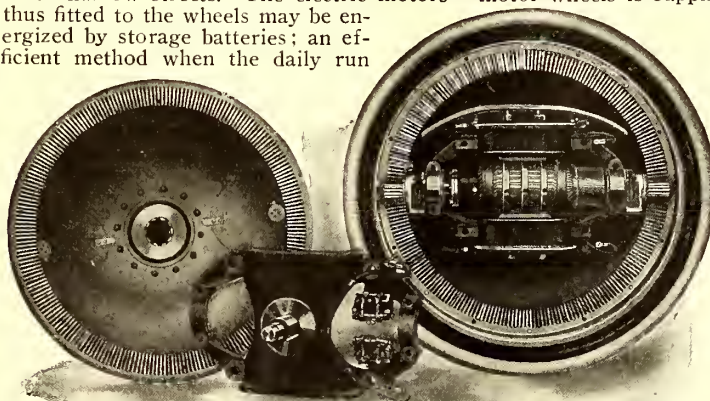
What is reported to be the largest Pelton water wheel constructed in England has been built by James Gordon & Company, British manufacturers, for the Kinlochleven station of the British Aluminium Company. It develops 3,500 H.P.

A.I.E.E. HOLDS MIDWINTER CONVENTION.

The midwinter convention of the American Institute of Electrical Engineers, lasting three days, was held in the Engineering Societies Building, 33 West Thirty-ninth Street, New York City, on Wednesday, Thursday and Friday, February 14, 15 and 16, 1917.

The convention opened Wednesday morning at ten-thirty and technical sessions were held each day. Wednesday's papers dealt with protective devices and the heating and temperature of generators. On Thursday three papers on electrophysics were presented at the morning session, and a lecture was given in the evening by Professor R. A. Millikan on "Modern Physics." Friday's sessions were devoted to the subject of a-c. and d-c. motor control. Thursday afternoon was set aside for a number of inspection trips to points of engineering interest in New York and vicinity.

The convention closed with a subscription dinner-dance at the Hotel Astor, New York, on February sixteenth. A large gathering attended the dinner-dance, which was greatly enjoyed by all.



Power Wheel of the Gas-Electric Motor Truck. Illustration Shows Front Disk and Side of Motor Removed Giving Ready Access to All of the Moving Parts.

does not exceed 40 or 50 miles.

In some cases a gasoline engine is direct connected to a suitable dynamo (allowing the engine to run at constant speed) from

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DATE OF ISSUE.—As many of our readers have recently become unduly agitated as to when they could obtain THE ELECTRICAL EXPERIMENTER, we wish to state that the newsstands have the journal on sale between the fifteenth and the eighteenth of the month in the eastern part of the United States and about the twentieth of the month west of the Mississippi River. Our subscribers should be in possession of their copies at these dates. Kindly bear in mind however, that publications are not handled with the same dispatch by the Post Office as a letter. For this reason delays are frequent, therefore kindly be patient and do not send us complaints as to non-arrival of your copy before the twenty-fifth of the month.