

# Searchlights and Radio Aid European Warriors

## GERMAN SEARCHLIGHT THROWS BEAM EIGHT MILES.

The German military authorities, with proverbial thoroughness, have appropriated every branch of science available for the

difficult to make effective use of this arm of the military service at night.

In the illustration herewith a German officer is making observations by means of one of their extremely efficient searchlights

poles, wires, tent, blankets and other paraphernalia for camping, thereby making each group of the service independent of tall trees and houses on which the field wireless formerly relied for temporary headquarters.

The wireless camp resembles somewhat a battery of field artillery in its plan, having essentially one motorcycle unit which hauls the wireless sending and receiving equipment either in a side carriage or trailer, corresponding to the field piece, and another motorcycle hauling the service van, corresponding to the ammunition caisson. Having two machines in each set, the service consequently embraces 10 motorcycles and vans. The wireless operator rides behind the driver of the motorcycle on a spring tandem seat.

Power for the wireless station is furnished by a  $5\frac{1}{2}$  horse-power twin cylinder engine, set up in one compartment of the van, which drives by direct chain drive a small two-in-one receiving and sending electric generator. The varying speeds at which the engine or generator may revolve are transmitted through a direct-drive chain, running on a compensating sprocket at the shaft of the generator, which insures smooth running. On its sending side the generator develops 700 volts, 2.6 amperes, being capable of sending a message nearly 500 miles by wireless, and on the receiving side 110 volts, 2.7 amperes for the audions. The operator's instruments are in the forward compartment of the van and when a halt is made, to set up communications, he removes the keyboard some distance from the power plant in order to hear better. He regulates the power of the engine by magnetic control of the throttle. Starting of the engine is accomplished by turning over a hand lever.

A supply of gasoline sufficient for 12 to 24 hours' continuous operation of the plant may be carried in the regular tank and three reserve tanks. The capacity of the



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A Powerful German Army Searchlight in Action at Night in the Famous Flanders Region.

most expeditious conduct of scientific warfare, both on land and sea. This is exemplified in a marked manner by their very extensive employment of powerful electric searchlights, which are kept continually flashing through the night atmosphere in search of the enemy.

The searchlights are often used in groups of considerable numbers when a night attack is to be made by infantry or trenches are to be stormed. In other cases they prove extremely valuable to the artillery range finders, as otherwise it is often very

recently developed for use in the famous Flanders region, which extends for miles. It is possible for these searchlights to throw a strong beam *eight miles* away, even on cloudy nights.

## A WIRELESS MOTORCYCLE FIELD STATION.

A number of "Indian" motorcycle wire-

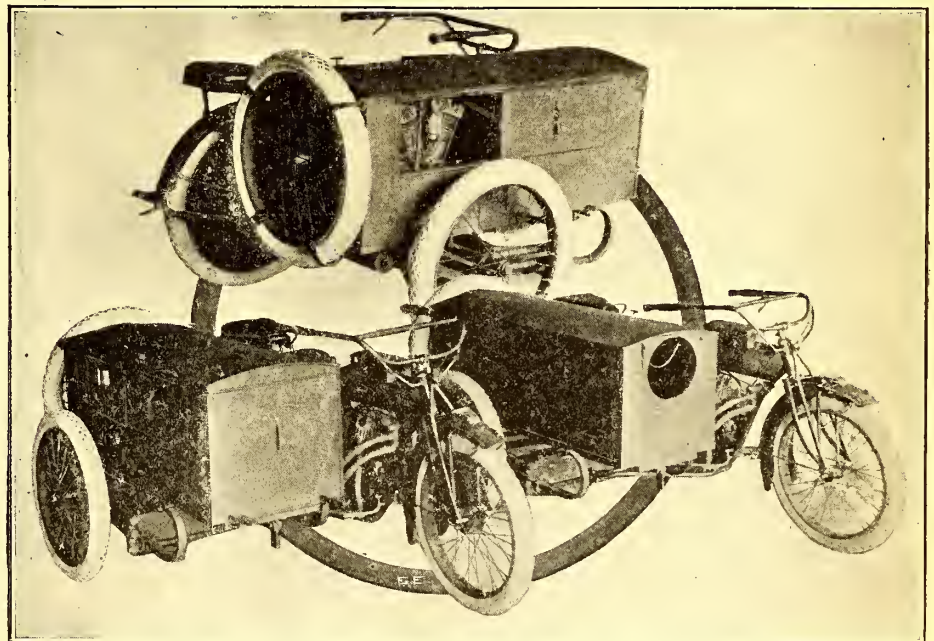
## ELECTRICALLY HEATED UNIFORMS NOW.

Austrian soldiers will not suffer from cold weather if the electrically heated garments which have just been invented by the professor of electricity at Innsbruck University prove feasible. The essential feature of the professor's invention, according to the Austrian newspapers, is a method of weaving electric heating threads into soldiers' pants and coats and then connecting the threads with a battery or supply wire at a distance of from 100 yards to a quarter of a mile. It is asserted that the current can be regulated so that any number of soldiers in the trenches can be kept warm simultaneously.

## EDISON OPENS ELECTRIC SCHOOL.

An experimental school of electricity for the officers and men of the United States navy has been opened at Orange, N. J., by Thomas A. Edison, chairman of the Naval Advisory Board, acting in co-operation with Secretary Daniels. The men of the submarine flotilla who have to do with complicated electrical equipment will receive their training first.

Fourteen officers and 30 men from Quincy, Mass., and the New York navy yard recently finished a course.



Type of Motor-Cycle Radio Pack Sets Now Being Built for Rapid Transit Over Battlefields.

less stations, which may be moved at will from point to point, have just been completed at Springfield, Mass. Besides the original instrument van and the machine to haul it, an additional feature is another motorcycle and van which serves to carry

gasoline tank on the motorcycle is sufficient for 100 miles of travel.

The weight of motorcycle and wireless van is about 1,176 pounds. The box is  $4\frac{1}{2}$  feet long,  $21\frac{1}{2}$  inches wide and 20 inches deep.