

## UNITED STATES PATENT OFFICE.

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ENGINE STARTING, LIGHTING, AND IGNITION SYSTEM.

1,171,055.

Specification of Letters Patent.

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What is claimed is as follows:

In a device of the character described, the combination with an engine, of a storage battery; electrical power transmitting devices interposed between the engine and battery and having dual characteristics to translate the electric power of the battery into mechanical power to start the engine and to translate the mechanical power of the running engine into electric current for storage back into the common battery; two sets of gearing connecting the said electric devices and said engine, one set for cranking the engine at high leverage and the second set for driving by the engine for charging; and two separate circuit connections between said electrical devices and the battery, having provisions associated with the first for taking high wattage current from the battery to crank the motor through said high leverage gearing, and with the second circuit for delivering low wattage current to charge the battery by using said second set of gearing.

In a system of the character described, the combination with an internal combustion engine, of a lighting system therefor including electric lamps adapted for relatively low voltage current; a storage battery connected with said lighting system; electrical connections connected with said battery; a high leverage gearing connected with said engine; a lower leverage gearing connected with said engine; and means including electrical power-transmitting devices connected with said gearing and said electrical battery connections for translating relatively high wattage current from said battery into mechanical power applied to said engine through the high ratio gearing to start the engine, and for translating power derived from the engine through the lower ratio gearing, to charge said storage battery with current of lower wattage and of substantially the same voltage as that of the lighting system.

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Automobile Lighting and Battery Charging System
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