

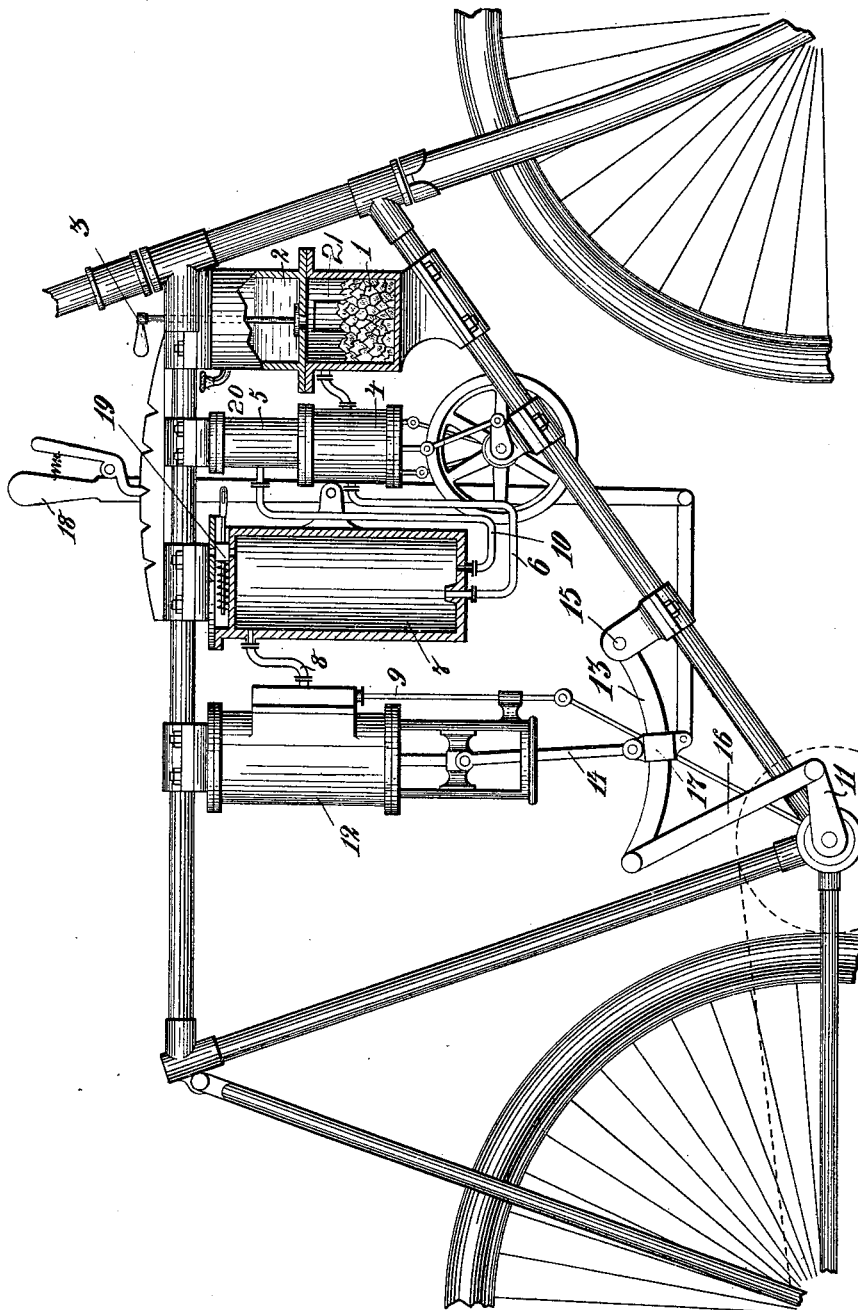
No. 646,033.

Patented Mar. 27, 1900.

C. H. OFFEN.
ACETYLENE MOTOR FOR CYCLES.

(Application filed Feb. 1, 1899.)

(No Model.)



Witnesses
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UNITED STATES PATENT OFFICE.

CARL HEINRICH OFFEN, OF LEMSAHL, GERMANY.

ACETYLENE-MOTOR FOR CYCLES.

SPECIFICATION forming part of Letters Patent No. 646,033, dated March 27, 1900.

Application filed February 1, 1899. Serial No. 704,121. (No model.)

To all whom it may concern:

Be it known that I, CARL HEINRICH OFFEN, merchant, a subject of the Emperor of Germany, residing at Lemsahl, in the Kingdom of Prussia, Empire of Germany, have invented certain new and useful Improvements in Acetylene-Motors for Cycles, of which the following is a full, clear, and exact description.

The object of the present invention is a motor apparatus for cycles and similar vehicles in which acetylene is employed to produce the motive power.

The object of the invention is illustrated in the accompanying drawing, partly in section.

15 The apparatus consists of a strong vessel 1 of suitable material and size to serve as a receptacle for the calcium carbide to generate the acetylene gas. Above this vessel and fitting closely to it is a further vessel 2, which 20 contains water. The flow of this water, which by means of a special contrivance only takes place drop by drop, is regulated from above by means of a valve worked by the handle 3. By the flow of the water into the vessel 1— 25 *i. e.*, onto the carbide—the necessary acetylene gas for working the motor is generated. Water is admitted to the vessel 12 through the spout 20, and a door 21 of any ordinary construction is provided for the calcium-carbide 30 receptacle.

The motor 4 is set in motion by the acetylene generated, the piston-rod of this motor being prolonged upward for working the air-pump 5, which supplies air for working the 35 main motor 12.

The gas used in the motor 4 passes through the tube 6 into the explosion vessel 7, which has very stout walls. From this the gas at a high pressure, occasioned by continuous explosions, passes into the main motor 12, the 40 valve mechanism of which is arranged in any convenient method—*e. g.*, the slide-valve 9. Into the vessel 7 air which is forced in by the pump 5 passes by means of the tube 10, as 45 well as the gas which enters through the tube

6, and the resulting mixture of gases is continuously ignited. The pressure resulting from this, as before mentioned, is used for working the main motor 12 by means of a suitable system of valves, while the power produced is transmitted by means of long lever-arms to the crank, if of the cycle. To effect 50 this, the single-arm lever 13 is fixed to the cycle-frame by a suitable clamp. This is worked by piston-rod and the connecting-rod 14 on 55 the pin 15 and transmits its motion through the connecting-rod 16 to the crank 11. By altering the position of the connecting-link 17 on the lever 13 the throw of the motor 12 can be adjusted. All the vessels and motors 60 are provided with the usual safety contrivances, especially safety-valves, to render bursting from high pressure impossible.

The motor is started by the lever 18, which remains in its proper notch when the cycle is 65 out of use. The cycle is set in motion in the ordinary way by this lever, the ignition-valve 19 being opened by it and the mixture of gases in the vessel 7 ignited.

An incandescent tube (not shown) of ordinary construction is provided at the top of 70 the vessel 7.

What I claim, and desire to secure by Letters Patent, is—

In an acetylene-motor, a gas-generator, a 75 motor operated by the gas from the generator, an air-pump piston on the extended end of the piston-rod of the motor, an explosion-chamber connected with the air-pump and with the exhaust of the motor-cylinder, a 80 main motor driven by the pressure from the explosion-chamber and connection from the main motor to the driving mechanism of the vehicle, as and for the purpose described.

In witness whereof I subscribe my signature in presence of two witnesses. 85

CARL HEINRICH OFFEN.

Witnesses:

CARL SCHEINBERGER,
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