No. 867,648. PATENTED OCT. 8, 1907.

K. F. ERICKSEN.

MOTOR.

APPLICATION FILED APR. 12, 1905.

3 SHEETS—SHEET 1.

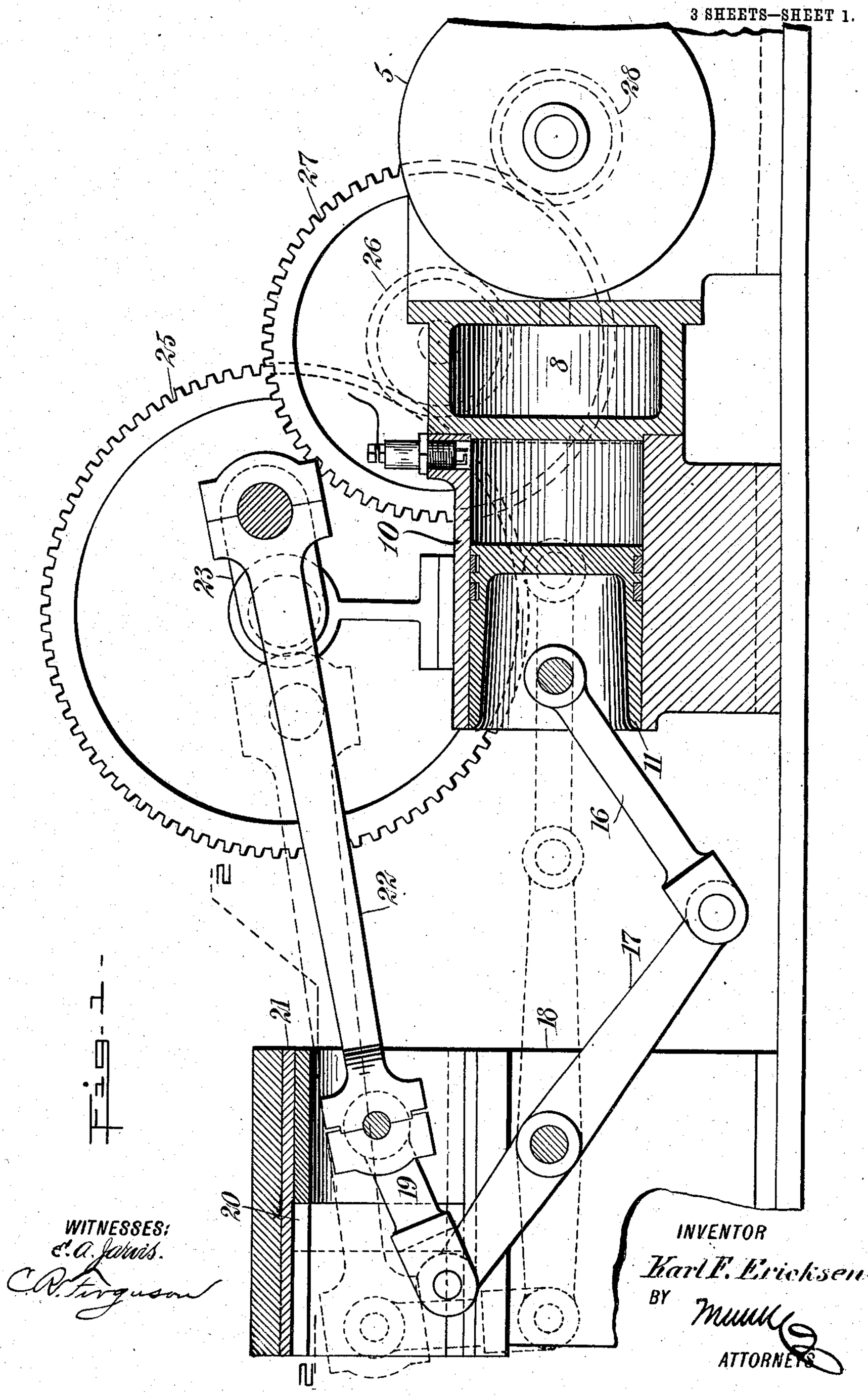

Fig. 1.

WITNESSES:
C. A. Jarvis.
C. R. Ferguson

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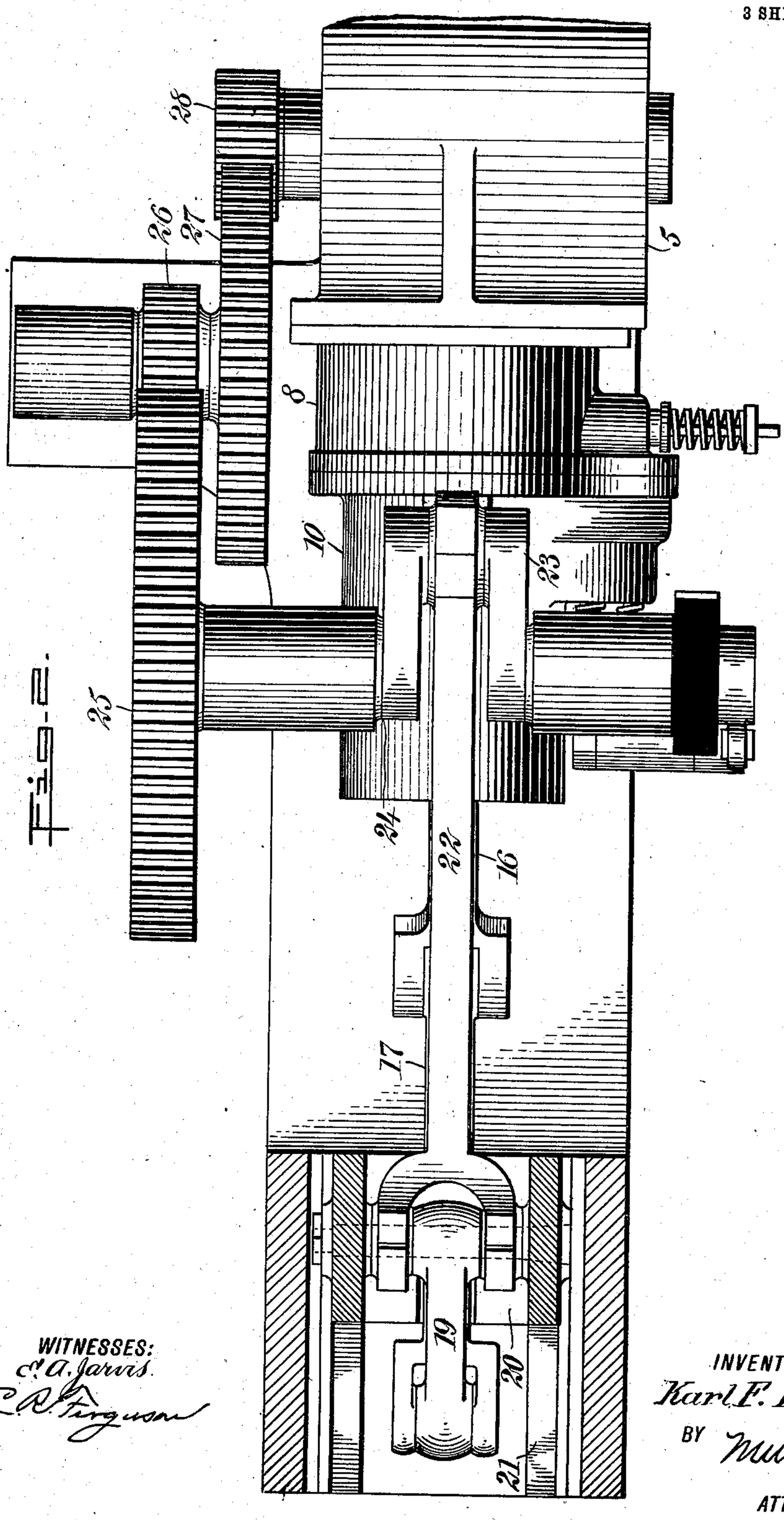
3 SHEETS—SHEET 2.

Fig. 2.



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3 SHEETS—SHEET 3.

Fig. 3.

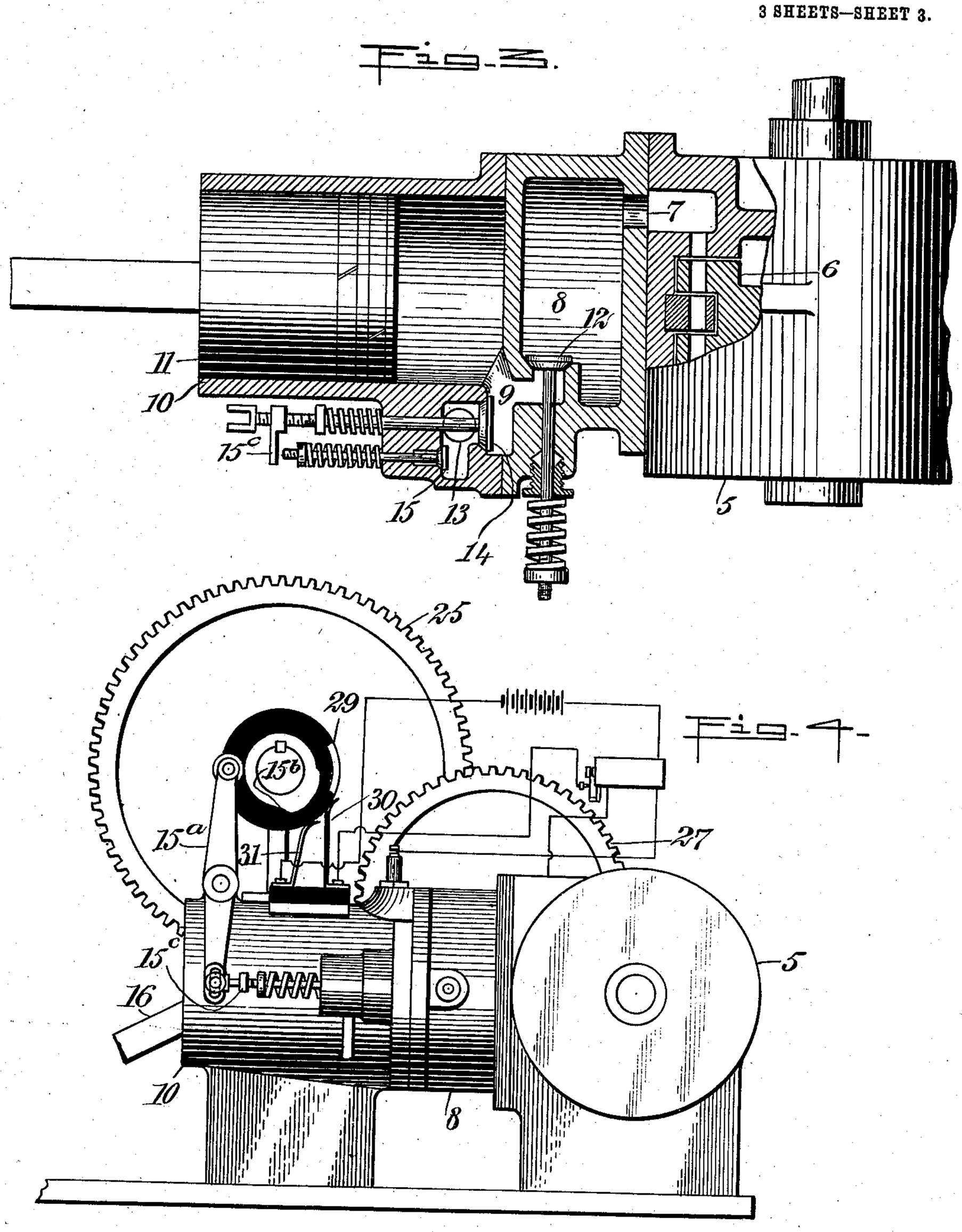

Fig. 4.

WITNESSES:
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UNITED STATES PATENT OFFICE.

KARL FREDRIK ERICKSEN, OF NEW YORK, N. Y.

MOTOR.

No. 867,648. Specification of Letters Patent. Patented Oct. 8, 1907.

Application filed April 12, 1906. Serial No. 255,122.

To all whom it may concern:

Be it known that I, KARL F. ERICKSEN, a citizen of the United States, and a resident of the city of New York, borough of Brooklyn, in the county of Kings and State of New York, have invented a new and Improved Motor, of which the following is a full, clear, and exact description.

This invention relates particularly to improvements in internal combustion motors or engines of the class in which an explosive fuel operates on a turbine, the object being to provide a motor in which the turbine is rotated by fuels under high compression, ignition and expansion.

Other objects of the invention will appear in the general description.

I will describe a motor embodying my invention, and then point out the novel features in the appended claims.

Reference is to be had to the accompanying drawings forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a sectional elevation of a motor embodying my invention; Fig. 2 is a plan thereof partly in section on the line 2—2 of Fig. 1; Fig. 3 is a section showing the valve mechanism; and Fig. 4 is a side elevation.

Referring to the drawings, 5 designates a cylinder in which the turbine 6 of any desired construction operates. Attached to the cylinder and having a port communication 7 therewith is a chamber 8 having a port connection 9 with a piston cylinder 10 in which a compression piston 11 is movable. The inlet of fuels from the piston cylinder to the chamber 8 is controlled by a valve 12 operated by any desired means. Air is admitted to the inner end of the piston 11 through a pipe 13, and the admission is controlled by a valve 14, and the admission of fuel for mixing with the air is controlled by a valve 15, and the valves are operated, as here shown, by a lever 15^a actuated by a cam 15^b, the said lever being attached to the stem of the valve 14 which carries a finger 15^c for engaging with the stem of the valve 15.

Pivotally connected to the piston 11 is a link 16 which connects with a lever 17 fulcrumed on a standard 18, and above its fulcrum point, the said lever has connected to it a link 19 which is also pivotally connected to a cross head 20, movable in a guide 21, and from this cross head 20, a pitman 22 extends to a connection with a crank 23 on a crank shaft 24 attached to which is a gear wheel 25, meshing with a pinion 26, and on the shaft of this pinion 26 is a gear wheel 27 engaging with a pinion 28 on the shaft of the turbine.

In the operation, when the piston 11 travels on its outward stroke, it draws in fuel, and on its inward stroke the charge is compressed until the piston reaches nearly to the end of its inward stroke in gradually diminishing speed. Shortly after the explosion takes place the piston is momentarily at a stop, and the link 16 and lever are in a straight line as indicated by dotted lines in Fig. 1, and thus the piston is thoroughly compressed to form an abutment for the impact of the discharge. Upon the ignition of the mixed fuel the valve 12 is opened, and the fuel passes into the chamber 8 and thence to the turbine. The fuel expands in the chamber 8 at a comparatively low temperature and pressure. After the explosion the piston moves outward and a new charge is drawn in as before mentioned ready for compression.

In securing the very slow speed of the piston, imparted by the links and lever as said piston approaches its inner position, it is possible to ignite the charge before the piston reaches the end of its inner stroke. This will permit the piston to go to the end of the cylinder and leave practically no burned fuel in the cylinder to mix with the new charge.

In Fig. 4 I have indicated a means for causing ignition. This means consists of a rotary part 29 designed to close an electric circuit through the medium of the spring contacts 30, 31, having connection with a sparking device of any desired construction.

Having thus described my invention, I claim as new and desire to secure by Letters Patent,—

1. In a motor operated by explosive fuel, a cylinder, a piston, an outlet valve for controlling the passage of exploded fuel, a rocking lever, a link connection between one end of said lever and the piston, a reciprocating crosshead, a link connection between the crosshead and the opposite end of said lever, a crank shaft, a connection between the crank of said shaft and the crosshead and means for operating the crank shaft.

2. In a motor operated by explosive fuels, a piston cylinder, a piston, an outlet valve for exploded fuels, a rocking lever, a link connection between one end of lever and piston, a reciprocating crosshead, a link connection between the crosshead and the opposite end of said lever, a crank shaft, a connection between crank of said shaft and cross-head, a turbine and a shaft operated from the turbine.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

KARL FREDRIK ERICKSEN.

Witnesses:

J. W. DANIELSON,

J. I. ISAKSEN.