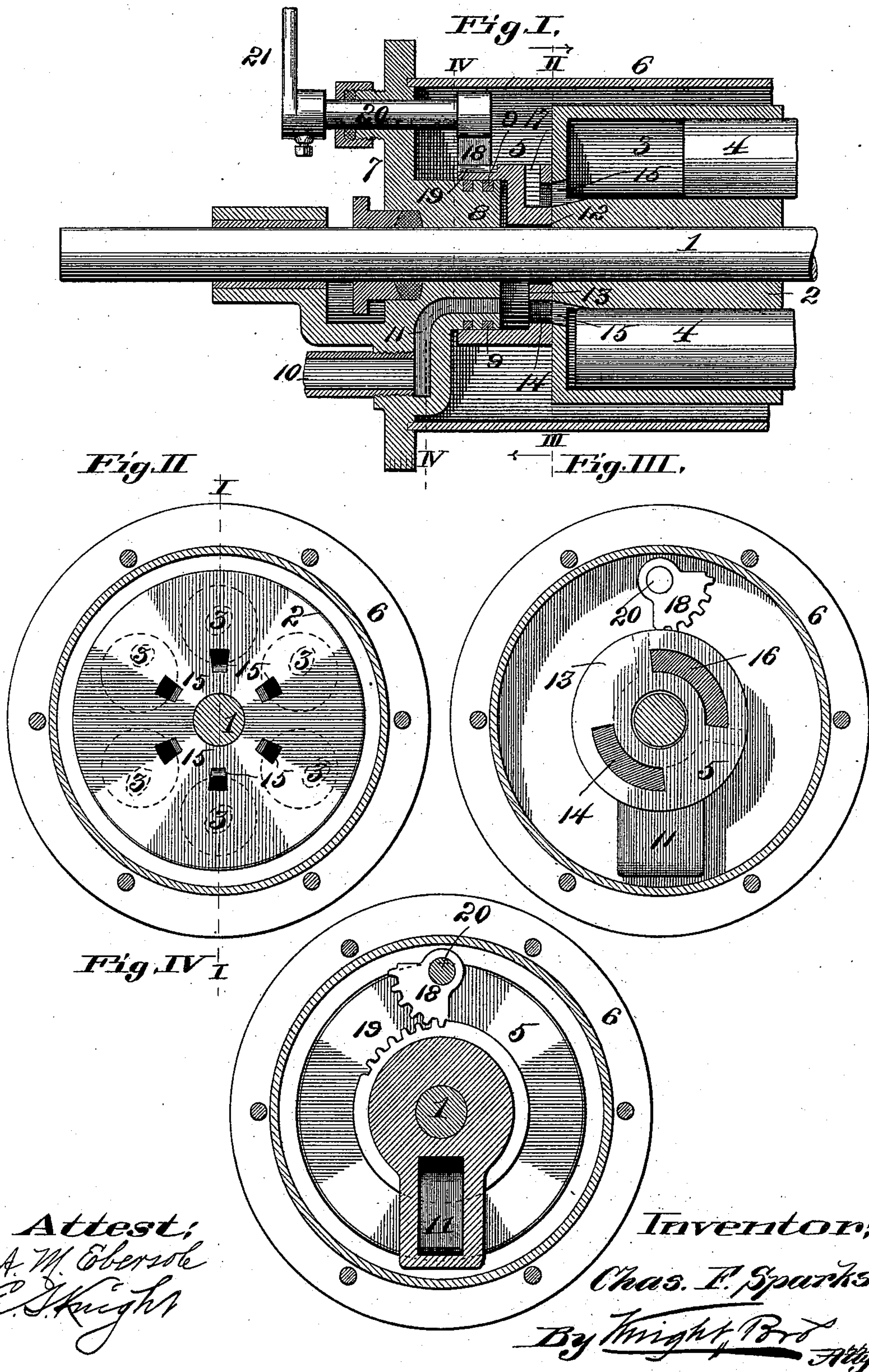


(No Model.)

C. F. SPARKS.
ENGINE.

No. 528,818.

Patented Nov. 6, 1894.



Attest;
A. M. Ebersole
E. J. Knight

Inventor;
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By Knight, Brod & Atty.

UNITED STATES PATENT OFFICE.

CHARLES F. SPARKS, OF ALTON, ILLINOIS.

ENGINE.

SPECIFICATION forming part of Letters Patent No. 528,818, dated November 6, 1894.

Application filed June 6, 1894. Serial No. 513,669. (No model.)

To all whom it may concern:

Be it known that I, CHARLES F. SPARKS, of Alton, in the county of Madison and State of Illinois, have invented a certain new and useful Improvement in Engines, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

My invention relates to certain improvements in combined, reciprocating and rotary engines; and my invention consists in features of novelty hereinafter fully described and pointed out in the claims.

Figure 1 is a detail, longitudinal section, illustrative of my invention, and taken on line I—I, Fig. II. Fig. II is a transverse section, taken on line II—III, Fig. I, and looking in the direction of the arrow at the upper end of the section line. Fig. III is a similar view, looking in the direction of the arrow at the lower end of the section line. Fig. IV is a transverse section, taken on line IV—IV, Fig. I, and looking toward the pistons of the engine.

Referring to the drawings, 1 represents the shaft upon which the parts are mounted.

2 represents a cylinder secured to and supported on the shaft 1, and provided with a number of chambers or bores 3, in which the pistons 4 fit and work. I have shown the cylinder provided with six chambers, in each of which there is a piston 4. The pistons are designed to bear upon an inclined face or disk, and as they do so, the cylinder will revolve, and motion thus imparted to the object to be driven. This, broadly considered, being old, and forming no part of my present invention, I have not shown the inclined bearing surface for the pistons, but have limited the drawings to the valve arrangement, to which my present invention relates.

5 represents the valve, which with the cylinder and piston is inclosed by a housing or casing 6, having a head 7, on the internal hub or stem 8 of which the valve is mounted, with a packing ring joint 9 between the valve and the hub. The valve is chambered out so as to fit over the hub, as shown in Fig. I.

10 is the steam supply pipe, communicating with the valve 5, through means of a port or passage 11, formed in the head 7 and hub 8. The shaft 1 passes through the valve 5, and the opening 12 in the valve, through which the shaft passes, is somewhat larger than the diameter of the shaft, so that should the shaft be moved out of alignment, it will not affect the valve by coming in contact with it, the valve remaining in true position on the hub 8. The port 11 communicates with a chamber 13 in the valve 5, and with this chamber communicates a live steam port 14, which is preferably of sufficient length to communicate at one time with two of the passages 15 leading to the chambers 3 of the cylinder.

Opposite the port 14 in the valve, is an exhaust port 16, leading to the space between the cylinder and the housing 6, as shown at 17, Fig. I, and thus permitting the steam or air to exhaust from the chambers 3 to the open air. It will thus be seen that as the cylinder 2 revolves, the chambers 3 will be brought, one after the other, into communication with the live steam port 14 of the valve, and in communication with the exhaust port 16 of the valve, while the valve itself is supported on the head 7 of the engine, where it is not likely to be forced out of its true position.

For the purpose of reversing the engine, the valve 5 may be turned by a segment 18, engaging a rack 19 on the valve, and which is mounted on a shaft 20, provided with a crank or handle 21.

I claim as my invention—

1. In an engine, the combination of a revolving cylinder, containing reciprocating pistons, a valve having supply and exhaust ports, and a head 7 having a hub 8 over which the chambered valve fits; substantially as and for the purpose set forth.

2. In an engine, the combination of a shaft 1, a revolving cylinder located on the shaft, reciprocating pistons contained in the cylinder, a valve 5 having a shaft opening 12 larger than the diameter of the shaft, a head 7 having a hub 8, over which the valve fits,

a segment 18 engaging the rack on the valve, and means for turning the segment; substantially as and for the purpose set forth.

3. In an engine, the combination of a shaft,
5 a revolving cylinder located on the shaft and containing reciprocating pistons, a valve having supply and exhaust ports and a shaft-opening larger than the diameter of the shaft,

and a head 7 having a hub 8 over which the valve fits, substantially as and for the purpose set forth. 10

C. F. SPARKS.

In presence of—

A. M. EBERSOLE,
E. S. KNIGHT.