

No. 843,384.

PATENTED FEB. 5, 1907.

A. S. BARNES.
ENGINE.

APPLICATION FILED FEB. 16, 1906.

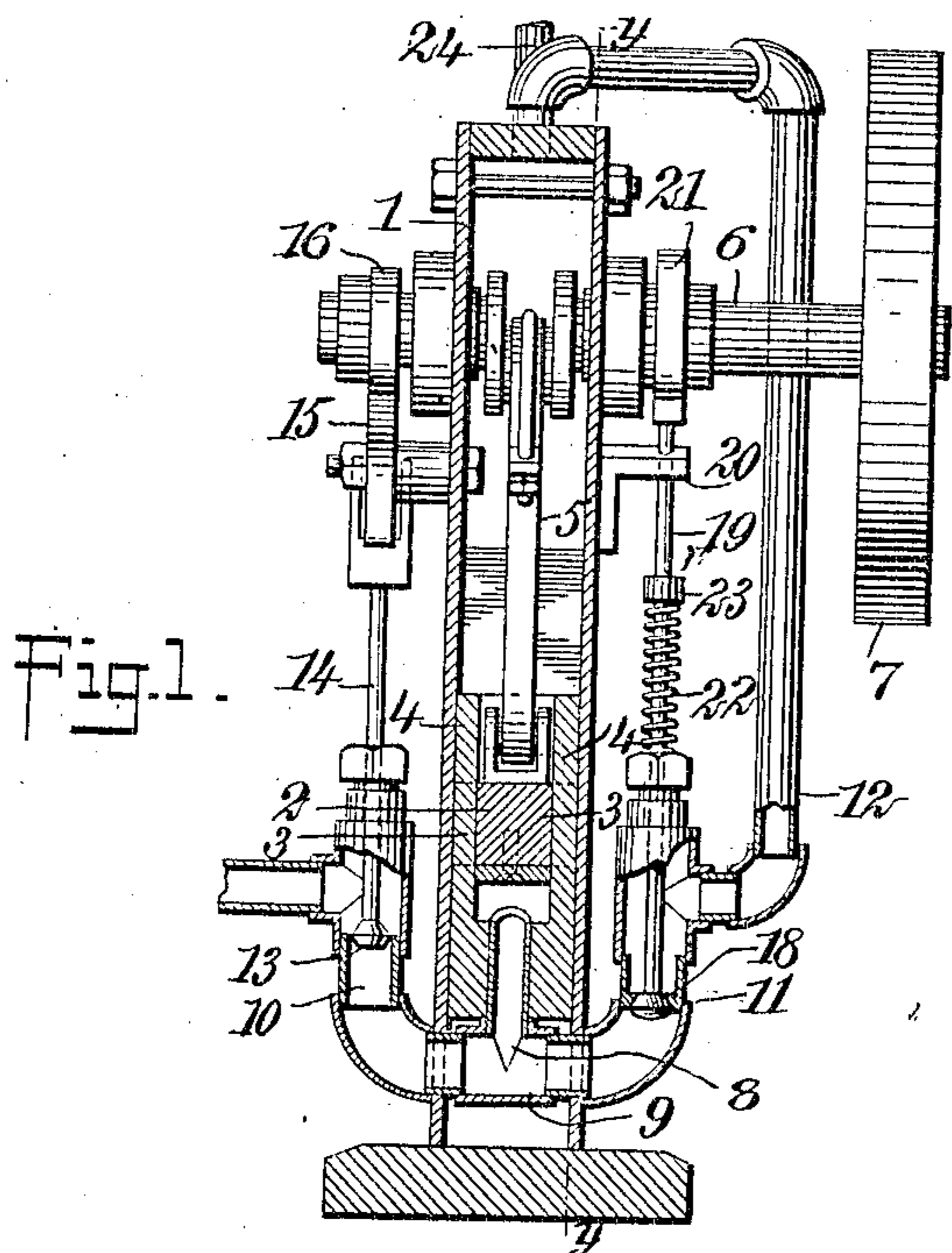


Fig. 1.

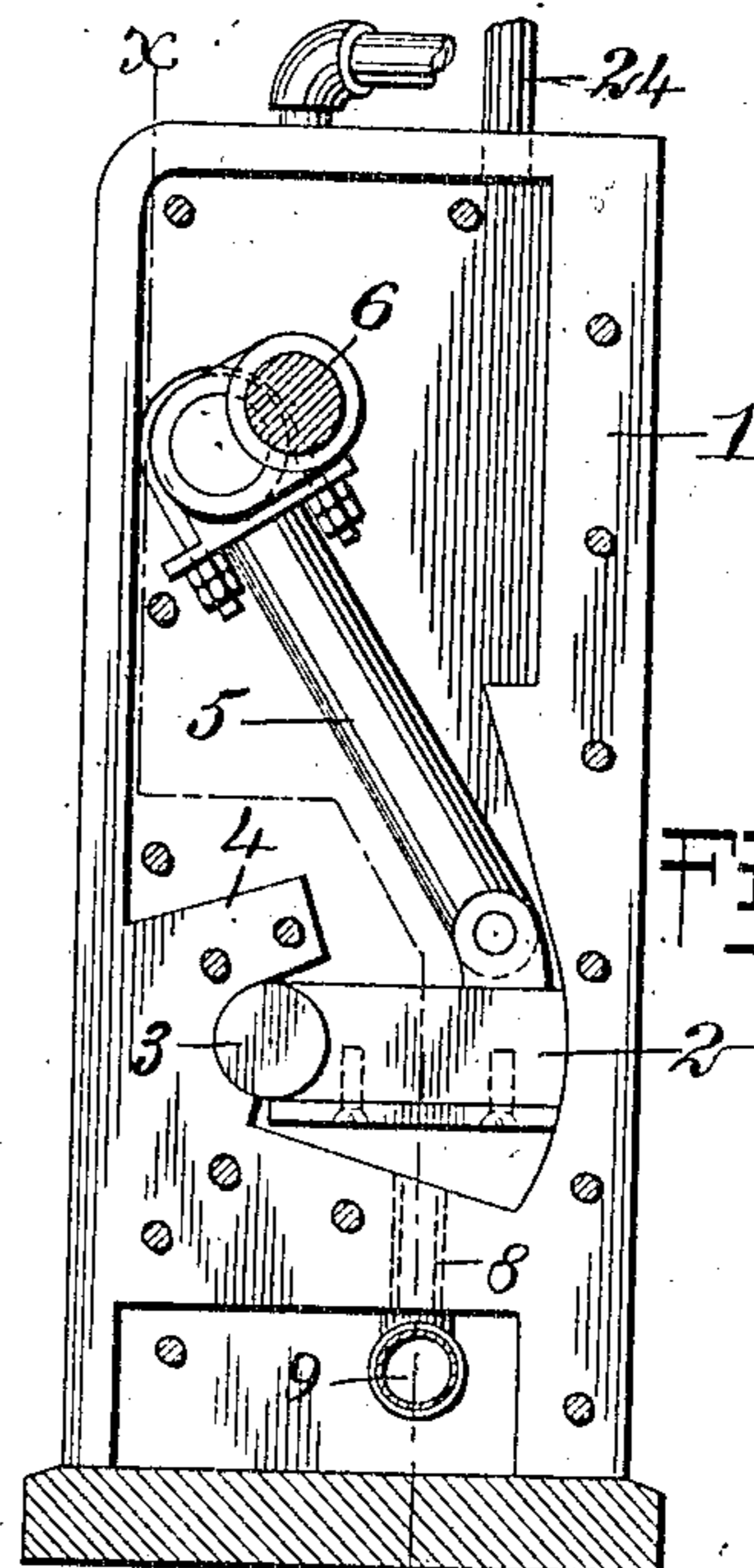


Fig. 2.

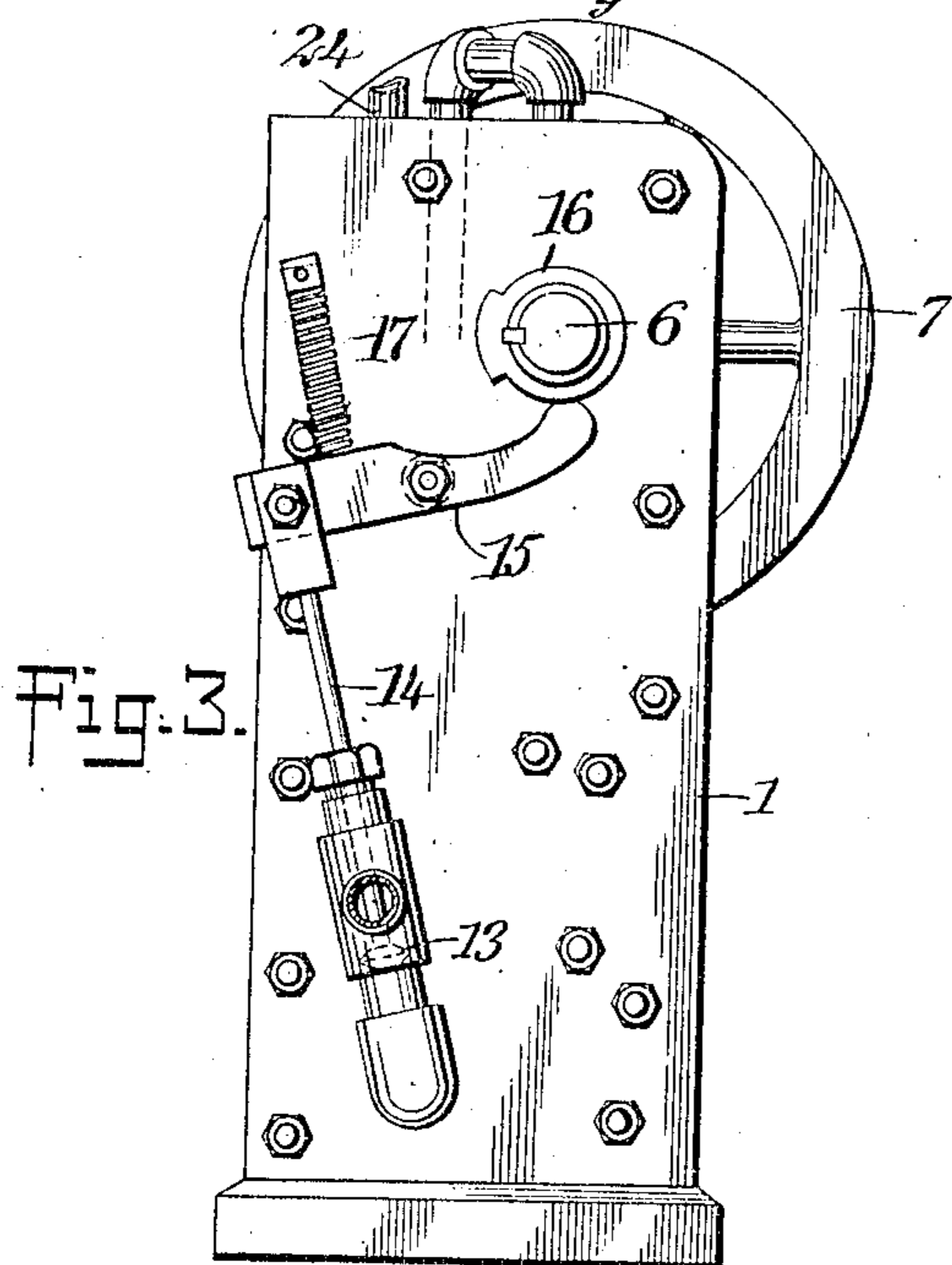


Fig. 3.

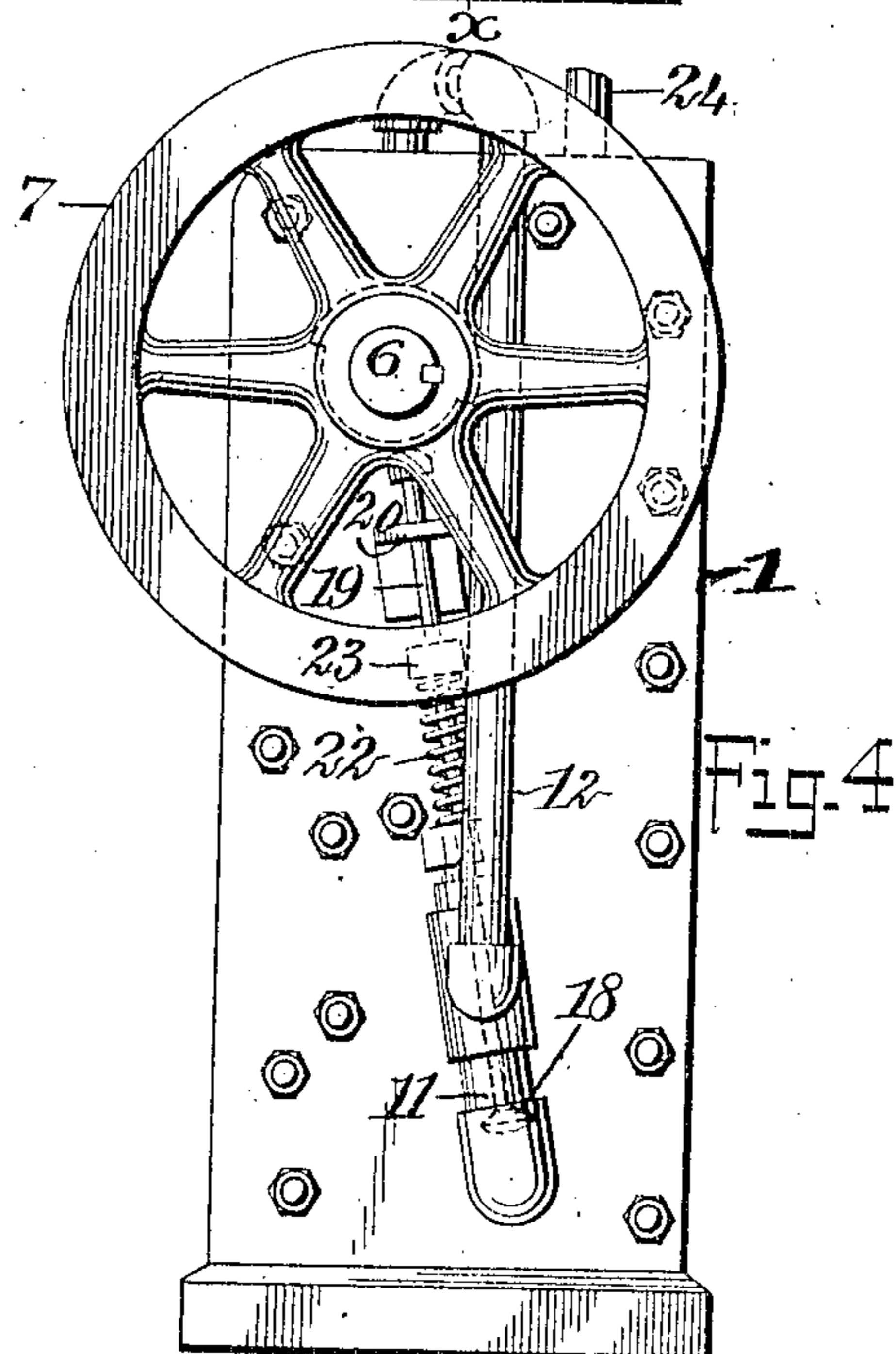


Fig. 4.

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ARTHUR S. BARNES, OF BATAVIA, NEW YORK.

ENGINE.

No. 843,384.

Specification of Letters Patent.

Patented Feb. 5, 1907.

Application filed February 16, 1906. Serial No. 301,396.

To all whom it may concern:

Be it known that I, ARTHUR S. BARNES, a citizen of the United States, and a resident of Batavia, in the county of Genesee and State of New York, have invented a new and Improved Engine, of which the following is a full, clear, and exact description.

This invention relates to improvements in engines adapted for the use of steam, gas, or other motive agent, the object being to provide an engine of very simple and novel construction and in which great power and speed may be attained with an economical use of motive agent.

I will describe an engine embodying my invention and then point out the novel features in the appended claim.

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 section on the line *x x* of Fig. 2 of an engine embodying my invention. Fig. 2 is a section on the line *y y* of Fig. 1. Fig. 3 is a side elevation, and Fig. 4 is a side elevation opposite that shown in Fig. 3.

Referring to the drawings, 1 designates the casing or cylinder of the engine, in the lower portion of which is a vertically-swinging piston 2. This piston has trunnions 3, which engage in bearings formed in side plates 4, secured in the lower portion of the casing, and from the end of the piston a connecting-rod 5 extends upward to connection with the crank of a crank-shaft 6, on which is a band or fly wheel 7. The opposite plates 4 are connected at the bottom, as clearly indicated in Fig. 1, and through this portion a port 8 is formed, below which is a steam-chamber 9, which communicates with an inlet-pipe 10 and an exhaust-pipe 11, from which a pipe 12 leads into the upper portion of the casing.

The inlet for steam or other motive agent is controlled by a valve 13, the stem 14 of which is pivotally connected to a lever 15, mounted to swing on the outer side of the casing and operated to open the valve for the inlet of motive agent by means of a cam 16,

attached to the shaft 6, and the said valve moved to closed position by means of an expansion spring 17. The exhaust is controlled by a valve 18, having a stem 19 extended through a guide 20 and engaged by a cam 21 on the shaft 6, said cam being designed to open the valve, while the valve is moved to closed position by means of a spring 22, surrounding the stem 19 and engaging at its upper end with a collar 23 thereon, while the lower end engages with the upper end of a stuffing-box through which the stem passes.

The two cams are so arranged that at a certain time the two valves will be closed, thus forming an abutment so that the steam may act by expansion against the under side of the piston 2, causing it to move upward. Then the cam 21, which has a greater cam-surface than the cam 16, will open the valve 18, permitting the exhaust to pass into the upper portion of the casing, and the momentum of the fly-wheel will return the piston to its lowermost position. The exhaust-steam carries oil with it into the upper chamber, thus keeping the crank-shaft lubricated, and the steam is finally exhausted through a pipe 24.

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

An engine comprising a casing, a piston mounted to swing in the arc of the circle in said casing, a crank-shaft, a connection between the piston and crank-shaft, an inlet-pipe for a motive agent, a valve for controlling the inlet, a cam on the crank-shaft, for operating said valve in one direction, an exhaust-pipe, a valve for said exhaust-pipe, a cam on the crank-shaft for moving said valve in one direction, and a pipe leading from said exhaust into the upper portion of the casing.

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

ARTHUR S. BARNES.

Witnesses:

FRANK J. CORP,
ANNA M. PICKERT.