

No. 705,004.

Patented July 15, 1902.

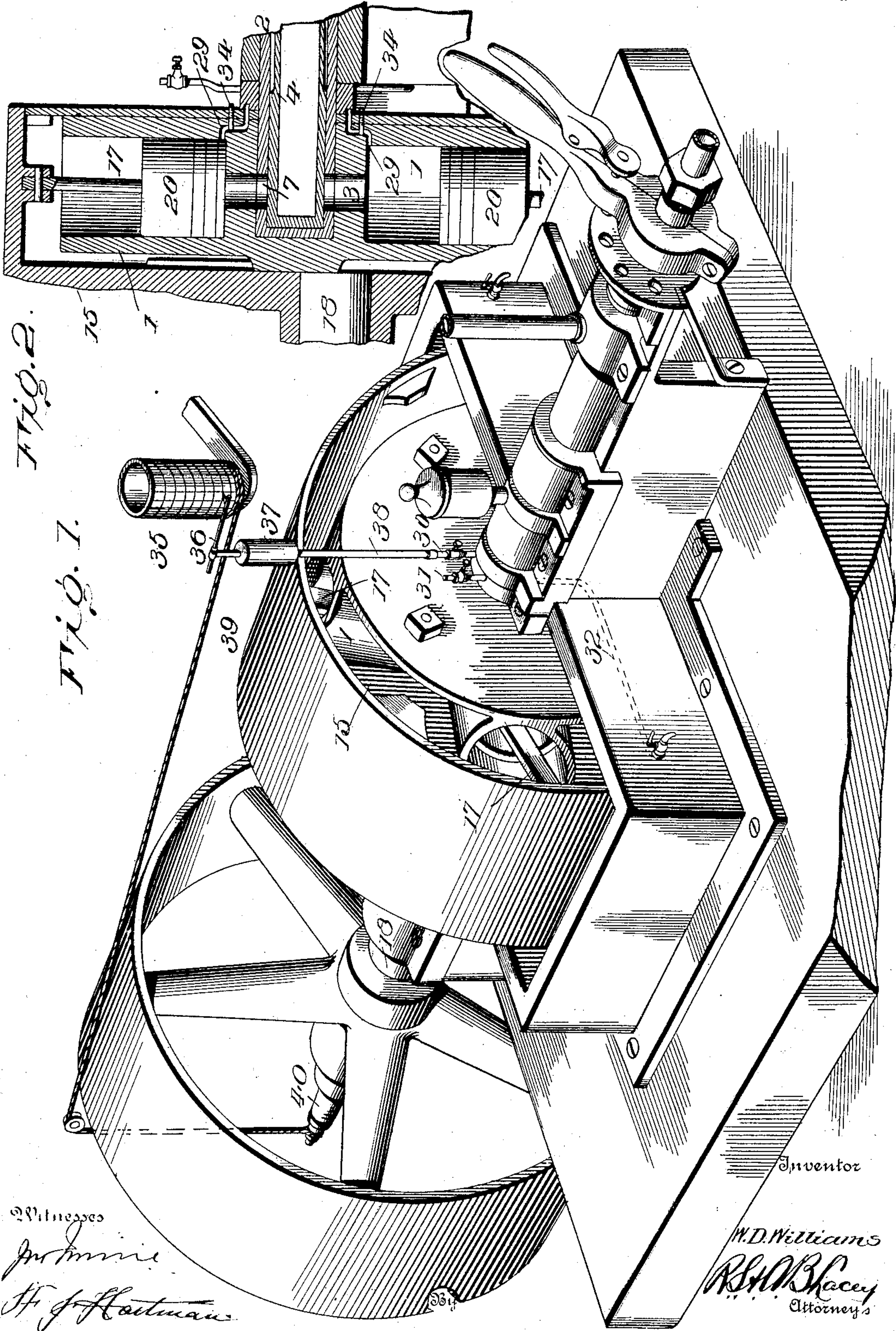
W. D. WILLIAMS.

ROTARY ENGINE.

(Application filed Dec. 31, 1900.)

(No Model.)

2 Sheets—Sheet 1.



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2 Sheets—Sheet 2.

UNITED STATES PATENT OFFICE.

WIN D. WILLIAMS, OF FREDERICKSBURG, VIRGINIA.

ROTARY ENGINE.

SPECIFICATION forming part of Letters Patent No. 705,004, dated July 15, 1902.

Application filed December 31, 1900. Serial No. 41,677. (No model.)

To all whom it may concern:

Be it known that I, WIN D. WILLIAMS, a citizen of the United States, residing at Fredericksburg, in the county of Spottsylvania and State of Virginia, have invented certain new and useful Improvements in Rotary Engines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to engines of the type having one or more cylinders mounted to move about a given axis, the purpose being to enable the card of the engine or any element thereof being taken. In an engine of this type having a plurality of cylinders and cooperating pistons great difficulty has been experienced in taking the card, and in most cases it has been found practically impossible to ascertain the effective pressure on a piston of the series.

This invention aims to provide a simple and effective means whereby it is possible to take the card of any cylinder of the engine whether running to the right or to the left.

The engine shown is of the rotary reciprocating type and has been selected because in line with similar prior inventions of mine and is typical of the class of engines for which the improvement is designed.

The invention consists of the novel features, details of construction, and combinations of parts which hereinafter will be more particularly set forth, illustrated, and finally noted in the subjoined claims.

In the drawings, Figure 1 is a perspective view of an engine embodying the invention. Fig. 2 is a detail section parallel with the axis of the engine. Fig. 3 is a diagrammatical view showing an indicator and the means for connecting it with the engine. Fig. 4 is a detail view of the collar mounted upon the engine-shaft and in communication with the engine-cylinders and adapted to have the cylinder of the indicator connected therewith. Fig. 5 is a detail section of the central portion of the engine in the plane of its motion.

Corresponding and like parts are referred to in the following description and indicated in all the views of the drawings by the same reference characters:

The engine is of the multiple type, being composed of oppositely-arranged cylinders 1, secured to a hollow shaft 2, so as to rotate therewith and having communication therewith through ports 3, the steam being admitted to and exhausted from the cylinders in successive order by means of a tubular valve 4, located in the shaft 2 and divided longitudinally to form passages 5 and 6. Ports 7 are formed in the sides of the valve 4 to register with the ports 3. A shaft 18, arranged out of line with the shaft 2 is caused to rotate therewith, either by means of the pistons 20 and rods 17 or other connections. The yoke consists of a plate or disk 15, secured to the shaft 18, so as to rotate therewith, and a ring or band to which the piston-rods 17 are pivoted at their outer ends.

The indicator mechanism is old and may be of any make, and consists of the cylinder 35, to which the card is attached, an arm 36, bearing a stylus, actuating mechanism for the stylus-bearing arm connected by the pressure of steam in the engine to be tested and consisting of a cylinder 37 and piston working therein and having its rod attached to the arm 36, a pipe 38 to be coupled to either of the pipes 30 or 31, and means for oscillating the cylinder 35, consisting of the usual spring (not shown) and a cord 39, attached at one end to a crank 40 of the shaft 18, passing thence over a guide-pulley 41 and having its opposite end portion attached to the cylinder 35 and wrapped around the same once or twice.

When it is required to take the card of a particular engine of the series or of all the engines, the port or ports 29 are opened by means of the valves 34, and the pipe 38 is coupled to one or the other of the pipes 30 and 31, according to the direction of travel of the engine, after which the valve of the pipe to which the pipe 38 is attached is opened and the card is taken in the usual manner.

Within the purview of the invention changes in the form, proportion, and minor details of construction may be resorted to without departing from or sacrificing any of the advantages of the invention.

Having thus described the invention, what is claimed as new is—

1. In a multiple engine, a collar having a

passage adapted to communicate with the series of engines, valved pipes in communication with opposite end portions of said passage, and an indicator adapted to be coupled
5 to the upper valved pipe, substantially as specified.

2. In a multiple engine, a collar having two segment-passages adapted to communicate with the series of engines, and provided with
10 two sets of valved pipes, and an indicator adapted to be attached to the collar so as to communicate with either passage thereof, substantially as specified.

3. In a multiple engine having ports, one for each engine, valves controlling the ports, 15 a fixed part having a passage adapted to communicate with the ports of the engines, and an indicator mechanism adapted to be applied to the said fixed parts, substantially as set forth. 20

In testimony whereof I affix my signature in presence of two witnesses.

WIN D. WILLIAMS. [L. S.]

Witnesses:

GLADYS L. THOMPSON,
GENEVIEVE MATTHEWS.