912,332.

D. H. THOMPSON.

ROTARY GASOLENE ENGINE.

APPLICATION FILED NOV. 9, 1907.

Patented Feb. 16, 1909.

5 SHEETS—SHEET 1.

Fig. 1.

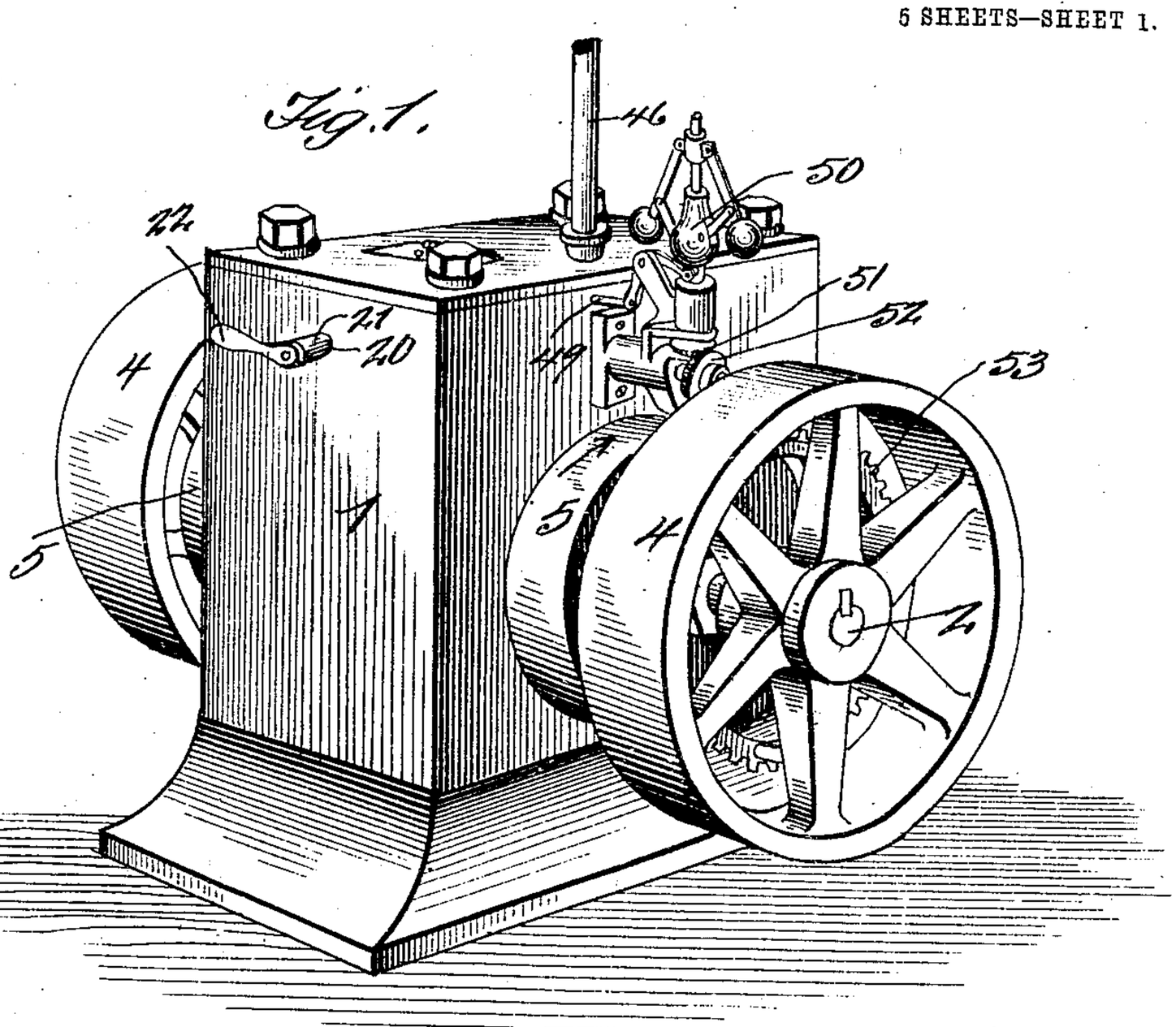


Fig. 8.

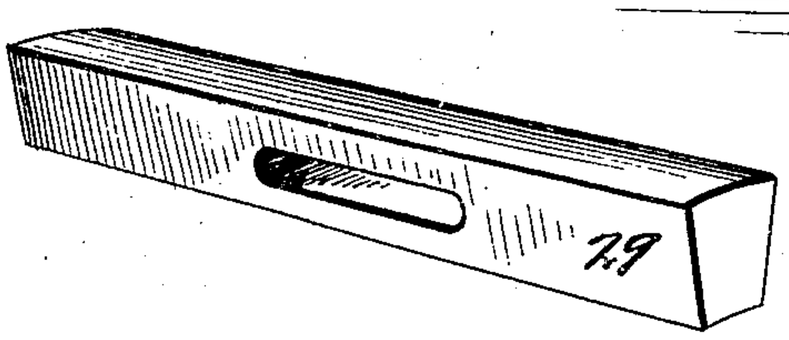


Fig. 6.

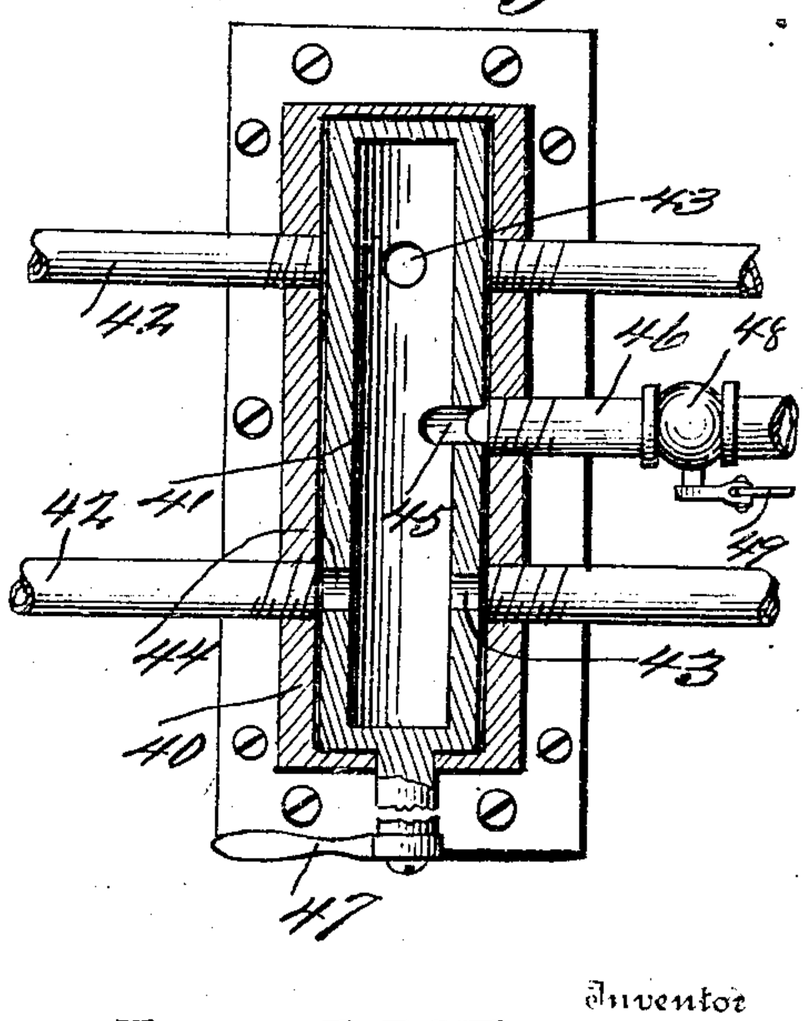
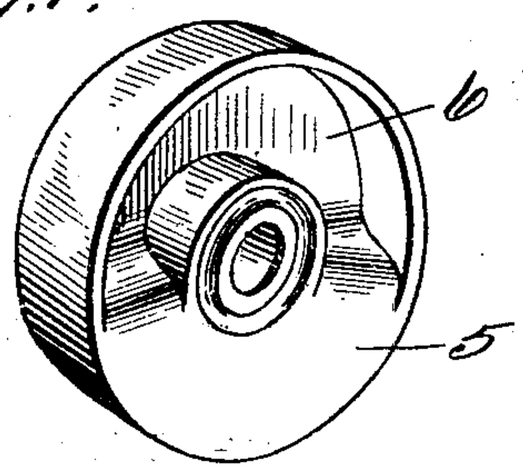


Fig. 7.



Witnesses

S. G. Bowers.

M. O. Bowling.

Inventor

Dean H. Thompson

By D. Swift & C.

Attorneys

D. H. THOMPSON.

ROTARY GASOLENE ENGINE.

APPLICATION FILED NOV. 9, 1907.

912,332.

Patented Feb. 16, 1909.

5 SHEETS—SHEET 2.

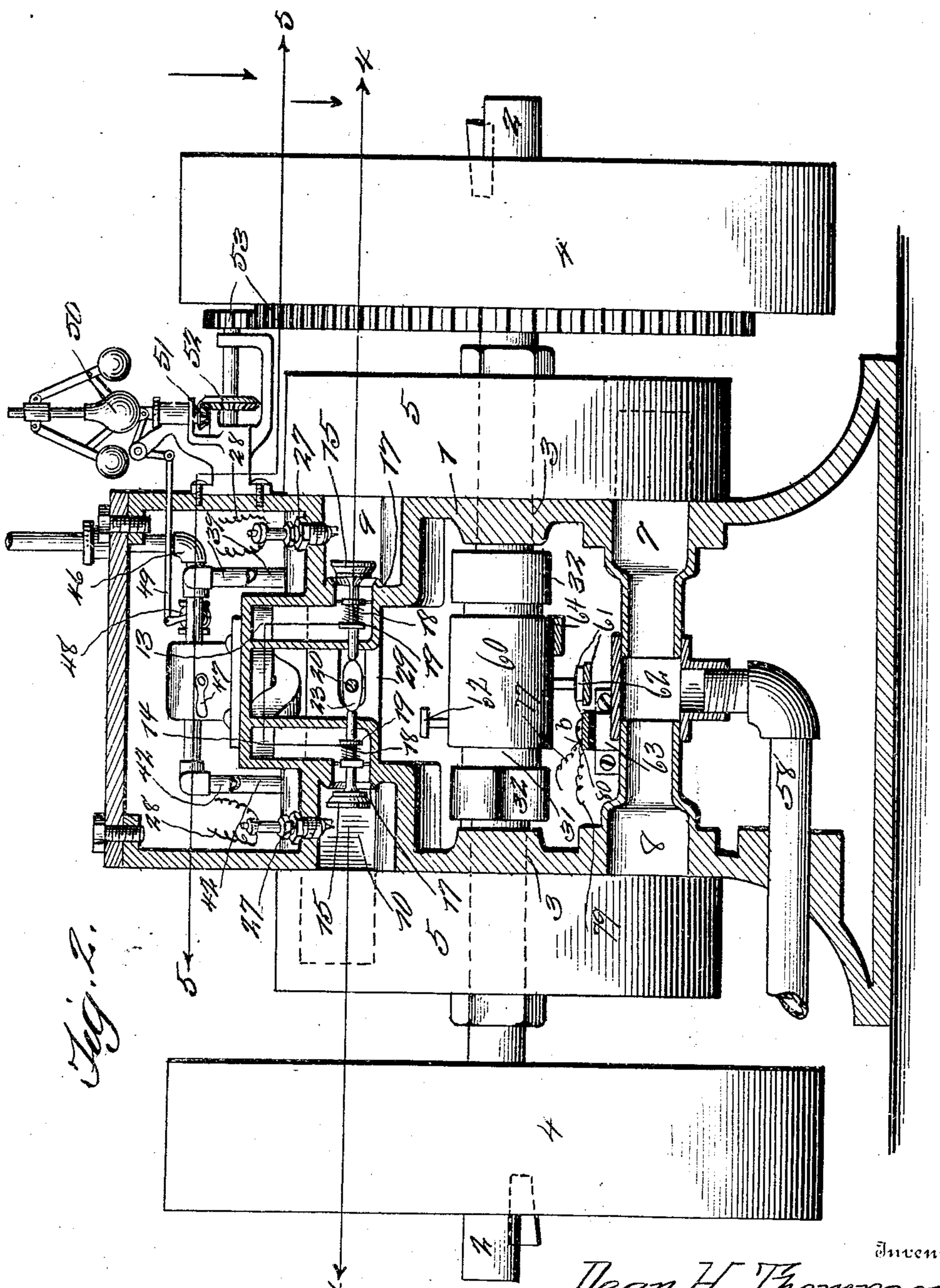


Fig. 2.

Witnesses

P. C. Bowers.

M. A. Bowling.

Inventor

Dean H. Thompson

By D. Swift & Co.

Attorneys

912,332.

D. H. THOMPSON.

ROTARY GASOLENE ENGINE.

APPLICATION FILED NOV. 9, 1907.

Patented Feb. 16, 1909.

5 SHEETS—SHEET 3.

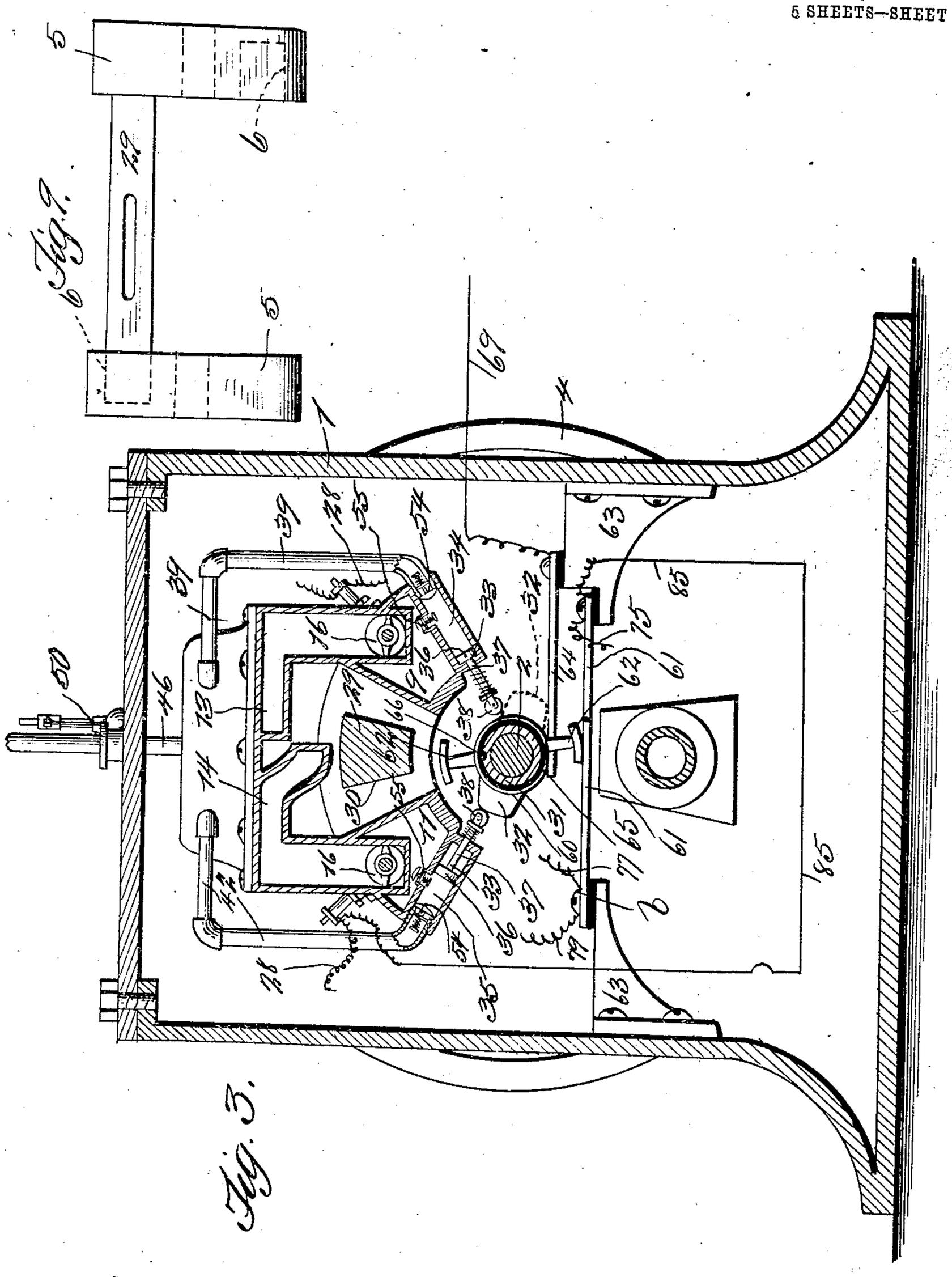


Fig. 3.

Witnesses

F. L. Ronney

M. C. Rowling.

Inventor

Dean H. Thompson

By D. Swift & Co.

Attorneys

912,332.

D. H. THOMPSON.

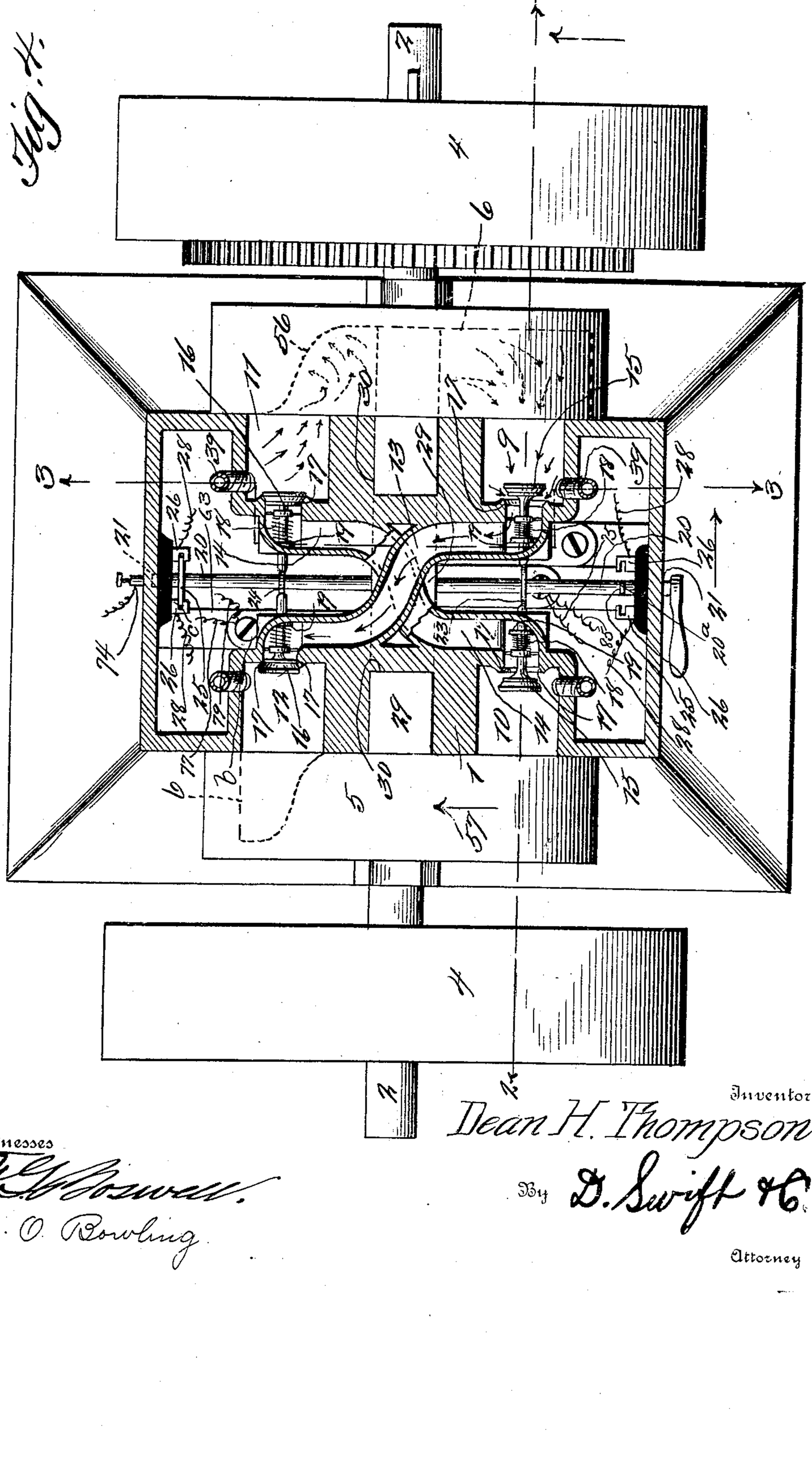
ROTARY GASOLENE ENGINE.

APPLICATION FILED NOV. 9, 1907.

Patented Feb. 16, 1909.

5 SHEETS—SHEET 4.

Fig. 4.



Witnesses

F. C. Goswell.

M. O. Bowling.

Inventor

Dean H. Thompson.

By D. Swift & Co.

Attorney

912,332.

D. H. THOMPSON.

ROTARY GASOLENE ENGINE.

APPLICATION FILED NOV. 9, 1907.

Patented Feb. 16, 1909.

5 SHEETS—SHEET 5.

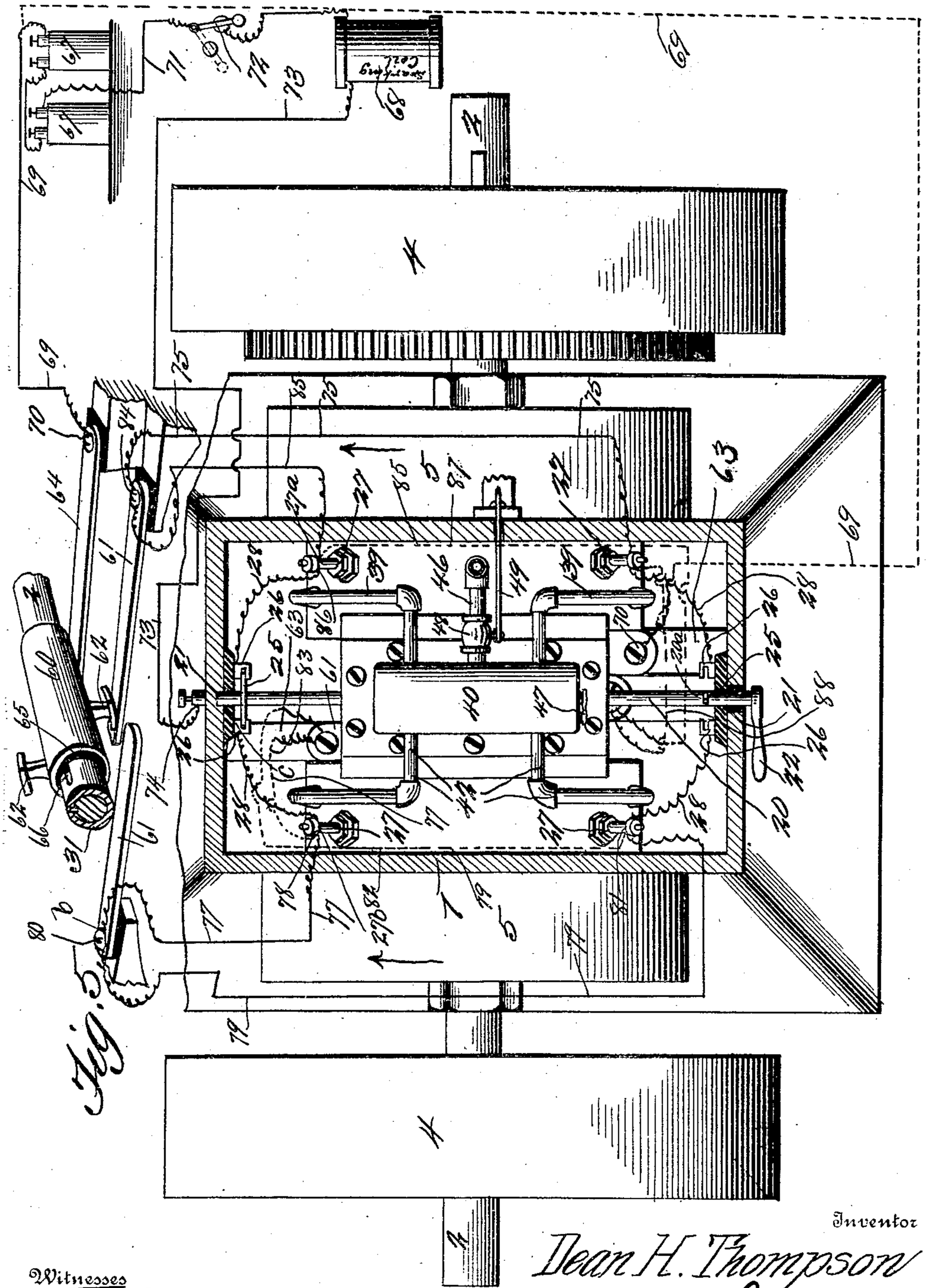


Fig. 5.

Witnesses

P. G. Brown.

M. C. Bowling.

Inventor

Dean H. Thompson

By D. Swift & Co.

Attorneys

UNITED STATES PATENT OFFICE.

DEAN H. THOMPSON, OF FORT CROOK, NEBRASKA.

ROTARY GASOLENE-ENGINE.

No. 912,332. Specification of Letters Patent. Patented Feb. 16, 1909.

Application filed November 9, 1907. Serial No. 401,403.

To all whom it may concern:

Be it known that I, DEAN H. THOMPSON, a citizen of the United States, residing at Fort Crook, in the county of Sarpy and State of Nebraska, have invented a new and useful Rotary Gasolene-Engine; 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 pertains to a new, useful and novel reversible rotary gasolene engine; and the invention in its broadest aspect has for its object to provide a specially constructed engine, of the above type, embodying new and novel features, the arrangement of which, correlative to one another is generically new and novel, as will be hereinafter clearly manifest.

The invention directs as a further object to provide a device of this type, comprising rotary disks, or wheels having gas chambers which operate a piston, disposed transversely of the engine; said gas chambers of the disks being designed to register alternately with the compression chambers, and the exhausts, as will be readily observed, in an endeavor to ascertain the operation, and the detail construction of the device.

The invention aims as a further object to provide a plurality of compression chambers, preferably four in number, controllable by valves, the positions of which are reversible, by a lever operating rod, so that the direction of compressed air, and gasolene is reversed, that is to say, when the position of the valve controlling the flow of gasolene is reversed, as will be clearly evident from the hereinafter set forth description in connection with the drawings.

A further object of the invention dwells in the employment of a shaft, positioned transversely of the engine, and to which the disks or wheels having the gas chambers are keyed; this shaft embodies a sleeve, having oppositely disposed eccentrics or cams, designed for the purpose of alternately operating valves or pumps for the purpose of forcing gasolene into the said compression chambers, as will be observed in the drawings. These compression chambers are communicative, as shown, that is to say, each diagonally disposed compression chamber is connected by a passage, as clearly illustrated in one of the transverse sectional views of the drawings.

This invention comprises further objects and combinations of elements which will be hereinafter more fully described, shown in the accompanying drawings, and the novel features thereof will be pointed out by the appended claims.

The features and elements and the new and novel arrangement thereof, for accomplishing the several objects of the engine may be changed and varied, that is to say, in a practical application of the construction of the device, with an understanding that the changes and variations accruing from said application of the construction are limited to the scope of the appended claims.

To obtain a full and correct understanding of the details of construction, combinations of features, elements and advantages, reference is to be had to the hereinafter set forth description and the accompanying drawings in connection therewith, wherein—

Figure 1 is a perspective view of the reversible rotary gasolene engine, embodying its entire construction. Fig. 2 is a sectional view vertically through the device, and to one side of its driving shaft, clearly illustrating the principal features thereof. Fig. 3 is a vertical sectional view taken at right angles to Fig. 2, clearly illustrating the manner in which the valves or pumps are operated, by the eccentric or cam carried by the driving shaft. Fig. 4 is a transverse sectional view taken horizontally through the engine and upon line 4—4 of Fig. 2. Fig. 5 is a horizontal transverse sectional view upon line 5—5 of Fig. 2, clearly illustrating the connection of the gasolene controlling valve, and the compression chambers. Fig. 6 is a detail view of the valve controlling the flow of the gasolene. Fig. 7 is a detail perspective view of one of the disks or wheels, clearly illustrating the gas chamber. Fig. 8 is a detail perspective view of the reciprocating piston or bar, which coöperates with the gas chambers of the disks or wheels. Fig. 9 is an elevation of the disks and the piston, clearly illustrating the correlation.

Like reference characters are utilized to indicate similar features and elements throughout the several views of the accompanying drawings.

In regard to the accompanying drawings, wherein similar reference characters indicate corresponding parts in the several illustrations, by figures, 1 designates a suitable casing, constructed of any suitable metal, preferably steel, in which a shaft 2 is transversely

disposed, in suitable bearings 3, as clearly shown; upon each end of this shaft is keyed a fly wheel 4, and between the fly wheels, and the opposite faces of the casing, are disks or wheels 5, which are keyed or otherwise fixed to rotate with the shaft 2, as will be clearly seen in Fig. 2 of the drawings.

These disks or wheels are hollowed out, so as to provide gas chambers 6, of a semicircular contour, and which are designed for the purpose of alternately registering, with the exhausts 7 and 8, and the compression chambers 9, 10, 11 and 12, as will be readily observed in the drawings. The compression chambers 9 and 12 are connected by a passage 13, while the compression chambers 10 and 11 are connected by a similar passageway 14, as will be clearly seen in Fig. 4 of the drawings.

As will be observed in Fig. 3, the piston 29 is disposed transversely of the casing, and in the center thereof, and which piston is of a length equal to the distance between the inner face of one of the gas chambers of one of the disks or wheels, and the face of the solid portion of the opposite disk or wheel; it will be noted that, by providing a piston at this specified length, the same will be reciprocated transversely of the engine and through the opening 30 of the casing, which opening forms a guide for the said piston, as will be clearly evident.

Valves 15 and 16 are provided for coöperation between the passages 13 and 14 and the compression chambers, 9, 10, 11 and 12; these valves are for the purpose of controlling the charges of gases, which are forced alternately from one compression chamber, to the compression chamber disposed diagonally opposite thereto, by the gas chambers of the disk or wheels 5, as will be readily observed. These valves 15 and 16 are held normally to their seats 17, by the springs 18, which cooperate between the collars 19 of the valve stems and the casing of the passages 13 and 14, as clearly shown.

Upon an observation of Fig. 4 of the drawings, it will be seen that the valves 15 are open, which allows the charge of gases to pass alternately through the passages 13 and 14, in a direction, as indicated by arrows. Still examining Fig. 4, it will be observed that to change the direction of the gases, the valves 15 should be closed and the valves 16 opened, that is to say, when the direction of the charges of gasolene is changed, so as to enter the compression chambers 9 and 10, which will be hereinafter set forth. To close the valves 15 and open the valves 16, a rod or shaft 20 is mounted in bearings 21, and longitudinally of the casing of the apparatus, which rod or shaft 20 is provided with a handle 22 by which the same is operated, and lugs 23 and 24, which are for the purpose of coacting against the ends of said valve stems, so as to change the positions of the valves 15 and 16, as clearly manifest. These lugs 23 and 24 are positioned upon a plane at right angles to one another, as shown. Adjacent to each end of the said rod or shaft 20 is fixed a contact plate 25, for the purpose of coöperation with the recessed lugs 26, so as to complete an electric circuit between the recessed lugs and sparking plugs 27, which are fixed to the walls of the compression chambers, which sparking plugs are connected to said recessed lugs by conductors 28, as shown in Fig. 2 in the drawings. These contact plates are also positioned upon a plane at right angles to one another, as shown.

Keyed to the shaft 2 is a sleeve 31, which is provided at each end thereof with an eccentric or cam 32; each eccentric or cam extends in a direction opposite to the other, for the purpose of alternately operating the pumps 33, which force the charge of gasolene from the chambers 34 and 35 into the compression chambers where it is ignited. There are four pumps 33 and each one comprises a piston 36, to which the piston rod 37 is connected, the lower end of which is provided with a friction roller 38, which is coöperated with by one of the eccentrics or cams, as will be understood.

Leading to the chambers 34 are the pipes 39, which communicate with the casing 40, in which the oscillatory cylinder shaped valve 41 is positioned, which oscillatory valve 41 is operated and set, for the purpose of directing the flow of gasolene; while the pipes 42 connect the chambers 35, with the casing 40, as will be seen in Fig. 3 of the drawings. The oscillatory valve 41 is provided with openings 43 and 44 which alternate in their registrations with the pipes 39 and 42; these openings 43 and 44 are positioned upon a plane at right angles to one another, as clearly shown. The oscillatory valve 41 is provided with an elongated opening 45, which continually registers with the pipe 46, through which the gasolene flows; this valve 41 is operated by means of a lever 47, as clearly shown in Fig. 6 of the drawings. The pipe 46 is provided with a valve 48, which is provided with a rod connection 49 with governor device 50, to which one of the fly wheels 4 is geared by means of the gear connections 51, 52 and 53, so as to regulate the flow of gasolene, which is supplied from any suitable source, as desired.

Having thus described the essential features, elements and the correlation therebetween, the operation of the engine is set forth, as follows:—Gasolene is admitted into the oscillatory valve 41 from any suitable source of supply from whence it enters the chambers 35. through the check valves 54; the gasolene is then forced past the check valves 55, and into the compression chambers 11 and 12, by means of the pumps 33,

that is to say, the gasolene is forced into one, and then the other, of the compression chambers, as will be clearly manifest; at this stage of the operation, the gasolene in said compression chamber 11 is ignited, by the sparker 27, and the expansion of the gases therein acts against the piston 29, and the wall 56 of the gas chamber 6 of the disk or wheel 5, thus causing the disks or wheels and shaft to rotate in the direction indicated by the arrow 57. The explosion of gasolene is alternately repeated in first one, and then the other, of the said compression chambers 11 and 12.

Mounted upon the sleeve 31 and the shaft 2 and insulated therefrom is a sleeve 60, integral with which are contact members 62 which project from opposite sides of the said sleeve 60, as clearly shown. These contact members are not in alinement, but offset from each other, so as to travel in separate radii, so as to contact with the resilient contact members 61, which are secured to and insulated from brackets 63, upon the interior of the casing of the engine. Also secured to one of the brackets is an additional resilient contact member 64, which continually contacts with the said sleeve 60, as the shaft rotates, while the contact members 62 alternately contact with the members 61, so as to complete circuit for sparking the plugs 27 of the engine. The said sleeve 60 and the insulation 65 are keyed to the shaft 2 and the sleeve 31, as at 66, so as to cause them to rotate as one body, as will be clearly evident.

A suitable battery 67 is provided for furnishing current for the sparking coil 68 and the plugs 27, which battery 67 is connected electrically to the resilient contact member 64 by means of the lead 69, as shown clearly in Fig. 5 of the drawings. In Fig. 5 of the drawings the resilient contact members 61, 64 and the shaft 2, sleeve 31 and the sleeve 60 and its contact members 62 have been shown diagrammatically, for the purpose of clearly illustrating the circuit for operating the sparking plugs; there being two leads 69 shown, one in full lines, which connect with the diagrammatic illustration of the contact members and the sleeve 60 and its contact members 62, and one shown in dotted lines, which is connected at the desired point, as at 70, as clearly shown. The sparking coil and the battery 67 are connected by a lead 71, in which is disposed a suitable switch 72, the purpose of which is clearly apparent. The sparking coil 68 is electrically connected by means of a lead 73 with the casing of the engine, as at 74. One of the resilient contact members 61 is connected by a lead 75 with one of the sparking plugs 27, as at 76, while the other resilient contact member is connected by another lead 77 with another sparking plug 27, as at 78, as clearly shown in Fig. 5. 79 designates a lead which connects one of the resilient contact members and one of the sparking plugs 27, as at 80 and 81. There are two leads 77 and 79 illustrated, one of each being shown in full lines and dotted lines, as at 82 and 83. Connected as at 84 is a lead 85 which is also connected, as at 86, to one of the sparking plugs 27, there being two of these leads 85 shown, one in full lines and one in dotted lines, as at 87. There are also two leads 75 illustrated, one in full lines and one in dotted lines, as at 88, as clearly illustrated in Fig. 5.

The operation of the sparking plugs and the contacts 61 and 64 and the sleeve 60 and the contacts 62 and the flow of the current is set forth as follows:—When one of the contacts 62 is in engagement with one of the resilient contacts 61, as shown clearly in the diagrammatic illustrations of this feature, current leaves the battery through the lead 69 to the sleeve 60, through the resilient contact plate 64, thence the current advances through one of the contacts 62 and the contact 61, as seen in Fig. 5, to one of the sparking plugs 27, through the lead 85, as also seen in Fig. 5. The current at this point continues through the lead 28, to one of the lugs 26 through the shaft 20 to the connection of the lead 73, as seen at 74; from this point the current forwards through the lead 73 back to the battery, through the sparking coil 68, switch 72 and the lead 71, so as to spark the plug, as seen at 27^a, as will be clearly observed: When the other contact point 62, as seen at *a* in Fig. 5, engages the other resilient contact plate, current leaves the battery through the lead 69 to the sleeve 60, through the contact plate 64. The current then continues on through the lead 77 to one of the other sparking plugs 27, as at 27^b; the current in advancing to this sparking plug passes through one of the contacts 62, through one of the contact plates 61, to a point indicated by the reference character *b*. From the point, as seen at 27^b, the current passes to one of the lugs 26, as at *c*, thence through the lead 73 back to the battery, through the sparking coil 68, the switch 72 and the lead 71, as will be clearly manifest.

To reverse the flow of current, so as the other sparking plug 27 will be operated, the shaft 20 is given a slight rotation, so as to change the position of the oppositely disposed contact plates 25, whereby the current will enter the shaft 20, as seen at 20^a, in which case the direction of the flow of current will be readily apparent, in an endeavor to trace the same through the various leads and contact points. First one and then another of the sparking plugs 27 are operated, so as to ignite the charge in the compression chambers 9, as will be clearly evident.

It will be plainly manifest that by revers-

ing the positions of the valves 15 and 16, and by changing the position of the valve 41, a reverse rotary motion will be imparted to the disks or wheels 5. The utilized gases merge into one exhaust 58, as shown.

From the foregoing, the essential features, elements and the operation of the device, together with the simplicity thereof, will be clearly apparent; and this device will displace the now cumbersome engines used, viz.—reversible gears and a great amount of heretofore wasted energy will be saved.

Having thus fully described the invention, what is claimed as new and useful by the protection of Letters Patent, is:—

1. In a reversible rotary gasolene engine, a casing having compression chambers and exhausts, disks or wheels having gas chambers adapted to register with the compression chambers and the exhausts, a supplemental casing, an oscillatory valve mounted therein adapted for directing the gasolene, pumps for ejecting the gasolene into the compression chamber, and a main drive shaft having means located within the casing and designed to contact with said pumps.

2. In a reversible rotary gasolene engine, a casing having compression chambers, a drive shaft provided with disks having gas chambers, means for directing the flow of gasolene, pumps, the drive shaft having alternating contact means within the casing for operating the pumps for ejecting the gasolene into the compression chambers, ignition means for the gasolene and exhausts for the utilized gases.

3. In a reversible rotary gasolene engine, a casing having compression chambers facing in opposite directions and provided with exhausts, a drive shaft having disks provided with gas chambers adapted to register with the compression chambers, said disks being movable adjacent to the sides of the casing, an oscillatory valve for directing the gasolene into the compression chambers, igniting means for the gasolene, and pumps for ejecting the gasolene into the compression chambers, said shaft having cams for operating said pumps.

4. In a reversible rotary gasolene engine, a casing, compression chambers facing in opposite directions, exhausts, a drive shaft, disks having gas chambers keyed thereto, said gas chambers being adapted to alternately register with the compression chambers and the exhausts, a piston disposed transversely of the casing and reciprocated by the gas chambers of the disks, a reversible valve for directing the gasolene to the compression chambers, sparking plugs for the ignition of the gasolene and pumps operated by the shaft for ejecting the gasolene into the compression chambers.

5. In a reversible rotary gasolene engine, a casing, compression chambers facing in opposite directions, exhausts, a drive shaft, disks having gas chambers keyed thereto, said gas chambers being adapted to alternately register with the compression chambers and the exhausts, a piston disposed transversely of the casing and reciprocated by the gas chambers of the disks, a reversible valve for directing the gasolene to the compression chambers, sparking plugs for the ignition of the gasolene, pumps operated by the shaft for ejecting the gasolene into the compression chambers, said compression chambers having valves, and a rod disposed longitudinally of the casing and provided with means for operating the valve.

6. In a reversible rotary gasolene engine, a casing, compression chambers facing in opposite directions, exhausts, a drive shaft, disks having gas chambers keyed thereto, said gas chambers being adapted to alternately register with the compression chambers and the exhausts, a piston disposed transversely of the casing and reciprocated by the gas chambers of the disks, a reversible valve for directing the gasolene to the compression chambers, sparking plugs for the ignition of the gasolene, pumps operated by the shaft for ejecting the gasolene into the compression chambers, said compression chambers having valves, a rod disposed longitudinally of the casing and provided with means for operating the valve, said rod and the casing having coöperating means for completing an electric circuit for creating a spark upon the sparking plugs.

7. In a reversible rotary gasolene engine, a casing, compression chambers facing in opposite directions, exhausts, a drive shaft, disks having gas chambers keyed thereto, said gas chambers being adapted to alternately register with the compression chambers and the exhausts, a piston disposed transversely of the casing and reciprocated by the gas chambers of the disks, a reversible valve for directing the gasolene to the compression chambers, sparking plugs for the ignition of the gasolene, pumps operated by the shaft for ejecting the gasolene into the compression chambers, said compression chambers having valves, a rod disposed longitudinally of the casing and provided with means for operating the valve, said rod and the casing coöperating means adapted to be reversed for completing an electric circuit for creating a spark upon the sparker.

8. In a reversible rotary gasolene engine, a casing, compression chambers facing in opposite directions, exhausts, a drive shaft, disks having gas chambers keyed thereto, said gas chambers being adapted to register with the compression chambers and the exhausts, a piston disposed transversely of the casing and reciprocated by the disks, spark-

ing plugs for the ignition of gasolene, and pumps operated by the shaft for ejecting the gasolene into the compression chambers.

9. In a reversible rotary gasolene engine, a casing, compression chambers facing in opposite directions, exhausts, a drive shaft, disks having gas chambers keyed thereto, said gas chambers being adapted to register with the compression chambers and the exhausts, a piston disposed transversely of the casing and reciprocated by the disks, sparking plugs for the ignition of gasolene, pumps, said shaft having keyed thereto a sleeve provided with cams extending in opposite directions adapted to alternately operate said pumps for ejecting gasolene into the compression chambers.

10. In a reversible rotary gasolene engine, a casing, compression chambers facing in opposite directions, exhausts, a drive shaft, disks having gas chambers keyed thereto, said gas chambers being adapted to register with the compression chambers, and the exhausts, a piston disposed transversely of the casing and reciprocated by the disks, sparking plugs for the ignition of gasolene, pumps comprising pistons and piston rods, said piston rods having friction rollers, said shaft having a sleeve provided with cams extending in opposite directions adapted to engage said friction rollers to alternately operate said pumps for ejecting gasolene into the compression chambers.

11. In a reversible rotary gasolene engine, a casing, communicating compression chambers facing in opposite directions, exhausts, a drive shaft, disks having gas chambers keyed thereto, said gas chambers being adapted to register with the compression chambers and the exhausts, a piston disposed transversely of the casing and reciprocated by the disks, sparking plugs for the ignition of gasolene, and pumps operated by the shaft for ejecting the gasolene into the compression chambers.

12. In a reversible rotary gasolene engine, a casing, a plurality of compression chambers facing in opposite directions, the compression chambers which are diagonally disposed being connected by passages, exhausts, a drive shaft, disks having gas chambers keyed thereto, said gas chambers being adapted to register with the compression chambers and the exhausts, a piston disposed transversely of the casing and reciprocated by the disks, sparking plugs for the ignition of gasolene, pumps operated by the shaft for ejecting gasolene into the compression chambers.

13. In a reversible rotary gasolene engine, a casing, compression chambers facing in opposite directions, exhausts, a drive shaft, disks having gas chambers keyed thereto, said gas chambers being adapted to register with the compression chambers and the exhausts, a piston disposed transversely of the casing and reciprocated by the disks, sparking plugs for the ignition of gasolene, pumps operated by the shaft for ejecting the gasolene into the compression chambers, and means for reversing the complete operation of the engine.

14. In a reversible rotary gasolene engine, a casing, compression chambers facing in opposite directions, exhausts, a drive shaft, disks having gas chambers keyed thereto, said gas chambers being adapted to register with the compression chambers and the exhausts, a piston disposed transversely of the casing and reciprocated by the disks, said disks being rotated by the expansion of the gases between a wall of the gas chambers and the piston, sparking plugs for the ignition of gasolene, and pumps operated by the shaft for ejecting gasolene into the compression chambers.

15. In a reversible rotary gasolene engine, a casing, compression chambers facing in opposite directions, exhausts, a drive shaft, disks having gas chambers keyed thereto, said gas chambers being adapted to register with the compression chambers and the exhausts, a piston disposed transversely of the casing and reciprocated by the disks, said disks being rotated by the expansion of the gases between a wall of the gas chambers and the piston, sparking plugs for the ignition of gasolene, pumps and means carried by the shaft for operating the pumps for ejecting gasolene into the compression chambers.

16. In a reversible rotary gasolene engine, a casing, compression chambers facing in opposite directions, exhausts, a drive shaft, disks having gas chambers keyed thereto, said gas chambers being adapted to register with the compression chambers and the exhausts, a piston disposed transversely of the casing and reciprocated by the disks, said disks being rotated by the expansion of the gases between a wall of the gas chambers and the piston, sparking plugs for the ignition of gasolene, pumps, said shaft having a sleeve provided with means for operating the pumps for ejecting gasolene into the compression chambers.

17. In a reversible rotary gasolene engine, a casing, a plurality of compression chambers facing in opposite directions, the compression chambers which are diagonally disposed being connected by passages, valves coöperating between the passages and the compression chambers, the positions of which valves being reversible, exhausts, a drive shaft, disks having gas chambers keyed thereto, said gas chambers being adapted to register with the compression chambers and the exhausts, a piston disposed transversely of the casing and reciprocated by the disks, spark-

ing plugs for the ignition of gasolene, pumps and means carried by the shaft for operating the pumps for ejecting gasolene into the compression chambers.

18. In a reversible rotary gasolene engine, a casing, a plurality of compression chambers facing in opposite directions, the compression chambers which are diagonally disposed being connected by passages, valves coöperating between the passages and the compression chambers, the positions of which valves are reversible, means for reversing the positions of the valves, exhausts, a drive shaft, disks having gas chambers keyed thereto, said gas chambers being adapted to register with the compression chambers and the exhausts, a piston disposed transversely of the casing and reciprocated by the disks, sparking plugs for the ignition of gasolene, pumps, means carried by the shaft for operating the pumps for ejecting gasolene into the compression chambers, and means for reversing the sparking from one set of sparking plugs to another.

19. In a reversible rotary gasolene engine, a casing, compression chambers facing in opposite directions, exhausts, a drive shaft, disks having gas chambers keyed thereto, said gas chambers being adapted to register with the compression chambers and the exhausts, a piston disposed transversely of the casing and reciprocated by the disks, sparking plugs for the ignition of gasolene, pumps and means carried by the shaft for operating the pumps for ejecting gasolene into the compression chambers, an oscillatory reversible valve for directing the gasolene to the compression chambers, said rod and the casing having coöperating means adapted to be reversed for completing an electric circuit for creating a spark upon the sparker, and a governor device for controlling the flow of gasolene.

20. In an engine, a casing, compression chambers facing in opposite directions, exhausts, a drive shaft, disks having gas chambers keyed thereto, said gas chambers being adapted to register with the compression chambers and the exhausts, a piston disposed transversely of the casing and reciprocated by the disks, sparking plugs for the ignition of gasolene, means operated by the shaft for ejecting gasolene into the compression chambers and means for reversing the complete rotary motion of the engine.

21. In a reversible rotary gasolene engine, a casing having compression chambers and exhausts, disks or wheels having gas chambers, a piston disposed transversely and cooperatively between the disks or wheels, a supplemental casing, an oscillatory valve mounted therein adapted for directing the gasolene, pumps for ejecting the gasolene into the compression chambers and a main drive shaft having means located within the casing and designed to contact directly with said pumps.

22. In a reversible rotary gasolene engine, a casing having compression chambers and exhausts, disks or wheels having gas chambers, a transversely disposed piston alternately operated by the gas chambers, a supplemental casing, an oscillatory valve mounted therein adapted for directing gasolene, pumps for ejecting the gasolene into the compression chambers, and a main drive shaft having means located within the casing and designed to contact with said pumps.

23. In a reversible gasolene engine, a casing having compression chambers, disks having gas chambers, means for directing the flow of gasolene, pumps, a main drive shaft having portions designed to alternately contact with the pumps for ejecting gasolene into the compression chambers, ignition means for the gasolene, and exhausts for the utilized gases.

24. In a reversible gasolene engine, a casing having compression chambers, disks having gas chambers, means for directing the flow of gasolene, pumps, a main drive shaft having portions designed to alternately contact with the pumps for ejecting gasolene into the compression chambers, reversible ignition means for the gasolene, and exhausts for the utilized gases.

25. In a reversible gasolene engine, a casing having compression chambers, disks having gas chambers, means for directing the flow of gasolene, pumps, a main drive shaft having portions designed to alternately contact with the pumps for ejecting gasolene into the compression chambers, reversible and alternating operable ignition means for the gasolene, and exhausts for the utilized gases.

26. In a reversible gasolene engine, a casing having compression chambers, disks having gas chambers, means for directing the flow of gasolene, pumps, a main drive shaft having portions designed to alternately contact with the pumps for ejecting gasolene into the compression chambers, reversible

ignition means for the gasolene, and exhausts for the utilized gases, said casing having upon its interior yieldable contacts, said drive shafts having rotatable contacts adapted to alternately engage the yieldable contacts for alternately completing the circuit for the ignition means.

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

DEAN H. THOMPSON.

Witnesses:

H. P. BEERLINE,

ANTHONY E. LANGDON.