No. 649,820. Patented May 15, 1900.

W. C. DEIBERT.

ENGINE.

(Application filed Feb. 8, 1900.)

(No Model.) 2 Sheets—Sheet 1.

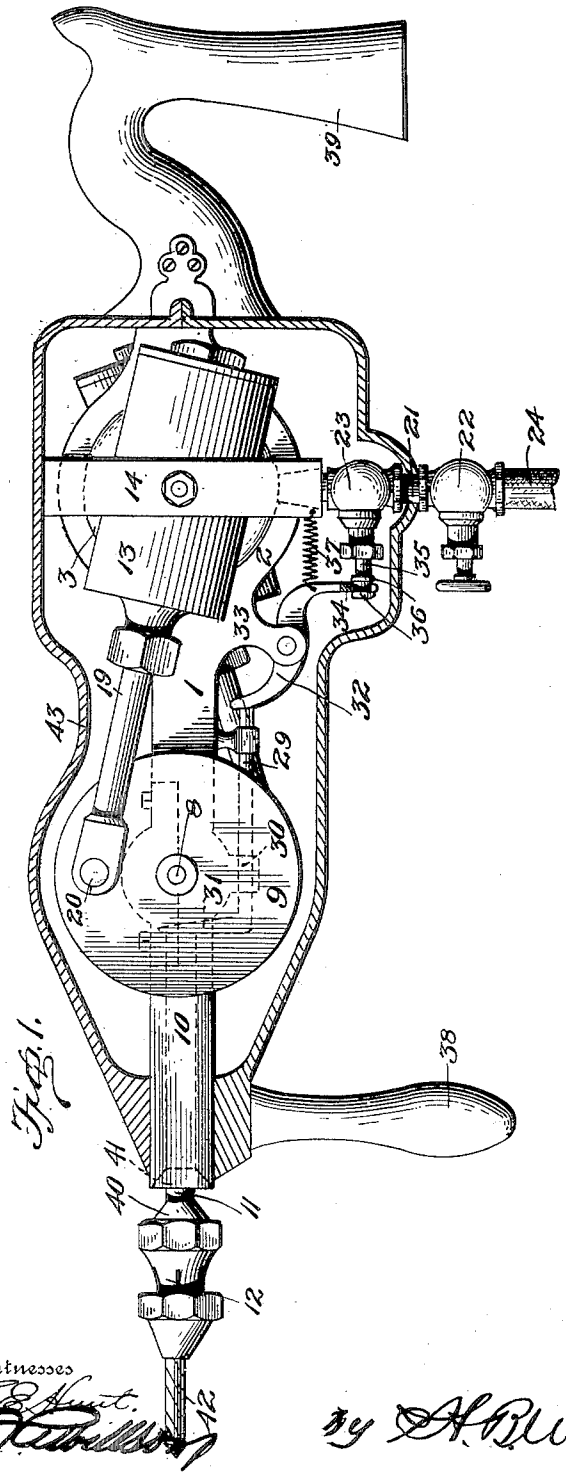


Fig. 1.

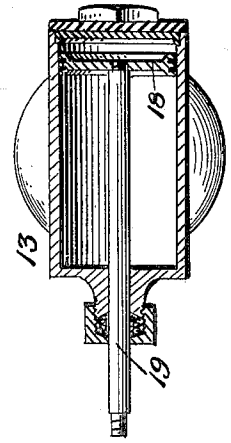


Fig. 5.

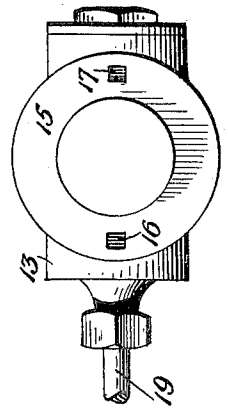


Fig. 4.

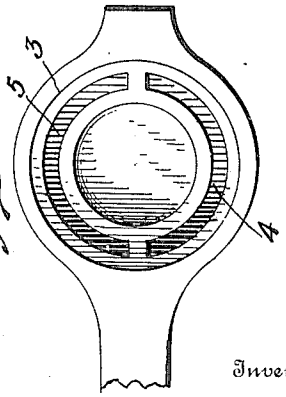


Fig. 3.

Witnesses

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2 Sheets—Sheet 2.

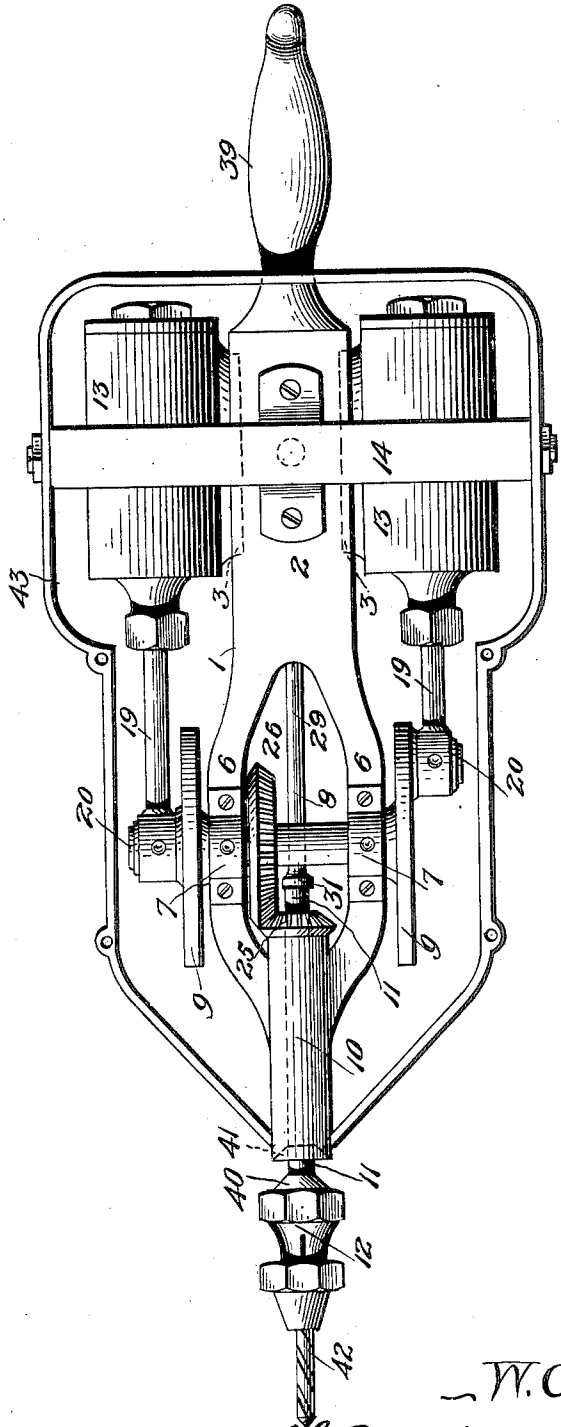


Fig. 2.

Witnesses

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UNITED STATES PATENT OFFICE.

WALTER C. DEIBERT, OF CLIFTON FORGE, VIRGINIA, ASSIGNOR OF FIVE-EIGHTHS TO BENJAMIN H. THOMAS AND LLOYD B. THOMAS, OF SAME PLACE.

ENGINE.

SPECIFICATION forming part of Letters Patent No. 649,820, dated May 15, 1900.

Application filed February 8, 1900. Serial No. 4,484. (No model.)

To all whom it may concern:

Be it known that I, WALTER C. DEIBERT, a citizen of the United States, residing at Clifton Forge, in the county of Alleghany and State of Virginia, have invented certain new and useful Improvements in Engines; and I do 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.

The invention relates to engines especially designed for driving rotary tools or implements—such, for instance, as drills, augers, reamers, &c.

The objects of the invention are to provide an engine of this character which may be driven by steam, air, or gas power, and which shall be simple of construction, durable in use, and comparatively inexpensive of production, and which shall automatically admit the driving power to the engine-cylinders when the tool or implement is applied to its work, and which will automatically cut off the driving power when the tool or implement is withdrawn from its work.

With these and other objects in view the invention consists in certain features of construction and combination of parts, which will be hereinafter fully described and claimed.

In the accompanying drawings, Figure 1 is a vertical sectional view through the casing, illustrating my improved engine in side elevation. Fig. 2 is a top plan view of the engine, the top section of the casing being removed. Fig. 3 is a side elevation of a fragment of the supporting-frame, illustrating the inlet and exhaust ports. Fig. 4 is a side elevation of one of the oscillating cylinders. Fig. 5 is a longitudinal sectional view through the same.

In the drawings the same reference characters indicate the same parts of the invention.

1 denotes the engine-supporting frame, consisting of the body portion 2, formed on each side with valve-seats 3 and inlet and exhaust ports 4 and 5, respectively. The forward end of the frame is formed with side pieces 6, having bearings 7 for a drive-shaft 8, the ends of which are provided with crank-wheels 9. To the forward ends of the side pieces 6 is secured or cast a longitudinal bearing 10 for the tool-spindle 11, which spindle has secured to its forward end a tool holder or chuck 12.

13 denotes two oscillating cylinders journaled in the yoke-frame 14, bolted to the frame 1. Each cylinder has on its inner face a valve-seat 15 to coact with the valve-seat 3 and ports 16 and 17, which act alternately as inlet and exhaust ports and which register with the ports 4 and 5 in the valve-seat 3. Each cylinder is provided with a piston 18, the rod 19 of which is connected to the crank 20 of the crank-wheel.

21 denotes an inlet-pipe which extends up through the frame and communicates with the ports 4 on each side of the frame and is provided with a cut-off valve 22 and a throttle-valve 23. This pipe 21 is adapted to be connected to a flexible hose 24, which in turn is connected to a source of power-supply, which may be a boiler, an air-compressor, or a gas-tank.

Splined to the rear end of the tool-spindle to rotate thereon and permit of a longitudinal movement of the tool-spindle therewith is a bevel-pinion 25, which meshes with the drive-gear 26, fixed to the drive-shaft 8.

A trip 29 is mounted in lugs 30, depending from the frame 1, and has a toe 31, which is in the path of movement of the rear end of the tool-spindle.

32 denotes a lever pivoted to a lug 33, secured to the frame 1, and having its forward end in the path of movement of the trip 29 and having its rear end forked, as at 34. This end straddles the throttle-valve rod 35 between two collars 36, fixed thereon.

37 denotes a retractile spring, one end of which is connected to an immovable part of the frame and the other end of which is connected to the lever 32.

38 denotes a handle for supporting the forward end of the machine, and 39 denotes a handle-grip for supporting the rear end of the machine.

40 denotes a conical collar secured to the tool spindle or holder and adapted to coact with the conical bearing 41, formed in the forward end of the spindle-bearing 10.

In operation the machine being connected

to the hose 24 is capable of being moved from place to place. It is grasped by the handles 38 and 39, and when pressure is applied to force the tool 42 to its work the spindle 11 is slid inward. The rear end of the spindle in its inward movement strikes the toe 31 of the trip and presses said trip backward. This movement of the trip rocks the lever 32, which in turn operates the throttle-valve to admit the driving power (compressed air, steam, or gas) into the cylinders in the usual manner. By the admission of power into the cylinders they are oscillated and rotate the crank-wheels, which communicate their motion to the tool-spindle, which is constantly driven as long as it is held pressed to its work. The instant that it is withdrawn from its work the spring 37 exerts its energy to retract the lever 32 and close the throttle-valve. The movement of the lever in closing the throttle-valve forces the trip 39 outwardly and likewise the tool-spindle.

If desired, the oscillating cylinders and the gearing actuated thereby may all be inclosed within a casing 43.

From the foregoing description, taken in connection with the accompanying drawings, the construction, operation, and advantages of my improved engine will be readily apparent without requiring an extended explanation.

It will be seen that the device is simple of construction, that said construction permits of its manufacture at small cost, and that it is exceedingly well adapted for the purpose for which it is designed.

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

Having thus described the invention, what is claimed, and desired to be secured by Letters Patent, is—

1. In a device of the character described the combination with the supporting-frame; of a drive-shaft, an oscillating engine coupled to the drive-shaft to rotate the same, a throttle-valve to control the admission of power to the engine, a tool-spindle, intermediate mechanism for transmitting motion from the drive-shaft to the spindle, and a trip actuated by the tool-spindle to operate the throttle-valve to permit of a cutting off of the power to the engine, substantially as and for the purpose set forth.

2. In a device of the character described, the combination with the supporting-frame, of a drive-shaft, an oscillating engine coupled to the drive-shaft to rotate the same, a throttle-valve to control the admission of power to the engine, a tool-spindle, intermediate mechanism for transmitting the motion of the drive-shaft to the spindle, and mechanism actuated by the tool-spindle for automatically admitting and cutting off power to the engine, substantially as and for the purpose set forth.

3. In a device of the character described, the combination with the supporting-frame, of a drive-shaft, an oscillating engine coupled to the drive-shaft to rotate the same, a throttle-valve to control the admission of power to the engine, a tool-spindle journaled in said frame and having a longitudinal movement independent thereof, intermediate mechanism for transmitting the movement of the drive-shaft to the tool-spindle, a spring-actuated pivoted lever connected to the throttle-valve, a trip located in the path of movement of the spindle and adapted to actuate said lever to open said valve and admit power to the engine, and when the tool is withdrawn from its work and pressure removed from the tool, the valve will be automatically closed, substantially as and for the purpose set forth.

4. In a device of the character described, the combination with the main frame, of oscillating engines supported thereby, a throttle-valve for controlling the admission of power to said engines, drive-wheels journaled in said frame and driving the crank-shafts to which the piston-rods of the engines are connected, a drive-gear fixed to said shafts, a tool-spindle journaled in a bearing of said frame and having a longitudinal movement therein, a pinion splined to said spindle and engaging the gear-wheel, an angular spring-actuated lever pivoted to the frame and connected at one end to the throttle-valve, and a trip supported by said frame and having one end in the path of movement of the tool-spindle and the other in that of the forward end of the trip whereby when the tool carried by said spindle is pressed to its work the spindle will be moved inwardly, thus rocking the lever and opening the valve to admit power to the engines, and when the tool is withdrawn from its work and pressure removed from it, the spring will exert its energy to close the valve and restore the parts to their normal positions, substantially as and for the purpose set forth.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

WALTER C. DEIBERT.

Witnesses:
JOHN A. BOWLES,
C. T. JAMES.