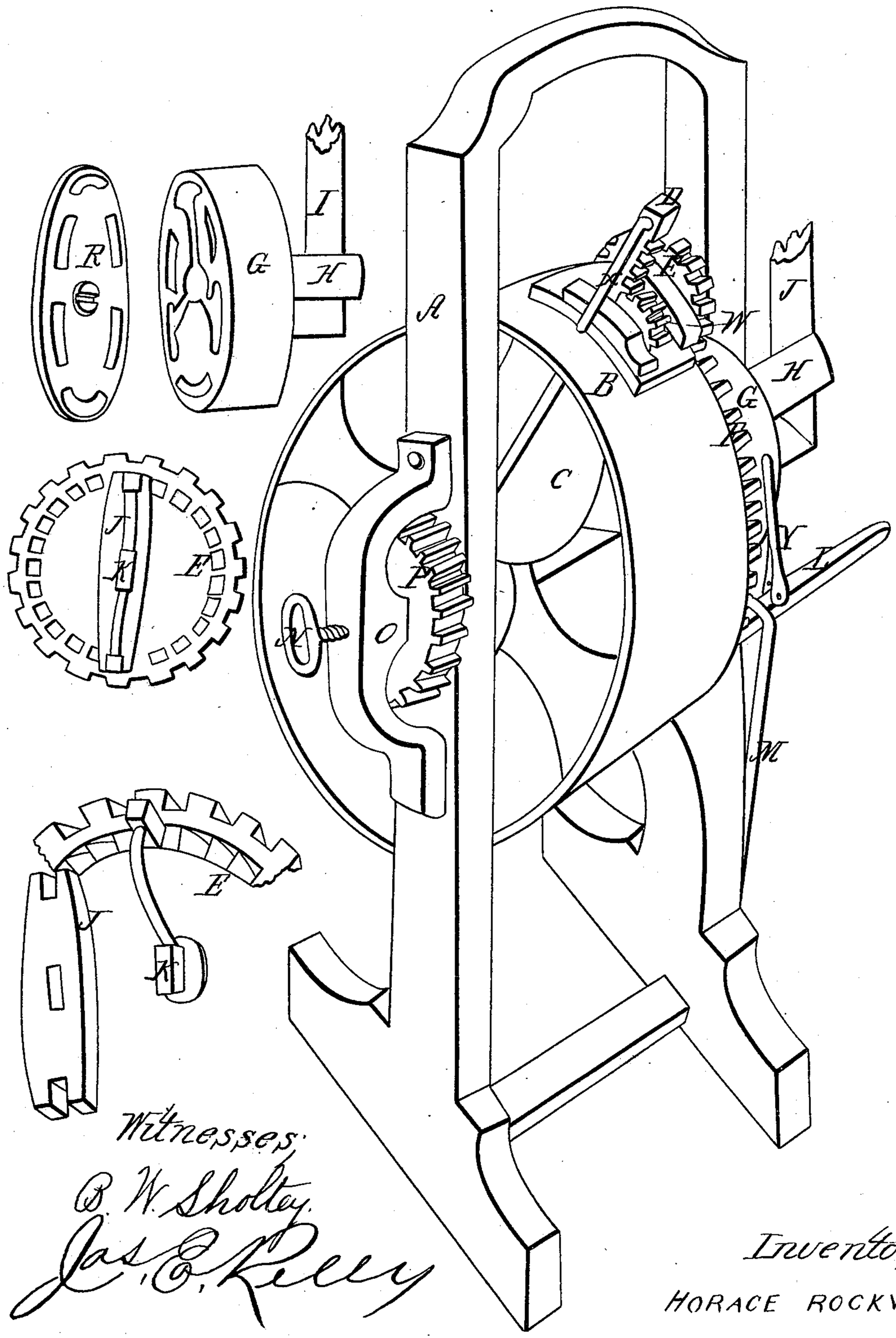
H. Rockwell.

Steam Engine.

No. 85,536. Patented Jan. 5, 1869.



Witnesses:
B. W. Sholley.
Jas. O. Reed

Inventor:
HORACE ROCKWELL

United States Patent Office.

HORACE ROCKWELL OF ROANOKE, INDIANA.

Letters Patent No. 85,536, *dated January* 5, 1869.

IMPROVED STEAM-ENGINE.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, HORACE ROCKWELL, of the town of Roanoke, Jackson township, in the county of Huntington, and State of Indiana, have invented a new and improved Plan for the Construction of Steam-Engines; and I do declare the following to be a clear and full description thereof, reference being had to the accompanying drawings, and letters of reference marked thereon.

The principle of my engine may be stated to be a rotating cylinder-engine, constructed and operated as follows:

Two or more cylinders, bored and fitted with pistons, are mounted on a large shaft or hub, and suspended on bearings, so as to revolve freely as a wheel.

The frame marked A, fig. 1, in which the works are to be hung, may be made in form to suit the situation or taste of the builder.

B is a driving-drum, to carry a belt, and also supports the cylinders and driving-pinions.

C, the working-cylinders, (only one is seen in the drawing,) are opposite to each other.

D, the piston-shaft, which is provided with teeth, and acts upon the small pinion, in connection with it, at the mouth of the cylinder.

E is a driving-pinion, and carries the whole works as it revolves around the stationary toothed rim, (seen beyond the drum at F.) Said rim is fixed to the framework, and pinion E revolves around it.

G, the steam-chest, through which steam is conveyed to and discharged from the cylinders.

In Figure 2, the steam-chest is seen in parts, showing its inside passages, six in number—three, leading from the centre, being admission-ports; the other three, passing directly through to the escape-chamber, are called escape-ports. These lead to the escape-pipe.

R is the face-plate of the steam-chest, with its rectangular openings, through which the steam passes to the cylinders. The screw in the centre forms a projecting point on the centre of the face-plate, by which it is centred on the end or face of the hub, which is nicely faced off and fitted to receive it, making a steam-tight joint; and a passage to each cylinder in the face of the hub conveys steam from the steam-chest to the cylinders, as the ports pass each other as the hub revolves, the steam-chest being stationary.

The back division of the steam-chest is a single chamber, collecting the steam to the escape-port.

H is the enter-port, and passes through the centre of the steam-chest to the face-plate, thence diverging to three passages through the face-plate; but these passages are closed by the force of the hub, except when a cylinder-port passes before them.

In order to regulate the pressure between the hub and steam-chest, a screw, N, is provided at the opposite end of the axle, at the bracket O, which supports the driving-pinion P.

L is a lever, which, in conjunction with the hooked rods Y and M, is used to move the steam-chest, when necessary, or hold it stationary.

X is a connecting-rod, between the piston-shafts, causing them to work in unison; that is, when one is forced out by the steam, the connecting-rod brings the other home to its place, driving the escaping steam before it.

Operation.

Now it is plain that, if steam at pressure is let into the steam-chest at H, it will pass through into the cylinder whose port is as that moment opposite the port in the steam-chest to which the steam is pressing. The steam, acting on the piston, will drive it onward, causing the toothed shaft to act on the pinions, in combination with it, which will revolve the machine until the port of the said cylinder arrives opposite an escape-port, when the steam in that cylinder will rush out through the escape-pipe into the atmosphere, (or condenser, if one be used.) At the same time the opposite cylinder will have arrived over a steam-port, and begun to receive steam, as soon as its opposite ceases to receive it, so that the working-pinions of one side cease to act only as the opposite ones commence.

Now notice pinion E, to understand which is very important. Please note that, if E is fast on its axle, the piston cannot return, after having made a stroke, without carrying E back to its starting-point. Now, to effect this object, pinion E is made to run loose on its axle, and on its face-side (not seen in fig. 1) is fixed a ratchet, (double-headed,) acting on both sides of the centre. (See Figure 4. Also see Figure 3, which shows the double-ratchet lever, and the ratchet with its spring separated.)

The ratchet, when in place, as in fig. 4, being fixed upon the axle K of pinion E, when the piston makes a stroke, clutches into the teeth in the face of the pinion, and carries it forward a fraction over one-sixth part of the circumference of the fixed rim or circle on which it travels. Now the piston returns, the clutch is loosened, and revolves backward, while the pinion moves forward loose, until it is again seized by the ratchet, on the next stroke of the piston.

My engine may be made with any even number of cylinders, for which room can be found in the circle of the drum, but since the cylinders can be increased in size, at pleasure, I consider two as good as more.

I claim—

1. The arrangement of the steam-chest G, with relation to the hub R and cylinder C, substantially as described.

2. The combination of the toothed piston-rod D, pinion W, ratchet J, cogged wheel E, and stationary cogged rim F, substantially as described.

HORACE ROCKWELL.

Witnesses:

J. S. GRIM,

D. N. GRIM.