

(No Model.)

2 Sheets—Sheet 1.

A. E. JOHNSON.

ENGINE.

No. 329,563.

Patented Nov. 3, 1885.

FIG. 1.

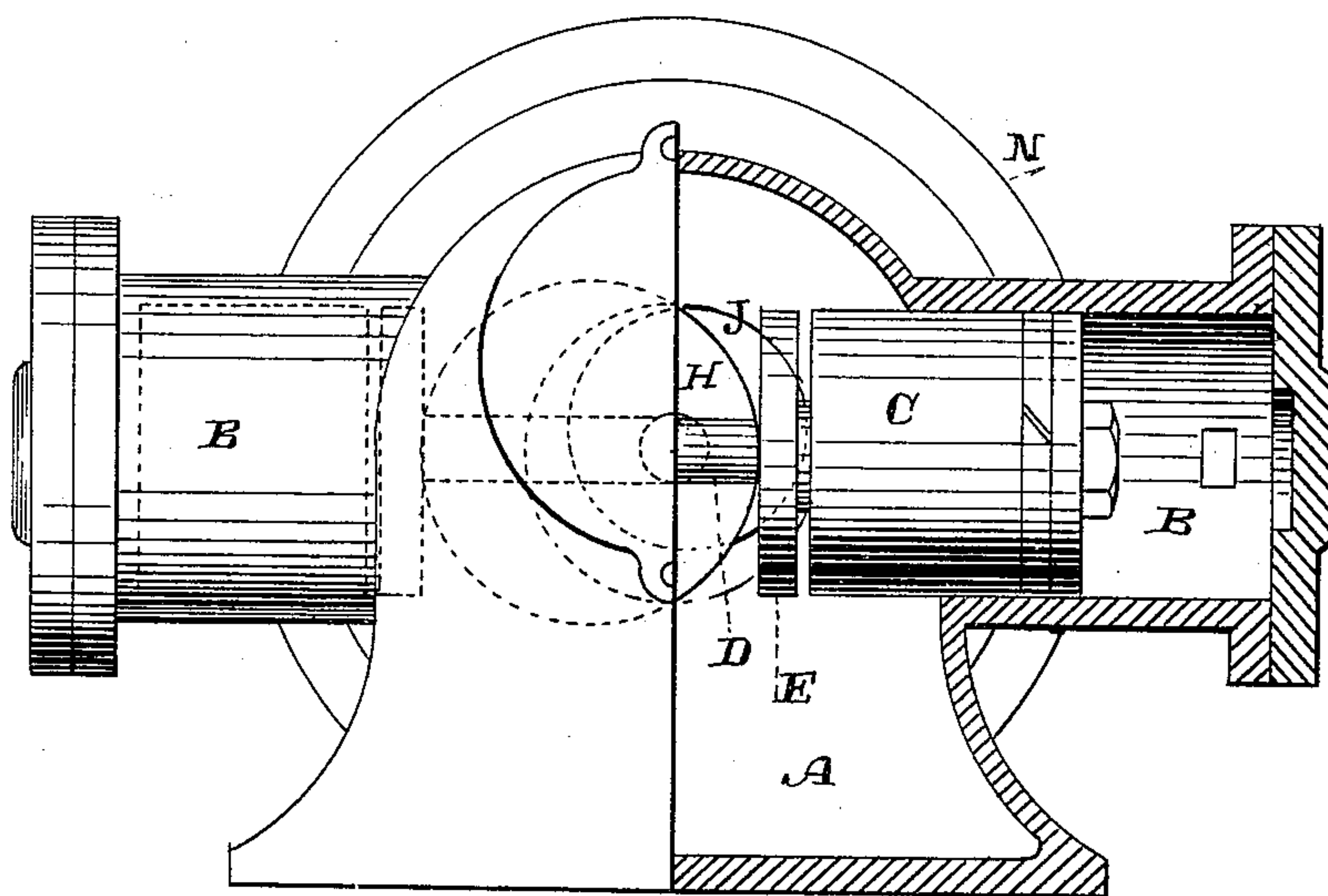
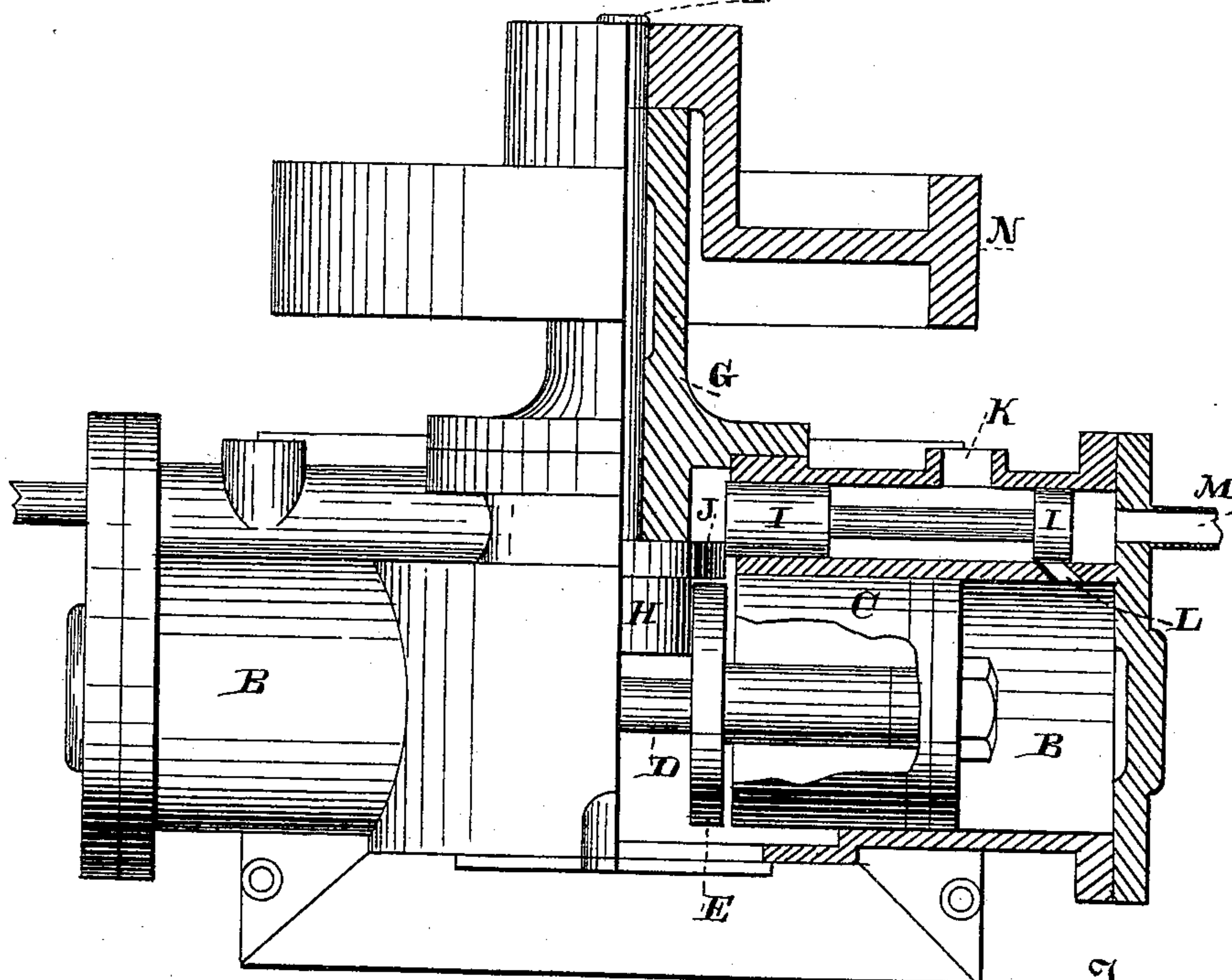


FIG. 2.



Witnesses,
J. T. Kouse
H. C. Lee.

Inventor
A. E. Johnson
By Derrey &
attorneys

(No Model.)

A. E. JOHNSEN.

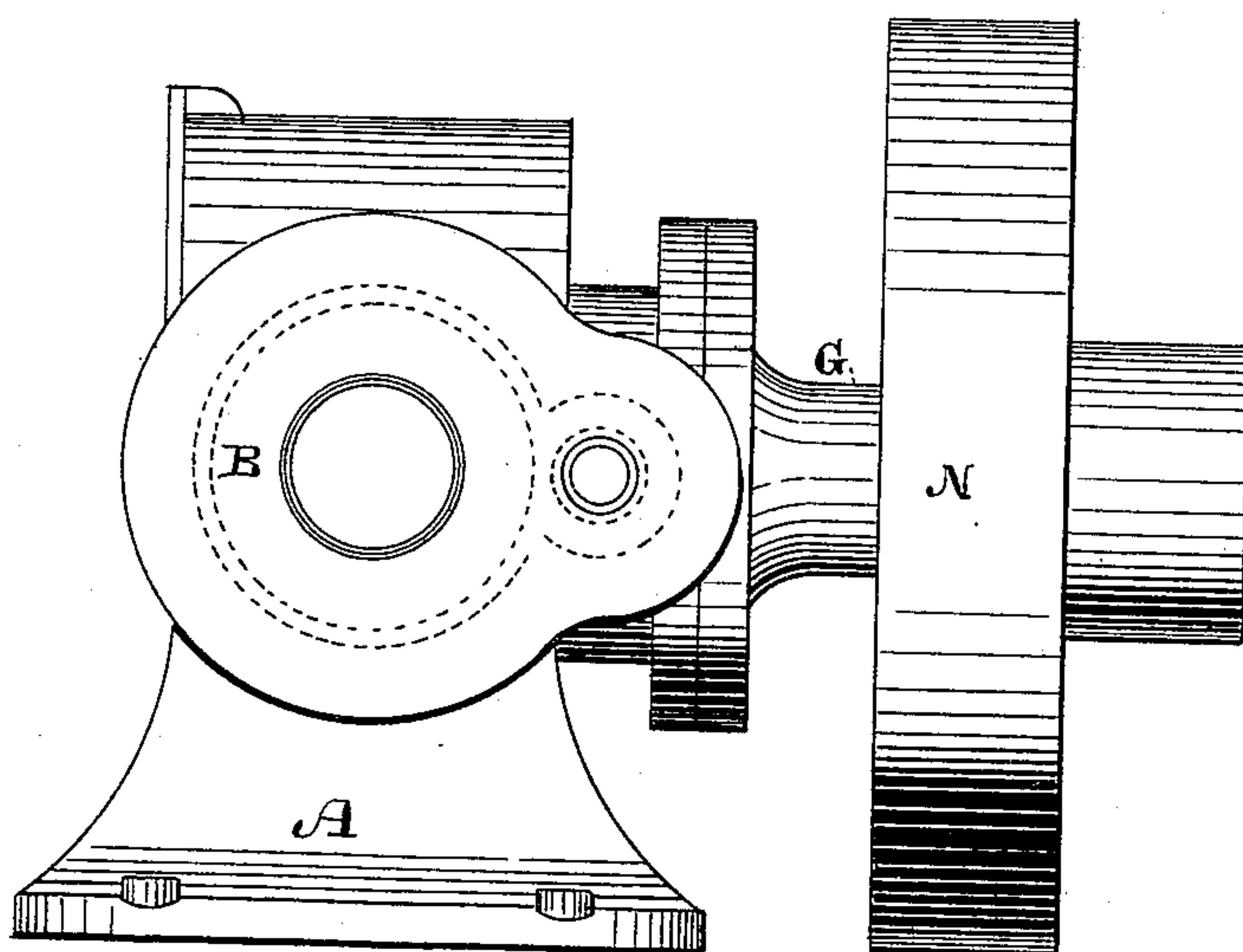
2 Sheets—Sheet 2.

ENGINE.

No. 329,563.

Patented Nov. 3, 1885.

FIG. 3.



Witnesses,
J. H. Hourse:
H. C. Lee.

Inventor
A. E. Johnson
By Devey & Co
Attorneys

UNITED STATES PATENT OFFICE.

ALFRED E. JOHNSEN, OF AUSTIN, NEVADA.

ENGINE.

SPECIFICATION forming part of Letters Patent No. 329,563, dated November 3, 1885.

Application filed July 18, 1885. Serial No. 172,023. (No model.)

To all whom it may concern:

Be it known that I, ALFRED E. JOHNSEN, of the town of Austin, Lander county, State of Nevada, have invented an Improvement in Engines; and I hereby declare the following to be a full, clear, and exact description of the same.

My invention relates to certain improvements in engines; and it consists of cylinders having their axes in line, pistons fitted to said cylinders and united by a rod which connects them, rotating disks loosely fitted to said piston-rods, so as to be operated by eccentrics upon the main engine-shaft, which extends transversely between the cylinders, and in certain details of construction, all of which will be more fully explained by reference to the accompanying drawings.

Figure 1 is a side elevation of the engine, showing a vertical section through the center of one cylinder and half the engine. Fig. 2 is a horizontal section of one cylinder. Fig. 3 is an end elevation.

My engine consists of a single casting forming a base, oil-reservoir, and casing for the working parts, as shown at A, and two cylinders, B B, which stand in line with each other upon opposite sides of the casing, as shown. Within these cylinders are fitted pistons C, which are connected together by a piston-rod, D. Upon this piston-rod are two disks, E, having hubs which are bored to fit the rod, so as to allow the disks to turn freely about it. These disks are placed near to the pistons, standing between them and the main shaft. The main engine-shaft F is journaled within a sleeve or casing, G, which projects at right angles outwardly from the line of the piston-rod and the casing A, and thus supports the shaft, being formed also with a reservoir for lubricating purposes. To the inner end of this shaft is secured an eccentric, H, of such a diameter that its periphery will just rest against the faces of the two opposite disks, E, between which it revolves. This eccentric has a throw equal to the travel of the pistons, and when the pistons are caused to reciprocate they act upon this eccentric alternately, causing it and the shaft to which it is attached to be revolved. As the disks E turn freely about the piston-rod and the eccentric acts against their faces

near the periphery, it will be manifest that these disks will be caused to revolve about the piston-rod and upon the eccentric, thus reducing the friction, which might otherwise occur, to a minimum and causing the engine to run very easily.

I are the valves, which are constructed to admit steam into the cylinders. These valves are of the piston form, and they are connected by eccentric J, which is also secured to the driving-shaft, and is fitted to turn between the ends of these valves in the same manner that the eccentric H fits between the disks E. When the shaft is caused to revolve, this eccentric acts to move the valves and admit and exhaust steam alternately from the engine-cylinders. These eccentrics have their contact with the outside edges of the circular ends of the valves, so that the valves are caused to rotate while they are being reciprocated, and a rolling friction is produced between the valves and their actuating-eccentrics, which thus makes them move very easily and without rubbing friction. Steam is admitted into the valve-chambers through the inlet-openings K, and passes thence into the steam-cylinder, and is also exhausted therefrom through the ports L.

M M are the exhaust-ports, through which the steam escapes, having done its work. The fly-wheel N is keyed to the outer end of the shaft, and the hub is recessed, so that the rim and body of the wheel is carried inwardly to a considerable distance, so that the weight of the wheel is brought over the center of the journal.

The valves are kept in contact by steam-pressure, which operates them in one direction and the eccentric in the other.

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

1. In an engine, the oppositely-placed cylinders having their axes in line with each other, pistons fitted to reciprocate within said cylinders, united by a single piston-rod and having disks which rotate loosely upon said piston-rod in close proximity with the pistons, in combination with an eccentric mounted upon the engine-shaft and between the disks, so that its periphery rotates in contact with the disks, substantially as herein described.

2. In an engine, the cylinders standing in line

- and having their pistons united by a single rod extending from one to the other, loosely-rotating disks fitted to said piston-rod in front of the pistons, in combination with the main engine-shaft, standing at right angles with the piston-rod and having an eccentric fixed to it so that its periphery moves in contact with and between the faces of the disks, substantially as herein described.
3. In an engine, the cylinders mounted opposite each other, with pistons connected by a single piston-rod extending between them, disks rotating upon said piston-rod and actuating an eccentric, which is fixed to the main engine-shaft, in combination with cylindrical steam-valves having circular disks at their ends and an eccentric fixed to the main engine-shaft so as to rotate in contact with the valve ends, substantially as herein described.
4. In an engine, the oppositely-placed cylinders and the pistons united by a single piston-rod, in combination with the main engine-shaft, valves by which steam is admitted to

the cylinders, and the eccentric upon the shaft and bearing against the ends of the valves, whereby the latter are rotated during their reciprocating movement, substantially as herein described.

5. In an engine, the combination of the oppositely-placed cylinders having their axes in line with each other, pistons fitted to reciprocate in said cylinders and united by a single piston-rod, an engine-shaft projecting partly through the casing, the valves by which steam is admitted to the cylinders, and the eccentrics H and J on the end of the main shaft, the eccentric J bearing against the ends of the valves, whereby said valves are caused to rotate while being reciprocated, substantially as herein described.

In witness whereof I have hereunto set my hand.

ALFRED E. JOHNSEN.

Witnesses:

LINN B. BALL,
JACOB TROLSON.