

W. Goodwin,
Rotary Steam Engine,
No. 84,819, *Patented Dec. 8, 1868.*

Fig: 1.

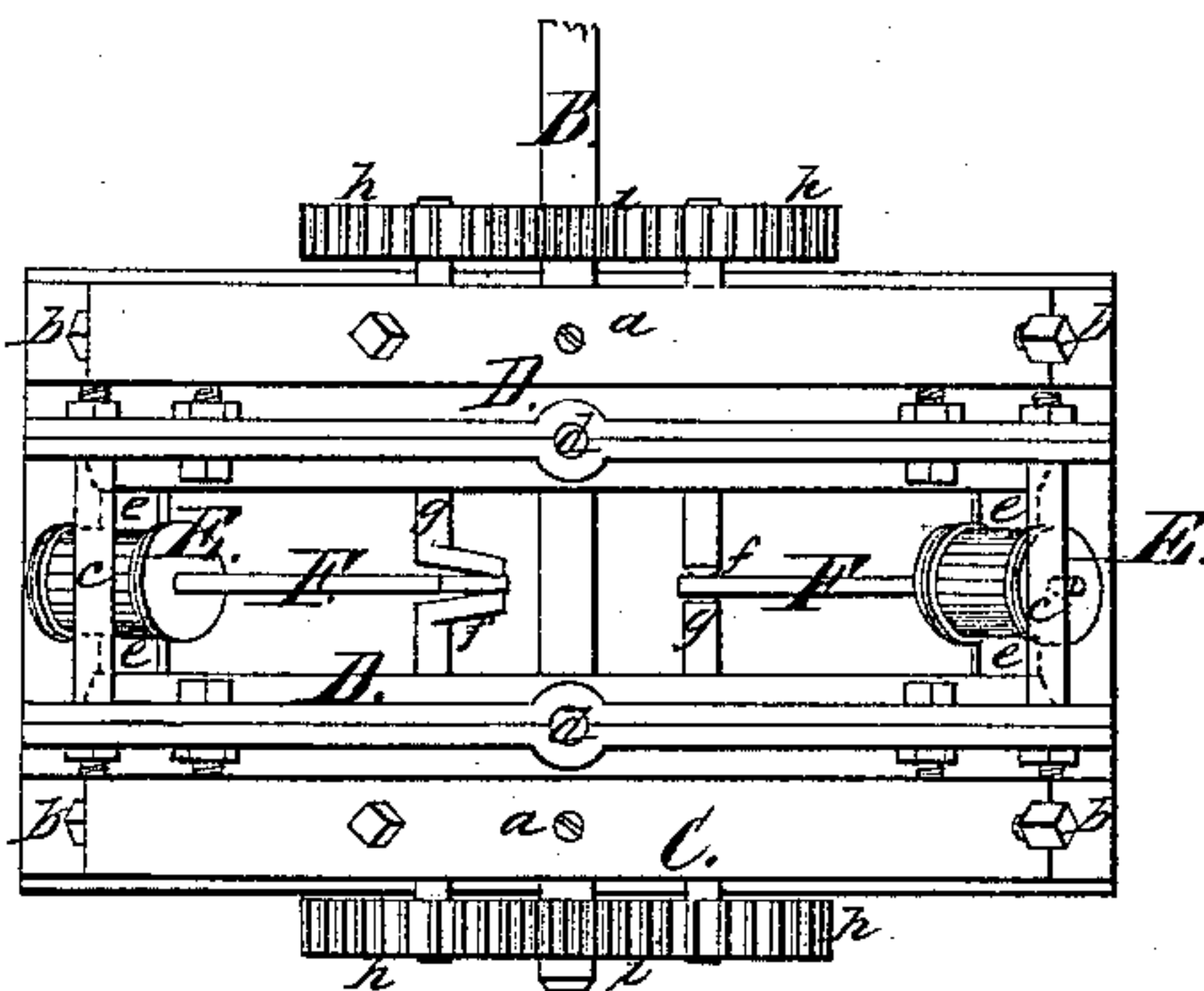


Fig: 2.

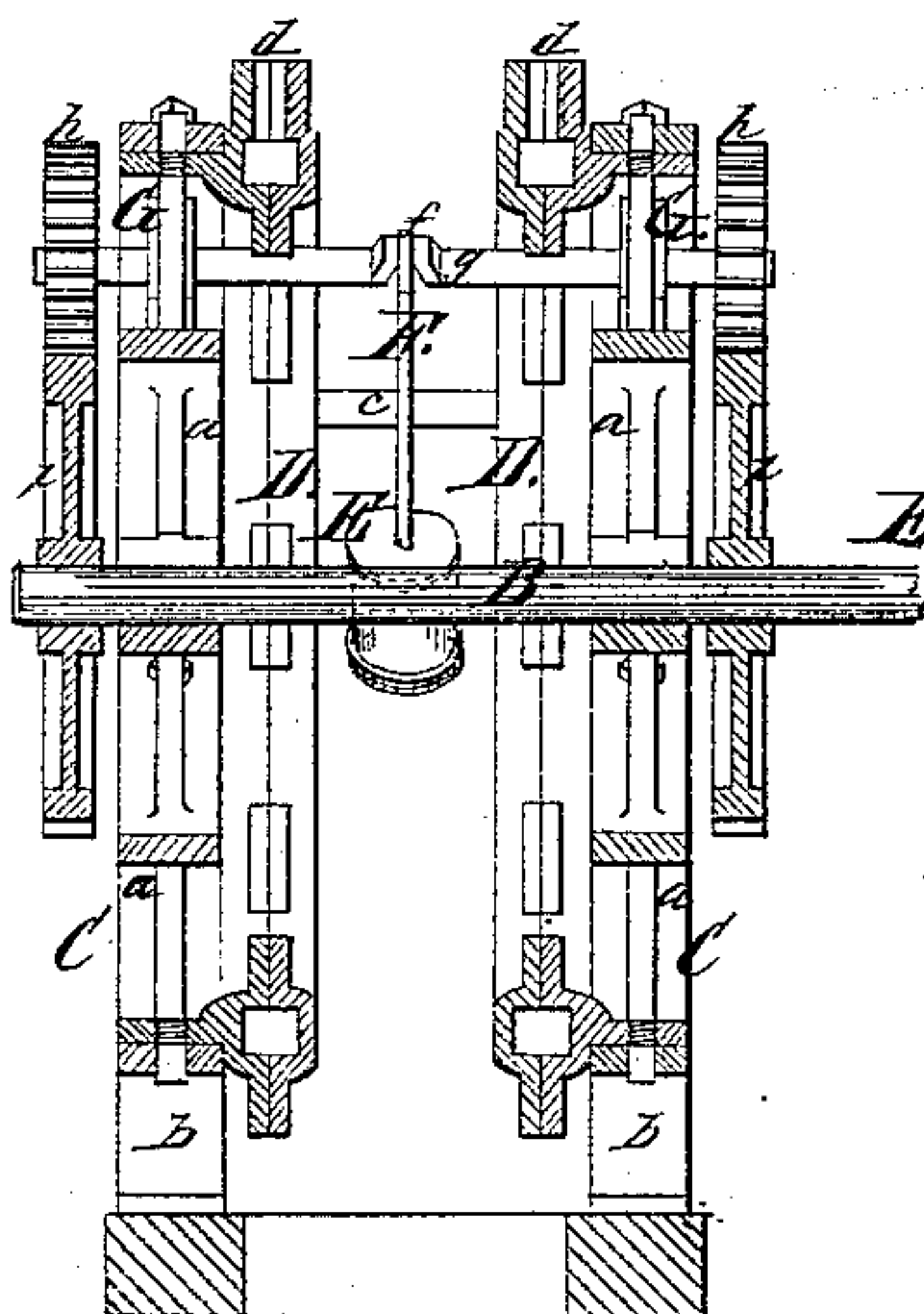
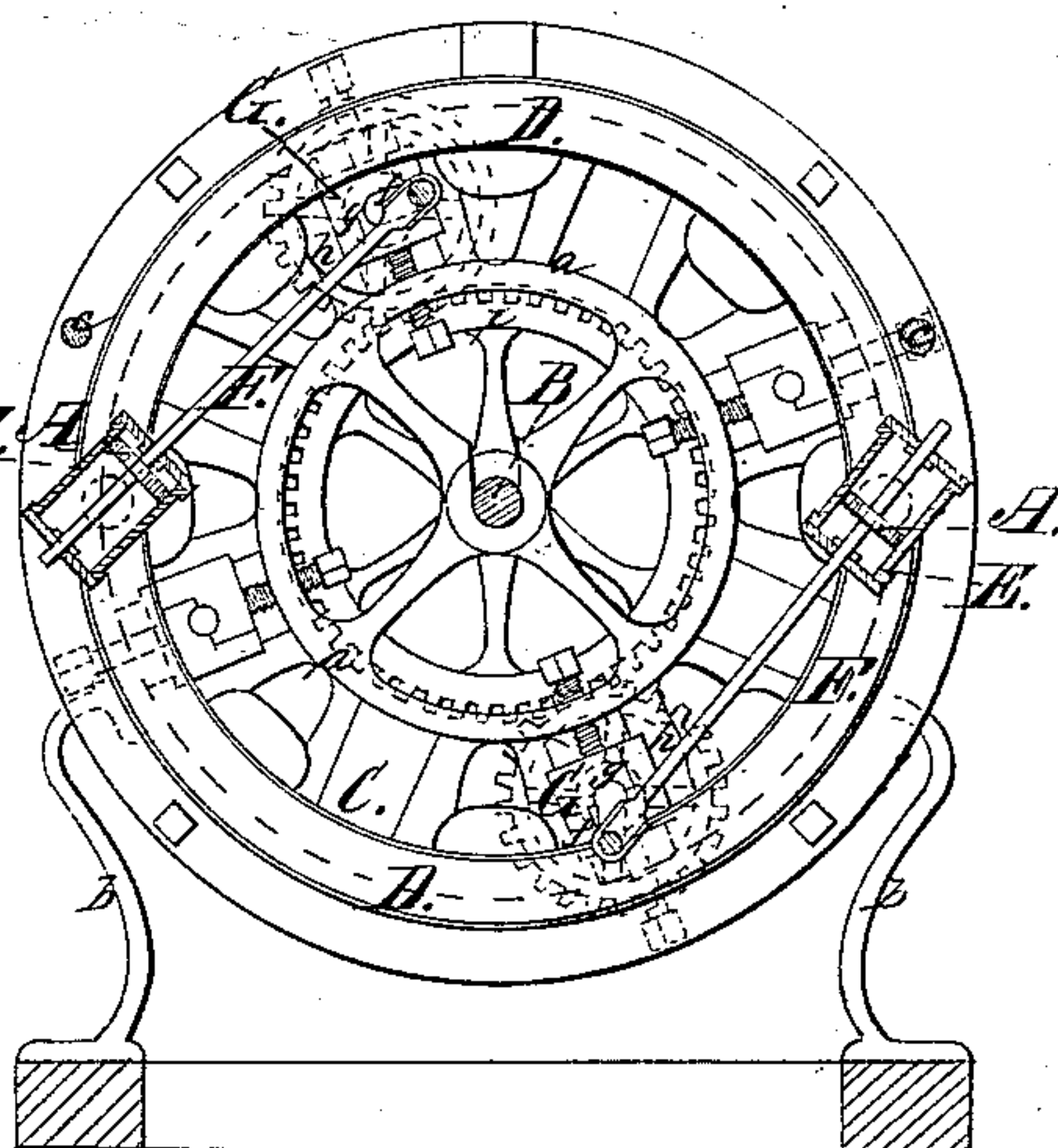


Fig: 3.



Witnesses:

S. N. Piper
J. H. Snow

Inventor:

Wm. Goodwin
by his attorney
H. H. Eady

United States Patent Office.

WILLIAM GOODWIN, OF BOSTON, MASSACHUSETTS.

Letters Patent No. 84,819, dated December 8, 1868.

IMPROVEMENT IN STEAM-ENGINEERY.

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

To all persons to whom these presents may come:

Be it known that I, WILLIAM GOODWIN, of Boston, in the county of Suffolk, and State of Massachusetts, have invented a new and useful Steam-Motor, or engine to be used for operating the paddle-wheels of a navigable steam-vessel, as well as for any other useful purpose; and I do hereby declare the same to be fully described in the following specification, and represented in the accompanying drawings, of which—

Figure 1 is a top view,

Figure 2, a longitudinal section, and

Figure 3, a transverse section of such motor, as applied to the shaft of a paddle-wheel.

In such drawings—

B denotes the paddle-wheel shaft, it being extended through the engine concentrically with the two circular, vertical, and parallel heads *a a* of its supporting-frame C.

These circular heads, formed as represented, are or may each be supported by feet, *b b*.

They are connected by cross-rods or connections, *c c*.

Each of the heads, on its inner side, is provided with a tubular annulus, D, having an opening, *d*, in its top, and being concentric with its head.

Between the said two heads, or the tubular annuli, as described, there are arranged two or any other proper greater number of steam-engine cylinders, E E, each being provided with a piston, A, the rod of which is shown at F.

Each of the said cylinders is or may be supported by trunnions, *e e*, sustained in suitable bearings applied to the frame, and each cylinder should be furnished with proper valves, and with induction and eduction-passages, to so communicate with the annular spaces within the two annuli as to receive steam from one and discharge it into the other of them, the steam, after passing from one, and before being discharged into the other of the two annuli, being made to operate, to move the piston of such cylinder, as the piston of a steam-engine is usually moved.

Each of the several pistons, in case its cylinder is to vibrate, should be jointed to one of a series of cranks, *f f*, each of them being projected from one of a series of shafts, *g g*, extended through and having bearings in the two heads of the frame C.

The boxes in which each of the said shafts is supported may be adjustable radially relatively to the main shaft B, and they may be provided with adjusting-screws, by which they may be moved either toward or away from the shaft.

In fig. 3, two of such boxes, with their adjusting-screws, are represented at G G.

The object of so adjusting the boxes is to bring each of the gears carried by the shafts into correct relation with that gear *i*, of the shaft B, with which it is engaged.

The drawings represent each of the shafts *g g* as provided with two gears, *h h*, fixed on its opposite ends, and also each of such gears as engaged with one of two larger gears, *i i*, fixed on the shaft B.

In case the cylinders are so applied to the frame C as to be stationary, or not vibrate while at work, their pistons should be connected with the cranks of the shafts by means of connection-rods.

The said cranks are to be arranged out of parallelism with each other, in order that each, while passing either "dead-point," may be assisted to pass it by the power directed on the other crank, or one or more of the others.

One of the two hollow annuli is for the supply of the steam to the several cylinders, the other being to receive from them the exhausted steam, and convey it into a common discharge-pipe, by which it may be led either into the atmosphere or into a condenser.

My motor or combination and arrangement of engines or cylinders, pistons, and cranked shafts, with a main driving-shaft, or with such and two hollow annuli, for the supply and exhaust of the steam, with respect to such engines as described, is particularly intended to effect steadiness of motion of the driving-shaft and its paddle-wheel or wheels, and thereby overcome the irregularities of movement usually incident to the common crank, when applied to turn the shaft of a paddle-wheel.

In using my engine or motor, I prefer to employ four of the cylinders within its frame, they being arranged at equal distances a part therein, but I do not confine my invention to such a number of them.

I make no claim to the combination of two separate steam-cylinders and their pistons, with a single driving-shaft, and by cranks out of parallelism with each other, in order that, while one crank may be passing either dead-centre, it may be assisted by the force applied to the other of the said cranks.

I claim the combination and arrangement of the steam-cylinders E E, their pistons, and cranked shafts *g g*, with the driving-shaft B, gears *h i*, and several cranked shafts, as described.

I also claim the combination and arrangement of the two hollow or tubular annuli D D, with the series of steam-engines, and their cranked and main shafts *g B*, gears *h i*, and frame C, as set forth.

WILLIAM GOODWIN.

Witnesses:

R. H. EDDY,
J. R. SNOW.