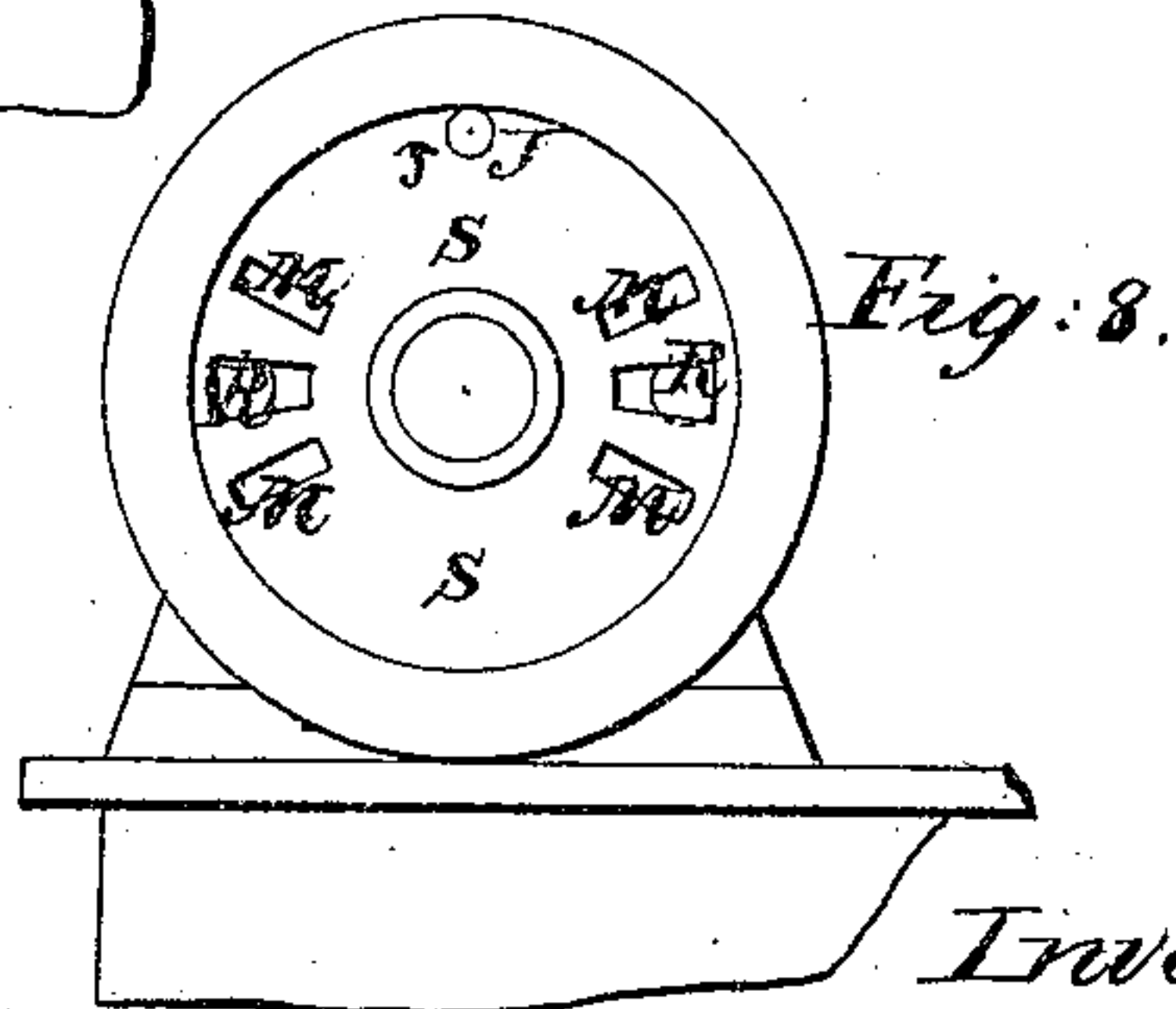
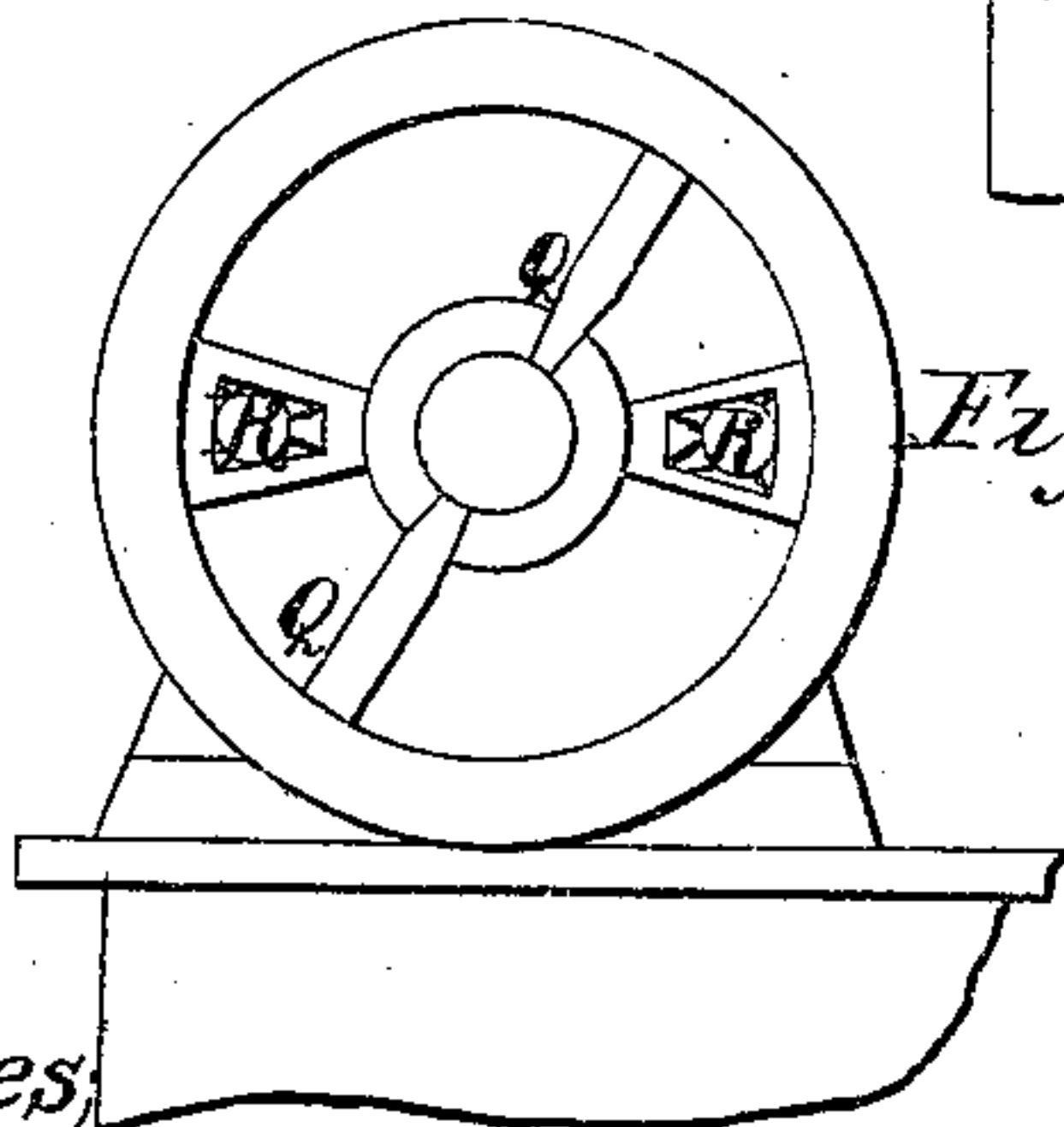
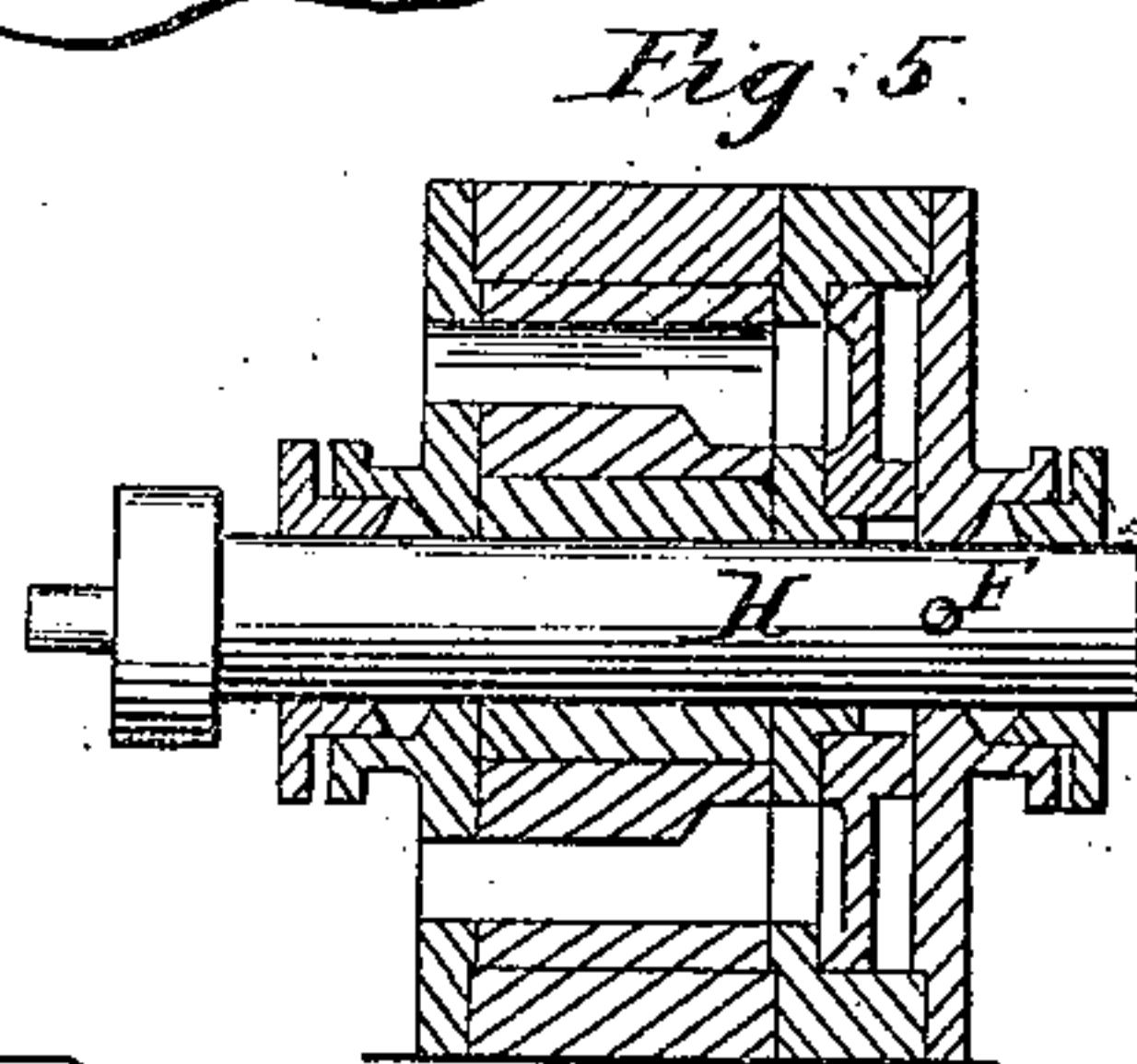
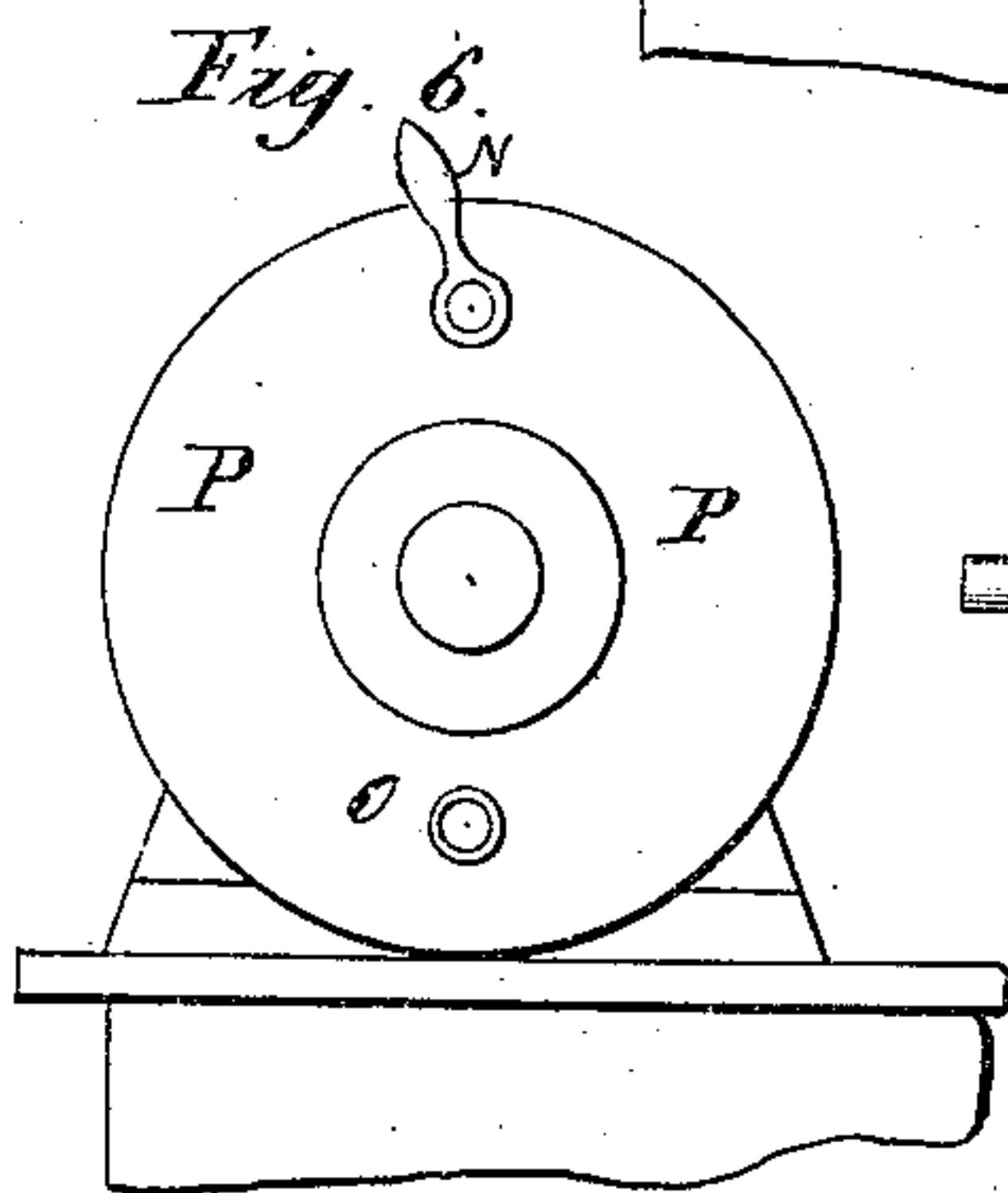
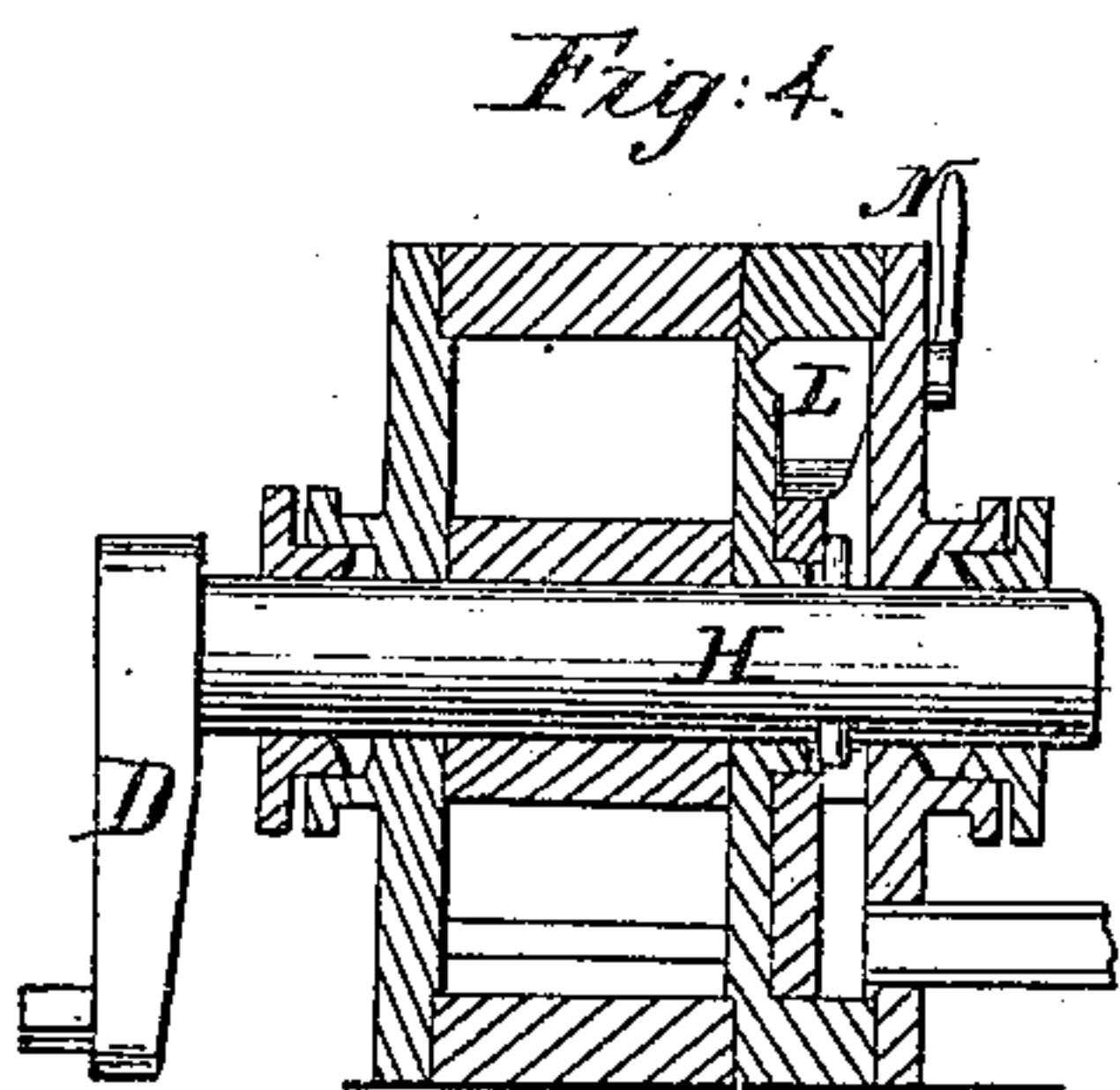
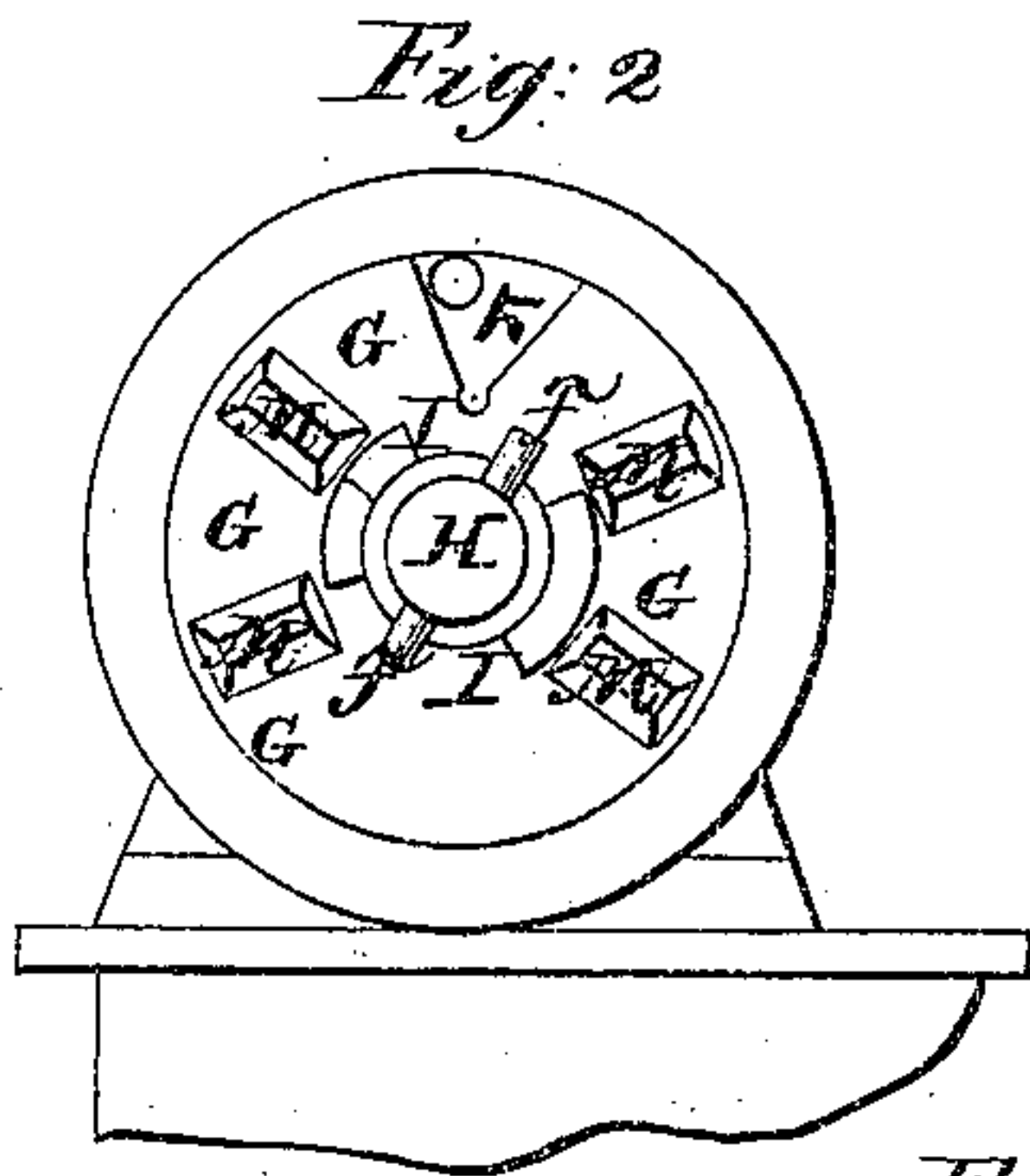
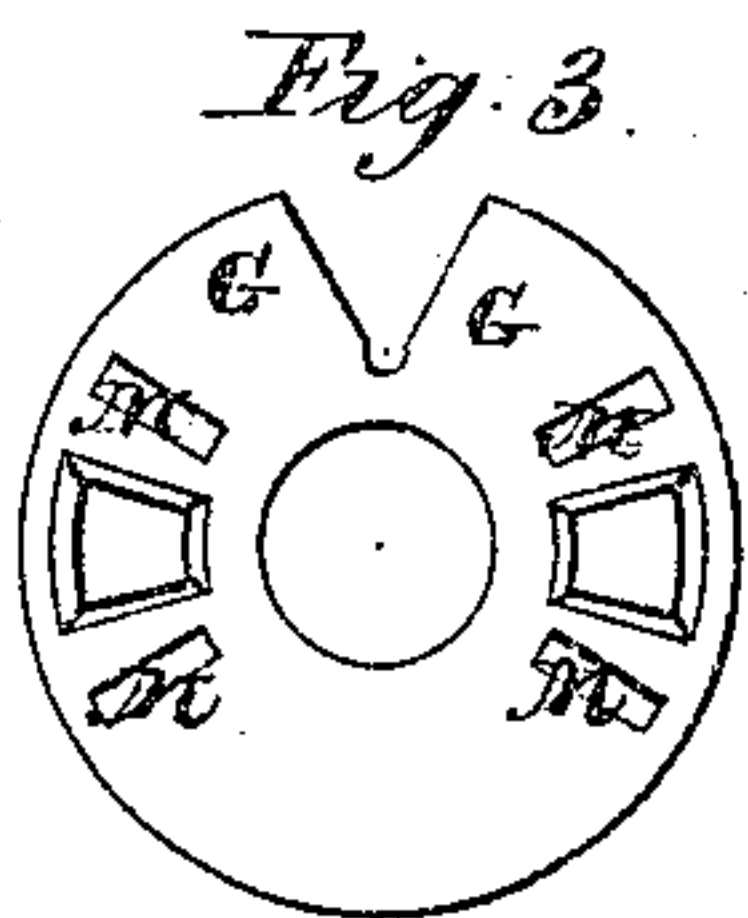
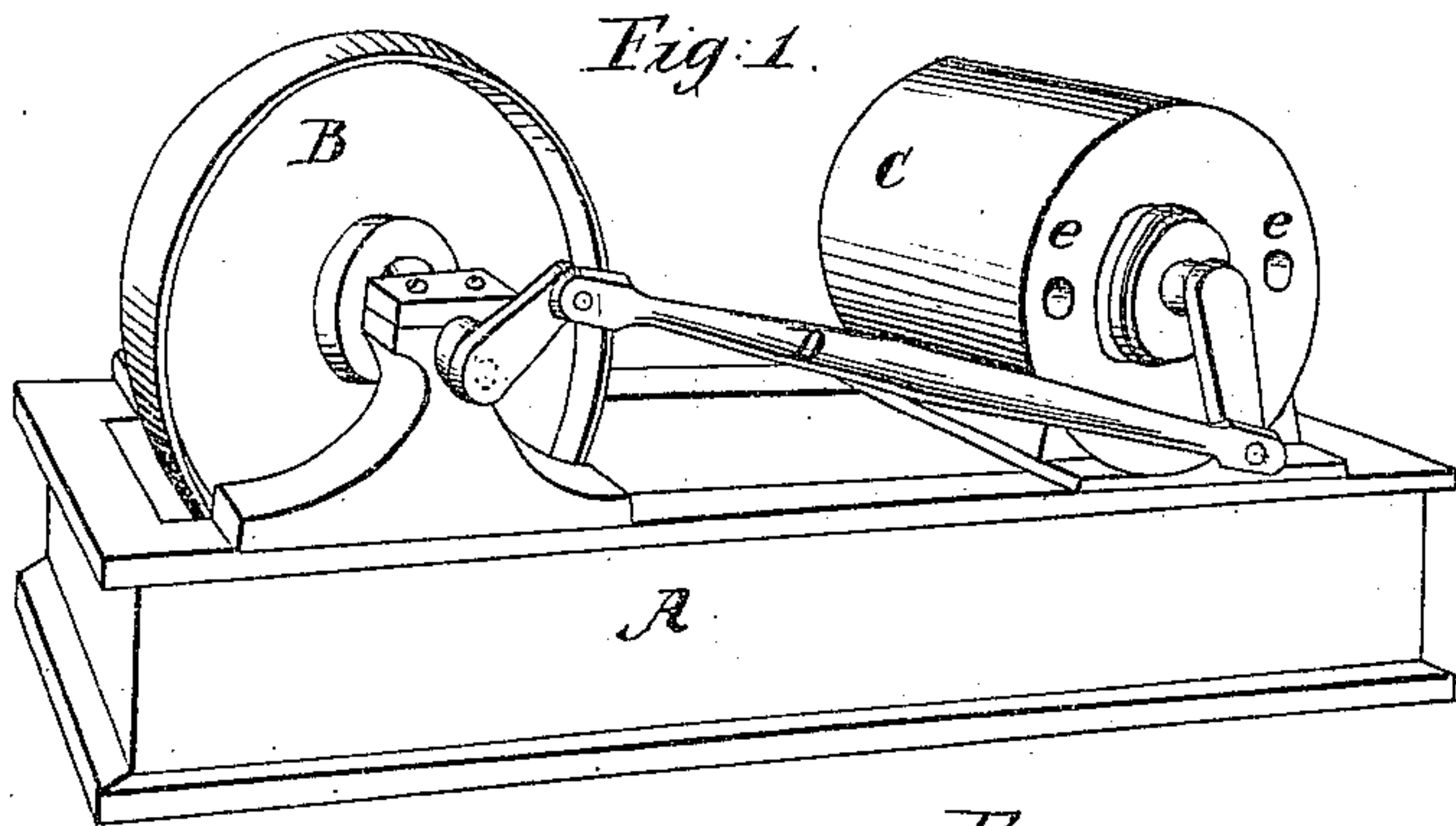


A. Hilby.

Steam Engine.

N^o 95,486.

Patented Oct. 5, 1869.



Witnesses,
Edward C. Males
G. W. McNeill

Inventor
Alden Kelly.
B. W. Williams & Son Attys

United States Patent Office.

ALDEN KILBY, OF BOSTON, MASSACHUSETTS.

Letters Patent No. 95,486, dated October 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, ALDEN KILBY, of the city of Boston, county of Suffolk, and State of Massachusetts, have invented a new and improved Steam-Engine; and I do declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

The nature of my invention consists in providing a double-acting piston with a new method of reversing the engine, and a new method of operating the valve.

I wish it distinctly understood that my engine is not a rotary, and is entirely distinct from any and all rotary engines which have ever been invented.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation.

Figure 1 is a perspective view.

Figure 2 is an elevation of the cylinder with the head removed, showing the valve and the method of operating it.

Figure 3 is an elevation of the back of the valve.

Figure 4 is a cross vertical section through the centre of the cylinder.

Figure 5 is a horizontal section through the centre of the cylinder.

Figure 6 is an elevation of the end of the cylinder, showing the reversing-lever and the steam-pipe.

Figure 7 shows the piston and the exhaust-pipes.

Figure 8 shows the valve-seat, with the steam-ports and exhaust-ports.

In fig. 1, A is the engine-bed; B is the balance-wheel; C is the cylinder; D is the connecting-rod and cranks; E is the exhaust.

In fig. 2, F is the pin which confines the valve G to the journal H. The partial revolution of the journal H moves the pin F, which, striking against the dogs I, moves the valve G right and left, and thus opens the ports M for steam and for exhaust at the same time.

K is the slot in the valve G, in which the reverse L (see fig. 4) travels.

Fig. 3 shows the back of the valve G, with the ports M, &c., for steam.

Fig. 4, vertical section, shows the reverse L, with the lever N.

Fig. 5, horizontal section, shows the pin F, in the journal H.

Fig. 6 shows the lever N to the reverse L, (see fig. 4,) with the steam-pipe O in the head P of the cylinder. (See fig. 1.)

Fig. 7 shows the double-acting piston Q and the exhaust R, the piston Q describing a half circle only.

Fig. 8 shows the valve-seat S, with the steam-ports M and the exhaust-ports R. T is the hole for the pivot of the reverse L in fig. 4.

The advantages of my engine are as follows:

It is very much more simple in construction, and therefore less liable to get out of order; costs very much less to manufacture; takes up very much less room; has less friction, dispensing with slides, cross-heads, and eccentrics; and has greater power than ordinary machines of the same size. It is easily and quickly reversed, and is adapted to locomotives and steamboats, as well as to ordinary manufacturing-purposes. It requires much less skill to manipulate, and is handled with perfect ease by the engineer.

I do not claim that any less steam is required to run my machine, except what may be saved by less friction in dispensing with slides, cross-head, and eccentric.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. A duplicated piston, constructed substantially as above described, thereby securing double the power for the same sized cylinder.

2. The manner of operating the valve, by means of the pin F, through the piston-shaft or journal H.

3. The device L, in fig. 4, for reversing the valve.

ALDEN KILBY.

Witnesses:

JAMES H. ROBERTS,
G. W. MECUM.