

(No Model.)

2 Sheets—Sheet 1.

F. O. ELLIOTT.
STEAM ENGINE.

No. 346,741.

Patented Aug. 3, 1886.

Fig. 1.

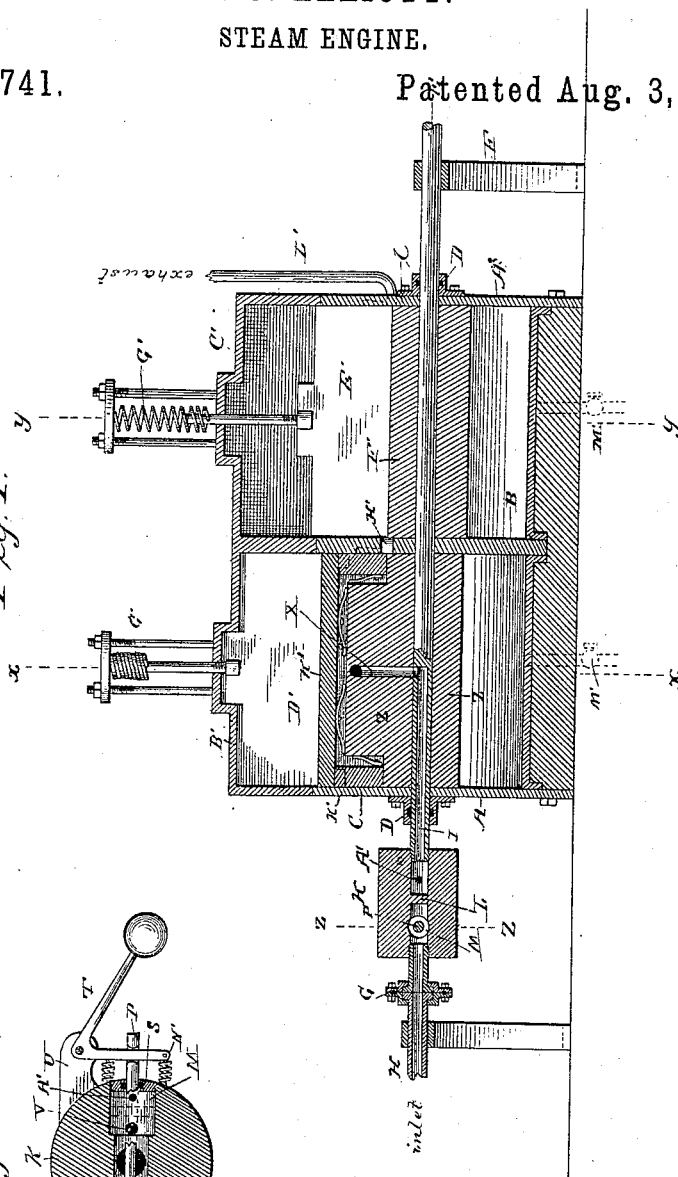
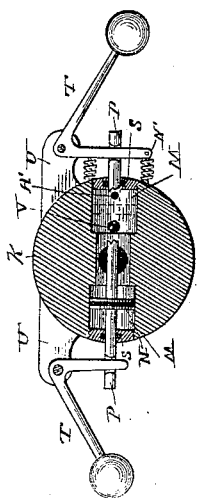


Fig. 4.



Witnesses

C. H. Davis
J. C. Jenkins

Inventor

F. O. Elliott

By *A. C. Alexander* Attorney

C. M. Alexander

(No Model.)

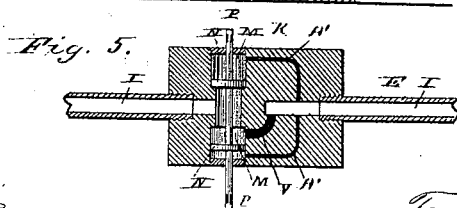
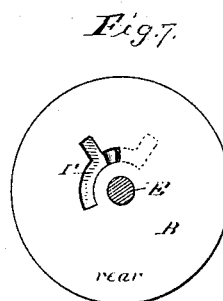
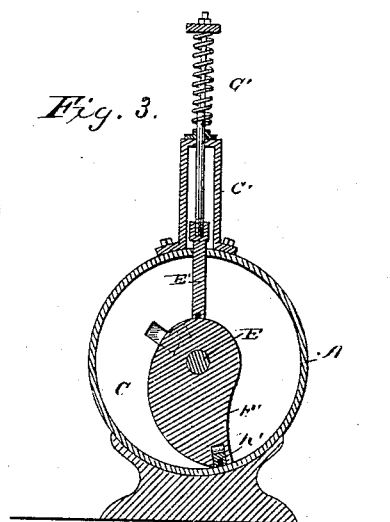
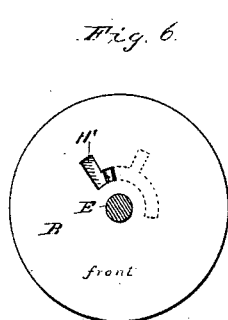
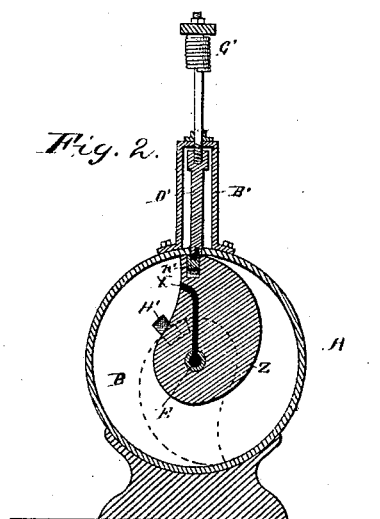
2 Sheets—Sheet 2.

F. O. ELLIOTT.

STEAM ENGINE.

No. 346,741.

Patented Aug. 3, 1886.



Witnesses

J. L. Jenkins

Inventor

F. O. Elliott

By his Attorney

C. M. Alexander

UNITED STATES PATENT OFFICE.

FRANKLIN O. ELLIOTT, OF SPARKLING CATAWBA SPRINGS, N. C.

STEAM-ENGINE.

SPECIFICATION forming part of Letters Patent No. 346,741, dated August 3, 1886.

Application filed April 1, 1886. Serial No. 197,423. (No model.)

To all whom it may concern:

Be it known that I, FRANKLIN O. ELLIOTT, a citizen of the United States, residing at Sparkling Catawba Springs, in the county of

5 Catawba and State of North Carolina, have invented certain new and useful Improvements in Steam-Engines, of which the following is a specification, reference being had therein to the accompanying drawings.

10 This invention relates to certain improvements in rotary steam-engines; and it has for its object to utilize the direct force of the steam initially and the expansive power of the same subsequently, in order to economize fuel

15 and secure the full effect of the steam, as more fully hereinafter specified.

The above-mentioned objects I attain by the means illustrated in the accompanying drawings, in which—

20 Figure 1 represents a longitudinal vertical sectional view of an engine constructed according to my invention; Fig. 2, a transverse vertical section taken on the line *xx* of Fig. 1; Fig. 3, a similar view taken on the

25 line *yy* of Fig. 1; Fig. 4, a transverse section taken on the line *zz* of Fig. 1; Fig. 5, a longitudinal sectional view of the governor; Fig. 6, a detached view showing the front of the partition which divides the two cylinders of

30 the engine, and Fig. 7 a rear view of the same. The letter A indicates the cylinders of the engine, which are two in number, and set longitudinally in line with each other, being divided by a partition, B.

35 C indicates the heads of the cylinders, which are provided with central stuffing-boxes, D, through which the longitudinal shaft E passes. The said shaft at one end is journaled in a bearing, F, in which it is adapted to rotate freely.

40 The other end of said shaft is flanged and connected by a coupling-box, G, to the flanged end of a stationary pipe, H, in such manner as to rotate independently thereof, for the purpose more fully hereinafter described. The forward

45 end of the shaft is bored, as indicated by the letter I, and has connected to it a governor, K, which consists of a short cylinder, having a central passage divided by a partition, L, as indicated in Fig. 1 of the drawings.

50 The said cylinder is bored transversely, forming recesses M at opposite sides, in which are adapted to work the pistons N, mounted upon

a reciprocating piston-rod, P, extending through the stuffing-boxes S at the ends of the recesses before mentioned. The extremities 55 of said piston-rod are slotted, and through the slots extend the short arms of the angle-levers T, which are fulcrumed to the brackets U, forming part of the governor. The central passage of the governor connects by a passage, 60 V, with the central passage on the other side of the partition, in order to admit steam intermittently to the hollow portion of the driving-shaft of the engine, and from thence through the port X in the rotary piston Z to the first 65 cylinder of the engine.

The letter A' indicates two ports leading from the steam-passage in the governor to the outer ends of the chambers in which the governing-pistons travel, in order to balance the 70 same and enable them to operate freely.

Above the cylinders are located two valve-chests, B' C', in which are adapted to slide the valves D' E'. These work through longitudinal openings in the cylinders, and bear with 75 their lower edges against the rotary pistons Z and F'. The said valves are held normally to their positions by means of the springs G', to confine the steam at one side of each piston, in order to properly move the same. 80

The pistons Z and F' are constructed in cross-section, as shown in Figs. 2 and 3 of the drawings, with a gradual curve at one side, so as to permit the valves to fall gradually, without any jerking or interrupted motion. The di- 85 viding-partition between the two cylinders is provided with a recess, H', in front, from which extends a passage, I', leading into the second cylinder. The piston is so shaped as to cover the recess at proper portions of its revolution, 90 and open it at other portions, so as to discharge the exhaust-steam into the second cylinder at proper intervals. The pistons at their edges which abut against the interior of the cylinders are slotted longitudinally, and have lo- 95 cated in said slots movable packing-plates K', of brass or other similar metal, which are pressed normally outward, forming a packing for the pistons.

The letter L' indicates the final exhaust- 100 pipe, extending from the second cylinder into the open air; and M', two escape-pipes, provided with suitable valves extending from the lower portions of the respective cylinders for

the escape of water of condensation from the same.

Between the outer surface of the governor-cylinder and one of the governor-levers may be located springs N', which will hold the parts normally, but permit the weights to act to shift the governing-pistons at proper times to admit the steam intermittently to the cylinders.

The operation of my invention is as follows: Steam being admitted through the inlet-pipe enters the governor, and from thence passes into the first cylinder of the engine, causing its piston to rotate. The governor being in the position shown in Figs. 4 and 5, the steam passes into the recess M and through the port V on its way to the cylinder. As the governor rotates, the weighted levers T operate to shift the pistons N, cutting off the flow of steam to the engine until the governor has turned to its first-mentioned position, thus admitting the steam intermittently to the cylinders.

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

1. The combination, with the cylinders, their pistons, and sliding valves, of the central shaft and governor, the latter having transverse recesses and reciprocating pistons controlled by

weighted levers, and suitable ports opened and closed by said levers, so as to intermittently admit steam to the engine, substantially as specified.

2. The combination, in a rotary engine, of the cylinders located longitudinally in line with each other, the central shaft bored longitudinally at one end, the piston located thereon and having a port for the admission of steam to the main cylinder, and the governor, whereby steam is intermittently admitted to said cylinder, substantially as specified.

3. The combination, in a rotary engine, of the cylinders arranged longitudinally in line with each other, of the central shaft and rotary pistons, the reciprocating valves, the governor adapted to admit steam intermittently to the main cylinder, and the dividing-partition recessed and provided with suitable ports, whereby the exhaust-steam from the main cylinder is passed to the secondary cylinder, so as to operate expansively therein, substantially as specified.

In testimony whereof I affix my signature in presence of two witnesses.

F. O. ELLIOTT.

Witnesses:

F. L. CLINE,
J. C. MARTIN.