

(No Model.)

E. CATLIN.
STEAM ENGINE.

No. 305,425.

Patented Sept. 23, 1884.

Fig. 1

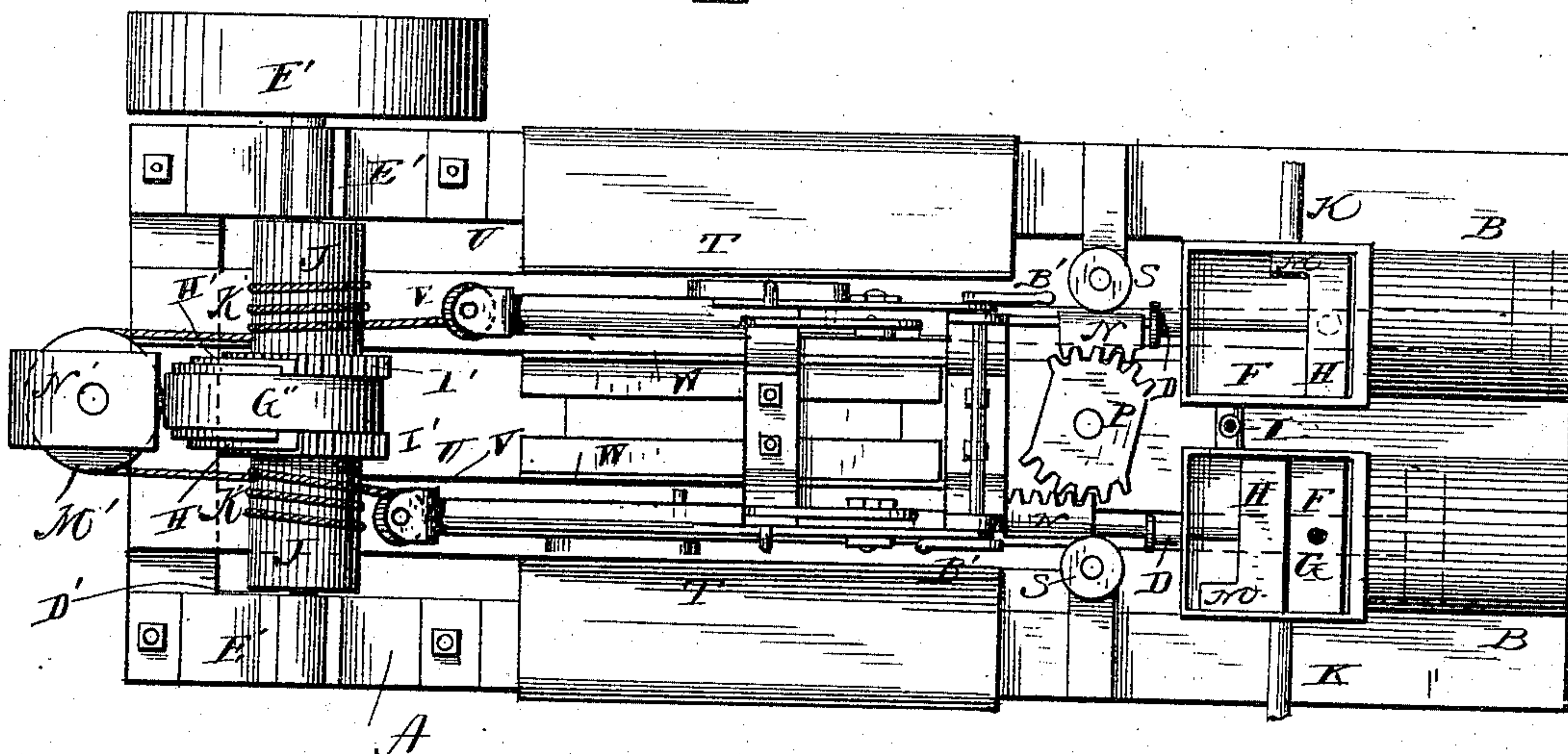
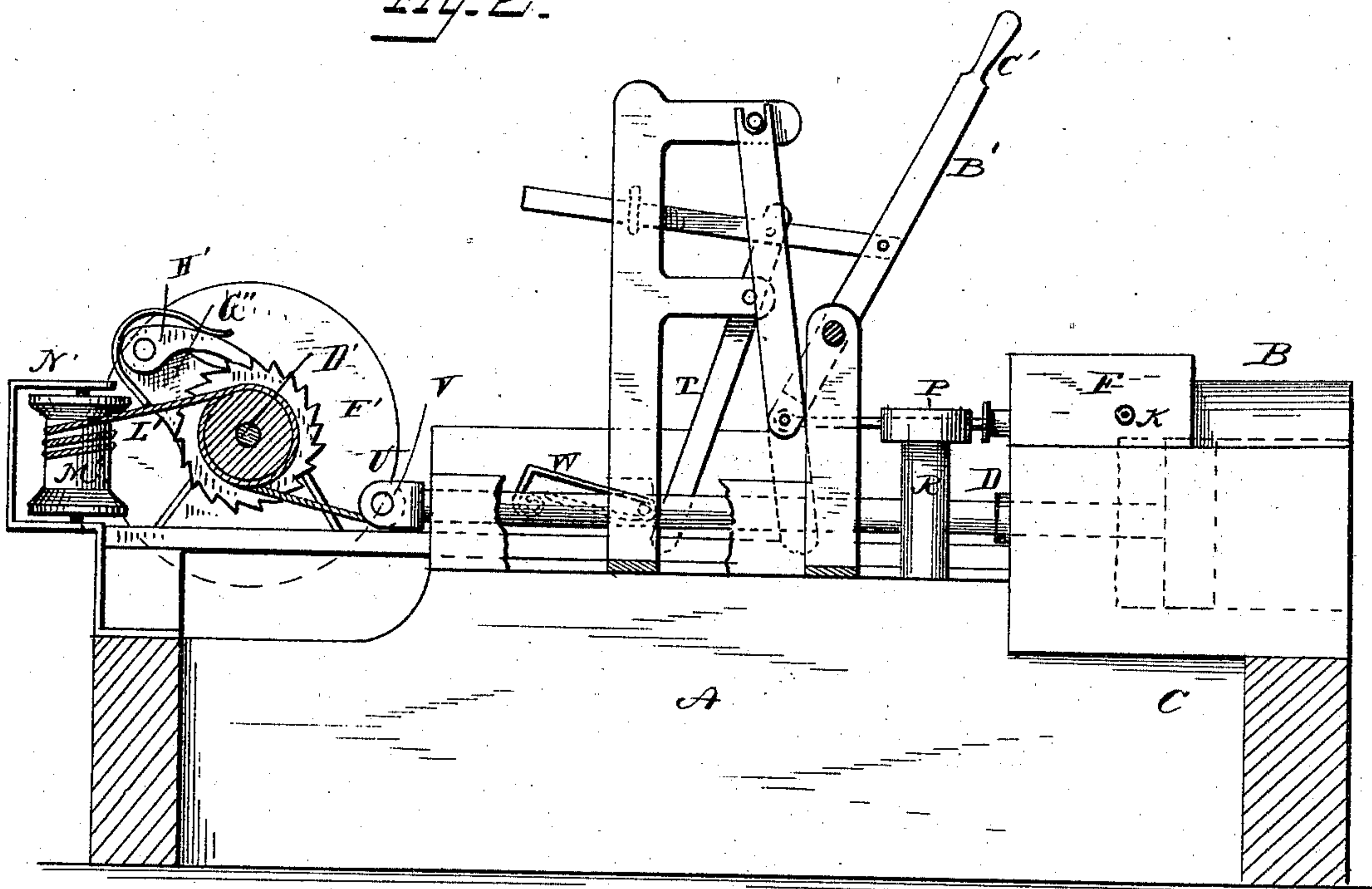


Fig. 2.



WITNESSES

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UNITED STATES PATENT OFFICE.

ELI CATLIN, OF POST OAK, TEXAS.

STEAM-ENGINE.

SPECIFICATION forming part of Letters Patent No. 305,425, dated September 23, 1884.

Application filed February 4, 1884. (No model.)

To all whom it may concern:

Be it known that I, ELI CATLIN, a citizen of the United States, residing at Post Oak, in the county of Jack and State of Texas, have
5 invented a new and useful Steam-Engine, of which the following is a specification, reference being had to the accompanying drawings.

This invention relates to certain improvements in compound steam-engines; and it has
10 for its objects to lessen friction and provide for the more effective working of such engines, as more fully hereinafter specified. These objects I attain by the means illustrated in the accompanying drawings, in which—

15 Figure 1 represents a top view of my improved engine with the covers of the valve-chest removed, and Fig. 2 a longitudinal sectional view of Fig. 2.

20 The letter A indicates the bed or foundation of the engine, which may be constructed of masonry or other suitable material.

B indicates the cylinders, which are cast in a single piece with a bed-block, C, which is
25 securely fastened to the bed or base A at one end in any convenient manner. The cylinders are properly bored, as usual, and at their forward ends are provided with stuffing-boxes D, through which the piston-rods pass and
30 work. The said cylinders are open at the rear for the purpose of facilitating the lubrication of the piston, and to prevent the necessity of the frequent repairs which occur in the ordinary engine.

35 The letter F indicates the valve-chests, which are located at the front of the upper part of the cylinders, and communicate with the interior of the same by means of the ports G. The said chambers are provided with slide-valves H, adapted to alternately open and close
40 the ports, and connect with a steam-induction pipe, I, leading from a suitable boiler.

45 The letter K indicates the eductions-ports leading from the respective valve chambers or chests, which are covered and uncovered at proper times by the projections M on the slide-valves. The valve-rods are provided with metallic plates N, which on their inner edges are provided with cog-teeth, which intermesh with the cogs on a vibrating swiveled
50 block, P, secured to a stud, R, projecting upwardly from the bed of the engine. The said plates reciprocate between this block and the

friction-rollers S, the block and its ratchet-gear serving to preserve the relative uniformity of motion of the two valves. The
55 piston-rods of the engine extend forward, passing between vertical guides T, which serve to keep them true in their travel, and are provided with heads U at their forward ends, carrying the pulleys V, for the purpose hereinafter more fully specified. The said piston-rods
60 are provided with spring-abutments W, which serve to move the levers, being fulcrumed at Y to a frame, Z, secured to the bed or base of the engine, and being connected by means of
65 the rods A', sliding in guides, with the levers B', which connect at their lower ends with the valve-rods. The said levers are formed with handles C' at their upper ends, by means of which they may be manipulated to reverse
70 the motion of the engines.

The letter D' indicates the driving-shaft of the engine, which is journaled in pillow-blocks E' on each side of the bed of the engine, near
75 the rear end. Said shaft is provided at one end with a drive-pulley, F', and at the center with a fixed arm, G'', carrying two pawls, H', which are kept normally in connection with the ratchet I' on the two drums J, mounted
80 loosely upon the driving-shaft. The drums are connected, respectively, with the pulleys at the ends of the piston-rods by means of the ropes or belts K', which are fastened at their ends to the drums and pass around the pulleys, as shown. The drums are also connected
85 with each other by means of the cord, chain, or belt L', which passes and works around a vertical drum, M', journaled in bearings in the frame N', at the rear of the bed or base of the engine.

90 In operation the valve chambers or chests receive steam from the induction-pipe before mentioned and supply it alternately by the operation of the valves to each cylinder, causing the pistons and piston-rods to move alternately in opposite directions. This, by means of the
95 cord or belt connections, causes the driving-shaft to rotate in the same direction continuously, thus giving the proper motion to the driving-wheel and the machinery connected therewith.

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

1. The combination, in a steam-engine, of the

double cylinders having a common steam-induction pipe, the alternately-operating piston-rods and valves, and the drums and gearing for operating the driving-shaft, substantially as specified.

2. The combination of the valve-rods, the metallic plate, the intergearingswiveled block, the friction-wheels, the operating-levers, and spring-abutments in the piston-rods, all arranged to operate substantially as specified.

3. The combination, with the cylinders, the piston-rods and valves, and the mechanism for operating the same, of the hand-levers whereby the valves may be operated, substantially as specified.

4. In combination with the alternately-reciprocating piston-rods having pulleys at their

ends, the loose drums located on the driving-shaft, and connected with said pulleys by means of ropes or belts, the ratchets on said drums, and the fixed arm, and intergearing pawls on the driving-shaft and the vertical drum, and the ropes or belt passing around the same and connecting the two drums, the whole adapted to operate substantially in the manner specified.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in presence of two witnesses.

ELI CATLIN.

Witnesses:

H. S. NEWTON,
J. E. GLAZENER.