

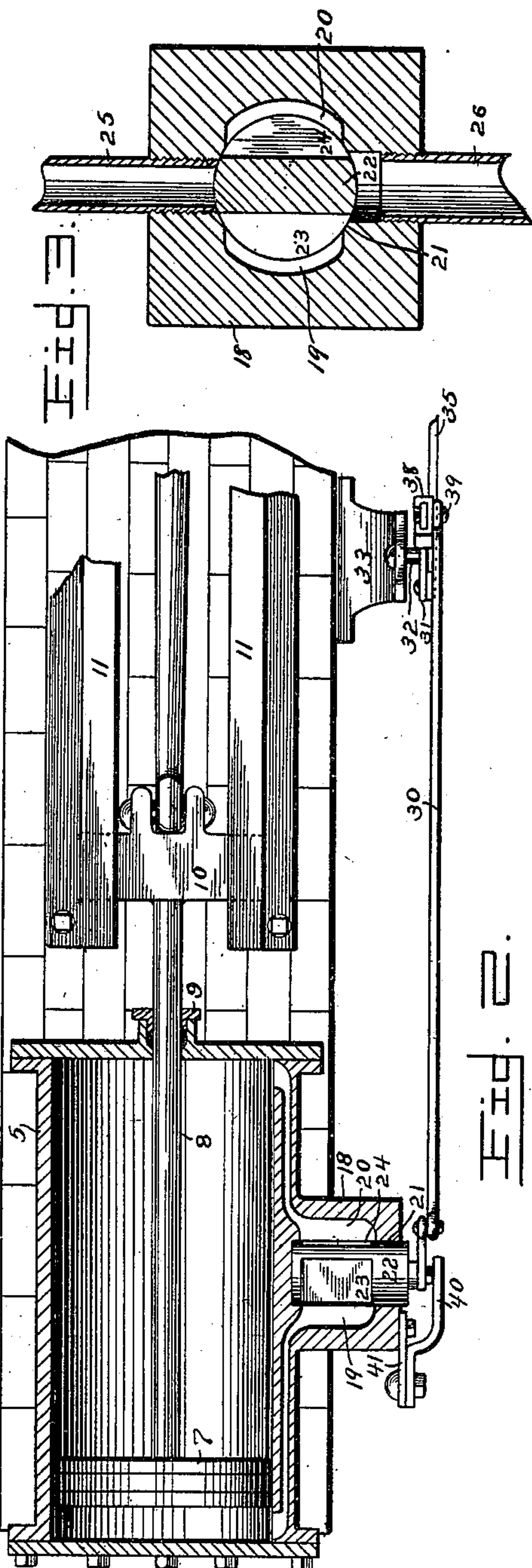
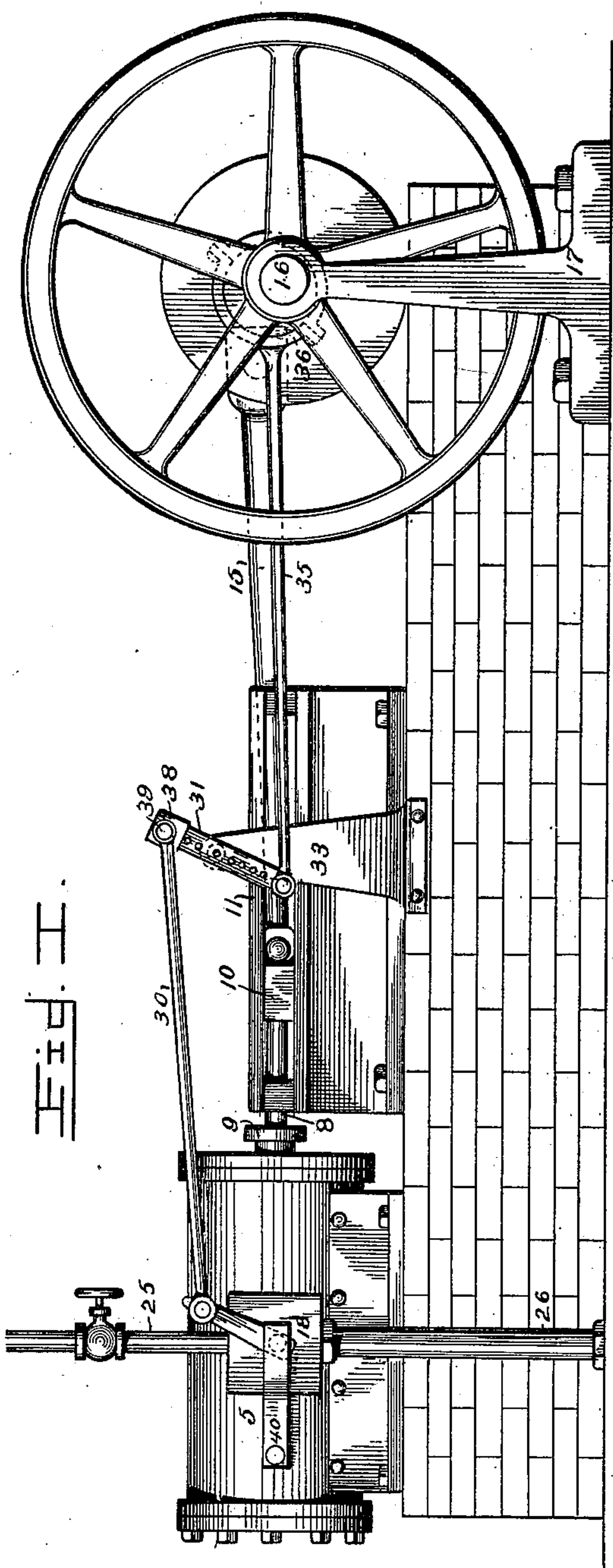
No. 665,512.

Patented Jan. 8, 1901.

W. CUNNING.  
ENGINE VALVE.

(Application filed Mar. 14, 1900.)

(No Model.)



Witnesses

*F. G. Campbell*

*Geo. H. Chandler*

By *his* Attorneys,

*Wayne Cuning* Inventor

*C. A. Snow & Co.*



# UNITED STATES PATENT OFFICE.

WAYNE CUNNING, OF CLARINDA, IOWA.

## ENGINE-VALVE.

SPECIFICATION forming part of Letters Patent No. 665,512, dated January 8, 1901.

Application filed March 14, 1900. Serial No. 8,620. (No model.)

*To all whom it may concern:*

Be it known that I, WAYNE CUNNING, a citizen of the United States, residing at Clarinda, in the county of Page and State of Iowa, have  
5 invented a new and useful Engine-Valve, of which the following is a specification.

This invention relates to steam-engines in general, and more particularly to the class of reciprocatory engines, the invention having  
10 specific reference to the valve mechanism thereof.

The object of the invention is to provide a construction of valve mechanism wherein the defects incident to the usual sliding cut-off  
15 valve will be eliminated and in which the valve may be set readily to drive the engine in either direction.

In the drawings forming a portion of this specification, and in which like numerals of  
20 reference indicate similar parts in the several views, Figure 1 is a side elevation showing the complete engine. Fig. 2 is a horizontal section taken through the engine-cylinder and showing adjacent parts in elevation.  
25 Fig. 3 is a transverse section taken through the oscillatory valve.

Referring now to the drawings, 5 represents the cylinder of what is known as a "horizontal reciprocatory steam-engine," this cylinder  
30 being mounted upon a suitable base, as shown.

In the cylinder 5 is disposed a slidable piston 7, having a rod 8 passed through a stuffing-box 9 at the end of the cylinder, and to the outer end of this rod is attached a cross-head 10, which is slidably engaged with guides  
35 11 in the usual manner. Connected with the cross-head is a connecting-rod 15, the outer end of which is engaged with the crank of a crank-shaft 16, journaled in pillow-blocks 17,  
40 as shown.

At one side of the cylinder 5 is a steam-chest 18, having feed-ports 19 and 20, which communicate with the ends of the cylinder, as shown, these ports forming the exhaust-  
45 ports for the cylinder also, as will be seen from the following description: The ports 19 and 20 communicate with the sides of a valve-seat 21, which is cylindrical in form, and in this valve-seat is disposed a cylindrical valve 22, having steam-passages 23 and  
50 24 in opposite faces. Communicating with the valve-seat through its upper side is a feed-

pipe 25, while an exhaust-pipe 26 communicates with the valve-seat through its under side, the positions of these several ports and  
55 pipes being such that when the valve is oscillated in one direction the supply-pipe 25 will be in communication with one end of the cylinder through the passage 23 and port 19, while the exhaust-pipe 26 is in communication with the opposite end of the cylinder  
60 through the passage 24 and port 20. When the valve is oscillated in the opposite direction, the pipes will communicate with the opposite ends of the cylinder. In order to thus  
65 oscillate the valve 22, it is provided at its outer end with a crank-arm, to which is pivoted a connecting-rod 30, which is in turn pivoted to a rocker 31 upon a shaft 32, journaled in a standard 33. To the rocker is also  
70 pivoted an eccentric-rod 35, having a strap 36 at its outer end engaged with an eccentric upon the shaft 16. Thus as the shaft 16 rotates the eccentric and its rod cause the rocker to oscillate, and the oscillation of the  
75 rocker is communicated to the oscillatory valve 22.

The connecting-rod 30 is mounted directly upon a slide-block 38, which engages the rocker, and this block is held at different  
80 points of the length of the rocker by the wrist-pin 39. The wrist-pin is adapted to engage any one of a series of perforations in the rocker, and by this means the amount of steam admitted to the cylinder may be regulated. When it is desired to reverse the  
85 direction of movement of the engine, it is only necessary to draw the wrist-pin 39 and then move the block 38 to the opposite side of the pivot of the rocker, after which the pin may  
90 be reengaged to hold the block against movement and to hold the rod 30 to the block.

With this construction it will be seen that the cut-off mechanism may be regulated to the proper point and that when desired the  
95 direction of motion of the engine may be changed, the construction itself being simple and efficient.

In order to hold the valve 22 against outward displacement, a spring-finger 40 is secured to an arm 41 upon the steam-chest and  
100 bears with its free end against the outer end of the valve.

It will be understood that any suitable style

of governing mechanism may be used for the engine and that any suitable materials and proportions may be used for the various parts without departing from the spirit of the invention.

What is claimed is—

The combination with a cylinder having a piston therein and a steam-chest on one side thereof having opposite ports, a vibratory cylindrical valve formed with opposite similar steam-passages cut in its lateral rounded surface and provided with an arm on its end extended outside of the chest, adjustable op-

erating mechanism attached to said arm, and a spring-finger attached at one end to the chest and having its free end bearing on the outer end of the valve having the arm thereon to prevent outward displacement of the valve.

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

WAYNE CUNNING.

Witnesses:

W. S. CUNNING,  
HIRAM S. HEBBERT.