

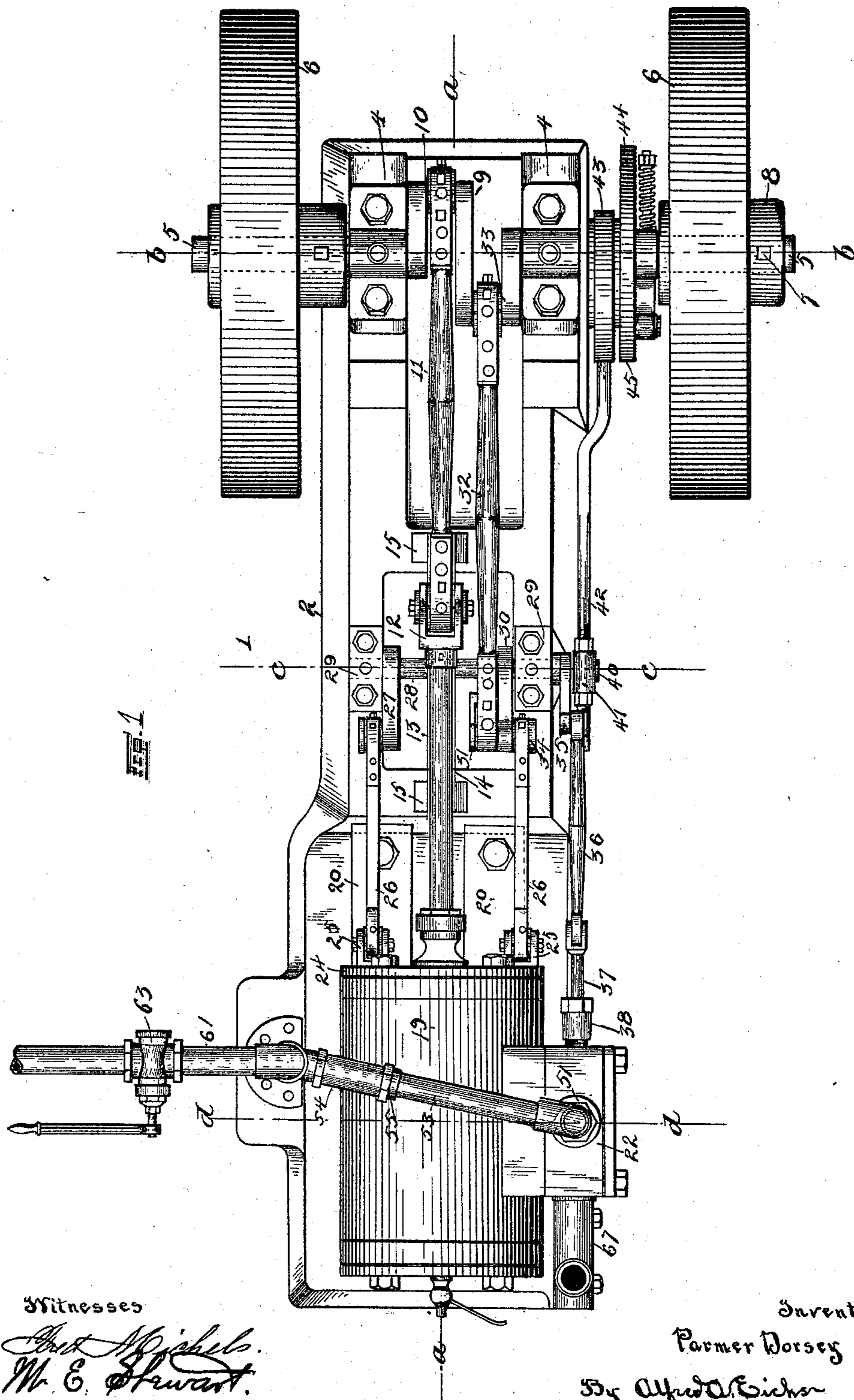
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5 Sheets—Sheet 1.

P. DORSEY.  
ENGINE.

No. 571,348.

Patented Nov. 17, 1896.



## Witnesses

But Michel.  
W. E. Stewart.

Inventor

Farmer Dorsey

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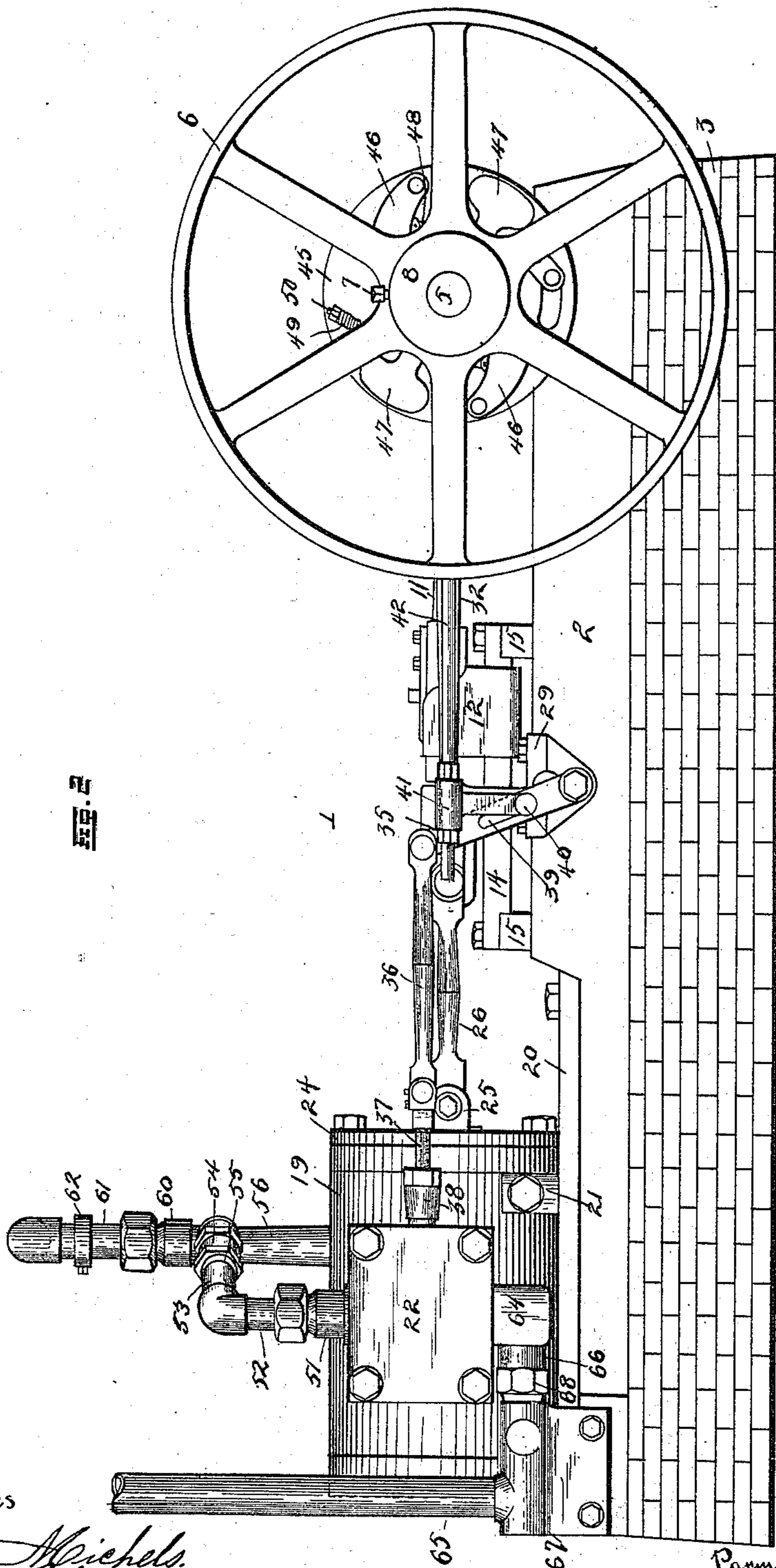
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Witnesses

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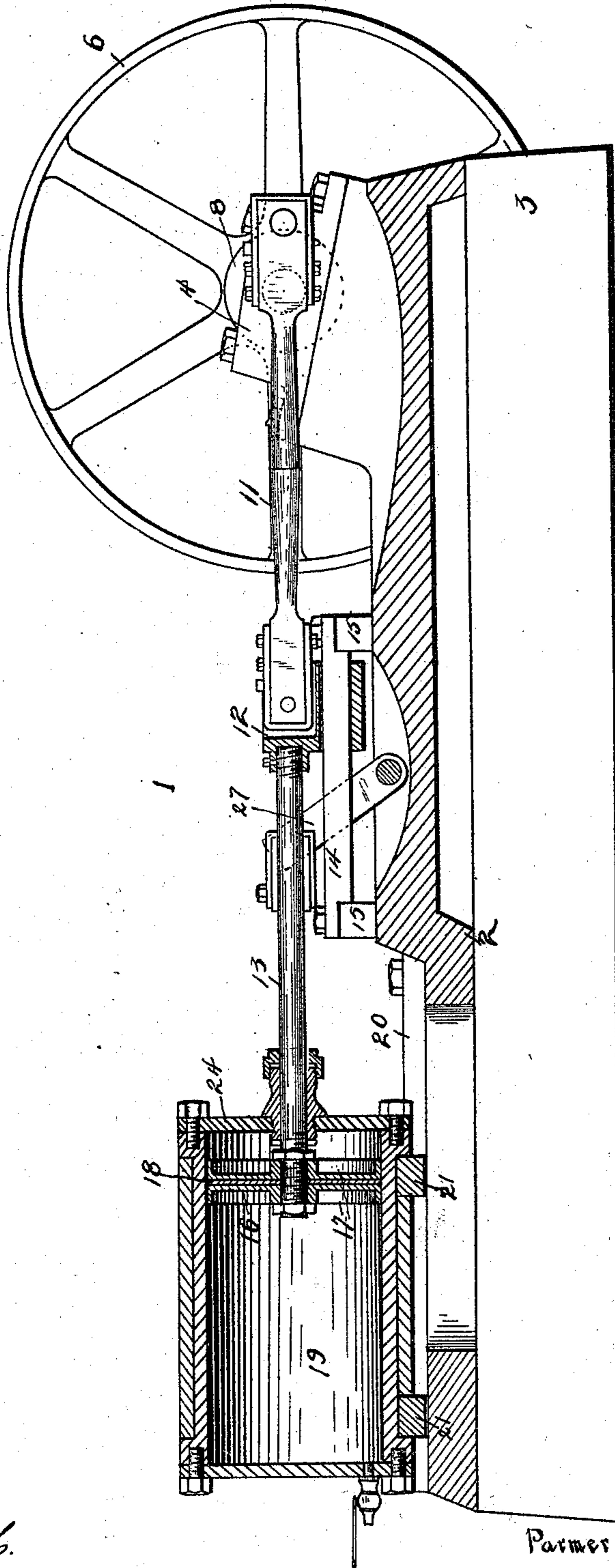
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Witnesses

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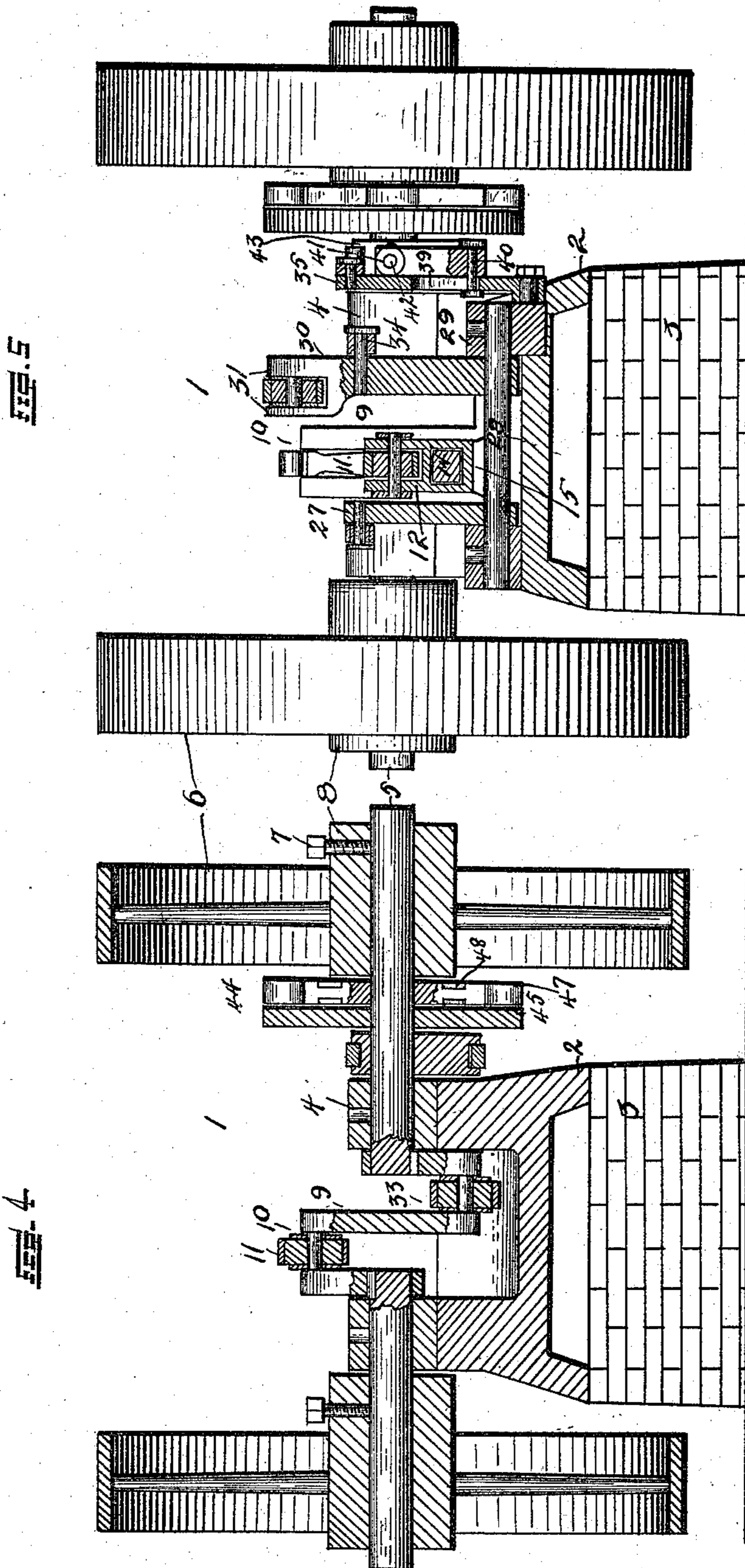
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Witnesses

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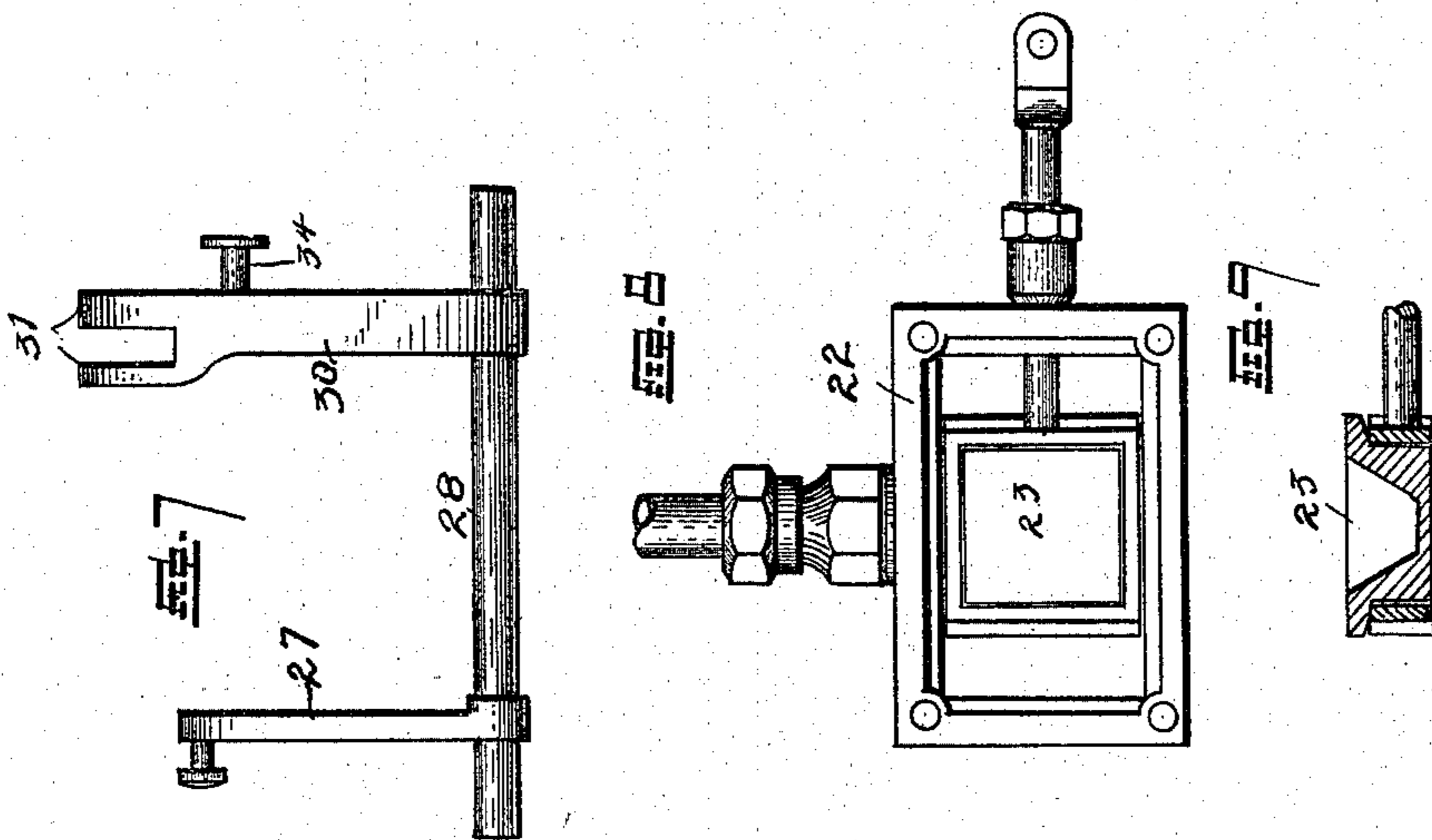
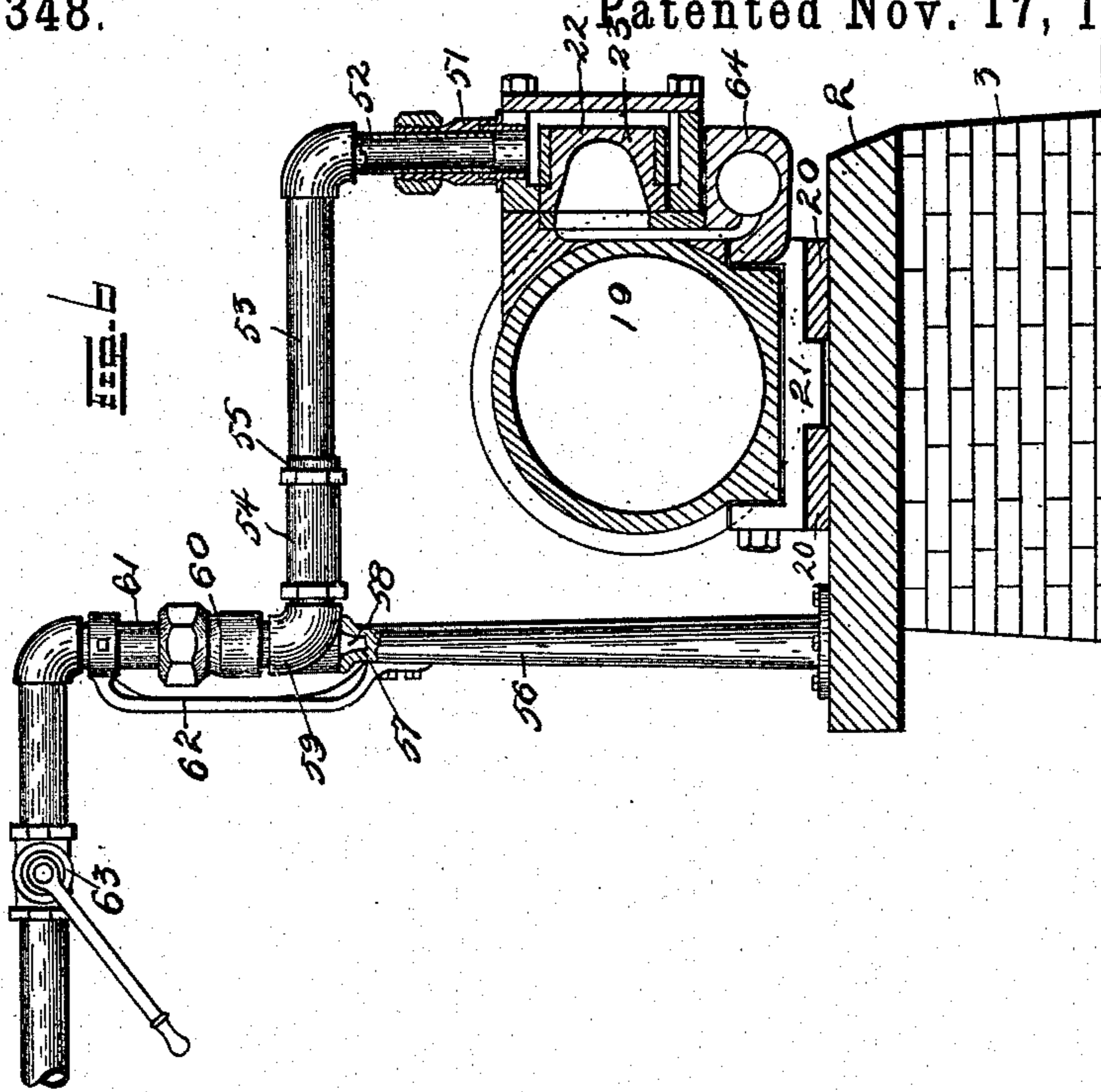
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P. DORSEY.  
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No. 571,348.

Patented Nov. 17, 1896.



Witnesses

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# UNITED STATES PATENT OFFICE.

PARMER DORSEY, OF BELLMONT, ILLINOIS.

## ENGINE.

SPECIFICATION forming part of Letters Patent No. 571,348, dated November 17, 1896.

Application filed September 16, 1895. Serial No. 562,626. (No model.)

*To all whom it may concern:*

Be it known that I, PARMER DORSEY, a resident of Bellmont, county of Wabash and State of Illinois, have invented certain new and useful Improvements in Engines, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part hereof.

My invention relates to improvements in a steam-engine; and it consists in the novel application and construction of parts, as will be more fully described, and set forth in the claim.

The object of my invention is to so construct an engine that the entire cylinder may be reciprocated and so connected to the steam-fittings as to operate smoothly and correctly.

The piping is so constructed that when the cylinder is reciprocating the steam is still being fed into the engine, and to allow the said piping from being dislocated it is provided with bearings, and it is adapted to work in harmony with said reciprocating parts, as will be more fully hereinafter described.

The advantage of the engine is that the same may have two piston-heads or pressure-heads, so as to provide a short stroke and rapid speed. In order to perform this function I provide the cylinder to reciprocate.

It has been seen that by so constructing an engine a great amount of steam is saved, and provides a greater power to the engine.

By thorough and practical demonstration which I have made I have proven that by having a reciprocating cylinder I save as well as gain. By having a reciprocating cylinder it shortens the stroke and increases the speed. The arrangement of its working and mechanism is so that it prevents said engine from having a dead-center.

In the drawings, Figure 1 is a top plan view of my improved engine. Fig. 2 is a side view of the same. Fig. 3 is a vertical sectional view taken on the line *a a* of Fig. 1. Fig. 4 is a vertical sectional view taken on the line *b b* of Fig. 1. Fig. 5 is a vertical sectional view taken on the line *c c* of Fig. 1. Fig. 6 is a sectional view taken on the line *d d* of Fig. 1. Fig. 7 is a detail side view of the rocking levers. Fig. 8 is a detail side view

of the valve with parts removed therefrom. Fig. 9 is a sectional view of the valve.

1 indicates my entire invention, which consists of a base 2, which rests upon a foundation 3 of brick or other suitable material. The base 2 is provided with bearings 4, in which a shaft 5 is adapted to rotate. Upon said shaft 5 and at each of its ends are located fly-wheels 6, firmly secured to the shaft 5 by means of a key or set-screw 7, located in a hub 8, forming part of the fly-wheels 6. To the shaft 5 and about its center I secure a double crank-arm 9, by which the shaft 5 and fly-wheels are rotated. To the crank-arm 10 of the double crank 9 is secured the connecting-rod 11. One end of the connecting-rod 11 is pivotally secured in a cross-head 12, located to the end of the piston-rod 13 by means of a set-screw or other well-known means.

The cross-head 12 is adapted to reciprocate upon a rod 14, which provides a guide-bearing for the said cross-head 12. The rod 14 is firmly secured by means of bolts or studs to two uprights 15, which are firmly held to the base 2 of the engine. To the opposite end of the piston-rod is secured the piston-head 16, which consists of two metallic plates 17, and between the same is placed suitable packing material 18. The arrangement of the piston-head and packing are of the ordinary construction as at present used in the engines now on the market. At the opposite end of the base 2 is located a steam-cylinder 19, and rests upon strips of tempered material 20, which are firmly secured to the base 2 by screws or otherwise. To each end of the cylinder and at its base are secured guides 21, which are adapted to slide upon the strips 20, and thus prevent the said steam-cylinder from becoming dislocated. (See Fig. 6.)

To one side of the steam-cylinder 19 is placed the steam-chest 22, in which the valve 23 is adapted to work. The parts in this cylinder are connected to the valve in the ordinary manner, as in the present engine.

The front head 24 (see Fig. 1) of the cylinder 19 on each side of the stuffing-box I provide with ears 25, in which is pivotally secured a connecting-arm 26, the opposite end of which is secured to the rocking lever 27.

The rocking lever 27 is located upon a shaft 28, said shaft adapted to operate in bearings 29, located upon the base 2 of the engine. To the opposite end of the shaft 28 is placed another rocking lever 30, much larger in construction than the lever 27. This lever 30 is provided at its uppermost extremity with ears 31, in which is placed by means of a pin a second connecting-rod 32, which is also connected to the arm 33 of the crank-arm 9.

At a short distance below the ears 31 of the lever 30 and at its outermost side is a pin 34, to which is connected one of the connecting-arms 26.

To one of the bearings 29 is secured by means of a bolt a rocking arm 35, for the purpose of operating the slide-valve. To the upper portion of the arm 35 is secured a valve-connecting rod 36, which is secured at its other end to the valve-piston rod 37, which is adapted to pass through a stuffing-box 38, secured in the steam-chest 22, located on the side of the cylinder.

Within the rocking lever 35 is a longitudinal elongated slot 39, in which is adapted to be held and adjusted by means of a bolt or pin 40 a T-shaped casting 41, being provided at its upper portion with a hole for the insertion of a rod 42, which is connected with an eccentric 43 of the ordinary construction.

Between the eccentric 43 and one of the fly-wheels 6 upon the shaft 5 is a governor 44, which is composed of a disk 45, having secured on its surface by means of bolts or pins weights 46. Extending from edge to edge through the diameter of the disk 45 is a double-weighted compound lever 47, which is passed over and around the shaft 5.

The weights 46 are pivotally secured to the compound lever 47 by means of a rod or bars 48, which has a tendency to operate all weights simultaneously, and in order to bring back the weights to their normal position I provide the compound lever with a spring 49, placed over a pin 50, so that the same may not become dislocated, the said pin sliding through a lug firmly secured to the disk 45. (See particularly Fig. 2.)

In order to prevent the steam-fittings from becoming dislocated when the cylinder is in motion, I place in the upper portion of the steam-chest 22 a stuffing-box 51. Within the stuffing-box I place a pipe 52, so that it may turn when the engine is reciprocating. An elbow is attached to the upper portion of the pipe 52, in which a horizontal pipe 53 is placed in the ordinary manner.

The end of pipe 53 is located in a sleeve 54, in which is placed a stuffing-box 55, so that the pipe 53 may be permitted to freely slide backward and forward. In order to hold the

said piping in its position, I provide a vertical post or column 56, which is provided at its upper end with a hole or depression 57, in which a lug or pin 58 is secured to the elbow 59. To the elbow is secured the sleeve 54, and to its upper portion is a stuffing-box 60 to allow the elbow to freely move with the action of the cylinder. Within the stuffing-box 60 is located the steam-pipe 61, and is held in a firm position by a bracket 62, which is secured by means of bolts or otherwise to the post or column 56. The pipe 61 is provided with the ordinary valve 63.

To the lower portion of the steam-chest 22 I provide a casting 64, to which is secured the exhaust-pipe 65.

In order to provide for the reciprocating motion of the cylinder, I place a pipe 66 in the usual manner to the casting 64, said pipe adapted to reciprocate in accordance with the motion of the cylinder in a casing 67, firmly secured to the base 2 of the engine and provided with a stuffing-box 68, located around the pipe 66 to prevent leakage to the casing 67, and connected thereto is the exhaust-pipe 65.

The operation of my invention is as follows: The steam on entering the steam-chest is fed in the usual manner through the parts in the cylinder. The steam on entering the cylinder presses against the piston-head, operating the piston-rod, to which is secured the connecting-rod 11, and also presses against the cylinder-head, which operates the connecting-arms secured to the rocking levers, to which is secured the connecting-arm 32. This gives a double-crank leverage to the shaft 5, which produces a much smoother and accurate movement to the engine. The piping being connected by sleeves and stuffing-boxes, it has a tendency to telescope and move in unison with the cylinder.

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

In an improved steam-engine, the combination of a reciprocating cylinder and chest, of a telescopic supply and exhaust pipe connection secured to said cylinder and chest, connecting-arms secured to said cylinder and to a rocking lever, a connecting-rod secured to said rocking lever, and to the crank-arm of the drawing-shaft, for the purpose as shown and described.

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

PARMER DORSEY.

Witnesses:

GEORGE EMMERLING,  
CHAS. FRENCH.