(No Model.) 2 Sheets—Sheet 1.

C. C. WILSON.

OSCILLATING STEAM ENGINE.

No. 430,555. Patented June 17, 1890.

Fig. 1.

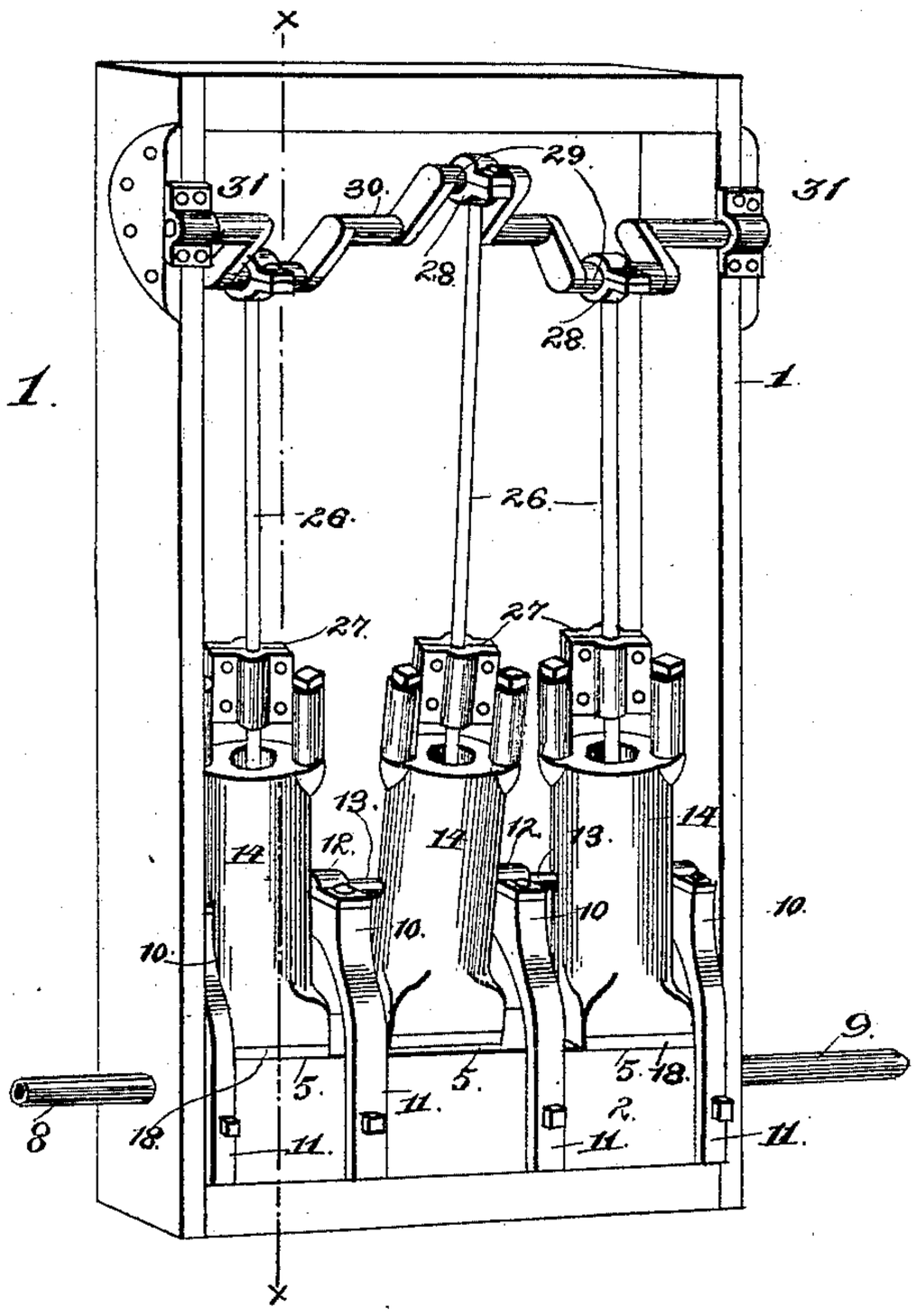
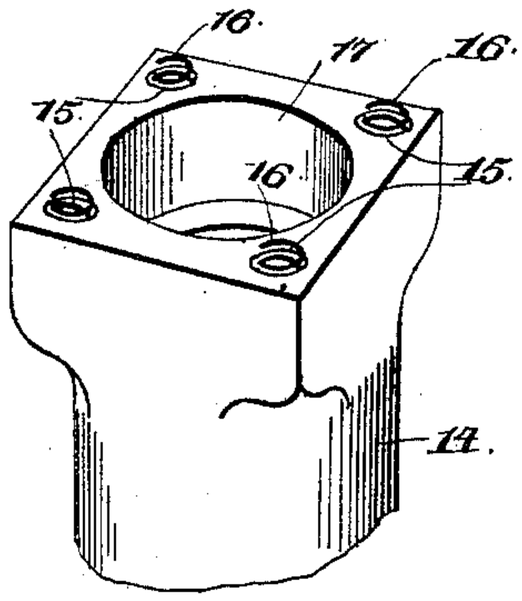


Fig. 3.



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Wm. Bagger

Inventor
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(No Model.) 2 Sheets—Sheet 2.

C. C. WILSON.

OSCILLATING STEAM ENGINE.

No. 430,555. Patented June 17, 1890.

Fig. 2.

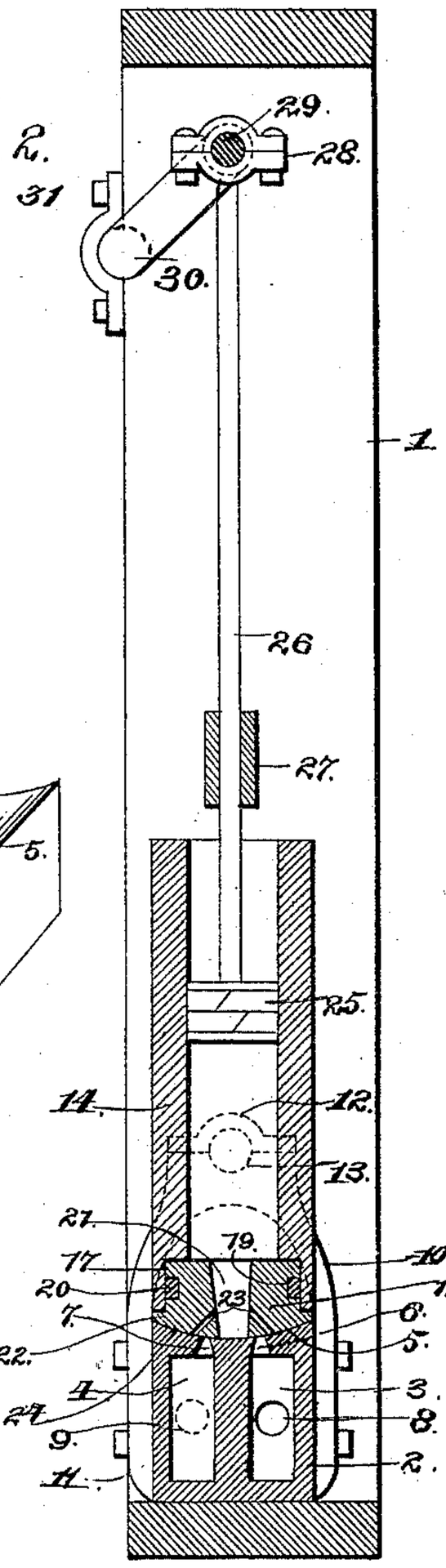


Fig. 4.

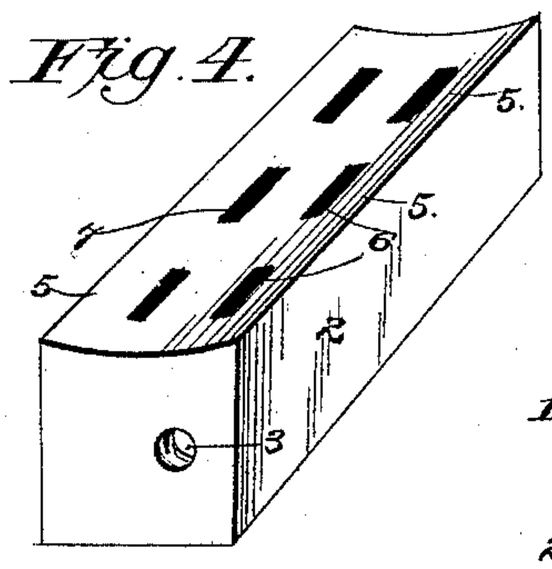
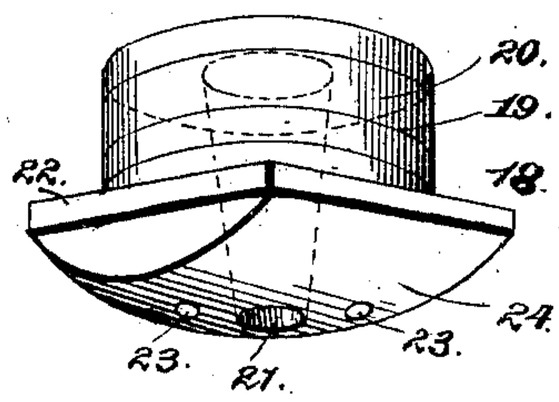


Fig. 5.



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UNITED STATES PATENT OFFICE.

CHARLES CLINTON WILSON, OF GREENSBOROUGH, NORTH CAROLINA.

OSCILLATING STEAM-ENGINE.

SPECIFICATION forming part of Letters Patent No. 430,555, dated June 17, 1890.

Application filed October 30, 1889. Serial No. 328,702. (No model.)

To all whom it may concern:

Be it known that I, CHARLES CLINTON WILSON, a citizen of the United States, residing at Greensborough, in the county of Guilford and State of North Carolina, have invented a new and useful Oscillating Steam-Engine, of which the following is a specification.

This invention relates to oscillating steam-engines of that class in which the piston-rods of a series of cylinders are coupled to a series of wrist-pins upon a single crank-shaft; and it has for its object to construct an engine of this class which shall possess superior advantages in point of simplicity, durability, and general efficiency.

With these ends in view the invention consists in the improved construction, arrangement, and combination of parts, which will be hereinafter fully described, and particularly pointed out in the claims.

In the drawings hereto annexed, Figure 1 is a perspective view of an engine embodying my improvements. Fig. 2 is a vertical transverse sectional view taken on the line *x x* in Fig. 1. Fig. 3 is a perspective view showing one of the cylinders in an inverted position. Fig. 4 is a perspective view of the base of the engine. Fig. 5 is a perspective view of one of the valves detached.

Like numerals of reference indicate like parts in all the figures.

1 designates a frame rectangular in shape, which supports the base 2, which is provided with two longitudinal parallel chambers or passages 3 4, constituting, respectively, the steam and exhaust chamber. In the example shown in the accompanying drawings three cylinders have been shown. The base is therefore provided in its upper side with three concave recesses or seats 5 for the said cylinders. Each of said recesses has two ports 6 7, communicating respectively with the steam-chamber 3 and the exhaust-chamber 4. Pipes 8 9 are connected with the said chambers to supply the live steam and to carry off the exhaust.

10 10 designates a series of brackets having downwardly-extending legs 11, which straddle the base and are bolted to opposite sides thereof. The upper ends of said brackets have boxes or bearings 12 for the trunnions 13 of the cylinders 14. The lower ends of the latter have square ends, which are provided at their four corners with vertical recesses 15, in which coiled springs 16 are seated. The bore of each cylinder is enlarged at its lower end, as shown at 17, to receive the valve 18, which consists of a circular disk having an annular groove 19, in which a packing-ring 20 is mounted to insure a steam-tight joint. Each valve is provided with a single port 21, and has at its lower edge a square flange 22, corresponding with the squared lower end of the cylinder, in which it is mounted, and receiving the downward pressure of the springs 16, seated in the sockets or recesses therein. Each valve is provided with two small openings 23, connecting its port 21 with its convex bearing-face 24, in order that the valve may be evenly balanced.

The pistons, which are designated by 25, are of ordinary construction, as are the piston-rods 26. The latter have bearings in braces 27, bolted across the upper ends of the cylinders. The ends of the piston-rods have boxes 28, journaled upon the wrist-pins 29 of the crank-shaft 30, which latter has its bearings in boxes 31 at the upper end of the frame.

The operation of my invention will be readily understood from the foregoing description taken in connection with the drawings hereto annexed. The piston of each cylinder is so adjusted as to be at the lower end of its stroke when the valve-port of said cylinder registers with the steam-port 6. Steam then enters the lower end of the cylinder, forcing the piston in an upward direction and actuating the crank-shaft, thereby causing the cylinder to oscillate upon its trunnions until when the piston reaches the upper limit of its stroke the valve-port 21 registers with the exhaust-port 7, through which the exhaust-steam passes into the chamber 4, and off through the pipe 9. The cylinder, under the impulse of the crank-shaft, oscillates in the opposite direction until the port 21 once more registers with the steam-port 6, and the operation is repeated.

The cranks upon the main shaft are arranged at an angle of one hundred and twenty degrees to each other, and hence there is no dead-center, and the engine may be readily started at any point.

Having thus described my invention, what I

claim, and desire to secure by Letters Patent of the United States, is—

1. The cylinders having squared lower ends provided with recesses at the four corners, in combination with the springs seated in said recesses and the cylindrical valves seated in the bores at the lower ends of the cylinders, and having flanges that receive the downward pressure of said springs to hold the valves to their seats, substantially as set forth.

2. The combination, with the cylinders having enlarged bores at their lower ends and sockets formed vertically in their lower ends, of the springs seated in said sockets and the flanged valves seated in said enlarged bores, and having the single ports and the diagonal openings connecting said ports with the convex bearing-faces of said valves, substantially as set forth.

3. The combination of the rectangular frame, the base mounted therein and having the steam and exhaust chambers, the concave seats and the steam and exhaust ports, the brackets having legs straddling said base and bolted thereto and provided with boxes at their upper ends, the oscillating cylinders having trunnions journaled in said boxes and having enlarged bores at their lower ends, the flanged valves seated in the enlarged bores of the cylinders, and having single ports and diagonal openings connecting said ports with their convex bearing-faces, packing-rings surrounding the valves, the pistons, and the rods connecting the latter with the wrist-pins of a crank-shaft journaled in the upper end of the frame, substantially as set forth.

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

CHARLES CLINTON WILSON.

Witnesses:
JOS. W. FORBES,
MILLARD RANKIN.