No. 725,517. PATENTED APR. 14, 1903.

CHARLES VOLZ & CHRISTIAN VOLZ.

STEAM ENGINE.

APPLICATION FILED AUG. 23, 1902.

NO MODEL.

Fig. 1.

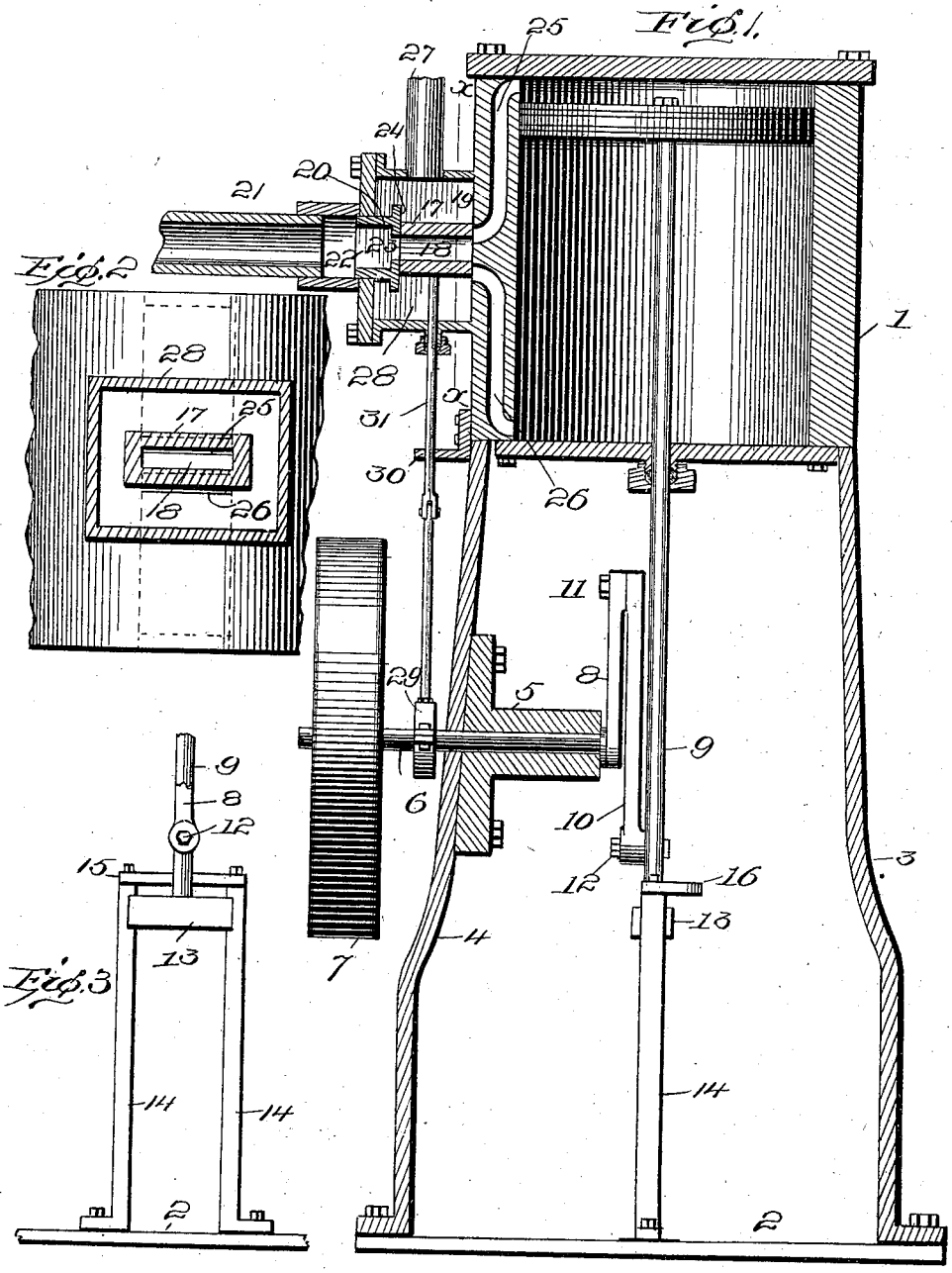

Fig. 2.

Fig. 3.

Witnesses:
J. M. Fowler
E. G. Stickney

Inventors:
Charles Volz
Christian Volz
by L. A. Dyer
Atty.

UNITED STATES PATENT OFFICE.

CHARLES VOLZ AND CHRISTIAN VOLZ, OF WOLFTON, MICHIGAN.

STEAM-ENGINE.

SPECIFICATION forming part of Letters Patent No. 725,517, dated April 14, 1903.

Application filed August 23, 1902. Serial No. 120,778. (No model.)

To all whom it may concern:

Be it known that we, CHARLES VOLZ and CHRISTIAN VOLZ, citizens of the United States, residing at Wolfton, Huron county, Michigan, have invented certain new and useful Improvements in Steam-Engines; and we do declare the following to be a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to improvements in steam-engines of the vertical reciprocating type.

The invention has for its object the construction of a cheap and efficient form of engine, in which the working parts will be accessible and readily adjustable for use.

The invention consists generally in arranging a vertical double-action cylinder upon standards, to one of which is attached a main axle-bearing having a fly-wheel on the outside and a crank on the inside. The crank and piston-rod are joined by a connecting-rod pivoted to the piston-rod adjacent to its lower end, which carries a cross-head engaging with slides supported from the base of the engine. The upper extremities of the slides are connected together by means of a curved cross-piece.

This invention also consists of other points of novelty, as will more fully appear in the specification and claims.

In order to better understand the nature of this invention, attention is directed to the accompanying drawings, in which—

Figure 1 represents a vertical view, partly in section, of the complete engine. Fig. 2 is a section taken on the line *x x* of Fig. 1, and Fig. 3 is an end view of the cross-head and guides.

In all the views like parts are designated by identical numerals of reference.

In the drawings the cylinder 1 is shown as being supported upon a base 2 by means of the standards 3 4. To the standard 4 is bolted the bearing-box 5, through which the shaft 6 passes. This shaft carries a balance-wheel and pulley 7 on the outside and a crank 8 on the inside, through which it is connected to the piston-rod 9 through the agency of the connecting-rod 10 and pins 11 and 12. The lower extremity of the piston-rod 9 carries a cross-head 13, which engages with the slides 14 14, bolted to the base 2. The upper extremities of the slides are connected together and form a unitary structure by means of a cross-piece 15, offset at 16 to permit the pin 12, piston-rod 9, and connecting-rod 10 to freely reciprocate.

The valve 17 is rectangular in shape, as shown in Fig. 2, and is provided with a central steam-passage 18. The valve engages between the plane face 19 of the cylinder and a telescopic pipe-section 20, which is mounted within an opening in the valve-chest 28, so as to freely move therein, and engages with the live-steam passage 21. The telescopic pipe-section 20 has a central bore 22 and a reduced exit 23 therein. The face 24 of the pipe-section, which engages with the valve 17, is plane and arranged to make a steam-tight joint therewith. The steam-ports 25 and 26 and exhaust-port 27 all connect with the steam-chest 28. The valve is operated by means of an eccentric and gearing 29 of ordinary pattern, a fixed bearing 30 being provided for the valve-stem 31.

The operation of the valve is as follows: As shown in the drawings, the port 25 communicates with the live-steam passage 21 through the opening 18 in the valve. The exhaust-port 26 is open, thus allowing escape of the steam around the valve through the exhaust-port 27. Upon the piston reaching the lower limit of its stroke and the valve being raised by means of its gear the port 26 will then communicate with the opening 18 and the port 25 will be open to the exhaust. It is to be noted that the relative areas of the opening 22 and exhaust 23 in the pipe-section 20 are so proportioned that the pipe-section will press against the valve with sufficient force to make steam-tight joints between it and the plane surfaces 19 and 24.

Having now particularly described our invention, what we claim, and desire to secure by Letters Patent, is—

1. In a steam-engine, the combination with a cylinder, supporting-standards therefor, and a base, of the guides 14, connected to the base and having the plate 15, connecting their upper extremities, the said plate being offset to one side at 16, substantially as described.

2. In a steam-engine, the cross-head guide-

frame therefor, embracing in combination the guides 14, and connecting-plate 15, offset to one side at 16, tying the upper extremities of the guides together, and means for attaching the frame to the engine, substantially as set forth.

3. In a steam-engine, the combination with a cylinder, supporting-standards therefor and a base, of the shaft, bearings on the standards for the shaft, a crank, a connecting-rod and cross-head, a vertical piston-rod, the guides 14 connected to the base and having the plate 15 connecting their upper extremities, the said plate being offset to one side at 16, to permit clearance of the piston-rod and connecting-rod, substantially as described.

This specification signed and witnessed this 16th day of August, 1902.

CHARLES VOLZ.
CHRISTIAN VOLZ.

Witnesses:
JASPER N. HOLMES,
LEANDER A. HOLMES.