No. 671,783. Patented Apr. 9, 1901.

J. C. SPEIRS.

STEAM ENGINE.

(Application filed May 7, 1900.)

(No Model.)

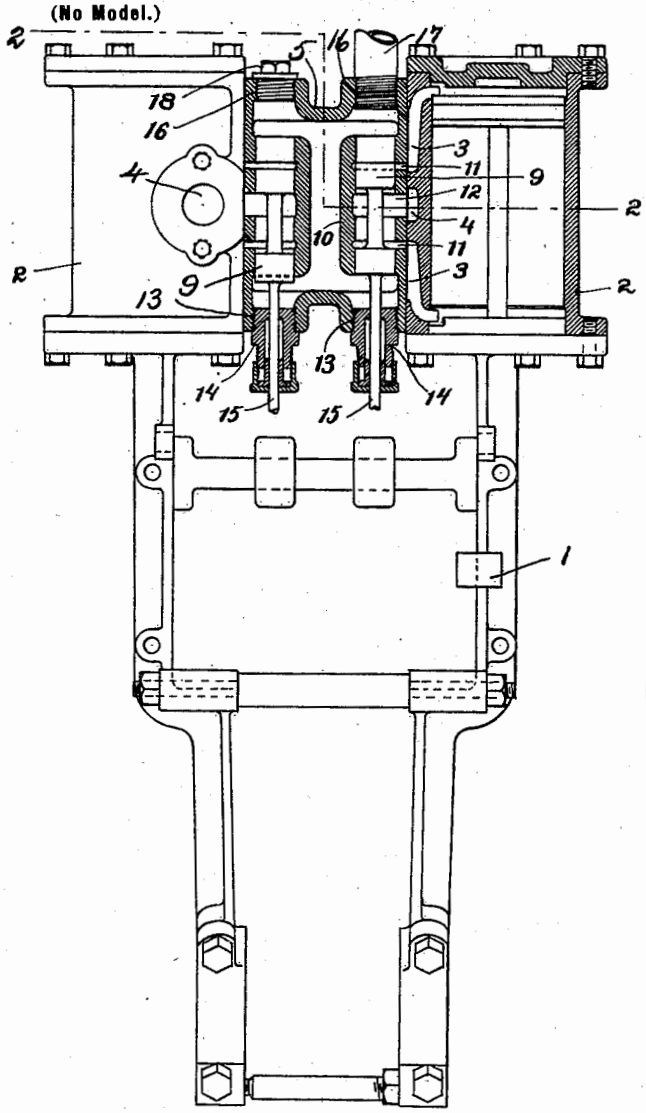

Fig. 1.

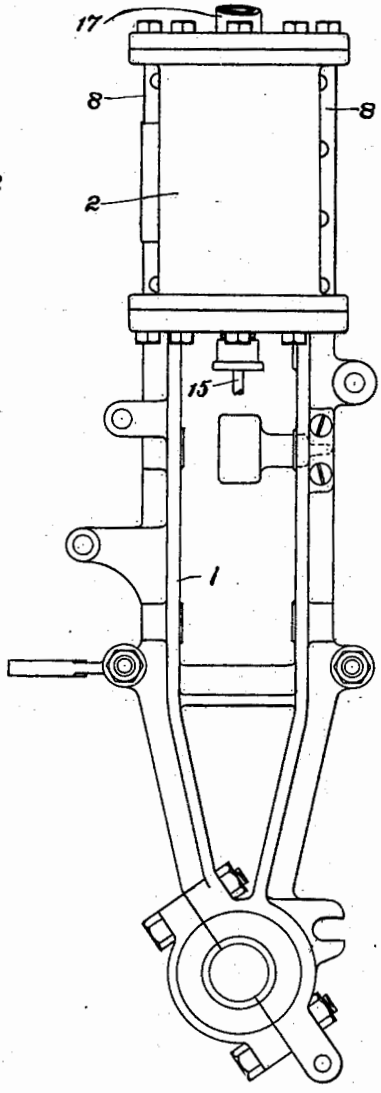

Fig. 3.

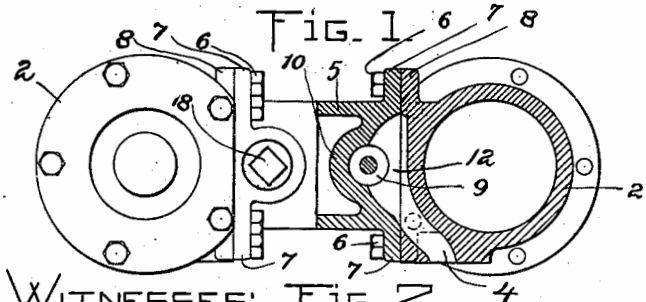

Fig. 2.

WITNESSES:

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UNITED STATES PATENT OFFICE.

JOHN C. SPEIRS, OF BRIDGEPORT, CONNECTICUT, ASSIGNOR TO THE LOCOMOBILE COMPANY OF AMERICA, OF NEW YORK, N. Y.

STEAM-ENGINE.

SPECIFICATION forming part of Letters Patent No. 671,783, dated April 9, 1901.

Application filed May 7, 1900. Serial No. 15,723. (No model.)

To all whom it may concern:

Be it known that I, JOHN C. SPEIRS, of Bridgeport, in the county of Fairfield and State of Connecticut, have invented certain new and useful Improvements in Two-Cylinder Engines, of which the following is a specification.

This invention relates to the construction of the cylinder and steam-chest of a two-cylinder steam-engine.

It consists in the improvements which I shall now proceed to describe and claim.

Of the accompanying drawings, Figure 1 represents a vertical sectional view, partly in front elevation, showing parts of an engine constructed in accordance with my invention. Fig. 2 represents a section on line 2 2 of Fig. 1. Fig. 3 represents a side elevation.

The same reference characters indicate the same parts in all the figures.

1 is the frame, and 2 2 are the cylinders, of a two-cylinder double-acting steam-engine.

The lower working parts of the engine are omitted, as they do not particularly relate to the present invention.

It is common practice to cast the cylinder and steam-chest of a steam-engine in one piece and to provide a removable plate forming one wall of the steam-chest, whereby access may be had to the interior thereof. It is also common practice to combine the two valve-chests of a two-cylinder engine in one valve or steam-chest, and to cast this integrally with the cylinders, leaving one side of the steam-chest open to give access to its interior, and covering this side with a removable plate. I propose in accordance with my present invention to dispense with the removable cover-plate and make a one-piece steam-chest separate from the two cylinders and serving to unite the two, and, furthermore, to form suitable valve-guides within said chest for the valves pertaining to the respective cylinders.

The cylinders 2 2 are mounted side by side, and the walls are formed with suitable inlet and exhaust passages or ports 3 4. Said cylinders are planed flat on the side where the outer openings of the ports or passages 3 4 occur.

5 is a steam-chest interposed between the cylinders 2 2 and cast in a single piece. The faces of the steam-chest 5 which lie against the cylinders 2 2 are planed flat to make a close fit with said cylinders, and the steam-chest is secured to the respective cylinders by means of screws 6 6 passing through flanges 7 8, formed, respectively, on the steam-chest and cylinders.

In connection with this construction I prefer to employ piston-valves 9. The steam-chest 5 is formed internally with valve-guides 10, in which the valves 9 reciprocate, said guides being open at both ends, so as to balance the valve by the steam-pressure and to provide entrance-passages for the steam. The steam-chest is formed with annular entrance ports or passages 11 11, communicating with the cylinder entrance-passages 3 3 and adapted to be uncovered when the valves move to either end of their stroke. The steam-chest is furthermore formed with an exhaust port or passage 12, communicating with the cylinder exhaust-passage 4 and adapted to become connected with the annular passages 11 by a suitable movement of the valves.

At one end of the steam-chest 5 are formed threaded openings 13, into which are screwed the glands or stuffing-boxes 14 for the valve-stems 15, said openings being preferably slightly larger than the diameter of the valves 9 in order to permit said valves to be removed and inserted and also to allow for the boring of the valve-guides 10. In the opposite end of the steam-chest are formed similar threaded openings 16, into one of which the steam-pipe 17 may be screwed, the other being preferably closed by a screw-plug 18. The openings 16 are preferably located in line with the valve-guides 10 and may be of slightly-larger diameter than the valves 9, so that they also may be used to introduce or remove the valves and to permit the boring of the valve-guides.

By forming all of the openings 13 16 of equal diameter and with similar screw-threads the valve-chest shown in the drawings is made completely reversible. It may be turned end for end and the glands 14 screwed into the openings 16, while the steam-pipe and plug are screwed into the openings 13. It may also be reversed as to its planed faces. This

reversibility merely requires that the port-openings, bolt-holes, &c., shall be disposed symmetrically on opposite sides of the median planes of the valve-chest. It is of advantage in assembling and repairing and in cases of unequal wear of parts on the two sides or ends of the valve-chest to have the same reversible.

I claim—

In an engine, the combination of two cylinders set side by side and having suitable steam-passages formed in their walls, a steam-chest made separate from the two cylinders and secured thereto by suitable means, said chest having steam-passages formed in it and communicating with the steam-passages of the cylinders, and also having internal valve-guides formed integrally with it, two piston-valves operating in said guides and controlling the steam-passages of the respective cylinders, threaded openings of larger diameter than said valves formed in the end walls of the valve-chest in line with the two ends of each guide, glands for the valve-stems screwed into the said openings at one end, and a steam-pipe and a threaded member screwed into the said openings at the opposite end, the valve-chest being constructed symmetrically as to its described parts on opposite sides of its median planes.

In testimony whereof I have affixed my signature in presence of two witnesses.

JOHN C. SPEIRS.

Witnesses:

E. BATCHELDER,

H. L. ROBBINS.