No. 669,779. Patented Mar. 12, 1901.

C. T. FLETCHER.

STEAM ENGINE.

(Application filed Apr. 25, 1900.)

(No Model.)

FIG. 2.

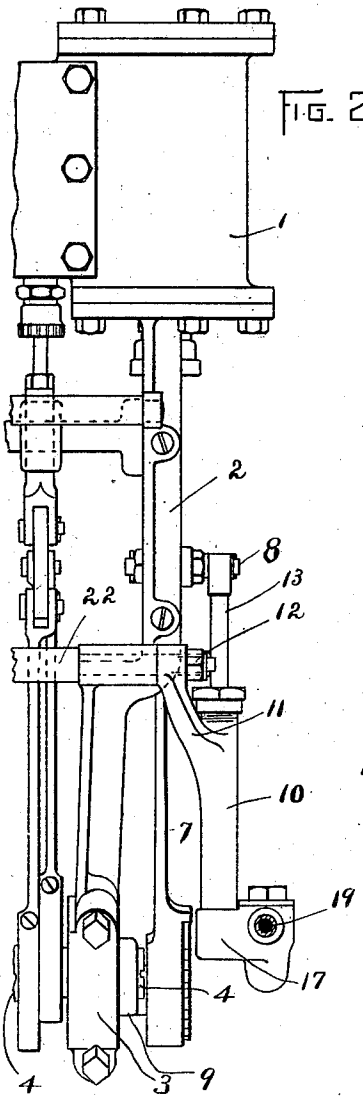


FIG. 1.

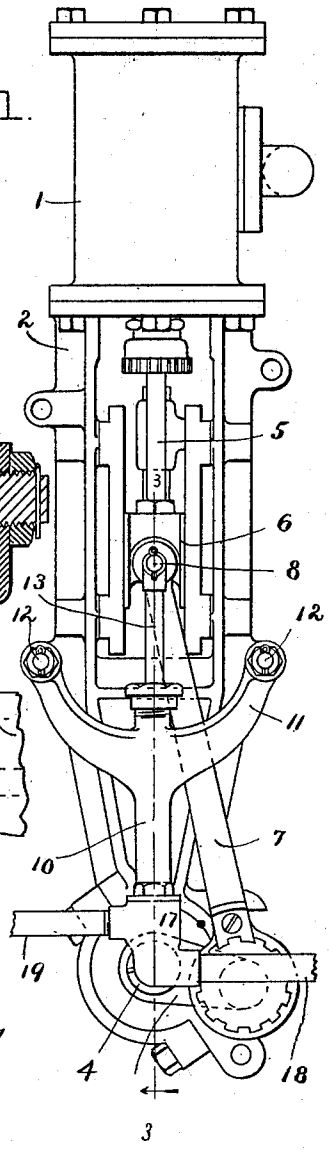
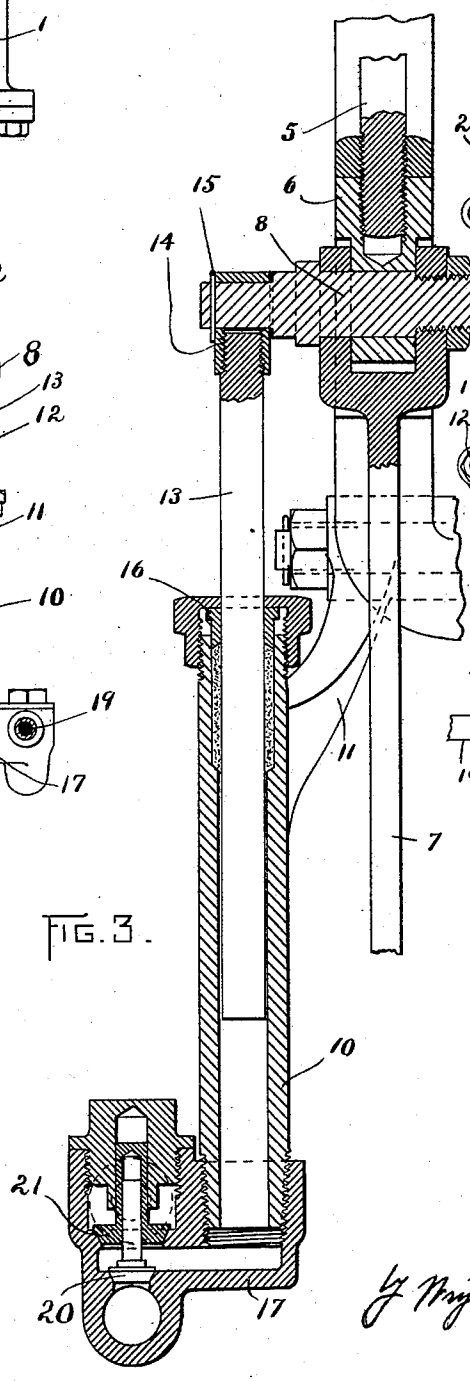


FIG. 3.



WITNESSES:

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UNITED STATES PATENT OFFICE.

CHARLES T. FLETCHER, OF WORCESTER, MASSACHUSETTS, ASSIGNOR TO THE LOCOMOBILE COMPANY OF AMERICA, OF NEW YORK, N. Y.

STEAM-ENGINE.

SPECIFICATION forming part of Letters Patent No. 669,779, dated March 12, 1901.

Application filed April 25, 1900. Serial No. 14,207. (No model.)

To all whom it may concern:

Be it known that I, CHARLES T. FLETCHER, of Worcester, in the county of Worcester and State of Massachusetts, have invented certain new and useful Improvements in Steam-Engines, of which the following is a specification.

This invention relates to steam-engines such as those employed in steam-driven automobile vehicles, and it has particular reference to the manner of connecting the boiler-feed pump to the engine.

The invention consists in certain novel features of construction and arrangement, which I shall now proceed to describe and claim.

Of the accompanying drawings, Figure 1 represents a side elevation of a steam-engine and pump organized in accordance with my invention. Fig. 2 represents a front elevation showing a part of the engine and the pump. Fig. 3 represents a section on line 3 3 of Fig. 1.

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

In the drawings, 1 represents a cylinder of a steam-engine, which may be of the double-cylinder type.

2 represents the frame of the engine, bolted to the cylinder 1 and having at its lower end a bearing 3 for the engine crank-shaft 4.

5 represents the piston-rod relating to the cylinder 1 and connected to a cross-head 6, which slides in suitable guides on the frame 2, and 7 represents the connecting-rod, extending from a wrist-pin 8 on the cross-head 6 to a wrist-pin on the end of a crank 9, connected to crank-shaft 4.

10 represents the cylinder of the boiler-feed pump, the same having integral arms 11 11, which extend upwardly in Y fashion and are bolted at 12 12 to the engine frame 2 on the outer side of the latter.

13 is a pump piston-rod, the lower end of which constitutes a piston operating within pump-cylinder 10 and the upper end of which is screwed into a collar 14, surrounding a lateral elongation of the cross-head wrist-pin 8 and held thereon by a split pin 15. At 16 on the upper end of the pump-cylinder 10, where piston-rod 13 enters said cylinder, is a suitable gland or stuffing-box 16. Screwed to the lower end of pump-cylinder 10 is a casing 17, to which are connected inlet and outlet pipes 18 19 and which contain suitable inlet and outlet check-valves 20 21, one of which acts as a guide and stop for the other, but the construction of which I do not herein claim, as the same is made the subject of a copending application. The pump piston-rod 13 is parallel to and has the full stroke of the engine piston-rod 5. On the upstroke of the cross-head feed-water is sucked into the pump-cylinder 10, past inlet-valve 20, and on the downstroke is forced out past outlet-valve 21.

I claim simplicity, strength, and durability in the arrangement of parts described.

It is to be noted that the bolts 12, which secure pump-cylinder 10 to the engine-frame 2, may be continuations of certain tie-rods 22, which form a part of the engine-frame, and the same nut may be employed to hold the tie-rod and side plate of the frame together and secure the pump to the frame. The arms 11 are made sufficiently stout, so that no other support is needed for the pump.

I claim—

The combination of an engine having a piston-rod and cross-head, and a frame including as integral parts of it a side plate and tie-rods connected thereto on opposite sides of the cross-head, and a pump having a piston-rod attached directly to the cross-head, and a casing or cylinder provided with divergent arms 11 11 secured at their ends to the frame by means of bolts 12 12 which also serve to secure the tie-rods to the side plate.

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

CHARLES T. FLETCHER.

Witnesses:
THOMAS E. GRIFFIN,
THOMAS F. AHERN.