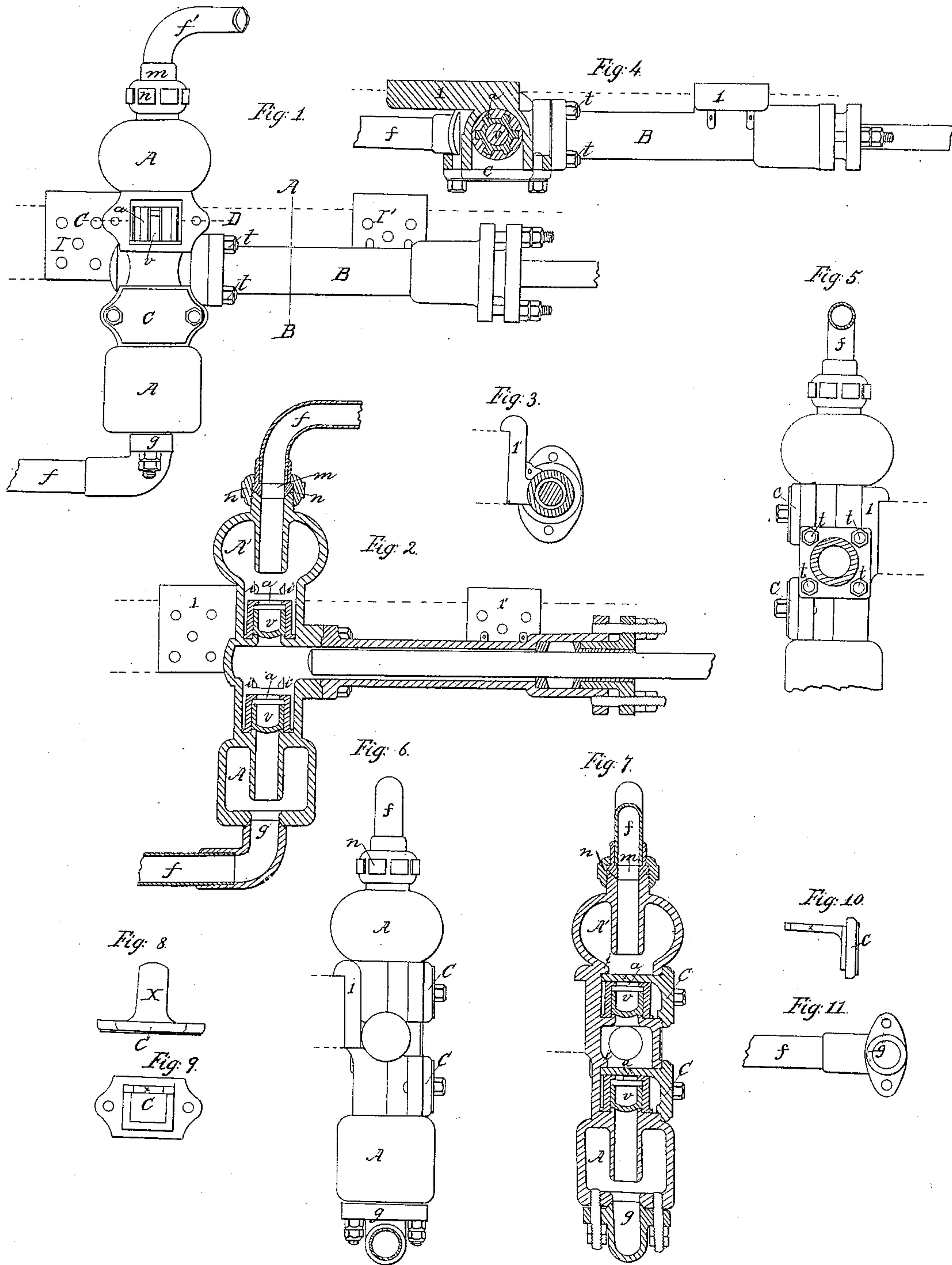


C. L. Rice,
Steam Pump.

No 29,195.

Patented July 17, 1860.



UNITED STATES PATENT OFFICE.

CHARLES L. RICE, OF MILWAUKEE, WISCONSIN.

PUMP FOR LOCOMOTIVE-ENGINES.

Specification of Letters Patent No. 29,195, dated July 17, 1860.

To all whom it may concern:

Be it known that I, CHARLES L. RICE, of the city of Milwaukee, in the State of Wisconsin, have invented certain new and useful Improvements in Pumps for Locomotives; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings and to the letters and marks thereon.

In the several figures of the drawings forming part of this specification, wherever like parts are shown like marks and letters are used to designate the parts.

Of these Figure 1 is a side elevation of the plunger and main parts of a pump having my improvements, Fig. 2, being that of a longitudinal section, Fig. 3 being a transverse section of the barrel and plunger; Fig. 4 a plan, partly in section; Fig. 5 a front elevation; Fig. 6 a back view; Fig. 7 a transverse vertical section; Fig. 8 a plan of the caps, of which Fig. 9 is an inside elevation and Fig. 10 an edge view; and Fig. 11 a plan of the flange and part of the feed pipe.

(A, A',) mark the air chambers; (B) the barrel; (f, f',) the feed pipes, the first being that connected with the tender and the latter that leading to the check-valve; (l, l') the lugs for attaching by bolts the pump to the engine frame; (C, C) the caps of the valve chambers;—the cap in Fig. 1, of the upper valve chamber having been removed to show the cage (a) and valve (v) and also the opening, which, it will be perceived, is of sufficient height to admit the cage.

(n) marks the nut that connects the pipe (f') with the chamber (A'), and (m) the piece that forms the joint, which is of the ball and socket kind. The pipe (f) is connected to the lower chamber by a flanged piece (g), which is fitted to the chamber by a spherical joint and held up by two studs.

The barrel of the pump is fitted to the chambers by a double faced ground joint and held by the studs (t). The plunger, stuffing-box and follower are fitted up in the usual way.

The manner in which the cages and valves are set on their seats, as also the manner in which all the joints are made is best shown by Fig. 2. The small projections (i, i', i'', i'''), and which are cast, on the backs

of the valve chambers are to receive the ends of the cross pieces (x, x) for holding down the cages. The projections and cross pieces are clearly shown by Fig. 7.

The barrel and plunger are well shown by Fig. 3, in section which figure also gives a back view of the lug (l') and an elliptic flange of the stuffing box, and a brace (o) to give additional strength to the lug.

By the improvements herein set forth facility is given for reaching the valves in case of choking or any other accident, as by simply taking off the nuts the caps can readily be removed the valves and cages reached, inspected, cleaned or repaired and then readily replaced. The making of the air chambers and the valve chambers in one piece is, also, an important feature of these improvements, as by this the valves are brought nearer to each other and to the plunger, and consequently the pump will be more efficient than the ordinary locomotive pump. In ordinary locomotive pumps the chambers are from three to four feet high while in this pump their extreme height is less than two feet, the arrangement therefore is very compact and the weight less.

The cross pieces (x, x,) being a part of the caps are removed with the caps, and when in place in connection with the projections (i i) hold the cages firmly in position. The arrangement therefore is not only one of efficiency and compactness, but is cheaper to construct originally and more easily and less expensively repaired than in the ordinary locomotive pumps.

What I claim as my invention and desire to secure by Letters Patent, is—

1. Constructing the valve chambers and air chambers of one piece, and arranging them in relation to each other as herein set forth.

2. The cross pieces (x x) and the caps in connection with the projections (i, i', i'', i''') constructed and arranged as, and for the purposes described.

This specification signed at Milwaukee this 21st day of May 1860.

CHARLES L. RICE.

Witnesses:

S. PARKLOON,
THOMAS B. KEOGH.