

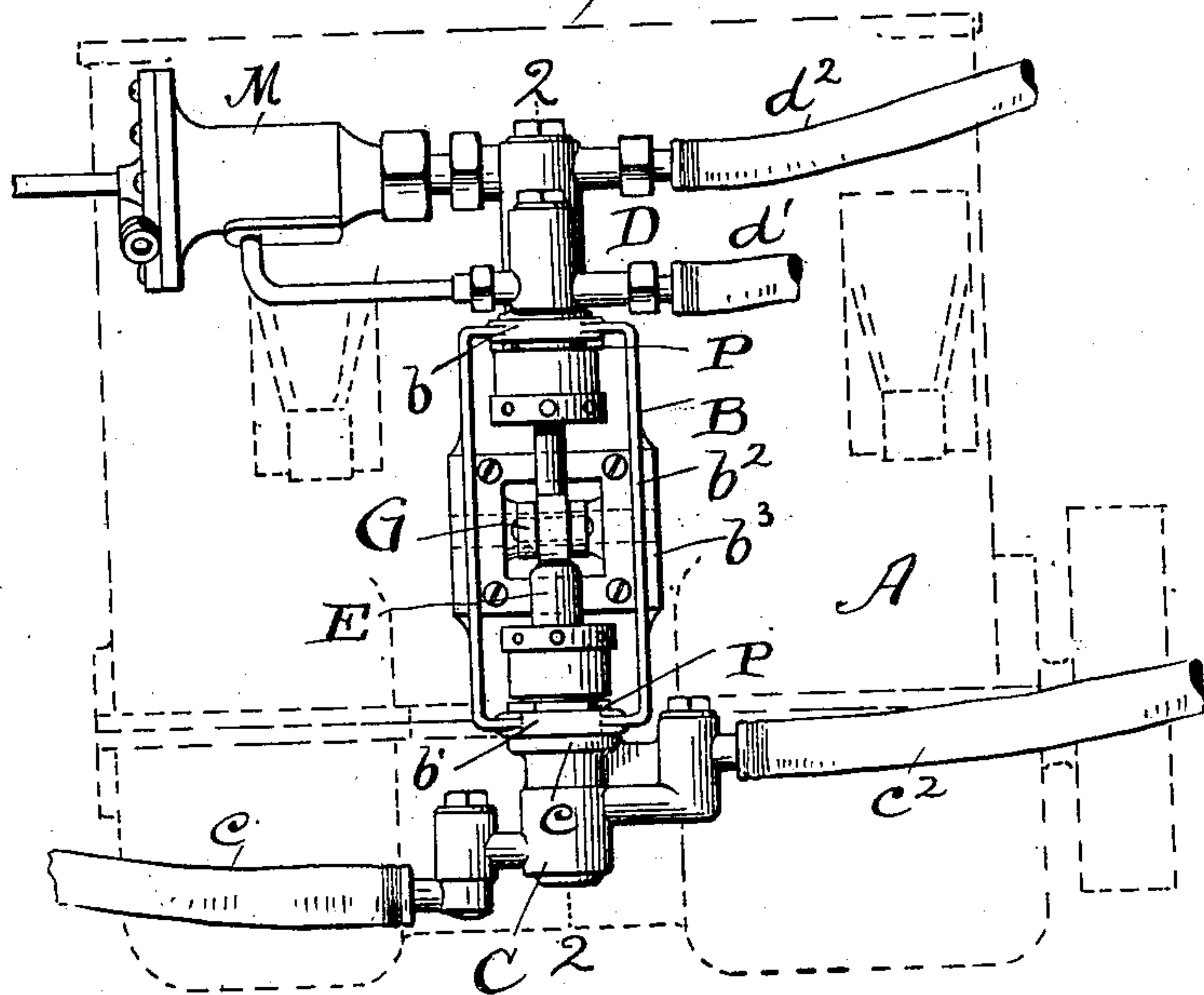
No. 734,029.

PATENTED JULY 21, 1903.

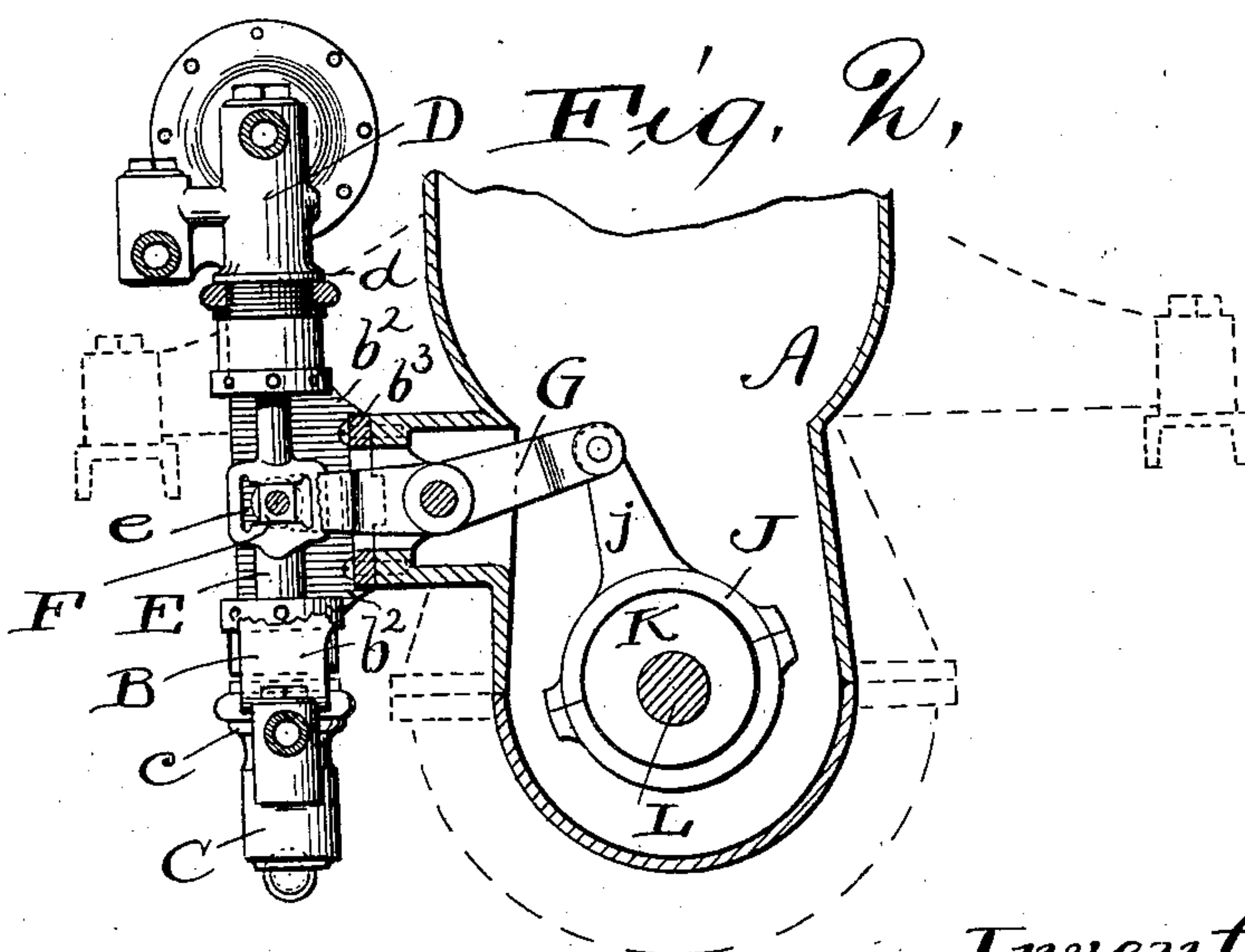
R. H. WHITE.  
PUMP MECHANISM FOR STEAM CARRIAGES.  
APPLICATION FILED JAN. 17, 1903.

NO MODEL.

*Fig. 1,*



*Fig. 2,*



Witnesses  
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# UNITED STATES PATENT OFFICE.

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## PUMP MECHANISM FOR STEAM-CARRIAGES.

SPECIFICATION forming part of Letters Patent No. 734,029, dated July 21, 1903.

Application filed January 17, 1903, Serial No. 139,392. (No model.)

*To all whom it may concern:*

Be it known that I, ROLLIN H. WHITE, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented a certain new and useful Improvement in Pump Mechanism for Steam-Carriages, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings.

The invention is an improvement especially designed for the kind of steam-carriages which employ a steam-generator into which water must be pumped from a supply-tank and a steam-condenser from which water must be pumped and returned to the supply-tank.

The invention consists in the economical and efficient combination of parts whereby both pumps occupy a minimum space and are actuated by the same operating mechanism. The invention is hereinafter fully described, and definitely pointed out in the claims.

In the drawings, Figure 1 is a side elevation of the mechanism embodying the present invention, which drawings also show the position of said mechanism relative to a two-cylinder steam-engine which furnishes the power for actuating said mechanism. Fig. 2 is a view of the outer parts from the right side of Fig. 1, the engine-casing and some of the other parts being in section in the plane indicated by the line 2 2 of Fig. 1.

On one side of the engine-casing A, but in a plane between the two cylinders, an open frame B is secured. The top and bottom members  $b$   $b'$  of this frame support the two pumps C and D in axial alinement. The two upright members  $b^2$  are extended toward the engine-casing, and their rearward extensions are connected by a plate  $b^3$ , which is bolted to the engine-casing. The pistons of the two pumps are connected by a single rod E, in which is a transverse slot  $e$ .

The lever G is pivoted to the engine-casing, and its projecting outer end is bifurcated. The two branches thereof lie on opposite sides of and are pivoted to a block F, which is slidably fitted in the slot  $e$ . The inner end of

the lever is pivotally connected with an arm  $j$ , attached to an eccentric-strap J, which embraces the eccentric K on the engine-shaft L.

Each pump-barrel is externally of cylindrical form, and each has an external cylindrical flange, said flanges being indicated by  $c$  and  $d$ , respectively. The barrels are externally threaded, and each pump is fixed to the horizontal frame member, through which it passes, by a nut P, which screws onto the threaded barrel, thereby clamping said frame member between said nut and the flange.

The invention is not limited to any particular construction of the pump mechanism *per se*, except to the extent stated, and any suitable construction of piston and valves may be employed.

The pumps shall be of such relative size that by their substantially constant operation they will perform the maximum work for which they are intended. The pump C is the condenser-pump, which is connected at its inlet end by the pipe  $c'$  with the condenser and is connected at its outer end by the pipe  $c^2$  with the water-supply tank. The pump D is the pump for forcing the water from the supply-tank into the generator.

$d'$  represents the pump inlet-pipe, which is connected with the supply-tank, while the pipe  $d^2$  discharges into the generator.

The part marked M and the parts directly attached thereto, as shown in the drawings, represent an automatic regulator which chances to be a part of the construction in which the present invention is embodied, but is not a necessary part of said invention.

What I claim is—

1. In a steam-carriage, the combination of a rigidly-supported frame having top and bottom members, two upright side members and a back plate connecting said side members by means of which the frame is secured to a suitable support, and two pump-cylinders respectively secured to said top and bottom parts in axial alinement, with a single piston-rod connected with both pump-pistons, the engine, and mechanism operatively connected with said rod and with the engine-shaft, substantially as specified.



2. In a steam-carriage, the combination of a rigidly-supported frame having top and bottom members, and two pump-cylinders respectively secured to the said top and bottom members in axial alinement, with a single piston-rod connected with both pump-pistons; a rocking lever operatively connected at one end with said piston-rod, the engine-shaft, an eccentric secured thereto, and an eccentric-strap having an arm which is operatively connected with the inner end of said rocking lever, substantially as specified.

3. In a steam-carriage, the combination of a rigidly-supported frame having top and bottom members which are provided each with a hole, which holes are in axial alinement, two pump-cylinders respectively passing through said holes and each having an external flange and an externally-threaded barrel, and nuts screwing onto said barrels, with a single piston-rod connected with both pump-pistons, the engine, and mechanism operatively connecting with said piston-rod and with the engine-shaft, substantially as specified.

4. In a steam-carriage the combination of a two-cylinder engine and its casing, an open frame fixed to one side of said casing, in a plane

between the two cylinders, and having top and bottom members, and two pump-cylinders secured to said top and bottom members in axial alinement, with a single piston-rod connected with the pistons of both pumps, a lever pivoted to the engine-casing and having its outer end operatively connected with said piston-rod, the engine-shaft, and an operative connection between said shaft and the inner end of said lever, substantially as specified.

5. In a steam-carriage, the combination of a feed-water pump, and a condenser-pump fixed in axial alinement, a single piston-rod connected with the pistons of both pumps and having, between the pump-cylinders, a transverse slot, a device slidably mounted in said slot, a pivoted lever connected at one end to said sliding device, the engine-shaft and mechanism operatively connecting the other end of said lever with the engine-shaft, substantially as specified.

In testimony whereof I hereunto affix my signature in the presence of two witnesses.

ROLLIN H. WHITE.

Witnesses:

E. B. GILCHRIST,  
E. L. THURSTON.