(No Model.)

J. H. BAKER.

STEAM ACTUATED VALVE.

No. 449,868. Patented Apr. 7, 1891.

Fig. 1.

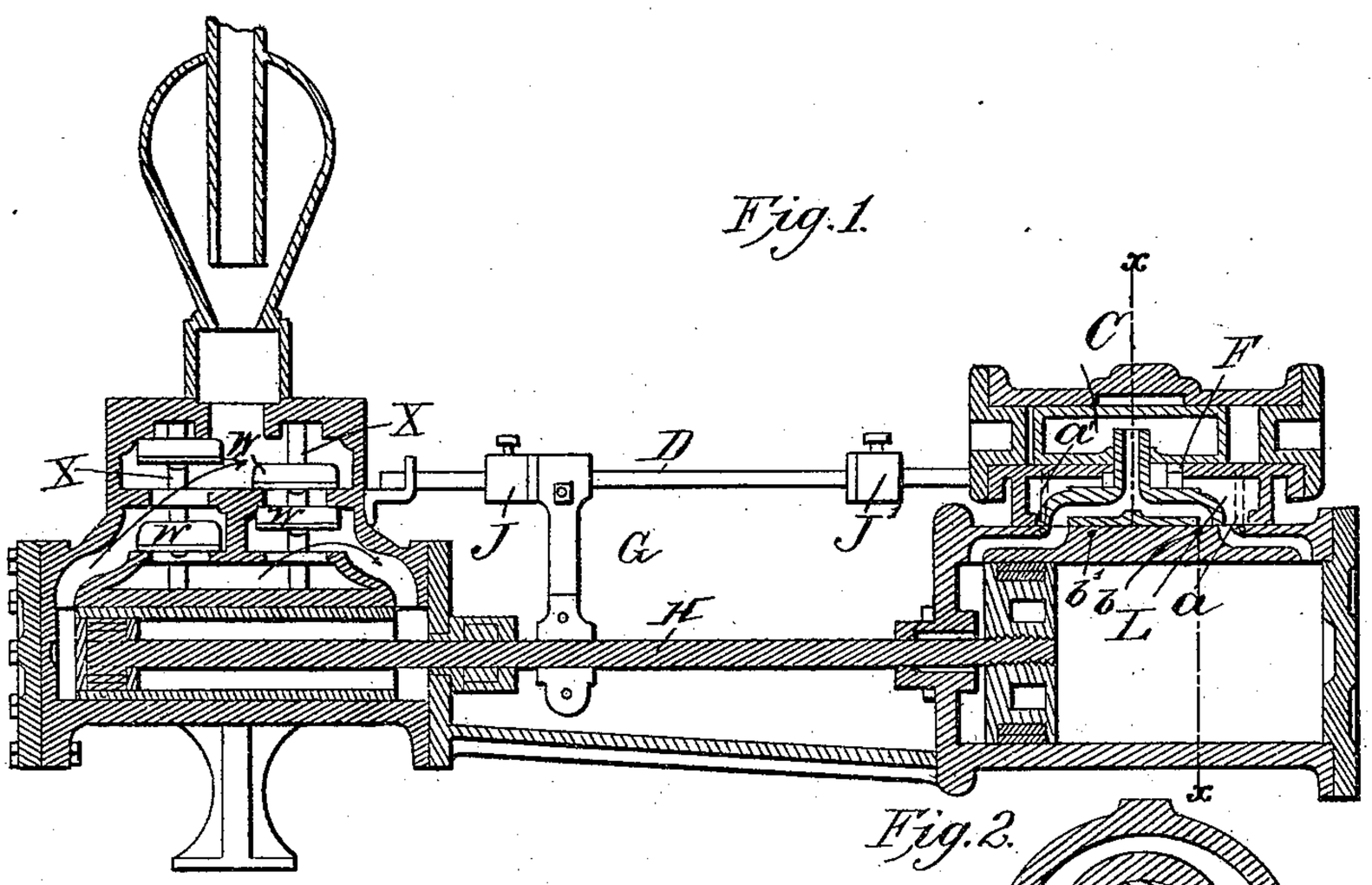


Fig. 2.

Fig. 4.

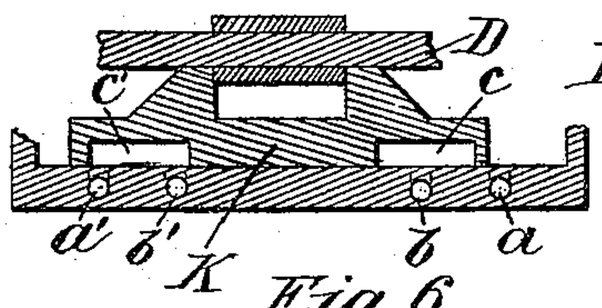


Fig. 5.

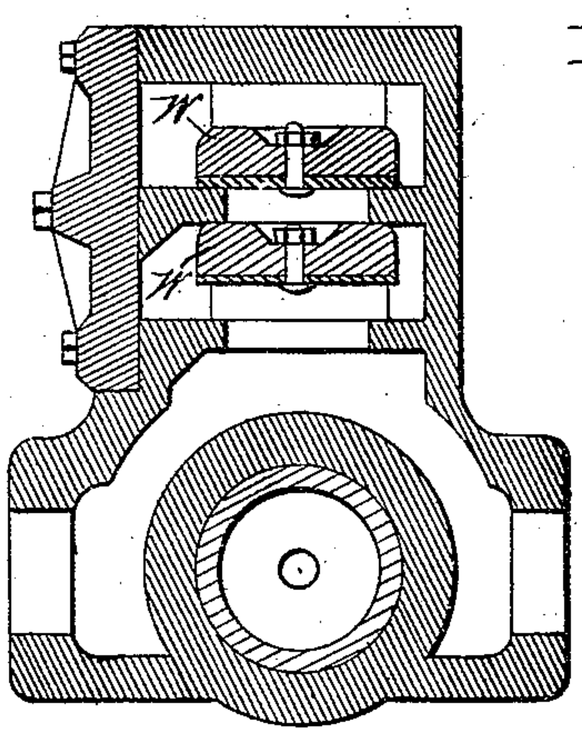


Fig. 6.

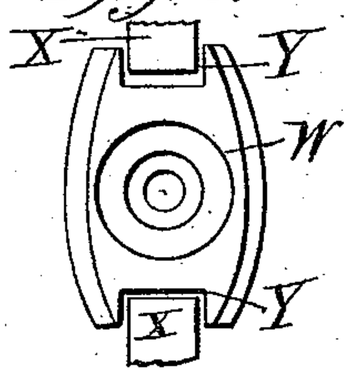
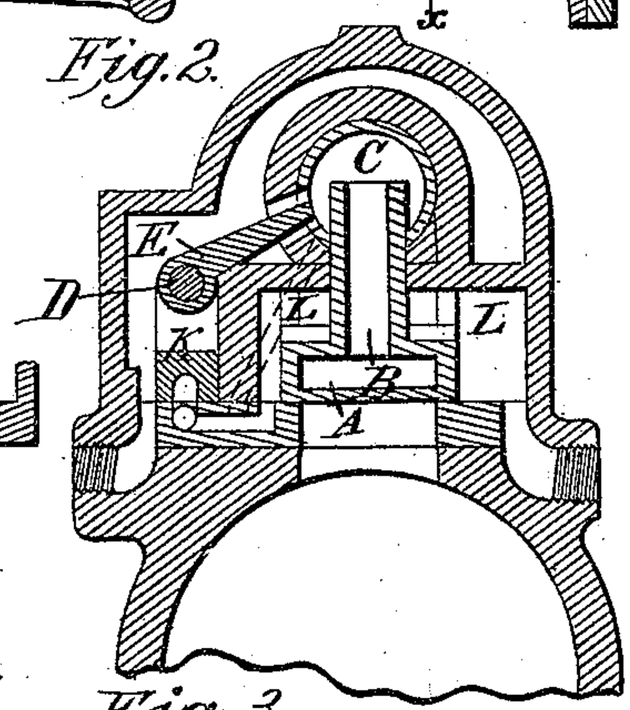
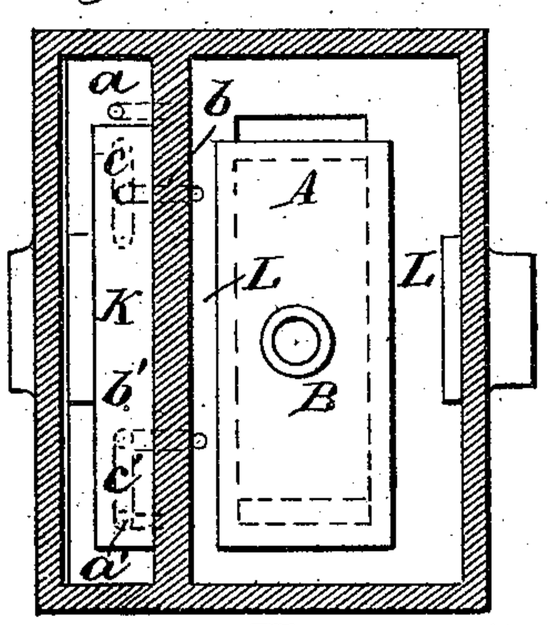


Fig. 3.





Witnesses:
R. A. Bullard.
Edwd. Farrow

Inventor:
Jas. H. Baker
per S. A. Bullard Atty

UNITED STATES PATENT OFFICE.

JAMES H. BAKER, OF SPRINGFIELD, ILLINOIS.

STEAM-ACTUATED VALVE.

SPECIFICATION forming part of Letters Patent No. 449,868, dated April 7, 1891.

Application filed August 6, 1890. Serial No. 361,234. (No model.)

To all whom it may concern:

Be it known that I, JAMES H. BAKER, a citizen of the United States, residing at Springfield, in the county of Sangamon and State of Illinois, have invented a new and useful Improvement in Steam-Actuated Valves, of which the following is a specification.

My invention relates to improvements in steam force-pumps in which the engine and pump are combined into one machine.

The machine is illustrated by the accompanying drawings, in which—

Figure 1 is a longitudinal section through pump and engine. Fig. 2 is a cross-section through the engine on line *x x*. Fig. 3 is a horizontal section through the steam-box of the engine. Fig. 4 is a vertical section through the length of the auxiliary valve K. Fig. 5 is a cross-section through the pump, and Fig. 6 is a top view of one of the pump-valves.

Similar letters refer to similar parts throughout the several drawings.

The pump is operated in the following manner: Steam from the boiler enters the valve A through the supply-tube B, and acting on the head of the piston in the usual way carries it to the other end of the cylinder. The pump-arm G is attached to the piston-rod H, and moving forward with H is carried against the tappet J or J′ just before the piston reaches the end of its stroke. The arm G moves easily on the valve-stem D but when G strikes the tappet J or J′ it carries D along till its movement is completed. D is attached to the auxiliary valve K, which in its movement with D uncovers the steam-hole *a* or *a′*, through which live steam enters the cylinder of chest-piston C. C is thus thrown forward and carries with it the steam-valve A, for A is attached to C by the supply-tube B snugly fitting into an opening in C. A then supplies live steam to the piston-head. The steam-ring F lies on top of valve A and about the tube B and makes a steam-tight joint with A. The steam is exhausted from the other end of the chest-cylinder C by passing through *a*, *c*, and *b* or *a′*, *c′*, and *b′* into the exhaust-chamber L L. It will be noticed that C in its movement covers *a′* or *a* entirely. The steam remaining in the exhaust end of the chest-cylinder beyond *a′* or *a* forms a cushion for C, and by its expansive force carries C back past the steam-hole *a′* or *a*, when by the movement of the auxiliary valve K the steam at the other end of C is allowed to exhaust through the steam-holes *a* and *b* or *a′* and *b′*, which are periodically connected through the channel *c* or *c′* in the auxiliary valve K. In case the engine is cold or the parts stick tightly and C fails to move past *a′* or *a*, so that the steam from *a′* or *a* may act on C, the arm E, attached to D and moving loosely in a slot in the side of C, strikes against the end of said slot and carries C with it to a point fully past *a′* or *a*, from which position the live steam carries it to the end of the stroke and with it the steam-valve A. The arm E is necessary only in such emergencies. In the return movement the action is the same, the reference-letters in the description being reversed. The arm G is clamped to H by two bolts, and by this means is easily adjusted in place and difficult to work loose. The tappets J and J′ are fastened by clamp-screws to D and are adjusted to the distance K is required to move.

I am aware that prior to my invention steam force-pumps have been made with a chest-piston controlling the action of the steam-valve, the chest-piston itself being controlled by the movement of the piston-rod of the engine. I do not therefore claim such a combination, broadly; but

What I do claim, and desire to secure by Letters Patent, is—

1. The combination, in a steam force-pump, of the steam-valve A, having a tube B, steam-ring F, auxiliary valve K, chest-piston C, finger E, valve-stem D, and pump-arm G, substantially as shown and set forth.

2. The steam-ring F, in combination with steam-valve A and supply-tube B, substantially as set forth.

JAMES H. BAKER.

In presence of—
R. A. BULLARD,
J. A. CHURCHILL.