

A. S. Cameron,
Slide Valve.
No. 112,899. Patented Mar. 21. 1871.

Fig. 1.

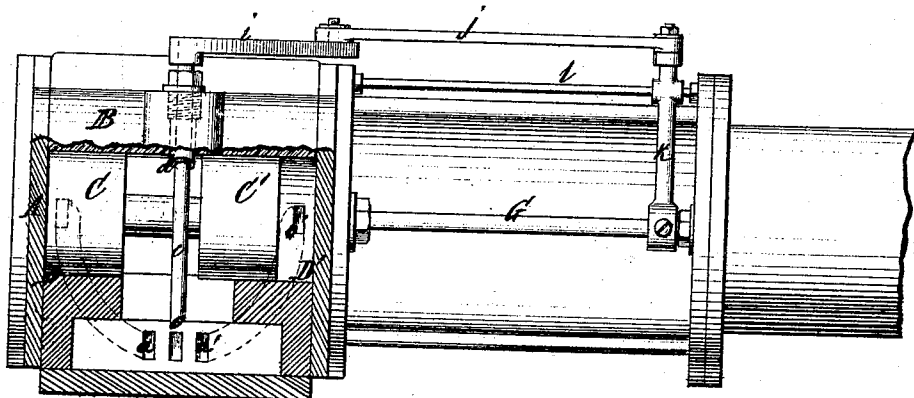


Fig. 2.

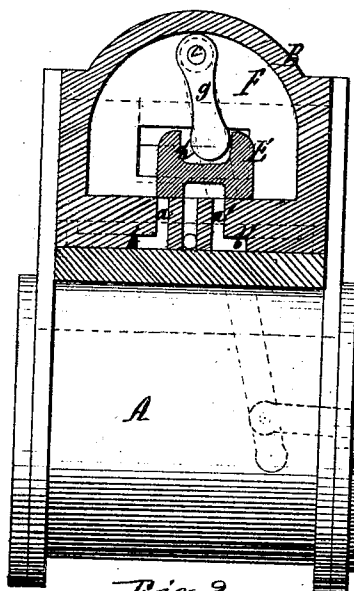


Fig. 4.

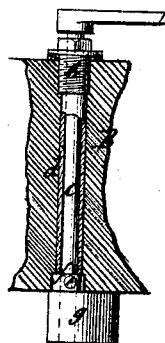
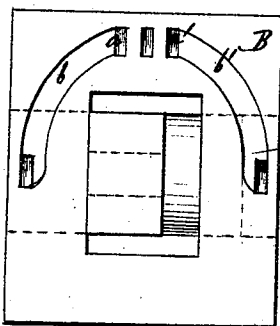


Fig. 3.



Witnesses: Inventor:
E. F. Kastenhuber, Adam Scott Cameron
C. Mahlers, By Van Dant and Hall,
his attys.

UNITED STATES PATENT OFFICE.

ADAM S. CAMERON, OF NEW YORK, N. Y.

IMPROVEMENT IN VALVE-GEARS FOR STEAM-ENGINES.

Specification forming part of Letters Patent No. **112,899**, dated March 21, 1871.

To all whom it may concern:

Be it known that I, ADAM S. CAMERON, of the city, county, and State of New York, have invented a new and Improved Valve-Gear for Steam-Engines; and I do hereby declare the following to be a full, clear, and exact description thereof, which will enable those skilled in the art to make and use the same, reference being had to the accompanying drawing, forming part of this specification, in which drawing—

Figure 1 represents a plan or top view of this invention, partly in section. Fig. 2 is a sectional side view of the same. Fig. 3 is an inverted plan of that part of the steam-chest which contains the valve-moving pistons and the auxiliary slide-valve, showing the arrangement of the ports. Fig. 4 is a detached sectional view of the bearing of the rock-shaft, which serves to impart motion to the auxiliary slide-valve.

Similar letters indicate corresponding parts.

This invention relates to an improvement in the gear of that class of valves known as "steam-moved valves," the valve-moving pistons and the auxiliary slide-valve being inclosed in one and the same piece of casting, the bottom or under surface of which is formed with recesses, which form the passages from the steam-ports of the auxiliary valve-chest to the auxiliary cylinders, so that much labor and time in fitting up this part of the mechanism are saved.

The rock-shaft, which imparts motion to the auxiliary slide-valve, has its bearings in a tube which is fitted in a hole bored through the top of the valve-chest, and which is provided with a screw-thread to screw into the end of the hole, while on the opposite end of the rock-shaft is secured a collar, which bears against the end of the tubular bearing, so as to prevent effectually the escape of steam from the auxiliary valve-chest.

When my valve-gear is used for a direct-acting engine, the rock-shaft derives its motion from a slide which is connected to the piston-rod, and guided by a rod firmly connected to the cylinder-heads, the connection between the slide and the rock-shaft being effected by a long lever and a rod extending therefrom to the slide, while on the opposite end of the

rock-shaft is mounted a knuckle, which engages with the auxiliary valve in such a manner that the motion of the auxiliary valve is much slower than that of the piston, and, furthermore, all the parts are so constructed that they can be readily fitted up and connected.

In the drawing, the letter A designates a steam-cylinder, which is provided with a valve-chest, the top B of which contains the valve-moving pistons C C', working in the auxiliary cylinders D D', and also the auxiliary slide-valve E, working in a valve-chest, F. This valve-chest communicates, through ports *a a'* and channels or passages *b b'*, with the ends of the auxiliary cylinders D D', and the passages *b b'* are formed by casting in the under surface of the top B suitable recesses, as shown in Fig. 3, so that when said top is secured in position the steam-passages are ready, and no time is lost in drilling the same out. It is obvious that the recesses *b b'* might be cast in the upper surface of the cylinder instead of in the bottom surface of the top piece, B, without altering the result.

The auxiliary valve E derives its motion from a rock-shaft, *c*, which has its bearing in a tube, *d*, fitted into a hole drilled through the top B, as shown in Fig. 4. One end of this tube is provided with a screw-thread, *e*, and the opposite end of said tube bears against a collar, *f*, secured on the rock-shaft, so that when the screw *e* is secured in the top B the escape of steam from the auxiliary steam-chest is effectually prevented. A stuffing-box in the end of the tube completes the arrangement. By placing the valve E on the opposite side of the chest from that where the rock-shaft *c* is connected to the driving mechanism, the top of the chest B forms a good and substantial bearing for said rock-shaft.

A knuckle, *g*, mounted on one end of the rock-shaft *c*, catches in a recess, *h*, on the back of the auxiliary slide-valve, and on the opposite end of said rock-shaft is secured a lever, *i*, which connects, by means of a rod, *j*, with a slide, *k*, extending from the piston-rod G.

If my valve-motion is applied to a direct-acting engine, the slide *k* is guided on a rod or guide, *l*, secured in the two cylinder-heads, or forming part of the connection between the two cylinders, whereby the construction of this

guide is materially simplified. The lever *i* is considerably longer than the knuckle *g*, so that the motion of the auxiliary valve is reduced in proportion from the motion of the piston or piston-rod. By these means a simple valve-motion is produced, which is not liable to get out of order, and all the parts of which are so situated that easy access can be had to them.

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

1. The arrangement of the auxiliary valve-chest *F* and the auxiliary cylinders *D D'* in one and the same piece of casting, as set forth.

2. The tubular bearing *d*, provided with a collar, *f*, and screw-thread *e*, in combination with the rock-shaft *c* and the auxiliary valve *E*, situated in the opposite side of the chest *B* from that where the rock-shaft *c* connects with the piston.

This specification signed by me this 6th day of December, 1870.

A. S. CAMERON.

Witnesses:

W. HAUFF,
E. F. KASTENHUBER.