J. J. L. Farcot,

Governor.

No. 85,439. Patented Dec. 29, 1868.

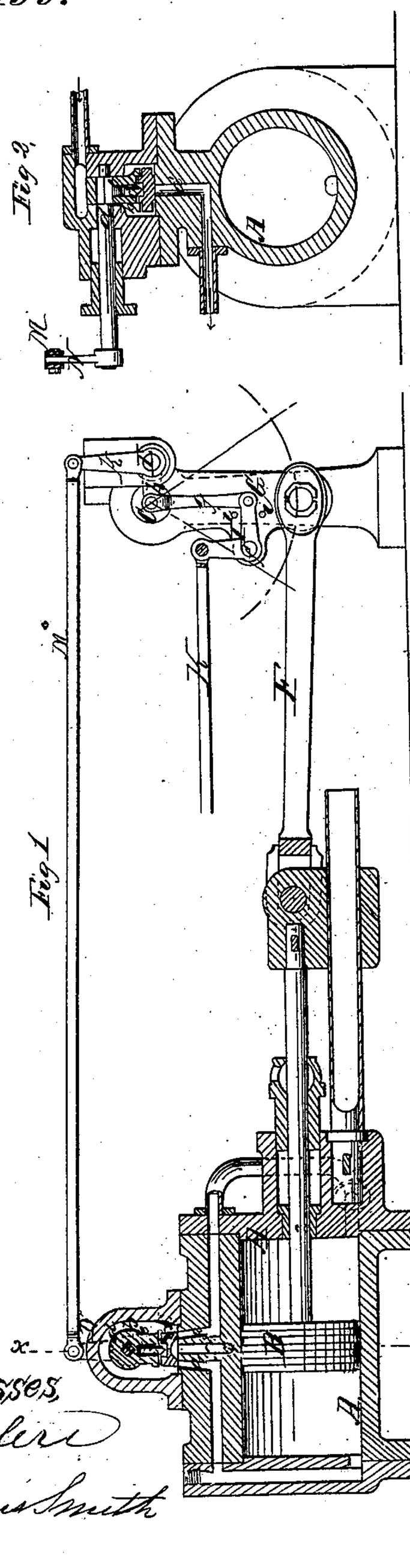

Fig 1.

Fig 2.

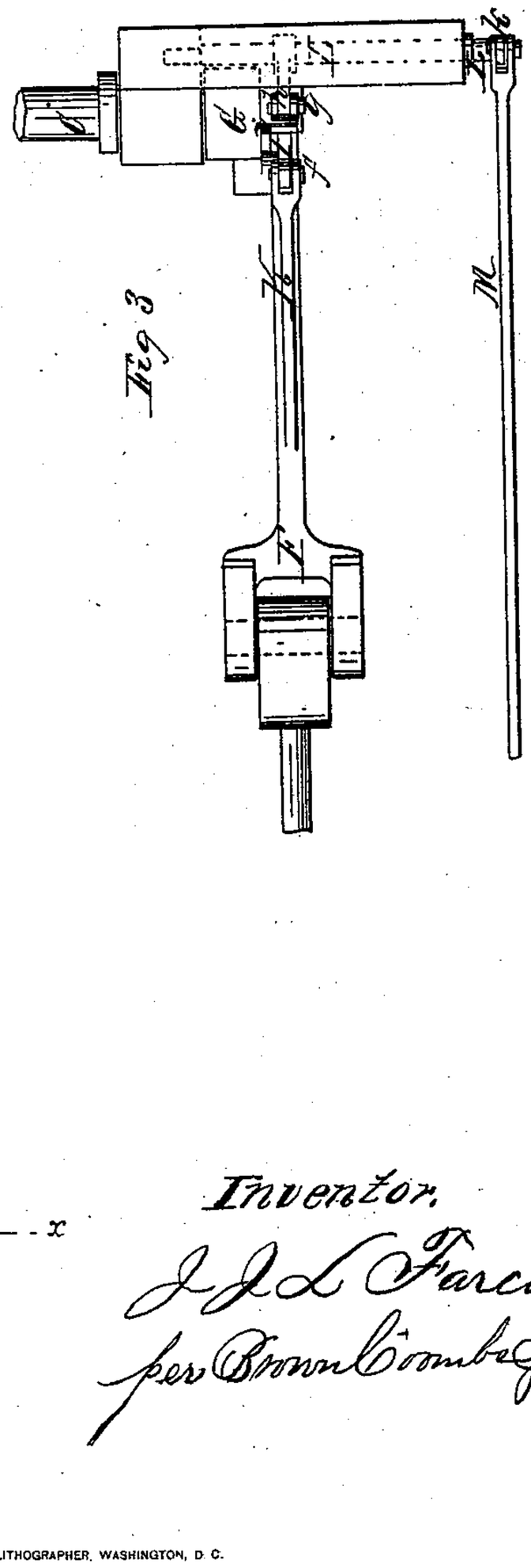

Fig 3

Witnesses,
Atelier
W. Morris Smith

Inventor.
J. J. L. Farcot
per Brown Coombs & Co attys

United States Patent Office.

JEAN JOSEPH LEON FARCOT, OF SAINT OUEN, (SEINE,) FRANCE.

Letters Patent No. 85,439, *dated December* 29, 1868.

IMPROVEMENT IN DEVICE FOR CONTROLLING ENGINES.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, JEAN JOSEPH LÉON FARCOT, of Saint Ouen, (Seine,) Empire of France, have invented a new and useful Device for Controlling the Action of Engines or Motors; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawing, forming part of this specification, and in which—

Figure 1 is a longitudinal mainly sectional view of a motor having my invention applied to it.

Figure 2 is a vertical transverse section, taken as indicated by the line *x x* in fig. 1.

Figure 3 is a plan of a portion of the motor as represented in fig. 1.

Similar letters of reference indicate corresponding parts throughout the several figures.

The object of my invention is to construct an engine or motor, the action of which may be entirely and quickly controlled by the operator, so that the engine may be stopped or reversed instantaneously, and at any point desired, by the arrangement of the valve-rod of the engine with relation to the rocking shaft, which is operated by a bell-crank and connecting-rod, said bell-crank being attached to an oscillating arm, which is rigidly secured to the main shaft, and receives motion by being connected to the piston-rod.

To enable others skilled in the art to construct and use my invention, I will proceed to describe the same with reference to the drawing.

A is a cylinder, in which steam, air, gas, or any suitable vapor or fluid may be used as the motive-power, and B, a piston, arranged to reciprocate therein, and serving to impart motion to a shaft, C, by means of a connecting-rod, F, and arm or crank, G.

H is the valve, which regulates the admission of steam into the cylinder, and which is so constructed that the least possible power is required to operate it.

This is accomplished by reducing the length of the valve-throw as much as circumstances will allow, and also by reducing the friction of its operating-parts, which latter end is attained by providing the valve-operating arm *b* with a sliding pivot, *c*.

Said pivot moves loosely in a corresponding cavity in the under end of the arm *b*, and is forced to enter a shallow cavity in the valve by the force of a weak spring, *e*, to keep it always in contact with the valve.

The arm *b* is rigidly attached to the valve-stem *d*. In this way motion is imparted to the valve with very little friction.

On the oscillating lever or crank-arm G, a bell-crank, I, is secured, the same being hung to turn freely on a pin, *f*, as far as certain stops, *i i*, will allow.

K is a rod, attached to one end of the bell-crank, I, while a short bar, *g*, connects the other end to an arm, *h*, fast on a rocking shaft, L.

To the end of this shaft, another arm, *k*, is fastened, which establishes a connection with the valve H, by means of the rod M and arm N, which latter is rigidly secured to the valve-stem *d*.

a a are steam-ports, and *a'* is the exhaust-port.

From the above description, it will be seen that it requires but a slight movement of the rod K and bell-crank I, to change the position of the valve H, and it is also evident that the position of the valve H is wholly dependent on that of the bell-crank I. This crank, though swinging with the arm G, is still free to be operated, by means of the rod K, in any direction, and to any extent, whereby the engine may, instantaneously, be started, reversed, or stopped, at the will of the operator, and by or through any known or suitable mechanical device.

The valve-controlling device herein described may be applied to various kinds of motors, and admits of different modifications as regards arrangement of its parts; thus, the bell-crank I may be pivoted to the crank, G, at a point intersected by a straight line, drawn from the centre of the shaft C to the centre of the pin by which the connecting-rod F is united to the lever G; and said bell-crank may have its fulcrum *f* outside instead of inside the connecting-rod attachment to the lever G, that is, beyond said attachment, instead of between it and the main shaft C. In each and all of such cases the bell-crank I, through which the valve is operated, moves with the main crank G, and requires no separate support for its fulcrum.

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

The arrangement of the bell-crank I, pivoted to the main lever G, and of the rock-shaft L, operated thereby to control the position of the valve by levers and connections, substantially as shown and described.

In testimony whereof, I have signed my name to this specification, before two subscribing witnesses.

J. FARCOT.

Witnesses:

F. OLCOTT,

DUMAS.