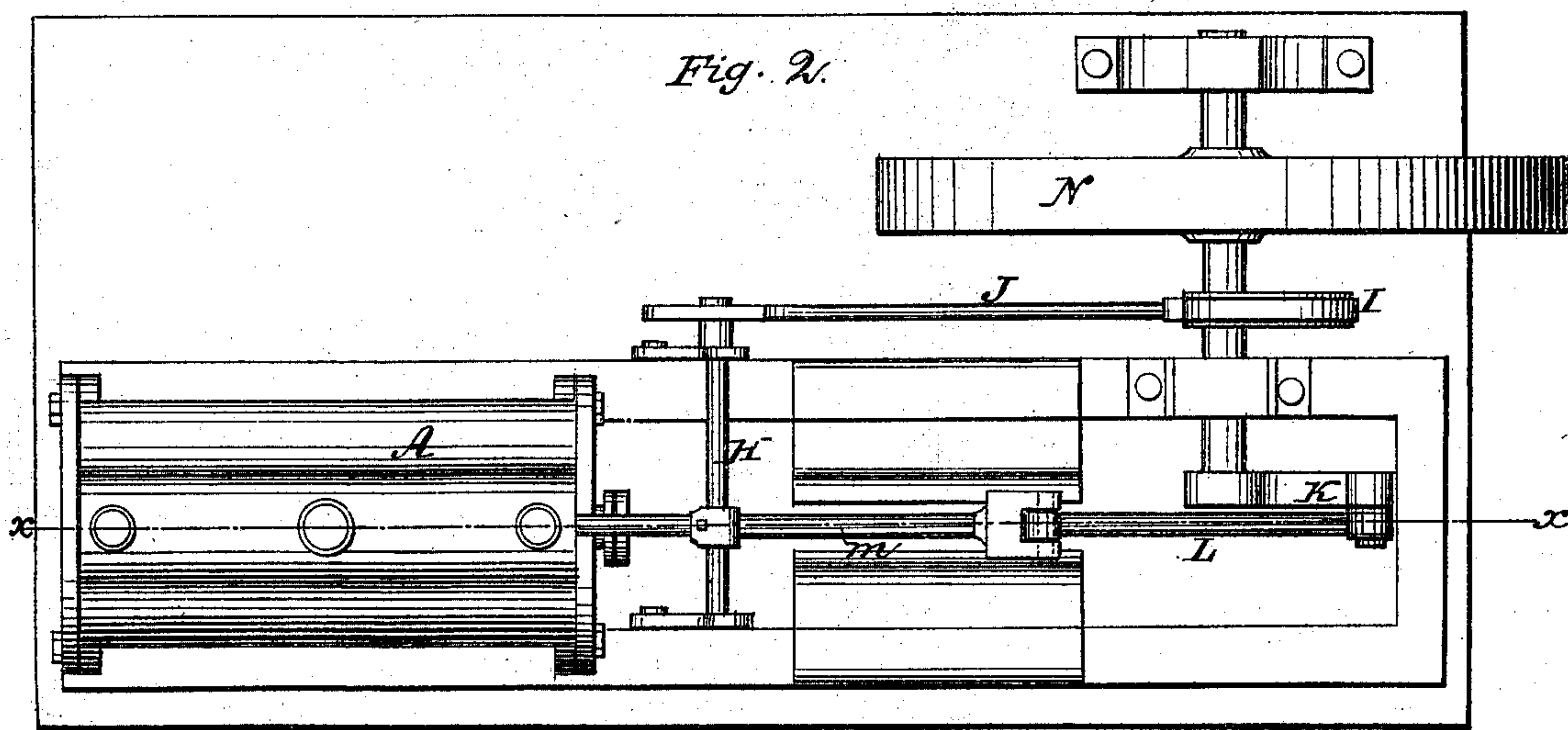
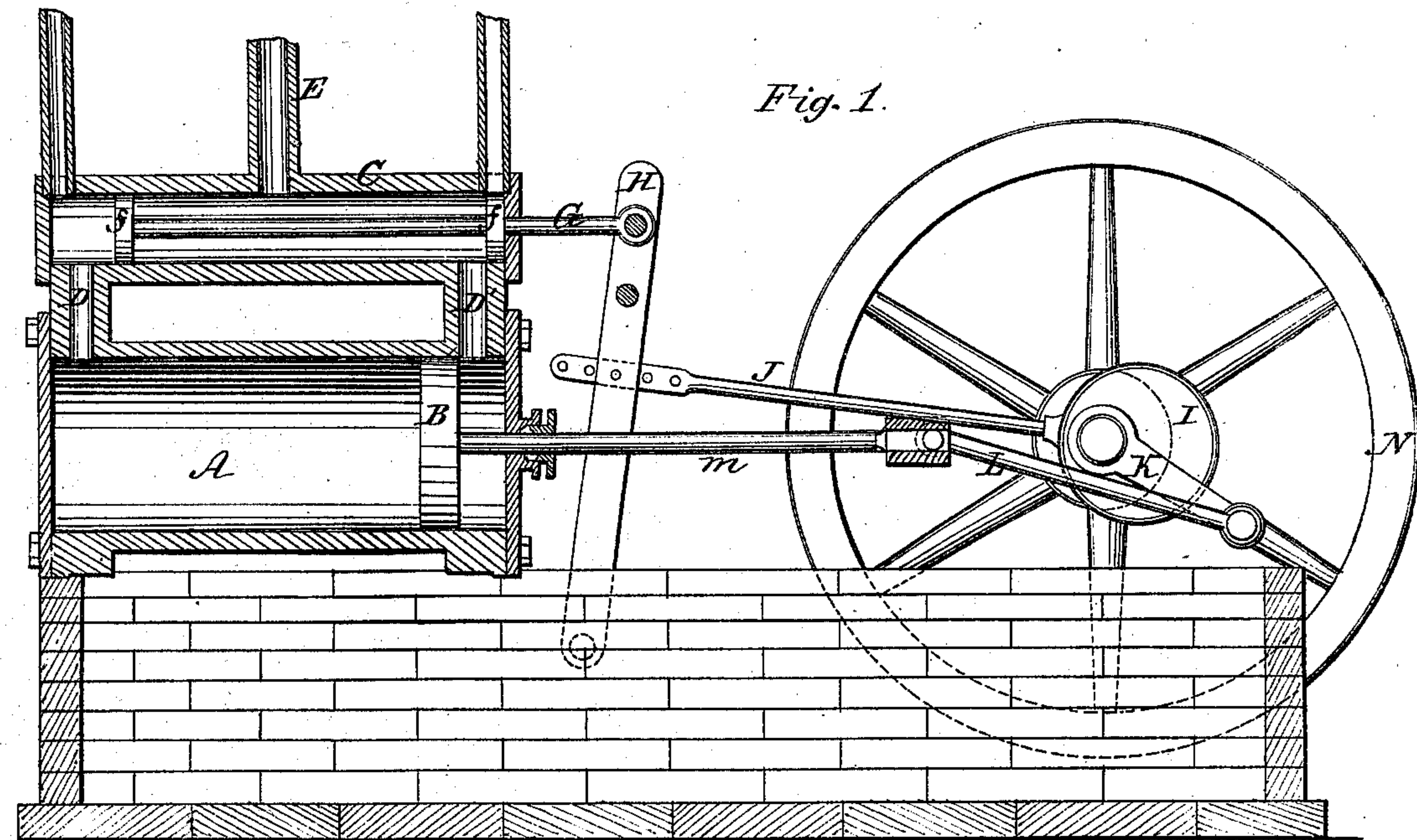


H. B. Verry.

Piston Gearing for Engines.

N^o 87,448.

Patented Mar. 2, 1869.



Witnesses.

A. Jung.

Wm A Morgan.

Inventor.

H. B. Verry.

*per Wm H. Co
Attys*

United States Patent Office.

HENRY B. VERRY, OF NEW YORK, N. Y., ASSIGNOR TO HIMSELF, G. KOONZ, OF NEW YORK, AND D. G. WHITMAN, OF NORTH KINGSTON, RHODE ISLAND.

Letters Patent No. 87,448, dated March 2, 1869.

IMPROVEMENT IN STEAM-ENGINE VALVE-GEARING.

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, HENRY B. VERRY, of New York, in the county of New York, and State of New York, have invented a new and useful Improvement in Steam-Engines; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification.

This invention relates to a new and important improvement in steam-engines, and consists in the arrangement of the valves and ports, whereby the steam is exhausted from the same ports through which it entered the cylinder, and whereby the steam is allowed to act upon the piston during the entire stroke, as will be hereinafter more fully described.

In the accompanying plate of drawings—

Figure 1 represents a vertical section of an engine constructed according to my invention, the section being through the line *xx* of fig. 2.

Figure 2 represents a top or plan view.

Similar letters of reference indicate corresponding parts.

A is the cylinder

B is the piston.

C represents the steam-chest.

D D' represent the ports through which the steam enters the cylinder, and through which it is exhausted.

E is the steam-pipe communicating with and conducting steam from the boiler.

In carrying out my invention, I provide a cylindrical steam-chest, C, with piston-valves marked *ff*.

G is the valve-rod.

H represents an oscillating bar, or frame, which is connected with the eccentric I by the eccentric-rod J, by which motion is imparted to the valves.

K is the engine-crank;

L is the pitman or connecting-rod; and

M is the piston-rod.

N is the fly-wheel.

The steam enters the steam-chest C between the piston-valves *f*, which space is always full of steam at boiler-pressure.

As the valves move back and forth, steam is alternately admitted to and exhausted from the cylinder A.

As seen in the drawing, the cylinder is taking steam through the port D', it having been exhausted from the other end of the cylinder through the port D.

The exhausted steam may be allowed to escape directly from the ends of the cylinder into pipes, which will convey it to any desired point; that is, the steam-chest may be left without heads, and exhaust-pipes attached thereto, or heads may be put on with exhaust-pipes attached, as seen in red color in the drawing.

Sufficient lead is given the valves, to allow the steam to exhaust at one end of the cylinder before it is admitted at the other, and the valves are made adjustable, so that the lead may be given to either valve for driving the main shaft in either direction, or for reversing the engine.

It will be seen that the steam has a free exhaust, and that there can be no back pressure upon the piston, greater than that of the atmosphere.

This description of engine is admirably adapted for use where the whole pressure of the steam is required, as in a small engine, or where it is necessary to task the engine to its utmost capacity under a given pressure, and where a cut-off is neither desirable nor necessary.

I do not confine myself to the particular arrangement of the steam-chest as regards its connection with the cylinder.

The steam-chest and the cylinder may be cast in a single piece.

These engines are very easily and cheaply constructed, the fitting up being confined to lathe-work entirely.

Having thus described my invention,

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

The steam-chest C, and the valves *ff*, constructed and arranged in combination with a steam-engine cylinder, substantially as herein shown and described.

The above specification of my invention signed by me, this 21st day of December, 1868.

HENRY B. VERRY.

Witnesses:

FRANK BLOCKLEY,
ALEX. F. ROBERTS.