J. H. LUTHER.

LINKS FOR VALVE-GEAR OF STEAM-ENGINES.

No. 186,403. Patented Jan. 16, 1877.

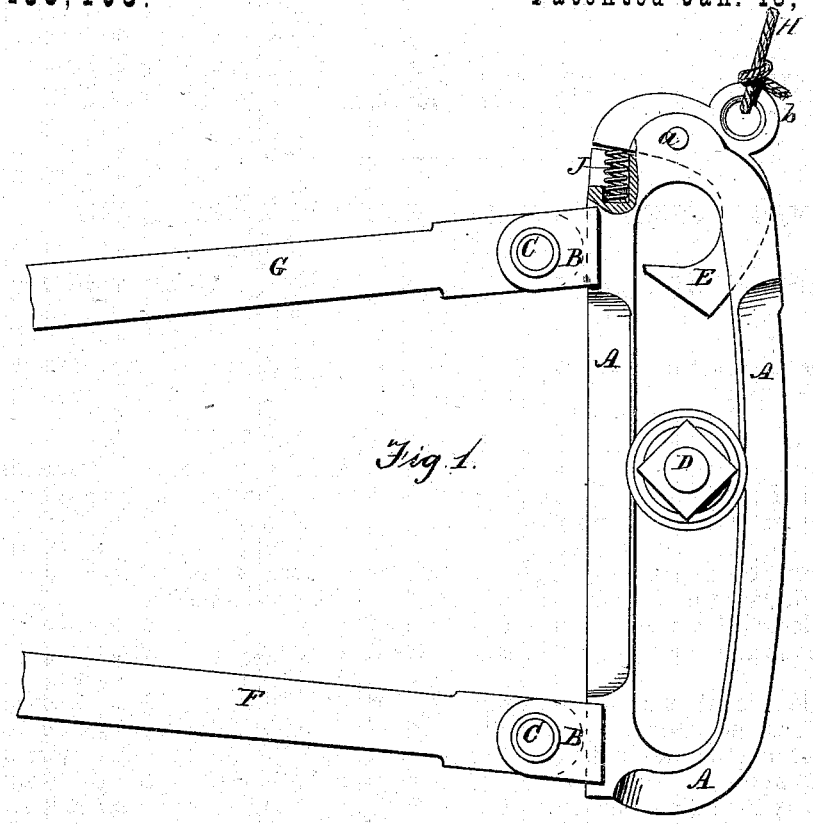

Fig. 1.

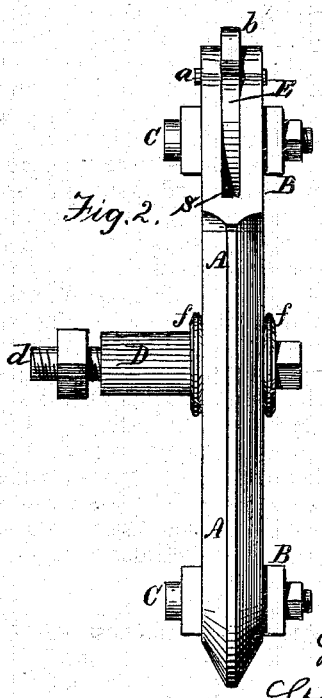

Fig. 2.

Witnesses
Granville Lewis.
D. P. Lowe

Inventor
James H. Luther,
by his Attorneys,
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UNITED STATES PATENT OFFICE.

JAMES H. LUTHER, OF KARN'S CITY, PENNSYLVANIA.

IMPROVEMENT IN LINKS FOR VALVE-GEARS OF STEAM-ENGINES.

Specification forming part of Letters Patent No. **186,403**, dated January 16, 1877; application filed December 21, 1876.

To all whom it may concern:

Be it known that I, JAMES H. LUTHER, of Karn's City, Butler county, Pennsylvania, have invented a new and useful Improvement in Links for Valve-Gear of Steam-Engines; and I do hereby declare the following to be a full and correct description of the same, reference being had to the accompanying drawings, in which—

Figure 1 is a side elevation of my improved link, and Fig. 2 is an edge view of the same.

The same letter of reference indicates the same part in both figures.

The nature of my invention consists in the combination, with a link for reversing the motion of a steam-engine from a distance, of a spring-hook of peculiar form located at the top of the link, and operated by a spiral spring inclosed in a cylindrical recess in one of the sides of the link, and catching directly under the wrist-pin of the valve-crank, all as hereinafter more particularly set forth.

My improved link is clearly represented in the accompanying drawings, in which A marks the sides of the link; B B, the lugs, to which, by bolts C C, the connecting-rods F G are attached. D marks the wrist-pin of the valve-crank shaft, which is held in place in the link by the flanges *f f*, and rotates on its bolt *d* in the usual manner. In a slot, S, in the top of the link, is pivoted at the top, on the line of the link-arc, by means of pin *a*, the spring-hook E, having the form represented, and actuated by a spiral spring, J, placed beneath one of its ends in a cylindrical recess in the link provided to receive it. The lower side of the hook E is inclined, as shown, so that when the link descends the hook is forced open by the wrist-pin and receives and supports it. The hook is retracted and the wrist-pin released by pulling on the cord H attached in an eye, *b*, in the top of the hook.

The cord may be passed over a pulley to any required distance, and be controlled by the engineer who is in charge of the engine. The rise and fall of the link reverses the operation of the valve-eccentrics in the usual and well-known manner.

My improvement possesses some important advantages over other forms of link known to me, by reason of its simplicity, cheapness, and small liability to get out of order. The hook E, being placed directly under the center of the stud D, holds the link more firmly in place, and produces much less friction and cramping than if it were attached at the end. The spring being incased in a recess is better protected from breaking, and in case of fracture can be removed and replaced without stopping the engine—a point of great importance in pumping oil-wells, where the stoppage of the pump is often the cause of great damage and loss.

My link is largely in use in the oil regions, and meets the approval of oil men.

Having thus fully described my invention, what I claim, and desire to secure by Letters Patent, is—

The combination, with the reversing-link of a steam-engine, of the spring-hook E, having the form, and pivoted, as shown, located in a slot in the top of the link, and operated by a spiral spring inclosed in a recess, as shown, and catching directly under the wrist-pin of the valve-crank, all substantially as and for the purposes specified.

The above specification of my said invention signed and witnessed at Washington this 20th day of December, A. D. 1876.

JAMES H. LUTHER.

Witnesses:

HENRY B. MUNN,

CHAS. F. STANSBURY.