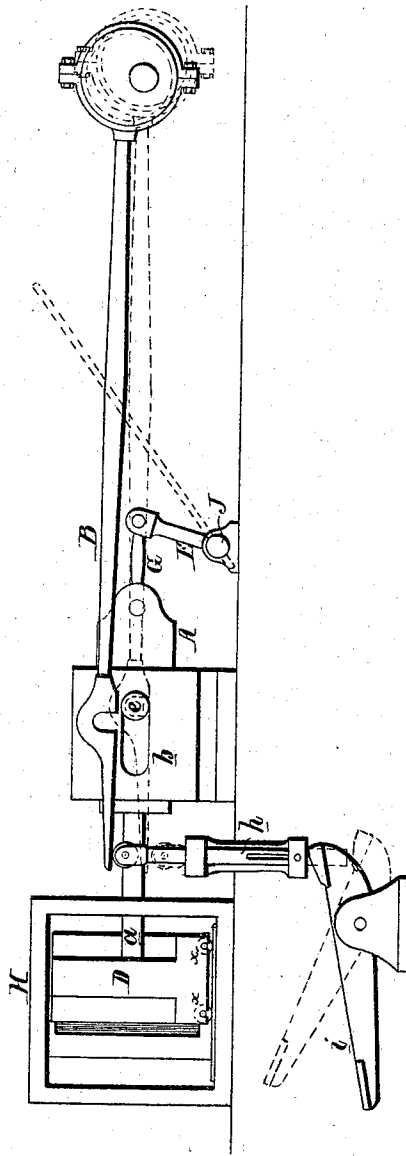


J. W. WILBRAHAM.

Reciprocating Steam-Engines.

No. 137,273.

Patented March 25, 1873.



WITNESSES } J. S. Singer
Harry Smith

John W. Wilbraham
by his Attys.
Hewson and Son

UNITED STATES PATENT OFFICE.

JOHN W. WILBRAHAM, OF PHILADELPHIA, PA., ASSIGNOR TO HIMSELF,
THOMAS WILBRAHAM, AND JAMES WILBRAHAM, OF SAME PLACE.

IMPROVEMENT IN RECIPROCATING STEAM-ENGINES.

Specification forming part of Letters Patent No. 137,273, dated March 25, 1873.

To all whom it may concern:

Be it known that I, JOHN W. WILBRAHAM, of Philadelphia, Pennsylvania, have invented Improvements in Steam-Engines, of which the following is a specification:

My invention has for its object the operating of a steam-engine valve by hand, when the eccentric-rod is out of gear.

I attain this object by combining with a slide, A, attached to the valve D, and operated by the usual eccentric and eccentric-rod B, a starting-arm E, and link G, as illustrated in the accompanying drawing. The valve D is an ordinary slide-valve, adapted to ports in the vertical face of the cylinder, and the valve-stem *a* is connected directly to the slide A, which is guided by a standard or any suitable attachment on the frame of the engine, the slide having a projecting pin, *e*, adapted to a recess in the eccentric-rod B, which bears near its end on a roller at the top of a guided rod, *h*, which can be raised at pleasure by the treadle *i*, thereby raising the eccentric out of gear with the pin *e* of the slide, which is connected by

the link G to the arm E, the latter being secured to the rock-shaft J, in which are orifices for receiving a bar or lever, so that an attendant can by manipulating this bar operate the valve when the eccentric is out of gear with the pin *e*.

By this arrangement I am enabled to control, and to start and stop, by a hand-lever, an engine whose valve is operated by an eccentric, in the same manner and as readily as though the said valve were operated by a rock-shaft; but the irregularity in the movement of the valve, caused by the latter, is avoided.

I claim as my invention—

The combination of the slide A attached to the valve D and operated by an eccentric with the rock-shaft J, arm E, and link G.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JOHN W. WILBRAHAM.

Witnesses:

WM. A. STEEL,
HUBERT HOWSON.