

Jas. Bank's Imp^{ro} in Steam Engines.

PATENTED JUN 27 1871

116394

fig. 1.

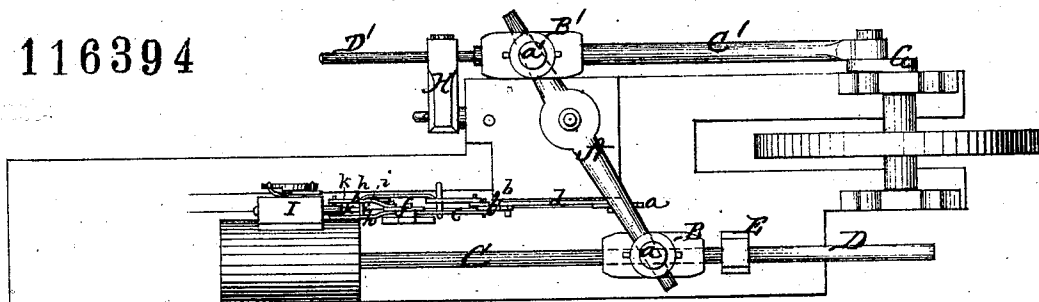


fig. 2.

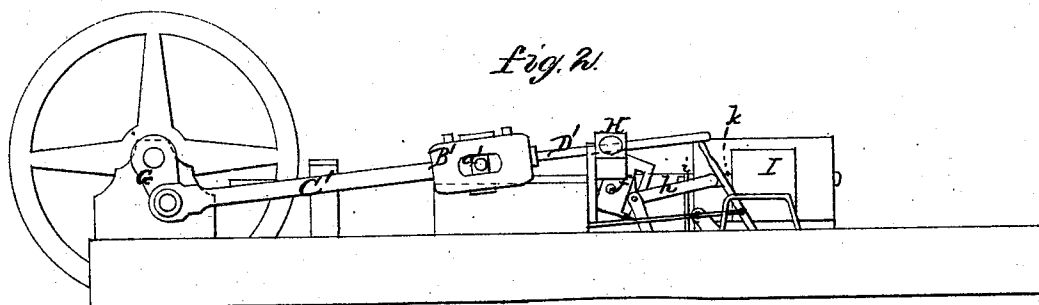
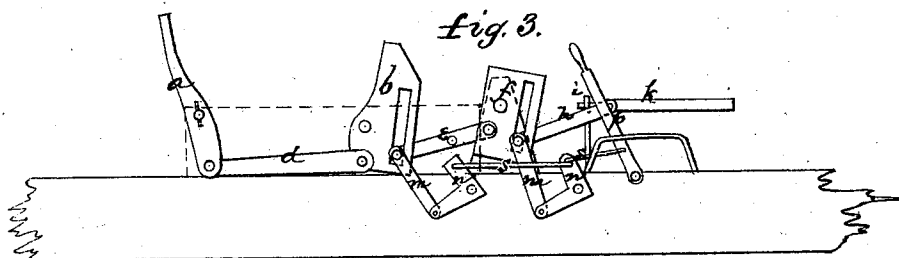


fig. 3.



Witnesses
John A. Ellis.
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UNITED STATES PATENT OFFICE.

JAMES BANKS, OF PORT BLANCHARD, PENNSYLVANIA, ASSIGNOR TO HIMSELF,
FRANCIS FLYNN, AND PETER DAILEY, OF SAME PLACE.

IMPROVEMENT IN STEAM-ENGINES.

Specification forming part of Letters Patent No. 116,394, dated June 27, 1871.

To all whom it may concern:

Be it known that I, JAMES BANKS, of Port Blanchard, in the county of Luzerne and State of Pennsylvania, have invented certain new and useful Improvements in Steam-Engines; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawing and to the letters of reference marked thereon which form a part of this specification.

The nature of my invention consists in the construction and arrangement of a steam-engine, as will be hereinafter more fully set forth.

In order to enable others skilled in the art to which my invention appertains to make and use the same, I will now proceed to describe its construction and operation, referring to the annexed drawing, in which—

Figure 1 is a plan view, and Fig. 2 a side elevation of my engine. Fig. 3 is an enlarged side view of the valve-gearing.

A represents a beam, which I call the whiffle-tree-beam, working upon a journal or shaft, horizontal or otherwise, said journal or shaft being at any point on the beam from its center to one-third its length from one end, according to the length of stroke desired. One end of this beam is inserted into an oval-shaped cross-head, B, and through a rocking box, *a*, passing through said cross-head. In one end of the cross-head B is keyed the piston-rod C, and in the other the guide-rod D, which latter passes through a boxing, E, to guide the same. The other end of the whiffle-tree-beam A is inserted in a similar cross-head, B', with rocking box *a'*. In one end of this cross-head is keyed the connecting-rod or pitman C', connecting with the crank G, and in the other end is the guide-rod D', which latter is supported by an arm, H, working on a journal. The beam A also works a slide-valve gearing to keep the exhaust open until the piston is about to complete its stroke. Just before the beam terminates its travel in each direction it strikes against uprights or levers *a b*, pivoted to the frame of

the machine, and connected at their lower ends by a rod or bar, *d*. The lever *b* is slotted, and has a wrist-pin upon a rod, *e*, working in said slot, said rod running to and connecting with another slotted rocking lever, *f*, at the bottom. In the slot on this rocking lever or arm *f* works a pin connecting two arms, *h h*, which arms connect with the valve-stem *k*, said stem working into the stuffing-box I at one end and into boxing *i* at the other. From both the pins working in the slotted levers *b* and *f* rods *m m* connect with L-shaped levers *n n*, which are operated by a hand-lever, *p*, through the connecting-rod, *s*, running from said hand-lever to both the L-shaped levers, for the purpose of forcing the pins up and down in the slots on the levers *b f*, thereby reversing the motion.

The various parts of my engine as above described may be made of any suitable material.

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

1. The combination of the beam A, cross-heads B B' with boxes *a a'*, rods C C' and D D', stationary guide E and rocking guide H, all constructed and arranged substantially as and for the purposes herein set forth.

2. The combination of the rocking levers *a b f*, connecting-rods *d e*, arms *h h*, and valve-stem *k*, all constructed and arranged, as shown and described, to be operated by the beam A, substantially for the purposes set forth.

3. In combination with the gearing claimed in foregoing clause, the connecting-rods *m m*, L-shaped rocking levers *n n*, and hand-lever *p*, for reversing the motion, substantially as herein set forth.

In testimony that I claim the foregoing as my own I affix my signature in presence of two witnesses.

JAMES BANKS.

Witnesses:

JOHN RICHARDS,
F. B. McCANNA.