

R. D. WRIGHT.
STEAM ENGINE.

No. 41,586.

Patented Feb. 9, 1864.

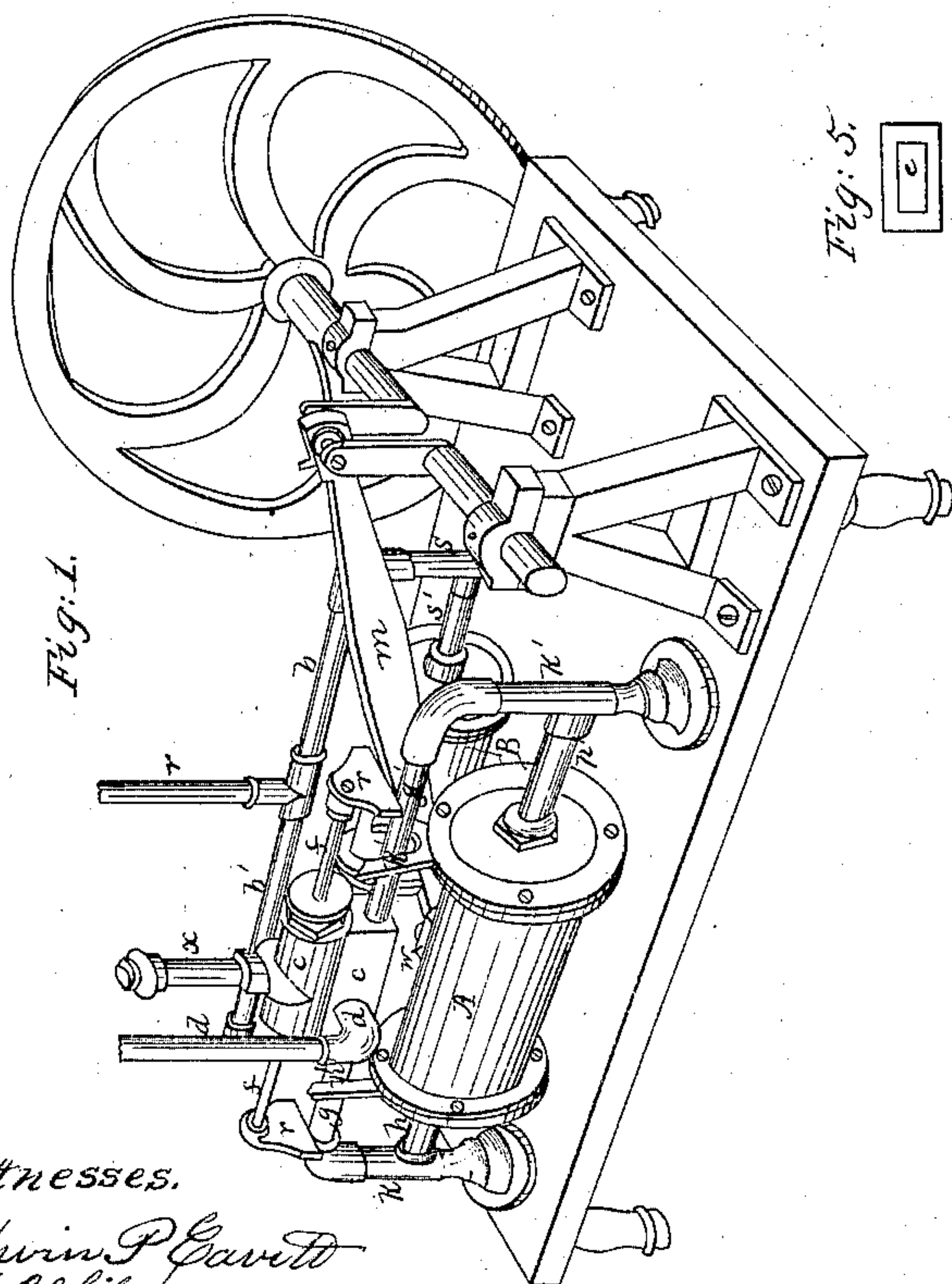
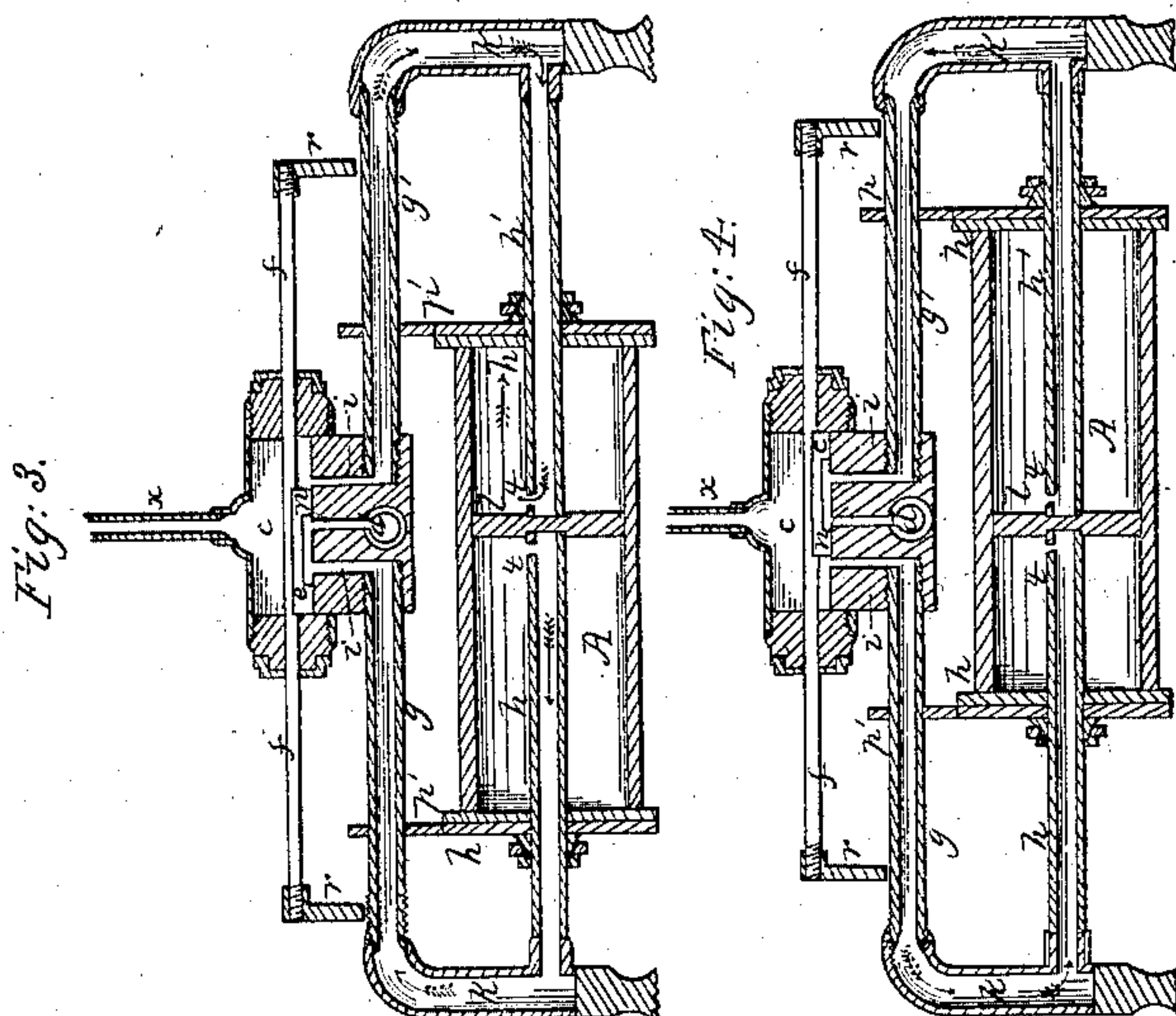


Fig. 5.

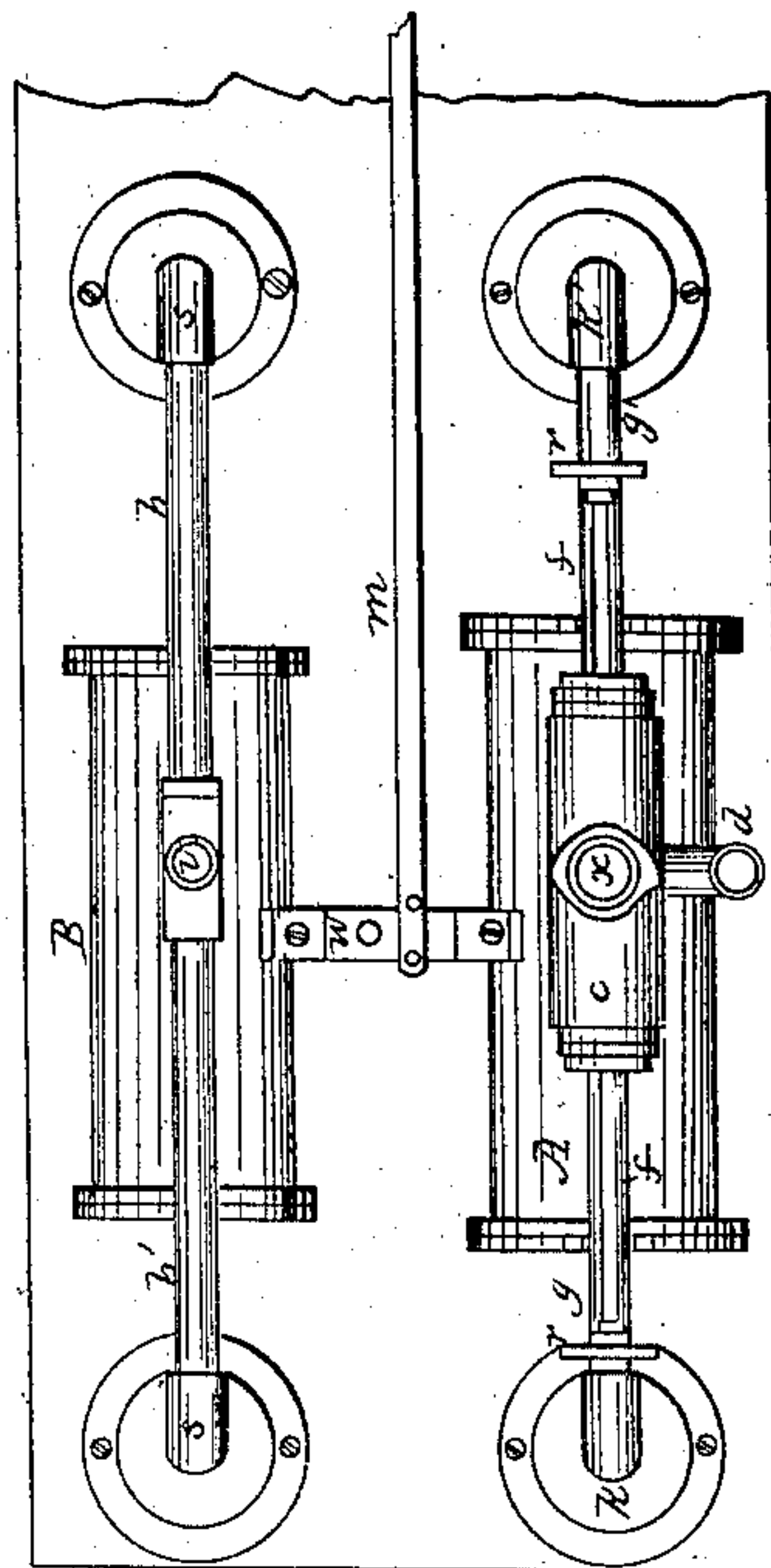


Fig. 2.

Witnesses.
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ROBERT D. WRIGHT, OF ST. LOUIS, MISSOURI, ASSIGNOR TO HIMSELF AND L. B. HOLLAND.

IMPROVEMENT IN STEAM-ENGINES.

Specification forming part of Letters Patent No. 41,586, dated February 9, 1864.

To all whom it may concern:

Be it known that I, ROBERT D. WRIGHT, of the city and county of St. Louis and State of Missouri, have invented certain new and useful Improvements in Steam-Engines; and I do hereby declare that the following is a full and clear description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, and made to form a part of this description.

The object of this invention is to simplify and cheapen the construction of steam-engines; and the nature thereof relates to the combination and arrangement of devices by means of which the cylinders of engines are made to reciprocate and thereby perform the duties of piston-rods, as hereinafter set forth and specified.

In reference to the drawings, Figure 1 is a perspective view of my improvement as arranged for use. Fig. 2 is a plan or top view. Figs. 3 and 4 are vertical sectional elevations, and Fig. 5 is a bottom view of the cut-off valve.

All the working parts of this improvement will be constructed of suitable materials, such as are usual in devices for like purposes, and with joints and fastenings common to steam-engines in ordinary use.

A represents the steam-cylinder; *c*, the steam-chest; *d*, the exhaust-pipe; *e*, the cut-off valve; *f*, the rod, by means of which the valve *e* may be operated.

g g' and *h h'* are steam-pipes communicating with the steam-chest *c*, by means of passages *i i'*, and with the cylinder A by means of pipes *k k'*.

l is the piston-head, and *m* the pitman, through the medium of which machinery may be actuated.

The pipes *g g'* may be screwed into the steam-chest *c* and also into the connecting-pipes *k k'*, and the pipes *h h'* may be screwed into the connecting-pipes *k k'* and into the piston-head *l*, as represented, the said piston-head being thereby rigidly secured in a fixed position and the cylinder supported and provided with suitable bearings upon which to reciprocate.

The cylinder-heads *p p* being properly constructed with reference to their operation upon pipes *h h'*, will be provided with standards *p' p'*, which, in the operation of the engine, are

adapted at proper-times to come in contact with lugs *r r* of rod *f*, by means of which the valve *e*, which is secured to said rod, will be actuated in such manner as to admit steam alternately to the pipes *g k h* and *g' k' h'*, and thereby operate the cylinder, as hereinafter set forth.

The valve *e* will be made with a recess in its under side, as distinctly shown in Figs. 3, 4, and 5, so that when the said valve may be in position to admit steam to the pipe *g'*, as in Fig. 3, communication may be opened between the pipe *g* and the exhaust-pipe *d* by means of passage *n*, and vice versa, as seen in Fig. 4.

x represents a pipe through which steam may be admitted to the steam-chest.

The cylinder B and pipes *b b' s s' v* represent a pump or water-engine, the mechanical construction and arrangement of which correspond precisely with the parts of the engine already described and represented by letters A *g g' k k' h h' t t' l x*, except that the pipes *b b'* communicate directly with the delivery-pipe *v*, and that suitable suction-pipes and valves (not shown) are provided, through which water may be supplied.

The water-cylinder B, together with the other working parts of the water-engine, may be made to operate conjointly with the cylinder A by means of suitable connections, as *w*, Figs. 1 and 2, so that the steam-engine before described, with the variations named, may be successfully employed as a feed-pump for the boilers used, or as a force-pump for other purposes.

By reference to Figs. 3 and 4, the operation of my improvement may be distinctly understood without further description, it being seen that the pipes *h h'* are made with suitable openings, *t t'*, through which the steam may enter the cylinder, and that in actuating the engine the steam takes the direction of the black arrows, and after doing its work it escapes through the pipe *d*, as indicated by the red arrows. The lugs *r r* of the rod *f* will be properly arranged with reference to the stroke of the cylinder, so that the standards *p' p'* may come in contact with them at the proper periods in the operation of the engine to give the necessary and required motion to the valve *e*.

I do not confine myself to the particular

relative position of the cylinders A B, as I am aware that the same may be varied without vitiating the spirit of my invention. Neither do I wish to confine myself to the precise construction and arrangement of the lugs *r r* and standards *p'*, as I am aware that the same may be changed somewhat and still produce the same effect; but,

Having thus described my improvement so as to enable persons skilled in the art to which it appertains to make and use the same, what I do claim as new and of my own invention, and desire to secure by Letters Patent, is—

1. The combination and arrangement of the cylinder A, piston-head *l*, pipes *g g' h h' k k'*,

and valve *e*, all being constructed and adjusted to operate substantially as herein described, for the purposes set forth.

2. Operating pumps, constructed as herein described, by means of reciprocating steam-cylinders having direct attachments to the water-cylinders, and being thereby arranged to operate as and for the purposes set forth.

In testimony of which invention I have hereunto set my hand and seal this 11th day of November, A. D. 1863.

ROBERT D. WRIGHT. [L. s.]

Witnesses:

EDWIN P. CAVITT,
H. E. CLIFTON.