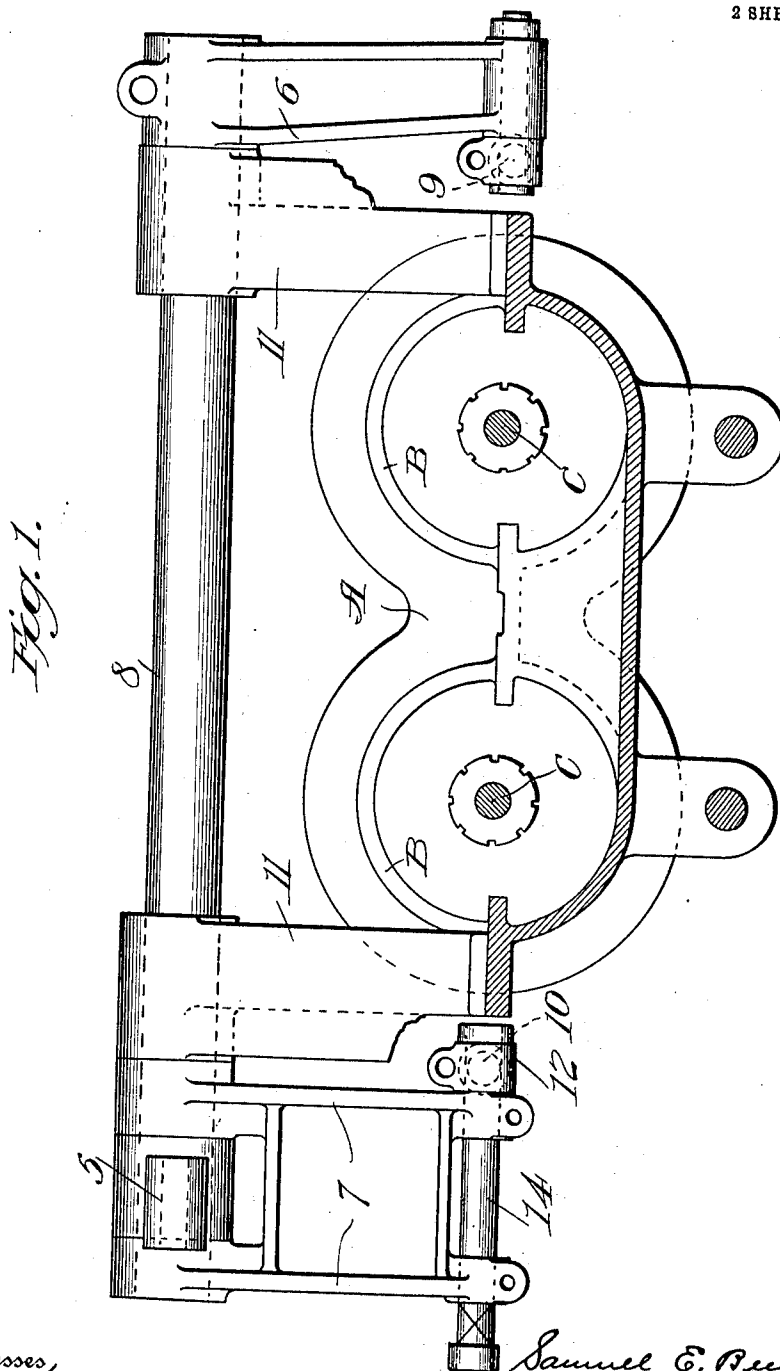


S. E. BEELER.
ENGINE VALVE GEAR.
APPLICATION FILED JULY 10, 1911.

1,040,247.

Patented Oct. 1, 1912.

2 SHEETS--SHEET 1.



Witnesses
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Inventor

Samuel E. Peeler,

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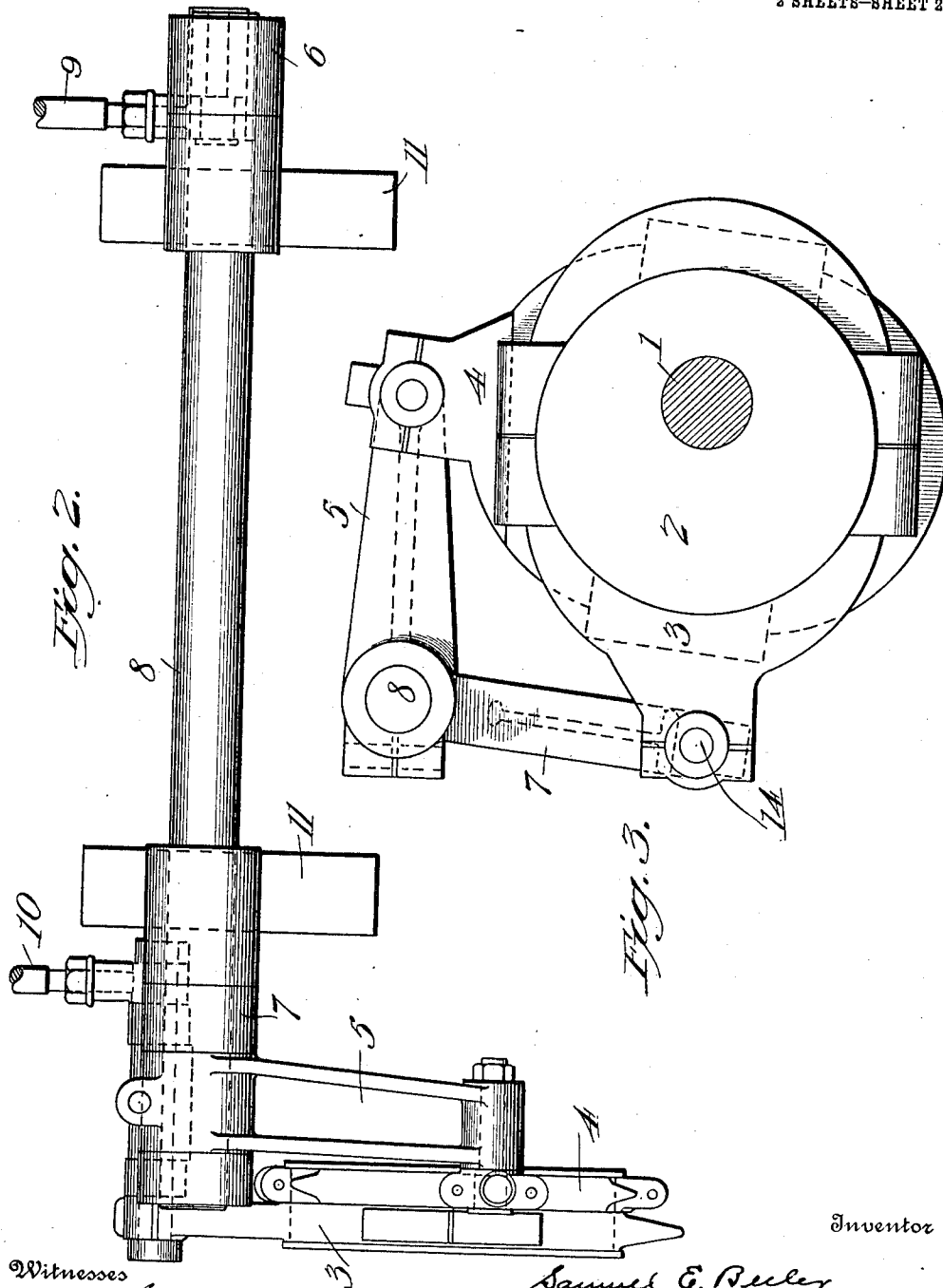
E. W. Bradford

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UNITED STATES PATENT OFFICE.

SAMUEL E. BEELER, OF WAYNESBORO, PENNSYLVANIA, ASSIGNOR TO FRICK COMPANY, OF WAYNESBORO, PENNSYLVANIA, A CORPORATION.

ENGINE-VALVE GEAR.

1,040,247.

Specification of Letters Patent.

Patented Oct. 1, 1912.

Application filed July 10, 1911. Serial No. 637,842.

To all whom it may concern:

Be it known that I, SAMUEL E. BEELER, a citizen of the United States, residing at Waynesboro, in the county of Franklin and State of Pennsylvania, have invented certain new and useful Improvements in Engine-Valve Gear, of which the following is a specification.

My said invention consists in various improvements in the details of construction and arrangement of parts of gear for operating the valves of a double engine whereby both the valves are operated from a single reversing eccentric, all as will be hereinafter more fully described and claimed.

Referring to the accompanying drawings which are made a part hereof and on which similar reference characters indicate similar parts, Figure 1 is a cross section through an engine frame showing the operating connections for the valve rods, in elevation, Fig. 2 a top or plan view of such connections, and Fig. 3 an end elevation.

In said drawings the portions marked A represent the engine frame, B the cylinders and C the piston rods, all of which are, or may be, of any approved construction, or arrangement, of the "twin" or double engine type.

The engine crank-shaft 1 has a reversing eccentric 2 mounted thereon and two eccentric straps 3 and 4 are mounted side by side on said eccentric. Said straps are, or may be, of any well known or appropriate form and require no special description. Strap 4 is pivotally connected to the outer end of a horizontal rocker arm 5 which is keyed to a rock-shaft 8. Said rock-shaft 8 is journaled in bearings in the top of brackets 11 suitably located on the engine frame. Strap 3 is pivoted on a pin 14 which is carried on the lower end of a hanging rocker arm 7 which is mounted to hang and rock freely on said rock-shaft 8. Said rock-shaft 8 extends across from side to side of the engine and on its opposite end carries a vertical rocker arm 6 which is keyed thereto and has a pin 16 on its lower end which carries an adjustable head 12 for the valve rod 9 of one engine. Pin 14 in the lower end of hanging rocker arm 7 carries a similar head 12 for the valve rod 10. Said valve rods 9 and 10 connect with the valves (not shown) of the respective engines in the usual, or any approved manner.

The operation of my said invention is as follows: The eccentric 2 operating through the hanging rocker arm 7, and connections described, operates the valve rod 10 of one engine and through the rocker arm 5 rock shaft 8 and by the connection through rocker arm 6 operates the valve of the other engine. The single eccentric is thus utilized for operating both valve rods the connection between the straps 3 and 4 being a quarter circle apart secures the time of operation as required, as will be readily understood.

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

1. A valve gear for a double engine comprising a single reversing eccentric on the engine crank-shaft, two eccentric straps mounted side by side on said eccentric, one of said straps connected through appropriately arranged connections with the valve rod of one engine and the other connected through appropriate connections with the valve rod of the other engine said connections being substantially a quarter of a circle apart, substantially as set forth.

2. A valve gear for a double engine comprising a reversing eccentric on the engine crank-shaft, two straps mounted on said eccentric side by side, one of said eccentrics pivotally connected to a rocker arm keyed to a rock-shaft, the other of said eccentric pivotally connected to a hanger rocker arm on said rock-shaft, one valve rod connected to the lower end of said hanging rocker arm and the other valve rod connected to a rocker arm keyed to said rock-shaft, substantially as set forth.

3. A valve gear for a double engine comprising an eccentric mounted on the engine crank-shaft, two eccentric straps mounted side by side on said eccentric, a transverse rock-shaft journaled adjacent to said eccentric, a hanging rocker arm mounted on said shaft and pivotally connected with one of said straps, a horizontal rocker arm keyed to said rock-shaft and pivotally connected with the other of said straps, the valve rod of one engine connected with the lower end of the hanging rocker arm, a rocker arm keyed to said rock-shaft, and the valve rod of the other engine pivotally connected to said keyed rocker arm, substantially as set forth.

4. A valve gear for a double engine com-

prising a single reversing eccentric on the engine crank-shaft, two eccentric straps mounted side by side on said eccentric, the valve rods of the respective engines, one of
5 which is connected with one of said straps and the other of which is connected with the other of said straps, the points of said respective connections being substantially a quarter circle apart, substantially as set
10 forth.

5. A valve gear for a multiple engine comprising a single reversing eccentric on the engine crank-shaft, multiple eccentric straps mounted thereon, the valve rods of the sev-

eral engines connected each to one of said 15 eccentric straps, the points of said connections being at separated points around the axis of said crank-shaft, substantially as set forth.

In witness whereof, I have hereunto set 20 my hand and seal at Waynesboro, Pennsylvania, this 1st day of July, A. D. nineteen hundred and eleven.

SAMUEL E. BEELER. [L.S.]

Witnesses:

S. J. MIDDLETON,
H. G. WILES.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."