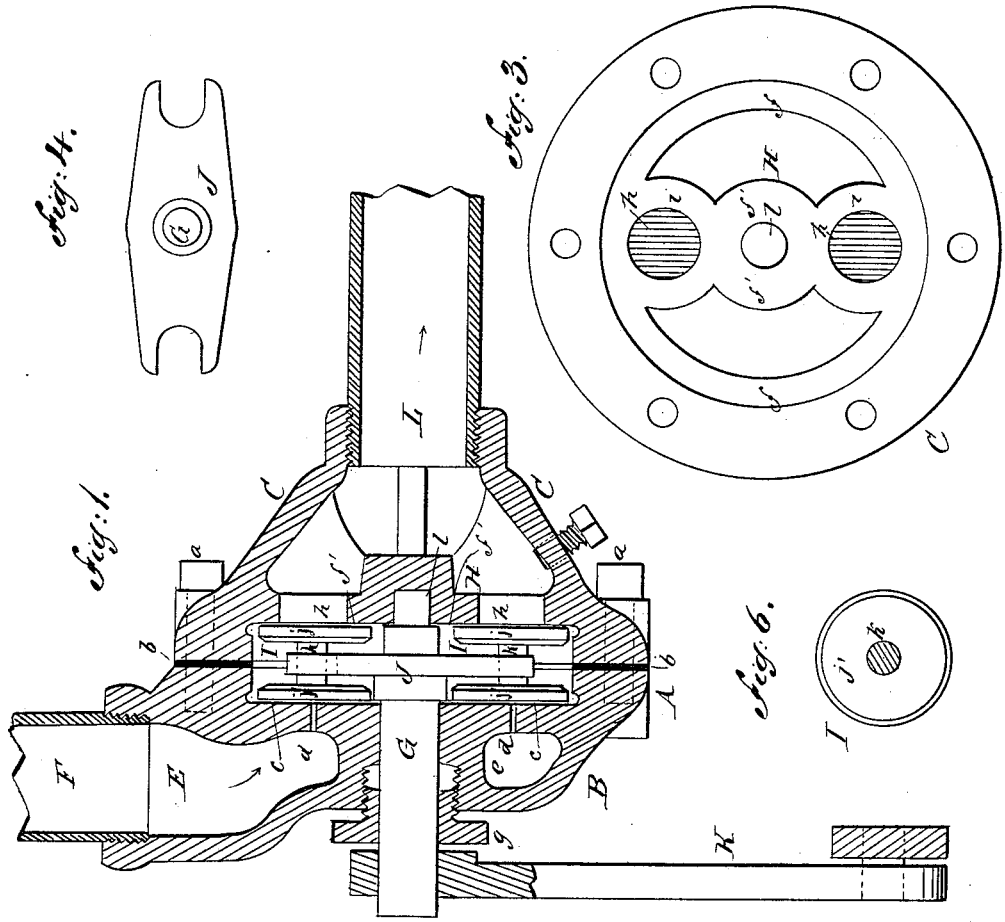
(No Model.)

J. A. STOUT.

THROTTLE VALVE.

No. 344,217. Patented June 22, 1886.



WITNESSES:

Chas. Nida.

C. Bedyuick

INVENTOR:

J. A. Stout

BY Munn & Co.

ATTORNEYS.

UNITED STATES PATENT OFFICE

JAMES ANDREW STOUT, OF BELLEVILLE, ILLINOIS, ASSIGNOR TO THE HARRISON MACHINE WORKS, OF SAME PLACE.

THROTTLE-VALVE.

SPECIFICATION forming part of Letters Patent No. 344,217, dated June 22, 1886.

Application filed April 21, 1886. Serial No. 199,666. (No model.)

To all whom it may concern:

Be it known that I, JAMES ANDREW STOUT, of Belleville, in the county of St. Clair and State of Illinois, have invented a new and useful Improvement in Throttle-Valves, of which the following is a specification, reference being had to the annexed drawings, forming a part thereof, in which—

Figure 1 is a vertical transverse section, taken on line *x x* in Fig. 2. Fig. 2 is a side elevation showing the inner surface of the receiving-half of the valve. Fig. 3 is a side elevation, showing the inner surface of the discharge side of the valve and the valve-seats. Fig. 4 is a side elevation of the valve-carrying arm. Fig. 5 is a side elevation of one of the valves. Fig. 6 is a transverse section taken on line *y y* in Fig. 5.

Similar letters of reference indicate corresponding parts in the different figures of the drawings.

The object of my invention is to provide a simple and effective throttle-valve for steam, water, or gas, in which the valves and valve-seat will be evenly worn by use, and always worn to a true bearing-surface.

My invention consists in a valve-casing formed of two parts, one part having a branch tube or discharge-passage ending in two valve-seats near the middle of the casing, the other part having valve-seats opposite the discharge-passages, and circular valves connected in pairs by stems and carried by a forked cross-arm secured to a spindle journaled axially in the valve-casing.

The valve-casing A is formed of two parts, B C, faced and secured together by bolts *a*, either with or without an intervening packing, *b*. The part B is hollow, and is provided with a cross-arm, D, on which are formed the valve-seats *c*, having small apertures *d*, communicating with the main cavity *e*. Ledges *f f'*, connected with the valve-seats and extending around the inner surface of the part B, are faced off even with the valve-seats, so that the valves (presently to be described) may be guided and made to revolve on their own axes as they are moved to and from the valve-seats. The part B is provided with a lateral opening, E, for receiving the supply-pipe F, and in the center of the part B is formed a bearing for the spindle G in the axis of the valve. A gland, *g*, is arranged in the side of the part B for packing the spindle G.

The part C of the valve-casing is divided by a diaphragm, H, having apertures *h*, surrounded by valve-seats *i*, which are arranged opposite the valve-seats *c* of the part B. Upon the diaphragm H, and connected with the valve-seats *i*, are raised ledges or ribs *f f'*, corresponding with the ledges *f f'* of the part B, and serving as guides and supports to the valves. The chamber between the valve-seats *c i* is sufficient to receive the valves I, which consist of two valve-disks, *j j'*, connected by a short spindle, *k*, the face of the disk *j* being recessed, leaving a narrow bearing-surface adjoining the periphery. An arm, J, secured to the spindle G, is provided with slots in opposite ends, which are adapted to receive the spindles *k* of the valve I. The spindle G has a bearing, *l*, in the center of the diaphragm H, for supporting and steadying the inner end of the spindle and insuring the turning of the arm J parallel with the valve-seats *c i*. The valves I, when the arm J is turned, roll around the inner periphery of the valve-casing, and are guided by the ledges *f f'*, so that they may be readily inserted between the valve-seats *c i*, or removed therefrom. The apertures *d* admit steam to the back of the valves I, so that the valves are pressed forward into contact with the valve-seats *i*. The spindle G is provided with an arm, K, by which it may be turned to open and close the valves. Steam or other fluid or liquid arrives at the valve through the pipe F, and follows the direction indicated by the arrows through the valve-casing, and is discharged through the pipe L, inserted centrally in the part C of the casing. As the valves I turn whenever the arm J is moved it is obvious that they must present new surfaces to the valve-seat whenever they are closed over the openings *h*, in this manner insuring uniform wear.

My improved valve is especially designed for use in connection with steam-engines of the class known as "reversible engines," and the arm K is connected with the reversing-levers of the engine, so that when the valves of the

engine are arranged to cause the engine to go in one direction the throttle-valve will open by being turned one way, and when the valves of the engine are reversed the throttle-valve will be opened by being turned in the opposite direction. During the shifting of the reversing mechanism from one position to the other the valves I will be passing the openings *h*, and the steam at this moment will be cut off. It is obvious that when the valves are in any other position than over the valve-seats they will be balanced and may be moved freely in either direction.

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

1. The combination, with the valve-casing A, provided with valve-seats *i* and openings *h*, of the circular valves I, forked arm J, and spindle G, substantially as herein shown and described.

2. The combination, with the valve-casing A, provided with valve-seats *c i* and openings *d h*, of the valves I, formed of disks *j*, connected by spindles *k*, the arm J, forked at opposite ends for receiving the spindles *k* of the valve, and the spindle G, carrying the arm J, substantially as herein shown and described.

3. As an improved article of manufacture, a valve formed of a casing made in two parts, B C, provided with the valve-seats *c i*, openings *d h*, ledges or guides *f f'*, the spindle G, the arm J, and the valves I, each formed of two disks, *j*, connected by a spindle, *k*, substantially as described.

JAMES ANDREW STOUT.

Witnesses:
HENRY SPRING,
LEE HARRISON.