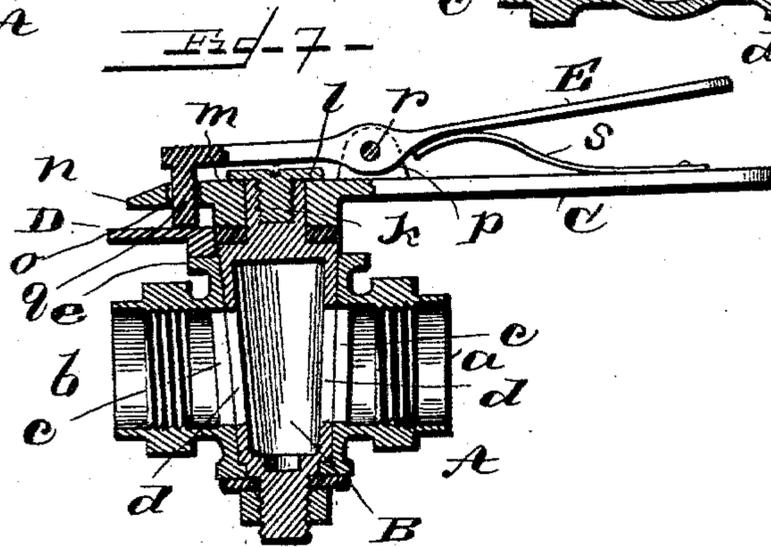
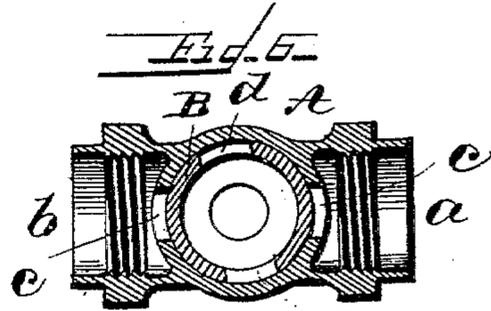
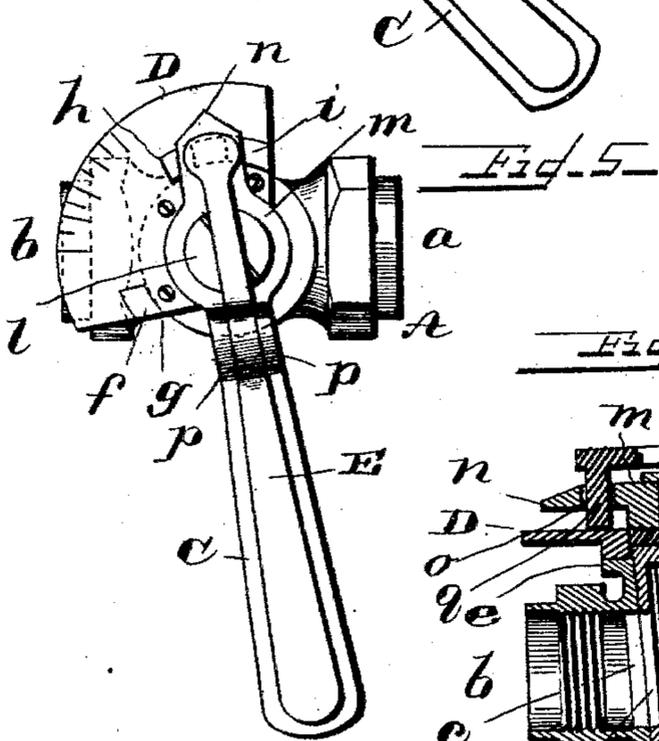
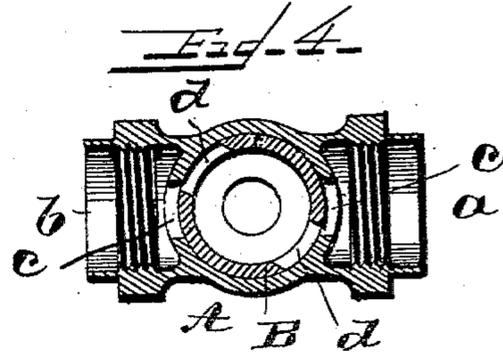
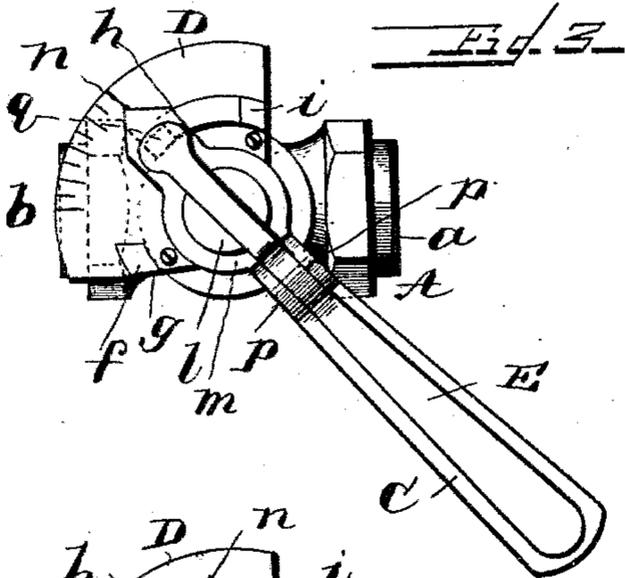
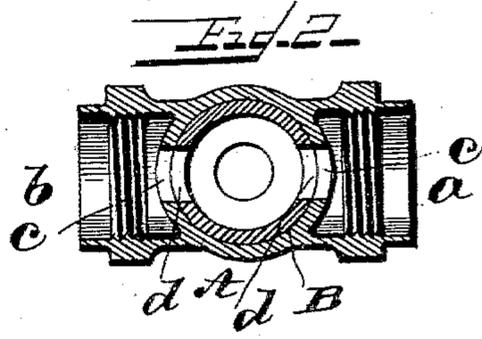
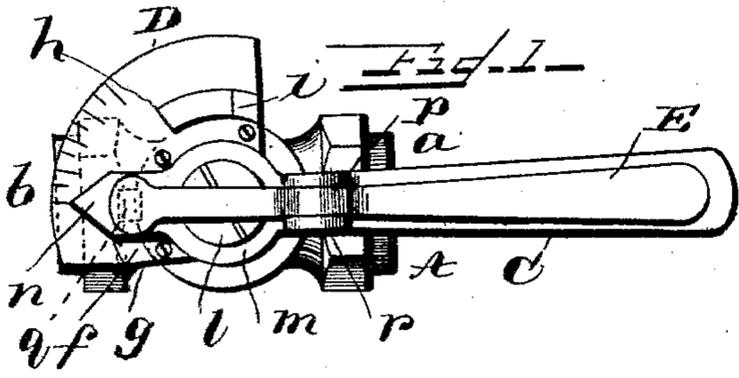


(No Model.)

B. W. GRIST.  
THROTTLE VALVE.

No. 596,871

Patented Jan. 4, 1898.



Witnesses—

*J. A. Pauberschmitt,*  
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*Attorney.*

# UNITED STATES PATENT OFFICE.

BENJAMIN W. GRIST, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO  
THE PENNSYLVANIA IRON WORKS COMPANY, OF SAME PLACE.

## THROTTLE-VALVE.

SPECIFICATION forming part of Letters Patent No. 596,871, dated January 4, 1898.

Application filed September 22, 1897. Serial No. 652,618. (No model.)

*To all whom it may concern:*

Be it known that I, BENJAMIN W. GRIST, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Throttle-Valves for Gas or other Engines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to engines, has especial reference to marine engines, has for its object a throttle-valve for supplying the motor-fluid, and it consists in certain improvements in construction whereby the valve can be set in position with certainty, as will be hereinafter described and claimed.

In the accompanying drawings, which form part of this specification, Figure 1 represents a top plan view, the valve being open to its full extent; Fig. 2, a horizontal section showing the valve in the same position; Fig. 3, a top plan view, the valve being slightly open to effect the minimum speed of an engine; Fig. 4, a horizontal section showing the valve in the same position; Fig. 5, a top plan view, the valve being closed; Fig. 6, a horizontal section showing the valve in the same position, and Fig. 7 a vertical section showing the valve open to its full extent.

Reference being had to the drawings and the letters thereon, A indicates the body of the valve; B, the valve, which is an ordinary turning-plug valve, and C the operating-lever.

The body A is provided with an inlet *a*, an outlet *b*, and ports *c c*, and the valve B with ports *d d*, which register with the ports *c c*.

On the upper end of the body is an annular flange *e*, to which a segmental dial D is attached. The dial is provided with a projection *f* at its edge *g*, which forms a stop for the valve when it is open to its full extent, as shown in Figs. 1 and 2, a projection *h*, which forms a stop for the valve when slightly or partially open to effect minimum speed of an engine, as shown in Figs. 3 and 4, and a projection *i*, which forms a stop for the valve when closed, as shown in Figs. 5 and 6, and the outer edge of the dial is graduated between the stops *f* and *h* to indicate the de-

grees of valve-opening between the partial-open and the full-open positions.

On the neck of the valve B a lever C is secured by a screw *k*, engaging the end of the neck, and the head *l* of the screw overlapping the hub *m* of the lever. On the inner end of the lever is a pointer *n*, and immediately in rear of the pointer an opening *o* is formed, and on the upper surface of the lever in rear of the hub *m* lugs *p p* are formed.

E indicates a lever provided at its forward end with a vertical projection *q*, which projects through the opening *o* and engages the projections or stops *f*, *h*, and *i* on the dial. The lever E is pivotally secured between the lugs *p p* by a pin *r* and is held normally elevated by a spring *s* to push the projection *q* down into engagement with the face of the dial D to strike the several stops as the lever C is pushed to manipulate the valve B.

When the engine is running at its minimum speed with the valve partially open, as shown in Figs. 3 and 4, and it is desired to shut off the speed or fluid to the motor, the lever C is seized, the lever E pressed down, the projection *q* raised out of engagement with the end of the stop *h* to the top or face thereof, and the lever C pushed to move the pointer toward the stop *i* until the projection *q* strikes against it, or, if it is desired to increase the supply of motor-fluid and the speed of the engine, the lever C is moved in the opposite direction.

Having thus fully described my invention, what I claim is—

1. A throttle-valve, provided with a turning-plug valve, a lever connected to said plug and provided with a pointer or extension in front of its hub, in combination with a dial provided with a stop to set the valve partially open, a stop to set it entirely open and a stop to set it closed.

2. A throttle-valve provided with a dial having stops thereon to set the valve open, partially open and closed, in combination with an operating-lever provided with means to engage said stops.

3. A throttle-valve provided with a dial having stops projecting from the surface thereof to set the valve open, partially open and closed, in combination with an operat-

ing-lever provided with a spring-actuated lever having a projection to engage said stops.

4. A throttle-valve provided with a dial secured to the body of the valve and provided  
5 with projections on the face thereof to stop the valve when open, partially open and closed, in combination with an operating-lever secured to the neck of the valve and provided with an opening through the lever in  
10 front of its hub and with a spring-actuated

lever pivotally secured thereto and having a projection extending through the opening in the operating-lever and engaging the projections on the dial.

In testimony whereof I affix my signature 15  
in presence of two witnesses.

BENJAMIN W. GRIST.

Witnesses:

EDWIN A. MOORE,

CHAS. DICKERMAN.