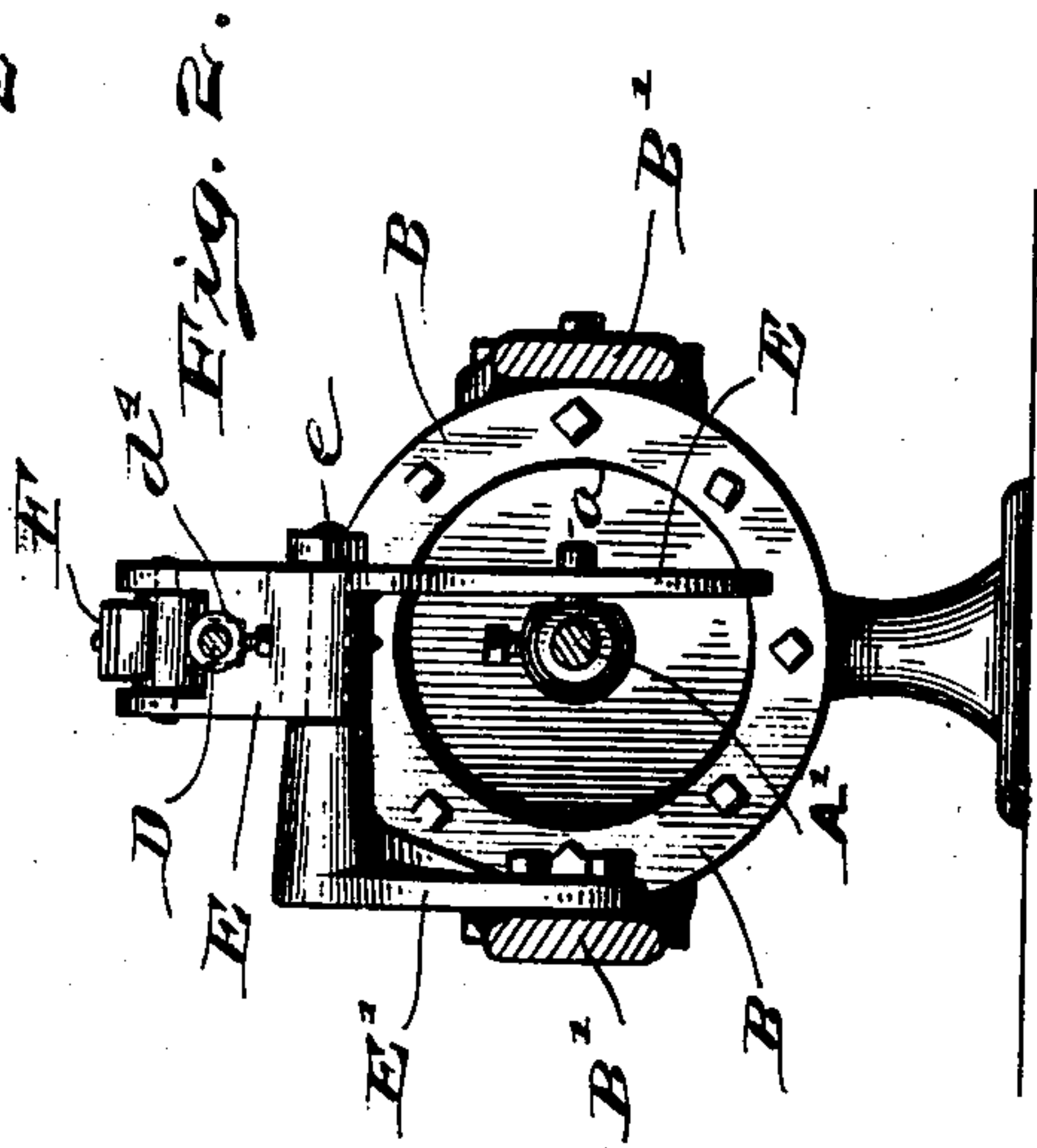
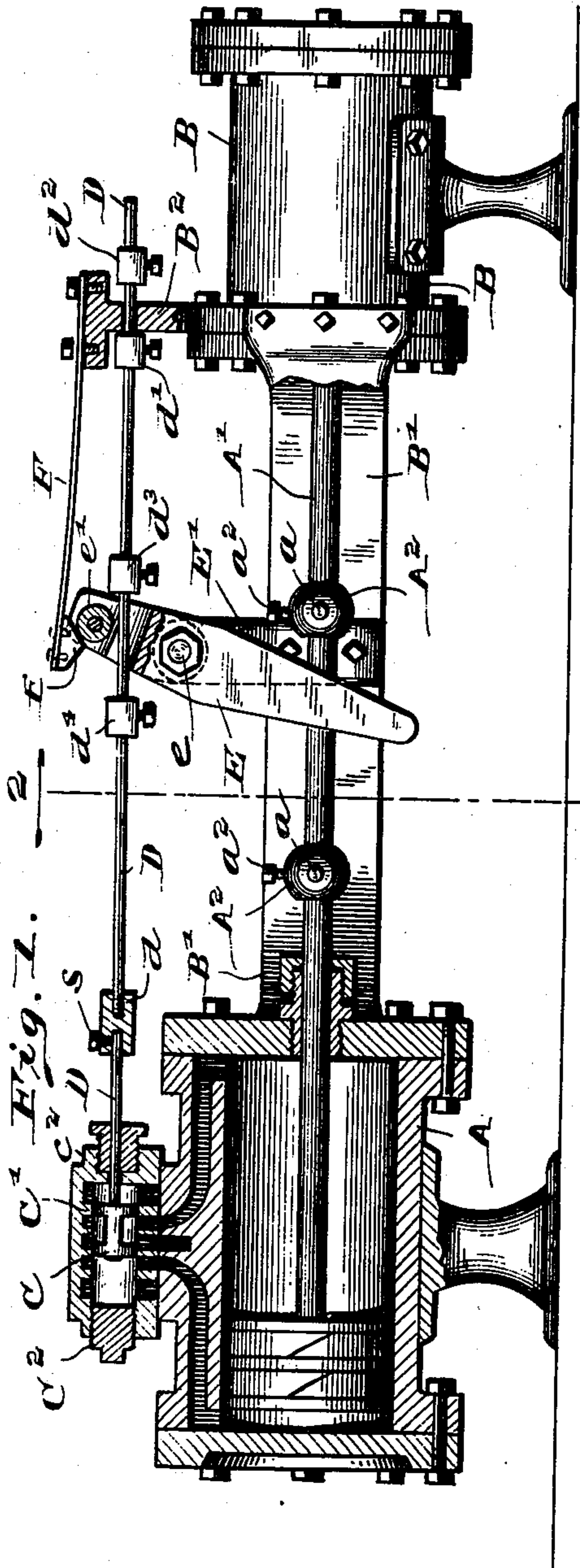


(No Model.)

G. W. WRIGHT.
VALVE GEAR.

No. 551,024.

Patented Dec. 10, 1895.



WITNESSES:

H. B. Neely.
J. A. Walsh.

INVENTOR

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UNITED STATES PATENT OFFICE.

GEORGE W. WRIGHT, OF LAPEL, INDIANA.

VALVE-GEAR.

SPECIFICATION forming part of Letters Patent No. 551,024, dated December 10, 1895.

Application filed March 21, 1895. Serial No. 542,634. (No model.)

To all whom it may concern:

Be it known that I, GEORGE W. WRIGHT, a citizen of the United States, residing at Lapel, in the county of Madison and State of Indiana, have invented certain new and useful Improvements in Valve-Gear, of which the following is a specification.

My said invention consists in certain improvements in details of construction and arrangement of parts of valve-gears for engines whereby inexpensiveness of construction and efficiency and promptness of operation are secured, as will be hereinafter more particularly described and claimed.

Referring to the accompanying drawings, which are made a part hereof, and on which similar letters of reference indicate similar parts, Figure 1 is a view, partly in side elevation and partly in central vertical section, of a steam-pump provided with a valve-gear embodying my said invention; and Fig. 2 is a transverse sectional view thereof as seen when looking in the direction indicated by the arrows from the dotted line 2 2 in Fig. 1.

In said drawings the portions marked A represent the steam-cylinder of the pump; B, the pumping-cylinder; C, the steam-valve, D, the valve-rod; E, a pivoted lever by which said valve-rod is partially operated, and F a spring carrying a cam by which the remainder of the operation is effected.

The two cylinders A and B are connected by frame-bars B', and the pistons are connected by a piston-rod A' in a usual and well-known manner. The piston-rod is provided with two projecting pins a, as shown, which serve to operate the lever E. Said pins are preferably carried by collars A², which are adjustable on the piston, being secured by set-screws a².

The valve C is mounted in the steam-chest C' and is preferably a cylindrical valve. Its rod D passes through a stuffing-box c², and the opposite end of said rod preferably rests in a bearing in a standard B², mounted on the pump-cylinder B. This valve-rod is preferably formed in two parts, which are united by a coupling d, so that by loosening the set-screws s and taking out the plug C² the valve can be removed from the valve-chamber without disturbing the stuffing-box and can likewise be reinserted in the same manner.

The valve-rod D is limited in its movement by the set-collars d' and d², arranged alongside the standard B². It is also provided with 55 other set-collars d³ and d⁴, between which the lever E operates.

The lever E is mounted on a stud-shaft e, which extends horizontally from the standard E', carried by one of the frame-bars B', and 60 is adapted to be moved on said pivot by the pins a, extending out from the piston A'. The lever is thus operated by said piston to strike the collars d³ and d⁴ and through said collars operate the valve-rod D and the valve, 65 being aided by the spring F, as will now be described. The said spring F is secured to some fixed part, as the upper side of the standard B², and extends out to a point above the stud-shaft e, upon which the lever E is 70 mounted. At its free end it carries a V-shaped cam f, which bears upon a suitable surface provided therefor in the upper end of the lever E, preferably an antifriction-roller e'.

The operation of these devices is as follows: 75 All the parts being properly adjusted, one of the pins a on the piston-rod A' comes in contact with one side of the lower end of the lever E, preferably when the stroke of the piston is nearly terminated, and moves said lever 80 somewhat until the upper end comes in contact with one of the collars d³ d⁴, and thus starts the valve-rod D. The parts are so adjusted and arranged that just as the rod has thus been started the point of the cam f passes 85 the center of the roller e' (or corresponding surface on the upper end of the lever) and the force of the spring F is sufficient to impel the lever and valve-rod and valve the remainder of their stroke. The advantage of 90 this is that the valve remains in position without movement during the greater part of the movement of the piston, and when it is moved moves with comparative suddenness from one position to the other, the greater part of its 95 movement being due to the force of the spring F and said movement being positively limited by the stop-collars d' and d². By adjusting these stop-collars and also the collars d³ d⁴ this movement can be adjusted as de- 100 sired, as will be readily understood, so that the valve shall operate upon the ports to just the desired extent.

The parts are all simple and inexpensive in

construction and very efficient in operation and go to make up a structure of moderate price, but capable of doing good service.

While this invention is illustrated as applied to a steam-pump, it may obviously be utilized in connection with any fluid-operated engine of suitable construction.

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

The combination, in an engine, of the steam cylinder, the pumping cylinder, the piston-rod connecting the pistons of said cylinders, pins projecting laterally from said piston-rod, the steam-chest, a valve therein, a valve-rod extending out from said valve, a standard having a bearing for said valve-rod, stop col-

lars on said valve-rod, strike collars also on said valve-rod, a pivoted lever adapted to be operated by the pins on the piston and to operate against the strike collars on said valve-rod, and a spring having a cam adapted to come in contact with a suitable surface on said lever, whereby the valve may be started from the force of the piston and its movement completed by the force of the spring, substantially as and for the purpose set forth.

In witness whereof I have hereunto set my hand and seal, at Lapel, Indiana, this 13th day of March, A. D. 1895.

GEORGE W. WRIGHT. [L. S.]

Witnesses:

FRANK NELSON,
HARVEY KALYA.