

(No Model.)

J. F. MURPHY.  
CYLINDER COCK.

No. 467,295.

Patented Jan. 19, 1892.

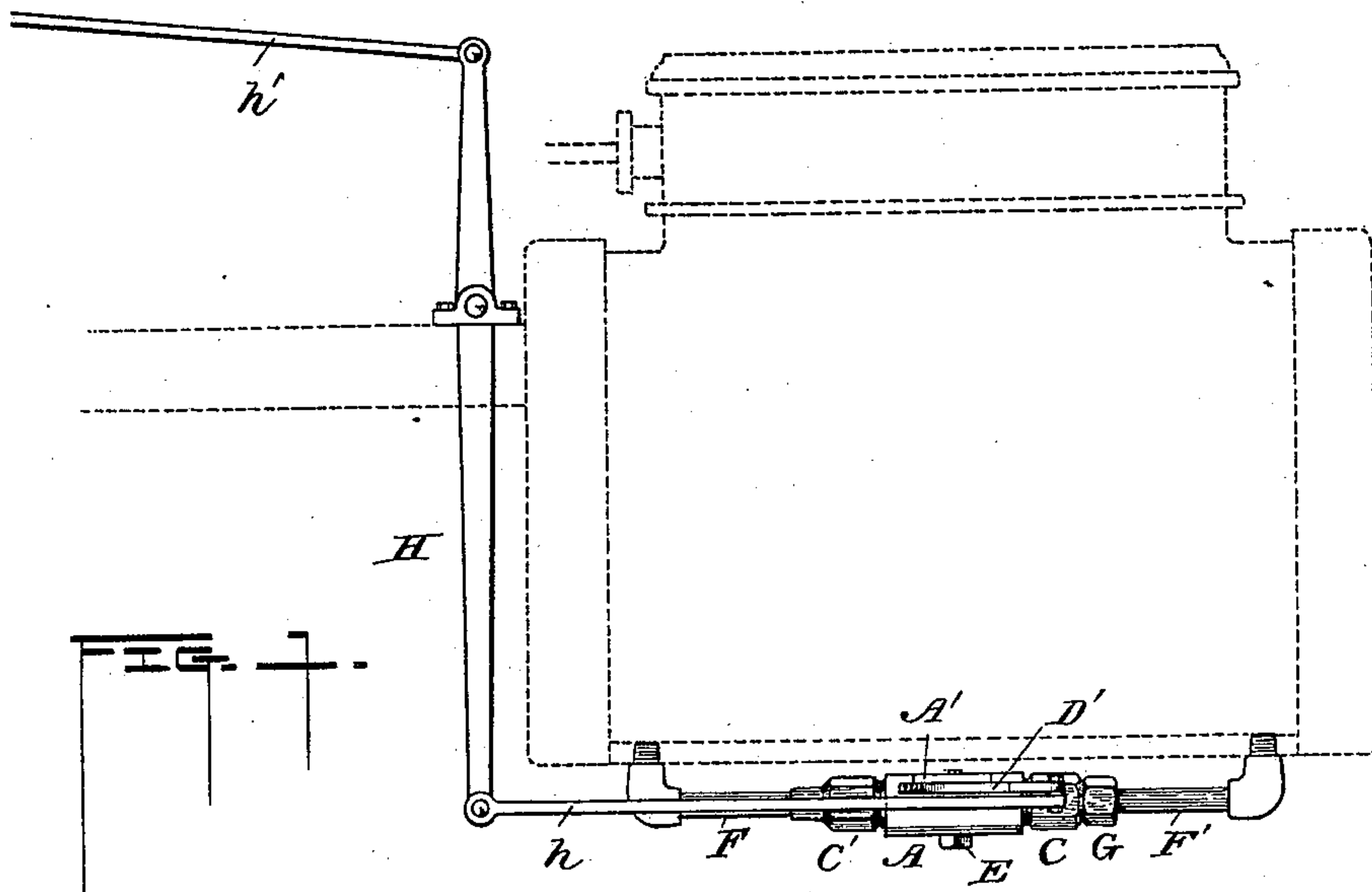


FIG. 1.

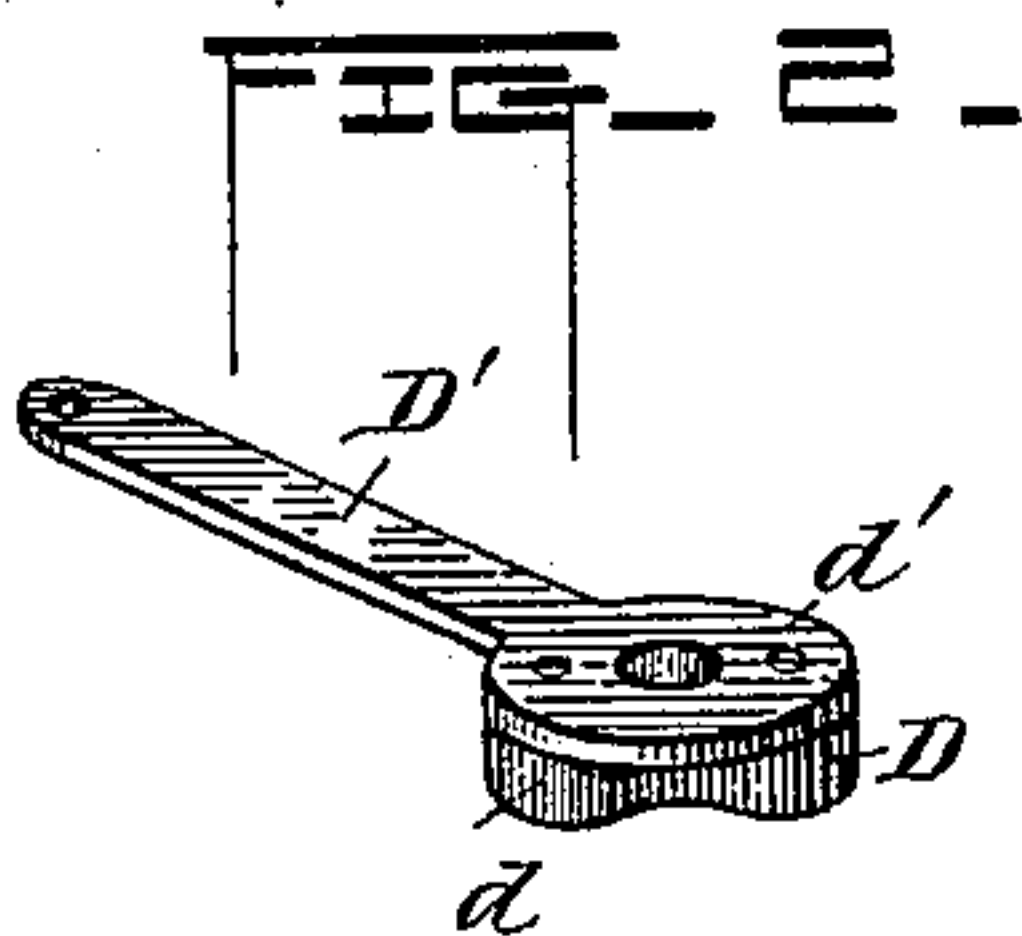


FIG. 2.

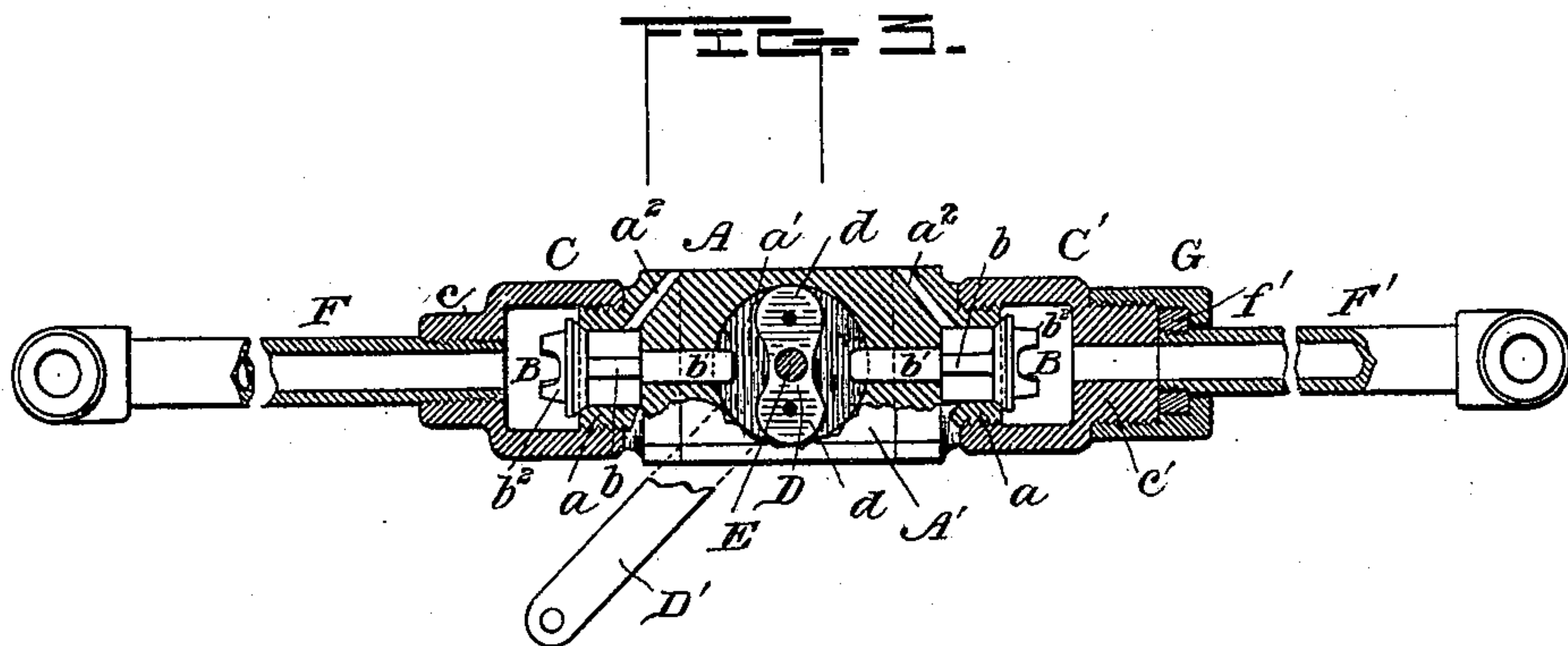


FIG. 3.

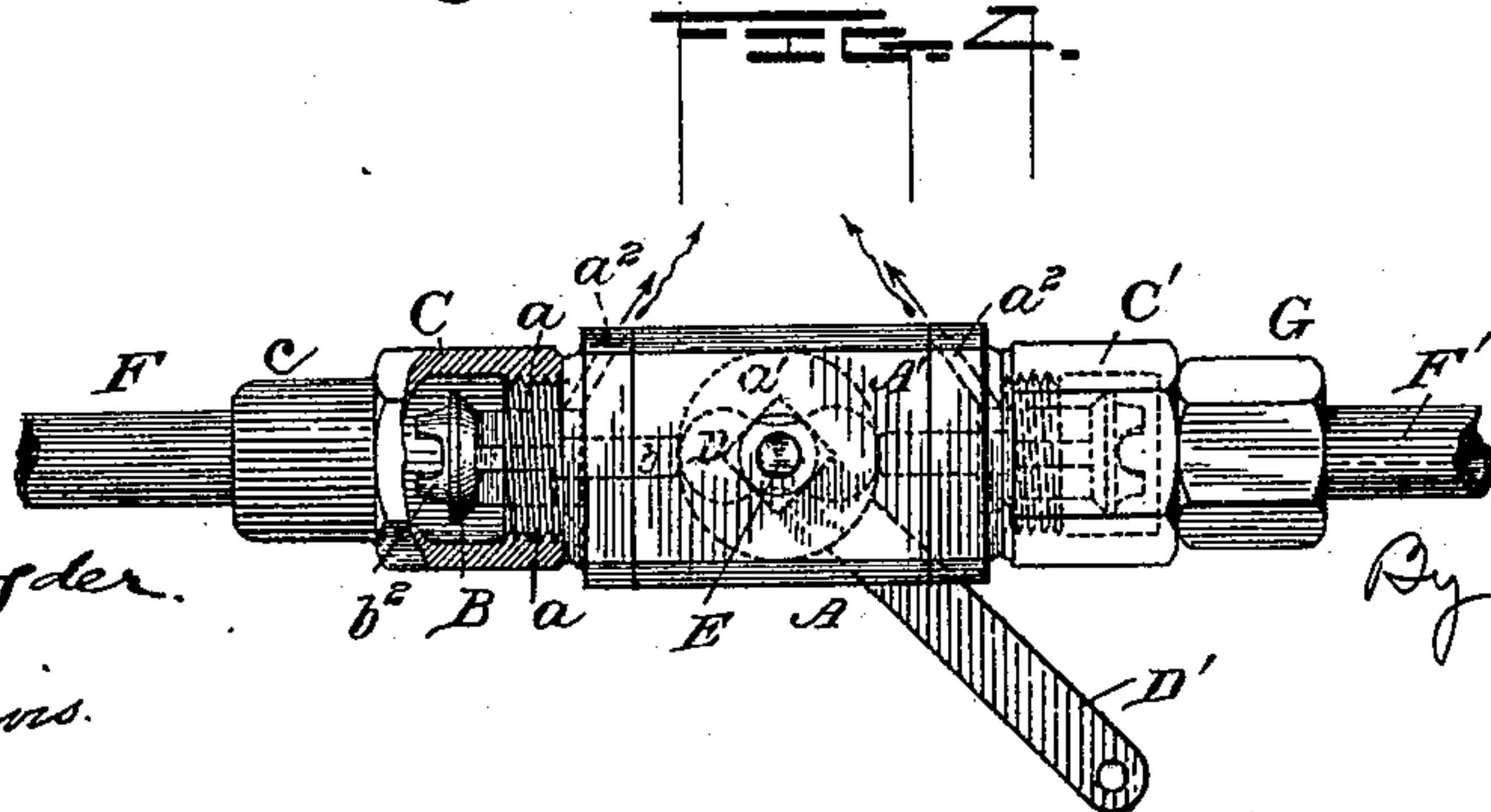


FIG. 4.

Witnesses  
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# UNITED STATES PATENT OFFICE.

JEREMIAH FRANCIS MURPHY, OF BIRMINGHAM, ALABAMA.

## CYLINDER-COCK.

SPECIFICATION forming part of Letters Patent No. 467,295, dated January 19, 1892.

Application filed June 25, 1891. Serial No. 397,434. (No model.)

*To all whom it may concern:*

Be it known that I, JEREMIAH FRANCIS MURPHY, a citizen of the United States, residing at Birmingham, in the county of Jefferson and State of Alabama, have invented certain new and useful Improvements in Cylinder-Cocks; and I do 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, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

My invention relates to that class of devices commonly known as "cylinder" or "waste" cocks for steam-cylinders to relieve the latter of the water of condensation accumulating therein.

In railway-locomotives devices of this character are constantly used, and it is my purpose to provide a cylinder or waste cock for steam-cylinders of locomotives having increased durability and simplicity, and by which the water of condensation is removed from both ends of the cylinders simultaneously, the cylinder or waste cock being provided with two distinct outlets, which are both thrown open in unison.

In the accompanying drawings, Figure 1 is an elevation in dotted lines of the left-hand cylinder of a locomotive equipped with my relief-cock. Fig. 2 is a perspective view of the lever and tumbler. Fig. 3 is a top plan view, partly in section, showing the valves closed; and Fig. 4 is a similar view showing the valves open.

The same letters refer to corresponding parts in all the figures.

My device is intended to be located under the middle of the cylinder, so that the condense water will readily drain into it. Since this is an exposed position, owing to the nearness of the device to the track, in engines having small drivers and large cylinders, such as consolidation and ten-wheel locomotives, it is important that the cylinder-cock shall occupy but little space vertically. Accordingly I make the body of my device as flat as possible, and locate the valve-operating cam between and in line with the valve-stems, supporting it on a circular disk which

fits into a shallow circular cavity in the body and is readily oscillated therein by a handle which projects laterally in the plane of the disk.

The body A has at each end a threaded neck *a*, each of which is counterbored to form a seat for the valves B. The valve has guide-wings *b* and a stem *b'*, the latter playing in a hole which communicates with a central shallow cylindrical cavity *a'* in the body A, into which the stem projects when the valve is closed. Box-nuts C C' are screwed upon the necks *a a* and form chambers in which the valves B are confined. Each valve has preferably a suitable lug or lugs *b<sup>2</sup>* upon its outer surface to come in contact with the end of the nut C C' when the valve is opened and limit its play.

In the cavity *a'* is a tumbler or double cam D, pivoted upon a bolt E, which passes centrally through the cavity. The tumbler has two curved surfaces *d d*, which act to force the stems *b'* outwardly and open the valves simultaneously when the tumbler is turned to the position in which it is shown in Fig. 4. To actuate tumbler, a handle D' is formed with or attached thereto, having a shallow circular cap or disk *d'* to fit into and fill the upper part of the cavity *a'* above the tumbler. A plate A' is fitted into a recess in the body A above the cup, being held in place by the bolt E, which screws into a threaded hole in said plate. The handle D' projects laterally through a slot below the plate A' and in the plane of the disk *d'*.

The nut C has a tapped neck *c*, into which is screwed a pipe F, leading from one end of the cylinder. The pipe F' from the other end of the cylinder is connected with the nut C' by means of a union G, screwed upon the threaded neck *c'* of the nut and clamping a flange *f'*, formed on or attached to the end of the pipe F'. Any other suitable means of connecting the pipes with the body A may be employed.

The handle D' can be operated by means of a lever H, fastened upon the frame of the locomotive and connected with the handle by a link *h*. A rod *h'*, running to the cab, enables the engineer to open and close the valves at will.

In Figs. 1 and 4 the parts are shown in the position they occupy when the cylinder-cock

is open, the valves being forced off their seats and the water and steam escaping through the outlets  $a^2$ , which extend from the counterbore below the valve to the outside of the body A. When the handle D' is reversed, the pressure of the steam shuts the valves.

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

The combination, with a locomotive-cylinder, of a relief-cock underneath the same, consisting of the body A, having a counterbored neck  $a$  at each end and a central shallow circular cavity, a valve B, seated against the end of each neck, having guide-wings fitting the counterbore and a stem projecting into

said cavity, a double cam D, located between and in line with the valve-stems, having a narrow central portion and enlarged rounded ends, provided with a circular disk  $d'$ , fitting and having a bearing in said cavity and having a handle D'' projecting laterally in the plane of the disk, and suitable connections, such as the link  $h$ , lever H, and rod  $h'$ , whereby said lever can be operated, substantially as described.

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

JEREMIAH FRANCIS MURPHY.

Witnesses:

SAMUEL BULLEN,  
ISAAC JEFFERIS.