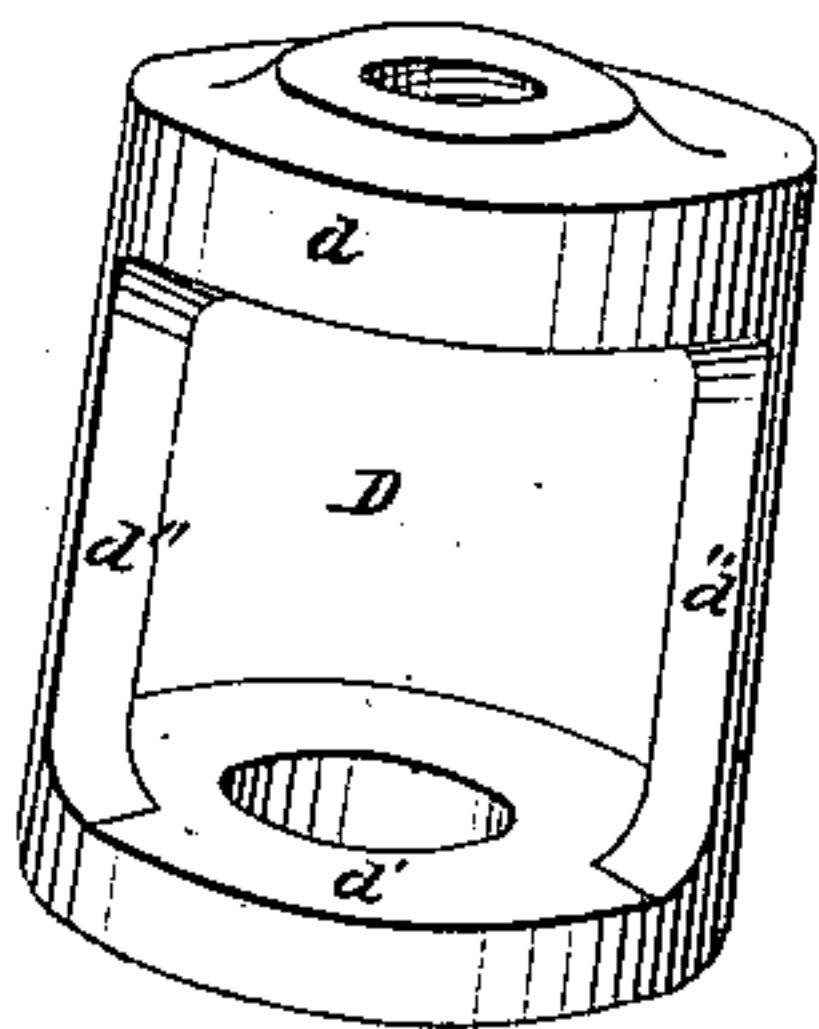


*L. B. Brooks,*  
*Steam Puppet Valve.*

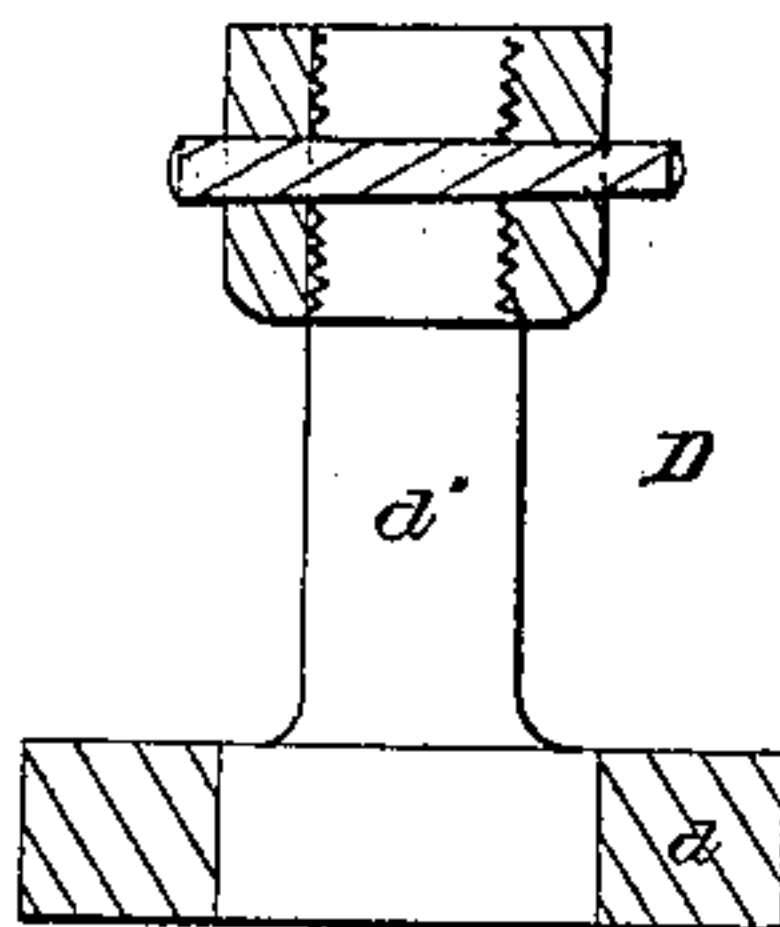
*N<sup>o</sup> 26,160.*

*Patented Nov. 22, 1859.*

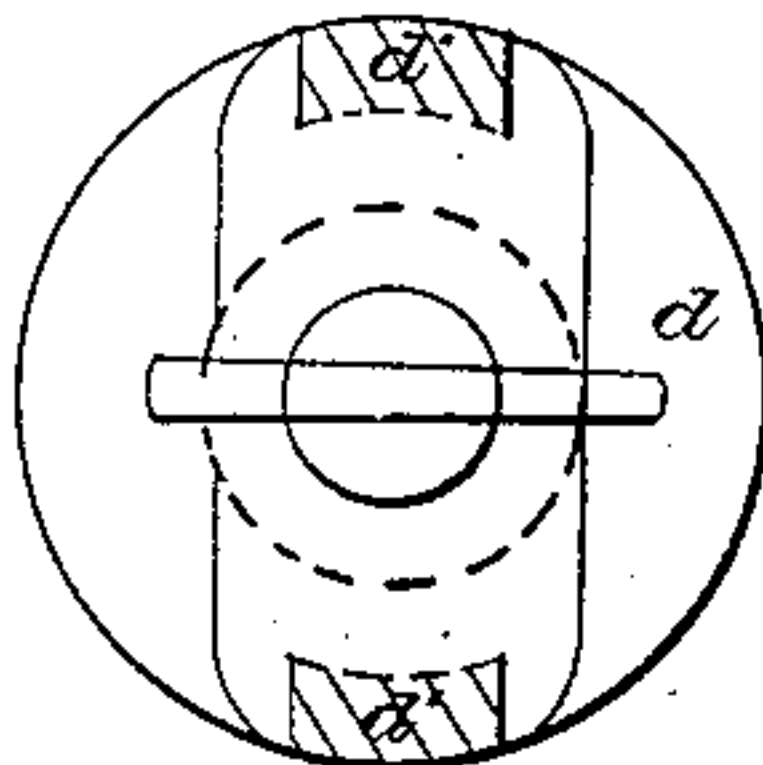
*Fig 5*



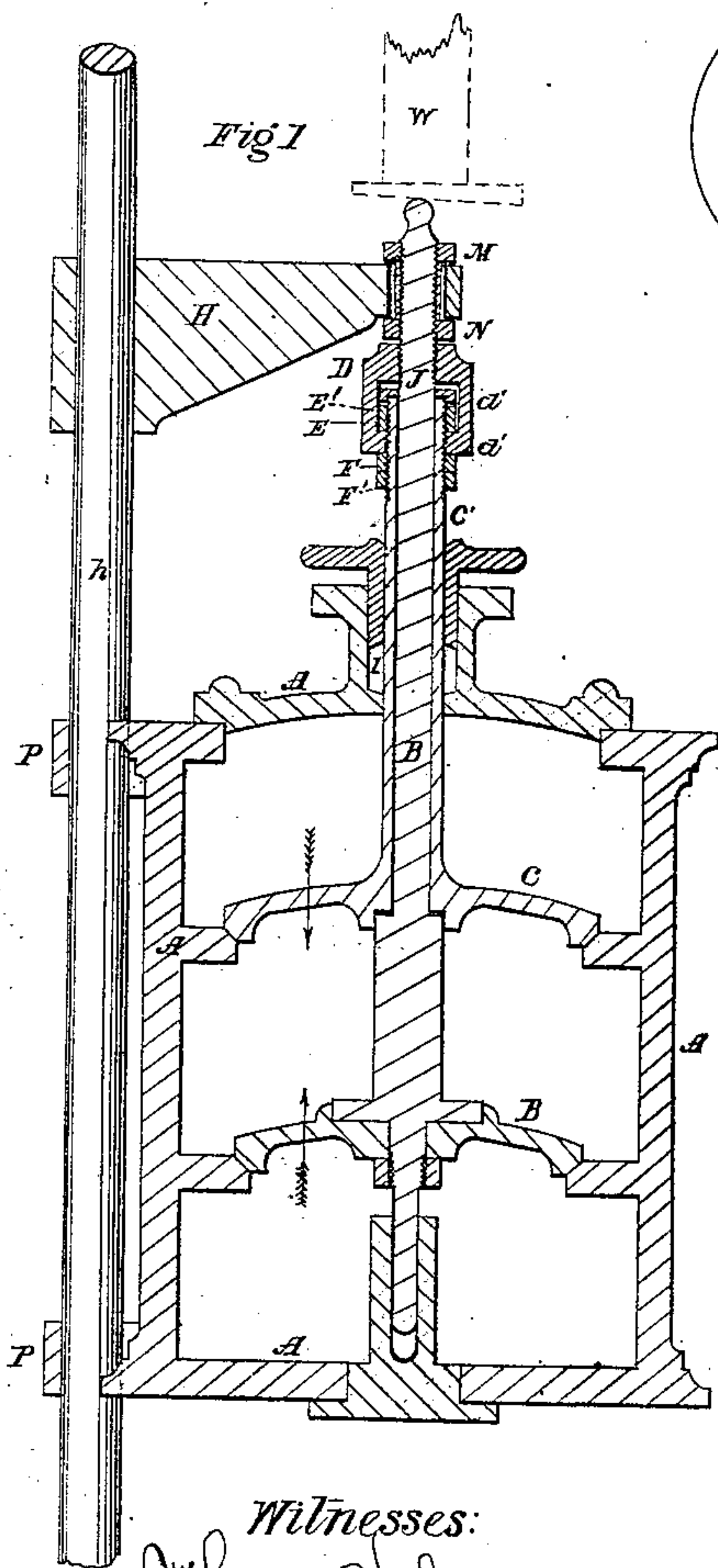
*Fig 2*



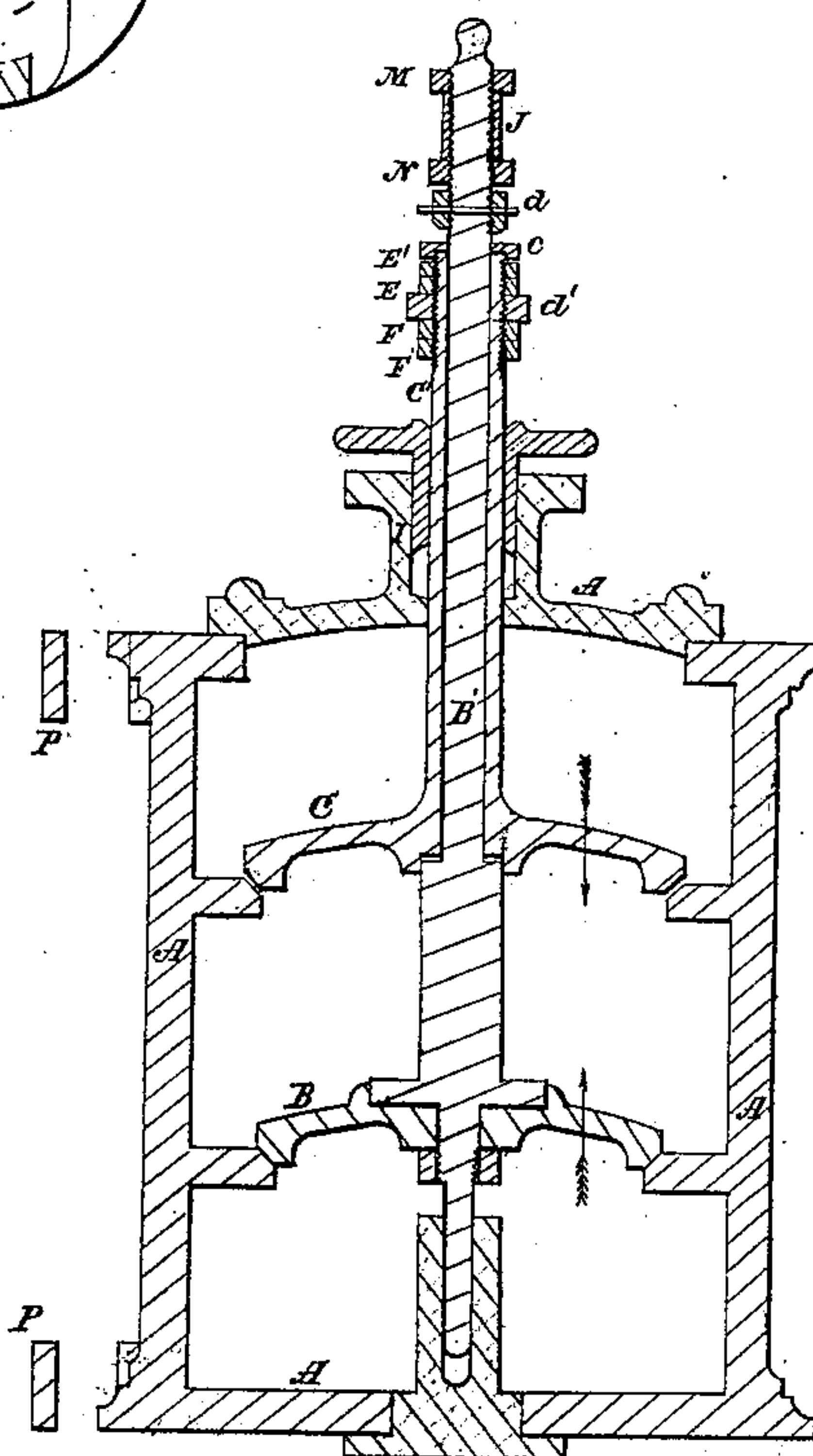
*Fig 3*



*Fig 1*



*Fig 4*



*Witnesses:*

*Thomas D. Nelson*  
*Benjamin Tatham*  
*Chas. M. Tatham*

*Inventor*

*Lockwood B Brooks*



# UNITED STATES PATENT OFFICE.

L. B. BROOKS, OF NEW YORK, N. Y.

## STEAM-VALVE.

Specification of Letters Patent No. 26,160, dated November 22, 1859.

*To all whom it may concern:*

Be it known that I, LOCKWOOD B. BROOKS, of the city, county, and State of New York, have invented a certain new and improved means of adjusting the parts of the double puppet or balance puppet-valve by means of which the valve is more easily and more perfectly made steam-tight; and I do hereby declare that the following is a full and exact description of the construction and operation of the same, reference being had to the accompanying drawings, in which—

Figure 1, is a vertical section showing the valve and valve chest with a portion of the lifter. Figs. 2, and 3, are vertical and horizontal sections. Fig. 4 is a vertical section of the valve taken at right angles to Fig. 1, and Fig. 5, is a perspective view of the yoke or connection between the two parts of the valve.

Similar letters of reference denote like parts in all the drawings.

In the balance puppet valve as heretofore constructed it has been difficult so to adjust the two parts that both shall fit tightly in their seats. If fitted when cold the inequality in the expansion of the valve stem and the valve chest is liable to induce leaking at one or the other of the seats. Various means have been invented for overcoming this difficulty but none have perfectly succeeded and all have involved inconveniences in the adjusting of the valve which mine completely avoids. A means of adjusting such valves has been invented in which the distance of the parts from each other is increased and diminished by turning one valve around relatively to the other, the connection being made by means of a spiral thread or screw thread. This method is objectionable for two reasons, first, the turning of a valve about is very liable to change its plane so that it will not be parallel to the plane of the other part, and, second, and mainly there are no good means of ascertaining when the distance is properly adjusted. The sense of feeling is not sufficiently acute and the hand hole bonnet of the steam chest must in practice be removed to allow of inspection. Even then the operation of ascertaining whether the parts are too distant from or too near each other is not easy for until the steam is admitted there is no index by which the existence of any imperfection in the adjustment is apparent and when the pressure is let on and the leakage is consider-

able, the steam escapes through the hand hole in such quantities that little can be ascertained. It is also difficult when the bonnet is removed to keep the entire valve heated up to its normal working temperature and if it is in any degree cooler the adjustment is more or less imperfect.

My invention is designed to adjust the valve perfectly under the full pressure and consequently the full heat of the steam, and without turning the parts around relatively to each other. It does not involve any necessity for removing any bonnet from the steam chest not even for the employment of any stop valve in the steam pipe for the purpose of taking off and letting on the pressure.

The nature of my invention consists in connecting the two parts of the valve by a yoke or strap on the valve stem so that by slackening the nuts and holding one valve firmly in its seat by any external force the other may be adjusted by simply allowing it to find its seat by the action of the steam thereon and then securing it firmly in that position relatively to the other by setting the nuts tightly to secure the yoke.

To enable others skilled in the art to make and use my invention I will proceed to describe its construction and operation by the aid of the drawings.

A A A A is an ordinary steam chest.

B is the lower valve, which is rigidly secured to a suitable stem B' as usual so that the latter forms a part of the same. The direction of the force of the steam thereon as also on C is denoted by an arrow.

C is the upper valve. It is cast with, or secured to, a sleeve C' which is adapted to fit around B'.

D is the yoke. Its upper portion is a collar *d* which is threaded upon B' as represented, and is further secured by a pin J which extends through both it and the stem. Its lower portion *d'* is a plain ring, which loosely embraces C' and is connected to *d* by two or more stout straps *d''* as represented.

E, E' is a nut and jam nut which are threaded upon C'. F, F', are similar nuts adapted to meet the other face of the ring *d'*. The ring *d'* as before intimated is not threaded upon C' but is simply allowed to loosely embrace it and receive the pressure of the nuts E and F. A stuffing box *c* is provided to prevent any leakage through the



space between B' and C'. All these parts which adjust the relative positions of B and C are exterior to the ordinary stuffing box I so that the parts can be adjusted under the  
5 full pressure of the steam.

H is a lifter which is of the ordinary character and is keyed on the lifting rod *h* in the usual manner. It takes hold of the stem B' receiving it in an oblong hole, by  
10 means of a thimble J and two nuts M and N in the ordinary manner.

To adjust the two parts B C of my valve relatively to each other I admit the steam and allow the stem and all the parts to be  
15 heated to as nearly as possible their ordinary working condition. Then by means of a temporary brace W represented in dotted outline or by some other efficient means the valve stem B' and consequently the valve  
20 B is held down with sufficient force to resist all the pressure of the steam without any aid from the other portion C. The next step is to slacken the nuts E E' and F, F'. The parts C, being by this step, set free  
25 from its connection with B adjusts itself perfectly to its seat. The nuts E, E' and F, F', are now turned and made to bear on the faces of *d'* and the contact is gradually tightened until it is confined very rigidly.  
30 The adjustment and securing of the parts B, C, is now completed. The brace W which is supposed to stretch between the top of B' and a beam or some similar object above is next removed and the valve is ready to op-  
35 erate tightly and perfectly.

It must be observed that the two parts B

and C balance each other directly and that the load felt by the lifter H is only the weight and friction of the valve with such  
40 area of the steam pressure as may accidentally or purposely be left unbalanced.

It is common in setting up engines to so adjust the nuts M and N above and below the lifter H that while a considerable play  
45 is left for the lifter to work loosely on the stem B' the lower nut N is so high that all the weight of the lifter and rod must bear on it when the parts are at rest. If the parts are sufficiently rigid the lower part B  
50 may be held in its place with sufficient firmness by tightening of the binders which steady the lifting rod *h* after which C may be released in the same manner as before explained without any necessity for the use of  
55 piece W.

Having now fully described my invention what I claim as new therein and desire to secure by Letters Patent is—

Rendering the two parts B and C of the balanced puppet valve adjustable relatively  
60 to each other by connecting the stem B' to the sleeve C' by the yoke D or its equivalent arranged and operated substantially in the manner and for the purposes herein set  
65 forth.

In witness whereof I have hereunto set my name.

LOCKWOOD B. BROOKS.

Witnesses:

THOMAS D. STETSON,  
BENJ. TATHAM,  
CHAS. S. TATHAM.