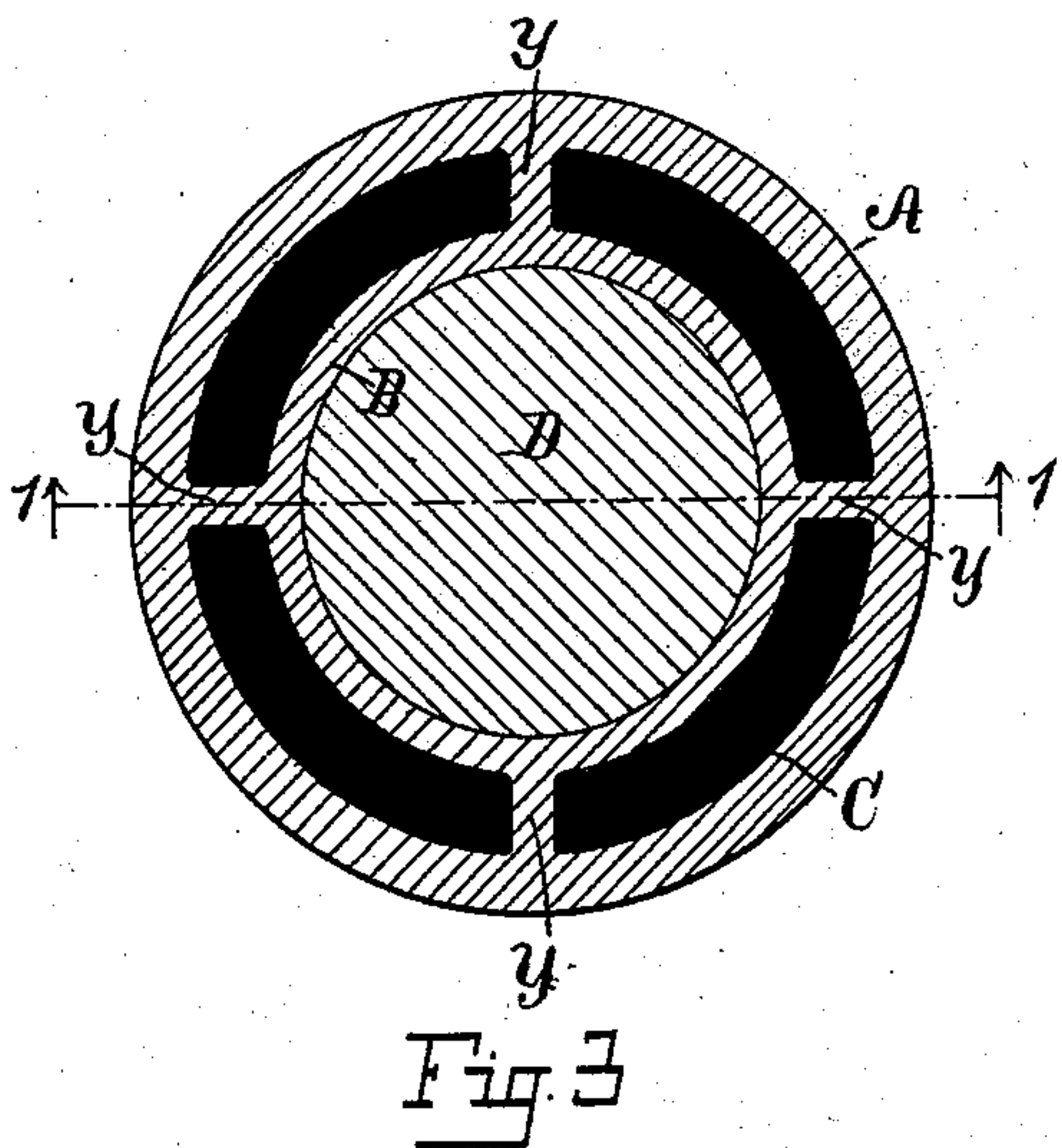
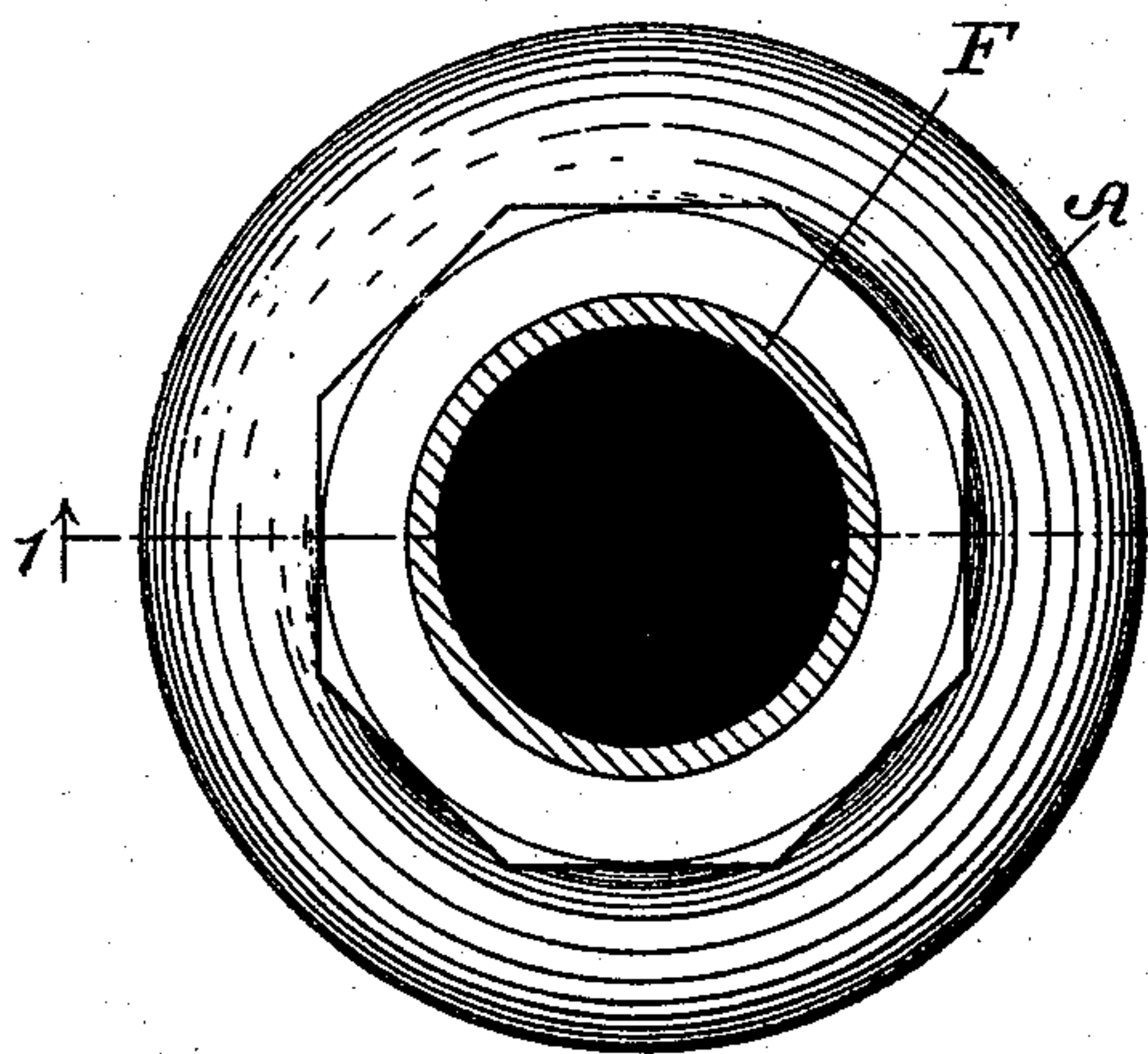
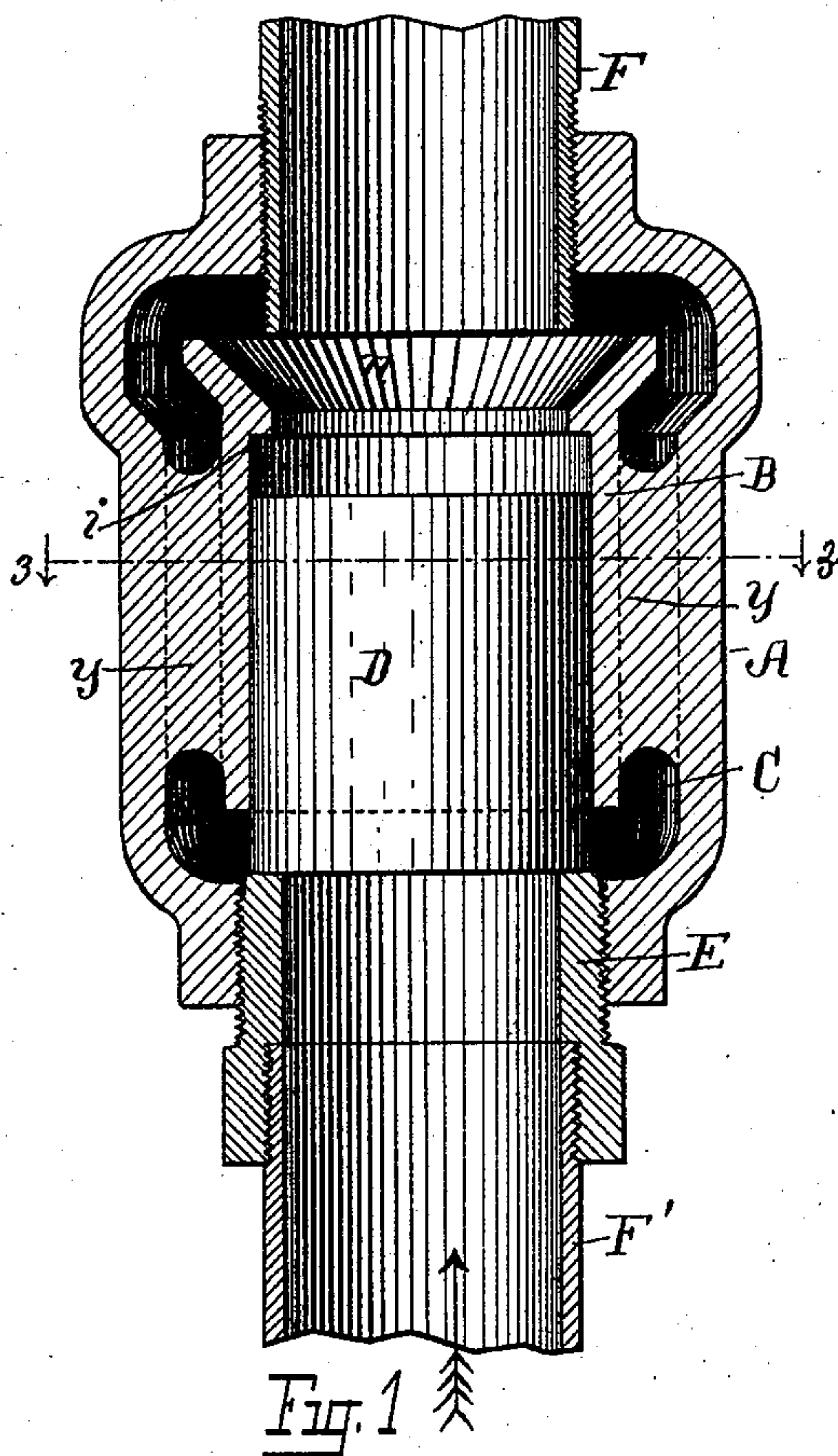


(No Model.)

W. E. HILL.
CHECK VALVE.

No. 516,532.

Patented Mar. 13, 1894.



Witnesses:

Walter S. Wood
Lora E. Westbrook

Inventor.

William E. Hill
By *Edw. L. Chappell*
Att'y.

UNITED STATES PATENT OFFICE.

WILLIAM E. HILL, OF KALAMAZOO, MICHIGAN.

CHECK-VALVE.

SPECIFICATION forming part of Letters Patent No. 516,532, dated March 13, 1894.

Application filed January 18, 1893. Serial No. 458,813. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM E. HILL, a citizen of the United States, residing at the city of Kalamazoo, in the county of Kalamazoo and State of Michigan, have invented a certain new and useful Check-Valve, of which the following is a specification.

My invention relates to valves and more particularly to check valves or that variety that allows a fluid to pass through them in only one direction.

The objects of my invention are first, to provide a valve of easy construction; second, one that can be easily and accurately guided to its seat; third, leave the opening for the passage of steam or the lift of the valve adjustable; and fourth, provide a check valve that will work in any position. I accomplish these objects by the device shown in the accompanying drawings, in which—

Figure 1, is a view of a longitudinal section of my valve on line 1—1 of Figs. 2 and 3. Fig. 2, is an end view of the valve, and Fig. 3, is a view of a cross section of my valve on line 3—3 of Fig. 1.

Similar letters refer to similar parts throughout the several views.

A, is the valve case.

D is a cylindrical valve and fits on the seat formed on the end of the short section of pipe E.

B, is a hollow cylinder fitting the valve D, and serving to guide it to its seat when any steam passing is forced back. There is a shoulder *i*, and a flange *n*, at the top of this interior guiding cylinder B. This interior guiding cylinder B, is held securely in place by the cross portions *y*, *y*, *y*, and *y*, leaving the open spaces or chambers C, which connect with the pipes on each side of the valve.

When my valve is in use steam passing in the direction of the arrow in the pipe F' will raise the valve D, in the guiding cylinder B, against the shoulder *i*. Steam will then pass into the chambers C, around over the flange *n*, out at the pipe F. It will thus be seen that the valve offers very slight resistance to the passage of steam in the direction of the arrow. When there is a pressure of steam from the opposite direction it will first strike

against the end of the cylindrical valve D and force it against the seat on the end of the pipe E, and effectually prevent the passage of any steam in that direction. The flange *n*, turns the current back and prevents the passage of even the smallest quantity of steam before the valve is pressed into its seat. It will be noticed that the short section of pipe E is screw-threaded so that it can be turned farther into or out of the valve chamber C, and so adjust the size of the opening, or the lift of the valve. The outer edge of the valve seat on the short piece of pipe is slightly beveled to prevent the valve battering the screw thread and make it impossible to remove the valve. The valve is of less diameter than the section of pipe E and is removable through that opening. The form or number of the cross sections *y* is not material so long as they hold the central guiding cylinder B, in its proper position, and do not occupy too much space. Parts of the guiding cylinder B, could be cut away leaving enough however to guide the valve D. The valve will operate without the flange *n*, but will be much better with it.

The cylindrical valve D can be constructed solid or hollow as desired. If it is hollow, only one end need be closed. It will not be found necessary to make the valve hollow except in very large valves, or in case of very low pressure. If the valve is hollow and only closed at one end I prefer to have the open end toward the stop *i*.

I have described my valve as cylindrical. The cross section of the valve could be in any other form than that of a circle, if the walls were parallel to each other and the valve properly stopped and guided without materially changing my invention. The word cylindrical in this specification should be construed to cover any such forms of valve.

I have described my valve as a steam valve. It is equally effective with any fluid, and I do not desire to limit myself to its use for a steam check valve.

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

1. In a check valve, an interior, supported,

guiding cylinder having a flange at its top adapted to deflect steam and provided with a stop, said guiding cylinder having open passages around it to connect the pipes on each
5 side, in combination with a cylindrical valve adapted to reciprocate in the guiding cylinder and fit to a valve seat on one of the pipes, for the purpose specified.

2. In a check valve, the valve case A, with
10 the cross sections y , supporting the interior guiding cylinder B, having the stop i , and the

flange n , and leaving the connecting passage C, in combination with the cylindrical valve D, and the adjustable valve seat W, substantially as described for the purpose specified. 15

In witness whereof I have hereunto set my hand and seal in the presence of two witnesses.

WILLIAM E. HILL. [L. S.]

Witnesses:

CORA E. WESTBROOK,
E. S. ROOS.