

No. 842,183.

PATENTED JAN. 29, 1907.

I. P. DOOLITTLE.
CUT-OFF VALVE.

APPLICATION FILED AUG. 7, 1905.

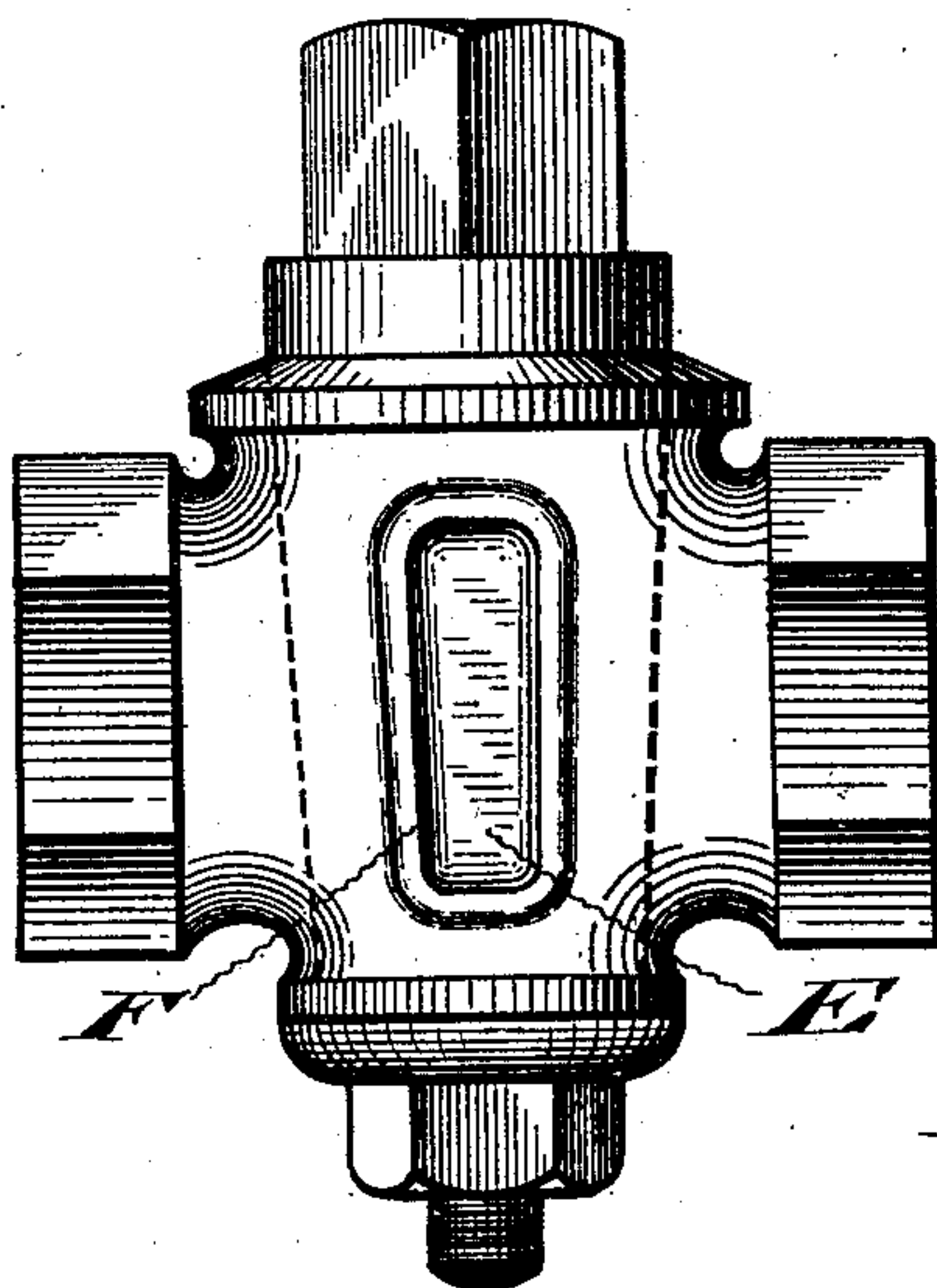


Fig. 1.

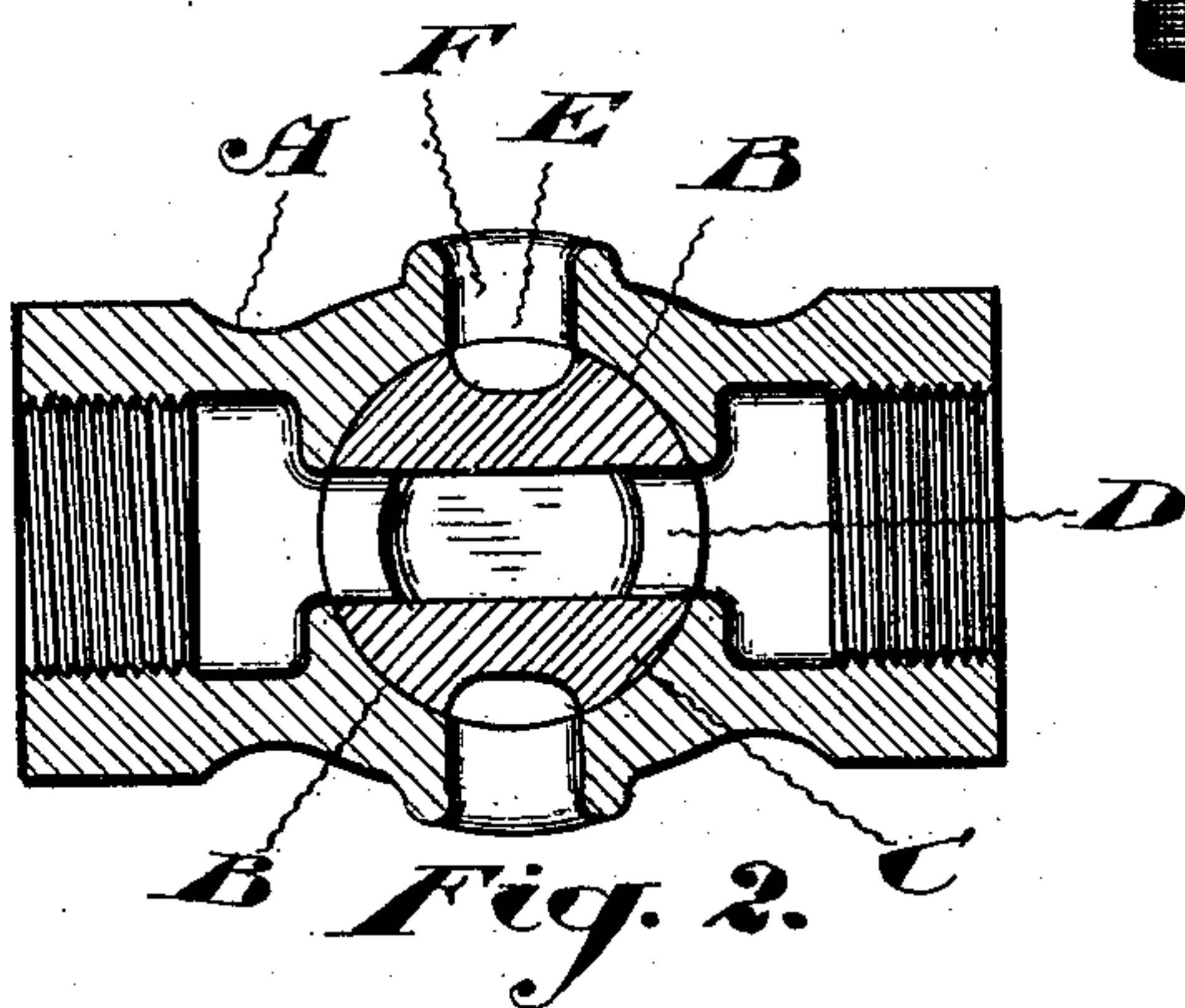


Fig. 2.

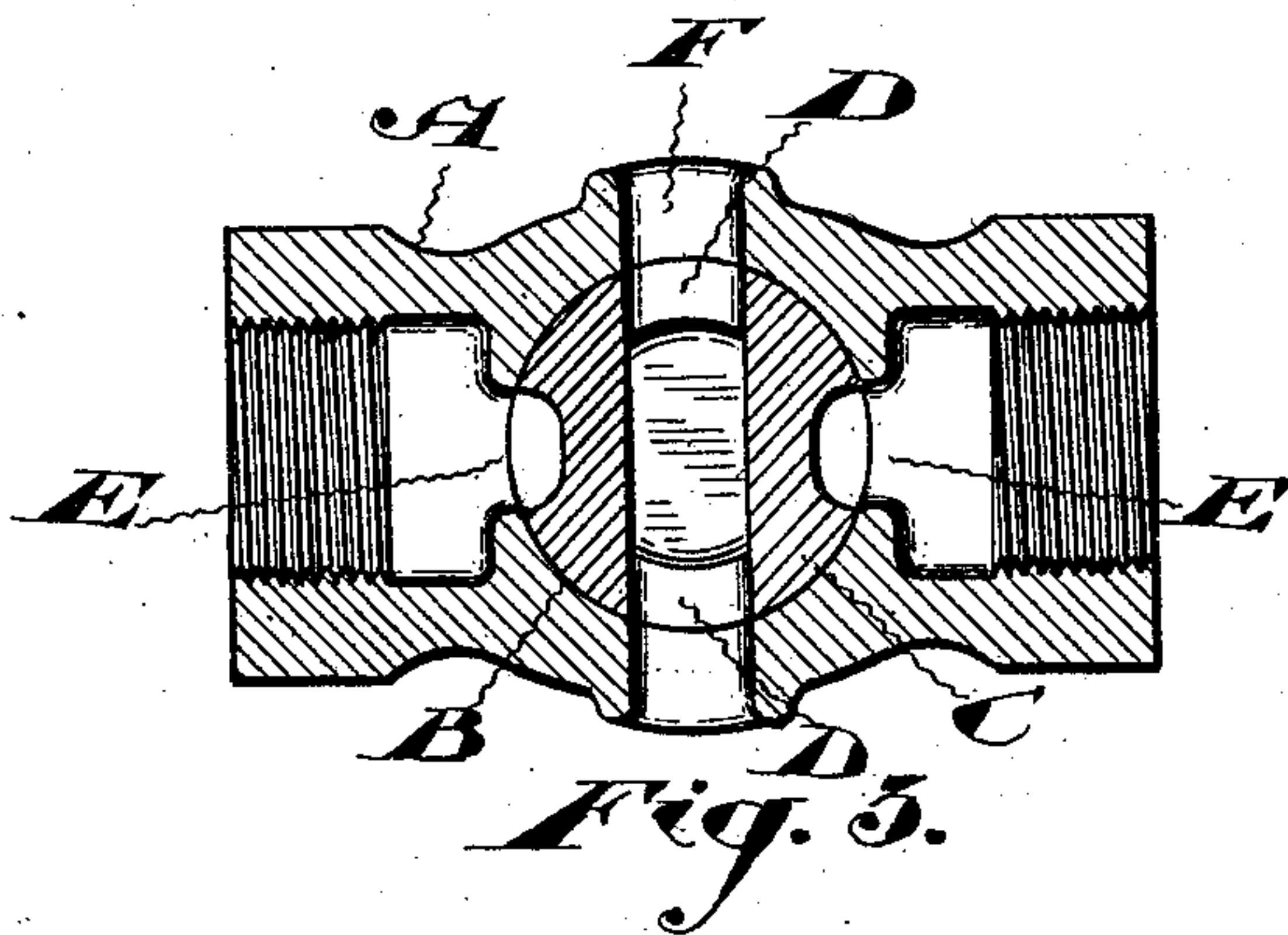


Fig. 3.

WITNESSES:

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IRVIN P. DOOLITTLE, OF TORONTO, ONTARIO, CANADA.

CUT-OFF VALVE.

No. 842,183.

Specification of Letters Patent.

Patented Jan. 29, 1907.

Application filed August 7, 1905. Serial No. 273,185.

To all whom it may concern:

Be it known that I, IRVIN P. DOOLITTLE, of the city of Toronto, in the county of York, Province of Ontario, Canada, have invented certain new and useful Improvements in Cut-Off Valves, of which the following is a specification.

The object of my invention is to devise a cut-off valve in which it is impossible for scale to deposit on the working surfaces and in which the scale deposited on the valve-plug may be removed without removing the plug from the valve-body; and it consists, essentially, of a valve-body and taper-valve plug having a passage-way therein, the plug having those parts of its surface which are exposed when the valve is shut cut out or recessed, so that they cannot contact with the valve-seats of the body when the valve is open, substantially as hereinafter more specifically described and then definitely claimed.

Figure 1 is a side elevation of a cut-off valve constructed in accordance with my invention. Fig. 2 is a longitudinal sectional plan showing the valve open. Fig. 3 is a similar view showing the valve closed.

In the drawings like letters of reference indicate corresponding parts in the different figures.

A is the body of the valve, having the usual passage-way within it and provided at opposite sides of the passage-way with the valve-seats B. The valve is fitted with a taper plug C, through which is formed a passage D, having its ends corresponding in width with the passage-way between the valve-seats of the valve-body. In the sides of the taper plug are formed the cut-away portions or recesses E, which correspond in size and shape with the ends of the passage in the plug.

Through the valve-seats at the sides of the valve are cut the slots F, corresponding exactly in size and shape to the ends of the passage through the plug. Thus it will be seen that the recesses E, the slots F, the ends of the passage D, and the passage-way between the valve-seats of the body are similar in size and shape. From this it results that when the valve is open, as shown in Fig. 2, no part of the working surface of the valve is exposed to the action of the fluid passing through the valve and that the recesses E are fully exposed through the slots F. The slots F might be somewhat wider than the recesses E; but this is not desirable, as it results in

the cutting down of the working surface of the valve-seats.

When the parts are in the position shown in Fig. 3, the passage in the valve coincides with the slots F and the recesses E register exactly with the passage-way between the valve-seats of the body. In this case, also, no part of the working surface of the valve is exposed.

As a cut-off valve is usually closed for considerable periods of time, scale is usually deposited on that portion of the plug exposed to the action of the fluid. In the ordinary valve when the plug is turned to open the valve this scale is turned across the valve-seats, soon cutting them out and making the valve leaky. With my valve, on the contrary, this deposit of scale takes place in the recesses E, the surfaces of which are within the circle outlining in cross-section the working surface of the valve. As all scale on the plug must be deposited in these recesses, the scale cannot in any way touch the valve-seats, so that the valve will remain tight indefinitely, subject only to ordinary wear and tear. Further, it will be seen that when the valve is open the recesses E are exposed through the slots F, and if the deposit of scale in the recesses has become too great it is easily chipped out with a suitable tool without removing the plug. So, too, if it becomes necessary any dirt or scale in the passage of the plug may be removed when the valve is in the closed position, as shown in Fig. 3.

From the construction described it results that my valve will be found very durable in use, thus saving the user expense and annoyance. A further saving will be effected, as it will seldom or never be necessary to shut down the plant while the cut-off valve is being repaired or renewed.

What I claim as my invention is—

1. In a cut-off valve a valve-plug having a passage through it in combination with a valve-body having valve-seats at each side of its passage-way the valve-plug having those portions of its surface which are exposed between the valve-seats when the valve is closed, cut away or recessed so that they cannot contact with the valve-seats when the valve is closed, substantially as described.

2. In a cut-off valve a valve-plug having a passage through it in combination with a valve-body having valve-seats at each side

of its passage-way; vertical slots being formed through the seats corresponding substantially in shape and size to the passage of the valve-plug and recesses being formed in the sides of the plug intermediate of the ends of its passage and also corresponding substantially in shape and size thereto, substantially as described.

3. In a cut-off valve a valve-body provided with valve-seats, a passage-way between the seat; and slots cut through the valve-seats in combination with a plug hav-

ing a passage through it and recessed in its sides intermediate the passage-way; the passage-way and slots of the body and the recesses and ends of the passage in the plug being substantially similar in size and shape one to another, substantially as described.

Toronto, July 24, 1905.

IRVIN P. DOOLITTLE.

In presence of—

J. EDW. MAYBEE,

MARGARET T. MCINTYRE.