

No. 695,952.

Patented Mar. 25, 1902.

B. F. SMITH.
SAND TRAP FOR ARTESIAN OR DRIVEN WELLS.

(Application filed Jan. 3, 1902.)

(No Model.)

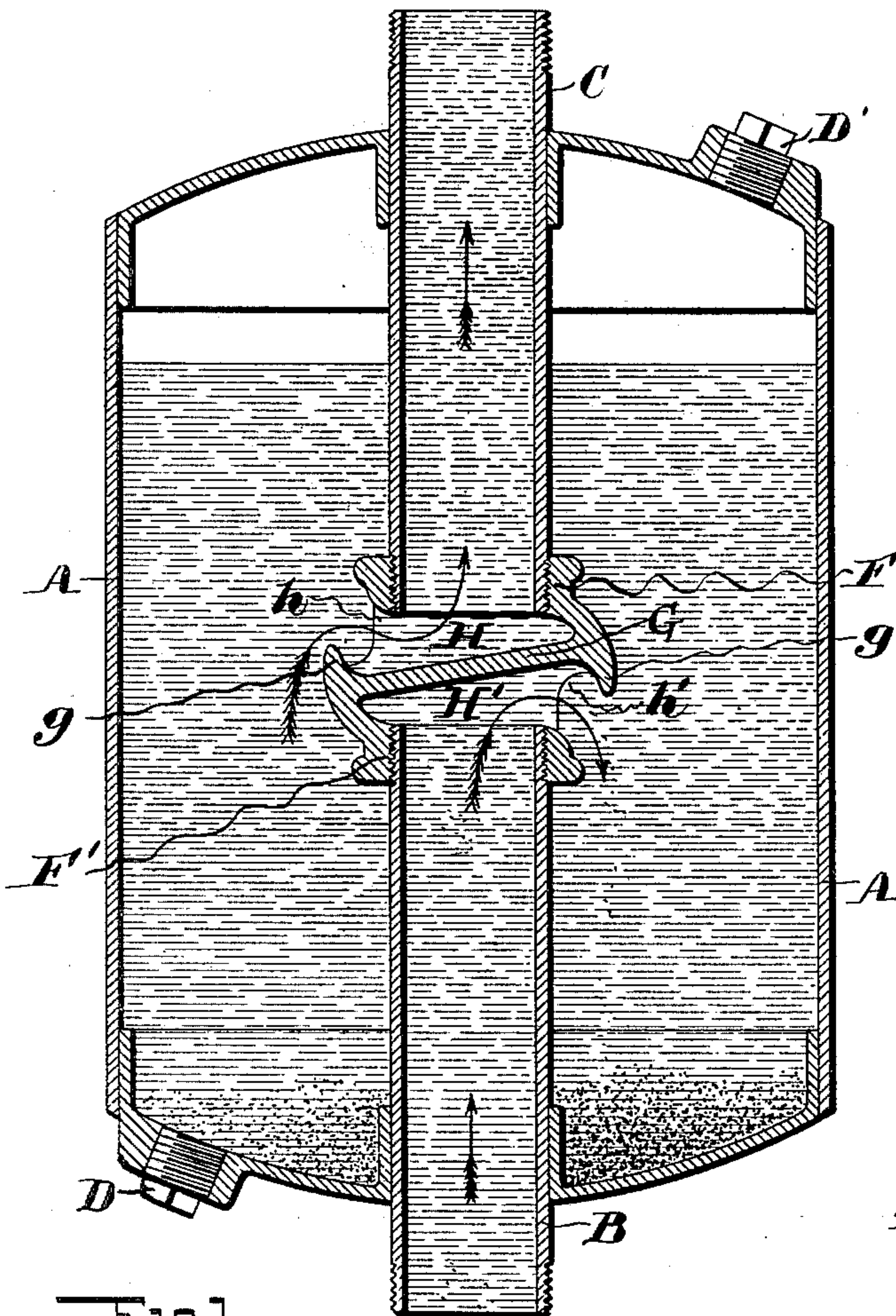


Fig. 1.

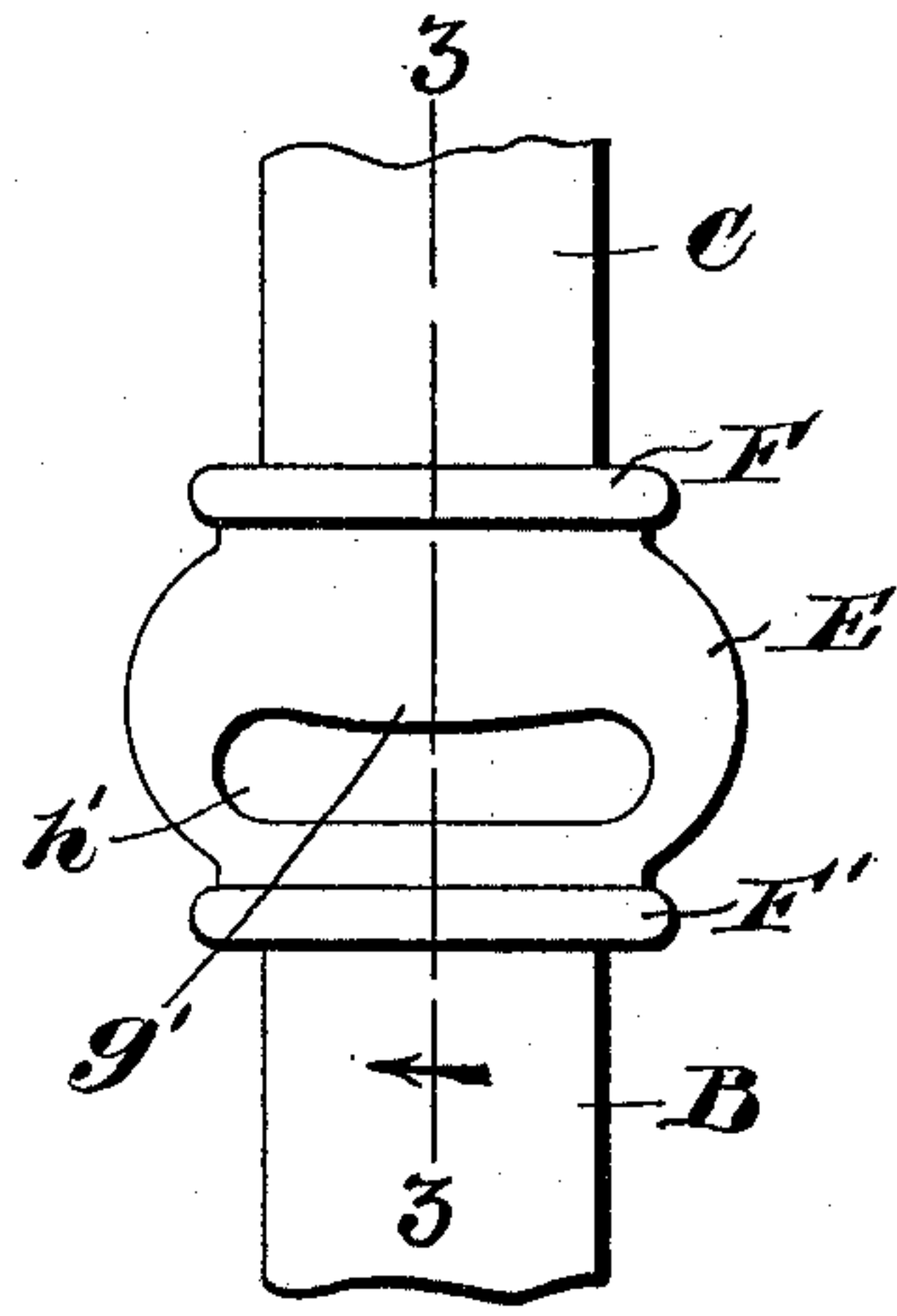


Fig. 2.

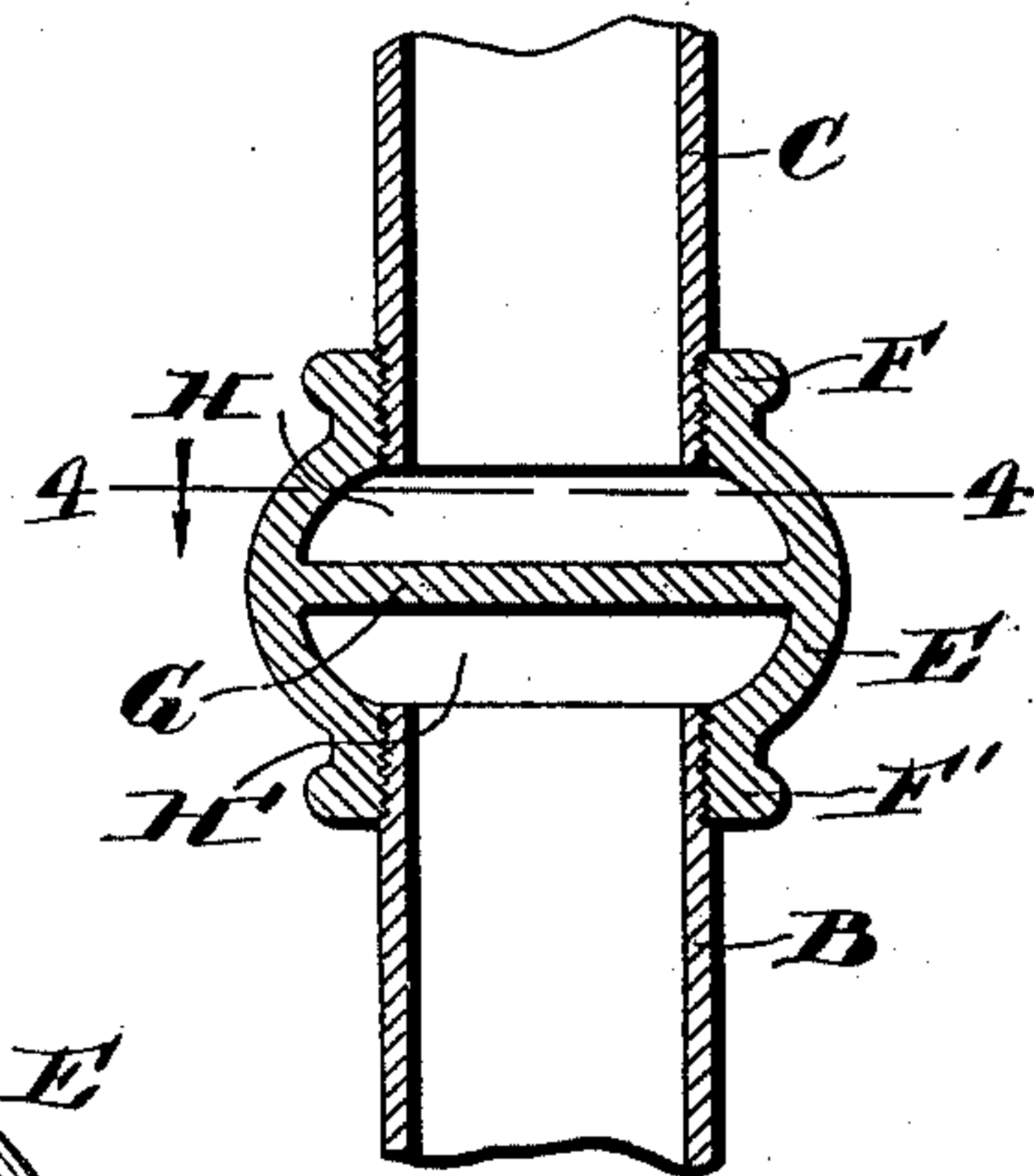


Fig. 3.

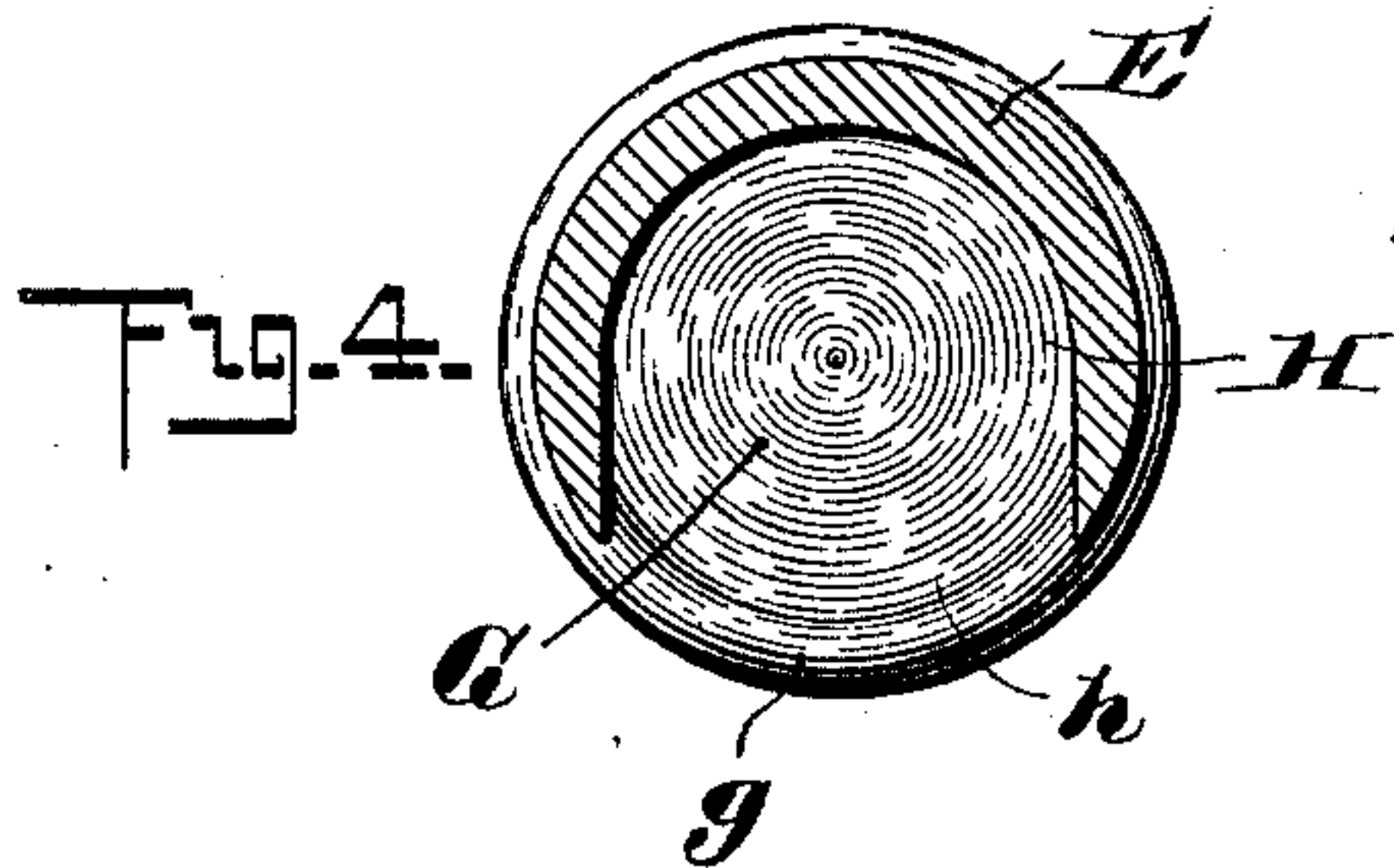


Fig. 4.

Witnesses=
Charles F. Logan.
Nathan C. Lombard, 2nd

Inventor=
Benjamin F. Smith.
by *Alban Judrén*
his Atty.

UNITED STATES PATENT OFFICE.

BENJAMIN F. SMITH, OF SOMERVILLE, MASSACHUSETTS, ASSIGNOR OF ONE-HALF TO CHARLES G. SMITH, OF SOMERVILLE, MASSACHUSETTS.

SAND-TRAP FOR ARTESIAN OR DRIVEN WELLS.

SPECIFICATION forming part of Letters Patent No. 695,952, dated March 25, 1902.

Application filed January 3, 1902. Serial No. 88,317. (No model.)

To all whom it may concern:

Be it known that I, BENJAMIN F. SMITH, a citizen of the United States, and a resident of Somerville, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Sand-Traps for Artesian or Driven Wells, of which the following is a specification.

This invention relates to improvements in sand-traps for Artesian or driven wells or for other purposes where it is required to arrest sand, grit, and impurities and prevent such from entering the suction-pipe of the pump, as will hereinafter be more fully shown and described, reference being had to the accompanying drawings, wherein—

Figure 1 is a central longitudinal section of my improved sand-trap. Fig. 2 is a side elevation of the deflector-coupling that connects the inner ends of the inlet and suction pipes in the interior portion of the chamber. Fig. 3 is a vertical section of said deflector-coupling on the line 3 3, shown in Fig. 2; and Fig. 4 is a horizontal section on the line 4 4, shown in Fig. 3.

Similar letters refer to similar parts wherever they occur on the different parts of the drawings.

In Fig. 1, A represents the closed trap-chamber, as usual, having secured to its lower end an inlet-pipe B, that projects inwardly within the said chamber A, and to the upper end of said chamber is secured a suction-pipe C, which also projects into the said trap-chamber A, as is common in devices of this kind. The upper end of the suction-pipe C is adapted to be suitably connected to a suction-pipe leading from a pump or exhauster, as usual.

D and D' are removable plugs covering openings in the ends of the chamber A for the purpose of cleansing the latter from accumulations of sand, &c., as may be needed from time to time, and this may be accomplished by the removal of said plugs and connecting one of the plug-openings to a water-pipe under pressure, so as to force out the impurities through the other plug-opening.

The inner ends of the inlet and suction pipes B and C are connected by means of a deflector-coupling, preferably cast in one single piece and composed of a shell E, provided

with screw-threaded sockets F and F' at its upper and lower ends, said sockets being connected to the screw-threaded inner ends of the respective suction and inlet pipes C and B, as shown. The said shell E is transversely divided by means of an inclined deflector wall or diaphragm G, which serves to divide the shell E into lower and upper conduits H and H', which are respectively in open communication with the inner ends of the suction and inlet pipes C and B, as shown. The conduit H is provided at one of its ends with a preferably slotted or elongated opening or mouth *h*, and the conduit H' is likewise provided at one of its ends with a similar opening *h'*, as shown. The said openings *h* and *h'* are arranged diametrically opposite, one relative to the other, for a purpose as will hereinafter be described.

In practice I prefer to provide the opposite ends of the diaphragm G with inclined or curved lips *g* and *g'*, as shown in the drawings, for the purpose of deflecting the sand or other impurities from the inlet-pipe B toward the bottom of the chamber A, as shown in Fig. 1, as well as arresting such impurities from passing out through the suction-pipe C during the upward flow of the water through the suction-pipe C, as shown by arrows in Fig. 1.

The operation of the invention is as follows: When the water is drawn from the well, it rises up through the pipe B, and as it comes in contact with the under side of the inclined deflector wall or diaphragm G and strikes the lip *g'* the water and impurities contained therein are deflected downward, causing the heavier sand or impurities to fall to the bottom of the chamber A, while the clear water is caused to be drawn upward through the conduit H and out through the suction-pipe C, as shown by arrows in Fig. 1. If it is desired to remove the accumulations of impurities from the bottom of the chamber A, it is only necessary to remove the plugs D D' and to force water under pressure through the said chamber, causing the impurities to flow out through the lower perforation, as is common in devices of this kind.

As will be noticed by reference to the drawings, the deflector-coupling is constructed in

such a manner that the chamber A may be located either in a vertical or horizontal position, as may be desired. If located in a horizontal position, the mouths *h* and *h'* are preferably arranged so that one shall project downward and the other one upward, and during such horizontal position of the chamber A the sand or impurities will be deposited on the interior under side of said chamber and may be withdrawn therefrom, as may be required from time to time, simply by removing the plugs D D' and forcing water through the upper plug-opening and causing the sand, &c., to be forced out through the lower plug-opening.

Having thus fully described the nature, construction, and operation of my invention I wish to secure by Letters Patent, and claim—

The combination of the sand-chamber A, inlet and outlet pipes B, C, connected to the ends of said chamber and a deflector-coupling secured to the inner ends of said pipes, said coupling consisting of a shell E, provided with sockets at its ends attached to the respective ends of the pipes B, C, and having an inclined deflector wall or diaphragm G, terminating as deflector or guide lips *g*, *g'*, and having diametrically-arranged mouths or openings *h*, *h'*, substantially as and for the purpose set forth.

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

BENJAMIN F. SMITH.

Witnesses:

ALBAN ANDRÉN,

CHARLES D. KIRKPATRICK.