

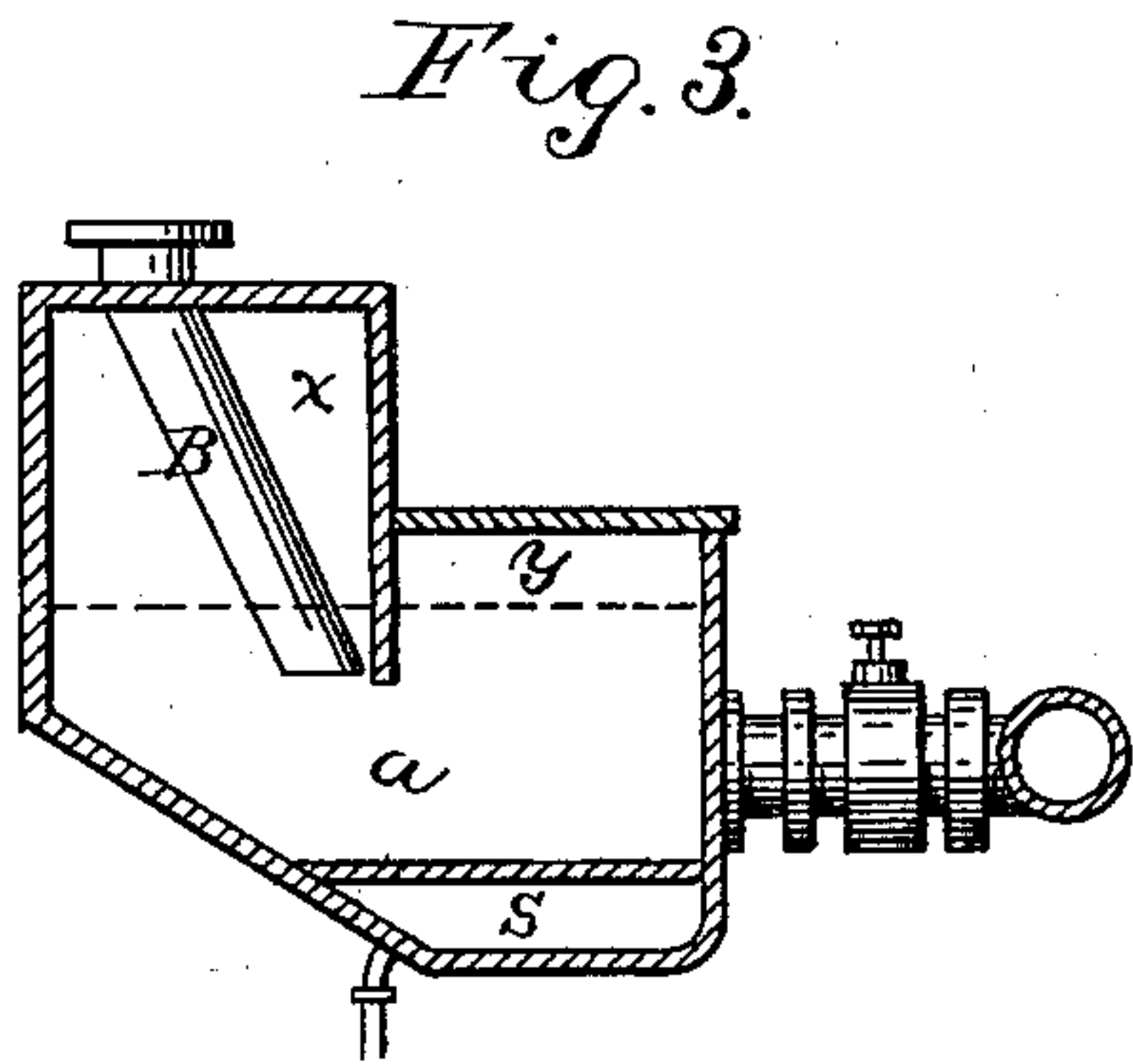
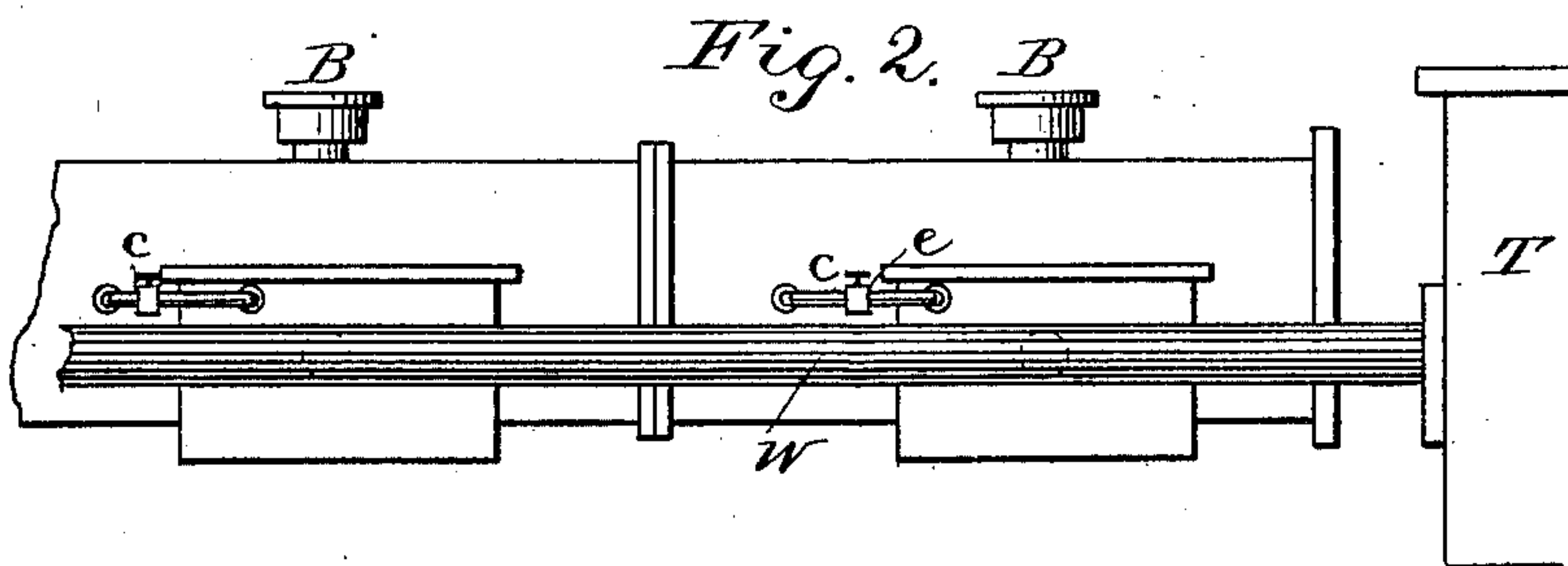
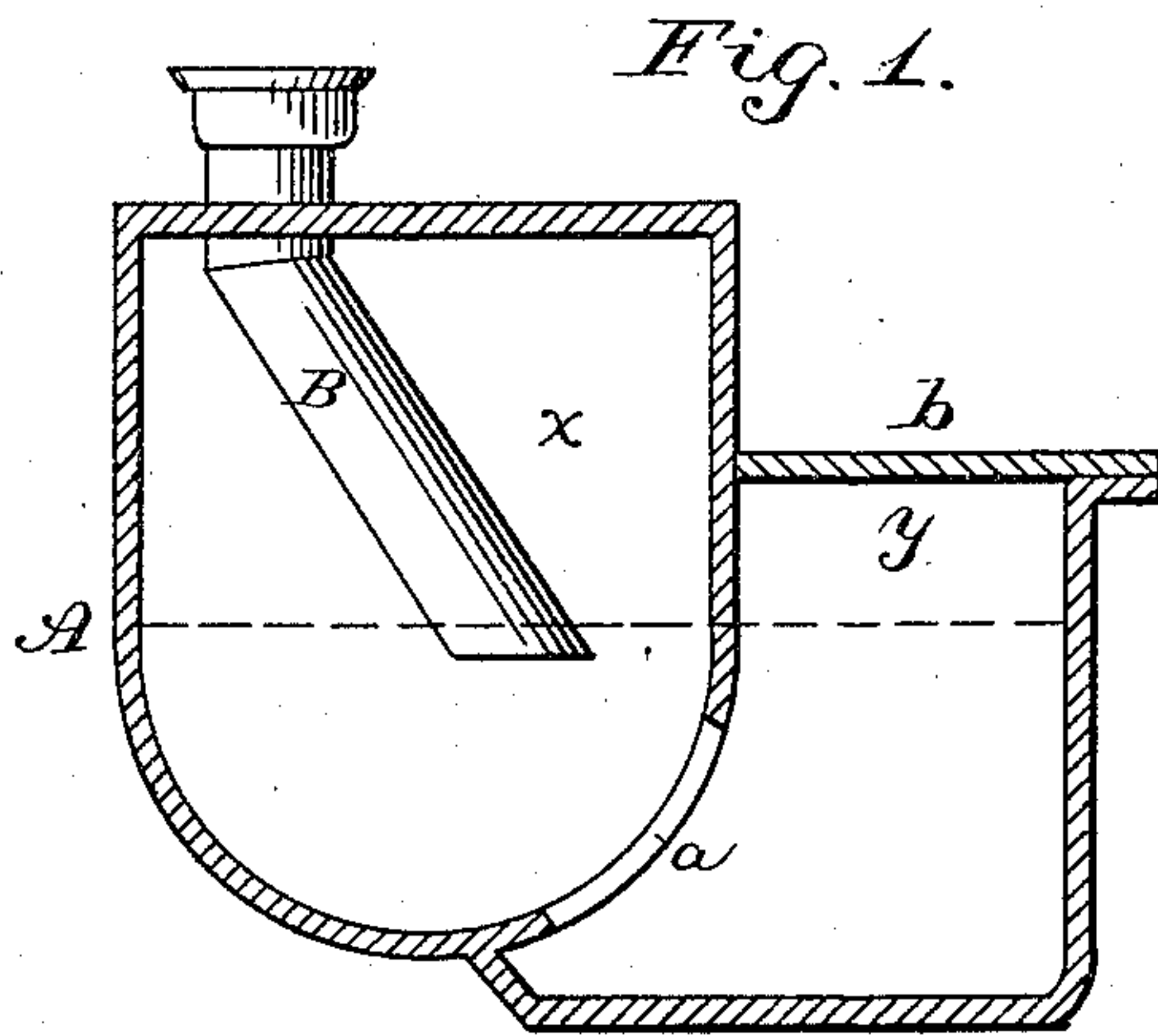
(No Model.)

W. R. BEAL.

HYDRAULIC MAIN FOR GAS APPARATUS.

No. 245,767.

Patented Aug. 16, 1881.



Witnesses:

J. W. Garner.
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UNITED STATES PATENT OFFICE.

WILLIAM R. BEAL, OF NEW YORK, N. Y.

HYDRAULIC MAIN FOR GAS APPARATUS.

SPECIFICATION forming part of Letters Patent No. 245,767, dated August 16, 1881.

Application filed April 11, 1881. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM R. BEAL, of the city, county, and State of New York, have invented certain Improvements in Hydraulic
5 Mains for Gas Apparatus, of which the following is the specification.

My invention relates to that class of apparatus used in the process of manufacturing gas known as "hydraulic mains;" and it consists
10 in a construction, fully described hereinafter, whereby the flow of gas through the dip-pipes is secured with a minimum of pressure, and whereby the main can be easily and quickly cleaned out without necessarily stopping the
15 manufacture of gas.

In the drawings, Figure 1 is a transverse section of a main and dip pipe illustrating my improvement. Fig. 2 is a rear elevation, smaller scale; Fig. 3, a section showing a modification.

20 In ordinary hydraulic mains, hand holes and plates are fixed at convenient points to enable the workmen to remove obstructions about the ends of the dip-pipes whenever, from necessity or choice, the apparatus can be thrown out
25 of use.

In the present condition of the business of manufacturing coal-gas these obstructions of the dip-pipes are constantly interfering with the process of carbonization, and necessitating
30 its frequent stoppage.

By the use of my improved apparatus the difficulty of using high heats is materially modified by the ease with which the hydraulic main can be examined and its contents kept in favor-
35 able condition.

The apparatus consists of a hydraulic main, A, with two casings or chests inclosing chambers x y , in which the same water-level is maintained by means of an outside connecting-pipe,
40 c , preferably provided with a valve, e , to be closed when the main is being cleaned, and communicating through an opening or passage, a , in a partition arranged below the water-level, so as to make an effectual seal. Into one of the
45 chambers, x , project the dip-pipes B, which are at such an angle that while the gas escapes into the chamber x the thick tars are deposited or pass into the chamber y , which is provided with a detachable cover, b , which may be removed
50 when access to the tar-chamber is required, permitting the same to be cleared of tar with-

out necessarily interfering with the gas-manufacture. The two chambers, when connected as shown, increase the liquid area of the main and permit the manufacture of gas at a minimum seal, and consequently minimum pressure. 55

I do not confine myself to the precise construction and arrangement of parts, as they may be varied thus: the additional chamber may be constructed and arranged below the end
60 of the dip-pipes, as in Fig. 3, or one continuous chamber may extend along the entire length of the hydraulic main; but I prefer the construction shown in Fig. 1, which has proved most effectual, and which is easily manufac- 65
tured and inexpensive.

To further prevent the condensing and accumulation of tar on the bottom of the main adjacent to the dip-pipes and maintain it in such a fluid condition as to be readily removable, I
70 form beneath the bottom a steam-chamber, s , whereby to maintain the bottom heated, and to facilitate the discharge of the contents of the chambers y all may be connected by a pipe, W, with a stand-pipe, T, into which the tar 75
from all the chambers will pass.

I am aware that mains have been made with inclined bottoms and channels at one side to receive the tar; but in such cases the latter must come into contact with the bottom before
80 it reaches the channel, and will adhere and soon obstruct the passage. By my construction the tar is thrown from the dip-pipes directly into the tar-chamber, and will not obstruct the main, while adhesion to the bottom 85
of the tar-chamber is prevented by heating the latter.

I claim—

1. The combination, in a hydraulic main, of the series of dip-pipes and two casings, one
90 above the other, connected substantially as set forth, with communications directly below each dip-pipe, to permit the lower to receive directly the thick tar, &c., from the upper, and the removal of the same while gas is being de- 95
livered into and drawn away from the upper, substantially as specified.

2. In combination with a two-chambered hydraulic main, the dip-pipes arranged at an angle, substantially as and for the purpose set
100 forth.

3. The combination of the series of dip-pipes,

main and supplementary casings communicating opposite each dip-pipe, and connecting pipes or passages provided each with a valve, substantially as set forth.

5 4. The combination, with the horizontal hydraulic main and its dip-pipes, of the steam-casing arranged below the ends of the dip-pipes, for the purpose set forth.

10 5. The combination, with a hydraulic main, of supplemental casings containing the tar-chambers *y*, communicating with the main op-

posite each dip-pipe, and pipe W, connecting the said casings with a stand-pipe, T, substantially as set forth.

In testimony whereof I have signed my name 15 to this specification in the presence of two subscribing witnesses.

WM. R. BEAL.

Witnesses:

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