

H. BAUER.
 DEVICE FOR ADMITTING GAS INTO VACUUM TUBES.
 APPLICATION FILED JUNE 2, 1908.

905,632.

Patented Dec. 1, 1908.

2 SHEETS—SHEET 1.

Fig. 1.

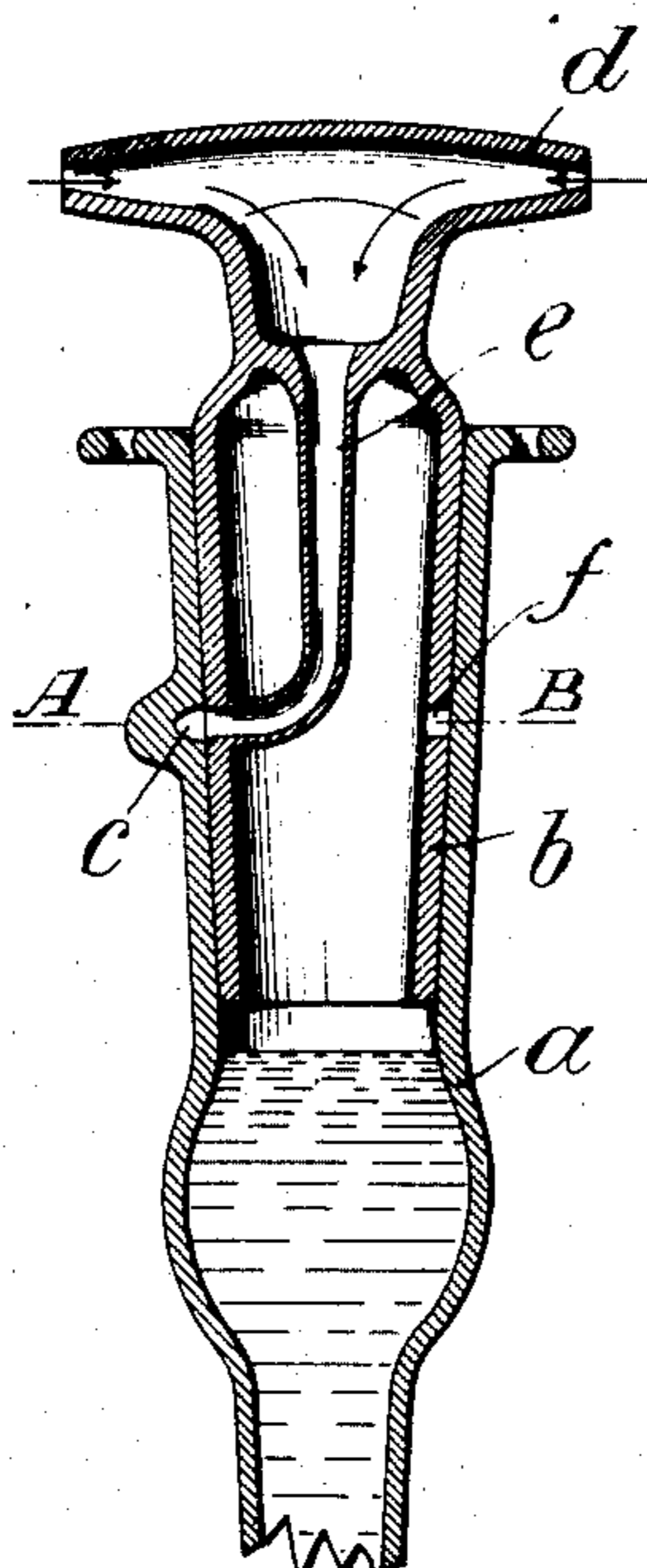


Fig. 2.

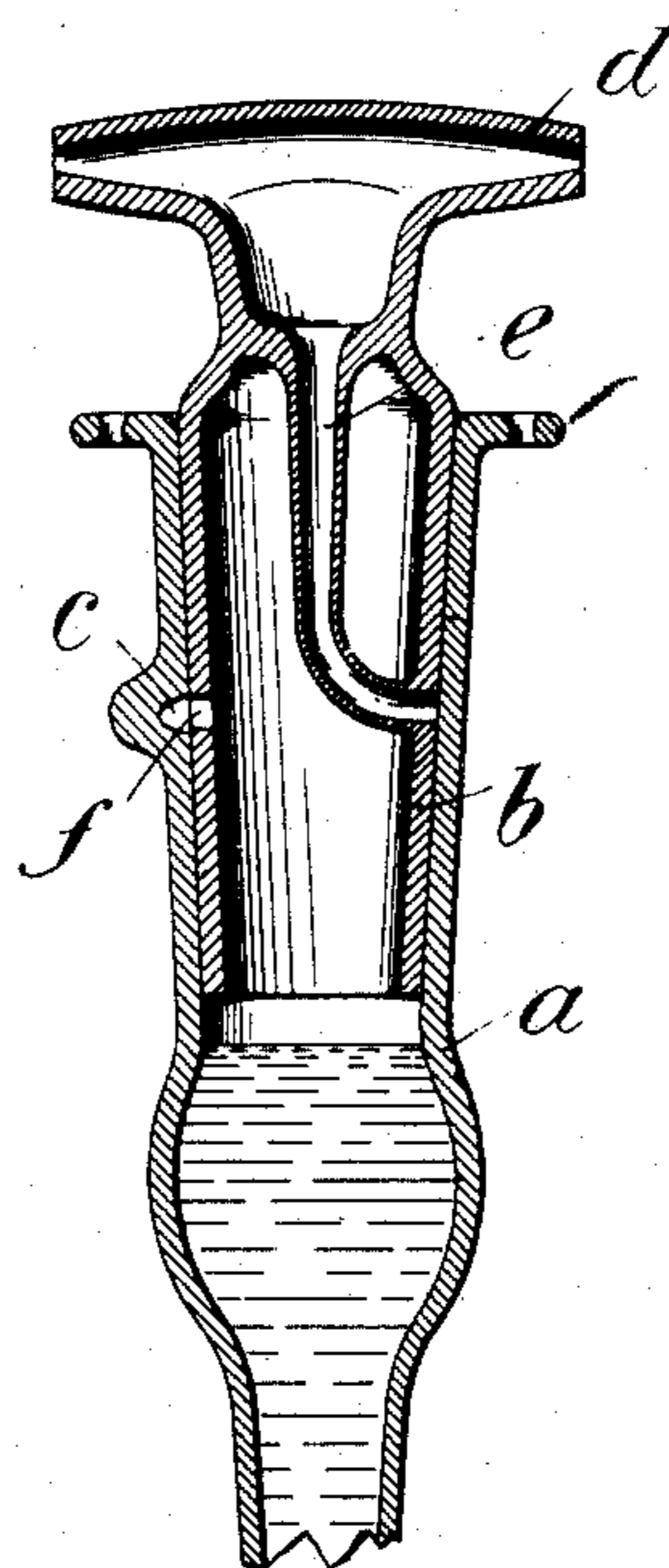


Fig. 3.

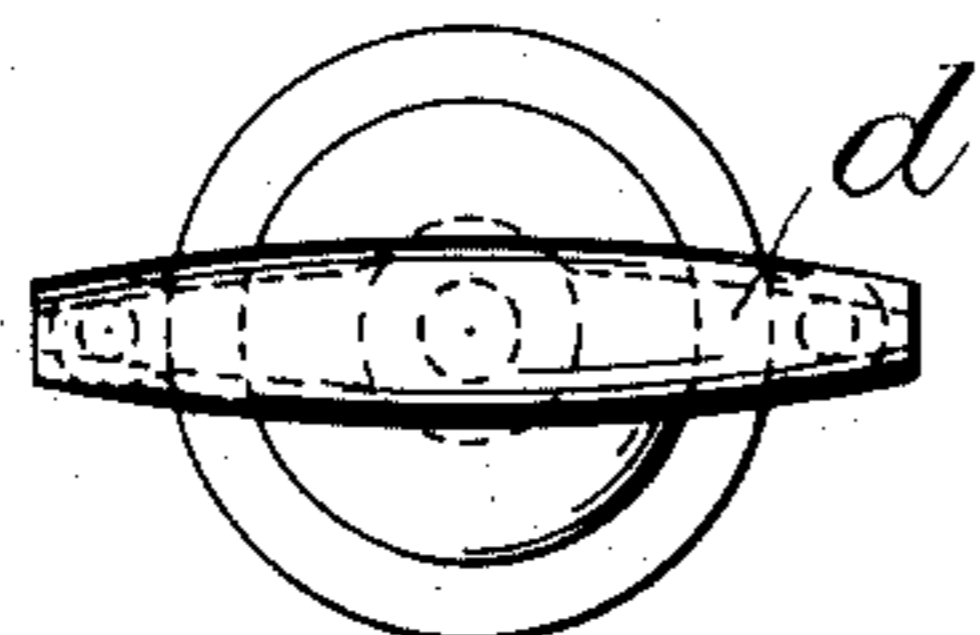


Fig. 4.

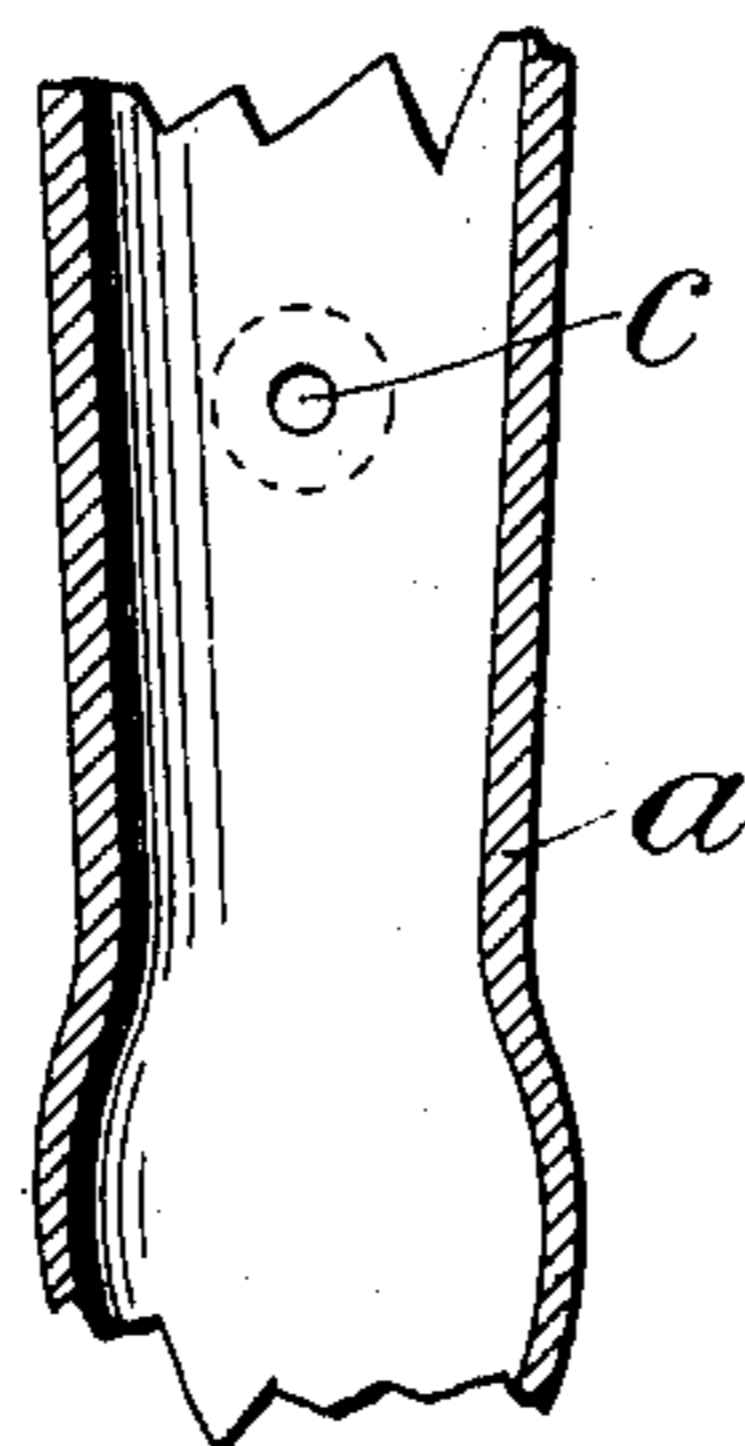
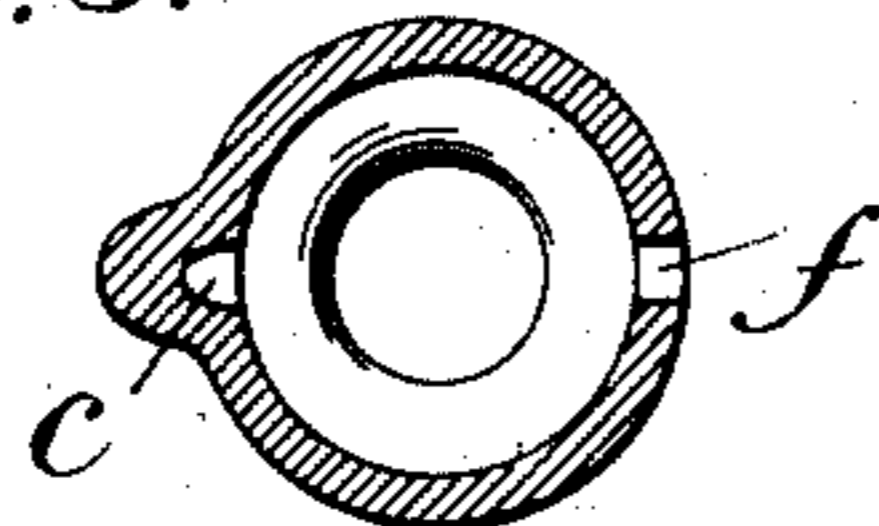


Fig. 5.



Witnesses—
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 Attys.

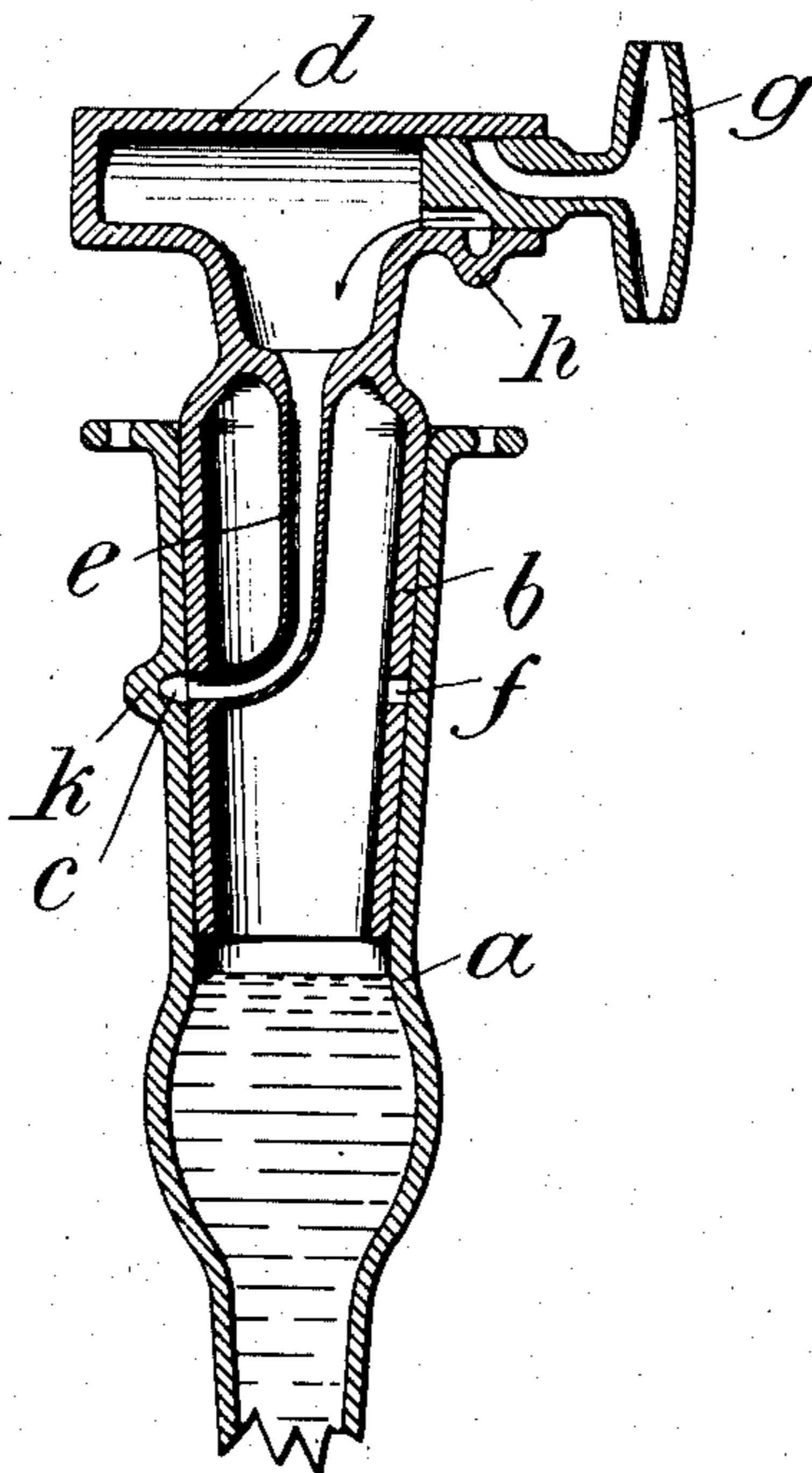
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DEVICE FOR ADMITTING GAS INTO VACUUM TUBES.
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2 SHEETS—SHEET 2.

Fig. 6.



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UNITED STATES PATENT OFFICE.

HEINZ BAUER, OF BERLIN, GERMANY.

DEVICE FOR ADMITTING GAS INTO VACUUM-TUBES.

No. 905,632.

Specification of Letters Patent.

Patented Dec. 1, 1908.

Application filed June 2, 1908. Serial No. 436,268.

To all whom it may concern:

Be it known that I, HEINZ BAUER, a subject of the German Emperor, and residing at Berlin, Germany, have invented certain new and useful Improvements in Devices for Admitting Gas into Vacuum-Tubes, of which the following is a specification.

The subject-matter of the present invention is a device for admitting gases into receptacles which enables a very exactly measured quantity of air or gas to pass into the interior of vacuum tubes, for example Röntgen tubes, independently of the time during which the device is opened.

The invention is characterized by the spigot and the handle of the same having passages or chambers passing entirely or partially through them, which are in connection with the atmosphere or a gas-receiver. In one position of the handle of the faucet the passages of the faucet are connected on the one hand with the atmosphere or a gas-receiver, and on the other hand with a small hollow chamber or cavity provided in the casing of the faucet, so that the latter chamber is filled with a definite quantity of air or gas. If the faucet is then turned, so that a special opening of the spigot is brought into communication with the cavity, the quantity of the gas or air in the cavity then passes through the hollow spigot into the interior of the vacuum tube. In this manner it is possible to regenerate Röntgen tubes, for example, a very small but exactly measured quantity of air being allowed to pass into the tube by simply turning the handle of the faucet.

In order that the invention may be clearly understood, reference is made to the accompanying drawing in which several embodiments are represented by way of example, and in which:

Figure 1 is a vertical section through one constructional form of the measuring faucet in one position of the spigot, Fig. 2 being a like section in another position of the spigot, and Fig. 3 a plan corresponding to Fig. 1. Fig. 4 is a vertical sectional elevation of a part of the body or casing of the faucet, in order to show the cavity or chamber provided in the side of the faucet. Fig. 5 is a section on the line A—B in Fig. 1, whereas Fig. 6 is a vertical sectional elevation of a modified constructional form.

The lower end of the casing or body *a* of the faucet is shown broken off in the drawing

and is connected with a vacuum tube, whereas the upper end incloses the spigot *b* which, in the constructional form represented, is formed completely hollow, both in its body and in its handle *d*. The hollow handle *d* is connected with a tube *e* which, in one position of the spigot, can be brought into agreement with the cavity *c* provided in a bulge *k* in the body *a* of the faucet. This position is shown in Fig. 1. The atmospheric air can then pass through the handle *d* and the tube *e* into the cavity or chamber *c* and will completely fill this. This cavity, which only holds a very small quantity of air, is dimensioned exactly corresponding to the concerned purpose.

The body *b* of the spigot has in addition a hole *f*. If the spigot is rotated so that this aperture *f* is brought into exact agreement with the cavity *c*, the latter is then connected with the interior of the vacuum tube through the hole *f* and the chamber of the spigot *b*. The small quantity of air or gas in the cavity will therefore flow into the evacuated chamber of the tube and be diffused there.

The spigot *b*, which is formed hollow in the constructional form represented, may also be made solid. In this case, however, besides the tube *e*, which leads to the hollow handle *d*, an additional special tube would have to be provided which can connect the hole *f* with the interior of the vacuum tube. If desired the hole *f* could also be connected by a groove leading to the lower free end of the spigot.

If it is a matter of evacuated bodies which are exceedingly sensitive to the admission of gas, the faucet can be still more improved by atmospheric air, or gas corresponding to it, not being allowed to enter directly into the principal spigot, but by a measuring spigot being arranged at a suitable place, for example in the handle, which second spigot first supplies a measured quantity of gas into the chamber of the principal spigot. Such a constructional form is shown in Fig. 6.

The handle *d* of the spigot *b* is closed at one end, whereas a special spigot *g* is provided at the other end. The position of the spigot *g* is first such that a cavity or chamber *h* provided in the handle *d*, which cavity may be formed similarly to the cavity *c* in the form according to Figs. 1 to 5, can be filled with a definite quantity of air or gas. If the spigot *g* is turned, the connection between the cavity or chamber *h* and the outer

air is done away with, and the quantity of air or gas inclosed in the cavity *h* is distributed in the hollow handle *d*, in the principal spigot *b* and in the chamber *c*, from which
5 it can be transferred into the interior of the vacuum tube by turning the principal spigot *b* in the same manner as in the form according to Figs. 1 to 5. This constructional form has the great advantage that the
10 difference of pressure outside and inside the evacuated vessel is divided into partial differences of pressure, which again press with undiminished force on the rubbing surfaces.

What I claim as my invention and desire
15 to secure by Letters Patent is:

1. A device for admitting air or gas into evacuated receptacles, comprising in combination a body of a faucet having a cavity in its side, and a spigot provided with a handle
20 adapted to said body, the body of the spigot and said handle containing chambers, a tube in the body of the spigot adapted to connect the chamber in the handle with said cavity,

the body of said spigot having a hole adapted to connect said cavity with the interior of 25 said body of the faucet.

2. A device for admitting air or gas into evacuated receptacles, comprising in combination a body of a faucet having a cavity in its side, and a spigot provided with a handle 30 adapted to said body, the body of the spigot and said handle containing chambers, a tube in the body of the spigot adapted to connect the chamber in the handle with said cavity, the body of said spigot having a hole adapted 35 to connect said cavity with the interior of said body of the faucet, said handle being provided with a spigot and a measuring faucet, substantially as described.

In testimony whereof, I affix my signature 40 in the presence of two witnesses.

HEINZ BAUER.

Witnesses:

HENRY HASPER,
WOLDEMAR HAUPT.