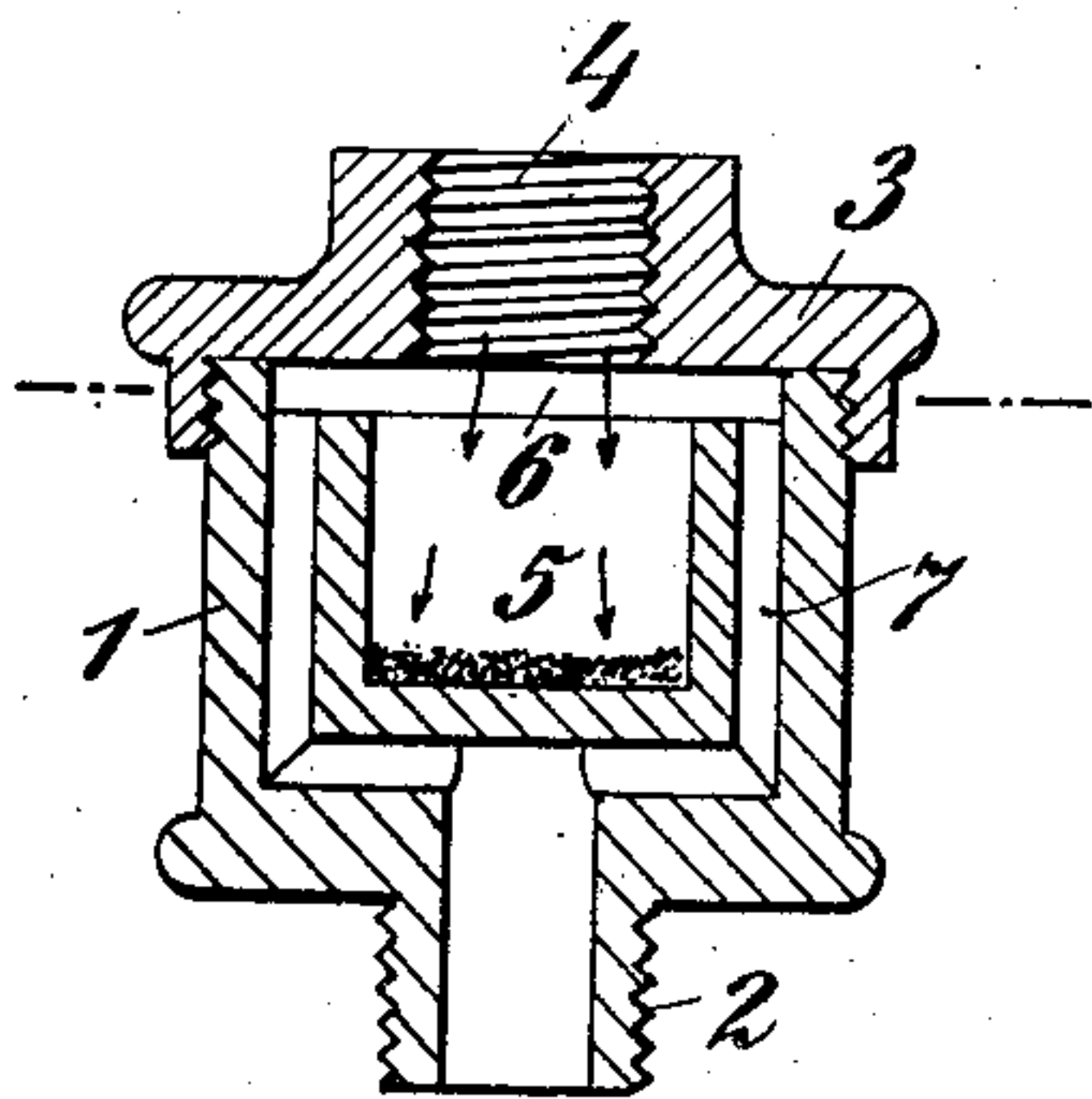


No. 896,479.

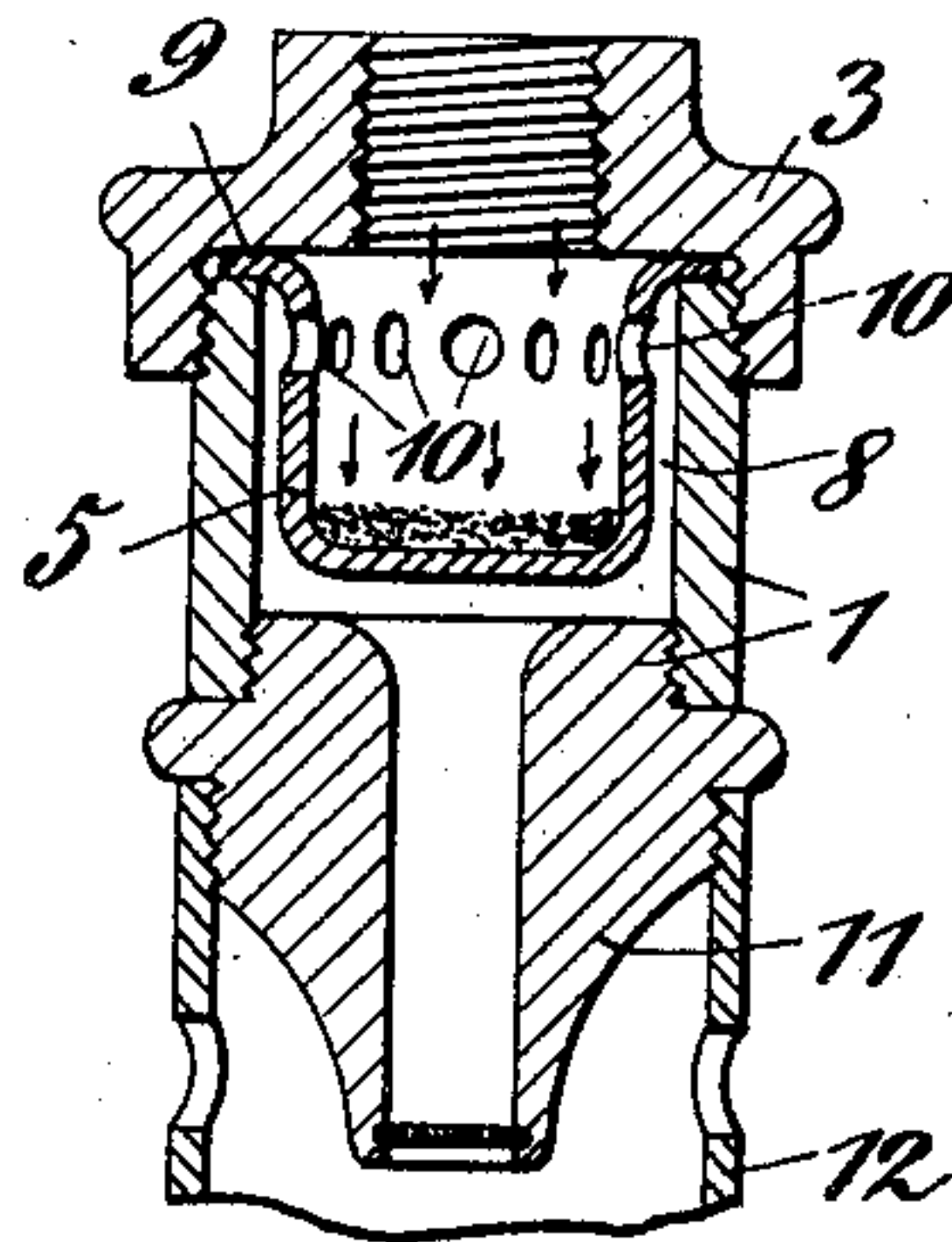
PATENTED AUG. 18, 1908.

H. SÜSSMANN.  
DIRT RETAINER FOR GAS NOZZLES.  
APPLICATION FILED JULY 8, 1905.

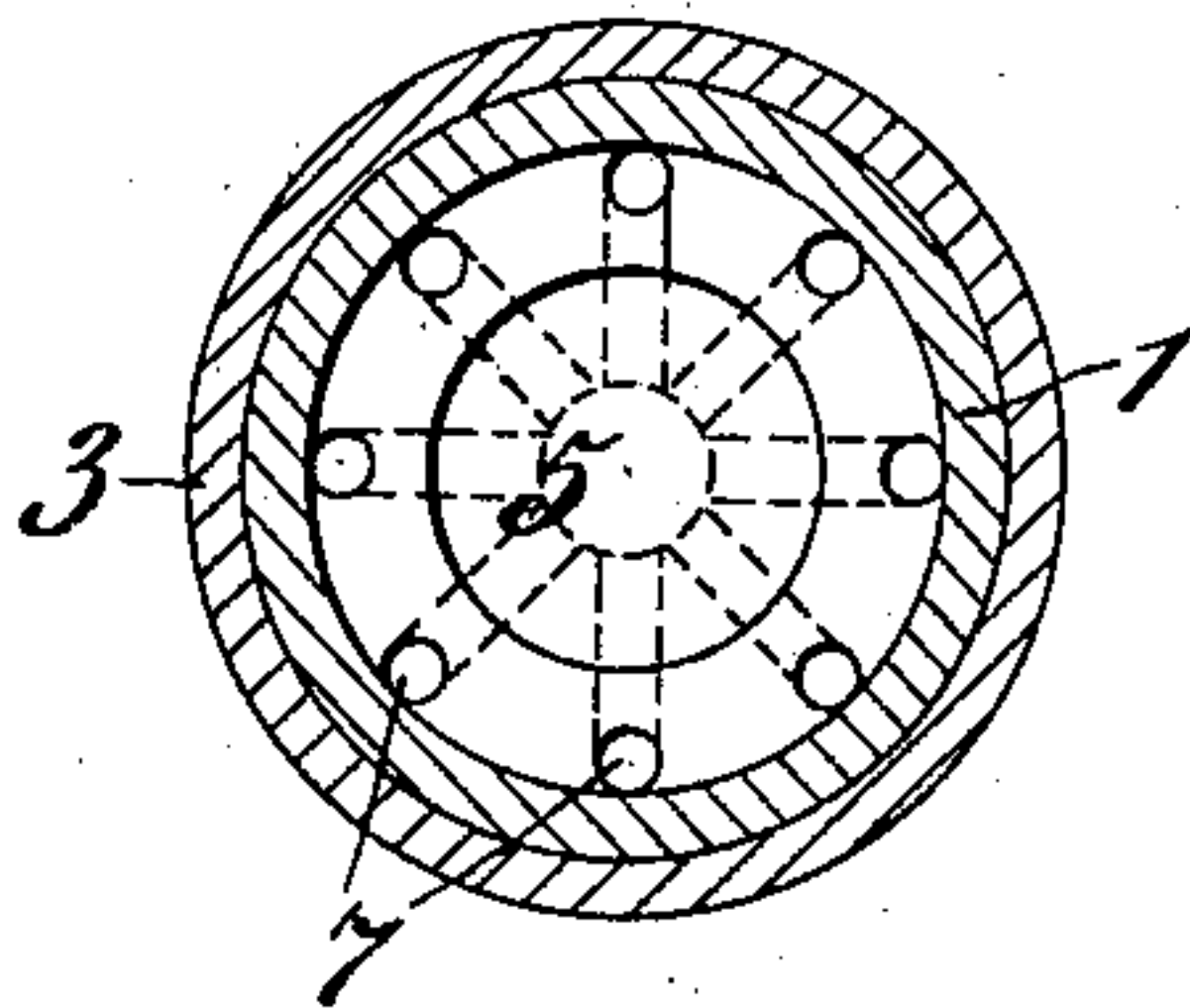
*Fig. 1.*



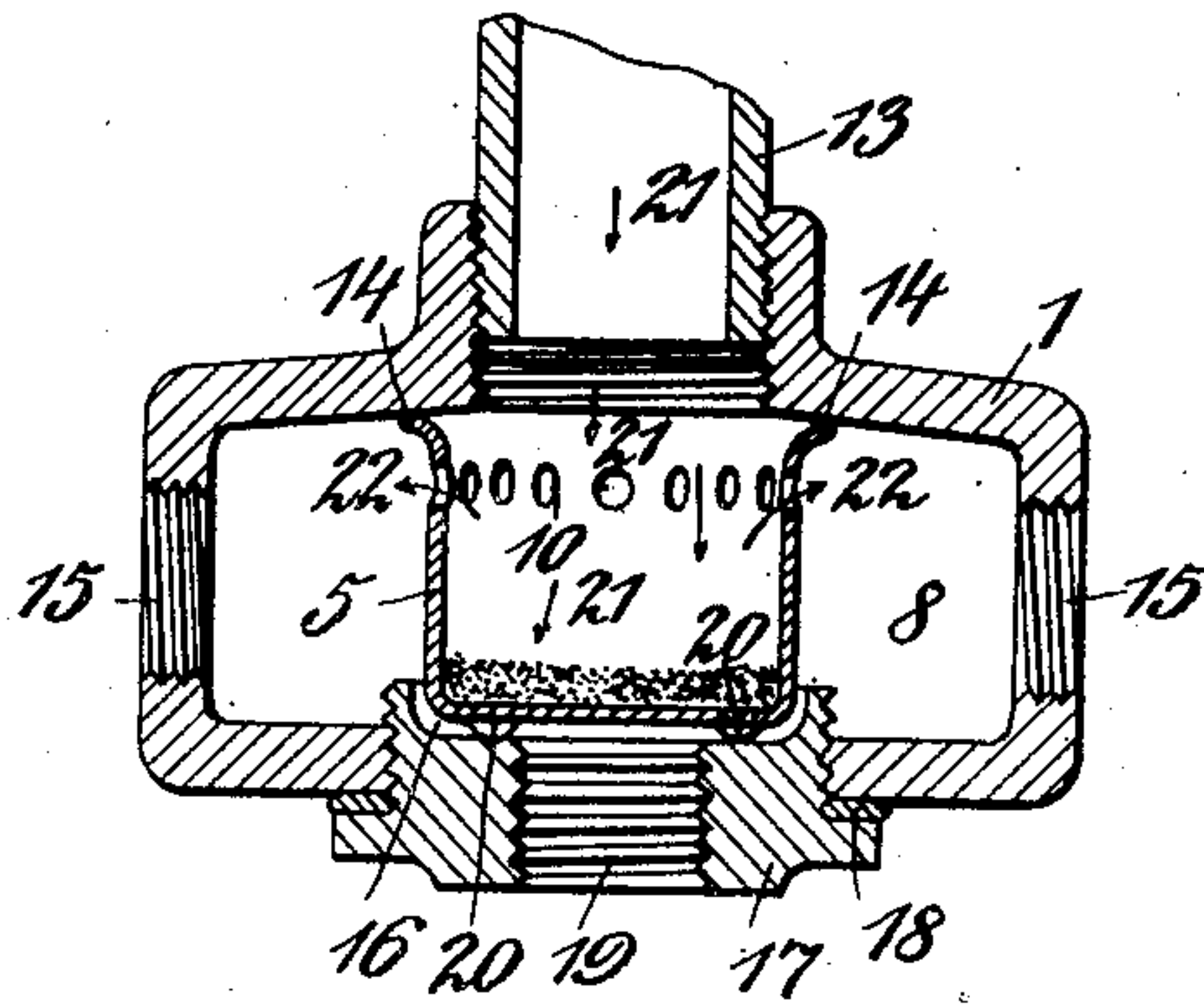
*Fig. 3.*



*Fig. 2.*



*Fig. 4.*



WITNESSES :

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*Mumm*

ATTORNEYS



# UNITED STATES PATENT OFFICE.

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## DIRT-RETAINER FOR GAS-NOZZLES.

No. 896,479.

Specification of Letters Patent.

Patented Aug. 18, 1908.

Application filed July 8, 1905. Serial No. 268,817.

*To all whom it may concern:*

Be it known that I, HEINRICH SÜSSMANN, a subject of the Emperor of Germany, residing at 144 Alte Jacobstrasse, Berlin, in the Empire of Germany, manager, have invented certain new and useful Improvements in Dirt-Retainers for Gas-Nozzles, of which the following is a specification.

This invention has for its object a dirt retainer for gas nozzles, which more especially in the case of inverted gas burners, prevents dirt or impurities contained in the gas pipes from reaching the nozzle and stopping this latter. Contrary to what is the case with known dirt retainers, in which the current of gas is deflected laterally for the purpose of separating the impurities, in accordance with the present invention, the particles of dirt are separated from the gas current before this latter is deflected laterally. This is effected owing to the fact that the dirt retaining receptacle is arranged in continuation of the gas pipe towards which its aperture is directed. As a result of this, the particles of dirt, after leaving the gas pipe, are able to fall directly into the retaining receptacle without deflection of the current of gas. The *vis viva* imparted to the particles of dirt by the gas current is therefore utilized for conducting them onto the bottom of the dirt retainer. The effective deposit of the impurities is facilitated owing to the fact that the gas is at rest in the retainer as the lateral deflection of the purified gas takes place at the upper part of this retaining receptacle. In this manner any eddying of the impurities contained in this receptacle is prevented. The efficiency of the device is still further increased because the diameter of the retainer is somewhat larger than that of the gas pipe. In addition to the above the further advantage is obtained that the retainer is readily interchangeable or dismountable so that all the parts may be cleaned without difficulty.

Another feature of the present device differentiating it from the known forms of impurity retainers is that the resistance opposed to the passage of the gas is exceedingly small owing to the fact that the total aperture of the openings for the passage of the gas may be made larger so that no loss of gas pressure takes place.

The novel construction of the dirt retainer,

by means of which the gas flows from the interior towards the exterior, renders it possible to provide one dirt retaining receptacle for a number of gas pipes. This results in an economy of space, as it is not necessary to provide each separate gas nozzle with a special dirt retainer. This is of importance in the case of gas chandeliers for inverted incandescent burner illumination. For such a purpose the dimensions of the dirt retaining receptacle may be considerable.

In the drawings Figures 1 and 2 show a constructional form of the dirt retainer in longitudinal and horizontal section; Fig. 3 shows a modified form of the dirt retainer in longitudinal section; Fig. 4 shows a common dirt retainer for several pipes.

In the constructional form shown in Figs. 1 and 2 a casing 1 is provided at its lower part with a connection 2 for fitting the Bunsen burner or nozzle. At its upper part the casing is closed by a cover 3 in which is formed a screw threaded socket 4 for fitting on to the gas pipe. Inside the casing 1 is a chamber or receptacle 5, the upper aperture of which is directed towards the gas pipe. Preferably the diameter of the chamber 5 is larger than that of the gas pipe 4 and above said chamber the gas is deflected laterally through passages 7 formed in the casing 1, towards the connection 2 above referred to. The particles of dirt are separated owing to the fact that they descend from the gas pipe directly into the chamber 5 and this takes place both as a result of gravity and of the *vis viva* imparted to them by the current of gas. This separation of the impurities is facilitated because the contents of the chamber 5 are at rest, as the gas is conducted away laterally above the chamber 5 at the point 6. As the diameter of the chamber 5 is larger than that of the gas supply pipe the deposit of the impurities is further facilitated.

In the modified form of the invention, shown in Fig. 3, the chamber 5 serving to retain the impurities is suspended in the space 8 inclosed by the casing 1 by means of a flange 9; at its upper part it is provided with lateral outlets 10. The flange 9 is preferably held between the parts of the dirt retainer which screw one into the other, that is to say between the walls of the casing 1 and the cover 3, which is screwed thereon. The operation of the device is the same as that already de-



scribed. After the dirt has been separated, the gas passes through the holes 10 at the upper part of the chamber 5 into the space 8 whence it proceeds to the nozzle 11, which in this instance also constitutes the bottom of the casing 1 and opens directly into the Bunsen tube 12 of the burner. In the form shown in Fig. 1 the bottom of the casing 1 may also constitute a nozzle, in a similar manner.

10 In a still further modification illustrated in Fig. 4 the end of the gas pipe 13 is screwed into the casing 1. Below the mouth of the gas pipe 13 the dirt retainer receptacle 5 is situated, and the upper edge 14 of this receptacle is preferably turned down slightly. 15 The upper outlets 10 of this chamber open into a space 8 inclosed by the casing 1, to which any desired number of pipes leading to the gas nozzles may be fitted. The pipes are 20 secured in the screw threaded openings 15, 15 of the casing 1.

In order that the chamber 5 may be readily inserted or removed, it may advantageously rest in a recess 16 in a bush piece 17 25 screwed into the bottom of the casing 1. This bush piece makes a tight joint by means of a suitable packing ring 18. The bush-piece 17 may likewise be arranged for the attachment of another gas nozzle, and to this 30 end it is provided with a screw threaded opening 19. In order that the gas may be able to flow through this opening 19, the dirt retainer 5 is also provided with feet 20 and placed freely in the recess 16, so that the gas 35 is able to reach the outlet 19 under the dirt retainer chamber 5. If the bush piece 17 is unscrewed, the dirt retainer 5 may be readily removed from the casing 1. It is preferably made of such a height that the turned over 40 upper edge 14 comes tightly against the inner cover of the casing when the bush-piece 17 is screwed in. The diameter of the retainer 5 may advantageously be greater than that of the gas supply pipe 13. The operation of 45 this device is similar to that of the constructional forms previously described. The particles of dirt fall from the gas supply pipe 13 on to the bottom of the retainer 5 in the direction of the arrows 21, while the purified 50 gas flows in direction of the arrows 22 into the gas distributing chamber 8, whence it is conducted to the gas burners or nozzles.

The dirt retainers described above are of course capable of many detail modifications, 55 but the important point is that in all cases a dirt retainer is provided the upper opening of which is directed towards the gas supply pipe, and that the gas is conducted laterally out of this retainer at its upper part. The 60 retainer 5 may vary in its form, construction and method of attachment as desired. The same is the case with reference to the arrangements by means of which the retainer 5 is rendered readily removable and accessible. 65 The retention of the dirt is especially impor-

tant in the modification shown in Fig. 4, because the dirt retaining receptacle 5 may be made of considerable size.

What I claim and desire to secure by Letters Patent of the United States is:

70 1. A dirt receptacle for gas nozzles, comprising a casing having an inlet in its top and an outlet in its bottom to which a nozzle is adapted to be secured, and a receptacle in the casing with its open end opposite the inlet of the casing and its bottom spaced from the bottom of said casing, the receptacle being of greater diameter than the inlet of the casing and constructed and arranged to form with the casing passages leading from 80 the upper end of the receptacle to the outlet of the casing.

2. A dirt receptacle for gas nozzles, comprising a casing having an inlet in its top and an outlet in its bottom to which a nozzle is 85 adapted to be secured, and a receptacle arranged in the casing with its open end opposite the inlet thereof and having its sides and bottom spaced from the sides and bottom of the casing, said receptacle being of greater 90 diameter than the inlet of the casing and communicating with said casing at the top.

3. A dirt receptacle for gas nozzles, comprising a casing having an inlet in its top and an outlet in its bottom opposite the inlet and 95 to which a nozzle is adapted to be secured, and a receptacle in the casing with its open end in engagement with the top of the casing and opposite the inlet thereof and its closed end opposite the outlet, said receptacle being 100 of less diameter than the internal diameter of the casing and having apertures at its upper end.

4. A dirt receptacle for gas nozzles, comprising a casing having an inlet in its top and an outlet in its bottom opposite the inlet and 105 to which a nozzle is adapted to be secured, and a receptacle in the casing with its open end in engagement with the top of the casing opposite the inlet thereof, said receptacle 110 being greater in diameter than the inlet and of less diameter than the internal diameter of the casing and provided with apertures at its upper end.

5. A dirt receptacle for gas nozzles, comprising a casing having an inlet in its top and a plurality of openings for attachment of a number of nozzles to the casing, and a receptacle in the casing with its open end in engagement with the top of the casing opposite the inlet thereof and its bottom spaced from the bottom of the casing, said receptacle having a plurality of openings at its upper end. 115

6. A dirt receiver for gas nozzles, comprising a casing having an inlet in one side and provided with an apertured removable bushing in the opposite side, and a receptacle or chamber supported upon the bushing and provided with openings in its upper portion. 125 130

7. A dirt receiver for gas nozzles, comprising a casing having an inlet in its top and provided with an apertured removable bushing in its bottom, the bushing being recessed at its inner end, and a receptacle or chamber in the casing and provided with feet resting upon the bottom of the recess of the bushing and with apertures in its upper portion.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses this 20th day of June 1905.

HEINRICH SÜSSMANN.

Witnesses:

HENRY HASPER,  
WOLDEMAR HAUPT.