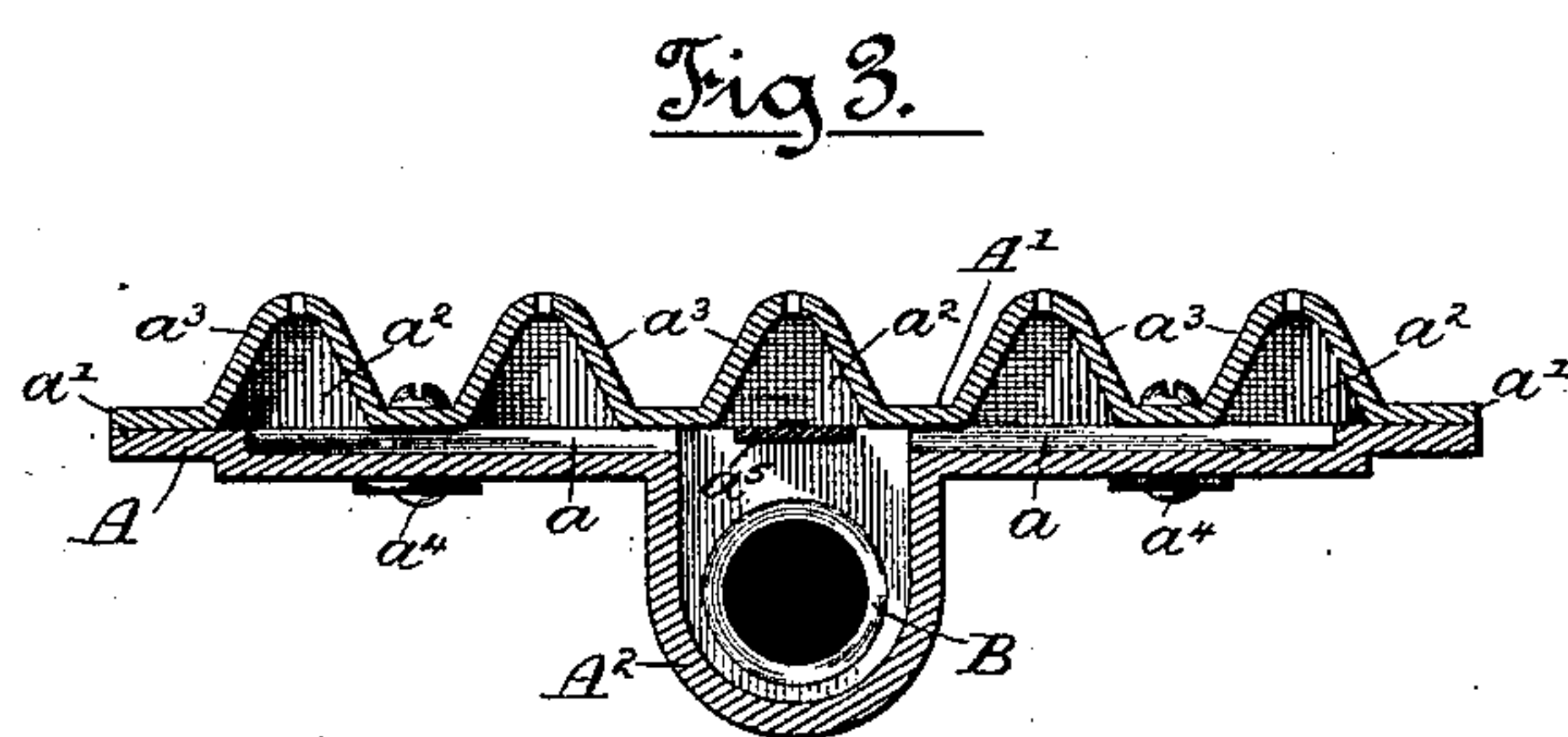
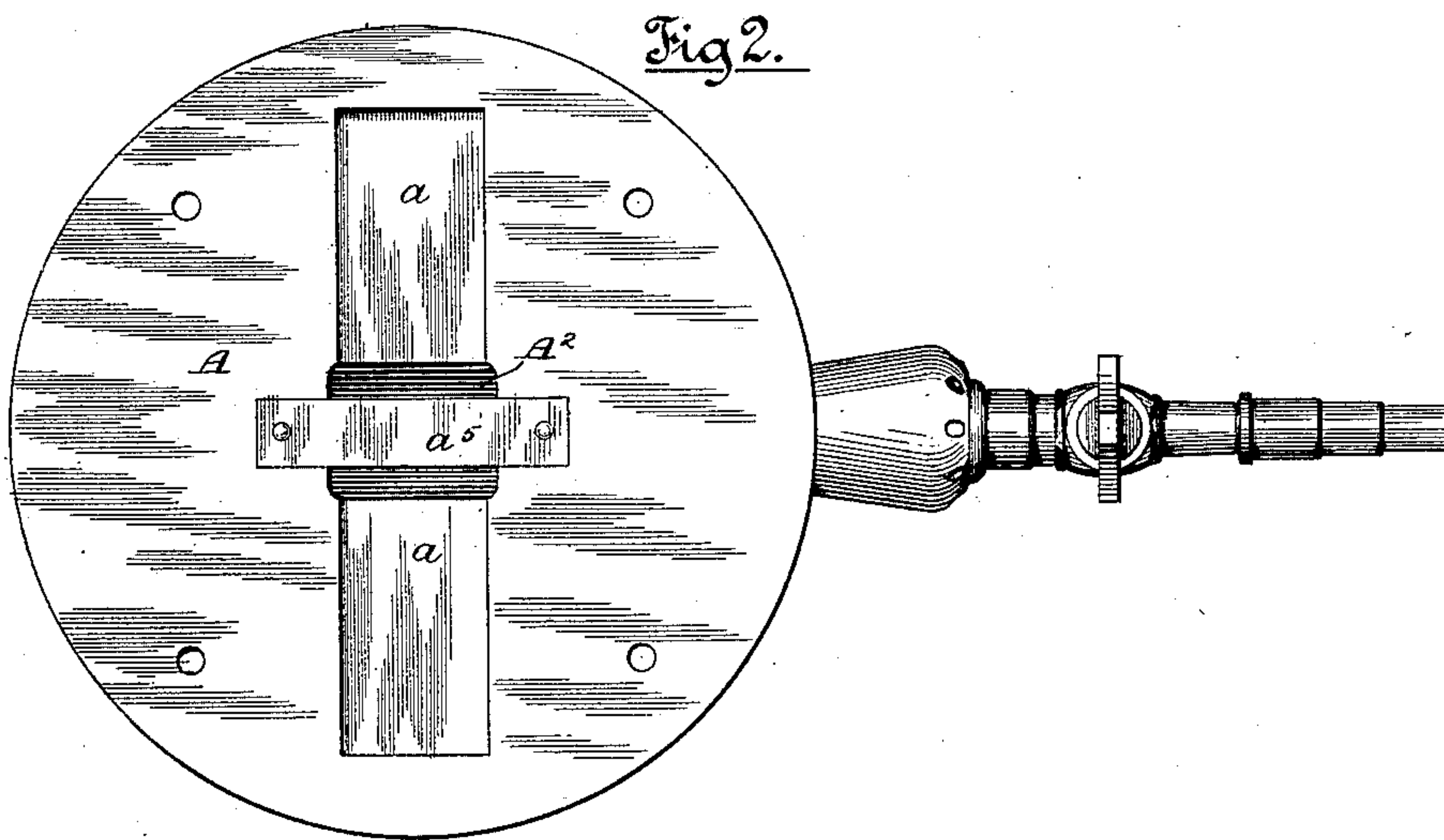
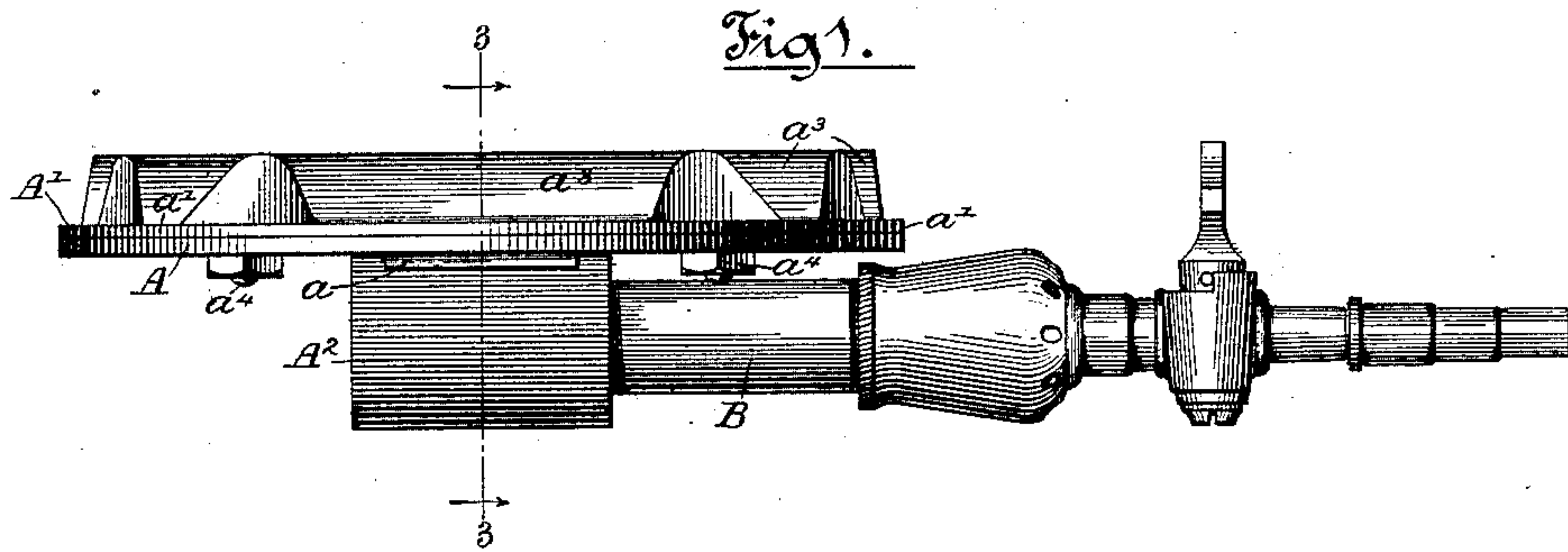


(No Model.)

O. M. SHANNON.
BURNER FOR MIXED GAS AND AIR.

No. 429,066.

Patented May 27, 1890.



Witnesses
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Louis M. Whitehead.

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UNITED STATES PATENT OFFICE.

OSCAR M. SHANNON, OF CHICAGO, ILLINOIS.

BURNER FOR MIXED GAS AND AIR.

SPECIFICATION forming part of Letters Patent No. 429,066, dated May 27, 1890.

Application filed August 19, 1889. Serial No. 321,203. (No model.)

To all whom it may concern:

Be it known that I, OSCAR M. SHANNON, of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Burners for Mixed Gas and Air; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to burners for the combustion of mixed gas and air; and it has for its object to provide a construction in which the burner may be given large flame area, and in which all the jets or flames shall burn with substantially uniform size, force, and color. It is also an object of the invention to provide a construction by which the burner may be given such large flame area and the other characteristics above enumerated without providing passages through the body of the burner by which cold air may rise into contact with the article to be heated.

In the drawings, Figure 1 is a side elevation of the burner and of the air-injector and the gas-inlet pipe provided with a valve. Fig. 2 is a top view of the lower part or plate of the burner and the gas and air injecting connections shown in Fig. 1, the top plate present in Fig. 1 being removed. Fig. 3 is a transverse section of the complete burner in the line 3 3 of Fig. 1.

The burner is composed of two plates—to wit, a bottom plate A and a top plate A'. The bottom plate has a central downwardly-projecting chamber A². This chamber is laterally extended in opposite directions by shallow depressions *a a*, here shown as being formed in the upper surface of the bottom plate A. Into one end or side of the chamber A² is inserted the gas and air pipe B, arranged in a horizontal direction, so that the inflowing current of gas and air is projected against the opposite vertical side or end of the chamber A².

The top plate A' at its rim *a'* fits closely against the marginal surface of the bottom plate A; but inside this rim said top plate is provided with a series of interior grooves *a*². Exteriorly the plate is correspondingly ribbed, each groove *a*² being within an external rib

*a*³. The plate A' rests upon and is bolted to the bottom plate A by any suitable number of bolts *a*⁴; or the plates may be secured together by any other suitable fastening, cement or other means being commonly placed between the rim *a'* and the margin of the bottom plate A to make a tight joint. In applying the plate A' to the plate A the grooves *a*² in the top plate are arranged to run transversely to the inner recesses *a* in the bottom plate, said recesses extending to the outermost grooves *a*² of the top plate. As a consequence each of said grooves or passages *a*² is in communication through the recesses *a* with the chamber A², so that all these grooves or passages may be supplied with gas admitted to said chamber. Along the apex of each of the ribs *a*³ are formed suitable openings for the emission of gas. Said openings may be either longitudinal or transverse slits or circular perforations, as may be preferred. When a central groove *a*² in the top plate passes directly over the central chamber A² in the bottom plate, a narrow strip of tin or other sheet metal *a*⁵ may be advantageously laid across to partly cover said recess or chamber A², as seen in Figs. 2 and 3, to prevent a too forcible passage of the gas through those slits or orifices for the flame-jets, which lead from said central groove *a*² immediately over said chamber. A suitable depression will desirably be cast in the upper surface of the bottom plate A to receive this thin plate *a*⁵, as also indicated in Figs. 2 and 3. It will of course be understood that the lateral extensions *a* of the chamber A² may be formed in the under surface of the top plate instead of in the upper surface of the bottom plate.

In a burner constructed as described it is found that the flames emerging from all of the perforations or slits will be substantially uniform in size, force, and color, indicating that there is a substantially equal distribution of gas under equal pressure and in a uniform state of mixture at all the flame-orifices or at all points of the burner.

I claim as my invention—

1. The burner described, composed of a flat-topped bottom plate provided with a receiving-chamber for gas below its upper surface, and a top plate provided with a plurality of grooves in its otherwise plain under surface,

from which grooves passages lead to the flames, said plates being fastened close together, and a transverse passage being provided giving communication from the receiving-chamber to the grooves.

5 2. The burner described, composed of a top plate provided with a series of grooves in its otherwise plain under surface, from which grooves passages lead to the flames, a flat-topped bottom plate having a central gas-receiving chamber below its upper surface, said
10 plates being fastened close together, and transverse passages being provided to give

communication from the receiving-chamber to those grooves which do not pass over it, 15 and a deflecting-plate partly covering the central receiving-chamber beneath a groove in the top plate extending over said chamber, substantially as described.

In testimony that I claim the foregoing as 20 my invention I affix my signature in presence of two witnesses.

OSCAR M. SHANNON.

Witnesses:

M. E. DAYTON,
TAYLOR E. BROWN.