

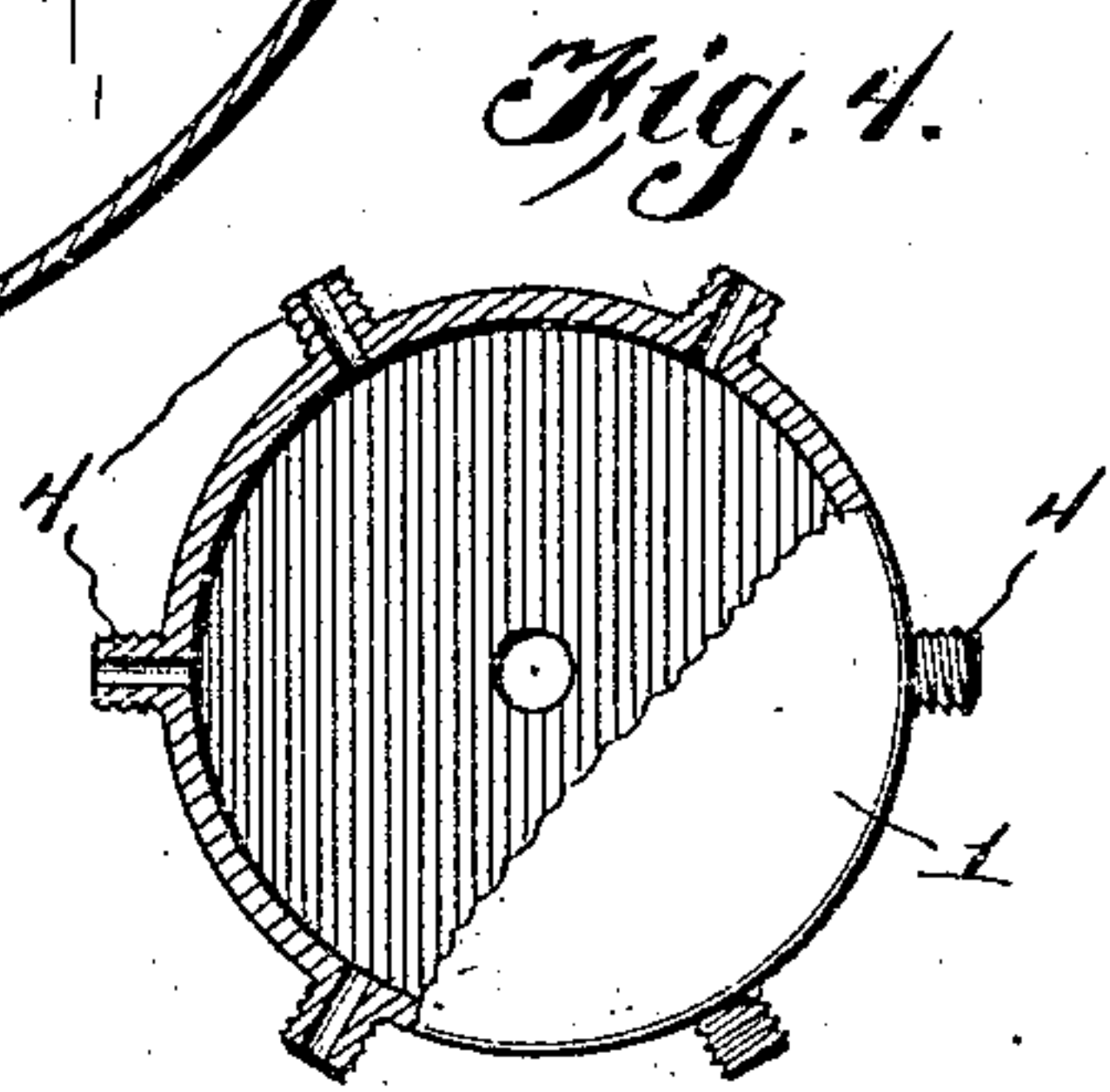
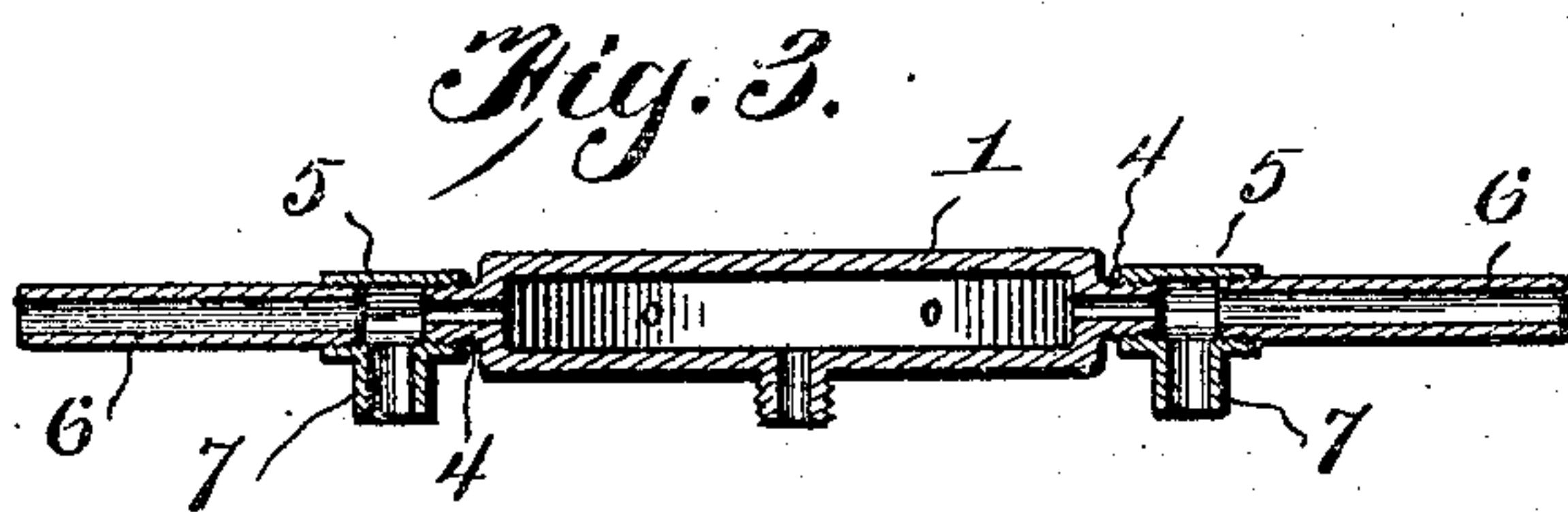
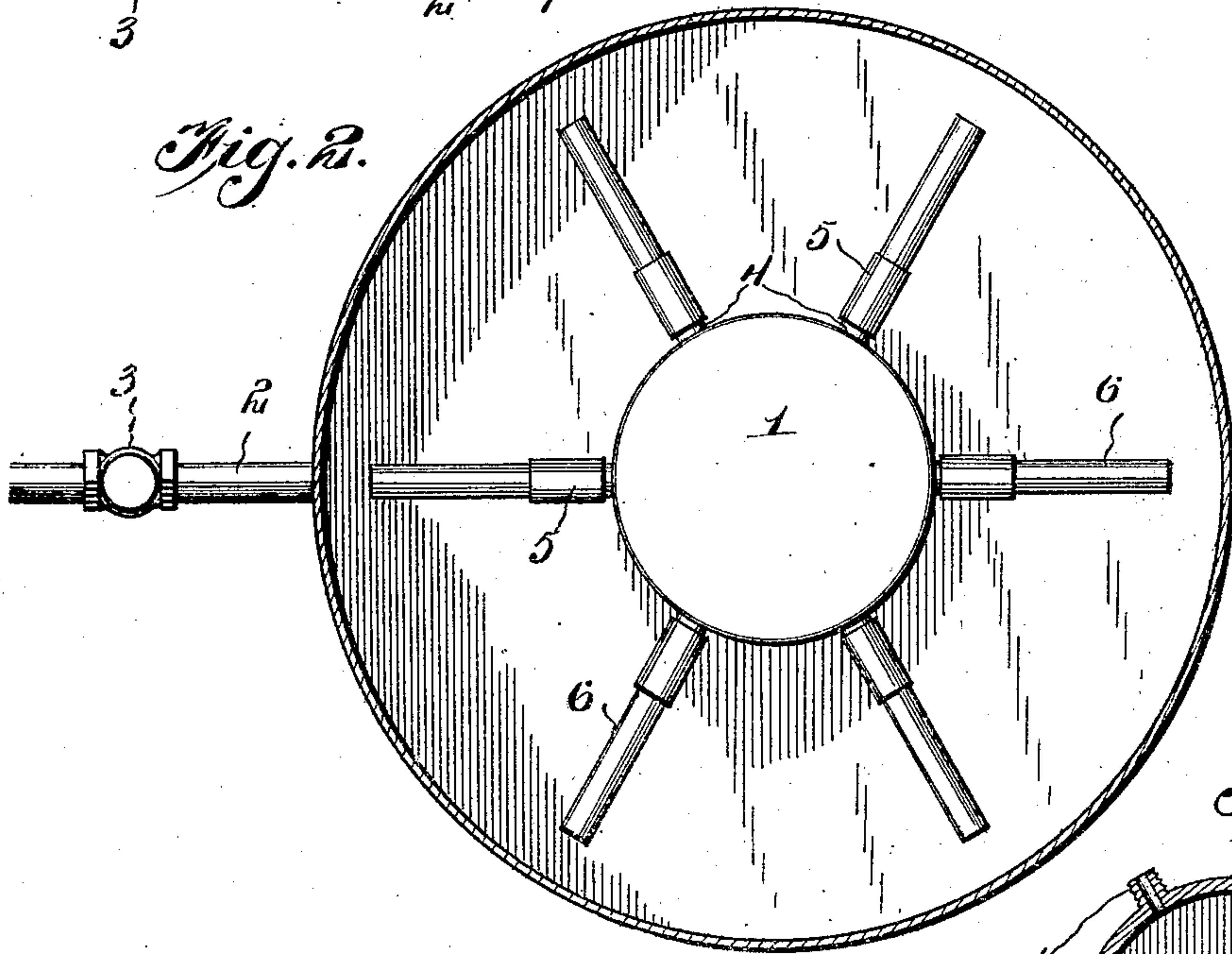
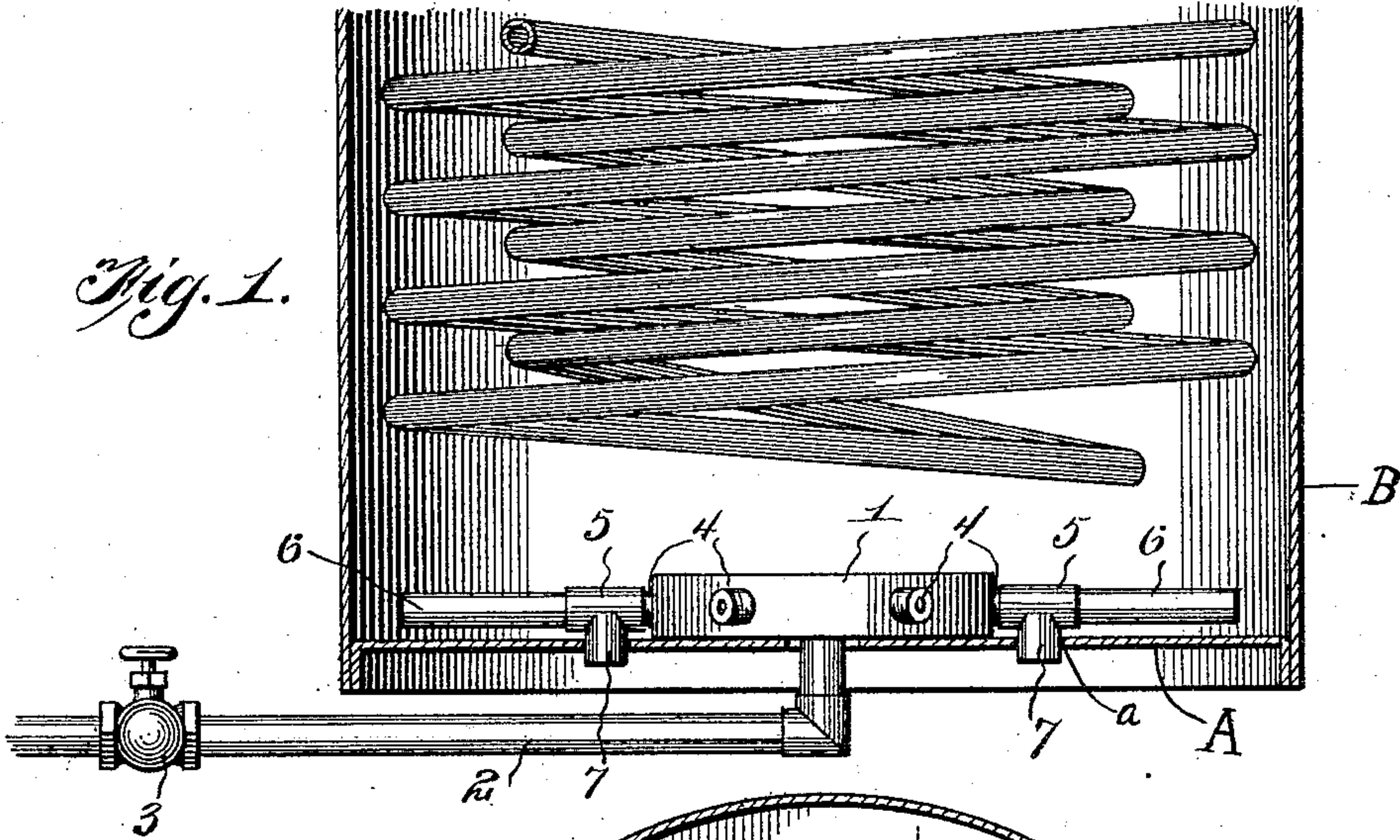
J. H. ATWOOD.

GAS BURNER.

APPLICATION FILED DEC. 5, 1907.

929,072.

Patented July 27, 1909.



Witnesses

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UNITED STATES PATENT OFFICE.

JOSEPH HENRY ATWOOD, OF EMPIRE CITY, KANSAS.

GAS-BURNER.

No. 929,072.

Specification of Letters Patent.

Patented July 27, 1909.

Application filed December 5, 1907. Serial No. 405,272.

To all whom it may concern:

Be it known that I, JOSEPH HENRY ATWOOD, a citizen of the United States, residing at Empire City, in the county of Cherokee and State of Kansas, have invented certain new and useful Improvements in Gas-Burners; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to improvements in gas burners for upright boilers.

The object of the invention is to provide a burner of this character by means of which the boiler flues or tubes will be uniformly heated and a minimum amount of gas used for supplying the heat.

With this object in view, the invention consists of certain novel features of construction, combination and arrangement of parts as will be described hereinafter and particularly pointed out in the appended claim.

In the accompanying drawings, Figure 1 is a vertical sectional view through a portion of the boiler, showing the application of the invention; Fig. 2 is a horizontal sectional view of the same, showing a top plan view of the burner; Fig. 3 is a vertical sectional view of the burner removed from the boiler; and Fig. 4 is a plan view of the burner head, partly in section.

In the embodiment of the invention I provide a hollow burner head 1, which may be of any suitable shape but which is here shown and is preferably of a flat cylindrical form. To the lower side of the head, 1, is connected a gas supply pipe, 2, in which is arranged a regulating valve, 3. Around the edge of the head 1 is formed a series of radially disposed exteriorly threaded nipples, 4, through which the gas passes from the head 1.

Adapted to be screwed into engagement with the nipples 4 is a series of T couplings, 5, into the outer ends of which is screwed a series of burner tubes, 6. The right-angular branches, 7, of the T couplings 5 are adapted to project through apertures formed in the bottom of the boiler and serve as air inlet passages, by means of which air is admitted to the burner tubes, where it mixes with the gas, thereby providing for a great saving of the latter and forming a perfect fuel. The

draft or force of the air in passing through the burner tubes causes the flame to be directed outwardly toward the sides of the boiler, after which the flame is drawn inwardly again by the action of the draft through the centrally disposed smoke outlet formed in the top of the boiler. The flame, when thus directed will be distributed evenly over the boiler flues or tubes, and the heat therefrom will be uniformly distributed, thus providing for the heating of all parts of the boiler alike.

There may be any desired number of nipples, 4, and burner tubes, 6, and the latter are preferably of such length as to extend within a short distance of the inner walls of the boiler as shown.

In practice, the burner head is placed directly upon the bottom A of the boiler casing B, and suitable apertures *a* are formed in said bottom through which the right-angular branches 7 of the T-couplings, 5, project, thus providing for the admission of fresh outside air to the burner tubes, and thereby dispensing with the necessity of the hood which is usually employed for covering the head of burners of this character. It has been found in practice that a hood placed over the burner head is objectionable for the reason that a considerable amount of heat is caught and confined in the hood and the heating capacity of the burner thereby decreased. By projecting the ends of the air inlet branches of the T-couplings through the bottom of the boiler casing, fresh air is admitted to the burner and a covering or hood thus made unnecessary. The engagement of the branches, 7, of the T-couplings with the apertures in the bottom of the boiler also serves to firmly hold the burner head against a turning or twisting movement on said bottom, said T-couplings thus serving the two fold purpose of admitting outside air to the burner without the use of a hood and of holding the burner head in place.

Having thus described my invention, what I claim as new, and desire to secure by Letters-Patent, is:

In a boiler, in combination, a casing having a bottom, a burner seated flat on said bottom, a supply pipe connected to said burner through an aperture on the bottom, of a plurality of radially extending nipples connected to said burner, T couplings connected to the nipples and each having its right angu-

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lar end passing through and closely fitting an
aperture in the bottom, and burner tubes
connected to the T couplings in alinement
with the nipples, said right angular ends of
5 the T couplings serving to admit fresh air to
the burner tubes and preventing dislocation
of the burner in the casing.

In testimony whereof I have hereunto set
my hand in presence of two subscribing wit-
nesses.

JOSEPH HENRY ATWOOD.

Witnesses:

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A. B. MYERS.