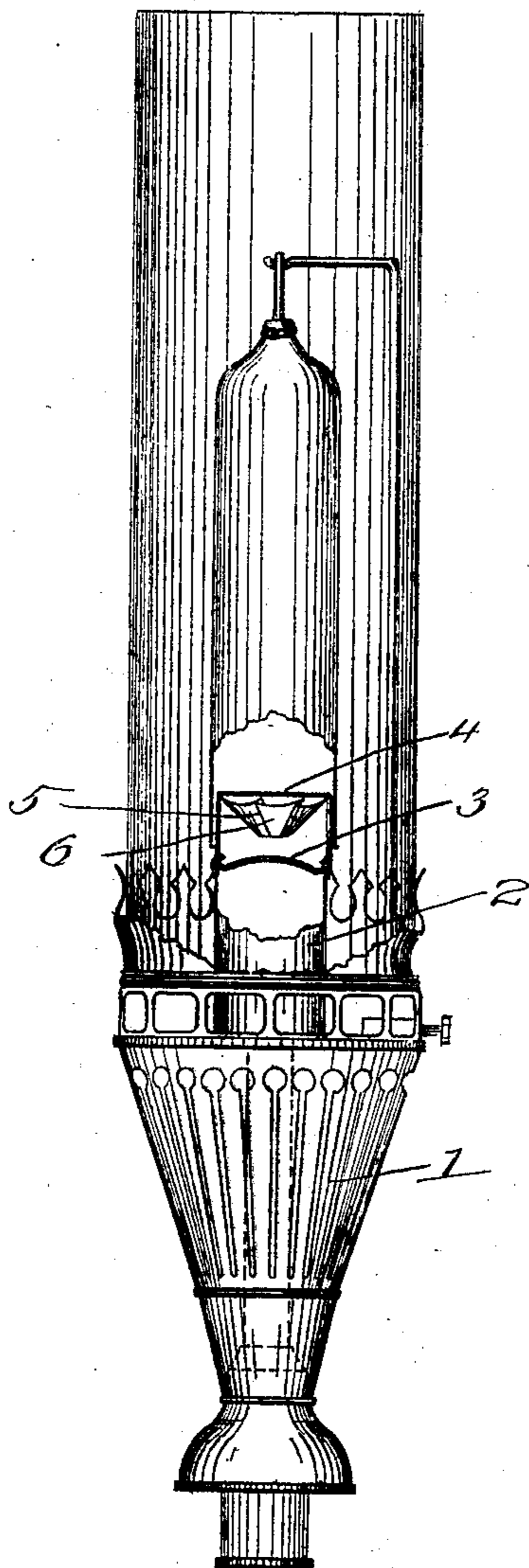
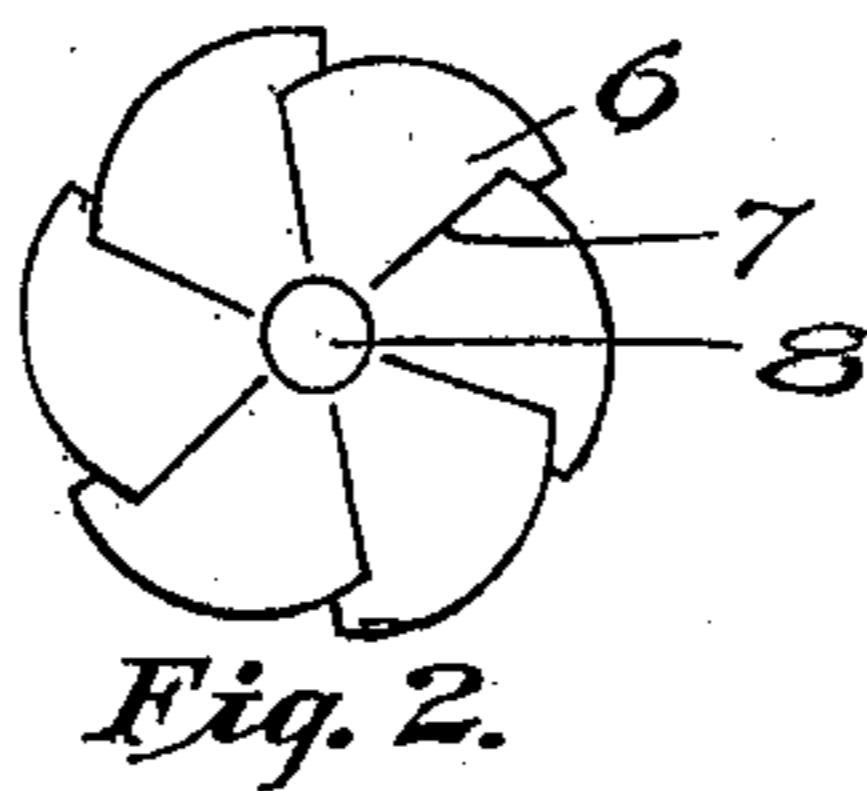
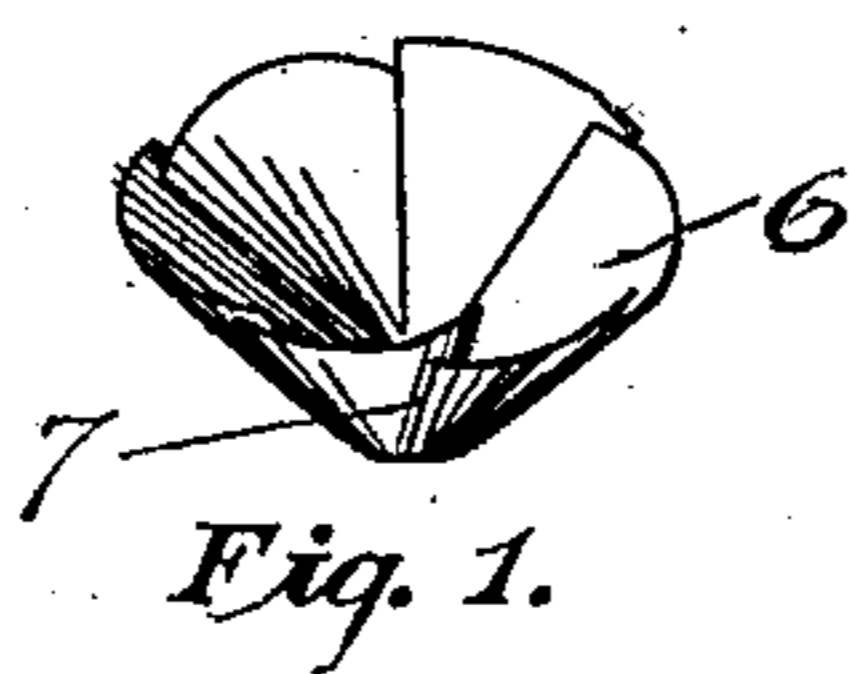


No. 865,843.

PATENTED SEPT. 10, 1907.

S. T. WILLSON.
BURNER.

APPLICATION FILED NOV. 8, 1905.



Witness
M. Fowler
C. Lawrence

Inventor
Samuel T. Willson,
By *Mason, Fenwick & Lawrence*
Attorney

UNITED STATES PATENT OFFICE.

SAMUEL TULLY WILLSON, OF DENVER, COLORADO.

BURNER.

No. 865,843.

Specification of Letters Patent.

Patented Sept. 10, 1907.

Application filed November 6, 1905. Serial No. 286,158.

To all whom it may concern:

Be it known that I, SAMUEL TULLY WILLSON, a citizen of the United States, residing at Denver, in the county of Denver and State of Colorado, have invented certain new and useful Improvements in Burners; and I do hereby 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.

10 This invention relates to improvements in burners and more particularly to incandescent gas burners.

It is the object of the invention to provide a burner which is so constructed as to give a flame a helical, whirling or gyrating movement.

15 With this and further objects in view, the invention comprises certain novel constructions, combinations and arrangements of parts as will be hereinafter described and claimed.

20 In the accompanying drawing: Figure 1 is a perspective view of the preferred style of the deflecting device used in my improved burner for giving a rotary, whirling or helical movement to the flame. Fig. 2 is the top plan view of the same. Fig. 3 is a side elevation of said deflector or baffle. Fig. 4 is a view partially in section and partially in elevation showing said device in position as preferably placed when used in connection with an incandescent burner of the ordinary type.

25 The present invention is designed to provide a burner, preferably a gas burner of the incandescent mantle type, with means for imparting to the flame a whirling, helical or gyratory movement. In constructing a burner for ordinary illuminating or fuel gas with this object in view, a suitable mixing tube or Bunsen burner (1) may be employed, the mixture of air and gas being preferably delivered therefrom into a preferably cylindrical member (2). Mounted within said member (2) may be placed a screen (3) and above the screen, if one be used, is an extended portion (4) of member (2) carrying the baffle or deflecting device (5). The use of my device is not, however, restricted to the burners of the class described but may be used with any kind of a burner in which the combustible substance used is gaseous or fluidal and is under pressure or is forced or drawn through the burner or some part thereof. In constructing any such burner with this object in view, I interpose my deflector in the path of the gas, fluid or flame.

30 The deflector is preferably constructed by forming a disk, plug or other suitable obstruction movable or stationary in the conduit through which the gas, fluid or flame passes, at the desired point therein thereby forming a substantial closure of said conduit except for certain holes, openings or apertures which are formed in said disk, plug or obstruction in such shape and at such angles that the gas, fluid or flame in

passing through said holes openings or apertures is forced to take on a whirling, helical or gyratory motion. A simple and preferable manner of forming this deflector is by cutting a circular blank with a series of inwardly extending notches or cuts as at (7) so as to produce segmental shaped arms or wings, the edges of which are turned at an angle to the plane of the original disk in such a way as to make holes, openings or apertures similar in construction and appearance to those in the ordinary screw propeller or electric desk fan. The outer parts of the deflector may be bent upwardly from the central portion 8 so as to give an approximately conical shape to the device. The device, because of its peculiar construction as above described, lets portions of the gas, fluid or flame pass through said holes openings or apertures as a series of whirling or gyrating flames.

35 In the construction of the ordinary incandescent mantle burner, with this device, the mantle (6) of the burner extends downwardly over the extended portion (4) of member (2) so that the flames are let upwardly and spirally within the mantle.

40 In the specific construction of the extended portion 4 it will be observed that the same is in the nature of a yoke and comprises a horizontal portion employed to support the deflector, and a pair of downwardly extending arms having a detachable engagement with the upper portion of the mixing tube, and serving to support the before mentioned horizontal portion. The deflector thus placed distributes the flames over the inner surface of the mantle and the peculiar construction of the deflector as above described gives a spiral direction to the flames making a gyrating flame.

45 It will be evident that the edge cuts in the deflector of the propeller type may be of different widths so as to produce openings of different sizes, changes in the exact widths of the openings not changing the spirit of the invention. It will be evident that the exact number of the holes, openings or apertures and the exact shape of and distances between the same may not be the same at all times or under all conditions but the number, size, angle of and distances between said holes openings or apertures may be varied to suit the nature of the combustible material used, the pressure under which it is delivered and other varying conditions. It will also be evident that the deflector may be constructed solidly with other parts of the burner as well as in the form of a separate part. It is also evident that in case the cone shaped device is used, the vertex of the cone may be upwardly or downwardly turned.

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

1. A deflector for gas burners, comprising a mixing tube, and an inverted conical shaped baffle member supported over the mouth of the mixing tube, the inclined sides of

the baffle member comprising segmental shaped arms which are twisted at angles to each other and having their edges overlapping.

5 2. In a burner, the combination of a mixing tube, a yoke fitting over the discharge end of the mixing tube, and a conical shaped baffle member supported by the yoke, the inclined sides of the conical shaped baffle member comprising segmental arms twisted at angles to each other.

10 3. In a burner, the combination of a mixing tube, a yoke comprising a horizontal portion and downwardly extending arms having a detachable engagement with the mixing

tube and serving to support the said horizontal portion, and a baffle member supported by the horizontal portion of the yoke, the said baffle member having a conical shape, and the inclined sides thereof comprising segmental arms 15 twisted at angles to each other.

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

SAMUEL TULLY WILLSON.

Witnesses:

LOU. E. WARNER,

CARLE WHITEHEAD.