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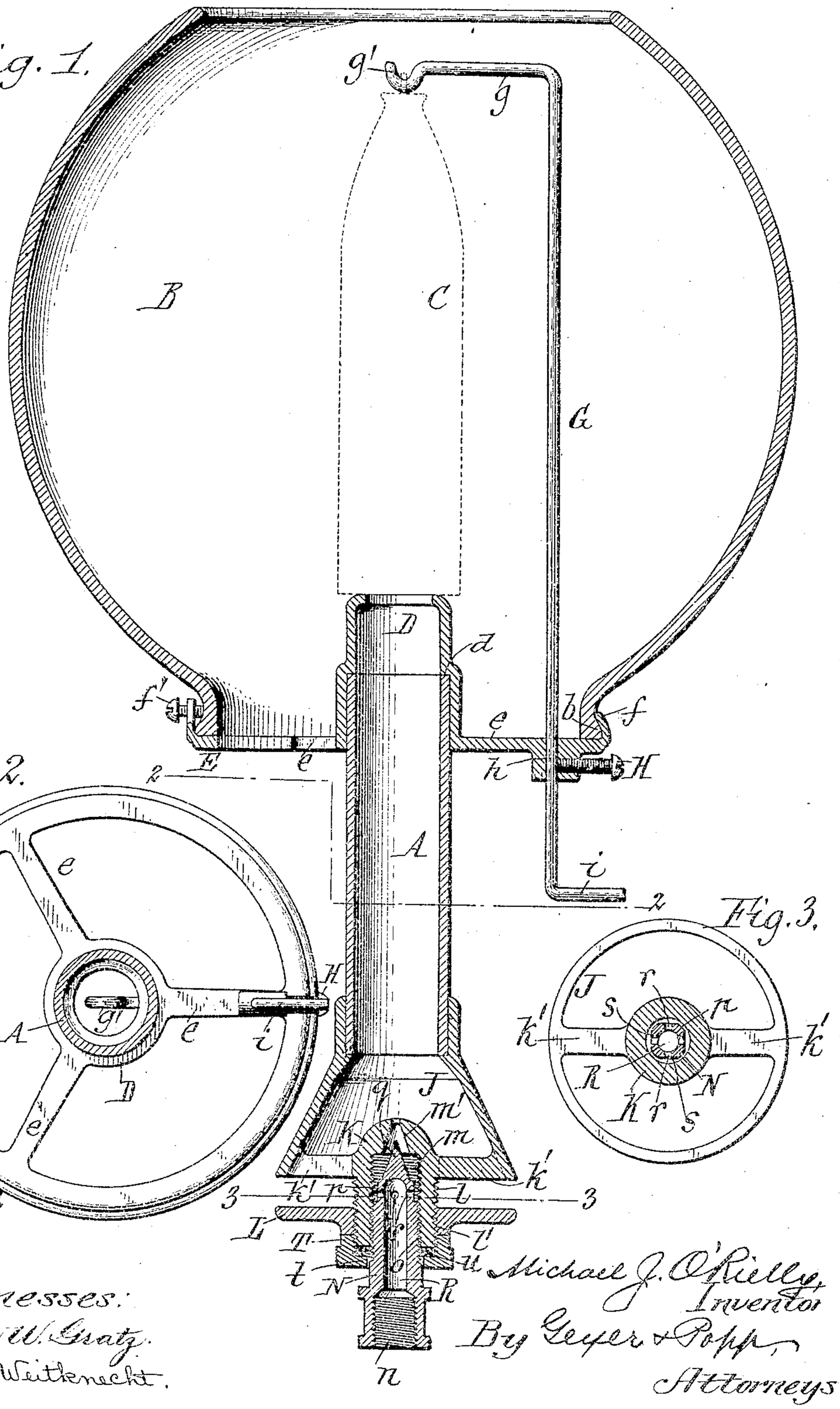
GAS BURNER.

APPLICATION FILED SEPT. 28, 1903.

Fig. 1.



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No. 778,794. Patented December 27, 1904.

UNITED STATES PATENT OFFICE.

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GAS-BURNER.

SPECIFICATION forming part of Letters Patent No. 778,794, dated December 27, 1904.

Application filed September 28, 1903. Serial No. 174,863.

To all whom it may concern:

Be it known that I, MICHAEL J. O'RIELLY, a citizen of the United States, residing at Buffalo, in the county of Erie and State of New York, have invented new and useful Improvements in Gas-Burners, of which the following is a specification.

This invention relates more particularly to that class of gas-burners which are used in connection with incandescent mantles.

The objects of this invention are to improve the means for supporting the globe on the mixing-tube, to provide means for readily adjusting the mantle relatively to the burner, and to provide improved means for regulating the supply of air and gas and holding the same in its adjusted position.

In the accompanying drawings, Figure 1 is a vertical section of a gas-burner embodying my improvements. Figs. 2 and 3 are horizontal sections in lines 2 2 and 3 3, Fig. 1, respectively, looking upwardly.

Similar letters of reference indicate corresponding parts throughout the several views.

A represents the main pipe or mixing-tube of the burner, which is arranged vertically and connected at its lower end with the air and gas supplying and regulating devices and provided at its upper end with means for supporting the globe B and mantle C.

D represents a tubular burner head or cone fitting over the mixing-tube and provided with a downwardly-facing internal shoulder *d*, which engages the upper end of the tube for limiting its downward movement.

E represents a horizontal globe-supporting ring or gallery surrounding the burner-cone and connected with the latter by a plurality of radial arms *e*. This ring, the burner-cone, and the arms connecting the same are constructed in one piece by casting or otherwise, thereby simplifying the construction and reducing the cost of manufacture correspondingly. The globe is held on the ring in any suitable or well-known manner—for instance, by means of inwardly-bent lips or hooks *f*, arranged on the ring and engaging over the bottom flange *b* of the globe, on one side thereof, and a clamping-screw *f'*, arranged in an ear on the opposite side of the ring and engaging over the adjacent part of the flange, as shown in Figs. 1 and 2.

G represents the upright rod which supports the mantle over the burner-cone. This rod is provided at its upper end with the usual laterally-projecting arm *g*, having a hook *g'*, upon which the mantle is hung at its upper end, while its lower part is arranged in a vertical opening *h* in one of the ring-supporting arms *e* and is adjustably secured therein by a clamping-screw H. At its lower end the mantle-supporting rod is provided with a laterally-projecting adjusting-arm *i*, which is arranged below the globe-support. By means of this arm the mantle can be bodily moved laterally and centered relatively to the burner-cone from the exterior of the globe by simply turning the adjusting-arm horizontally in one direction or the other. This means of adjusting the mantle is very simple and convenient and does not increase the cost of the mantle-support perceptibly.

J represents a conical bell or hood, which is connected at its upper narrow end with the lower end of the mixing-tube. K represents a hub or valve-casing, having its upper end arranged centrally within the lower or large part of the hood and connected therewith by radial arms *k'*. This casing is provided on its lower part with an external screw-thread *l*, a bore extending to the lower end of the casing and having an internal screw-thread *m* and an upwardly-tapering conical valve-seat *m'*, extending from the threaded bore to the top or the casing.

L represents a disk valve whereby the admission of air into the lower end of the hood is regulated. This valve is adjustably connected with the valve-casing by means of an internally-screw-threaded opening *l'*, formed centrally in the valve and engaging with the external thread of the casing. By screwing the valve-disk up or down on the casing the space between the same and the lower end of the hood may be varied for regulating the supply of air to the mixing-tube.

N represents a nipple by which the gas is delivered to the burner. This nipple is rigidly secured at its lower end to a gas-supply pipe by means of an internally-screw-threaded socket *n* engaging with an external thread on the pipe. Intermediate of its ends the nipple is provided with an externally-screw-threaded portion *o*, which engages with the threaded bore of the valve-casing. The upper part of the nipple is reduced to form an annular space *p* between the same and the bore of the valve-casing, and at its upper end the same is provided with an upwardly-tapering imperforate conical valve *q*, which coöperates with the valve-seat *m'* for regulating the supply of gas to the mixing-tube. A longitudinal gas-conduit R is formed centrally in the nipple, which extends from the socket at its lower end nearly to the top thereof and communicates at its upper end with the annular space between the contracted part of the nipple and the bore of the valve-casing by means of ports or passages *r*, extending laterally through said contracted part. For the purpose of permitting the gas as it issues from the ports *r* to pass freely to the exit of the valve-casing the outer sides of the nipple, in which the ports are formed, are cut away or flattened, as shown at *s*, Fig. 3, thereby increasing the area of the gas-passage at these places. These flattened surfaces of the nipple also permit of drilling the parts therein more readily, as the drill is not liable to slip, as would be the case if the drilling were done on a round surface.

The base of the conical valve is perfectly round and somewhat smaller in diameter than the contracted part of the nipple, so as to provide a uniform annular gas-passage all around the valve, which corrects any fluctuation or disturbance of the gas due to the irregular shape of the annular passage *p* and causes the same to flow uniformly toward the exit of the gas-valve, thereby avoiding flickering or irregularity of the flame, which otherwise would be liable to occur.

By screwing the valve-casing, together with the parts mounted thereon, down or up on the nipple the gas-outlet opening *m'* is moved toward or from the valve *q*, and the flow of gas is controlled accordingly.

T represents a clamping screw-nut which serves to hold the air and gas valves in their adjusted position and also forms part of the packing device for preventing gas from leaking through the joint between the nipple and the valve-casing. The clamping screw-nut works on the lower part of the external thread on the valve-casing and is provided at its lower end with an internal flange *t*. Between the latter and the lower end of the valve-casing is arranged a pliable packing-ring *u*, of felt, cotton, or other suitable material. After the valve-casing has been adjusted on the nipple and the valve-disk has been adjusted on the valve-casing to the required position the clamping-nut is screwed upwardly until it bears firmly against the lower side of the valve-disk, thereby firmly locking the same against accidental displacement. In tightening the nut against the valve-disk the same also compresses the packing-ring, causing it to bear firmly against the outer side of the nipple, thereby frictionally holding the valve-casing against turning on the nipple and also forming a gas-tight joint between the same.

I claim as my invention—

1. A gas-burner comprising a burner-head, a support arranged adjacent to the head and provided with a bearing-opening, and an upright rod capable of rotary adjustment in said opening and provided above said support with an inwardly-projecting mantle-supporting arm and below said support with a laterally-projecting adjusting-arm, substantially as set forth.

2. A gas-burner comprising a mixing-tube having a hood at its lower end, a valve-casing connected at its upper end by arms with said hood and having an internal valve-seat, a disk valve having a screw connection with the exterior of the valve-casing for adjusting the same toward and from said hood and regulating the air-supply, and a gas-supply nipple having a screw connection with the bore of the casing and a valve coöperating with said seat of the casing for regulating the gas-supply, substantially as set forth.

3. A gas-burner comprising a mixing-tube having an air and gas inlet at its lower end, a valve-casing arranged in said inlet and having a valve-seat, a gas-supply nipple adjustably arranged within said casing and having a valve which coöperates with said seat for controlling the gas-supply, a disk valve adjustably mounted on the outside of said casing for controlling the air-supply, and a single clamping device which holds both the gas-valve and the air-valve in their adjusted position, substantially as set forth.

4. A gas-burner comprising a mixing-tube having an air-inlet hood at its lower end, a gas-valve casing arranged in said hood and provided with a screw-thread on its exterior, an internally-threaded bore in its lower part and a gas-valve seat in its upper part, a disk air-valve having a screw-threaded opening which engages the external thread of said casing and permits of adjusting this valve relatively to said hood for controlling the air-supply, a gas-supply nipple having a gas-valve coöperating with said seat and a screw connection with said bore which permits the gas-valve and the valve-seat on the casing to be adjusted relatively to each other for controlling the gas-supply, a clamping screw-nut ar-

ranged on the external thread of said valve-casing and bearing against said disk valve, an internal flange arranged on the clamping-nut and facing the lower end of said valve-casing, and a packing-ring surrounding said nipple and interposed between the valve-casing and said flange, substantially as set forth.

Witness my hand this 25th day of September, 1903.

MICHAEL J. O'RIELLY.

Witnesses:
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