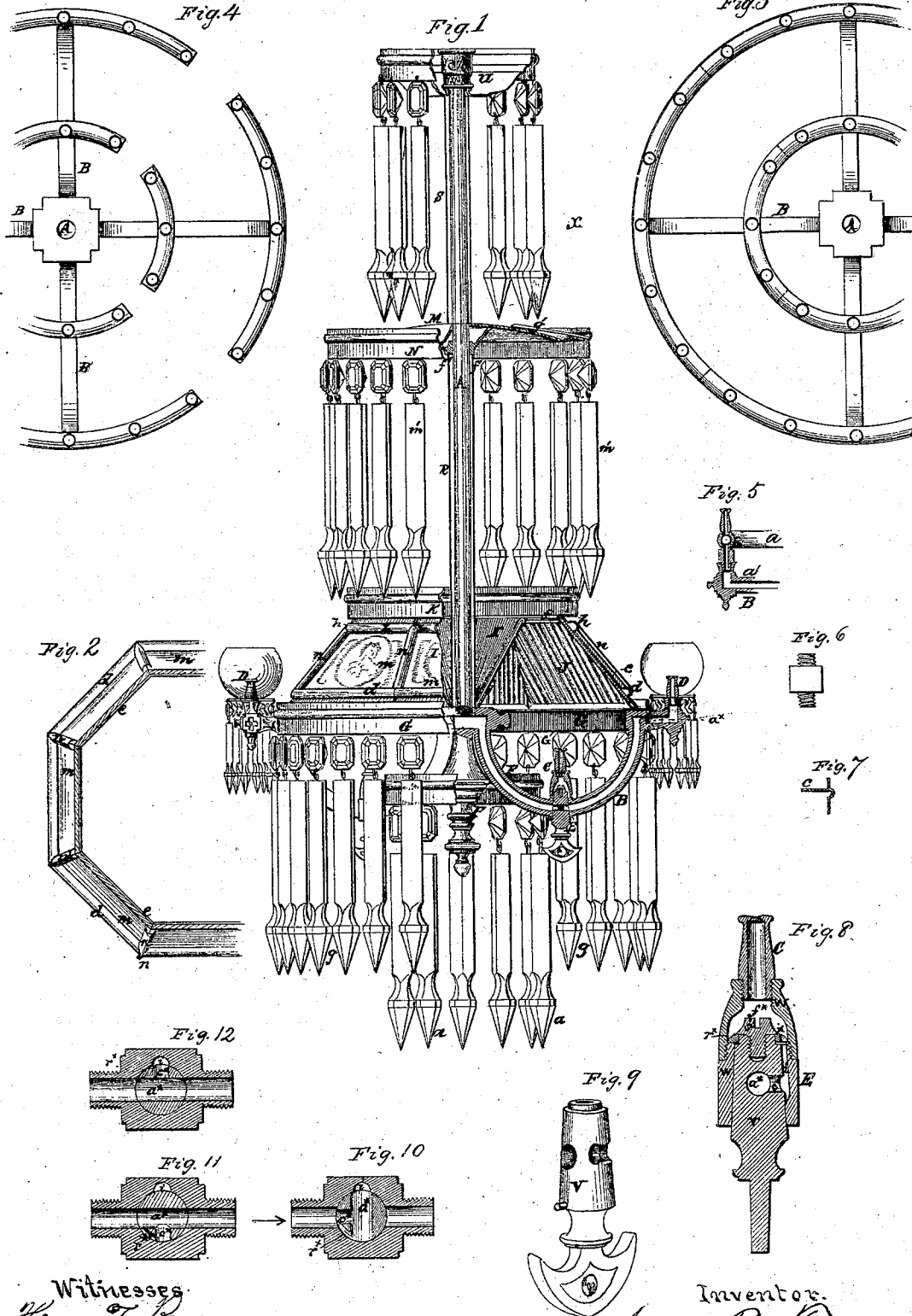


ISAAC P. FRINK. Chandelier.

No. 125,560.

Patented April 9, 1872.



Witnesses
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IMPROVEMENT IN CHANDELIERS.

Specification forming part of Letters Patent No. 125,560, dated April 9, 1872.

To all whom it may concern:

Be it known that I, ISAAC P. FRINK, of the city, county, and State of New York, have invented certain new and useful Improvements in Chandeliers; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawing making a part of this specification, in which—

Figure 1 is a side view and partial section of a chandelier constructed according to my invention. Fig. 2 is a horizontal sectional view, representing, on an enlarged scale, a portion of the same. Figs. 3 and 4 are detached plan views, showing certain modifications which may be adopted in the construction of the same. Fig. 5 is a vertical section taken in the line *x* of Figs. 3 and 4. Fig. 6 is a detached view, on an enlarged scale, of a part embraced in the parts shown in Fig. 5. Fig. 7 is a detached vertical section, on an enlarged scale, of one of the parts represented in Fig. 1. Figs. 8, 9, 10, 11, and 12 are detached views, on an enlarged scale, of the devices used in admitting the gas to or shutting it from the burners in a chandelier made according to my invention.

Similar letters of reference indicate corresponding parts in all the figures.

This invention relates to that class of chandeliers which are provided with double reflectors, and have arranged, both internally and externally thereto, any desired or requisite number of burners. The invention consists in a novel construction of cocks for admitting the gas to or shutting it from the burners, the said cocks being so provided that the gas may, at will, be either shut off wholly from both the internal and external burners, simultaneously admitted to both, or to one or the other only, as may be preferred. The invention further consists in certain novel combinations and arrangements of parts whereby, among other advantages, great convenience in the fabrication of the article is secured; whereby the most economical distribution of the light from the burners is obtained; whereby the soiling of ornamental surfaces from smoke is effectually avoided; and whereby a highly-symmetrical form and tasteful and ornamental appearance is secured in the apparatus when placed or applied for use.

To enable others to understand the nature of my invention, I will proceed to describe it with reference to the drawing.

The tubular stem A connects at its upper extremity with the feed-gas pipe, in the usual or in any suitable manner. Upon its lower end is screwed the system of radial tubular arms B, which support the burners C D, and, being tubular, supply gas thereto. Each of these arms, for the greater portion of its length, is curved downward in semicircular form, as indicated in Fig. 1, but with its outermost portion *a'* straight and in a horizontal position, the burners C being located at the most depressed portion of the curved and the burners D at the outer ends of the straight parts *a'* of the aforesaid arms B. The inner and outer portions of each arm are, preferably, in practice made separately, and, in the construction of the device, connected by a suitable screw-joint. Immediately below the burners C are the cocks E, hereinafter fully described, by which the flow of gas through the arms to the burners is controlled. Arranged within the system of inner burners C—these latter concentric with the central or axial point of the arms B, or, in other words, between said point and the system of burners C—is an annular brace, F, of ornamental form, rigidly connecting the arms, and serving, when desired, to support an annular series of glass pendants, *a*. Resting upon the inner ends of the horizontal outer portions *a'* of the arms is an annular band, G, the cross-section of which is shown, on an enlarged scale, in Fig. 7, and the inner horizontal flanch *c* of which constitutes a support for the polygonal outer and inner cone reflectors J and I; the lower edge of the outer reflector J, the position of which is fully shown in Fig. 1, resting upon the just-mentioned flanch of the band, while the inner or reverted reflective cone I, also represented in Fig. 1, is connected at top with the top of the outer reflector by rigid braces *f*, the two being thus firmly united. This central cone may also have a bearing upon the axial or connecting portions of the arms B. Upon the upper edge of J is fixed a circular ornamental band, K, of any appropriate configuration. There is, of course, a space, intersected only by the braces *f*, between the two reflectors, which permits the passage upward of the gaseous products

of combustion from the inner system of burners C. From the lower end of the band G depend the ornaments or pendants *g*. The inner surface of the reflector I may be made of silver-plated glass, or any other suitable reflecting material, in the usual or in any appropriate manner, and with its inner surface horizontally or otherwise corrugated. The outer reflector J has its inner or reflecting surface made of the same or similar material, and shaped with any desired number of sides or facets, and is, preferably, more or less corrugated in an up-and-down direction. Externally upon this sheet-metal portion, more particularly indicated at *e* in Fig. 2, there is fixed, near the bottom, an annular frame or rib, *d*, and near the top a similar rib, *h*. Upon the outer side of each facet is placed a glass panel, *m*, ornamented with any appropriate picture or design. At the corners where the several panels touch each other, and covering the corners to confine the panels in position, are secured the up-and-down ribs *n*, cement being used, when necessary, to supplement the action of the ribs in retaining the panels water-proof, &c. By the means described an ornamental external surface is readily and economically provided to the outer reflector. Placed upon or around the tubular stem A of the chandelier is a metallic sleeve, R, with a more or less ornamented surface, and with its lower end resting upon the central or axial portion of the arms B at their junction with the stem. The section of this sleeve is, in Fig. 1, denoted by a single black line. The upper end of this sleeve R forms a shoulder at *f'*, concentric with the stem and serving to support the canopy M. This canopy is composed of a circular or polygonal and slightly dish-shaped disk or plate of metal, enameled on its under side or surface, and provided with a metallic center piece, for more accurate fitting around the stem and retention upon the shoulder *f'*. At a little space from and concentric with its circumference the canopy has attached to it, by radial connections *g'*, a band, N, from the lower edge of which are suspended the pendants *m'*. This band and the contiguous circumference of the canopy are so arranged that the space between them shall afford free passage for the gaseous products of combustion rising from the inner series of burners through the space between the upper edges of the two reflectors. As these currents of heated gases are thus caused to pass wholly out of the way of the pendants *m'*, it follows that the soiling or discoloration of these last, also of the band, from contact with the gases is wholly avoided. Upon or around the upper part of the stem A is attached a second sleeve, S, the shoulder formed by the upper extremity of which sustains the cap-piece *u*, furnished with pendant ornaments at its periphery. The inner ends of the radial connections *g'* are soldered fast to the upper surface of the canopy, and, after passing them through holes in the up-turned edge of such canopy, are soldered to the band.

In practice it is found that bright metal canopies soon become tarnished by the products of combustion; and that glass as well as porcelain canopies, in consequence of the sudden expansion caused by the heat from all the burners concentrating upon them, especially in cold weather, are constantly liable to break and fall; thus, in addition to the annoyance and expense, they become actually dangerous to persons sitting with uncovered heads beneath them; and the very frequent accidents of this kind have rendered them practically useless. No such objection applies to my improved canopy, as the metal and enamel being fused together at a red heat the canopy can neither tarnish nor break.

Each of the cocks E, whereby the admission of gas to the two sets or series of burners is controlled, is composed of the slightly-tapering plug V, fitted into the shell W, and held in place by a washer, *r'*, and nut *s'*, the shell being made in two sections, screwed together, as shown in Fig. 8, and having the burner C screwed into or outside of it at the top. Transversely in the plug is an orifice, *a**, from which, at right angles to the same, is an opening, *c**, one end of it, *a**, communicating with the outer end of *c** by a groove, *r**, formed circumferentially in the plug. Formed vertically within the shell W is a channel, *i*, closed at bottom, but opening at its upper end into the chamber *f**, which communicates direct with the burner.

When the plug is turned to the position shown in the horizontal sectional view, Fig. 10, the gas, passing in the direction of the arrow, will be estopped from passing to the outer series of burners D; but the flow will be through opening *c** and groove *r** to orifice *a**, from which, through the passage afforded by channel *i* in the inner surface of the shell, the gas passes to the chamber *f**, and thence to the burner C. By bringing the plug into the position shown in the similar sectional view, Fig. 11, communication between the orifice *a** and the channel *i* is shut off, so that the flow of gas to the inner series C of the burners is stopped; but the orifice *a** being brought continuous to the bore of the arm B, in which the cock is placed, the flow to the outer series D of burners is permitted. By bringing the plug into the position shown in the similar sectional view, Fig. 12, the orifice *a** is brought continuous with the bore of the arm, and at the same time the opening *c**, together with the groove *r**, is brought coincident with the channel *i*, so that the gas is suffered to pass simultaneously to both the inner burners C and the outer burners D.

Instead of having each arm provided with only a single inner and outer burner, the arms, collectively, may sustain a tubular burner-support, provided with any desired number of burners, as shown in Fig. 3, this burner-support being of annular form, and may be divided by partitions into compartments, which permits either the whole or only a part of the burners to be used, as required; or sections

with intervals between them, substantially as represented in Fig. 4, may be used. The arm B sustaining each pair of sections—or, in lieu of these, the annular burner-support—may be attached thereto through the agency of the tubular right-and-left nut, indicated by itself in Fig. 6, and in connection with other devices.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The cock E, constructed with the channel *v'* or its equivalent in the interior of the shell W, when the said channel is used in connection with the plug V, constructed as described, substantially as and for the purpose specified.

2. The combination of the cock E, constructed as described, with the suitably-arranged burners of a chandelier or equivalent gas-fixure, substantially as and for the purpose specified.

3. The arms B, in combination with the inner and outer systems of burners C D, and

suitable devices for controlling the flow of gas, so that either of the said systems may be used singly or both together, substantially as and for the purpose specified.

4. The combination of the radial arms B, band G, and reflectors J I, substantially as herein set forth, whereby the reflectors are suitably supported and the chains ordinarily used dispensed with.

5. The band N, arranged concentric with the canopy M, and in such relation thereto as to afford space for the upward passage of the products of combustion from the burners C, and to direct such products out of the way of the pendants depending from the band N as well as from the outward ornamental face of the band itself, substantially as and for the purpose specified.

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