Sept. 29, 1953 C. BRAMMING 2,653,464

INCANDESCENT MANTLE MOUNTING

Filed July 18, 1950 2 Sheets-Sheet 1

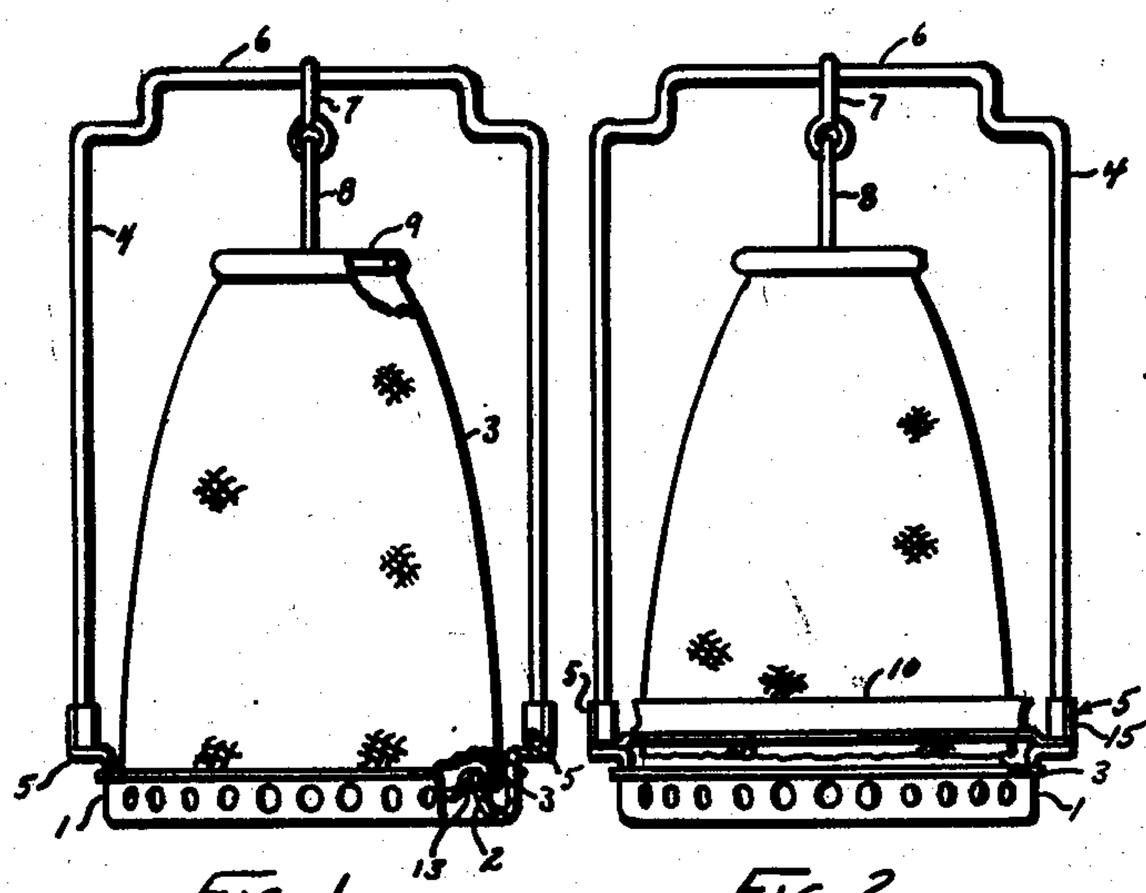

FIG. 1

FIG. 2

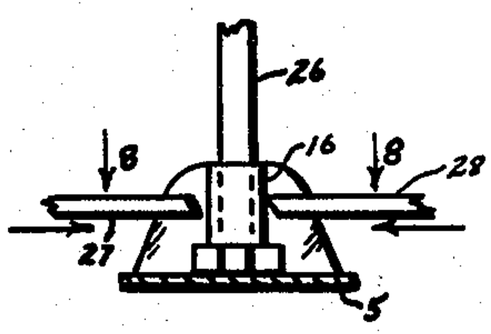

FIG. 7

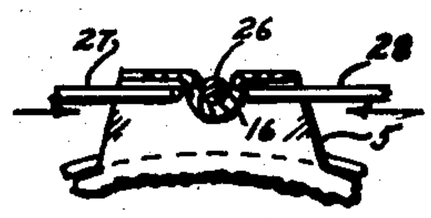

FIG. 8

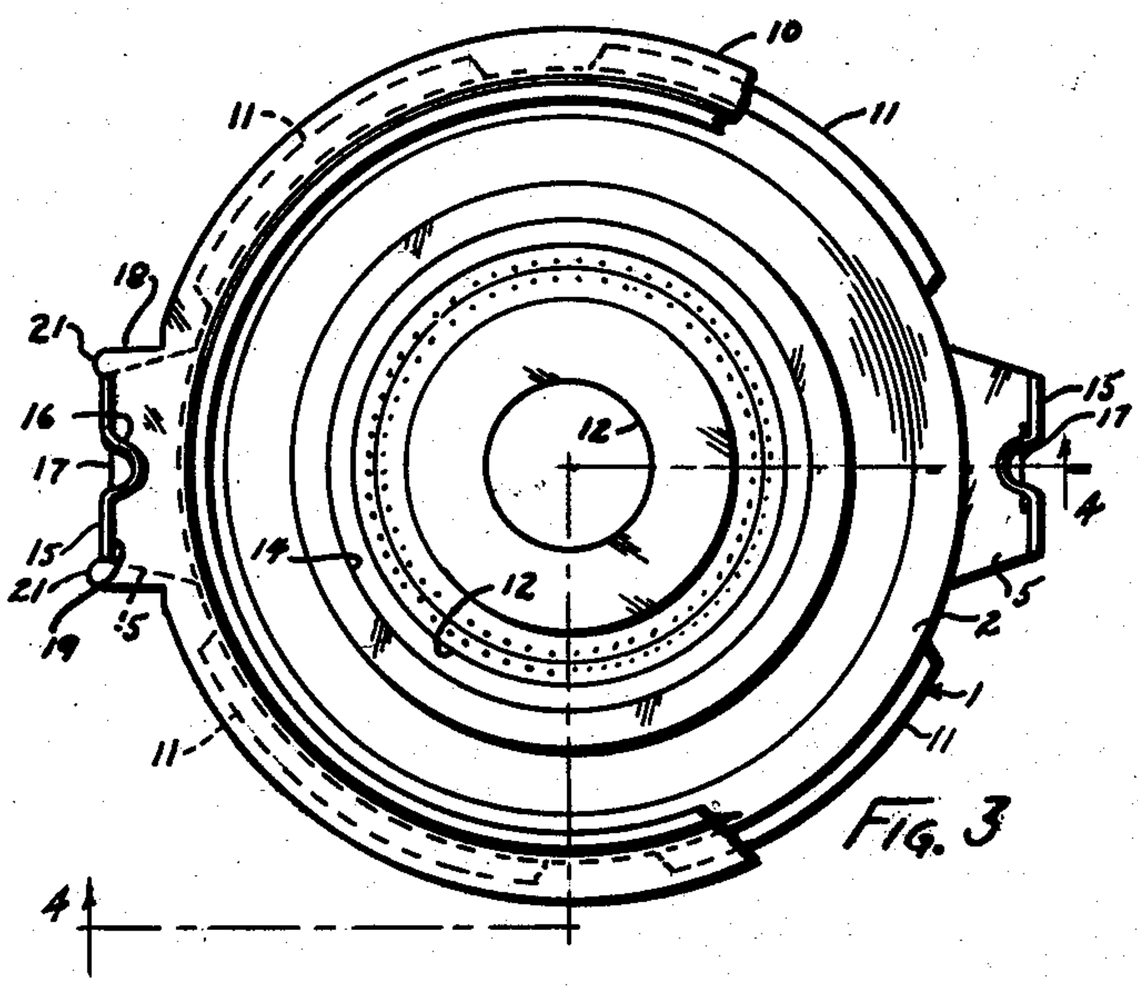

FIG. 3

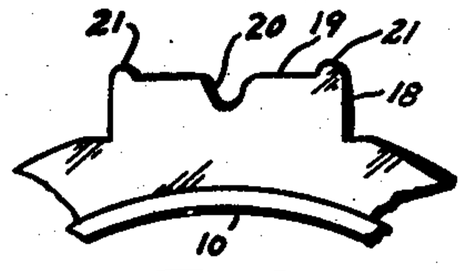

FIG. 9

FIG. 4

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INCANDESCENT MANTLE MOUNTING

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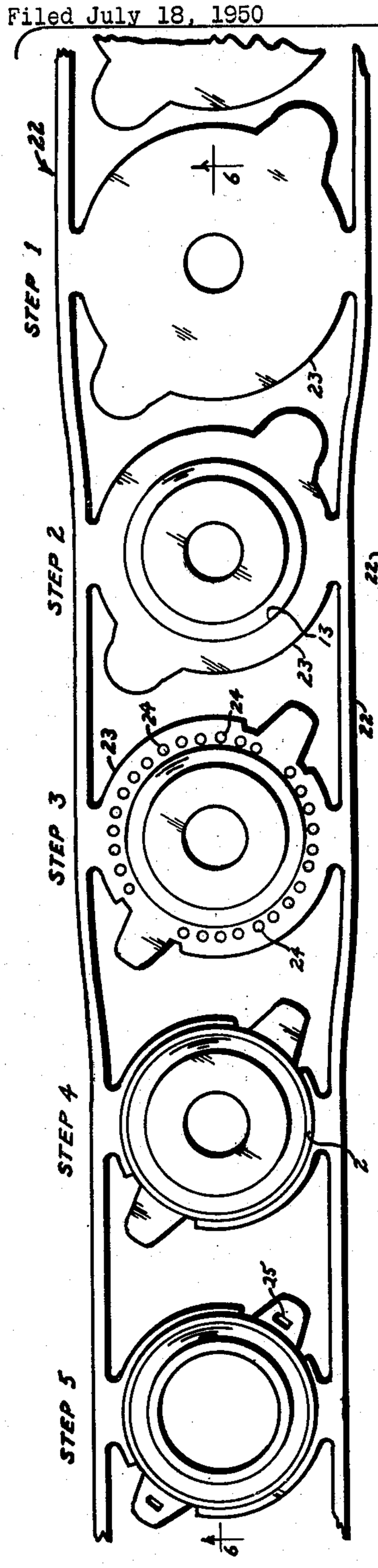


FIG. 5

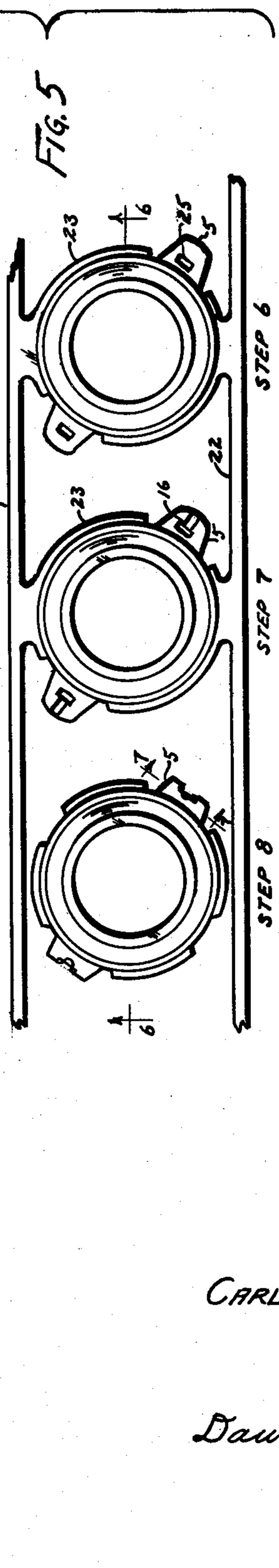
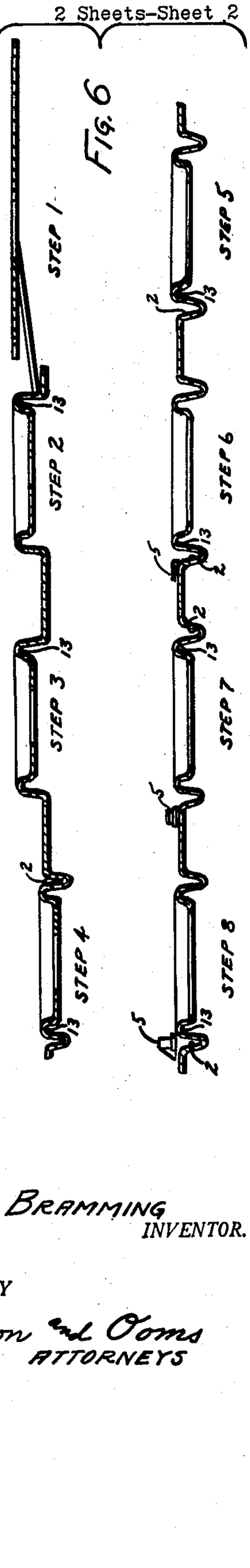


FIG. 6



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INCANDESCENT MANTLE MOUNTING

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3 Claims. (Cl. 67—38)

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This invention relates to an improved mounting for incandescent mantles characterized by ease of manufacture, small shadow, and ability to accommodate effectively mantles having a large variation in size.

Incandescent mantles are manufactured by first forming an enlarged web or stocking of knit cotton, rayon, or similar material and impregnating the same with an aqueous solution of rare earth metal salts, usually including thorium and cerium nitrates. After impregnation, the web is dried on a suitable form and ignited to burn the combustible material and leave a fragile skeleton containing the metal oxides. For subsequent shipment this fragile skeleton is sprayed with collodion or other stiffening agent. When the mantle is used, the stiffening agent is burned away and the mantle reacquires its very fragile condition.

During the burning step of the foregoing manufacturing process, the web or stocking shrinks to a fraction of its original size. This shrinking, even under favorable conditions of control, is highly unpredictable and prevents maintaining close tolerances of the mantle dimensions, particularly the mantle length. It is consequently of great importance to provide a mantle support or mounting which will accommodate mantles of varying length without wastage of the available length of long mantles or rejection of short mantles. In addition, it is desirable to avoid the necessity of trimming the mantle because of its fragile condition even with the collodion coating. Moreover, it is highly desirable that the same basic mantle mounting structure be used for both long and short mantles.

In addition to accommodating both long and short mantles, the mantle mounting should have minimum shadow producing effect. Practical mantle mountings require the use of a metallic harp, base, and parts securing them together. Of necessity these parts cannot be transparent and accordingly introduce an undesirable shadow which for maximum efficiency should be minimized.

It is therefore a general object of the present invention to provide an improved incandescent mantle mounting.

Another and more specific object of the present invention is to provide an improved incandescent mantle mounting capable of receiving and efficiently utilizing mantles having varying dimensions.

A further object of the present invention is to provide an improved incandescent mantle mounting that casts minimum shadow and is suitable for inexpensive mass production.

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The novel features which are believed to be characteristic of this invention are set forth with particularity in the appended claims. The invention itself, however, both as to its organization and method of operation, together with further objects and advantages thereof, may best be understood by reference to the following description taken in connection with the accompanying drawings, in which:

Figure 1 is a side elevational view of a complete mantle mounting constructed in accordance with the present invention for use with mantles of sufficient length;

Figure 2 is a view like Figure 1 showing a mantle mounting with a short mantle and mantle confining ring in place for use with shorter mantles;

Figure 3 is an enlarged top plan view of the base and ring portions of the mantle mounting;

Figure 4 is a cross-sectional view through the axis 4—4, Figure 3;

Figure 5 is a top plan view of a sheet metal strip with successive portions formed in accord with the successive steps of the process of making the base portion of the mantle mounting;

Figure 6 is a cross-section through axis 6—6, Figure 5;

Figure 7 is a fragmentary cross-sectional view through axis 7—7, Figure 5, and Figure 8 is a fragmentary cross-sectional view through axis 8—8, Figure 7, both views showing how the harp ends are affixed to the mantle base; and,

Figure 9 is an enlarged fragmentary top plan view of the ear portion of the ring part of the mantle mounting showing the harp-receiving conformations therein.

Referring now to Figure 1, the mantle mounting comprises an annular base 1 which defines an annular cup or channel 2 (Figure 4) to receive the lower edge or skirt portion of the generally conical incandescent mantle 3. A U-shaped supporting harp 4 is secured to the base 1 by the outwardly and upwardly extending ears 5. The harp 4 supports the mantle from its substantially horizontal portion 6 to which is secured by spot welding or similar means the depending hook 7. A U-shaped arm 8 is secured in the eye of hook 7 and defines diametrically opposed hooked arms which underlay and support the ring 9 located at the top of the mantle 3.

When in use, the mantle is supported from the ring 9 in a secure manner that nevertheless avoids mantle breakage due to blows or the like

that cause some relative movement between the base and the top 6 of the harp. Moreover, since the mantle, upon swinging, engages the walls of the channel 2 over a relatively large contact area, excessive motion is arrested with minimum risk of damage or breakage.

The structure shown in Figure 1 is used with mantles of sufficient length to extend into the channel 2, Figure 4, defined by the base 1. If a shorter mantle is used, an additional mantle confining an air directing ring 10, Figure 2, is used. This ring is secured to base 1 and the harp 4 as hereafter described and performs the dual function of confining a short mantle that does not extend into the channel 2, as shown in Figure 2 (or only extends incompletely into that channel) and of directing the air to secure most effective combustion within the mantle, thereby avoiding flame leakage that might otherwise result from the short mantle.

The ring 10 anchors the mantle against undue swing in the same effective manner as does the base 1, since the mantle engages ring 10 along a large surface when its motion is arrested thereby.

While the mantle mounting of Figure 2 does not provide as much incandescent surface as the mounting of Figure 1, the actual usable light produced is nearly the same because the top portions of the mantle effectively incandesce in each case and have the same positions on the lamp and these portions are most effective in producing usable light from the lamp upon which the mantle is mounted.

The structure of the base 1 and the ring 10 is shown in detail in the top plan and side elevational views of Figures 3 and 4. As shown, each of these parts is of annular shape and together they define a vertical path or channel through which flame and combustible hydrocarbon gases pass. In use, the mantle mounting is supported from its radially extending edge portions 11 on a suitable annular seat (not shown) provided on the lamp. When so seated, the flame spreader 12 of the lamp extends within the vertical channel and in conjunction with the wick and other parts of the lamp (not shown) produces a flame located within the confines of the mantle which heats the same to incandescence.

The base 1 defines a downwardly facing annular cup or channel 13 which is located radially inwardly of the channel 2 and terminates in a rim 14 which defines the abovementioned vertical passage. On its outer periphery the base has a series of four spaced radial edge portions 11 and has a pair of diametrically opposed ears 5.

The ears 5 each extend outwardly from the base 1 in a flat portion and then turn sharply upwardly to define the vertical portions 15. These vertical portions are bent inwardly in a semi-circular conformation at 16 to define an incomplete, harp-receiving sleeve. The horizontal portion of each ear extends at least partially below and within the confines of the sleeve defined by the ear to form a bottoming or indexing surface for the ends of the harp. This bottoming surface is indicated at 17, Figure 3.

The ring 10 has a pair of diametrically opposed ears 18 which mate with and are received upon the ears 5 of the base 1. Each ear 18 extends downwardly as shown and then outwardly to an outer edge 19 which fits snugly against the inner wall of the upturned portion 15 of the corresponding ear 5. As shown in Figure 9, each ear 18 has a centrally positioned marginal

rounded V-notch 20 which receives the end of the harp to anchor the ring 10 against rotation and has a pair of ears 21, Figure 3, which straddle the ear 5 to achieve further anchoring. The V-notch 20 of each ear 18 also permits the harp to seat against the portion 17 of the ears 5 when the ring is used, thus avoiding any change in the elevation of the harp relative to the base as a consequence of the use of the ring.

At its inner portions the ring 10 flares upwardly and outwardly as shown to define portion 22 which acts to direct air and confine the mantle.

Further details of the construction of the base 1, and the ease of manufacturing it are shown in Figures 5 and 6 which show a strip of sheet metal 22 with successive portions formed in accord with one effective method of making the base 1. In the first step of the process, the strip 22 is blanked out to form the attached blank 23 having a central hole and diametrically opposed ears as shown. At the second step, the blank is drawn to form the downwardly facing annular channel 13. The third step is a stamping operation which pierces the 28 holes 24 located on the outer side wall of the base and trims the ear portions as shown.

In the next or fourth step of the formation of the base, a second drawing operation is performed to form the mantle receiving groove or channel 2. This step is followed by the step of piercing the ears and the center. It is at this time that the rectangular openings 25 are formed in the ears, which openings ultimately define the edge of portion 17, Figure 3, of the ear. In the sixth step, the ears are elevated and in the seventh step their outer portions are indented to form the incomplete sleeves to receive the harp. Finally in the eighth and last step the flange of the blank 23 is trimmed to free it from the strip 22 and the ends of the ears are bent up to form the completed base.

The ring 10 may be formed by using a similar strip material and successively stamping, drawing, and bending it to the shape shown.

The harp 6 is quickly and inexpensively secured to the ears 5 by pinching the sleeve portions of the ears as shown in Figures 7 and 8. For this purpose, the end of the harp, indicated at 26, is placed in the sleeve 16 and inserted until it bottoms against the portion 17 of the ear. A pair of complementary chisel-like aligned bars 27 and 28 are then forced under pressure against the opposite sides of the sleeve 16 to deform the sleeve and anchor the harp securely in position.

It will be noted that the above harp assembling operation is accomplished in a manner that does not place any forces against the mantle or require insertion of any tools into the mantle space. The parts are merely held together and the sleeve portions of the ears positioned between the bars 27 and 28, a manipulation that is easily accomplished without disturbing the fragile mantle.

The complete mantle mounting of Figures 1 and 2 has the desirable feature of casting a minimum shadow, since the portions where the sleeves encircle the ends of the harp extend only a short distance upwardly and do not substantially interrupt the light. If separate harp securing sleeves were used, they would of necessity have to be longer (and hence would create more shadow) since vertical space is then required at the ear to anchor the ear to the sleeve.

While a specific form of the mantle mounting of the present invention is shown and described herein, it will of course be understood that many modifications and alternative constructions may be made without departing from the true spirit and scope thereof. The appended claims are therefore intended to cover all modifications and alternative constructions falling within the true spirit and scope thereof.

What I claim as new and desire to secure by Letters Patent of the United States is:

1. An incandescent mantle mounting adapted to support mantles of varying length at a uniform height without loss of efficiency comprising, a U-shaped harp adapted to support the mantle, an annular base adapted to be received on a burner and having a pair of radially spaced wall portions defining an annular channel to receive the skirt of a mantle, a pair of diametrically opposed ears formed from the material of said base and extending outwardly and upwardly from the outer wall portion and in their upwardly extending portions defining a pair of substantially parallel vertically extending fragmentary sleeves adapted to receive the ends of the harp and to be pinched thereon, and an auxiliary annular member formed from a piece of sheet material and adapted to be positioned over the base, said member defining a mantle restraining ring to confine short mantles in position, the member having a pair of diametrically opposed outwardly extending flat ears positioned over the ears of the base, the ears of said member being formed to define in their outer edges a pair of notches positioned for partial embracing of the lower ends of said harp below the lower edges of the fragmentary sleeves.

2. An incandescent mantle mounting adapted to support mantles of varying length at a uniform height without loss of efficiency comprising, a U-shaped harp adapted to support the mantle, an annular base adapted to be received on a burner and having a pair of radially spaced wall portions defining an annular channel to receive the skirt portion of a mantle, the base having a pair

of diametrically opposed ears extending outwardly and upwardly from the outer wall portion and in their upwardly extending portions defining substantially vertically extending fragmentary sleeves receiving the ends of the harp and pinched thereon, the outwardly extending portions of the ears protruding at least partially beneath the lower ends of the sleeves to form bottoming surfaces for the ends of the harp, and an auxiliary annular member formed from a piece of sheet material and adapted to be positioned over the base and defining a mantle retaining ring to confine short mantles in position, the member having a pair of diametrically opposed outwardly extending ears positioned over the ears of the base and having harp-receiving conformations adapted partially to embrace the lower ends of the harp beneath the lower ends of the sleeves to permit the harp to seat on the base.

3. An incandescent mantle mounting comprising a U-shaped harp adapted to support the mantle, an annular base adapted to be received on a burner and having a pair of radially spaced wall portions defining an annular channel to receive the skirt of a mantle, a pair of diametrically opposed ears formed from the material of said base and extending outwardly and upwardly from the outer wall portion thereof, said ears in their upwardly extending parts defining a pair of substantially parallel vertically extending fragmentary shallow sleeves receiving the ends of the harp and pinched thereon, the ears in their outwardly extending parts protruding at least partially beneath the lower ends of the sleeves to form bottoming surfaces for the ends of the harp.

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