Feb. 7, 1928. 1,658,269

L. F. WESTPHALEN

MINIATURE ARC LAMP

Filed Aug. 1, 1927 2 Sheets-Sheet 1

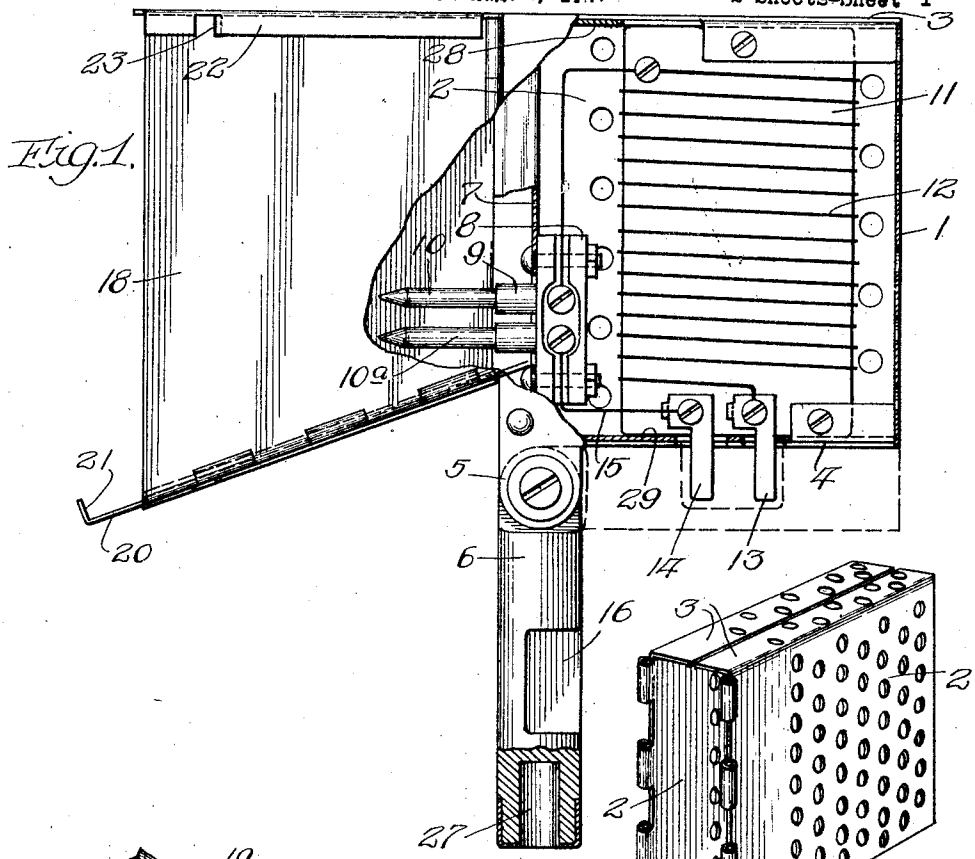
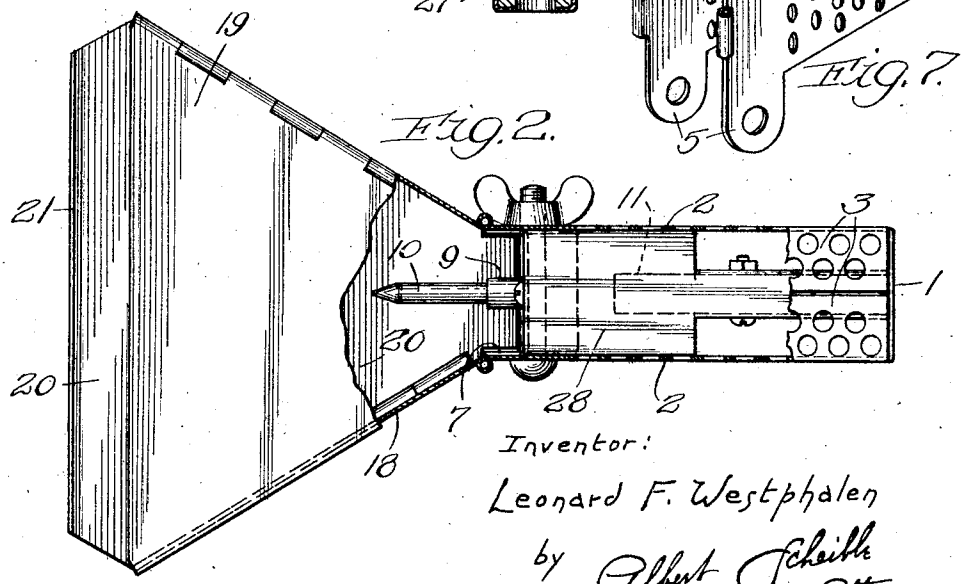


Fig. 7.



Inventor:
Leonard F. Westphalen
by Albert Scheible
Attorney

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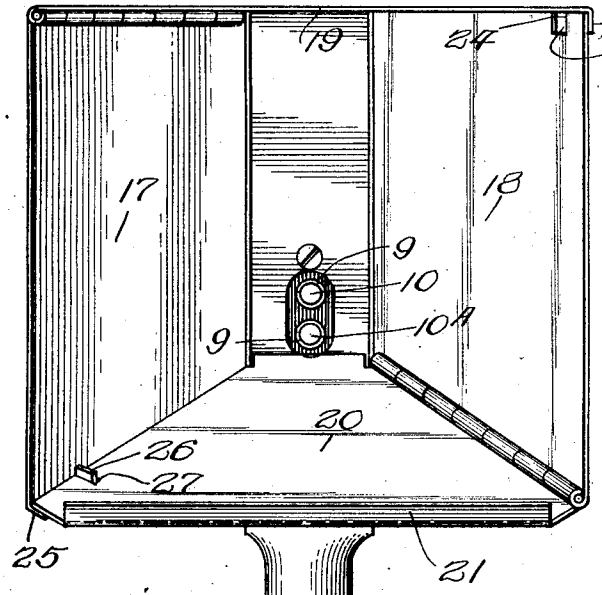


Fig. 3.

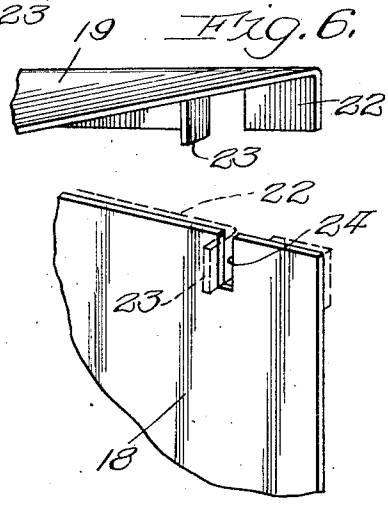


Fig. 6.

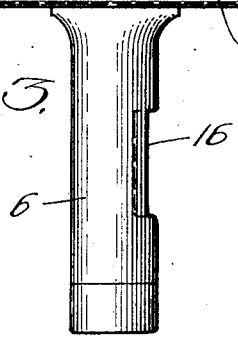


Fig. 4.

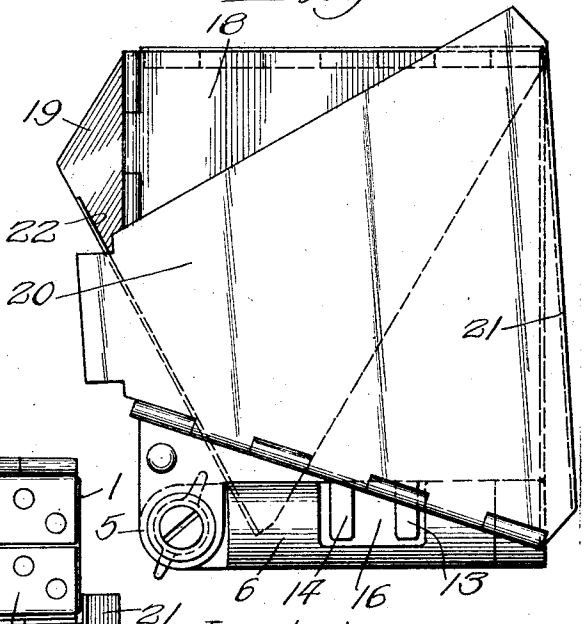
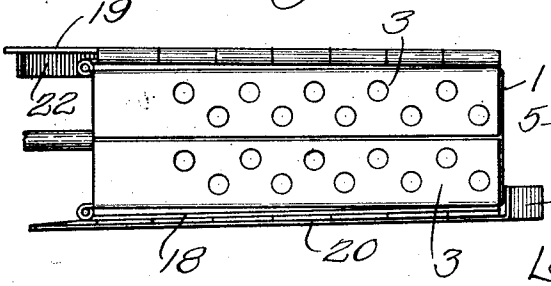


Fig. 5.



Inventor:
Leonard F. Westphalen
by Albert Scheible
Attorney

Patented Feb. 7, 1928. 1,658,269

UNITED STATES PATENT OFFICE.

LEONARD F. WESTPHALEN, OF CHICAGO, ILLINOIS.

MINIATURE ARC LAMP.

Application filed August 1, 1927. Serial No. 209,702.

My invention relates to photographers' arc lamps of the general class in which a suitably positioned reflector concentrates the light from the arc in one general direction.

In its general objects, my invention aims to provide an efficient lamp of this class in which various parts are mounted so that they can be swung out of their operative positions without disconnecting them, thereby permitting the entire appliance to be folded into a quite compact form. Furthermore, my invention aims to provide a compact lamp of this class in which the needed resistance forms an integral part of the appliance; in which the casing or mounting of the resistance supports the carbons, the wire terminals and the reflector; in which the reflector is composed of sections adapted to be folded against the resistance casing, and in which the reflector sections interlock in their unfolded disposition so as to hold one another in definite positions. It also aims to provide a supporting stem which can be folded against the resistance casing and which will shield the wire terminals from injury when in its folded position.

Still further and also more detailed objects will appear from the following specification and from the accompanying drawings, in which drawings

Fig. 1 is a side elevation of a photographer's arc lamp embodying my invention, with portions of one reflector section and of the resistance casing broken away, and with dotted lines showing the folded position of the supporting stem or handle.

Fig. 2 is a plan view of the same lamp, with a portion of the resistance casing broken away.

Fig. 3 is a front view of the lamp.

Fig. 4 is an elevation, taken from the same side as Fig. 1, but with the movable parts folded.

Fig. 5 is a top view of the folded lamp.

Fig. 6 is an enlarged perspective view of portions of two sections of the reflector, showing the arrangement for interlocking these sections.

Fig. 7 is a reduced perspective view of the main member of the resistance casing.

In the illustrated embodiment, my lamp includes a relatively flat and rectangular resistance casing which has its back 1, sides 2, top 3 and bottom 4 formed of a single piece of metal provided with a large number of perforations. This main casing member also has adjacent to its forward edge a pair of downwardly projecting ears 5 between which the upper end of a supporting stem or handle 6 is pivoted. A channel-sectioned front piece 7 secured to this main casing member closes the frontal opening in that member and supports an insulator 8 by which the tubular terminals 9 for the carbons 10 and 10^A are carried.

Supported within the casing is an insulating plate 11 on which the needed resistance wire 12 is wound, and this plate also supports two wire terminals 13 and 14 projecting through apertures in the bottom 4 of the casing, so that this casing affords a mounting for both the resistance and the wire terminals. One end of the resistance wire is connected to the terminal 13 and the other end is electrically connected to the carbon 10, while a wire 15 connects the other carbon 10^A with the companion terminal 14. These terminals are preferably of such a size and shape as to fit a standard attaching plug, and when the supporting stem or handle 6 is in its operative position of Fig. 1, the terminals are freely exposed to permit such a connection to the plug. However, the handle swings alongside these terminals when in its folded position of Fig. 4 and this handle desirably is of a diameter greater than the distance to which the terminals project below the casing, so that the handle then acts as a guard for preventing mechanical injury to the terminals. To enhance this protecting effect, I desirably provide the handle with a lateral recess 16 into which the terminals extend when the handle is swung against the bottom of the casing.

To concentrate the light from the arc, I provide a reflector which is supported by the resistance casing and which is constructed so that it can be folded against the casing. This reflector as here shown comprises side wings 17 and 18 hinged respectively to the sides of the resistance casing at their forward edges, a top wing 19 hinged to the upper edge of the side wing 17, and a bottom wing 20 hinged to the lower edge of the side wing 18. The bottom wing 20 desirably has at its forward edge a riser flange 21 to catch any detached particles of carbon, and means are provided for interlocking certain of the reflector wings into a rigid structure. For this latter purpose, each side wing of the reflector is constructed so that it interlocks with the wing that

is hinged to the other side wing, and a suitable interlocking arrangement is shown in Fig. 6. This interlocking provision including a flange 22 which depends from the free lateral edge of the top wing 19 and which has an inwardly directed finger 23 formed from this flange. The adjacent side wing 18 has at its upper edge a slit 24 through which the finger 23 extends, as shown in dotted lines in the lower portion of Fig. 6. A similar interlocking is supplied at the diagonally opposite forward corner of the reflector by providing the lower edge of the side wing 17 with an inwardly directed flange 25 from which a finger 26 projects upwardly, and by providing the adjacent edge of the bottom plate 20 with a slit 27 through which the finger 26 will project.

When the reflector wings are thus interlocked, the flange 22 prevents a lateral spreading of the side wings and the flange 25 prevents the bottom wing from dropping, while a snug fitting of the fingers in the slits entered by them affords an added frictional gripping. Consequently, the reflector then forms a rigid frustro-pyramidal structure for concentrating the light to a definite extent. With the inner faces of the reflector wings and the forward face of the channel-sectioned casing front 7 made of bright metal, I can thus provide an efficient reflector.

However, the interlocking reflector wing portions can readily be disengaged so as to have the side wings swing back against opposite sides of the resistance casing, while the top and bottom wings swing respectively against the outer faces of the side wings to which they are hinged. The entire lamp then folds into the exceedingly compact form shown in Figs. 4 and 5, in which the lamp can be carried in the pocket of an overcoat.

In practice, I desirably provide the lower end of the handle 6 with a bore 27 to fit the usual stem on a stand, thereby permitting my lamp to be used in a stationary position if desired. I also desirably extend the bottom reflector wing 20 forwardly beyond the side wings for a more effective catching of any sparks from the carbon, and I may form the main rheostat casing portion of a single piece of metal as shown in Fig. 7. So also, I may stiffen this casing by providing the front 7 with rearwardly extending wings 28 and 29 respectively secured to the top and the bottom of the main portion of the casing.

However, I do not wish to be limited to these or other details of the construction and arrangement thus disclosed, since many changes may obviously be made without departing either from the spirit of my invention or from the appended claims.

I claim as my invention:

1. In an arc lamp, a resistance, a relatively flat casing housing the same, a pair of carbons supported to project from one end of the casing, and a frustro-pyramidal reflector surrounding and projecting beyond the carbons; the reflector comprising wings carried by the casing and adapted to be swung to positions flatwise adjacent to the casing.

2. An arc lamp as per claim 1, in combination with a supporting stem or handle hinged to the casing and adapted to be swung against the casing.

3. In an arc lamp, a resistance, a mounting for the same, a pair of carbons mounted on one end of the said mounting, and a frustro-pyramidal reflector surrounding and projecting beyond the carbons; the reflector comprising two sides respectively hinged to the said mounting, and two auxiliary sides each hinged to one of the first named sides and releasably interlocked with the other of the first named sides.

4. In an arc lamp, a resistance, a mounting for the same, a pair of carbons mounted on one end of the said mounting, and a frustro-pyramidal reflector surrounding and projecting beyond the carbons; the reflector comprising two foldable pairs of sides respectively hinged to the said mounting at opposite sides of the said end and respectively adapted to fold flatwise against the side of the rheostat.

5. A lamp as per claim 3, in which the first named sides are adapted to fold respectively against opposite sides of the said mounting.

6. In a miniature arc lamp, a box-like member, a pair of carbons mounted on one end of the said member, two main reflector members hinged respectively to opposite edges of the said end, and two auxiliary reflector members each hinged at one edge to one of the main reflector members and each arranged for interlocking with the other of the main reflector members.

7. In a miniature arc lamp, a resistance, a relatively flat casing housing the resistance, means on one edge of the casing for supporting two carbons, two main reflector members hinged to the casing at opposite sides of the carbon-supporting means and each adapted to bear flatwise against a side of the casing, and two auxiliary reflector members each hinged to one of the main reflector members and adapted to be swung against the latter, the four reflector members being adapted to be disposed in laterally adjoined disposition to form a funnel-shaped reflector projecting from the casing edge on which the carbons are supported.

8. An arc lamp as per claim 7, in combination with a supporting handle hinged to another edge of the casing and adapted to be swung against another edge of the casing.

9. A miniature arc lamp comprising a resistance, a casing housing the same, a pair of carbons projecting from one end of the casing, and a reflector housing and projecting beyond the tips of the carbons, the reflector being composed of relatively interlocking sections each consisting of two hingedly connected wings and each having one wing hinged to the casing, each section being adapted to be folded against one side of the casing.

10. A miniature arc lamp as per claim 9, in which each reflector section has one wing provided with a notch entered by a wing of the other reflector section to afford the said relative interlocking.

11. A miniature arc lamp comprising an upright casing, two carbon supports projecting from a vertical end of the casing, a pair of terminals projecting from the bottom of the casing, a resistance in the casing interposed between one terminal and one of the carbon supports, an electrical connection between the other terminal and the other carbon support, and a handle hinged to the casing and adapted to be swung against the bottom of the casing with a portion of the handle close to the terminals to protect the terminals against mechanical injury.

12. A miniature arc lamp as per claim 11, in which the casing is formed from a single piece of sheet metal and includes a pair of projecting lugs between which the handle is hinged.

Signed at Chicago, Illinois, July 28th, 1927.

LEONARD F. WESTPHALEN.