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MOLD TO USE IN CENTRIFUGAL CASTING
TO MANUFACTURE REFLECTOR MEMBERS
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2,671,932

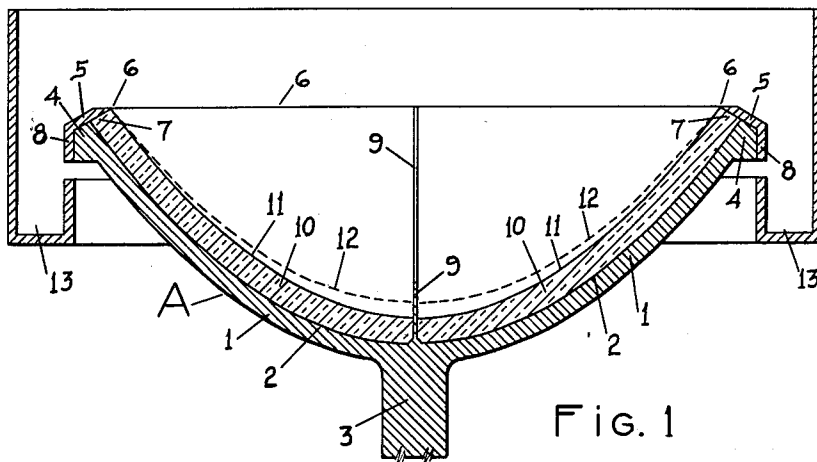


Fig. 1

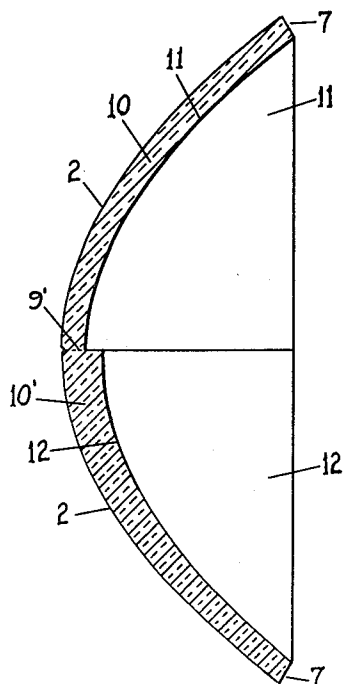


Fig. 2

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MOLD TO USE IN CENTRIFUGAL CASTING
TO MANUFACTURE REFLECTOR MEM-
BERS

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2 Claims. (Cl. 18—39)

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My invention relates to improvements in a mold for use in centrifugal casting of reflector members having half paraboloidal surfaces, which members may be used in making paraboloidal reflectors constructed of two half members with different concave curvature and displaced from each other along the paraboloidal axis. It has been designed more particularly as a device for making commercially practicable my invention described and claimed in the United States Patent No. 2,501,140 for Electric-Light Projecting Reflector, issued on March 21, 1950.

It is known that the best concave surface produced with extreme accuracy is the paraboloid of revolution, because when a liquid body is contained in a receptacle which rotates uniformly, the surface of the liquid takes the form of an accurate paraboloid. The natural surface of liquids in absolute or relative state of repose are extremely accurate. When this liquid consists of a solid in fused condition, and is cooled while continuing at the same angular velocity, the liquid body will solidify conserving the paraboloidal surface.

One of the advantages of such method of manufacture is to produce reflector members having accurately formed paraboloidal surfaces.

As wrought concave surfaces are not as accurate as is desired for reflecting concave surfaces, one of the objects of my improvement is to produce by a direct process half reflector members having true concave paraboloidal surfaces.

A further object of my improvement is the provision of an appropriate mold that rotates uniformly, holding determinate quantity of a melted material for casting half reflector members.

Another object of my improvement is to afford facilities in a centrifugal casting mold for molding a couple of half reflector members. The mold may be so operated that each couple cast in the mold will have a different thickness along the axis from every other couple cast in the same mold.

The invention is illustrated in the accompanying drawings, wherein: Fig. 1 is a vertical sectional view of a mold for centrifugal casting, showing the improvements, and Fig. 2 is a sectional view of the object attained with these improvements.

Similar numerals refer to the same or similar parts throughout the figures.

An appropriate mold A having a curved base 1 with the inner surface 2 forming a predetermined paraboloid from its vertice to the periphery.

A rotor axle 3 attached to the mold A, is placed

vertically in a machine not shown in the drawings, which rotates uniformly together with the mold A.

A conic ring 5 having an inner sharp edge 6, is located at the periphery 4 of said paraboloidal mold A, being fitted by means of a flange 8. And a thin blade 9 having a paraboloidal border is fitted and attached by its border on the inner paraboloidal surface 2 of said mold A.

A melted material 10 is put within the mold A for casting half reflector members.

The conic ring 5 with its inner sharp edge 6 is placed upon the mold A to regulate the amount of melted material 10 which will be shaped according to the concave curvature of the paraboloidal surface required in such centrifugal casting for making reflector members. The excess of melted material 10, that flow upward by centrifugal force, will be spilled out of the sharp edge 6 to an annular pan 13 that is located separately surrounding the mold A. Said conic ring 5 will retain an appropriate quantity of melted material 10 according to the angular velocity of said mold A.

The thin blade 9 is adapted in the paraboloidal mold A to disjoint halves of said casting reflector member 10, moulding an inner border 9' in the half casting members 10—10, thereby, obtaining a couple of half reflector members 10 in a direct process.

When the paraboloidal mold A rotates with a predeterminate velocity having within it the melted material from which half members 10 are formed, the material will flow upward by centrifugal force and its top surface takes the paraboloidal shape 11 with a concave curvature according to the angular velocity of said mold A. This happens after the excess of liquid material is spilled out of the inner sharp edge 6, and the liquid material retained by the conic ring 5 is conformed for casting. Furthermore, said conic ring 5 will form a bevel border 7 of uniform thickness at the peripheries of the half members 10, this will happen for any concave curvature applied to the half members 10 according to the angular velocity of said mold A.

The half members 10 will have their inner border 9' with a thickness along the paraboloidal axis according to the angular velocity of said mold A, and, this thickness of border 9' will be according to the concave curvature applied to the shaped paraboloidal surface.

Making another couple of half reflector members 10' by different angular velocity of said mold A than that of the first couple members 10, they

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will take the top paraboloidal surface 12 with different concave curvature than the first two, and both half members 10' take at their peripheries, from the conic ring 5, the same thickness of bevel border 7 as the first members 10, but their inner border 9' will have a thickness different, along its paraboloidal axis, than the first two half members 10.

Two different half reflector members 10 and 10', taken from two different couples of half reflector members moulded in such mold A by different angular velocity, may be joined and welded together through their inner border 9' as is shown in Fig. 2, obtaining a reflector member 10-10' which comprises true half paraboloidal surfaces 11 and 12 with different concave curvature from each other, thus having their half paraboloidal surfaces displaced from each other along the paraboloidal axis and their peripheries coinciding in ring section.

What I claim is:

1. The combination with a centrifugal casting mold having an inner surface forming a predetermined paraboloid and being adapted to rotate uniformly around the paraboloidal axis and thus carrying a melted material for casting reflector members, of a conic ring having an inner sharp edge located at the periphery of said paraboloidal mold and a thin blade having a paraboloidal border fitted and attached on the inner paraboloidal surface of said mold, said conic ring with its inner sharp edge being adapted to regulate the amount of said melted material and said

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thin blade being adapted to disjoint halves of said casting reflector member substantially as described.

2. The combination with a centrifugal casting mold having an inner surface forming a predetermined paraboloid and being adapted to rotate uniformly around the paraboloidal axis and thus carrying a melted material for casting reflector members, of a conic ring having an inner sharp edge located at the periphery of said paraboloidal mold and a thin blade having a paraboloidal border fitted and attached on the inner paraboloidal surface of said mold, said combination being thus adapted to mould couples of half paraboloidal reflector members according to the angular velocity with which said mold is rotated.

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