

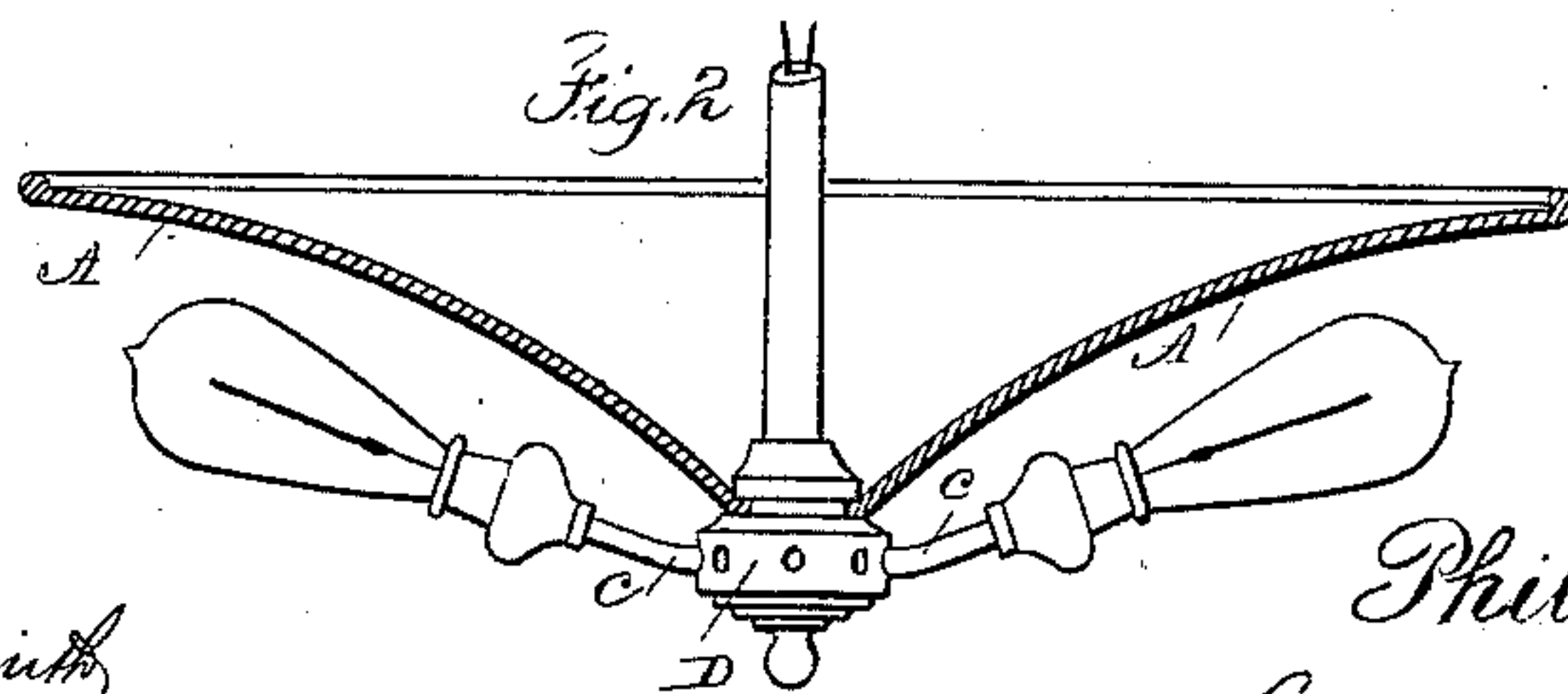
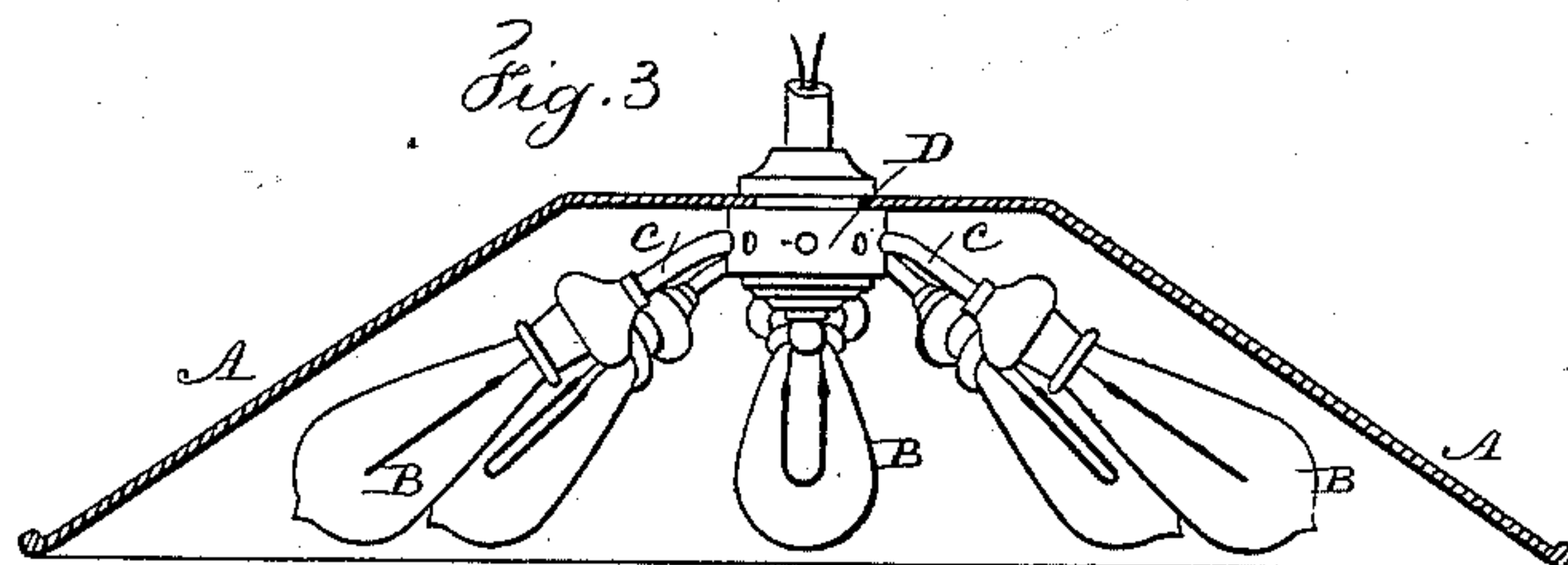
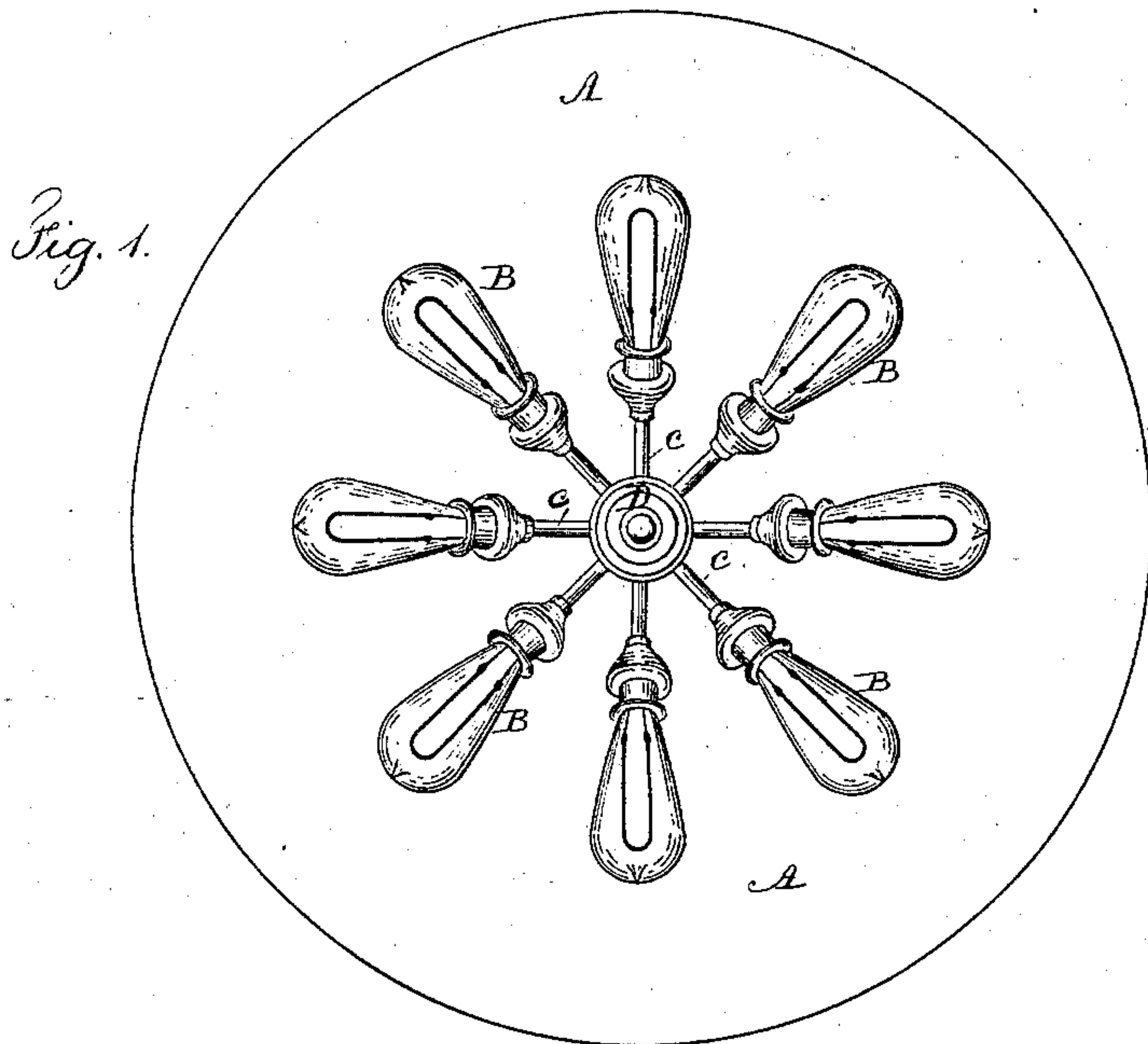
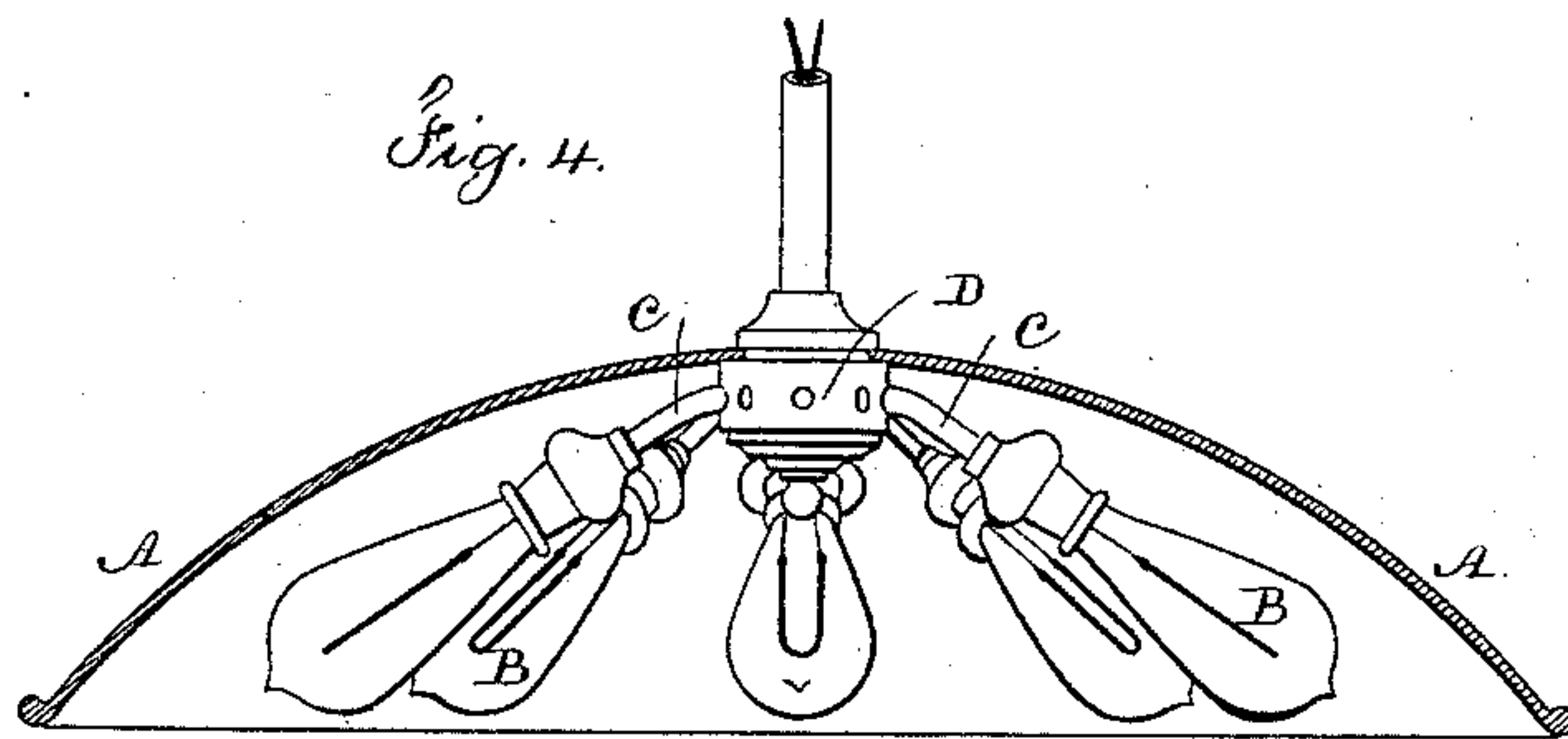
(No Model.)

P. H. KLEIN, Jr.

REFLECTOR FOR INCANDESCENT LAMPS.

No. 305,200.

Patented Sept. 16, 1884.



Witnesses

Chas. H. Smith  
J. Staley

Inventor

Philip H. Klein Jr.

per Lemuel W. Serrell  
att.



# UNITED STATES PATENT OFFICE.

PHILIP H. KLEIN, JR., OF NEW YORK, N. Y., ASSIGNOR TO BERGMANN & CO., OF SAME PLACE.

## REFLECTOR FOR INCANDESCENT LAMPS.

SPECIFICATION forming part of Letters Patent No. 305,200, dated September 16, 1884.

Application filed October 22, 1883. (No model.)

*To all whom it may concern:*

Be it known that I, PHILIP H. KLEIN, Jr., of the city and State of New York, have invented an Improvement in Reflectors for Incandescent Lamps, of which the following is a specification.

Incandescent electric lamps have been applied upon chandeliers and brackets with a reflector above the same. Such reflectors usually have a large central opening. In consequence of the incandescent filament of the lamp being at some distance from the white reflecting surface there is considerable light that is diffused and lost. This is especially the case where the incandescent electric lamps are in streets or on the outsides of buildings.

The object of my invention is to protect the incandescent lamps from the action of rain or snow, and at the same time to largely intensify the light from the same, and to concentrate the rays from a group of lamps and render them better adapted to illuminating purposes.

In the drawings, Figure 1 is an inverted plan of the reflector and lamps; and Figs 2, 3, and 4 are sections of the reflectors of different shapes, with the incandescent lamps applied thereto.

The reflector A is adapted to the place where it is to be used. If it is for a store or store-window, or for a room, it will either be a flat disk, or else an inverted cone or conoid, as shown in Fig. 2; but for outside lamps the reflector should be a flattened cone or segment of a globe, as represented in Figs. 3 and 4, so that water may drop from its edges. The surfaces of the reflectors are preferably white. They may be enameled or otherwise coated, or they may be silvered. A dead white surface or a reflector made of porcelain or of opalescent glass is usually employed.

The peculiarity of my invention relates to the combination, with the reflector, of radially-diverging electric lamps placed parallel to the surface of the reflector, or closely adjacent thereto, so that the lateral diffusion of the light is prevented and the rays directed downwardly to obtain great illuminating power. The incandescent lamps B B are each of ordinary construction, the filament being

connected to the conductors in the electric circuit. The stems of these lamps are received into and supported by a central hub or knob, D, which serves also to support the reflector A, and to contain the wires that pass from the main conductors to the respective lamps. The lamps themselves are placed radially around the central knob, D, and they are in close proximity to the surface of the reflector, preferably parallel to the same, or nearly so, as shown. In consequence of the incandescing filament being near to the reflecting-surface, such surface is highly luminous, and the power of the lamp is greatly increased. The lamps are protected by the reflector against rain or snow and dust, and other foreign substances are kept from the lamp-glasses to a considerable extent.

I prefer to make the reflector air and water tight at the central knob or hub, D, for the better protection of the lamps and reflector; but I do not limit myself in this particular, as there might be an opening between the hub D and the inner edge of the reflector.

I do not claim a series of electric lamps passing out from a central support; neither do I claim a reflector above one or more lights, as the same have been made use of.

I claim as my invention—

1. The combination, with a group of incandescing electric lamps, of a central hub, and a reflector connected to such hub and in close proximity above the lamps, the reflector being concave on the under side, so that the lamps are protected from injury and the light augmented, substantially as set forth.

2. The combination, with a reflector, of a central hub or knob supporting the same, electric lamps connected with such hub and placed radially and in proximity to the reflector, and electric conductors passing to the lamps through such hub, substantially as set forth.

Signed by me this 18th day of October, A. D. 1883.

P. H. KLEIN, JR.

Witnesses:

G. D. MILLS,  
L. VOGEL.