(No Model.)

F. W. DUNLAP & J. R. QUAIN.

LIGHT REFRACTING AND MAGNIFYING ENVELOP FOR INCANDESCENT LAMPS.

No. 597,964. Patented Jan. 25, 1898.

FIG. 1

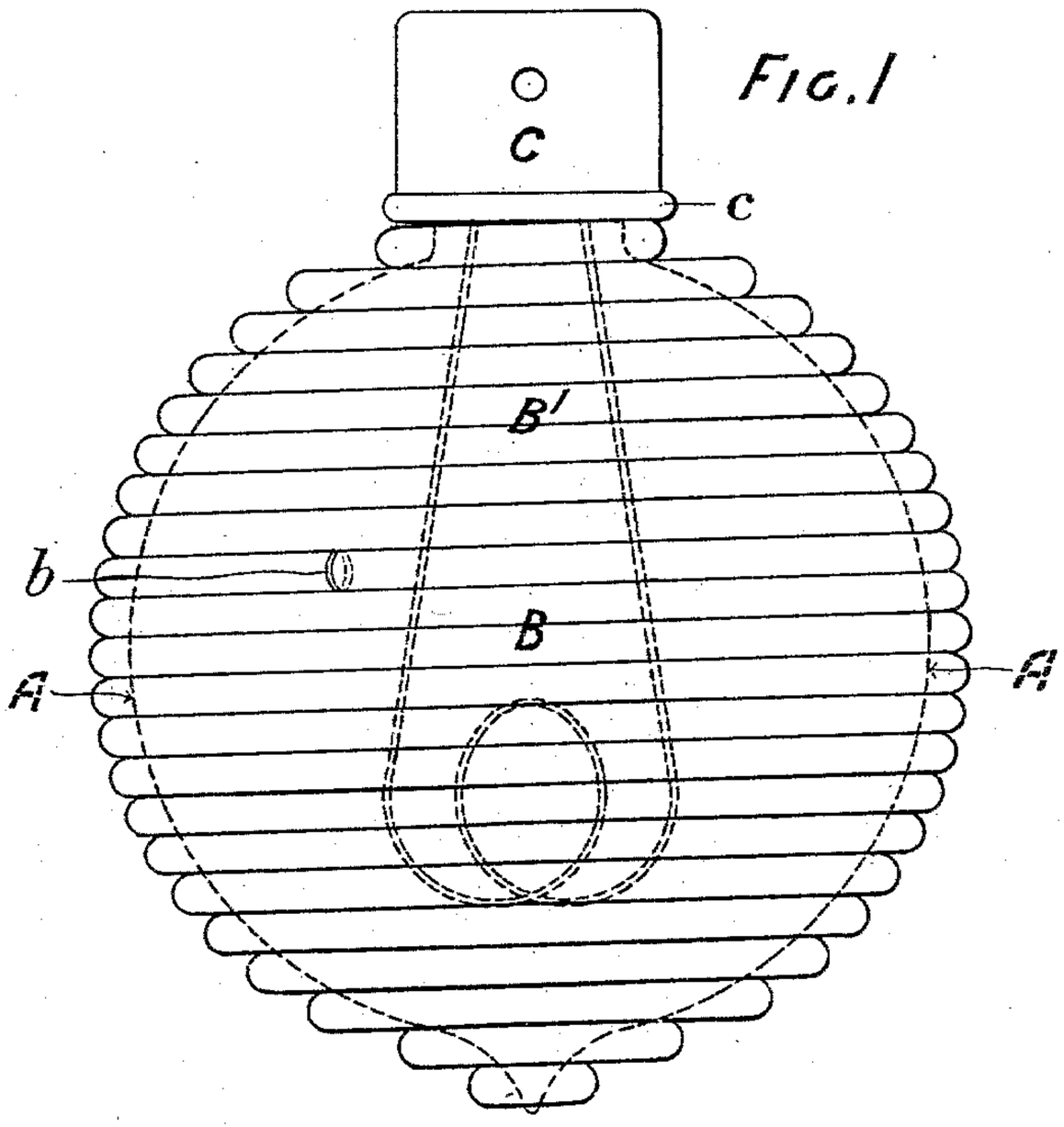
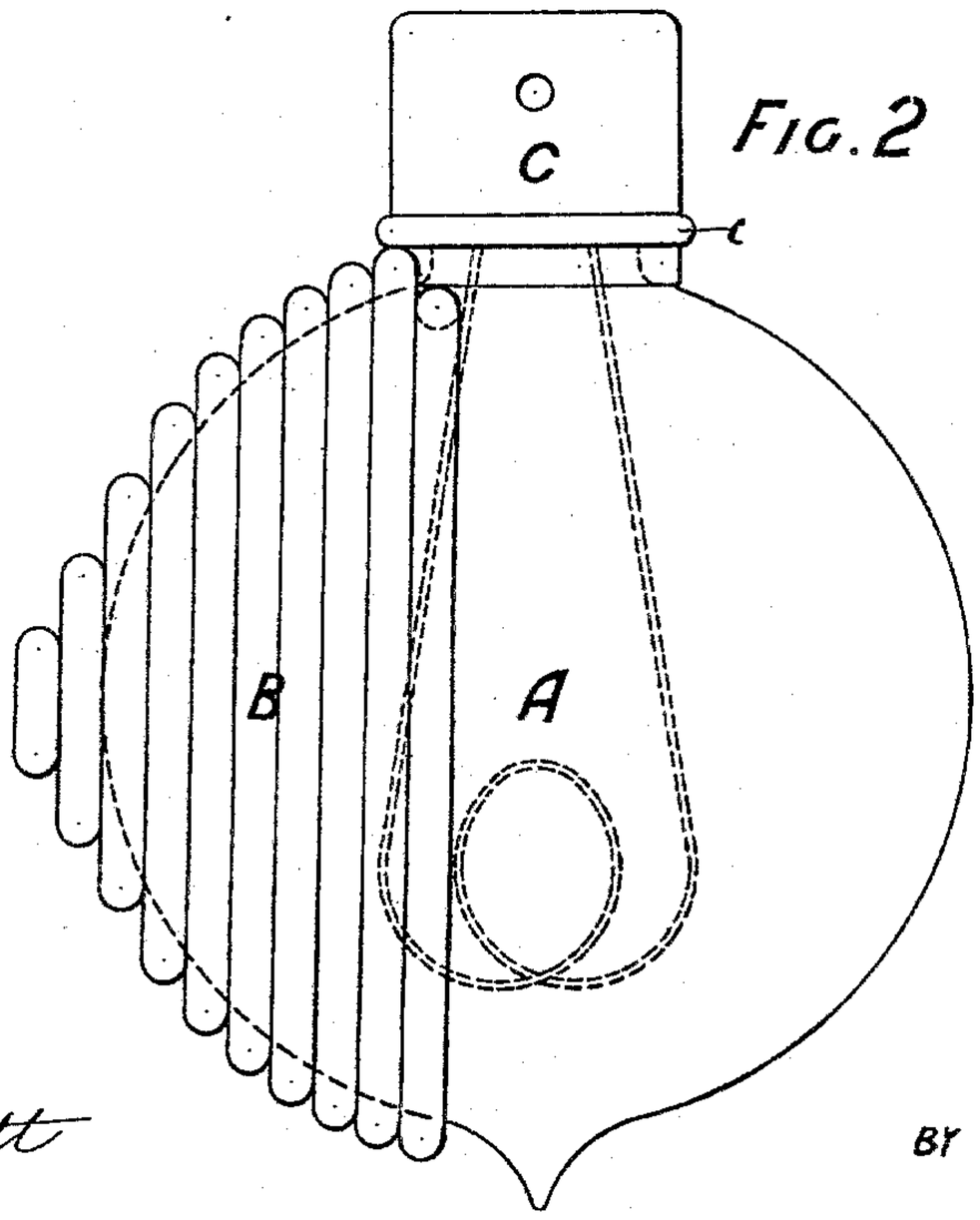


FIG. 2



WITNESSES.

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LIGHT REFRACTING AND MAGNIFYING ENVELOP FOR INCANDESCENT LAMPS.

SPECIFICATION forming part of Letters Patent No. 597,964, dated January 25, 1898.

Application filed June 2, 1897. Serial No. 639,174. (No model.)

To all whom it may concern:

Be it known that we, FOREST WILLIAM DUNLAP and JOHN ROBERT QUAIN, of the city of London, England, have invented a new and useful Light Refracting and Magnifying Envelop for Incandescent Lamps, of which the following is a full, clear, and exact description.

Our invention relates to an improved light refracting and magnifying envelop for incandescent lamps, whereby the light-rays may be concentrated in the downward or any other direction in which increased illumination may be required without thereby causing any shadow to be projected in the opposite direction.

The invention is illustrated in the accompanying drawings and will be described with reference thereto; and it consists in enveloping the bulb A of an ordinary incandescent lamp or a portion thereof in a light-refracting jacket B B', constructed of one or more closely-wound spiral coils of glass rod of small circular or prismatic cross-section, so as to possess throughout its length the property of a biconvex lens or of a prism, whereby the desired concentrating and magnifying effect is produced.

The glass rod is heated in the blowpipe-flame and is closely wound upon a mandrel of corresponding shape to the lamp-bulb, the coils being in close juxtaposition, without, however, adhering to each other, so as to leave sufficient freedom to enable the coil to be sprung over the bulb of the lamp in order that it shall retain itself thereon by the inherent elasticity of the glass. As, however, this elasticity is very limited it is necessary to make the complete envelop in two parts B B', the one applied to the bulb from above and the other from below and meeting, preferably at a point *b*, just above the largest diameter of the bulb; so that the lower part B may be sprung over the largest part of the bulb and will be self-retaining thereon. The upper part B' has a central aperture large enough to pass over the neck of the bulb and may be held in position by a flange *c*, formed on the metal collar C, which is cemented onto the neck of the bulb in the ordinary way after the light-refracting envelop has been applied.

In order to insure a permanent attachment of the spiral coil to the bulb and prevent displacement when the lamp is handled for the purpose of being inserted in or removed from its holder or otherwise, the adjacent coils of the envelop B B' are firmly united to each other (after the envelop has been applied upon the bulb) by transparent cement, such as ordinarily used for uniting broken glass or porcelain. Similarly the upper convolution of the lower part B would be cemented to the lower convolution of the upper part B', and the convolutions of both parts may be cemented to the bulb A where they touch it.

The glass rod of which the above-described envelop is made may be of colorless or colored glass and may be clear or frosted, and the two parts of the envelop may be alike or different in these respects, according to the requirements of the case.

Where it is not required to apply the envelop to the entire lamp, the upper or the lower half may be employed, as may be required. Furthermore, when it is desired to project the light mainly in one particular direction, as in illuminating shop-fronts for the display of goods, the spirally-wound coil of glass may be applied to the side of the lamp-bulb, as shown in Figure 2, in which case the coils would lie in vertical instead of horizontal planes, the concave side of the spiral coil fitting closely to the bulb and being firmly attached thereto by transparent cement.

Having now particularly described and ascertained the nature of the said invention and in what manner the same is to be performed, we declare that what we claim is—

1. The combination with an incandescent electric-lamp bulb, of a light-refracting envelop formed of a closely-wound spiral of glass rod of circular or other section applied upon the bulb of the lamp substantially as specified.

2. As a new article of manufacture, a light-refracting jacket for lamp-bulbs, comprising a rod of glass formed into coils and shaped to fit upon the bulb, as set forth.

3. A light-refracting jacket for lamp-bulbs,

comprising two sections shaped to fit upon and envelop the bulb, each section being formed of a rod of glass coiled spirally, substantially as described.

4. A light-refracting jacket for lamp-bulbs, consisting of an upper and lower section shaped to fit upon and envelop the bulb, the lower section being the larger and each section being formed of a rod of glass coiled spirally, substantially as herein shown and described.

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Witnesses:
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