

Dec. 23, 1941.

H. R. ROBINSON ET AL

2,267,669

STREET LAMP

Filed July 24, 1940

2 Sheets-Sheet 1

Fig. 1.

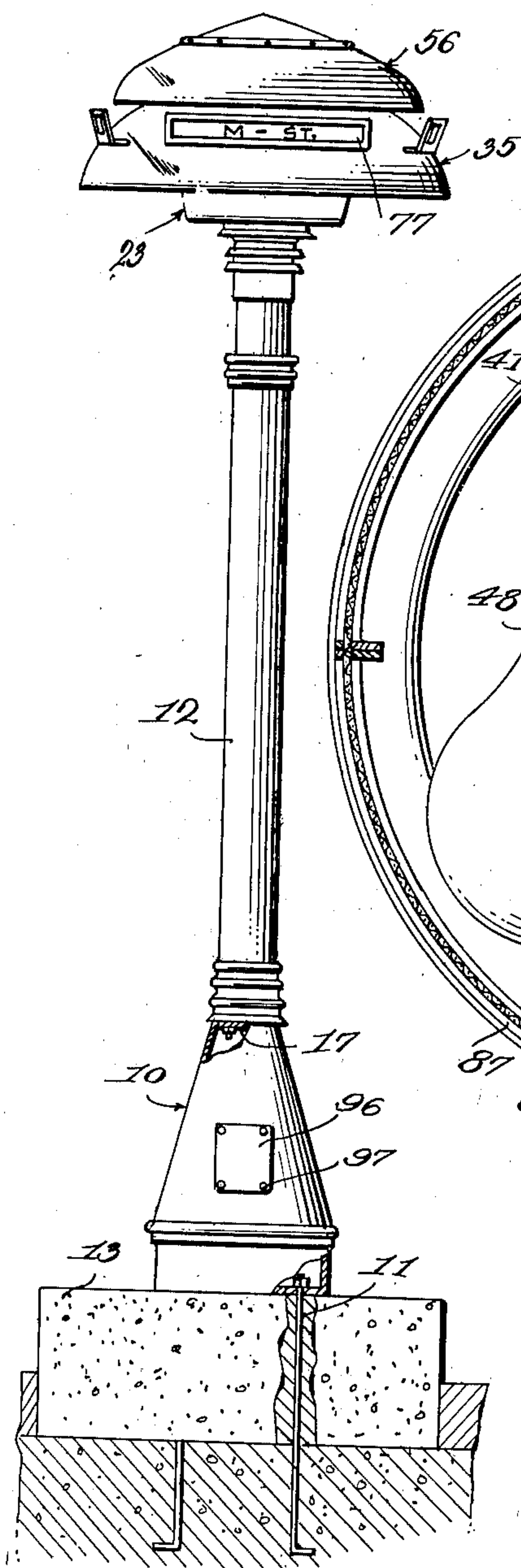


Fig. 6.

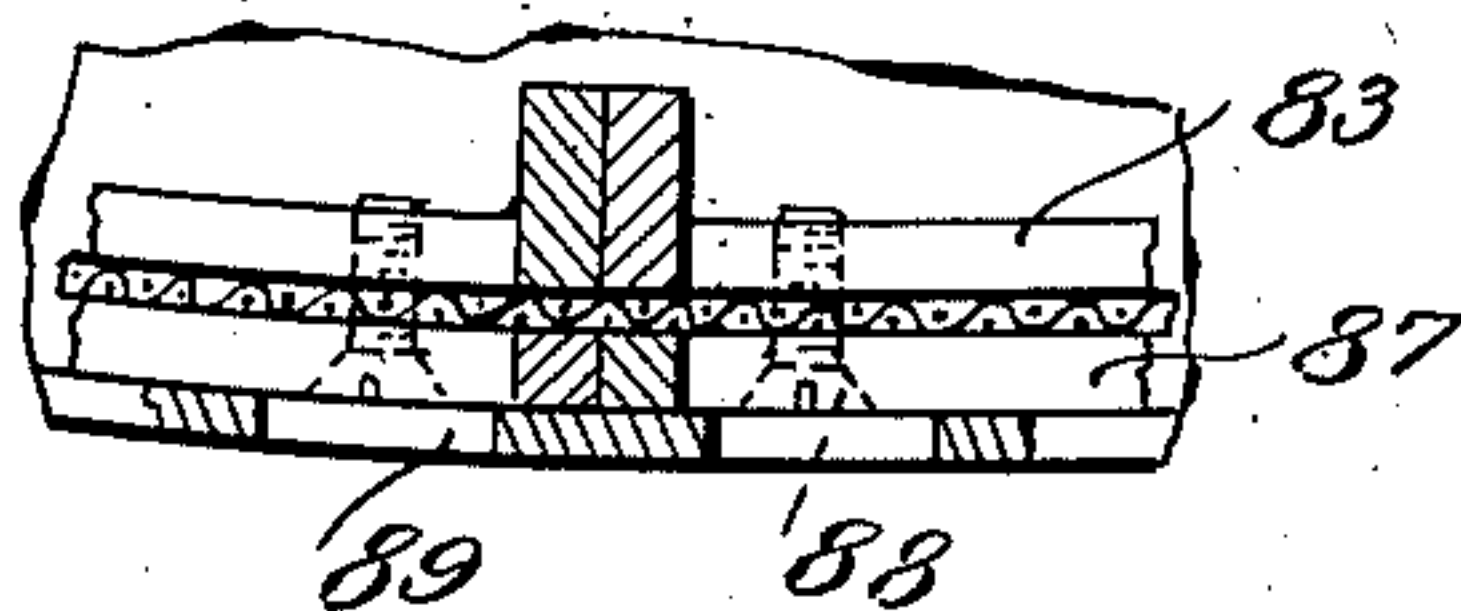
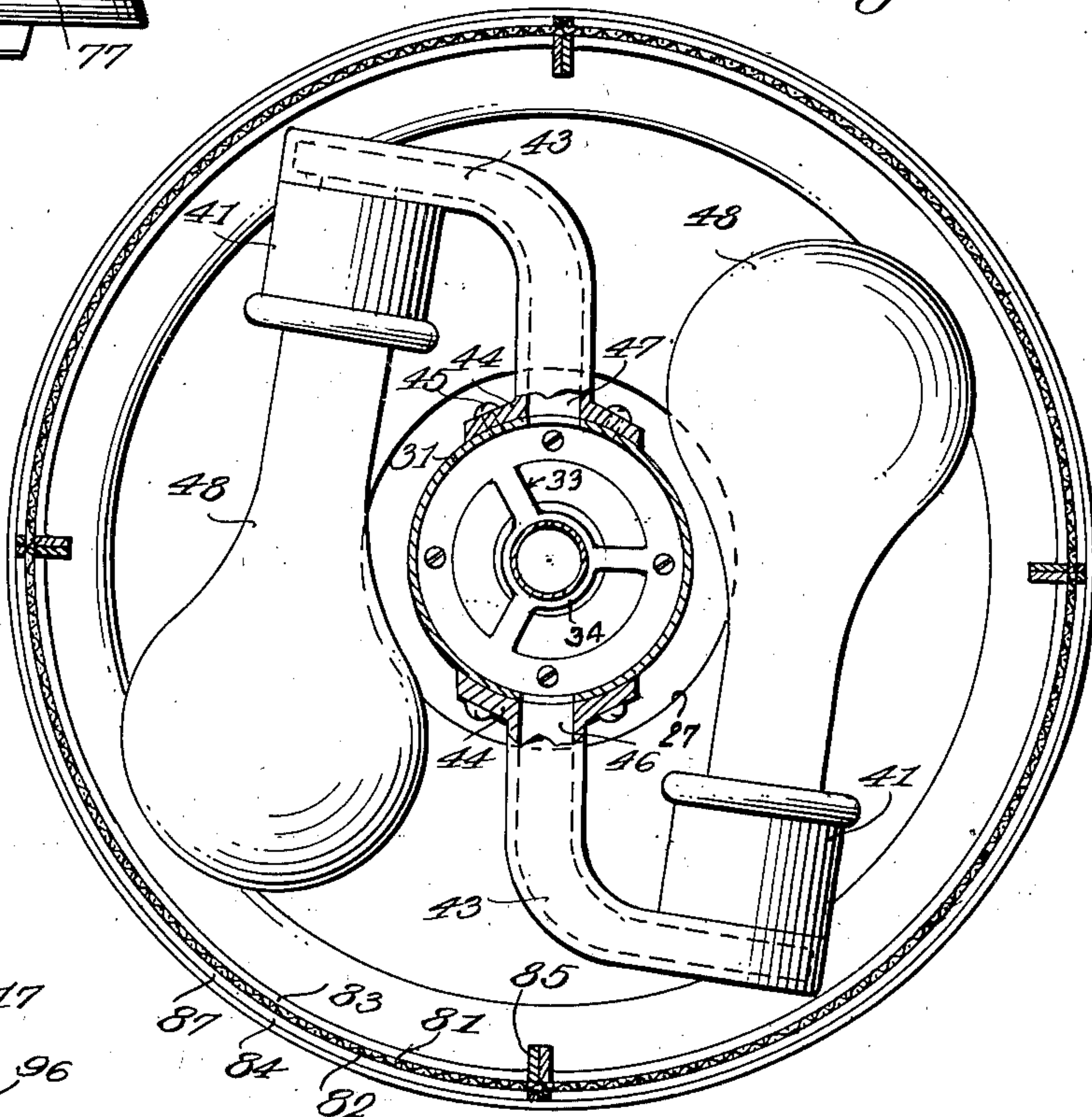


Fig. 3.



Inventors

H. R. Robinson
A. J. C. Knudstrup

By

Kimmel & Crowell

Attorneys

Dec. 23, 1941.

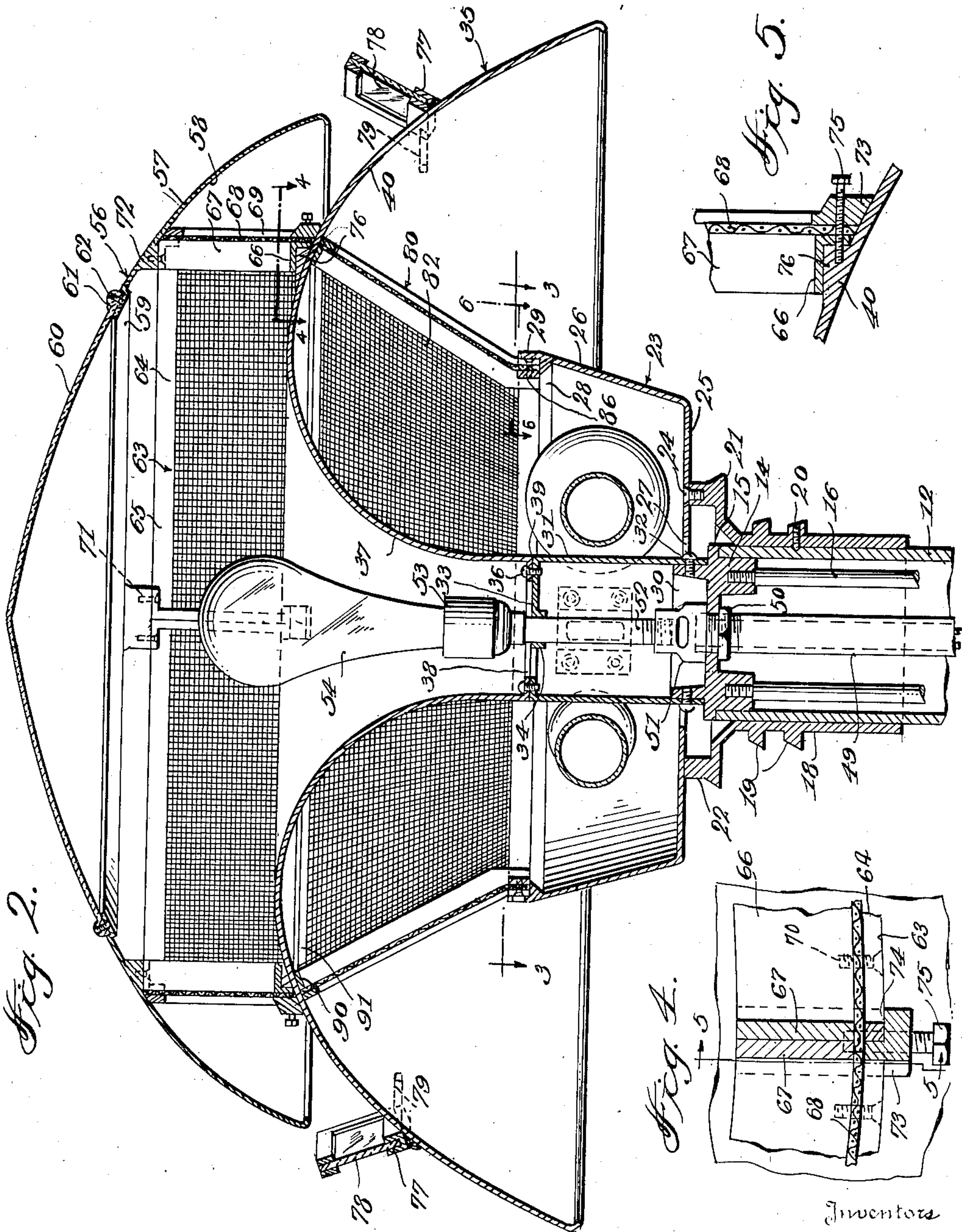
H. R. ROBINSON ET AL

2,267,669

STREET LAMP

Filed July 24, 1940

2 Sheets-Sheet 2



Inventors

H. R. Robinson

A. J. C. Knudstrup

334

Kimmel & Crowell

Attorneys

UNITED STATES PATENT OFFICE

2,267,669

STREET LAMP

Hilyard R. Robinson, Washington, D. C., and
Aksel J. C. Knudstrup, Vienna, Va.

Application July 24, 1940, Serial No. 347,292

7 Claims. (Cl. 240—25)

This invention relates to lamps and more particularly to street lamps.

An object of this invention is to provide a street lamp including a metal standard and a plurality of inverted metal reflectors on the standard for projecting light rays downwardly without causing glare.

Another object of this invention is to provide a lamp of this character wherein the reflectors will not be broken as in the case with glass globes now in use so as to save the expense of replacing the globes.

A further object of this invention is to provide a street lamp which is so constructed as to direct the light rays downwardly and outwardly from the light source.

A still further object of this invention is to provide a street lamp including a plurality of confronting metallic reflectors and screen means between the reflectors.

A further object of this invention is to provide in combination with a street lamp having metallic reflectors and metallic insect screens removably positioned between the reflectors.

A further object of this invention is to provide a street lamp which is so constructed as to facilitate the replacement of light bulbs.

A further object of this invention is to provide in a street lamp a lower upwardly directed reflector, an upper downwardly directed reflector, and an intermediate reflector, the intermediate reflector being provided with reflecting upper and lower surfaces for correlation with the upper and lower reflectors in reflecting the light rays emanating from the light source.

To the foregoing objects and to others which may hereinafter appear, the invention consists of the novel construction, combination and arrangement of parts as will be more specifically referred to and illustrated in the accompanying drawings, wherein is shown an embodiment of the invention, but it is to be understood that changes, variations and modifications may be resorted to which fall within the scope of the invention as claimed.

In the drawings:

Figure 1 is a detail side elevation, partly broken away and in section, of a street lamp constructed according to an embodiment of this invention,

Figure 2 is an enlarged fragmentary vertical section through the upper portion of the lamp,

Figure 3 is a sectional view taken on the line 3—3 of Figure 2,

Figure 4 is a fragmentary sectional view taken on the line 4—4 of Figure 2,

Figure 5 is a sectional view taken on the line 5—5 of Figure 4, and

Figure 6 is a fragmentary sectional view taken on the line 6—6 of Figure 2.

Referring to the drawings, the numeral 10 designates generally a base which is adapted to be secured by anchoring members 11 to a base block 13. A standard 12 extends upwardly from the base 10 and the upper end of the standard 12 has a cap 14 mounted thereon. The cap 14 is provided with an upper flange 15 engaging over the upper end of the standard 12 and a plurality of clamping rods 16 are threaded into the cap 14 and extend through the top wall or flange 17 of the base 10 so as to tightly hold the standard 12 on the substantially frusto-conical base 10.

A sleeve 18 is disposed about the upper portion of the standard 12 and is provided with a pair of spaced apart peripheral ribs 19 which constitute reinforcing means for the sleeve 18 and also decorative means therefor. A set screw 20 engages through the lowermost of the ribs 19 and tightly holds the sleeve 18 on the upper end of the standard 12. The upper end of the sleeve 18 is formed with an outwardly extending flange 21 and a cylindrical or upstanding flange 22 is carried by the horizontal flange 21.

A lower upwardly directed reflector generally designated as 23 is secured as by fastening devices 24 to the cylindrical flange 22. The reflector 23 comprises a substantially flat base plate 25 which at its marginal edge is formed with an upper and outwardly tapered side wall 26. The base plate 25 has a relatively large opening 27 formed axially thereof, the purpose for which will be hereinafter described. A substantially triangular rib or shoulder 28 is formed on the upper end of the side wall 26 and a cylindrical flange 29 is formed with the side wall 26 and extends upwardly from the shoulder or seat 28. The inner surface of the reflector 23 is formed of light reflecting characteristic so that light rays from a light source disposed within the reflector 23 will be reflected upwardly.

The cap 14 on its upper side is formed with an upstanding cylindrical flange 30 and a cylindrical supporting member 31 engages about the flange 30 and is secured at its lower end to the flange 30 by means of fastening devices 32. The cylindrical supporting member 31 is adapted to have a light reflecting outer surface and terminates at its upper end substantially flush with the shoulder 28. The upper end of the support-

ing member 31 is formed with a spider 33 which has a sleeve 34 at the center thereof. An intermediate reflector generally designated as 35 is secured as by fastening devices 36 to the supporting member 31 and extends upwardly above the lower reflector 23 and terminates at its outer lower edge at a point below the upper end of the reflector 23.

The intermediate reflector 35 comprises a substantially inverted frusto-conical central portion 37 which is formed at its lower end with a flange 38 engaging the marginal portion of the spider 33. The intermediate reflector 37 also includes a concavo-convex outer reflecting portion 40, the outer edge of which extends substantially below the upper end of the lower reflector 23. In transverse section through one-half of the intermediate reflector 35, the reflector has substantially the configuration of a spiral curve with the smaller portion thereof innermost.

A pair of light sockets 41 are disposed within the lower reflector 23. Each light socket 41 has secured thereto a hollow substantially L-shaped supporting arm 43 which has a base flange 44 engaging against the supporting member 31. The base 44 is secured to the supporting member 31 by fastening devices 45. The supporting member 43 is adapted to have a pair of wires extended therethrough and the supporting member 31 is formed with an opening 46 communicating with the passage 47 in the supporting member 44 so that a pair of wires may be extended from the interior of the supporting member 31 through the opening 46, the passage 47 and to the socket 41. A light bulb 48 is adapted to be mounted in each socket 41. As shown in Figure 3 the light sockets 41 are disposed in opposed relation so that the two light bulbs will be disposed on opposite sides of the supporting member 31 and within the lower reflector 23. A conduit 49 is disposed axially of the standard 12, and is threaded at its upper end through the cap 14 and locked by a lock nut 50. A hickey 51 is threaded onto the upper end of the conduit 49 above the cap 14 and a short pipe or nipple 52 is threaded into the hickey 51 and extends upwardly through the sleeve 34 of the spider 33.

A light socket 53 is carried by the upper end of the pipe or nipple 52 above the spider 33 and a light bulb 54 is adapted to be mounted in the socket 53. The intermediate reflector 35 is formed with light reflecting upper and lower surfaces so that the light rays emanating from the light bulbs 48 will be reflected outwardly and downwardly by the lower surface of the intermediate reflector 35 and the light rays from the light source 54 will be reflected upwardly by the reflecting upper surface of the central portion 37 of the intermediate reflector 35.

An upper reflector generally designated as 56 is disposed in upwardly spaced relation to the intermediate reflector 35 and comprises an outer reflector part or section 57 in substantially the form of a ring which has a concave inner reflecting surface 58. The inner edge of the outer part 57 of the upper reflector is formed with a downward offset flange 59 on which the outer edge of an inverted cup-shaped inner reflector part or section 60 is adapted to engage. The inner part 60 is formed at its lower edge with an annular rim 61 and the upper inner part 60 is adapted to be removably secured on the flange 59 by fastening devices 62. The provision of the removable upper reflector part 60 provides a means whereby the light bulb 54 may be readily

replaced and in addition the fastening devices 36 may be engaged with a tool through the top of the device so that the intermediate reflector 35 may be removed in order to replace the light bulbs 48. The upper reflector 56 is supported in upwardly spaced relation from the intermediate reflector 35 by means of a substantially annular supporting means generally designated as 63. This supporting means 63 comprises a plurality of arcuate frame members 64 which includes an angular member 65, a lower angular member 66 and connecting bars 67 at the opposite ends of the angular members 65 and 66. A screen 68 engages against the outer side of the frame member 64 and is held against the inner frame structure 64 by an outer frame 69 which is secured to the inner frame 64 by fastening devices 70. The screen 68, as shown in the drawings, is formed of woven wire mesh but it will be understood that the term "screen" as used in the specifications and claims applies to woven mesh material, spiral or parallel closely spaced wires or bars. The screen 68 is secured at its upper edge to the under surface of the upper reflector 56 by fastening devices 71 which engage through the inner frame 64 and extend into substantially right angular lugs 72 which are carried by the inner surface of the upper reflector 56. The screen sections 64 are disposed in edge abutting relation so that when they are in assembled position they will form an annular screen.

The lower angular member 66 has formed therewith an outwardly extending lug 73 which is formed with an offset shoulder 74 which is adapted to engage the adjacent edge of an adjacent screen section 64 so as to hold the adjacent screen section in applied position. A bolt 75 is extended through the lug 73 and is threaded into a substantially right angular lug 76 which is fixed to the upper surface of the intermediate reflector 35. In this manner the several screen sections 64 may be fixed relative to the intermediate reflector 35. The screen structure 63 not only provides a means whereby insects are prevented from entering the space between the upper reflector 56 and the intermediate reflector 35, but also provides a means for supporting the upper reflector 56 from the intermediate reflector 35.

The intermediate reflector 35 at a point outwardly of and below the lower edge of the upper reflector 56 has mounted thereon a street name plate holder 77. The holder 77 is arcuate longitudinally and is of channel shape and a transparent or translucent name plate 78 is adapted to be removably mounted in the holder 77. Preferably, the curve of the holder 77 is slightly greater than the curvature of the reflector 35 above the lower edge of the reflector 35 and the holder 77 adjacent the outer end portions thereof is formed with inwardly projecting extensions 79 which are fixed as by soldering, welding or the like to the reflector 35. The panel or name plate 78 is adapted to be lighted by rays passing between the upper and intermediate reflectors which are reflected from the light source 54.

A lower screen structure generally designated as 80 is interposed between the lower reflector 23 and the intermediate reflector 35. The lower screen structure 80 is substantially in the form of an inverted frusto-conical screen and comprises a plurality of edge abutting arcuate sections 81. The arcuate sections 81 have a screen 82 secured between inner and outer frame sections 83 and 84 and preferably, the frame sections 83 and 84 have upper and outwardly ex-

tending end bars 85, which as shown in Figure 3, are adapted to be disposed in side abutting relation. The frame structure 81 also includes an arcuate lower bar 86 disposed on the inner side of the screen 82 and an outer lower bar 87 which engages against the outer side of the lower edge of the screen 82. The two lower bars 83 and 87 are secured together by fastening devices 88. Preferably, the annular flange 29 is formed with an upwardly opening slot 89 through which the fastening devices 88 may be contacted by means of a tool in order to loosen the lower screen bars 83 and 87. The lower edge of the screen structure 80 is adapted to seat on the rib or shoulder 28 and the upper edge of the screen structure 80 is adapted to be secured to the under side of the intermediate reflector 35 by fastening devices 90 which engage through an upper flange 91 carried by the frame sections 81.

The reflectors 23, 35 and 56 are adapted to be made out of metal so that the lamp structure hereinbefore described will not be readily broken when struck by any flying object. The lamp structure hereinbefore described will provide indirect light rays which are directed outwardly and downwardly from the light source so that adequate lighting will be provided about the standard 12 and the base 10 without forming a glare.

The light bulbs 48 may be made available for replacement by loosening the set screw 20 and dropping the sleeve 18 with the reflector 23 attached thereto downwardly of the standard 12. This will expose the light bulbs 48 so that they may be replaced or any other repairs performed in the light or reflector structure. When the lower reflector 23 and the sleeve 18 are lowered, the lower screen 80 will remain secured to the intermediate reflector 35 as the lower edge of the lower screen 80 merely rests on the rib or seat 28. The base 10 of the standard 12 may be provided with an inspection plate 96 which may be secured to the base 10 by fastening devices 97.

A lamp structure constructed according to this invention will provide adequate indirect or non-glare lighting for streets so that the surfaces of the streets will be properly lighted, whereas the dwellings adjacent the street will not receive the glare from the street lamps as is at present the case. In addition, the construction of the reflectors out of metal will save a considerable replacement cost over the glass globes at present in use so that the use of a street lamp of this character will not only provide more efficient non-glare lighting for streets, but will also provide an economical lamp structure which will not easily become damaged.

What we claim is:

1. A street lamp comprising a hollow standard, a sleeve detachably mounted about the upper end of said standard, an outwardly extending flange carried by the upper end of said sleeve, a cylindrical flange extending upwardly of said first flange and having a diameter greater than the diameter of said sleeve, a cap on the upper end of said standard, cap retaining rods in said standard and fixed at their upper ends to said cap, an annular upstanding flange carried by said cap, an upwardly directed lower reflector, means securing said lower reflector to said cylindrical flange, an inwardly extending rib carried by said lower reflector below the upper end thereof, a cylindrical support fixed to said annular flange, a pair of light bulb sockets in said lower reflector,

means fixed to said support for supporting said sockets in horizontal position in said lower reflector, an intermediate downwardly directed reflector fixed to said cylindrical support, an inverted substantially frusto-conical screen seated at its lower end within said lower reflector and on said rib, means securing the upper end of said screen to said intermediate reflector, an upper downwardly directed reflector, means supporting said upper reflector in spaced relation above said intermediate reflector, said upper reflector including an outer annular ring formed with a lower reflecting surface, an inwardly offset flange carried by said ring, an inner cap engaging on said flange and formed with a lower concave reflecting surface, and means detachably securing said cap on said offset flange.

2. A street lamp comprising a hollow standard, a sleeve detachably mounted about the upper end of said standard, an outwardly extending flange carried by the upper end of said sleeve, a cylindrical flange extending upwardly of said first flange and having a diameter greater than the diameter of said sleeve, a cap on the upper end of said standard, cap retaining rods in said standard and fixed at their upper ends to said cap, an annular upstanding flange carried by said cap, an upwardly directed lower reflector, means securing said lower reflector to said cylindrical flange, an inwardly extending rib carried by said lower reflector below the upper end thereof, a cylindrical support fixed to said annular flange, a pair of light bulb sockets in said lower reflector, means fixed to said support for supporting said sockets in said lower reflector, an intermediate downwardly directed reflector fixed to said cylindrical support, an inverted substantially frusto-conical screen seated at its lower end within said lower reflector and on said rib, means securing the upper end of said screen to said intermediate reflector, an upper downwardly directed reflector, means supporting said upper reflector in spaced relation above said intermediate reflector, said upper reflector including an outer annular ring formed with a lower reflecting surface, an inwardly offset flange carried by said ring, an inner cap engaging on said flange and formed with a lower concave reflecting surface, and means detachably securing said cap on said offset flange.

3. A street lamp comprising a hollow standard, a sleeve detachably mounted about the upper end of said standard, an outwardly extending flange carried by the upper end of said sleeve, a cylindrical flange extending upwardly of said first flange and having a diameter greater than the diameter of said sleeve, a cap on the upper end of said standard, cap retaining rods in said standard and fixed at their upper ends to said cap, an annular upstanding flange carried by said cap, an upwardly directed lower reflector, means securing said lower reflector to said cylindrical flange, an inwardly extending rib carried by said lower reflector below the upper end thereof, a cylindrical support fixed to said annular flange, a pair of light bulb sockets in said lower reflector, means for supporting said sockets in said lower reflector, an intermediate downwardly directed reflector fixed to said cylindrical support, an inverted substantially frusto-conical screen seated at its lower end within said lower reflector and on said rib, means securing the upper end of said screen to said intermediate reflector, an upper downwardly directed reflector, means supporting said upper reflector in spaced relation above said

intermediate reflector, said upper reflector including an outer annular ring formed with a lower reflecting surface, an inwardly offset flange carried by said ring, an inner cap engaging on said flange and formed with a lower concave reflecting surface, and means detachably securing said cap on said offset flange.

4. A street lamp comprising a hollow standard, a sleeve detachably mounted about the upper end of said standard, an outwardly extending flange carried by the upper end of said sleeve, a cylindrical flange extending upwardly of said first flange and having a diameter greater than the diameter of said sleeve, a cap on the upper end of said standard, cap retaining rods in said standard and fixed at their upper ends to said cap, an annular upstanding flange carried by said cap, an upwardly directed lower reflector, means securing said lower reflector to said cylindrical flange, an inwardly extending rib carried by said lower reflector below the upper end thereof, a cylindrical support fixed to said annular flange, a pair of light bulb sockets in said lower reflector, means for supporting said sockets in said lower reflector, an intermediate downwardly directed reflector fixed to said cylindrical support, an inverted light transmitting member seated at its lower end within said lower reflector and on said rib, means securing the upper end of said light transmitting member to said intermediate reflector, an upper downwardly directed reflector, means supporting said upper reflector in spaced relation above said intermediate reflector, said upper reflector including an outer annular ring formed with a lower reflecting surface, an inwardly offset flange carried by said ring, an inner cap engaging on said flange and formed with a lower concave reflecting surface, and means detachably securing said cap on said offset flange.

5. In a street lamp, a horizontally disposed open top annular reflector of cup-like form, an upstanding support therefor, an annular vertically disposed supporting member fixed to said support extending through the bottom of and into and disposed coaxially with said reflector, said member having its outer surface possessing a reflecting characteristic, an intermediate reflector having a vertically disposed hollow flared portion secured to said member and a depending curved outer portion encompassing in spaced relation the upper portion of said lower reflector, said intermediate reflector having its inner and outer faces possessing reflecting characteristics, an upper reflector formed of a ring-like outer section arranged over the inner part of the outer portion of the intermediate reflector and an inverted cup-shaped inner section detachably connected to said outer section and arranged over the inner portion and the inner part of the outer portion of the intermediate reflector, illuminating means in said lower reflector and common to the latter and to said intermediate reflector, and said member, and illuminating means arranged within the inner portion of the intermediate reflector, extended into the outer section of the upper reflector and arranged above said member.

6. In a street lamp, a horizontally disposed open

top annular reflector of cup-like form, an upstanding support therefor, an annular vertically disposed supporting member fixed to said support extending through the bottom of and into and disposed coaxially with said reflector, said member having its outer surface possessing a reflecting characteristic, an intermediate reflector having a vertically disposed hollow flared portion secured to said member and a depending curved outer portion encompassing in spaced relation the upper portion of said lower reflector, said intermediate reflector having its inner and outer faces possessing reflecting characteristics, an upper reflector formed of a ring-like outer section arranged over the inner part of the outer portion of the intermediate reflector and an inverted cup-shaped inner section detachably connected to said outer section and arranged over the inner portion and the inner part of the outer portion of the intermediate reflector, illuminating means in said lower reflector and common to the latter and to said intermediate reflector and said member, illuminating means arranged within the inner portion of the intermediate reflector, extended into the outer section of the upper reflector and arranged above said member, supporting means interposed between the lower reflector and the outer portion of the intermediate reflectors and including an upstanding screen means, and supporting means interposed between the outer portion of said intermediate reflector and the outer section of the upper reflector and including an upstanding screen means.

7. In a street lamp, a horizontally disposed open top annular reflector of cup-like form, an upstanding support therefor, an annular vertically disposed supporting member fixed to said support extending through the bottom of and into and disposed coaxially with said reflector, said member having its outer surface possessing a reflecting characteristic, an intermediate reflector having a vertically disposed hollow flared portion secured to said member and a depending curved outer portion encompassing in spaced relation the upper portion of said lower reflector, said intermediate reflector having its inner and outer faces possessing reflecting characteristics, an upper reflector formed of a ring-like outer section arranged over the inner part of the outer portion of the intermediate reflector and an inverted cup-shaped inner section detachably connected to said outer section and arranged over the inner portion and the inner part of the outer portion of the intermediate reflector, substantially horizontally disposed oppositely extending lower illuminating means completely housed in said lower reflector common to the latter and to the said intermediate reflector and said member, upper illuminating means within the inner portion of the intermediate reflector, extended into the outer section of the upper reflector and arranged above said member, and means extending from said upstanding support through said member for supporting said upper illuminating means.

HILYARD R. ROBINSON.
AKSEL J. C. KNUDSTRUP.