Dec. 20, 1960 T. A. STIFFEL 2,965,751

LIGHTING FIXTURES

Filed Aug. 28, 1957 2 Sheets-Sheet 1

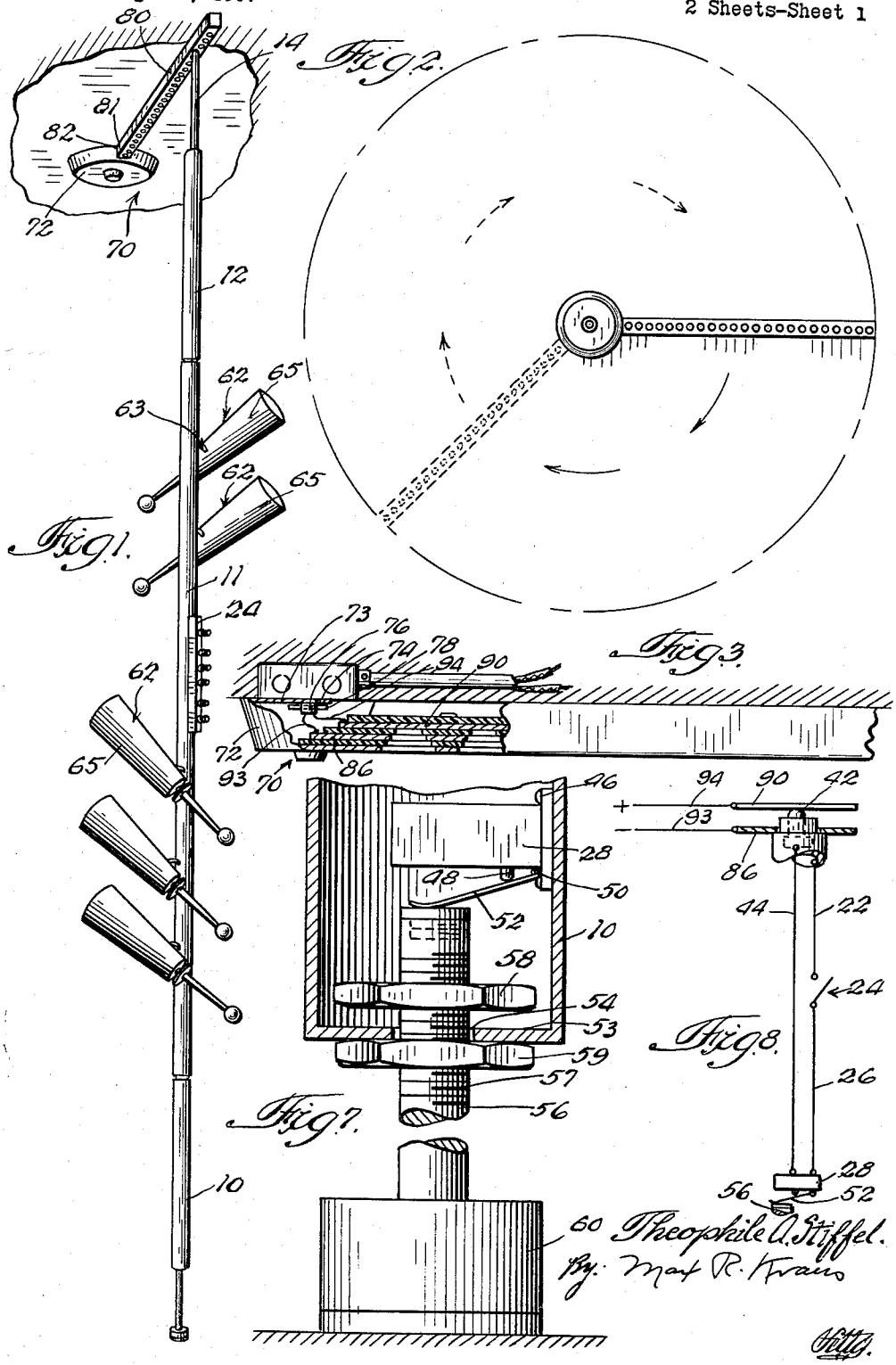

Fig. 2.

Fig. 1.

Fig. 3.

Fig. 8.

Fig. 7.

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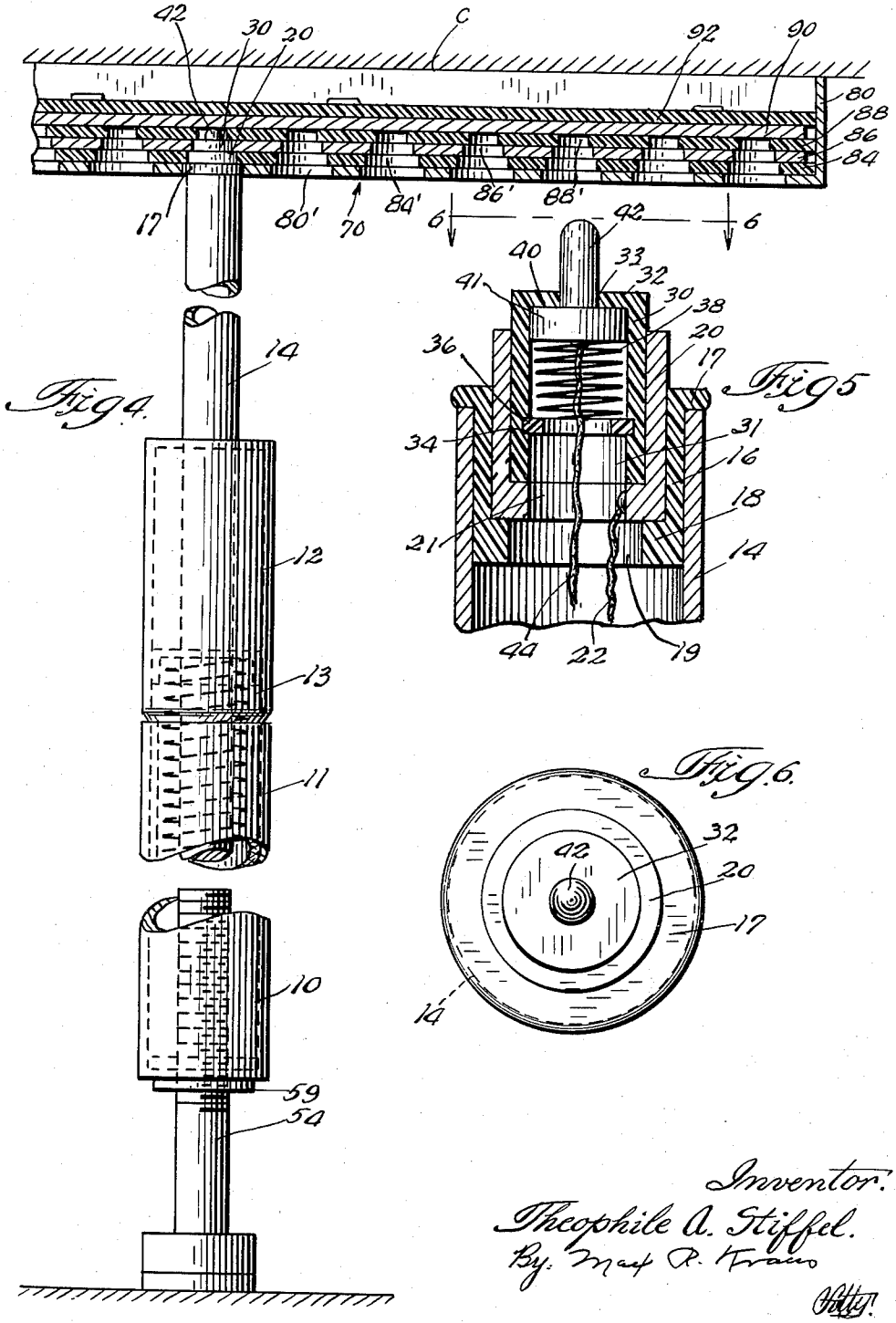

Fig 4.

Fig 5

Fig 6.

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LIGHTING FIXTURES

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6 Claims. (Cl. 240—52.1)

This invention relates to improvements in lighting fixtures and more particularly to a lighting fixture adapted to be supported between a floor and ceiling surface or between two supporting surfaces.

One of the objects of this invention is to provide a lighting fixture of the general character described in my Patent No. 2,793,286 issued May 21, 1957, which fixture is adapted to be supported by and between floor and ceiling surfaces, wherein the lighting fixture may be electrically connected, without utilizing the conventional outlet plugs usually found on the walls of the room and without the necessity of having electrical wires extending from the lighting unit to said outlet plugs.

Another object of the invention is to provide a lighting fixture which is mounted by and between floor and ceiling surfaces, and electrically connected to a ceiling mounted unit thereby eliminating the use of conventional wiring cord and electrical wall outlets and more positively securing the lighting fixture against accidental displacement.

Another object of this invention is to provide a pole type lighting fixture supported between two horizontal surfaces which is electrically connected to means supported on one of the horizontal surfaces by the insertion and positioning of the pole fixture and which eliminates the use of conventional electrical connecting means.

More specifically, another object of this invention is to provide a pole type lighting unit adapted to be supported between floor and ceiling surfaces which is electrically connected by means of a ceiling mounted unit thereby eliminating the use of conventional cords and electrical wall outlets, and is further characterized by structure wherein said pole unit is placed in electrical connection merely by positioning same against the ceiling mounted unit and wherein the ceiling mounted unit may be rotated 360° about a fixed axis and by structure which permits said pole member to be positioned anywhere along the length of said ceiling mounted unit thereby permitting said pole lighting fixture to be supported in any substantially desired position within the radius and circumference of movement of said ceiling mounted unit.

Other objects will become apparent as this description progresses.

In the drawings:

Figure 1 is a perspective view of this invention showing the lighting fixture pole in electrical connection with the ceiling mounted unit.

Figure 2 is a plan view showing the arrangement and positioning of the ceiling mounted unit.

Figure 3 is a view partially in cross section of the ceiling mounted unit.

Figure 4 is an enlarged view partially in cross section showing portions of the lighting fixture pole and its securement to the ceiling mounted unit.

Figure 5 is an enlarged cross sectional view of the upper portion of the lighting fixture pole which engages the ceiling mounted unit.

Figure 6 is a plan view taken on lines 6—6 of Figure 5.

Figure 7 is an enlarged view partly in section of the lower portion of the lighting fixture pole.

Figure 8 is a schematic of the electrical circuit.

The pole is generally similar to that described in my Patent No. 2,793,286 and comprises a plurality of tubular sections **10**, **11** and **12** telescopically joined or nested together at their ends as therein described to form a singular tubular pole. The upper tubular sections **12** support a tubular section or abutment member **14** and also contains a spring **13** which urges the abutment member **14** upwardly or outwardly of tubular section **12**, all as described in said patent.

As best seen in Figure 5, there is fixedly seated within the open end of the tubular abutment member **14** an insulating sleeve **16** whose upper flange **17** seats on the end of the tubular abutment **14**. The bottom **18** of the insulating sleeve **16** has an enlarged opening **19**. Secured and fixedly supported within said insulating sleeve **16** is a metal or electrical conducting sleeve **20** having a bottom provided with an enlarged opening **21**. Secured to said electrical conducting sleeve **20** is a conducting wire **22** which extends downwardly through the tubular abutment **14** and into tubular sections **12** and **11** and is connected at its opposite end to the switch members generally indicated at **24** which is mounted on section **11** of the pole and then through conducting wire **26** to the momentary contact switch generally indicated at **28** which is mounted in tubular section **10** of the pole.

Fixedly secured within the electrical conducting sleeve **20** is an insulating cap member generally indicated at **30** which is open at the bottom as at **31** and which has a top **32** provided with an opening **33**. The cap member **30** has a circumferential groove **34** which supports an insulating washer **36** on which rests a coil spring **38**. Slidably supported in the cap **30** is a plunger member generally indicated at **40** having an annular body portion **41** and a finger **42** which extends through the opening **33** in the cap **30**. The upper end of the spring **38** bears against the plunger **40** to normally retain it in the position shown in Figure 5. The plunger is made of metal or other electrical conducting material and has secured to it a conducting wire **44**, the opposite end of which is connected to the micro switch **28**.

Suitably secured as at **46** to the inside of the lower tubular section **10** of the pole is the momentary contact switch **28** which has a movable member **48** for opening and closing the switch. Pivotally secured as at **50** to the switch **28** is an arm or lever **52** which is adapted to actuate the movable member **48** of the switch. The lower end of tubular section **10** (Figure 7) has a bottom wall **53** provided with an opening **54** through which extends the leg or rod **56** which is externally threaded as at **57** and to which are secured on the opposite sides of the bottom wall **53**, a pair of nuts **58** and **59**. The nuts **58** and **59** are adjusted relative to each other as best shown in Figure 7 to provide a certain amount of vertical free play or movement of the leg **54** with respect to the tubular section **10**. The lever or arm **52** is adapted to engage the top of the leg **56** and when the leg is in its down position that is when the upper nut **58** engages the bottom wall **53**, the arm **52** will be out of engagement with the actuating member **48** of the switch so that the switch is open, however when the leg **56** is moved upwardly as shown in Figure 7 with the lower nut **59** engaging the bottom wall **53** of tubular section **10**, the leg **56** will pivot the arm **52** upwardly to actuate the actuating member **48** to close the switch **28**. This arrangement permits the pole to be vertically mounted with the electrical circuit open until the leg rests on the floor surface when the leg **56** moves up to the position shown in Figure 7

to close the switch 28. The leg has a rubber foot member 60 secured to the bottom thereof.

Secured to the tubular section 11 are a plurality of lighting fixtures 62, each connected by a suitable bracket 63. Each lighting fixture contains an electrical socket and bulb (not shown) and each is provided with a shade element 65. The sockets are connected to the conducting wire 22, 26 and 44 contained in the pole as is well understood and also to the switches 24. The lighting fixtures 62 are each mounted for pivotal movement for focusing the light in any desired direction.

The lighting fixture pole is adapted to be electrically connected to a ceiling mounted unit, the details of which will now be described.

The ceiling mounted unit generally indicated at 70 has a pan shaped housing 72 provided with a horizontal bracket or attaching arm 73 which has an opening 74 which engages the nipple 76 extending through the outlet box 77 which is mounted on the ceiling. The outlet box and nipple being conventional and well understood in the art. A nut 78 secures said attaching arm 73 to said nipple to support said ceiling mounted unit to be rotated 360° with respect to said nipple.

Fixedly secured to the pan shaped housing 72 is a rectangular shaped housing 80, the inner end 81 of which extends into the interior of the pan shaped housing 72 through an opening 82 in the wall of the pan shaped housing 72. Supported within the rectangular shaped housing 80 as best seen in Figure 4 is a strip of insulating material 84 which rests on the bottom wall of the housing 80. A strip of electrical conducting material 86 rests on the strip of insulating material 84. Another strip of insulating material 88 rests on the strip of electrical conducting material 90. These strips are all held together by some suitable fastening means. The upper strip 92 being spaced from the ceiling surface C. Conducting strips 86 and 90 as best seen in Figure 3, are each connected by conducting wires 93 and 94 extending from the ceiling outlet box 77 through the nipple 76.

The bottom of the rectangular shaped housing 80 is provided with a plurality of equally spaced openings 80' along its length and insulating strip 84, conducting strip 86, and insulating strip 88 are each provided with spaced openings 84', 86' and 88' respectively which are concentric with and register with each other and with the openings 80'. It will be noted that the annular aligned openings are progressively smaller with the largest opening 80' in the housing and the smaller openings 88' in insulating strip 88. This accommodates the end of the abutment member of the pole for establishing the electrical circuit as best seen in Figure 4.

The lighting fixture pole is supported vertically between ceiling and floor or between two horizontal supporting surfaces with the upper end of the abutment portion of the pole positioned in any of openings along the length of the rectangular member 80 of the ceiling mounted unit. Since the upper tubular abutment member 14 is spring biased, it telescopes into the pole structure sufficiently to allow the pole to be manually positioned between the floor and ceiling and then when released will be supported between the floor and ceiling. When thus positioned, the conducting finger 42 will make electrical contact with the conducting strip 90, the conducting sleeve 20 will make electrical contact with conducting strip 86 and the current will pass through the conducting wires 93 and 95 and if the manual switch 24 and the switch 28 are closed, the light bulbs in the lighting fixtures 62 will be illuminated. The manual switch is generally indicated at 24 and may be of any form, however a switch button is shown for separately operating each of the lighting fixtures 62 and a switch button is also provided for operating all the lighting fixtures simultaneously. This may be varied as is well understood.

It will be seen that even though the pole is inserted in the ceiling mounted unit that the circuit to the pole is open until the leg 56 rests on the floor surface and moves up to close the switch 28 through lever 52. This feature may be eliminated if desired and the operation of the lighting fixtures on the pole may be controlled only by a manual switch. The ceiling mounted unit 70 may be rotated 360° about its fixed axis or nipple 76 and positioned anywhere within said arc and the pole may be secured thereto. The pole may be secured in any of the spaced openings along the length of rectangular housing 83, thus a wide range of positions are permitted for positioning of the pole fixture. The pole may also support an outlet socket which is placed in electrical connection with the ceiling member so that other appliances, lamps and the like may be connected to the pole and receive their current supply.

The foregoing structure eliminates the use of electrical wall outlets and the use of wire cord from the pole to said wall outlets. The pole is thus also more positively supported between floor and ceiling surfaces against accidental displacement. It will be understood that the reference to floor and ceiling surfaces includes any two spaced horizontal surfaces, such as for example, a desk, table or the like on which the fixture rests may be considered a floor surface.

Various changes and modifications may be made from the foregoing without departing from the spirit and scope of the appended claims.

I claim:

1. A lighting structure comprising an elongated ceiling fixture, a plurality of spaced sockets distributed along the length of said fixture, a pair of electrical conductors extending along the length of the fixture and insulated from each other, said sockets communicating with said conductors, a pole member extending between a floor and the ceiling fixture, said pole member having upper and lower portions, electrical terminals located at the upper end of said upper portion, said terminals having means engaging in a selected one of said sockets, said pole member having a lighting fixture mounted thereon and having electrical conducting means supported within said pole member and in electrical contact with the terminals, means for urging the upper and lower portions of the pole member axially in opposite directions to cause the pole member to firmly engage both floor and ceiling fixture to anchor said pole member in a vertical position whereby to establish electrical contact between the terminals and fixture and mechanical locking of the pole member between the fixture and the floor.

2. In a lighting fixture defined in claim 1 in which the ceiling fixture is provided with pivotal means to secure the fixture to the ceiling whereby the fixture is rotatable about said pivotal means.

3. A lighting structure comprising a ceiling fixture, a plurality of sockets distributed along said ceiling fixture, a pair of electrical conductors on said ceiling fixture insulated from each other, said sockets communicating with said conductors, a pole member extending between a floor and the ceiling fixture said pole member having upper and lower portions with one portion in telescopic relation to the other and depressible with respect to the other, electrical terminals located at the upper end of said upper portion, said terminals having means engaging in a selected one of said sockets, said pole member having a lighting fixture mounted thereon and having electrical conducting means supported within said pole and in electrical contact with the terminals in said upper portion, spring means for normally urging said upper portion outwardly so that said pole member is anchored in a vertical position whereby to establish electrical contact between the terminals and fixture and mechanical locking of the pole member between the fixture and the floor.

4. A lighting fixture comprising a ceiling fixture, a plurality of spaced sockets distributed along the length

of the fixture, a pair of conductors carried on said ceiling fixture and insulated from each other, said sockets communicating with said conductors, a pole member extending between a floor and the ceiling fixture said pole member having upper and lower portions, electrical terminals located at the upper end of the upper portion of said pole member, said terminals including a depressible finger and a stationary sleeve which engage in a selected one of said sockets, said pole member having a lighting fixture mounted thereon and having electrical conducting means supported within said pole member and in electrical contact with the terminals, means for urging the upper and lower portions of the pole member axially in opposite directions to cause the pole member to firmly engage both floor and ceiling fixture to anchor said pole member in a vertical position whereby to establish electrical contact between the terminals and fixture and mechanical locking of the pole member between the fixture and the floor.

5. In a lighting structure defined in claim 4 in which the pole member has a leg member at the lower end of the pole member and a switch member mounted within the pole member and in engagement with the leg member and adapted to be actuated to closing position by the upward movement of said leg member.

6. A lighting structure comprising an elongated ceiling fixture, socket means along the length of said fixture, a pair of electrical conductors extending along the length

of the fixture and insulated from each other, said socket means communicating with said conductors, a pole member extending between a floor and the ceiling fixture said pole member having upper and lower portions, electrical terminals located at the upper end of the upper portion of said pole member, said terminals having means engaging in said socket means along the length of the fixture to position said pole member in a plurality of positions along the length of said fixture, said pole member having a lighting fixture mounted thereon and having electrical conducting means supported within said pole and in electrical contact with the terminals, means for urging the upper and lower portions of the pole member axially in opposite directions to cause the pole member to firmly engage both floor and ceiling fixture to anchor said pole member in a vertical position whereby to establish electrical contact between the terminals and fixture and mechanical locking of the pole member between the fixture and the floor.

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