

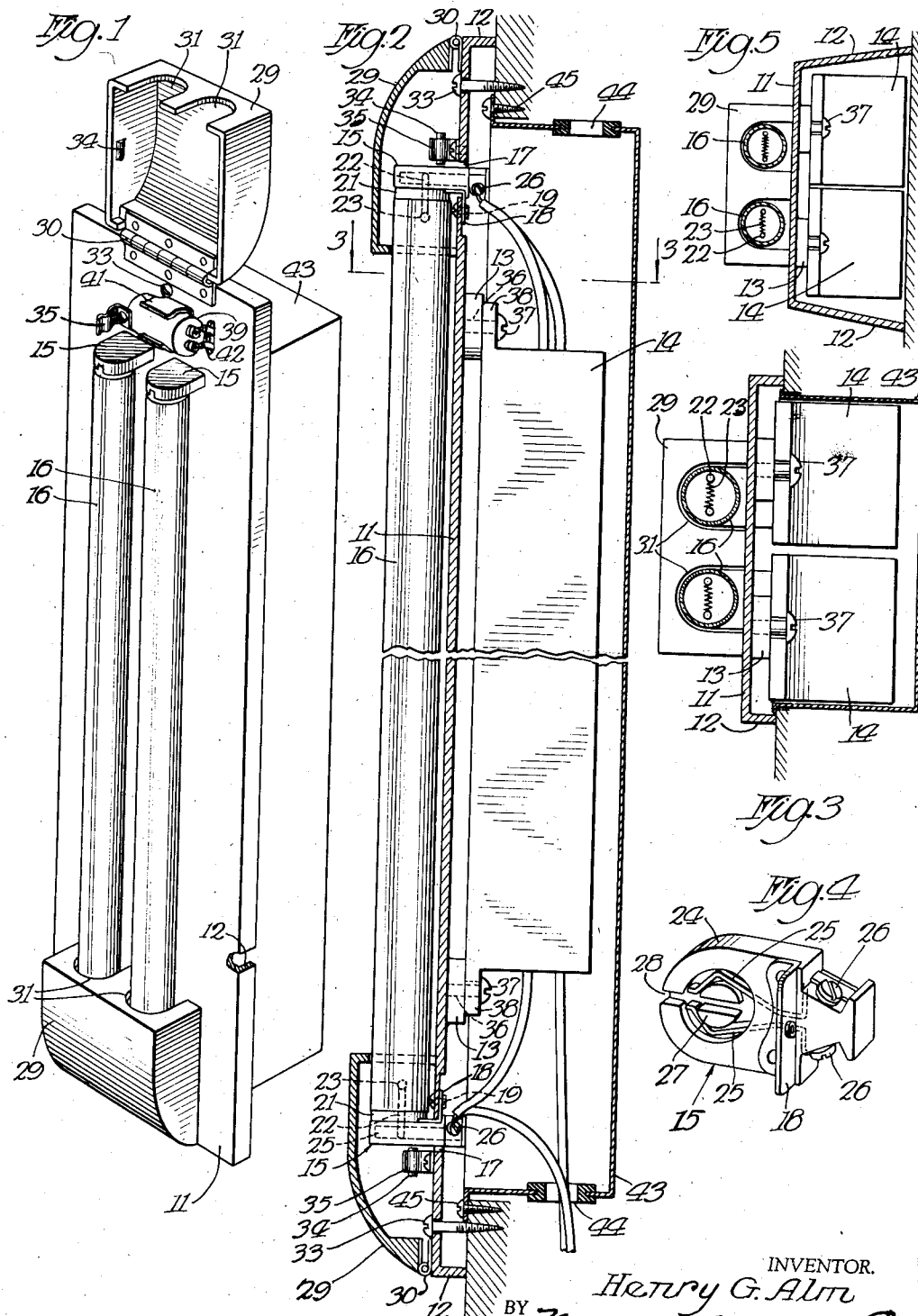
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FLUORESCENT LIGHTING FIXTURE

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FLUORESCENT LIGHTING FIXTURE

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Fixtures for fluorescent lamps now in general use are recognized as having certain shortcomings, both in utility and appearance. For example, the appearance of the lamp and of the fixture as a whole is diminished by the formation of dark zones at the ends of the lamp adjacent to the electrodes and by unconcealed lamp sockets protruding from the fixture, the latter being also undesirable from a practical viewpoint, as they are subject to damage by accidental blows and to tampering. When the fixture is installed in a public or semi-public location, the possibility of tampering is always present and may constitute a serious safety hazard.

An object of my invention is therefore, to provide a fixture for fluorescent lamps in which the dark zone of the lamp, the sockets, wiring and other unsightly appurtenances are concealed from view and protected from accidental blows or tampering, but are at the same time readily accessible for inspection, repair or replacements.

Another object is to provide a lighting fixture for fluorescent lamps which is decorative in appearance, but relatively inexpensive, easy to install and capable of being attached to any firm surface.

Other objects will become apparent from the following description and from the drawing in which:

Fig. 1 is a perspective view of one form of the assembled fixture;

Fig. 2 is a central sectional view taken along the longer axis of a slightly different form of the fixture;

Fig. 3 is a sectional end view of Fig. 2 taken along the line 3-3;

Fig. 4 is a perspective view of a lamp socket suitable for use in connection with this fixture; and

Fig. 5 is a reduced sectional end view of a modified form of the fixture.

The fixture comprises a base 11, preferably formed of cast aluminum, with downwardly extending edge flanges 12 and bosses 13 positioned on the rear of the fixture to receive a reactor unit 14. If desired, the base may be polished or plated to serve as a reflector for the lamp.

Sockets, generally designated 15, adapted to receive a fluorescent lamp 16, are mounted on the base 11 in any convenient manner. In the type of fixture illustrated, the upper part of the socket extends through an opening 17 in the base 11, and an outwardly extending flange 18 is attached to the lower part of the socket, having an opening therein cooperating with a tapped opening in the

base through which the mounting screws 19 may be inserted. The distance between the sockets 15 is of course governed by the length of the lamp 16.

The reactor unit 14 consists essentially of a choke coil and an automatic starting switch and is usually assembled in one unit. If desired, however, the starter switch and choke coil may be separately mounted. For the purpose of illustration however, the term reactor unit is to be understood as including both the starter switch and choke coil unless otherwise stated.

The fluorescent lamp 16 is generally tubular in form and closed at each end by a cap 21 through which metallic prongs 22 project. Within the tube adjacent to the ends are wire electrodes 23, each end of each electrode being connected to one of the prongs 22 projecting through the end caps.

The lamp contains an atmosphere of some inert gas such as argon and a small quantity of mercury. When the lamp is inserted in the sockets and connected to a source of current, the current flows through the choke coil in the reactor unit 14 to the first electrode. The other end of the first electrode is connected to the automatic starter switch, which is closed initially, allowing the current to reach one end of the second electrode which is also connected to the starter switch. The other end of the second electrode is connected to the source of current, thereby allowing current to flow successively through the choke coil, the first electrode, the automatic starter switch and the second electrode. The heat generated by the current flowing through the electrodes vaporizes the mercury in the lamp to form a conductive medium between the electrodes. When the mercury has been vaporized the automatic starter switch opens, and the choke coil provides a surge of current sufficient to cause a discharge between the electrodes through the vaporized mercury.

A considerable portion of the light rays generated by the discharge passing through the vaporized mercury lies above the upper limits of the visible spectrum and is generally termed ultra-violet. These rays strike certain salts which have been deposited on the inner side of the glass lamp walls, causing the salts to become fluorescent and emit light rays lying within the visible spectrum. As long as the current flows between the electrodes the starter switch will remain open.

The sockets 15 may consist of a relatively thin hollow upright portion 24 and a base or flange

18 containing openings for the attaching screws 19. The upright section contains two spaced resilient contactor arms 25, the upper portions of which are formed to receive the prongs 22 on the ends of the lamp 16 by bending the arms 25 first outwardly at 45°, then inwardly with relation to the bent portion at 90°, then outwardly again at 45°, the last named bend bringing the upper portion of the arm back into alignment with the lower portion. When this operation has been completed and the two arms are placed facing each other, the bent portions of the arms will form an approximately square opening. The lower end of each arm is provided with a binding post 26 to which wires may be attached. The arms are held by and within the upright section of the socket facing each other, the bent portions of the arms fitting around a protruding cylindrical portion 27 of the upright section. A slit 28 is provided parallel to the long axis of the socket extending inwardly part way through the upright housing and downwardly through the cylindrical protuberance 27 to the lower apex of the square opening formed by the bent portions of the arms 25. The face of the upright section covering the opening formed between the arms is cut away as shown in Fig. 4. The dimensions and position of the socket and its parts are such that the lamp may be inserted by aligning the prongs 22 of the lamp 16 with the slit 28 in the socket, pushing the lamp inwardly until the leading prong reaches the bottom of the slit 28 and then turning the lamp 90°. The lamp prongs will then be held inside the resilient arms at the apex of the angles formed in the arms by bending as the diagonal distance across the square-shaped opening from corner to corner is equal to, or slightly less than the distance between the prongs 22. It is desirable that no portion of the socket 15, and particularly the terminals 26, extend below the base flanges 12.

Hoods 29 are mounted on the base 11, as by hinges 30, the shape of the hoods and the position of the hinges being such that the hoods may close over the lamp sockets 15 and part of the lamp 16. These hoods 29 may be of any desired decorative shape, such as that illustrated, it being essential however, that their length, width and depth be sufficient to adequately cover and conceal the lamp sockets and a portion of the lamp adjacent thereto. When several lamps are mounted on the same base, the width of the hoods may be increased to cover as many lamp sockets and end portions of lamps as desired. Openings 31 of suitable size are provided in one side and edge of each hood and extended upwardly a sufficient distance to allow the hoods to close over and around the lamp, the upper portions of these openings being formed to follow the outer contour of the lamp. The remaining sides of the hood are solid, the bottom edges being shaped to fit snugly against the base. If the base is rectangular, the hinges are placed adjacent to the ends and parallel thereto as shown in Fig. 2.

Within the portions of the base 11 covered by the hoods 29 when closed, means are provided for attaching the fixture to a wall or similar surface, usually consisting of an opening through the base 11 and a screw or bolt 33 fitting through the opening to engage the wall.

The interior of each hood is provided with a lug or projection 34 constituting a detent in the shape of a half cylinder positioned on one side of the hood to engage with a spring clip 35

mounted on the base. The clip 35 may be formed of an L shaped section of resilient metal, one leg of which is attached to the base by any suitable means, the other leg projecting outwardly from the base and being shaped to receive the lug 34 on the hood 29 as by indenting or recessing the upper portion of the upright leg to receive the lug. As the hood is closed the lug 34 will engage the upright leg of the clip and force it to one side until the hood is practically closed. The indentation in the upright leg which has been formed to cooperate with the lug 34 then snaps over and around the lug and against the side of the hood, thus holding the hood firmly in its closed position.

The bosses or projections 13 upon the rear of the base are provided with means for receiving the reactor unit 14 as by tapped holes 36 adapted to receive screws 37 passing through openings in the sidewardly extending lugs 38 of the reactor unit. These bosses 13 may be of any desired shape but do not extend rearwardly beyond the base flanges 12 nor completely across the base 11 in any direction. The reactor unit 14 is of course shorter and narrower than the base 11.

As previously mentioned, it is not essential that the automatic starter switch and choke coil be assembled in one unit, herein designated as the reactor unit, 14. Fig. 1 illustrates an alternative method of mounting the starter switch and coil in which the starter switch 39 is held on the outer side of the base by means of a spring clip 41 attached to the base or by other suitable means. The exact position of the switch 39 is governed by the size of the hood 29, as it must be mounted in such position that the hood 29 will close over and conceal the switch. When this method of mounting is employed, an opening 42 is provided in the base 11 adjacent to one end of the switch through which wires may pass. As the starter switches are subject to failure, this method of mounting is often advantageous due to the accessibility of the switch. The choke coil may be mounted upon the inner side of the base in the same manner as described for the assembled reactor unit 14.

It is customary to install fluorescent lighting fixtures in the manner illustrated in Fig. 2, wherein the wall is recessed to receive a metal box 43 containing openings 44 in each end for wires. This metal box is shorter and narrower than the base 11 and so is not visible when the fixture is positioned over it, but is sufficient in size to receive the reactor unit 14 and any necessary wires. Flanges are formed on the sides and/or ends of the box with openings provided therein for attaching screws 45 which are used to secure the box in position. The fixture attaching screws or bolts 33 are usually positioned on the base to engage directly with the wall without interfering with or striking the metal box 43, but means may be provided for attaching the fixture directly to the box.

It is often impractical to recess a wall or partition either because of the material of which the wall is constructed or because of the thickness of the wall. In such case the reactor unit 14 may be detached from the fixture and placed in some other more convenient location. The fixture may then be attached directly to the wall and the necessary wiring led through a small opening in the wall to the socket terminals 26. This is possible because there are no projections on the inner side of the base 11 extending rear-

wardly beyond the base flanges 12 and because the flanges 12 provide sufficient space between the base 11 and the wall to permit the passage of wires. The same result may be accomplished without detaching the reactor unit 14 or the choke coil, as the case may be, by providing flanges 12' on the base 11' deep enough to enclose sufficient space to receive the reactor unit or choke coil as shown in Fig. 5.

If the fixture is to be used outdoors or in any location where severe exposure is probable, the fixture may be made weather-proof by placing rubber gaskets around the lower edges of the hoods 29, and other gaskets of similar material around the lamp 16 in such manner that when the hoods are closed and the lamp gaskets moved into position all the openings into the hoods are sealed.

If installation in a public or semi-public location is contemplated, it is desirable that the hoods be somewhat difficult to open without tools, for obviously if the hoods remain closed it will be impossible to tamper with the fixture and the possibility of accidents arising from such tampering is completely eliminated. Furthermore, it will be impossible for unauthorized persons to remove the lamps from the sockets. The hoods 29 may be made more difficult to open by increasing the number or strength of the spring clips 35.

By the use of the type of fixture described, considerable economy may be effected in construction. For example, the sockets 15 and fixture mounting means 33 need not be attractively finished and may be made larger or of more durable material as they are concealed from view by the hoods 29. The appearance of the fixture as a whole is greatly enhanced, as the visible portion of the lamp 16 is uniformly illuminated throughout its length and all unattractive but essential attachments are concealed. The hoods likewise serve to protect the sockets from accidental blows. However, even though concealed, the lamps, sockets, and wiring are easily accessible for repair, inspection or replacement without any possibility of damage to the appearance of the fixture.

It is obvious that the fixture hereinbefore described is capable of considerable modification. For example the hood hinges may be placed upon the side of the hood instead of the end or may be eliminated by the use of two or more spring clips. The base does not necessarily have to be rectangular, but may be of any desired shape and as many lamps as desired may be attached to one base. The hoods likewise may be constructed to cover as many lamp units as desired, and it is not essential that the lamp be of the fluorescent type, as my invention may be advantageously applied to other types of lamps. The foregoing description has been made by way of illustration and it is to be understood that modifications thereof are to be considered as within the scope of the appended claims except insofar as limited by the prior art.

What is claimed is:

1. In a fluorescent lighting fixture, a base, means for attaching said base to a wall, sockets rigidly attached to said base and extending outwardly therefrom, said sockets being adapted to receive and support a fluorescent lamp parallel and adjacent to said base, a starter switch removably attached to the outer side of said base, and hoods hingedly attached to said base, said hoods being adapted to cooperate with said base to substantially enclose and protect said sockets, 75

attaching means, starter switch and the end portions of a fluorescent lamp when said hoods are closed against said base.

2. In a fluorescent lighting fixture, a rigid base, a socket immovably attached to said base and extending laterally therefrom, means for attaching said base to a wall, a starter switch removably attached to said base, and a hood hingedly attached to said base, said hood being so constructed and arranged as to swing into closed position against said base, thereby concealing and protecting said socket, starter switch and attaching means.

3. In a fluorescent lighting fixture, an elongated base, a plurality of sockets rigidly attached to said base in aligned relation and extending laterally therefrom, a fluorescent lamp received and supported by said sockets parallel and adjacent to said base, means for attaching said base to a wall, a starter switch attached to the outer side of said base adjacent said sockets, hoods hingedly affixed to said base adjacent the extremities thereof, and means for retaining said hoods in closed position against said base, said hoods being so constructed and arranged as to conceal and protect said sockets, starter switch, attaching means and the end portions of said lamp when in closed position.

4. In a lighting fixture, a base having a flat outer surface, a pair of spaced sockets facing each other and carried by said base and projecting out from said flat surface, a tubular lamp extending between and held by said sockets, and a pair of hoods enclosing said sockets and the ends of the lamp, each of said hoods having the form of a box with its open side against said flat surface and being hinged to said flat surface on an axis lying in back of the enclosed socket and transverse to the axis of said lamp, the wall of said hood in front of said socket having a notch through which said lamp extends out from the socket when the hood is swung against said flat surface.

5. In a lighting fixture, a base, a pair of spaced sockets projecting from the base and adapted to receive a tubular lamp extending between them, and hoods, each hood having a closed outer end wall hinged to the base transversely of the lamp and having side walls and a front wall connected with said end wall, said front wall having an opening for passing said lamp when the hood is swung into closed position against the base, thereby concealing the adjacent socket and lamp end.

6. In a lighting fixture, a base, a socket carried by and projecting out from said base and adapted to hold one end of a tubular lamp, a starter switch removably attached to the outer side of said base, a box-like hood mounted on said base and extending toward said base and enclosing said socket, starter switch and the adjacent end portion of the lamp, said hood having a plane wall transverse to the axis of the lamp, vertical side walls and a curved combined top and rear wall, said walls terminating in a single bottom plane, said plane transverse wall having a downwardly opening notch large enough to allow said lamp to extend therethrough to said socket, spring means mounted on the base, and detent means on the hood cooperating with said spring means to maintain the hood in said enclosing position with the bottoms of the walls in engagement with the base.

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