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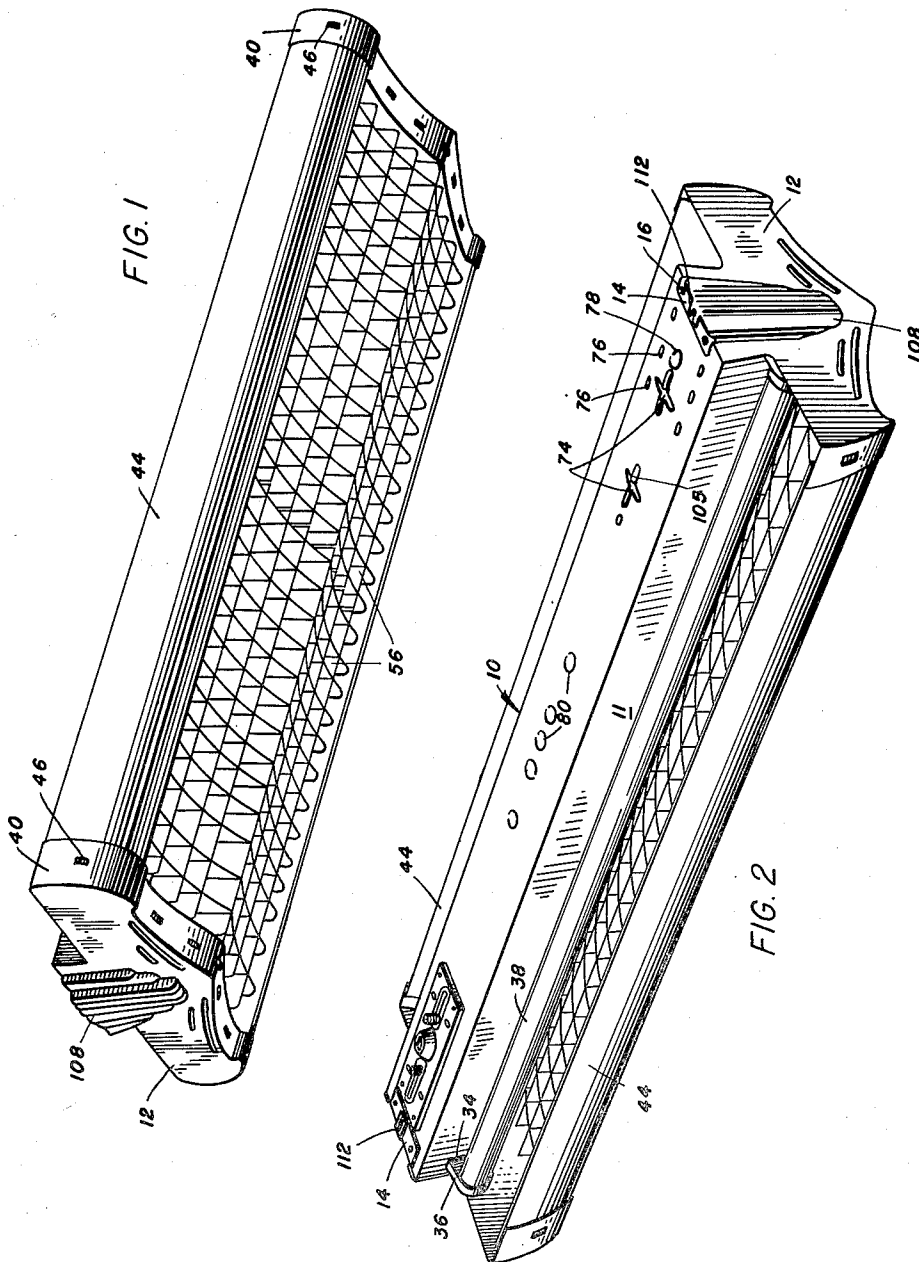
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ELECTRIC LIGHTING FIXTURE FOR ELONGATED TUBULAR LAMPS

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2 SHEETS—SHEET 1



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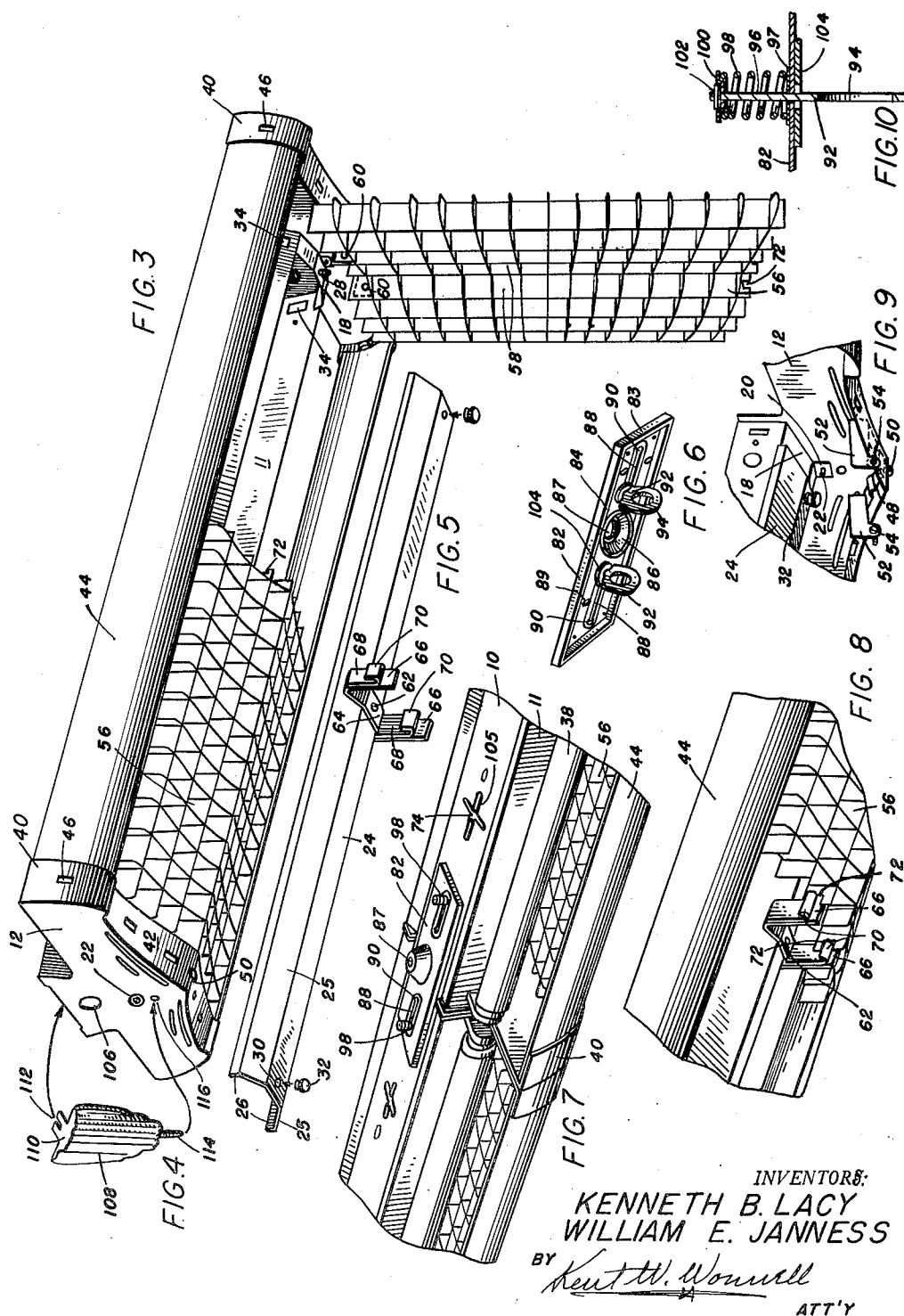
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2 SHEETS—SHEET 2



UNITED STATES PATENT OFFICE

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ELECTRIC LIGHTING FIXTURE FOR
ELONGATED TUBULAR LAMPS

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9 Claims. (Cl. 240—51.11)

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This invention relates in general to electric lighting fixtures and is more particularly described as a wall or ceiling fixture for straight tubular lamps.

In installing lighting fixtures of this type, either in single units or in a plurality of units connected end to end, it is difficult to handle the fixtures when they are intended for long tubular lamps because of the size and also the weight of the fixture.

For direct illumination, a louver type of reflector is used and a suitable construction must be used to permit the application of new tubes and the removal of defective tubes.

The present invention overcomes these objections by providing an end hanger which may be connected to one unit or may be extended over the junction between two adjacent units placed end to end and engaged with each of them, and by providing a louver construction which is pivoted at the ends and split at the center of that each end portion may be swung downwardly for cleaning the louvers and other portions of the fixture and also for substituting new lamps.

An important object of the invention is to provide an electric lighting fixture of the straight tubular lamp type in which the end hangers for each lighting unit may be extended for connecting another unit in end to end relation thereto.

A further object of the invention is to provide an electric lighting fixture for straight tubular lamps in which directing louvers or reflectors positioned below the lamps may be pivotally mounted to swing in sections below the fixture.

A further object of the invention is to provide improved means for joining louver sections of an electric lighting fixture so that they will be substantially continuous when in alignment and easily engaged and disengaged from their aligned position.

Still a further object of the invention is to provide an adjustable hanger which may be connected to an electric lighting fixture unit by resilient attaching means either to engage the end of a single unit or for ready adjustment to engage the adjacent ends of two aligned fixtures.

Other objects of the invention will appear in the specification and will be apparent from the accompanying drawings in which,

Fig. 1 is a perspective view of an electric lighting fixture looking at the under or illuminating side of the fixture;

Fig. 2 is a perspective view of the fixture shown in Fig. 1 looking at the fixture from the upper or

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wall side thereof and with one supporting plate removed;

Fig. 3 is a perspective view of the fixture as shown in Fig. 1 with one of the louver sections swung downwardly and one of the decorative cover plates removed;

Fig. 4 is a perspective view of the removed end cover plate;

Fig. 5 is a perspective view of a removable bottom plate with a central support for engaging the hinged louvers;

Fig. 6 is a perspective view of one of the mounting plates adjustably connected at each end of a fixture unit;

Fig. 7 is a perspective view of the mounting plate of Fig. 6 as applied to adjacent ends of two fixture units in aligned end to end position;

Fig. 8 is a perspective view illustrating the engagement of one of the louver ends with the central support as shown in Fig. 5.

Fig. 9 is a fragmentary perspective view showing the louver supporting means; and

Fig. 10 is a sectional detail view of one of the locking devices and the plate shown in Fig. 6.

Electric lighting fixture for the longer fluorescent or straight tubular lamps become so heavy and cumbersome that each unit has a support at each end when hung or supported from the ceiling. In many installations, a number of these lighting units are now supported in alignment, so that means is provided at each end of a unit for supporting that unit alone or for supporting the adjacent ends of two units placed together in alignment.

After the units are mounted, either alone or in alignment, the tubular lamps are placed in position in the fixture and they must be easily removable therefrom for replacement. If the louver type of reflector is used for partially enclosing and directing the light downwardly below the fixture, special mounting means must be provided for access to the tubular lamps. If the louver is of single continuous construction, it is heavy and cumbersome, and the present invention provides a louver split at its center and pivoted at the ends with hooked means for engaging the central ends of the louver portions so that they provide a neat and continuous joint, but are easily engaged and disengaged from the holder so that they may be swung downwardly from both ends.

Referring now more particularly to the drawings, a central longitudinal supporting channel 10 has downwardly turned sides 11 turned slightly inwardly and connected to end piece 12 which

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cover the ends of the channel and extend laterally at both sides thereof. Each end piece is formed with a top flange 14 secured by screws 16 or other fastening means to the upper side of the channel and connecting the opposite sides 11 of the channel. At each end is a bridge 18 having a downward projection 20 parallel with the surface of the end 12 through which a fastening screw 22 is inserted from the outside of the end piece, thus firmly holding the end piece in position.

At the bottom of the channel 10 is a bottom plate 24 having angularly related sides 25 and upwardly turned edges 26 for closely embracing the downwardly turned edges of the channel. In the bridge 18 at each end is a downwardly projecting threaded stud 28 adapted to extend through a slotted opening 30 and the stud engaged by a knurled nut 32 applied from the under side of the fixture and holding the bottom plate tightly in place, thus strengthening the channel and providing a strong central support for the fixture and the end pieces.

At the ends of the angular sides 11 of the channel are openings 34 through which lamp supports 36 are inserted from the inside for securing tubular lamps 38 therein in a well known manner. In the present fixture, only two lamps are shown, one on each side, but additional lamps may be similarly installed if desired.

Each end piece is formed at the sides and bottom with a continuous flange 40 curved downwardly and inwardly at the sides and a portion 42 rounded upwardly and outwardly toward the sides from a central point at the bottom, thus providing a pleasing contour and construction. Mounted in the side portions 40 of opposite end pieces are side reflectors 44 which conform in their outer surface to the curvature of the flange portion 40 and are seated and held therein by projections punched inwardly from the openings 46. These side reflectors strengthen the fixtures and properly space the ends apart and form a pleasing finish for the side portion of the fixture.

Attached to the inside of each end piece over the central flange portion 42 is a supporting bracket 48 which may be secured in place by a fastening screw 50 inserted through the flange into the bracket and binding it tightly thereto. Projecting inwardly beyond the flange portion 42 at the sides of the bracket are spaced ears 52 having headed studs 54 extending from the inside outwardly through the ears to provide parallel pivots at the lower inside edge of each end piece. A louver section 56 has a number of longitudinal strips and a plurality of cross strips, the lower edges of which conform to the upwardly rounded portion 42 of the end piece to give a pleasing and attractive appearance and the rectangular louver cells extend in a vertical direction so that the light from the lamps is directed downwardly below the fixture. Two longitudinal louver strips 58 adjacent the center extend at the end thereof and are provided with openings 60 adapted to be sprung over the outward projections of the studs 54 at one end of the fixture so that the entire louver is pivoted therein.

At the center of the fixture secured to the bottom plate 25 by means of a fastening screw 62 or other suitable fastening means is a holder 64 somewhat U-shaped to conform to the bottom and sides 25 of the plate and with downwardly turned extremities 66 spaced apart approximately the same distance as the longitudinal strips

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58 of the louver section 56. At the inside of one projection 66 and at the outside of the opposite one is a fastening clip 68 with an upturned lower end 70 forming a flat hook. In the free end of each louver section, the longitudinal louver strips 58 are each provided with a notch 72 slightly wider than the upturned end 70 of the clip 68.

With this construction, the louver sections hung in the ends may be swung upwardly until the slots 72 are opposite the upturned ends 70 and the louver section is pressed laterally until the portions above the upturned ends 70 may be seated in the hooks formed by these upturned ends, and then the louver end is pressed downwardly in engagement with the hook thus formed. Each louver end is adapted to engage only about one-half of each hook end 70 so that when both louvers are engaged and pressed downwardly, the louvers will be in alignment and the under surface of the reflector will be complete. The connection thus made is so close that when the louver sections are thus connected, it is difficult to see the joint between them and they give the appearance of a continuous louver.

At the upper side of each end of the supporting channel 10 are transverse slots 74 spaced apart and near the upper ends of each transverse slot are smaller spaced longitudinal slots 76 which may have partially severed knock-outs so that any of these slots may be used if desired. These slots 76 and corresponding slots 89 in the supporting plate 82 may be provided for inserting additional fastening bolts (not shown) for more securely fastening these parts together if desired. Near the extremity of the channel is a hole 78 with a partially severed knock-out projection for inserting electrical conductors there-through. Disposed centrally of the channel in a longitudinal direction are a number of partially severed knock-out openings 80 which are provided for a centrally disposed support and conductor openings, if desired.

An end supporting plate structure is shown more clearly by Figs. 2, 6 and 7 and comprises a plate 82 with flanged ends 83 and edges 84 to strengthen the plate and to set it up from the channel 10 to which it is applied. At the center of each plate is a circular frusto-conical shell 86 having a flange top opening 87 so that the head of a supporting bolt may be disposed within the shell, the stem projecting upwardly therefrom for attachment to any suitable fixture hanger.

At the ends of the plate and centrally thereof are longitudinal slots 88 located in a depressed portion of the plate and having larger keyhole openings 90 at the ends of each slot. In this slot, a locking key plate 92 is slidable having an enlarged portion with a finger hold opening 94 at the under side of the plate and a reduced stem 96 projecting through the slot to the upper side thereof. Mounted on the stem and engaging a washer 97 at the upper side of the slot 88 is a coil spring 98, the upper end of which is restrained by a washer 100, and a cross pin 102 extending through a hole in the end of the stem 96 and seated in a recess of the washer. At the top of the finger hold portion and engaging the under side of the plate below the slot 88 is a larger washer 104 which is held tightly against the plate by the tension of the spring 98.

With this construction, each locking plate 92 may be rotated in either end opening 90 until the flat side of the plate registers with the slot 88 and then the locking plate 92 may be slidably moved to either end of the slot and rotated in

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the larger end opening 90 to lock it in that position. When the supporting plate 82 is to be attached at the end of a single lighting unit, both of the locking plates 92 are moved to the inner ends of their slots 88 and the finger hole portions of the slots are inserted through both openings 74 at the end of the channel 10. When a plate 82 is to support two adjacent lighting units, the locking plates 92 are moved to the outer ends of the slots 88 so that the plate will equally overlap two adjacent units placed end to end and the two locking units 92 may be inserted through the outermost openings 74 in the ends of adjacent supporting channel 10. When a locking plate 92 is inserted through one of the openings 74 of the supporting channel, it is then turned at right angles, or parallel slots 88 and the upper end of the hand hold portion is seated in a depression 105 at right angles to the central portion of each slot 74.

In each end 12 of a fixture unit is a knock-out opening 106 for electrically connecting adjacent lighting units, but if the unit is to be separately used, a decorative plate 108 is provided having a top flange 110 with a notch 112 therein to overlap the upper side of the channel 10 and to engage the notch 112 with one of the fastening screws 116 which holds the end 12 in engagement with the channel 10. At the bottom of the plate 108 is a bendable projection 114 which is adapted to be inserted through an opening 116 in the end of the plate 12 to hold the bottom of the decorative plate in place. This plate also extends over the fastening screw 22 which is inserted from the outside of the end piece to hold it in connection with the bridge 18 of the channel 10.

With this construction, a single lighting fixture unit may be supported at the ends of the plates 82 and if additional units are thereafter added at either end of the fixture, the plates may be extended to overlap the ends and connected to the adjacent fixtures in alignment. In erecting a continuous line of units, it is a simple matter to set up one unit and with the supporting plate or plates 82 extending from the end thereof, to add additional lighting units in either or both directions. The adjustment of the locking plates 92 is made through the bottom of the channel 10 before the bottom plate 24 is applied thereto, and either before or after the louver sections are supported in place since these louver sections can be swung downwardly at either end, thereby uncovering the bottom of the channel 10 and making it freely accessible for the adjustment and movement of these locking plates 92.

While a preferred construction and arrangement is described in detail, it should be regarded as an illustration or example and not as a limitation or restriction of the invention as various changes may be made in the construction, combination and arrangement of the parts without departing from the spirit and scope of the invention.

We claim:

1. An electric lighting fixture comprising a housing open at one side, lighting elements mounted in the housing, and a directive reflector louver having transverse and longitudinal slats mounted in the open side of the housing, the reflector comprising two sections each pivoted at one end of the housing and swinging outwardly from the center thereof, and means for connecting the two sections in substantial continuance of

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each other at the center of the housing when they are closed therein.

2. An electric lighting fixture for straight tubular lamps comprising a housing open at one side, lighting elements mounted at the ends of the housing and a directive louver mounted in the open side of the housing, the louver comprising two sections each having connected transverse and longitudinal slats pivoted at one end of the housing and swinging outwardly from the center thereof, and means extending from the interior of the housing and engaging each of the louver sections separately at the center of the housing and holding the sections substantially in continuance and alignment with each other when they are closed within the housing.

3. In an electric lighting fixture, a straight supporting channel and connected end pieces, lighting elements mounted in connection with the channel, a bottom plate for closing the open side of the channel and means for connecting it at the ends to the channel, a pair of directive louvers each having connected transverse and longitudinal slats pivotally mounted in one end piece swinging outwardly therefrom and meeting at the center of the fixtures in substantial continuance with each other, and means comprising a pair of hooks extending downwardly from the bottom plate and engageable with the ends of longitudinal slats in their closed position to hold their adjacent ends together and in alignment with the corresponding slats of each other.

4. An electric lighting fixture, comprising a supporting housing including a longitudinal channel member open at the bottom and connected end pieces, a bottom plate for the channel and means securing it to the ends of the channel, a central support comprising parallel hooks depending from the bottom plate, lighting elements mounted in the housing, and a directive louver for the lights in the housing comprising a pair of louver sections each having transverse and longitudinal louver slats, means projecting inwardly from each of the end pieces for pivotally mounting the louver section therein by engagement with the extremities of the longitudinal louver slats, and the free ends of louver slats having notches therein for engaging the parallel hooks from the bottom plate to hold the louver sections in the mounting with the slats of the louvers close together and in alignment with the corresponding slats of each other.

5. In an electric lighting fixture for straight tubular lamps, a lamp housing comprising a low channel member extending longitudinally, end pieces connected transversely at the ends of the channel, lighting elements mounted in the housing, a directing louver in the housing comprising sections each having transverse and longitudinal louver slats and to swing outwardly at the center, means for securing the adjacent ends of the louver sections together in substantial continuance of each other, supporting means at each end of the channel comprising studs extending through the sides of the channel, and longitudinal slats having openings near the ends which may be sprung over to engage the openings with the studs to provide a hinging mounting for each of the louver sections.

6. An electric lighting fixture, comprising a lamp housing which includes a longitudinally extending sheet metal channel support, an end piece attached to each extremity of the channel and extending transversely thereto with a knock-out opening in the end of the end piece to com-

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municate with the interior of the channel for electrical conductors, a decorative cover and means attaching it to the end piece over the knock-out opening therein, lighting elements mounted in the housing, a directive louver, consisting of sections each pivotally mounted in one end piece and swinging outwardly therefrom, means for connecting the two louver sections at the center of the housing when they are closed therein, and supporting plate means comprising key plates movable in locking plates and projecting downwardly therefrom, openings in the top of the channel through which the key plates extend and in which they are turnable to lock the plate to the channel, the locking plates being movable from a position within the end piece at each end of the housing to a position overlapping the end of the housing for attaching a similar lighting fixture in end to end relation with the knock-out openings registering with each other when the decorative plates are removed from the end pieces.

7. An electric lighting fixture for straight tubular lamps, comprising a housing having a central supporting channel with transverse ends secured to the end of the channel, each end piece having a knock-out opening with a removable cover plate therefor, a lighting element mounted in the housing, a louver comprising sections each pivotally mounted in one end piece to swing outwardly therefrom, means connecting the sections at the center of the housing when they are swung inwardly, and a supporting plate for each end of the channel comprising resilient locking plates and slots in the supporting plate in which they are movable from one limiting position to another and being rotatable only in the limiting position, the channel member having transverse slots adjacent each end for engaging both of the locking plates when the fixture is hung as a separate unit and adapted to engage one of the locking plates when the supporting plate is moved to overlap the end of the fixture for and connecting adjacent lighting units closely in alignment when the said cover plates for the knock-out openings are removed.

8. In an electric lighting fixture for straight tubular lamps, a lamp housing comprising a sheet metal channel and sheet metal end pieces secured to the extremities of the channel, each end piece having a knock-out opening and a removable cover for concealing the opening, the channel having transverse slots spaced apart near each end thereof, and supporting means for an individual lighting fixture and for adjacent lighting fixtures in alignment, said means comprising a plate having a central supporting opening and longitudinally extending slots with enlarged openings at the ends thereof, a resilient-

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ly mounted locking plate movable in each slot and rotatable at the end of the slot, the locking plates being adapted to extend through the transverse slots at the ends of a lighting fixture, both locking plates extending through adjacent openings in the same end of a lighting fixture when only one lighting fixture is supported thereby, and the locking plates being movable to their outer positions for engaging the outermost transverse openings of adjacent lighting fixtures when they are supported in alignment with each other.

9. An electric lighting fixture for straight tubular lamps and means for supporting the fixture separately and in close alignment with other fixtures of the same kind, the fixture comprising a longitudinal supporting channel, end pieces secured to the channel and extending transversely thereof, each end piece having a knock-out opening and a removable cover for the opening when the fixture is used in multiple, the channel having two transverse slots adjacent each end and other smaller slots at right angles to the ends of the transverse slots, and the supporting means comprising a plate with a central supporting opening and with a longitudinal slot at each end of the plate having circular enlargement at each end of each slot, a spring locking plate movable in the slot but rotatable only in the enlarged openings at the end of the slot, the locking plate having finger hold openings at the under side thereof, these plates being insertable through the openings at the ends of the channel and rotatable to lock the supporting plate to the channel, the locking plates being movable together to fit the two openings at one end of a channel and movable apart to fit the outermost opening at the end of a channel and the outermost opening of the next corresponding channel of an adjacent lighting fixture when the said cover plates are removed and adjacent fixtures are placed in end to end relation.

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