United States Patent

[11] 3,589,660

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[22] Filed **Mar. 5, 1970**
[45] Patented **June 29, 1971**
[73] Assignee **National Service Industries, Inc.**
Continuation of application Ser. No. 799,131, Dec. 16, 1968, now abandoned, which is a continuation-in-part of application Ser. No. 740,557, June 27, 1968, now abandoned.

[54] **LIGHTING FIXTURE HANGER**
14 Claims, 11 Drawing Figs.

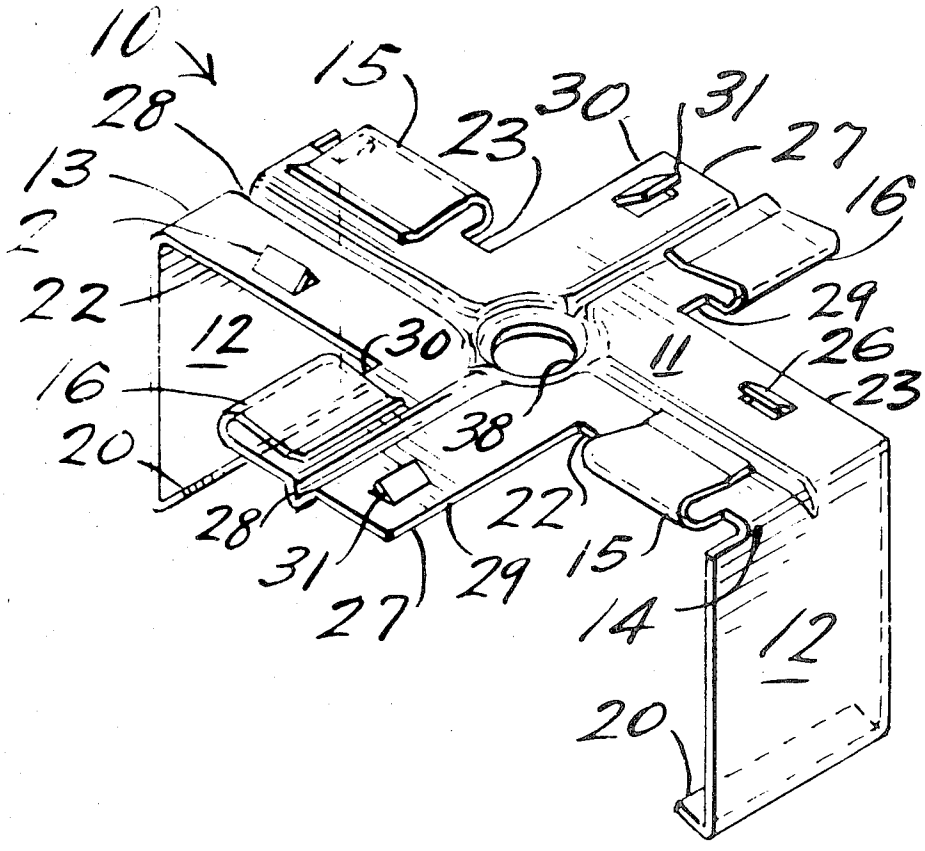
[52] **U.S. Cl.** **248/343,** 52/39, 287/189.35
[51] **Int. Cl.** **F16b 1/00**
[50] **Field of Search** 248/343, 342, 317, 228; 287/189.35, 189.36; 52/39

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Primary Examiner—J. Franklin Foss
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ABSTRACT: A device for hanging lighting fixtures below a dropped ceiling from inverted tees which support the dropped ceiling. A pair of wing portions depend from a body portion of the device for lockably engaging the lighting fixture. One or two pairs of clips extend above the body portion for selectively attaching the device to an inverted tee such that the fixture hangs either parallel or perpendicular to the inverted tee. In another embodiment, the device is attached to an inverted tee with a pair of clips on a bracket which is pivotally mounted to the body portion of the device such that a lighting fixture can be hung at any angle to the inverted tee.



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SHEET 1 OF 3

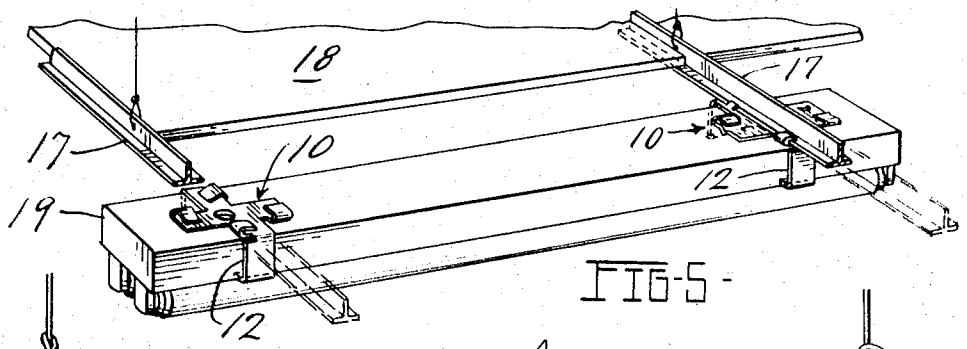


FIG-5-

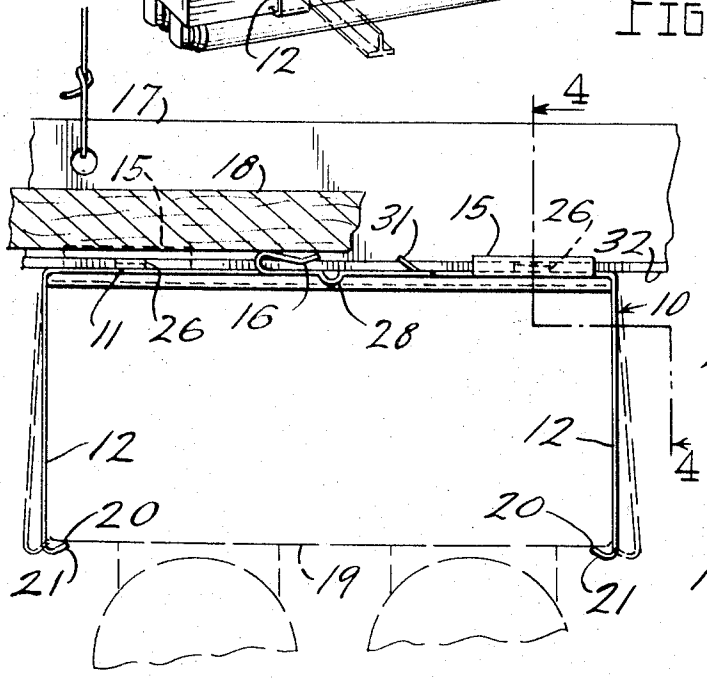


FIG-3-

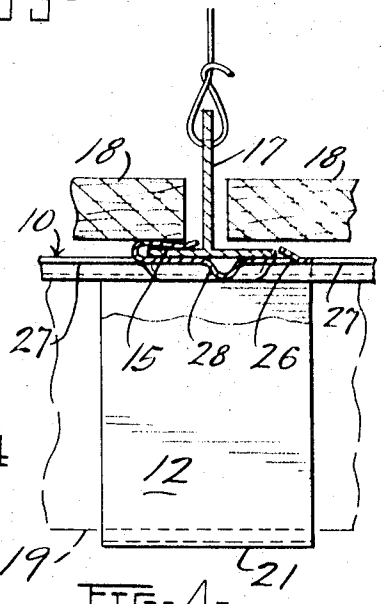


FIG-4-

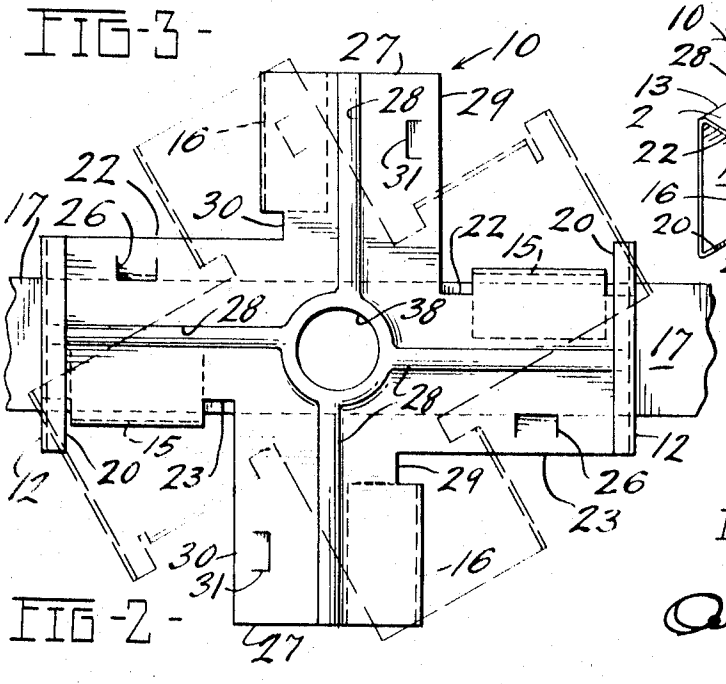


FIG-2-

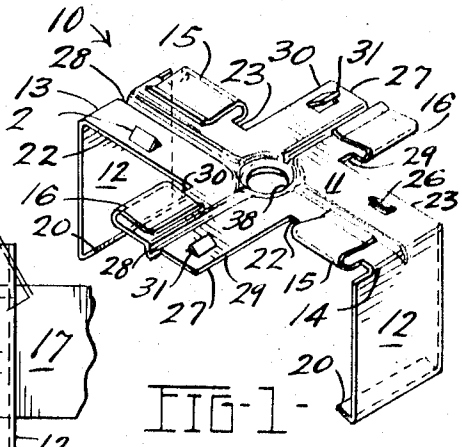


FIG-1-

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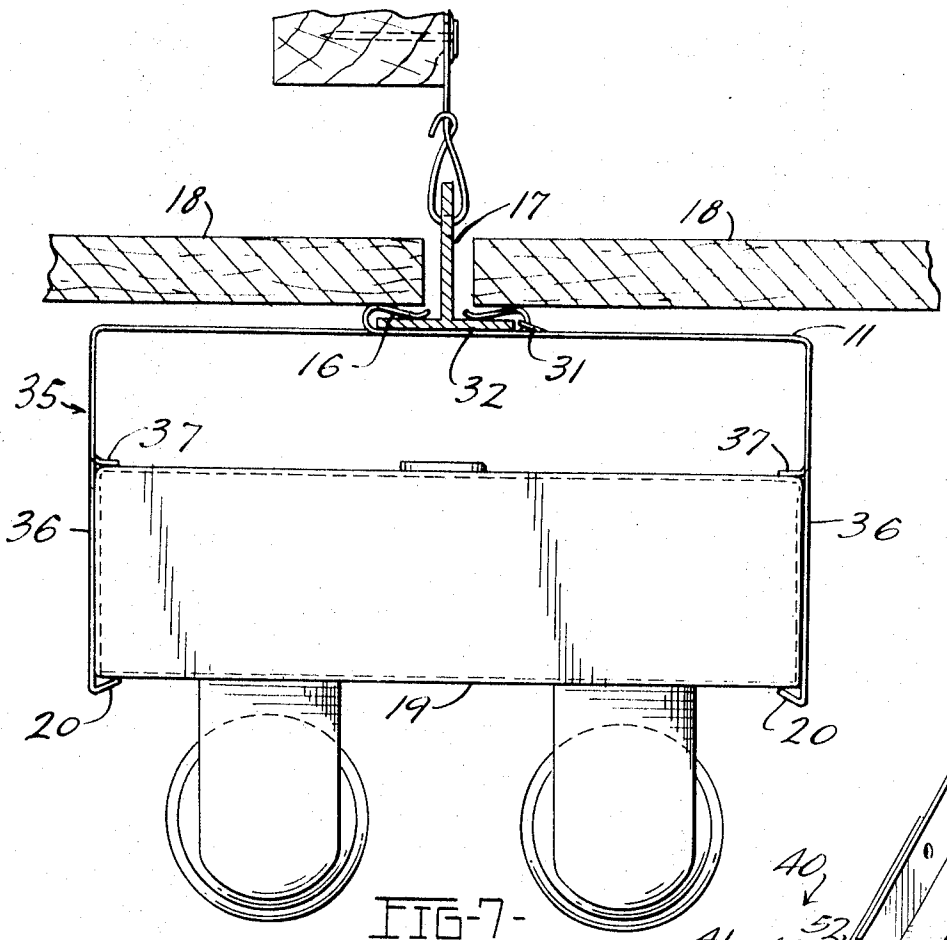


FIG-7-

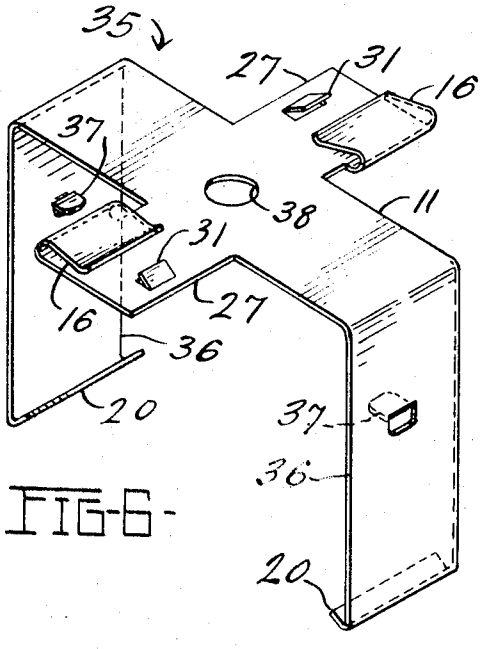


FIG-6-

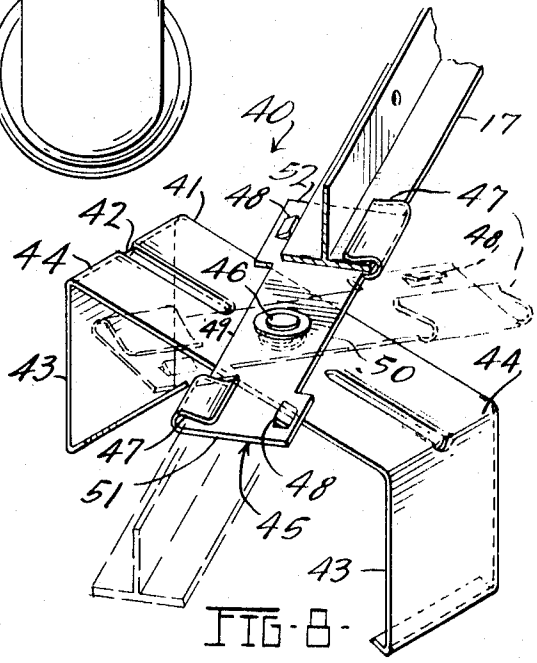


FIG-8-

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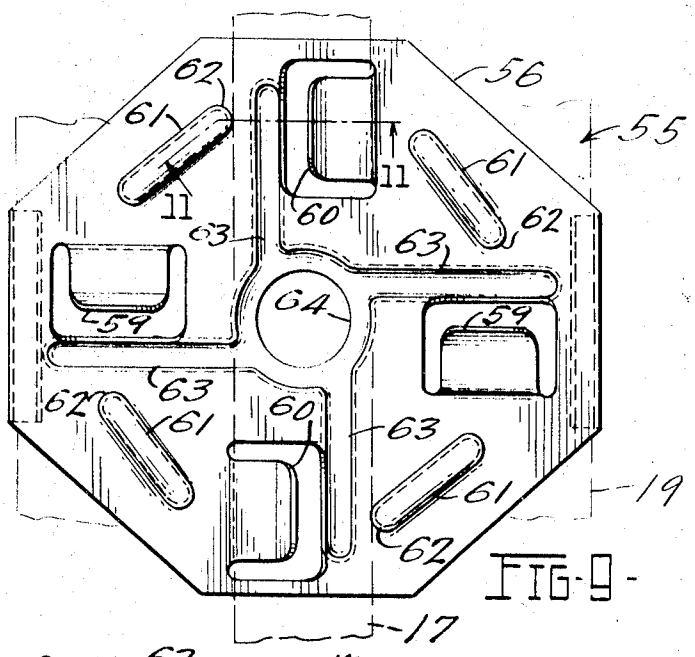


FIG-9-

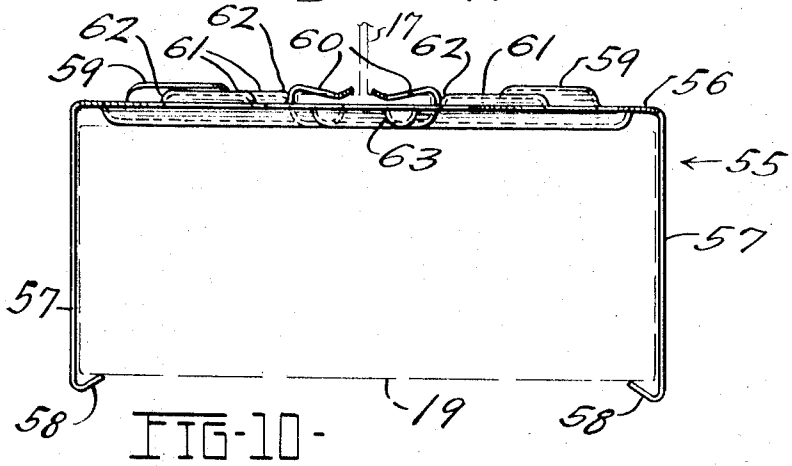


FIG-10-

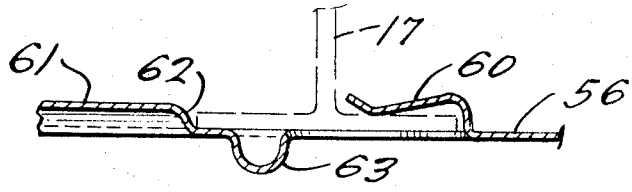


FIG-11-

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LIGHTING FIXTURE HANGER

CROSS-REFERENCE TO RELATED APPLICATIONS

This is a continuation of my copending application Ser. No. 799,131, filed Dec. 16, 1968 now abandoned, which is a continuation-in-part of my application Ser. No. 740,557, filed June 27, 1968, now abandoned.

BACKGROUND OF THE INVENTION

The invention relates generally to a fixture hanger, and, more particularly, to a device for hanging lighting fixtures below a dropped ceiling.

Modern office buildings and factories are usually constructed with a dropped ceiling. Heating and air-conditioning ducts and electrical wiring are located in a plenum above the dropped ceiling, which typically comprises bonded glass fiber or other acoustical boards supported by a suspended grid of inverted tees. Lighting fixtures are either mounted flush with the acoustical boards, or hung below the dropped ceiling, suspended from the inverted tees.

When a lighting fixture is suspended from an inverted tee, a bracket must first be attached to the inverted tee. Prior art brackets generally comprise a metal clip which snaps onto the inverted tee. A threaded stud depends from the metal clip for attaching the fixture. To mount the lighting fixture, two or more brackets must be snapped onto the inverted tee at the proper spacing to align with holes or knockouts in the fixture. The fixture is then opened, the top portion of the fixture housing is inserted onto the aligned studs which depend from the brackets, and washers and nuts are placed on the studs.

The primary problem with conventional brackets lies in attaching the brackets to the inverted tees such that the threaded studs will be aligned with holes in the fixture. This is usually a time consuming job and requires at least two electricians. Additionally, the threaded stud, washer and nut make the bracket expensive.

SUMMARY OF THE INVENTION

According to the instant invention, a fixture hanger is provided which is easily snapped onto an inverted tee support for a dropped ceiling. A lighting fixture is suspended below the dropped ceiling by merely snapping the lighting fixture into the hanger.

In the preferred embodiment, the fixture hanger is stamped from a single sheet of metal, which may be painted or plated either before or after stamping. The hanger has a flat elongated body portion which, when attached to an inverted tee, lies adjacent to the dropped ceiling. A pair of elongated wingpieces depend from the ends of the body portion and are spaced to receive the lighting fixture. The wing pieces have hooks formed at their lower ends for lockably engaging a lighting fixture inserted between them. Clips of a first pair extend above, and adjacent to opposed edges and ends of, the body portion. The body portion is snapped onto an inverted tee by first placing the flat upper surface against, and at an angle to, the lower face of the inverted tee, and then twisting the body portion. The body portion will then lie parallel to and against the inverted tee. Detents, projecting above the body portion opposite each clip, prevent the body portion from being released from the inverted tee by twisting in a direction opposite to the direction for snapping the body portion onto the inverted tee. When the clips of the first pair are used to attach the hanger to the inverted tee, the lighting fixture will hang perpendicular to the inverted tee.

Tabs extend from near the center of opposed edges of the body portion and lie coplanar with the body portion. Clips of a second pair extend above, and adjacent to opposed sides and ends of, the tabs. A detent extends above each tab opposite each clip. When the hanger is attached to the inverted tee with the second pair of clips, in place of the first pair of clips, the lighting fixture will hang parallel to the inverted tee. In one modified embodiment of the fixture hanger, the body portion and the coplanar tabs may be formed as a single, flat, octagonal body portion. The added metal which forms the octagonal body increases the strength and the rigidity of the fixture hanger.

The fixture hanger may be further modified by eliminating either the first or the second pair of clips, when the fixture is to be mounted only parallel to or perpendicular to the inverted tee. When the fixture is to be spaced below the dropped ceiling, usually because the ceiling is combustible, the hanger may be further modified by extending the wingpieces by the distance which the fixture is to be spaced below the ceiling. Stop tabs can be formed in the wingpieces to prevent the fixture from being pushed upwards an inordinate amount.

Occasionally, it is desired to mount a fixture at an angle to the inverted tee other than 90°. In this situation the hanger is modified by placing two clips and detents on an elongated flat bracket. The body portion of the hanger is pivotally attached at its center to the center of the bracket. With this arrangement, the body portion and the attached wingpieces may be rotated through 360°, with respect to the inverted tee.

It is a primary object of the invention to provide an improved hanger for suspending lighting fixtures below a dropped ceiling.

Another object of the invention is to provide a lighting fixture hanger which can be quickly snapped onto an inverted tee, and in which a lighting fixture may be quickly snapped.

Still another object of the invention is to provide a lighting fixture hanger which enables a significant reduction in the cost of parts and labor for installing lighting fixtures.

Other objects and advantages of the invention will become apparent from the drawings and the following detailed description.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a perspective view of a preferred embodiment of the invention;

FIG. 2 is a bottom view of a preferred embodiment of the invention;

FIG. 3 is a partially sectioned side view of a hanger attached to an inverted tee;

FIG. 4 is a cross-sectional view of a hanger taken along line 4–4 of FIG. 3;

FIG. 5 is a perspective view of a lighting fixture hung from two inverted tees which support a dropped ceiling;

FIG. 6 is a perspective view of a modified embodiment of the invention;

FIG. 7 is an elevational view of a lighting fixture hung from an inverted tee by a bracket constructed in accordance with the invention;

FIG. 8 is a perspective view of a second modified embodiment of the invention;

FIG. 9 is a top view of another preferred embodiment of the invention;

FIG. 10 is a side view of the lighting fixture hanger of GIG. 9; and

FIG. 11 is a cross-sectional view of a lighting fixture hanger taken along line 11–11 of FIG. 9.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

Referring now to FIGS. 1—4, a preferred form of the lighting fixture hanger is generally referred to by the reference number 10. The fixture hanger 10 generally includes a flat elongated body portion 11, a pair of spaced wingpieces 12 which depend from the ends 13 and 14 of the body portion 11, and first and second pairs of clips 15 and 16 respectively. The hanger 10 is attached to an inverted tee 17, which supports a dropped ceiling 18. The hanger 10 may be selectively attached either perpendicular to or parallel to the inverted tee by using either the first pair of clips 15 or the second pair of clips 16.

The lighting fixture hanger 10 is stamped from a single flat sheet of metal, preferably a sheet of relatively inexpensive

cold or hot-rolled steel. In forming the hanger **10**, the stamped piece of metal is bent so that the wingpieces **12** are spaced apart so that a lighting fixture **19** fits snugly between them. An inwardly bent hook **20** is formed at the lower end of each wingpiece **12** for lockably engaging the lighting fixture **19**, when inserted between the wingpieces **12**. The wingpieces **12** may be bent inwardly slightly, so that the hooks **20** will be biased against the lighting fixture **19**. The hooks **20** are slanted to form camming surfaces **21** which move the wingpieces **12** out of the way (see FIG. 3) as the lighting fixture **19** is snapped into the fixture hanger **10**.

The first clips **15** are formed adjacent to opposite edges **22** and **23** and near opposite ends **13** and **14** of the body portion **11**. A locking detent **26** is formed near each end **13** and **14** of the body portion **11** to extend above the body portion **11** opposite each clip **15**. When each clip **15** is snapped over the inverted tee **17**, the adjacent detent **26** locks the clip **15** onto the inverted tee **17**.

The second clips **16** are attached to tabs **27**, which project from the central portion of edges **22** and **23** of the body portion **11**. The tabs **27** are preferably coplanar with the flat body portion **11**. Both the tabs **27** and the body portion **11** may have embossings **28** for reinforcement. The second clips **16** extend inwardly from adjacent opposite edges **29** and **30** of the tabs **27**. A locking detent **31** project s above each tab **27** opposite each clip **16**.

Referring to FIGS. **2—5**, the fixture hanger **10** is shown attached to the inverted tee **17**. To attach the hanger **10** to the inverted tee **17**, the flat body portion **11** is first placed at an angle to, and against, the flat lower face **32** of the inverted tee **17** (see the dashed lines in FIG. **2**). The hanger **10** is then twisted so that either the first clips **15** or the second clips **16** engage the inverted tee **17**. The detents **26** or **31**, depending upon whether the clips **15** or **16** engage the inverted tee **17**, lock the fixture hanger **10** onto the inverted tee **17**, preventing the fixture hanger **10** from being twisted in a reverse direction. After the fixture hanger **10** is attached to the inverted tee **17**, the lighting fixture **19** is snapped onto the depending wingpieces **12**. The lighting fixture **19** is shown, in FIG. **5**, suspended with two hangers **10** between two inverted tees **17** which support the dropped ceiling **18**. Since the first clips **15** are used to attach the fixture hangers **10** to the inverted tees **17**, the lighting fixture **19** is suspended perpendicular to the inverted tees 17.

The fixture hangers **10** may be modified either by eliminating the first pair of clips **15** and the detents **26** or by eliminating the tabs **27**, the second pair of clips **16** and the detents **31**. When one of the pairs of clips is eliminated, the lighting fixture **19** can be hung in only one position, either perpendicular to or parallel to the inverted tee **17**, depending upon which pair of clips is eliminated.

Referring now to FIGS. **6** and **7**, a modified embodiment of a fixture hanger, generally designated **35**, is shown. The fixture hanger **35** is modified by elimination of the first pair of clips **15** (of the hanger **10** of FIG. **1**) and by an increase in length of the pair of spaced wingpieces **36** (by comparison with the length of the wingpieces **12** of the hanger **10** of FIG. **1**). When the dropped ceiling **18** is combustible, building codes may require that lighting fixtures **19** be mounted a prescribed distance below the dropped ceiling **18**. To meet such building codes, the wingpieces **36** are extended by the predetermined spacing. Stop tabs **37** may be formed in the wingpieces **36** to prevent pushing the lighting fixture **19** against the cropped ceiling **18**. The fixture hanger **10** of FIGS. **1—5** may be similarly modified by extending the wingpieces **12**. Both the fixture hanger **10** of FIGS. **1—5** and the modified fixture hanger **35** of FIGS. **6—7** may have a hole **38** through the center of the body portion for suspending lighting fixtures **19** from rods, stems or studs which are attached to ceilings.

Turning now to FIG. **8**, still another modified embodiment of a fixture hanger, generally designated **40**, according to the invention, is shown. The fixture hanger **40** generally includes a flat body portion **41**, which may have reinforcement embossings **42**, a pair of wingpieces **43** depending from the ends **44** of the body portion **41**, and a flat elongated mounting bracket **45**. The body portion **41** is pivotally attached at its center to the center of the mounting bracket **45** with a rivet, screw or extrusion **46**. A pair of clips **47** and detents **48** extend above the mounting bracket **45** from adjacent opposite edges **49** and **50** and opposite ends **51** and **52**. Since the body portion **41** can be pivoted through 360° with respect to the mounting bracket **45**, the modified fixture hanger **40** may be used to hang lighting fixtures at any angle to the inverted tee **17**. As with the above described embodiments, the wingpieces **43** may be lengthened when it is desired to have a lighting fixture spaced below the dropped ceiling **18**.

Referring now to FIGS. **9—11**, still another modification of the lighting fixture hanger is shown. The modified hanger, generally designated by the reference number **55**, has a generally flat, octagonal-shaped body portion **56**. A pair of elongated wingpieces **57** depend downwardly from opposite edges of the octagonal body portion **56**. The pair of wingpieces **57** are spaced to snugly engage the lighting fixture **19** and have inwardly bent hooks **58** at the lower end for lockably engaging the lighting fixture **19**. Two pairs of clips are stamped in and project above the body portion **56**. A first pair **59** of the clips are located to engage the inverted tee **17** such that the lighting fixture **19** will be suspended perpendicular to the inverted tee **17**. A second pair **60** of the clips are located to engage the inverted tee **17** such that the lighting fixture will be suspended parallel to the inverted tee **17**. Four reinforcement embossings **61** extend above the octagonal body portion **56**, each of the embossings **61** having an end portion **62** opposite a different one of the clips **59** and **60**. The end portion **62** of the embossings **61** serves the function of a locking detent to hold the inverted tee **17** under the associated clip **59** or **60**. Thus, it can be seen that the end **62** of the embossings **61** operates in a manner similar to the detents **26** and **31** in FIGS. **1—4**. Four substantially radial reinforcement embossings **63** depend below the body portion **56** from an optional hole **64** through the center of the body portion **56**. As in the previous embodiments, the optional hole **64** may be used when suspending lighting fixtures **19** from rods, stems or studs which are attached to ceilings.

What I claim is:

1. A device for hanging a lighting fixture from an inverted tee support for a dropped ceiling, said device comprising: a flat elongated body portion, a pair of wing portions extending downwardly from the ends of said body portion, said pair of wing portions being spaced to receive the lighting fixture between them, means on said wing portions for lockably engaging the lighting fixture when the lighting fixture is inserted between said wing portions, stop tabs projecting from said wing portions for holding the lighting fixture at a predetermined spacing below said body portion, a flat elongated mounting bracket, said mounting bracket having first and second edges and first and second ends, a first clip extending above said bracket from adjacent said first edge and said first end, a detent projecting above said bracket adjacent said second edge opposite said first clip, a second clip extending above said bracket from adjacent said second edge and said second end, a detent projecting above said bracket adjacent said first edge opposite said second clip, and means pivotally attaching said body portion to said bracket.

2. A device for hanging a longitudinally extending lighting fixture from an inverted tee support for a dropped ceiling, said device comprising: a generally flat body portion, said body portion having at least two opposed edges, a pair of wing portions depending from said opposed edges, said pair of wing portions being spaced to receive the lighting fixture between them, means on said wing portions for lockably engaging the lighting fixture when the lighting fixture is inserted between said spaced wing portions, and means for selectively attaching said body portion to the inverted tee in the first and second positions, said wing portions being directed parallel to the in-

verted tee when said body portion is attached in said first position and perpendicular to the inverted tee when said body portion is attached in said second position.

3. A device for hanging a lighting fixture from an inverted tee support for a dropped ceiling, as defined in claim 2, wherein said means for selectively attaching said body portion to the inverted tee in first and second positions comprises: a first pair of clips formed in and projecting above said body portion for attaching said body portion to the inverted tee in said first position, and a second pair of clips formed in and projecting above said body portion for attaching said body portion to the inverted tee in said second position.

4. A device for hanging a lighting fixture from an inverted tee support for a dropped ceiling, as defined in claim 3, and further including four detents, each of said four detents projecting above said body portion opposite a different clip of said first and second pair of clips, whereby, when said body portion is attached to the inverted tee, two of said detents lock said body portion onto the inverted tee.

5. A device for hanging a lighting fixture from an inverted tee support for a dropped ceiling, as defined in claim 3, wherein said body portion is octagonal in shape.

6. A device for hanging a lighting fixture from an inverted tee support for a dropped ceiling, as defined in claim 3, wherein the two clips of said first pair of clips face in opposite directions for attaching to the inverted tee by rotating said body portion, and the two clips of said second pair of clips face in opposite directions for attaching to the inverted tee by rotating said body portion.

7. A device for hanging a lighting fixture from an inverted tee support for a dropped ceiling, as defined in claim 3, and further including at least four reinforcement embossings formed in and projecting above said body portion, each of said four embossings having an end spaced from a different clip of said first and second pairs of clips whereby, when said body portion is attached to the inverted tee, two of said ends lock said body portion onto the inverted tee.

8. A device for hanging a lighting fixture from an inverted tee support for a dropped ceiling, as defined in claim 2, and further including stop means for holding the lighting fixture between said spaced wing portions at a predetermined spacing below said body portion.

9. A device for hanging a lighting fixture from an inverted tee support for a dropped ceiling, said device comprising: a generally flat body portion, said body portion having at least two opposed edges, a pair of wing portions depending from said opposed edges, said pair of wing portions being spaced to receive the lighting fixture therebetween, means on said spaced wing portions for lockably engaging the lighting fixture when the lighting fixture is inserted between said spaced wing portions, and a pair of clips integral with and extending above said body portion for attaching said body portion to the inverted tee, said clips being so positioned that, when said device is attached to the inverted tee and the lighting fixture is locked to said wing portions, the lighting fixture hangs parallel to the inverted tee.

10. A device for hanging a lighting fixture from an inverted tee support for a dropped ceiling, as defined in claim 9, and further including a pair of detents, each of said detents projecting above said body portion opposite a different clip, whereby, when said pair of clips are attached to the inverted tee, said detents lock said clips onto the inverted tee.

11. A device for hanging a lighting fixture from an inverted tee support for a dropped ceiling, as defined in claim 9, and including stop means for holding the lighting fixture between said spaced wing portions at a predetermined spacing below said body portion.

12. A device for hanging a lighting fixture from an inverted tee support for a dropped ceiling, said device comprising: a generally flat body portion, said body portion having at least two opposed edges, a pair of wing portions depending from said opposed edges, said pair of wing portions being spaced to receive the lighting fixture therebetween, means on said wing portions for lockably engaging the lighting fixture when the lighting fixture is inserted between said spaced wing portions, and a pair of clips integral with and extending above said body portions for attaching said body portion to the inverted tee, said clips being so positioned that, when said device is attached to the inverted tee and the lighting fixture is locked to said wing portions, the lighting fixture hangs perpendicular to the inverted tee.

13. A device for hanging a lighting fixture from an inverted tee support for a dropped ceiling, as defined in claim 12, and further including a pair of detents, each of said detents projecting above said body portion opposite a different clip, whereby, when said pair of clips are attached to the inverted tee, said detents lock said clips onto the inverted tee.

14. A device for hanging a lighting fixture from an inverted tee support for a dropped ceiling, as defined in claim 12, and further including stop means for holding the lighting fixture between said spaced wing portions at a predetermined spacing below said body portion.

Disclaimer

3,589,660.—*Bruce P. Dunckel*, Stone Mountain, Ga. LIGHTING FIXTURE HANGER. Patent dated June 29, 1971. Disclaimer filed Dec. 23, 1974, by the assignee, *National Service Industries, Inc.*

Hereby enters this disclaimer to claim 1 of said patent.

[*Official Gazette March 25, 1975.*]