

Feb. 28, 1961

W. W. STUBBS
TROFFER SIDE SUPPORT

2,973,177

Filed Jan. 14, 1960

2 Sheets-Sheet 1

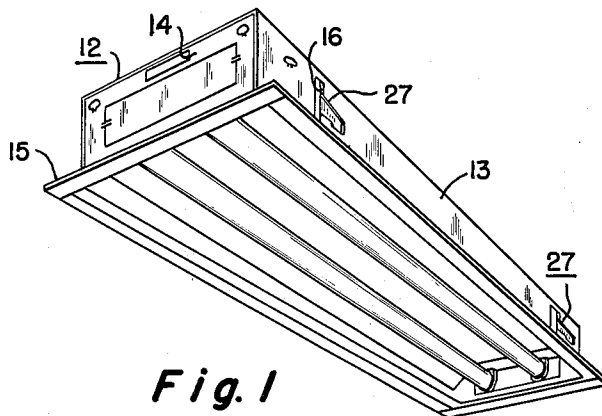


Fig. 1

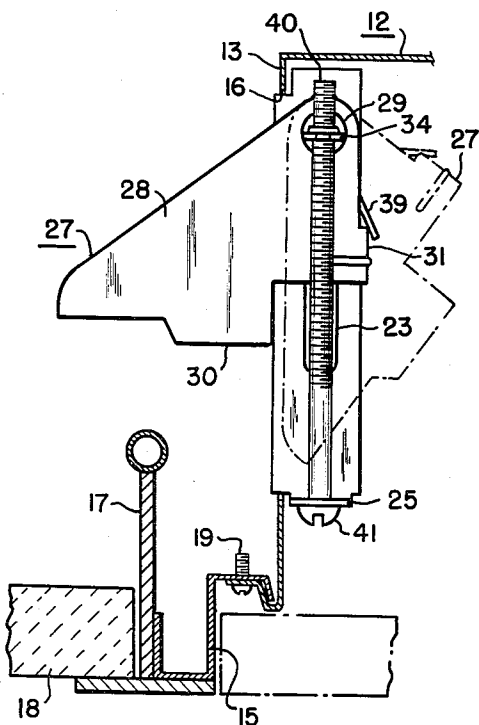


Fig. 2

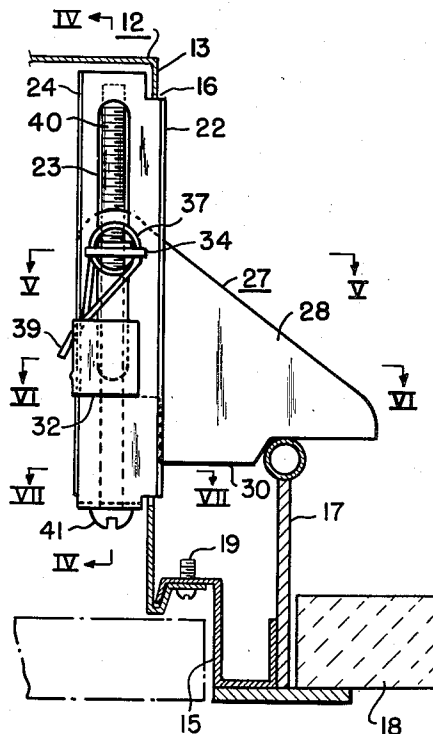


Fig. 3

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2 Sheets-Sheet 2

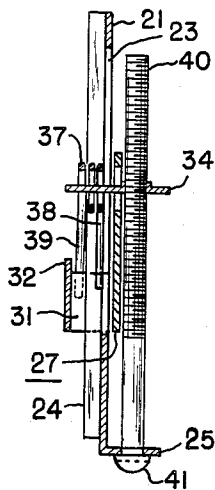


Fig. 4

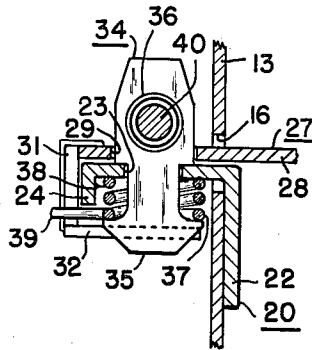


Fig. 5

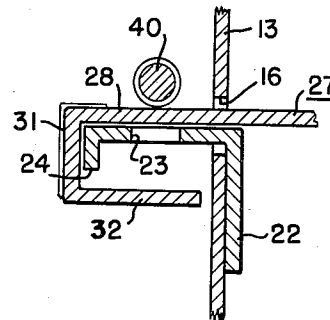


Fig. 6

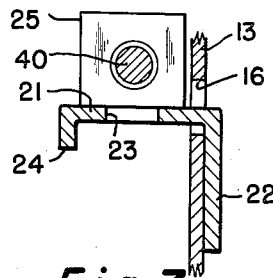


Fig. 7

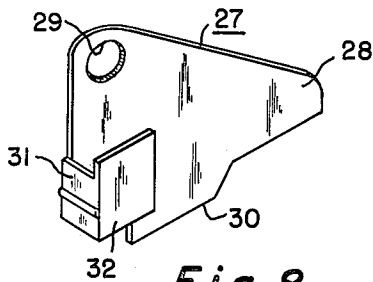


Fig. 8

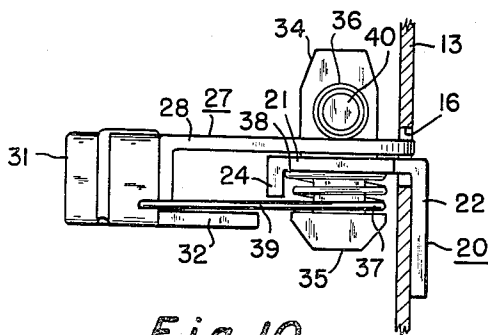


Fig. 10

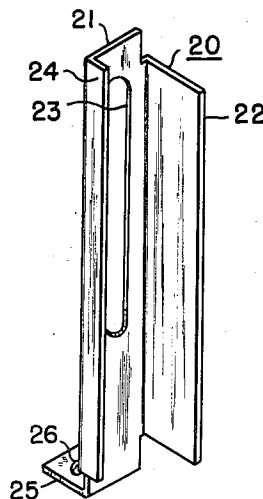


Fig. 9

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2,973,177

TROFFER SIDE SUPPORT

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Filed Jan. 14, 1960, Ser. No. 2,512

5 Claims. (Cl. 248—343)

My invention relates to a side support particularly adapted for use on a troffer containing fluorescent lighting mechanisms. The troffer is inserted through an opening in a ceiling and must be affixed rigidly within said opening. The opening in the ceiling is frequently only large enough to permit entry of the troffer housing and thus the side supports must be retained within the troffer housing until after the housing has entered the opening and then the supports must swing outwardly of the housing to contact the ceiling structure to support the housing. My invention simply and easily performs this function.

Various types of ceiling structures are used commercially today and it is thus desirable to have troffer side supports which will adjust to elevate or lower the troffer to properly fit the troffer within the various types of ceiling structures. In the past it has been necessary to stock and use numerous types of troffers and supports to provide proper fit and rigid affixation of the troffer to the ceiling structures. My invention provides an adjustable support which accommodates the troffer to the various ceiling structures.

I have shown a present preferred embodiment of my invention in the attached drawings in which:

Figure 1 is a perspective view of the assembled troffer and side supports;

Figure 2 is a transverse cross-section through the troffer wall at the location of the side support with parts of the side support in raised position above a ceiling support;

Figure 3 is a transverse cross-section through the troffer wall taken from the opposite side of Figure 2, but showing parts of the side support in lowered position in contact with a ceiling support;

Figure 4 is a cross-section taken on line IV—IV of Figure 3;

Figure 5 is a cross-section taken on line V—V of Figure 3;

Figure 6 is a cross-section taken on line VI—VI of Figure 3;

Figure 7 is a cross-section taken on line VII—VII of Figure 3;

Figure 8 is an isometric view of a tongue forming part of the side support;

Figure 9 is an isometric view of a frame forming part of the side support; and

Figure 10 is a plan view of the side support, but showing the tongue pivoted rearwardly to the position shown by the dash lines of Figure 2.

Briefly, the present invention includes a troffer side support having a tongue pivotally mounted on a frame and an adjustment means for moving the tongue vertically relative to the frame and the troffer. The frame includes parts for mounting the side support on the troffer.

More specifically, a troffer 12, of well-known construction or of the construction described in application Serial No. 2,501, filed January 14, 1960, includes a rectangular boxlike enclosure having side walls 13 and end walls 14 (only one side wall and one end wall are

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shown in Figure 1) and a continuous integral side flange 15 extending around the lower periphery of the troffer. Side flange 15 is affixed to the troffer wall by screws 19. The side walls 13 have vertical slots 16 through which a portion of the side support extends as shown in Figures 1, 2 and 3. The portion of the side support extending through the slots 16 engages a ceiling stringer 17 (of well-known construction) which supports ceiling tile 18. Various types of stringers are used in supporting ceilings and only one modification is shown in Figures 2 and 3. The known stringers 17 vary in vertical height thereby necessitating use of a troffer side support which is adjustable to accommodate the heights while properly aligning the side flange 15 with the stringer 17.

The side support includes a frame 20 having a substantially L-shaped cross-section including a first leg 21 affixed at 90° to a second leg 22. The leg 22 is substantially the same height as slot 16 and is inserted into slot 16 from inside the troffer and turned to a position on the outside of the side wall 13 of the troffer in the manner shown in Figure 5. Then the frame is immovable vertically relative to side wall 13. The juncture of the legs 21 and 22 is located immediately outside of the slot 16.

The leg 21 has an elongated vertical slot 23 therein of sufficient length to provide a substantial vertical adjustment of parts of the support as described hereinafter. The leg 21 is of greater height than leg 22, as shown in Figure 9, so that the edge of leg 21 located at the juncture of the legs will abut the inside face of side wall 13 to prevent removal of the frame by an outside pulling force on leg 22.

A third leg 24 is affixed to the leg 21 in the manner shown in Figure 5 along the edge of leg 21 remote from the juncture with leg 22. The leg 24 is substantially the same height as leg 21 and parallel to leg 22. The function of this leg will be explained hereinafter.

A fourth leg or tab 25 is affixed to the lower edge of leg 21 and at a substantially right angle to leg 21. The leg 25 has a hole 26 therein of a size sufficient to freely admit a threaded bolt to be described hereinafter.

The side support also includes a tongue 27 comprising a large triangular plate 28 having a hole 29 in its upper end of a size sufficient to slidably admit a nut to be described hereinafter. The lower edge of plate 28 has a downwardly extending tab 30 but it is understood that the configuration of the tongue can be changed in any way desirable to accommodate the stringer 17 and still be within the scope of this invention.

Affixed to the rear of the plate 28 is a second plate 31 to which is affixed a third plate 32. The plate 31 is substantially perpendicular to plate 28 and located below the hole 29. Plate 32 is perpendicular to plate 31 and thus parallel to plate 28. Plate 32 has slightly greater height than plate 31.

As viewed from a horizontal plane through the tongue, it appears U-shaped as shown in Figure 5. The inside U-portion of the tongue is of sufficient size to accommodate and be slidably moved along the legs 21 and 24 of the frame 20 as shown in Figure 6.

A flat nut 34 is slidably positioned in the slot 23 of the frame 20. This nut is a flat plate having an enlarged head 35 on one end connected by a narrower neck to an enlarged portion on the opposite end. The opposite end has a threaded hole 36. The threaded hole is of such dimensions to admit a threaded bolt to be described hereinafter. The narrow neck of the nut 34 is of a width only sufficient to be slidably received within the slot 23 and then enlarges into a portion having a greater width in the area of the threaded hole 36 as shown in Figure 5. This latter enlarged portion of the nut is only sufficient in width to be slidably received within the opening 29 in

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the tongue 27 and the inside edges of the enlarged portion about against the outside of leg 21 as shown in Figure 5.

A spiral spring 37 is wrapped around the narrow neck of nut 34 on the side of the frame remote from tongue 27 and has one end 38 engaged against the inside face of leg 24 of the frame 20 and a second end 39 positioned behind plate 31 of tongue 27. The end 39 is rigidly maintained in contact with the plate 31 by a portion of the plate 32 extending above the plate 31 as shown in Figure 8. The spring 37 is wrapped clockwise around nut 34 as viewed in Figure 3 and is in tension at all times irrespective of the position of tongue 27 relative to frame 20. The spring 37 biases the tongue 27 to the position shown in Figures 2 and 3. The tongue 27 may be swung about nut 34 rearwardly as viewed in Figure 2, that is, from left to right, by merely pushing downward and inward on the tongue toward the frame 20. This inward position of the tongue 27 is shown in the dash lines of Figure 2 and in Figure 10.

The spring 37 also maintains the nut 34 in a biased downward position as viewed in Figure 5. Thus, the spring performs two functions: first, it maintains the nut in the position shown in Figure 5; and, second, it biases the tongue 27 to the position shown in Figures 2, 3 and 5, while permitting the tongue to be pivoted backwards to the dash line position of Figure 2 and the position shown in Figure 10.

A threaded bolt 40 having an enlarged head 41 passes upwardly through the hole 26 in the plate 25 and threads into the opening 36 in the nut 34. The enlarged head 41 prevents movement of the threaded bolt upward through the opening 26 but the bolt is freely rotatable about its own axis in the opening 26.

The tongue 27 is slid vertically relative to the frame 20 and side wall 13 by merely rotating the bolt 40. Thus, the tongue can be moved from the position shown in Figure 2 to the position shown in Figure 3 by rotating the bolt 40. This permits an adjustment of the tongue to move the tongue into contact with stringers 17 of various heights and permits proper positioning of the troffer and flanges 15 relative to the ceiling.

In operation, the troffer 12 is assembled with the side supports attached and is inserted into an opening in the ceiling. The tongue 27 is normally extended in the position shown in Figure 2 and, thus, must pivot from left to right in Figure 2 to permit insertion of the troffer into the ceiling due to the limited dimensions of the ceiling opening. As soon as the tongue 27 has been elevated above stringer 17 in the ceiling, the tongue springs outward to the position shown in Figures 2 and 5. A conventional screwdriver is then used to rotate bolt 40 to move the tongue from the elevated position shown in Figure 2 to the lowered position in contact with the stringer as shown in Figure 3. The troffer is thereby properly positioned and supported in the ceiling.

While I have described a present preferred embodiment of my invention, it may be otherwise embodied within the scope of the following claims.

I claim:

1. A support including an L-shaped frame having a first vertically elongated leg affixed to a second vertically elongated leg, said legs being joined along their vertically extending edges; said first leg having a vertical slot therein extending a substantial portion of the height of the leg; a horizontal short tab affixed to the lower edge of said first leg and extending perpendicular to said first leg and

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in a direction opposite to said second leg; a tongue located on the outside of the L-shaped frame and in a plane parallel and contiguous to said first leg and perpendicular to said second leg and tab; a hole in said tongue; a nut positioned in and extending through said hole and said slot and a portion of the nut extending beyond said tongue; said portion of the nut having a vertical threaded hole therein; said tab having a hole therein; a headed bolt passing vertically upward through and being freely rotatable in said hole in the tab, and being threaded into said threaded hole in the nut; said tongue being swingably mounted on said nut to move from a retracted position to an extended position; a spring encircling said nut to prevent removal of the nut from the said slot; and one end of said spring normally biasing the tongue to said extended position.

2. A support according to claim 1 including a stop integrally affixed to an edge of the tongue and removably engaging a portion of said frame; said stop limiting the movement of the tongue to an extended position caused by said spring.

3. A leveling support for a troffer having vertical slots in its walls for admission of parts of the support; said support including an L-shaped frame having a first vertically extending plate affixed along one of its vertical edges to a vertical edge of a second vertically extending plate, said frame being adapted to be positioned in one of said slots with the plates positioned on opposite sides of the troffer wall, said first plate positioned parallel and contiguous to the outside of said troffer wall, said second plate extending perpendicular to said troffer wall; a vertically extending elongated slot in said second plate; a horizontally extending tab affixed to the lower end of said second plate and extending substantially perpendicular thereto in a direction opposite to said first plate; a hole in the tab; a nut slidably mounted within said slot and extending outwardly on each side of said second plate; an enlarged head on one end of the nut, a threaded hole in the other end of the nut; said threaded hole being above and in vertical alignment with the hole in the tab; a bolt extending upward through the hole in the tab and threaded into the hole in the nut; an enlarged head on the bolt located below the hole in the tab to prevent vertical upward movement of the bolt relative to the frame; said bolt being rotatable to raise and lower the nut; a tongue swingably mounted on the nut and contiguous to the side of said second leg nearest the bolt; said tongue being movable from an extended position to a retracted position and vice versa with the nut functioning as a pivot axis; and a spring located between the frame and the tongue to bias the tongue to said extended position.

4. A support according to claim 3 wherein said spring is spirally wound around the nut in a tensioned condition and a first end of the spring engages the frame and a second end engages the tongue.

5. A support according to claim 3 wherein said tongue is U-shaped, the tongue being positioned so the U-shape encloses the second plate of the frame on three sides; and the inwardmost portion of the U-shape abuts against a vertical edge of said second plate when the tongue is in the extended position.

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