

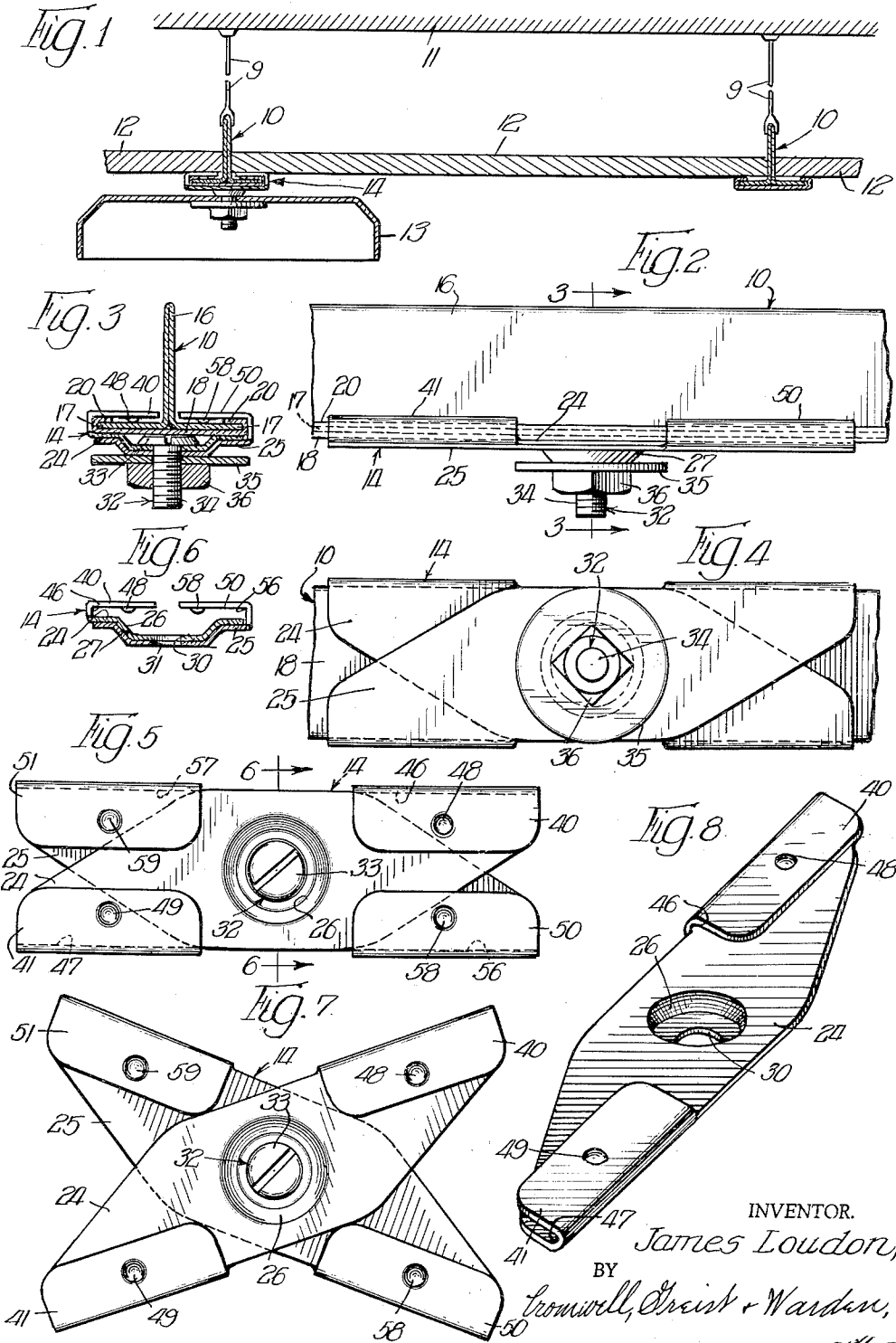
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SCISSOR-CLIP

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SCISSOR-CLIP

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The present invention relates to a clip and, more particularly, to a scissor-clip designed for engagement with the transverse portion or cross member of a T-shaped rail member.

In new construction and remodeling, the installation of suspended or false ceilings has become quite commonplace. One of the methods used widely in installing suspended or false ceilings comprises suspending a series of inverted T-shaped supporting bars or rail members from an overhead supporting structure in parallel spaced arrangement by means of cables or rod members. Suitable ceiling panels are then supported between the transverse or horizontal portions of the T-shaped supporting bars. The ceiling panels commonly used are formed of several different materials such as plastic, steel, fiber board, etc. It is often desirable to suspend lighting fixtures from such suspended ceilings and the practice is to suspend them from the T-shaped supporting bars. It is therefore the general object of the present invention to provide a new device which is designed for engagement with the transverse portion of a T-shaped rail member.

Another object of the invention is to provide a new type of clip which is particularly adapted for suspending light fixtures and the like from T-shaped supporting bars of a suspended ceiling installation and which eliminates the work and time involved in drilling holes in such supporting bars for suspending such fixtures in the usual manner.

A more detailed object of the invention is to provide a new and improved scissor-like clamping device in the form of a pair of generally flat elongated members or arms pivotably connected at their centers with each arm having a pair of flanges formed thereon, the flanges on each arm turning inwardly from opposite side edges of the arm and being located adjacent opposite ends thereof.

It is another object of the invention to provide a new and improved scissor-like clip of the character described which is adapted to be disposed flush against the transverse portion of a T-shaped supporting bar when the arms are in an open position with the arms then being adapted to be pivoted to a closed position in which one flange on each arm engages over one edge of the transverse portion of the T-shaped supporting bar and the other flange on each arm engages over the other edge of the transverse portion of the T-shaped supporting bar.

Another important object of the invention is to provide a new and improved scissor-clip of the character described wherein the pivotably connected center of each of the arms is provided with a generally cup-shaped offset or embossed portion with the offset portions of the two arms being internested whereby to provide improved bearing surfaces between the two arms.

A further important object of the invention is to provide a new and improved scissor-clip of the character described wherein each of the flanges is provided with a dimple-like projection extending toward the main body portion of the associated arm whereby the dimple-like projections are adapted to be engageable behind rolled edges formed on the horizontal or transverse portion of many T-shaped supporting bars.

Another object of the invention is to provide a new and improved scissor-clip of the character described which is simple to manufacture at low cost, sturdy, and easy to use.

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Certain other objects of the invention will, in part, be obvious, and will in part appear hereinafter.

For a more complete understanding of the nature and scope of the invention reference may now be had to the accompanying drawings wherein:

FIG. 1 is a vertical section through a typical suspended ceiling installation and showing a lamp fixture suspended therefrom by a clamping device embodying the invention;

FIG. 2 is a side elevational view showing the clamping device of FIG. 1 on an enlarged scale as assembled to a T-shaped supporting bar;

FIG. 3 is a vertical section taken generally on the line 3-3 of FIG. 2;

FIG. 4 is a bottom plan view of the structure shown in FIG. 2;

FIG. 5 is a top plan view of the clip of FIG. 2 when in its closed or clamping condition;

FIG. 6 is a vertical section taken generally on the line 6-6 of FIG. 5;

FIG. 7 is a view similar to FIG. 5 when the clip is in its open condition; and

FIG. 8 is a perspective view of one of the pivotably connected arms of the clip.

In FIG. 1 there is shown a portion of a typical suspended or false ceiling installation which includes two T-shaped supporting bars or rail members 10 inverted and suspended by suitable means 9, such as cables or rod members, from an overhead supporting structure 11 in parallel spaced relationship, ceiling panels 12 supported between the T-shaped supporting bars 10, and a lamp fixture 13 suspended from the left-hand supporting bar 10 by a scissor-clip 14 embodying the invention. As best shown in FIG. 3, the T-shaped supporting bar 10 is formed from an elongated section of generally flat stock which has been bent back upon itself to provide a centrally arranged vertical leg portion 16 and wherein the marginal portions 17 have been bent at right angles thereto whereby they extend in opposite directions therefrom. To improve the rigidity and supporting strength of the T-shaped bar 10, an elongated section 18 of flat stock is disposed against the marginal portions 17 and is secured thereagainst by rolling or turning the edges thereof over the edges of the marginal portions 17 to provide rolled edges 20. The marginal portions 17 and the section 18 combine to form the horizontal portion or transverse cross bar member of the T-shaped supporting bar 10 with the rolled edges 20 being arranged on the surface thereof adjacent the vertical leg portion 16. The ceiling panels 12 are supported on the upper surfaces of the horizontal or transverse portions of the T-shaped supporting bars 10, or, more accurately, on the rolled edges 20 thereof.

The scissor-clip 14 includes a pair of elongated, generally flat arms or body members 24 and 25. The body members 24 and 25 are each provided at their centers with a generally cup-shaped offset or embossed portion 26 and 27, respectively, having centrally located bores 30 and 31 (FIG. 6) formed, respectively, therein. The body member 24 overlies the body member 25 and has its offset portion 26 internested in the offset portion 27 of the body member 25. A bolt 32 extends downwardly through the bores 30 and 31 with the head thereof being disposed wholly within the offset portion 26 of the body member 24 and with the threaded stem portion 34 depending downwardly therefrom. Preferably, the bolt head 33 is rigidly secured in the offset portion 26, as by brazing or welding. A washer 35 is fitted over the stem portion 34 and a nut 36 is in threaded engagement therewith. The body members 24 and 25 are thus pivotably connected together for movement between a closed or clamping position, as illustrated in FIG. 5, and an open position, as illustrated in FIG. 7, the internested offset portions 26 and 27 providing suitable bearing surfaces therebetween and

generally improving the rigidity of the two body members 24 and 25.

As best shown in FIG. 8, the arm 24 is provided with a pair of flanges 40 and 41. The flanges 40 and 41 are disposed adjacent opposite ends of the arm 24 and extend upwardly, or away from the offset portion 26, from opposite side edges of the arm 24 and are then turned inwardly toward the longitudinal axis of the arm 24 in parallel spaced arrangement above the main body portion thereof. The flanges 40 and 41 define a pair of inwardly turned grooves 46 and 47 arranged adjacent opposite ends and at opposite sides of the arm 24. The flanges 40 and 41 are each provided with a centrally located dimple-like projection 48 and 49, respectively, each of which projects slightly inwardly of one of the grooves 46 and 47. Likewise, the arm 25 is provided with a pair of upwardly and inwardly turned flanges 50 and 51 adjacent opposite ends and at opposite sides thereof whereby to define a pair of inwardly opening grooves 56 and 57. The flanges 50 and 51 are each provided with a dimple-like projection 58 and 59, respectively, each of which projects inwardly of one of the grooves 56 and 57.

When the arms 24 and 25 are pivoted from the open position shown in FIG. 7 to the closed position shown in FIG. 5 in which latter position the main body portion of the arm 24 substantially overlies the main body portion of the arm 25, the flanges 40 and 41 of the arm 24 will be aligned, respectively, with the flanges 50 and 51 of the arm 25. In the closed position of the arms 24 and 25, the groove 46 of the arm 24 opens toward the groove 56 of the arm 25 and the groove 47 of the arm 24 opens toward the groove 57 of the arm 25.

When it is desirable to use the scissor-clip 14 for suspending a fixture, such as the lamp fixture 13, from the T-shaped supporting bar 10, the arms 24 and 25 are first opened to the position shown in FIG. 7 and the upper surface of the body member 24 is disposed flush against and somewhat transversely of the under side of the horizontal portion of the T-shaped supporting bar 10. This is permitted because the head 33 of the bolt 32 is disposed wholly within the offset portion 26 of the arm 24. With the arms 24 and 25 in the open position, the flanges 40, 41, 50 and 51 will not interfere with the positioning of the arm 24 flush against the horizontal portion of the T-shaped bar 10. The arms 24 and 25 are then pivoted to the closed position shown in FIG. 5 with a scissor-like action whereby the flanges on each arm engage opposite edges of the horizontal portion of the T-shaped bar 10. The flanges 40 and 51 of the arms 24 and 25, respectively, fit over one edge of the horizontal portion of the T-shaped bar 10 and the flanges 41 and 50 of the arms 24 and 25, respectively, fit over the other edge of the horizontal portion of the T-shaped bar 10. Thus, one edge of the horizontal portion of the T-bar 10 extends through the grooves 46 and 57 and the opposite edge of the horizontal portion of the T-bar 10 extends through the grooves 47 and 56.

When the arms 24 and 25 are moved into their closed position to engage the scissor-clip 14 with the horizontal portion of the T-shaped bar 10, the dimple-like projections 48, 49, 58 and 59 are adapted to be releasably engaged behind the rolled edges 20 of the horizontal portion of the T-bar 10 whereby to aid in retaining the arms 24 and 25 in their closed or clamping position.

As the ceiling panels 12 are merely supported on the rolled edges 20 of the horizontal portions of the T-bars 10, it is a simple matter to raise the panels 12 sufficiently to permit engagement of the scissor-clip 14 with the horizontal portion of the T-bar 10. After the scissor-clip 14 has been properly engaged with the horizontal portion of the T-shaped supporting bar 10, the nut 36 and the washer 35 are removed from the bolt 32 and a fixture, such as the lamp fixture 13, is fitted over the depending stem portion 34 of the bolt 32 after which the washer 35 and the nut 36 are replaced on the bolt 32. The lamp fixture 13 is

thereby securely suspended from the T-shaped supporting bar 10.

With the scissor-clip 14 disclosed herein, a fixture suspended therefrom is laterally centered relative to the T-shaped supporting bar 10. Also, the offset or embossed portions 26 and 27 of the arms 24 and 25 provide desirable clearance between the top of the lamp fixture 13 and the major body portions of the clip 14 whereby to allow air circulation therebetween and reduce the possibility of overheating the ceiling panels 12.

It will be understood that certain changes may be made in the construction or arrangement of the scissor clip disclosed herein without departing from the spirit and scope of the invention as defined in the appended claims.

I claim:

1. A scissor-like device adapted for clamping engagement with the horizontal portion of a T-shaped rail member comprising, a pair of elongated, generally flat arms each of which is provided at its center with a cup-shaped offset, said arms being arranged one on top of the other with said offset portions internested whereby to provide co-operative bearing surfaces facilitating relative rotation of said arms, means extending through said internested offset portions of said arms whereby to pivotably interconnect said arms, a pair of inwardly turned flanges formed on each of said arms and extending generally parallel to said arms, the flanges on each arm being formed at opposite side edges of the arm and adjacent opposite ends thereof whereby said arms are adapted to be pivoted to a position in which one overlies the other and in which said inwardly turned flanges are adapted to fit over the horizontal portion of a T-shaped rail member with one flange on each arm opening toward a flange on the other arm, and means on said flanges for releasably retaining said arms in said overlying, rail-engaging position.

2. A scissor-like device adapted for clamping engagement with an inverted T-shaped rail member having rolled edges on the upper surfaces of the horizontal portion thereof, said device comprising, a pair of elongated, generally flat arms, means pivotably interconnecting said pair of arms intermediate their ends with said arms being arranged one on top of the other, a pair of inwardly turned flanges formed on each of said arms, the flanges on each arm being formed at opposite side edges of the arm and adjacent opposite ends thereof, and a dimple formed on each flange and extending toward the main body portion of its arm, said arms being adapted to be pivoted to a position in which one overlies the other and in which said inwardly turned flanges are adapted to fit over the horizontal portion of an inverted T-shaped rail member with one flange on each arm opening toward a flange on the other arm, said dimples being adapted to engage behind rolled edges on the upper surfaces of the horizontal portion of the T-shaped rail member whereby to retain said arms in said overlying, rail-engaging position.

3. A scissor-like device adapted for clamping engagement with the horizontal portion of a T-shaped rail member comprising, a pair of elongated body members each of which has a centrally located embossed portion, said body members being arranged one on top of the other with said embossed portions internested whereby to provide co-operative bearing surfaces for rotation of one body member relative to the other, a bolt extending through said internested embossed portions of the body members whereby to pivotably interconnect the two body members so as to define a pair of scissor-like arms, a pair of inwardly turned flanges formed on each of said arms, the flanges on each arm being formed at opposite side edges of the arm and adjacent opposite ends thereof whereby said arms are adapted to be pivoted to a position in which one overlies the other and in which said inwardly turned flanges are adapted to fit over the horizontal portion of a T-shaped rail member with the two flanges on each arm fitting over different side edges of said horizontal rail

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portion and with one flange on each arm opening toward a flange on the other arm, and a nut adapted to be tightened onto said bolt to retain said arms in said overlying, rail-engaging position.

4. A scissor-like device adapted for clamping engagement with the horizontal portion of a T-shaped rail member of the type wherein the horizontal portion is provided with rolled edges on the surface thereof adjacent the vertical portion of the rail member, said device comprising, a pair of elongated, generally flat body members each of which has a centrally located embossed portion, said body members being arranged one on top of the other with said embossed portions intermeshed whereby to provide bearing surfaces for rotation of one body member relative to the other, a bolt extending through said intermeshed embossed portions of the body members whereby to pivotably interconnect the two body members so as to define a pair of scissor-like arms, a pair of inwardly turned flanges formed on each of said arms, the flanges on each arm being formed at opposite side edges of the arm and adjacent opposite ends thereof, and a dimple-like projection on each flange extending toward the flat body portion of its arm, said arms being adapted to be pivoted to a position in which one overlies the other and in which said inwardly turned flanges are adapted to fit over the horizontal portion of a T-shaped rail member with one flange on each arm opening toward a flange on the other arm, said dimple-like projections being adapted to engage behind the rolled edges of the horizontal portion of the T-shaped rail member whereby to retain said arms in said overlying, rail-engaging position.

5. In combination with an inverted T-shaped rail having a vertically disposed leg member and a transverse member at the lower end thereof, which transverse member is provided with rolled edges on its upper surfaces, a scissor-clip disposed in releasable clamping engagement

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with the transverse member comprising, a pair of generally flat arms, the center of each of said arms having a cup-shaped offset portion, means pivotably interconnecting said arms at their centers with said offset portions intermeshed one in the other whereby to provide co-operative bearing surfaces facilitating relative rotation of said arms, a pair of flange portions on each arm with each located adjacent an opposite end thereof and with each turned inwardly from an opposite side edge of the arm whereby to define a pair of longitudinally extending grooves on each arm, and a pair of dimple-like projections on each arm with each projection extending inwardly of one of said grooves from the associated flange portion thereof, said arms underlying the lower surface of the transverse member of the T-shaped rail in their closed clamping condition with one flange portion of each arm clamped over one edge of the transverse member and the other flange portion of each arm clamped over the other edge of the transverse member, said dimple-like projections on said flange portions being releasably engaged behind the rolled edges of the transverse member of the T-shaped rail.

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