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HANGER FOR STRUCTURAL ELEMENTS

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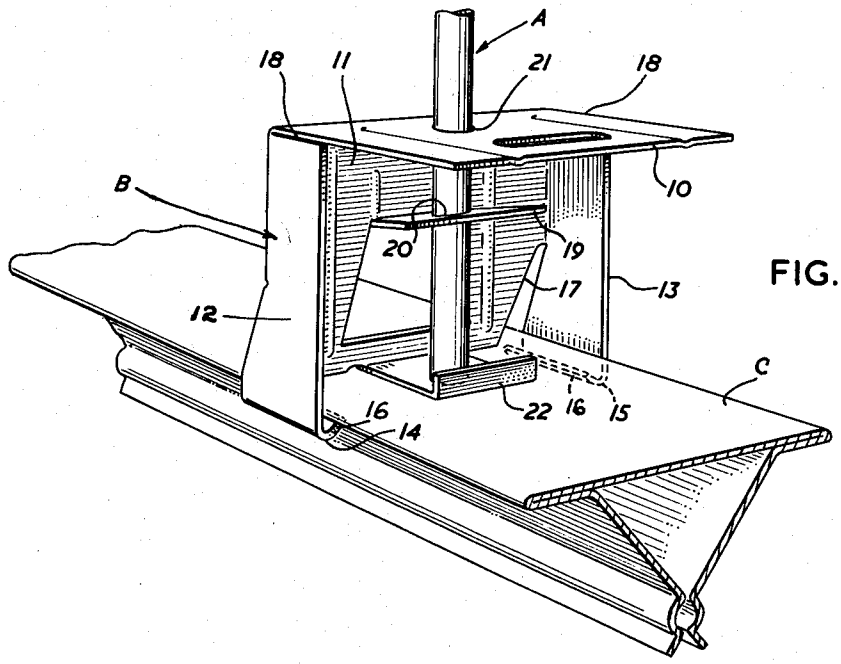


FIG. 1

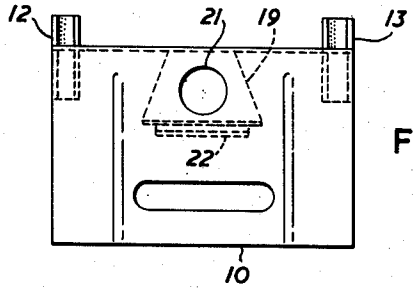


FIG. 2

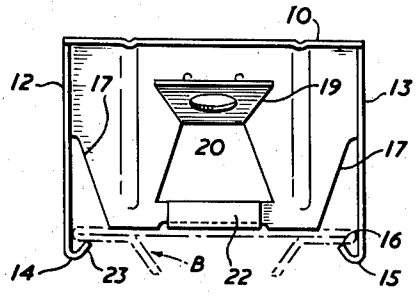


FIG. 3

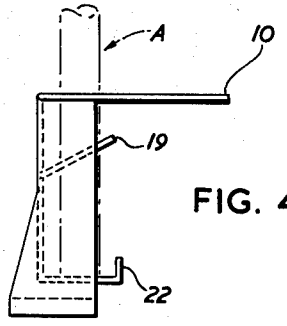


FIG. 4

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HANGER FOR STRUCTURAL ELEMENTS

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This invention relates to a hanger for structural elements employed in the direct suspension of suspended ceilings such as acoustical ceilings.

In building construction, it has been well known to enclose pipes, ducts, beams and other structural elements between the original structural ceiling and a suspended ceiling, the later then forming a smooth uninterrupted ceiling structure. This finished ceiling may consist of metal lath with plaster or acoustical board or tile or acoustical metal pan, or any other such like material, all of which are secured to the suspended sub-ceiling structure and which in addition is adapted to support such objects as fluorescent trougher lighting fixtures, diffusers for air conditioning exhaust, etc. When acoustical ceiling or fluorescent light fixtures, etc. are to be attached, T-bar channel is generally used for the purpose and the present invention provides a hanger element capable of securing an open grid T sections or other like channel supporting formations for the support of such elements and fixtures, wherein the hanger element provides a simple easily effected connection between the T member or other channel-like supporting elements and suspended hanger rods or wires.

The invention generally comprises a hanger for structural elements made up of a body formed from a single piece of resilient metal bent to form a back plate, a top plate substantially normal thereto and side plates substantially normal to both the top plate and back plate, said side plates being spaced apart from one another a distance approximating the span of the structural member to be engaged and each terminating in free ends beyond the extremity of the back plate and including clamping means at said ends for engaging a structural element, said back plate having a rod clamping plate struck therefrom to project below said top plate and at an incline to both said back plate and said top plate, said back plate having a base plate bent therefrom and projecting from said extremity of said back plate substantially normal thereto and spaced from and underlapping said clamping plate, said top plate and said clamping plate each having an orifice substantially aligned with one another for passage therethrough of a suspending rod, said inclined clamping plate thereby causing edges of its orifice to bite into and clamp said body on such rod, said base plate being engageable by a terminal end of a suspending rod projected through the orifices of said top plate and clamping plate, said free ends of said side plates being capable of outward flexing to receive a part of a structural element therebetween and to cause said clamping means to clamp said element against said base plate.

The invention will be clearly understood by reference to the following detailed specification taken in conjunction with the accompanying drawings.

In the drawings:

FIG. 1 is a perspective view of the hanger of the present invention illustrating its manner of clamping and suspending a structural element.

FIG. 2 is a top plan view of the hanger.

FIG. 3 is a front elevation of the hanger; and

FIG. 4 is a side elevation of the hanger.

Referring to the drawings, A indicates a depending wire or rod employed for ceiling suspension purposes and B indicates a hanger of the present invention shown in FIG. 1, anchored on the rod A and securing structural channel C used in conjunction with the suspended ceilings, fixtures and the like.

The hanger B is made from sheet metal bent upon itself to form a body having a top plate 10, a back 11 integrally connected therewith and disposed substantially normal thereto, and side plates or elements 12 and 13 bent in a direction to extend substantially normal to the back 11 as well as to the top plate 10, which side elements are designed to terminate in free ends 14 and 15 and which are formed with clamping means such as the inturned hook-like securing elements 16. As shown in FIG. 2, the side elements are integral with the back 11 throughout an upper portion of their length, the back being cut away as at 17 over a lower portion of its length at each side so as to provide the free extremities on the sides 12 and 13. The upper ends of the sides 12 and 13 are preferably designed to be lapped by the side edges 18 of the top 10 as clearly shown in FIGS. 1 and 2.

From the centre area of the back 11, a clamping plate 19 is struck and bent inwardly to underlie the top 10 and project at an upwardly inclined angle to the back 11. This clamping plate is centrally orificed as at 20. Similarly the top 10 is orificed as at 21, the arrangement being such that the orifice 20 in the clamp plate 19 and the orifice 21 in the top 10 are substantially aligned with one another. Finally, a base plate 22 integral with the back 11 is disposed to project forwardly from the back plate at its lower extremity as to underlie the orificed portions of the top 10 and clamp plate 19. Base plate 22 is adapted to engage with the end of the rod or wire to which the hanger is readily attached and by use of rods extending in uniform length from their point of suspension, it is obvious that the hangers will all be disposed at a uniform height relative to one another when the base or gauge plate 22 is caused to butt with the end of the rod or wire when the hanger is properly secured thereto.

Due to the fact that the clamping plate 19 is disposed at an incline to the back 11 and the plane of the top 10, and having regard to the fact that the orifice 20 of the clamp plate is substantially aligned with orifice 21 of the top 10, the orifices being substantially of a diameter corresponding to the cross-sectional diameter of the rod to which it is to be attached, it will be obvious that when rod A is passed through orifice 21 and caused to pass through orifice 20 in clamp plate 19 by flexing clamp plate 19 slightly downwardly until the end of rod 22 has engaged base or gauge plate 22, the hanger will be firmly locked on rod A as the edges of orifice 20 bite into rod A. In this manner, the hanger is very quickly and firmly locked on rod A. This leaves the free hook-like extremities of the sides 12 and 13 free to receive a structural element such as a T section or other channel-like element. In this connection, it should be noted that the spacing between the sides 12 and 13 is such as to correspond to the width of standard T bar or other channel section whereas the hook-like extremities 16 projecting inwardly of the sides are spaced apart to a lesser degree and have the upwardly and inwardly sloped faces 23 so that when one edge of the structural element, such as a T bar, is slid to overlap the hook-like extremity 16 of side 12, for instance, the structural element may be snapped into locked position by swinging the other edge upwardly against the guide surface 23 of hook 16 of side 13 which will cause the free extremity of side 13 to flex outwardly and permit the other edge of the structural element to locate above the thus flexed hooked extremity. In this instance, it should be noted that the spacing between the free extremities of hook 16 and the base or gauge plate 22 is preferably chosen to correspond with the thickness of the web of the T bar or other structural element so that when it is thus snapped into

position, its upper surface will bear against the bottom of the base or gauge plate 22, thereby solidly securing the structural element in mounted position on the hanger B. In cases where depending wire or rod suspension elements are not employed and it is desired to mount the hanger against a support, the top plate may be provided with a slot or slots such as slot 24 to which screws, bolts or the like may be passed to secure it firmly to the support.

The hanger of the present invention, therefore, provides a simple one-piece element through which structural elements of the kind in question may be quickly and efficiently mounted, i.e. by a very simple connecting operation of hte hanger to the suspension rod A and a simple snapping operation to secure the structural element to the hanger.

What I claim as my invention is:

1. A hanger for structural elements comprising a body formed from a single piece of resilient metal bent to form a back plate, a top plate substantially normal thereto and side plates substantially normal to both the top plate and back plate, said side plates being spaced apart from one another a distance approximating the span of the structural member to be engaged and each terminating in free ends beyond the adjacent extremity of the back plate and including clamping means at said ends for engaging a structural element, said back plate having a base plate bent therefrom and projecting from said extremity thereof substantially normal thereto, said free ends of said side plates being capable of outward flexing to receive a structural element therebetween and to cause said clamping means to clamp said element against said base plate, and means for securing said hanger to a support.

2. A hanger for structural elements comprising a body formed from a single piece of resilient metal bent to form a back plate, a top plate substantially normal thereto and side plates substantially normal to both the top plate

and back plate, said side plates being spaced apart from one another a distance approximating the span of the structural member to be engaged and each terminating in free ends beyond the adjacent extremity of the back plate and including clamping means at said ends for engaging a structural element, said back plate having a rod clamping plate struck therefrom to project below said top plate and at an incline to both said back plate and said top plate, said back plate having a base plate bent therefrom and projecting from said extremity of said back plate substantially normal thereto and spaced from and underlapping said clamping plate, said top plate and said clamping plate each having an orifice substantially aligned with one another for passage therethrough of a suspending rod, said inclined clamping plate thereby causing edges of its orifice to bite into and clamp said body on such rod, said base plate being engageable by a terminal end of a suspending rod projected through the orifices of said top plate and clamping plate, said free ends of said side plates being capable of outward flexing to receive a part of a structural element therebetween and to cause said clamping means to clamp said element against said base plate.

3. A hanger for structural elements as claimed in claim 2 in which said clamping means comprises hook-like elements inwardly turned from the free ends of said side plates, said hook-like elements having inwardly and upwardly inclined faces engageable by a structural element to be clamped and capable of causing said free ends thereof to flex apart and receive and clamp said structural element.

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