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(54) **METAL STUD WITH BENDABLE TAB FOR BRIDGING MEMBER SUPPORT**

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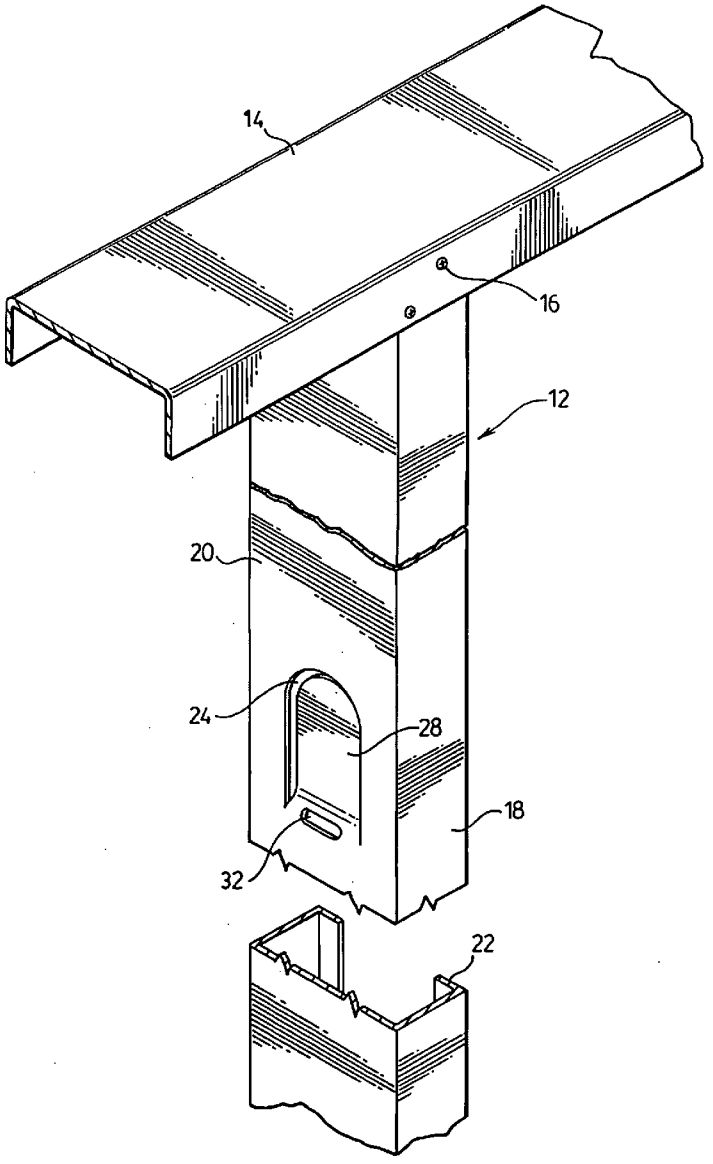
(57) **ABSTRACT**

The present invention provides for a metal stud for use in a metal stud wall. The metal stud has a pair of opposed flanges and a central web joining the flanges. The web is provided with at least one opening to receive a bridging member passing there through. The web is provided with a bendable tab attached at a bottom of the opening to the web of the stud and parallel to and displaced out of the plane of the web of the stud. The tab is adapted to be bent to a position at right angles to the web for attachment to a bridging member.



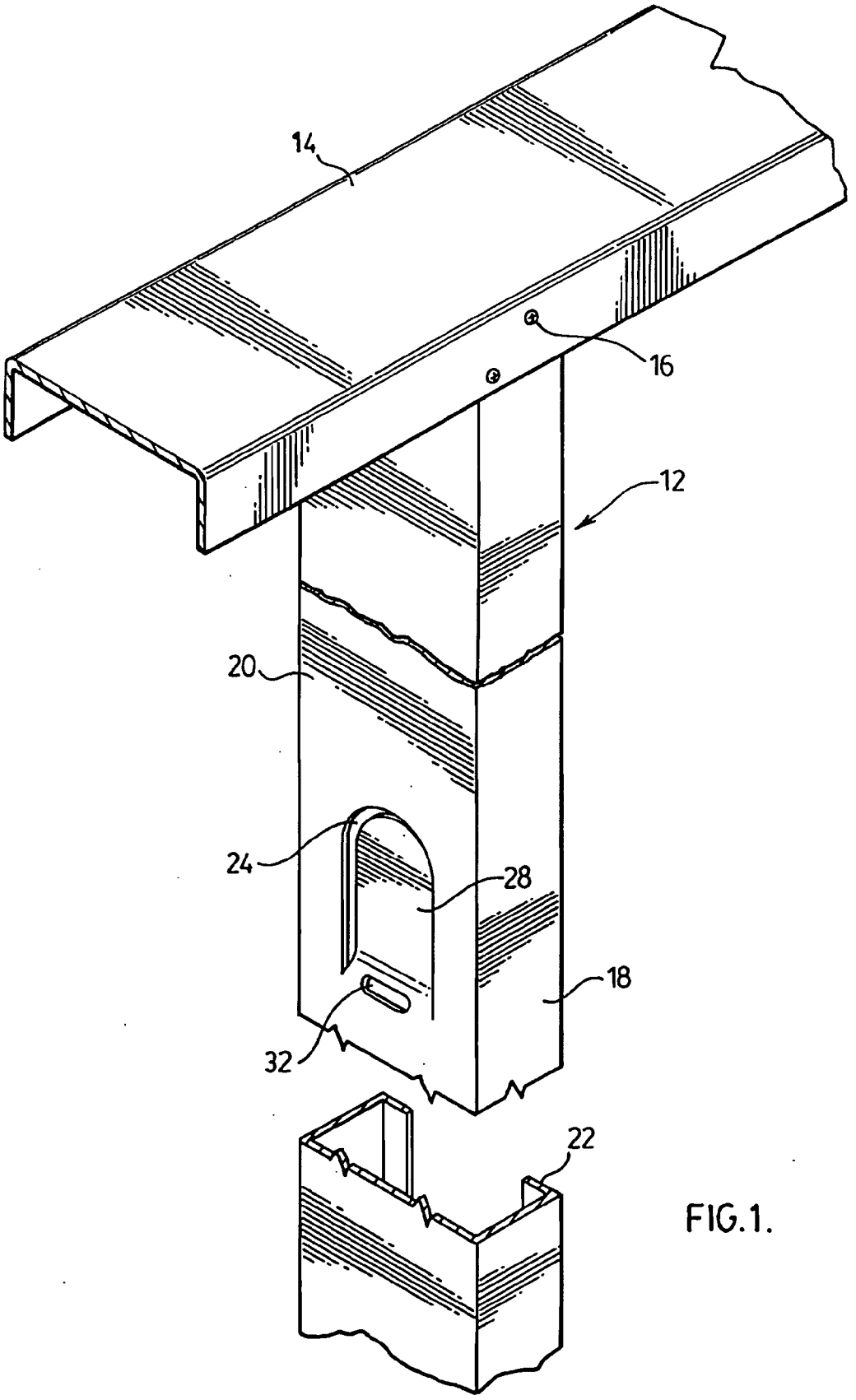


FIG. 1.

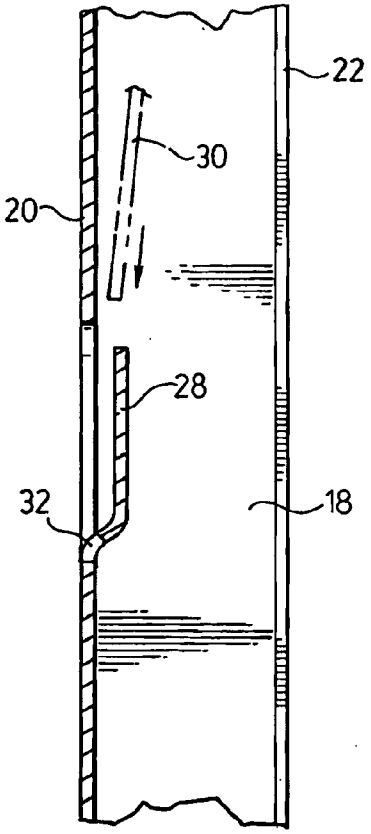


FIG. 2.

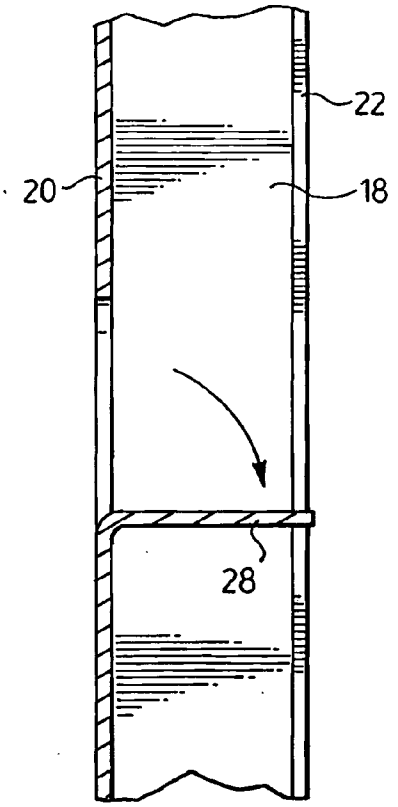


FIG. 3.

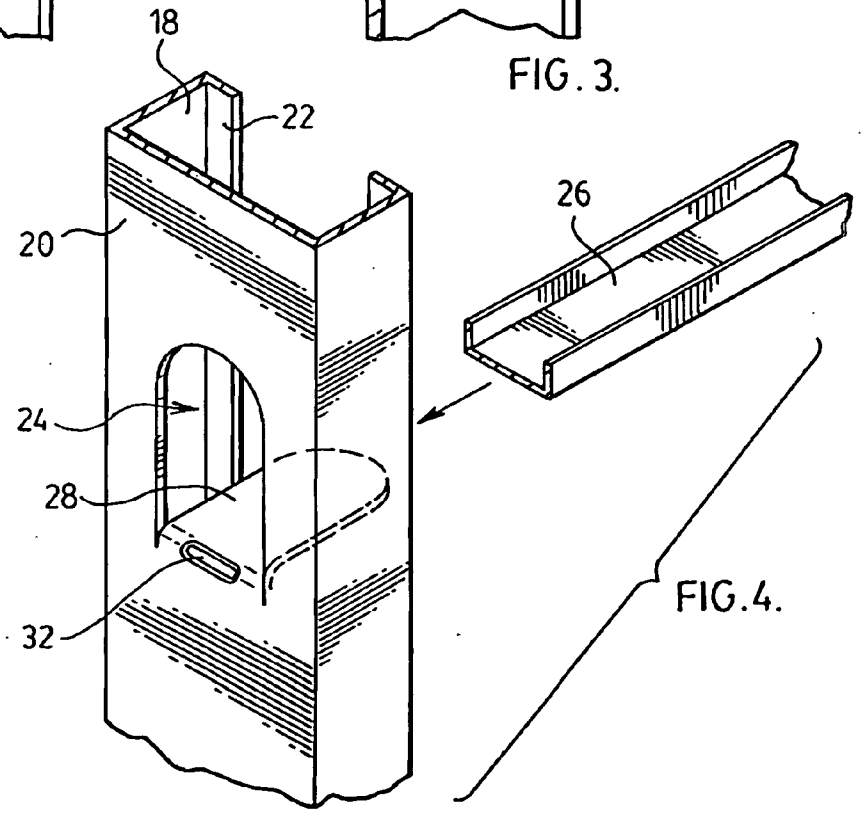


FIG. 4.

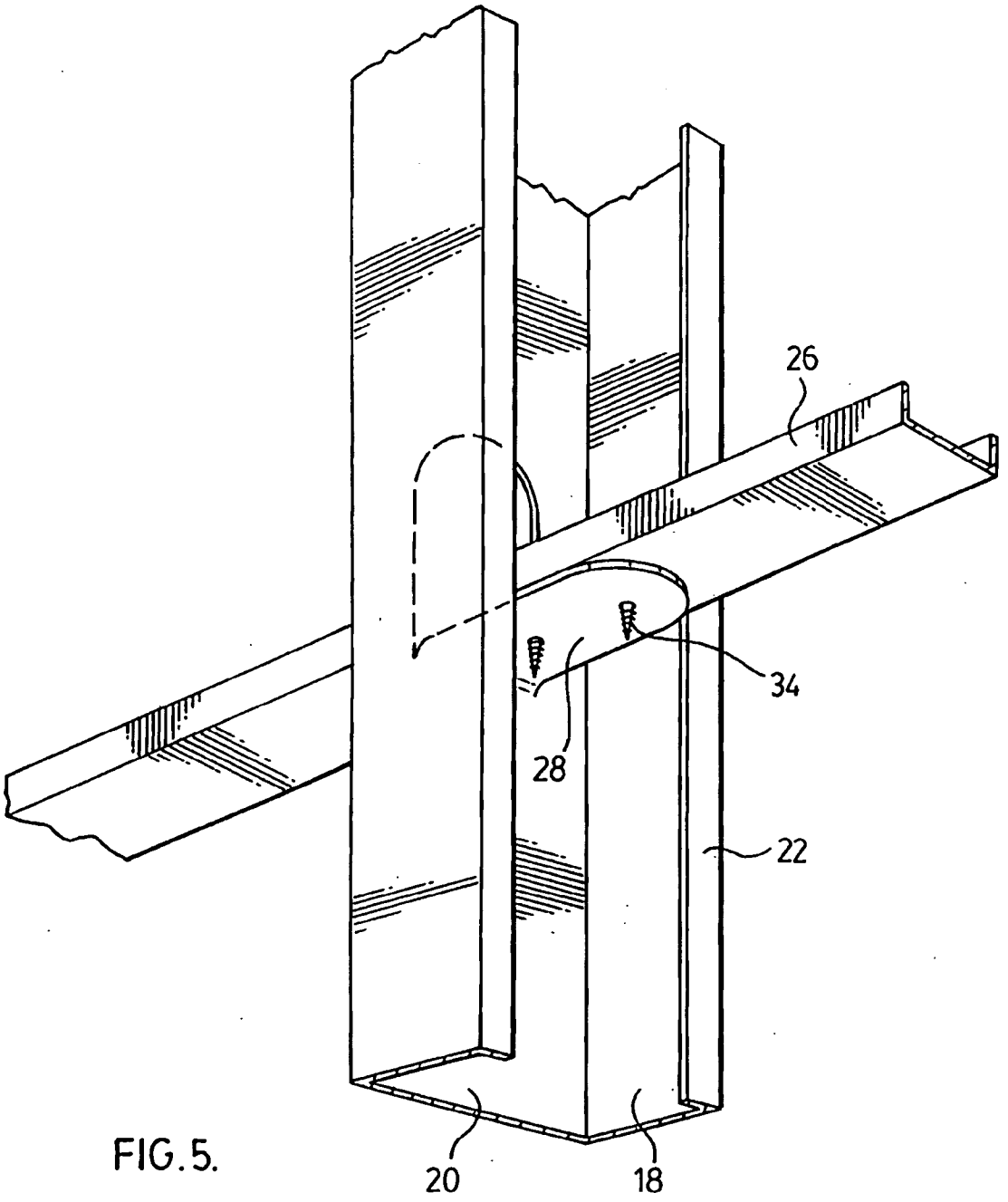


FIG. 5.

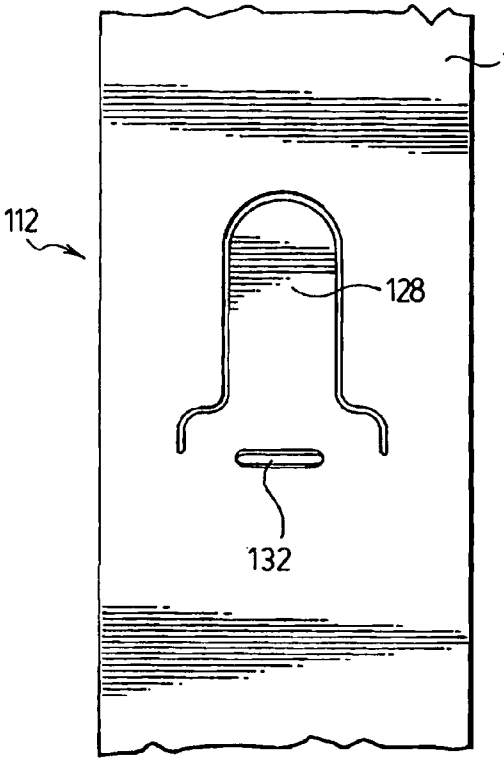


FIG.6.

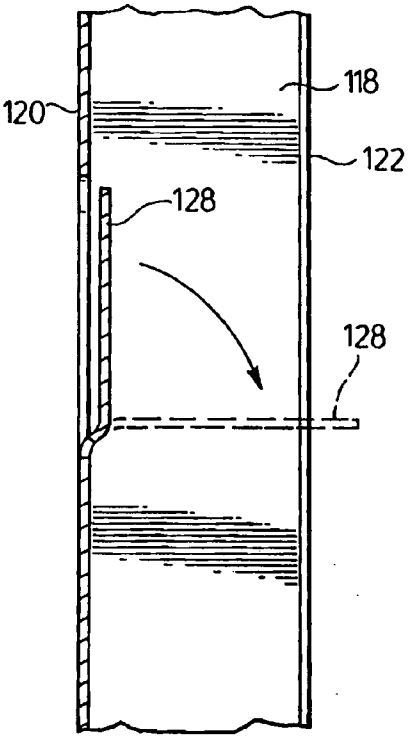


FIG.7.

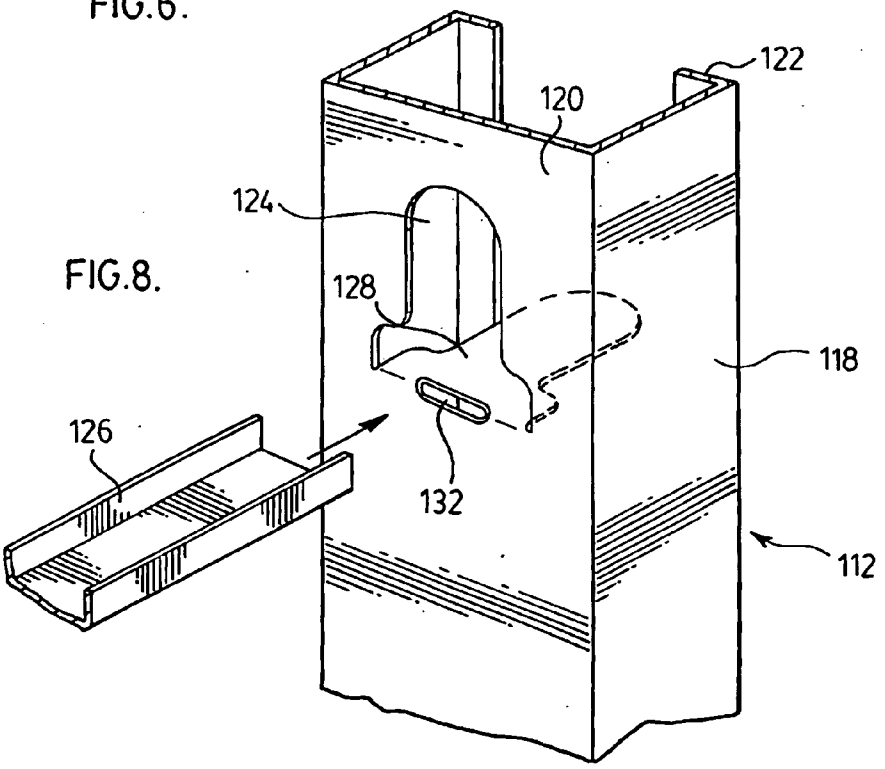


FIG.8.

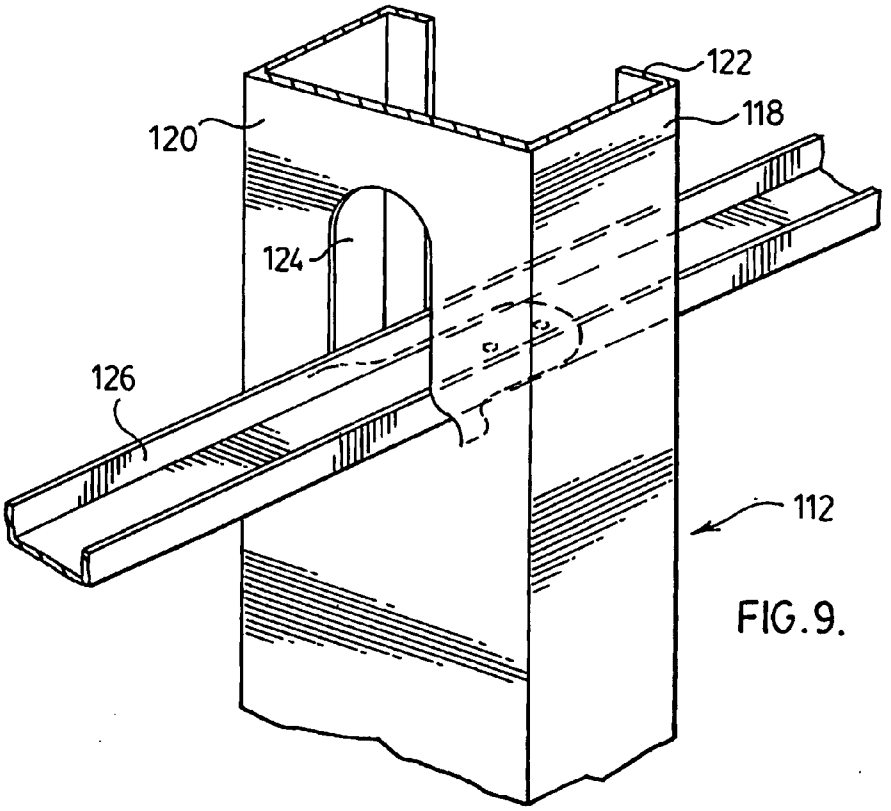


FIG. 9.

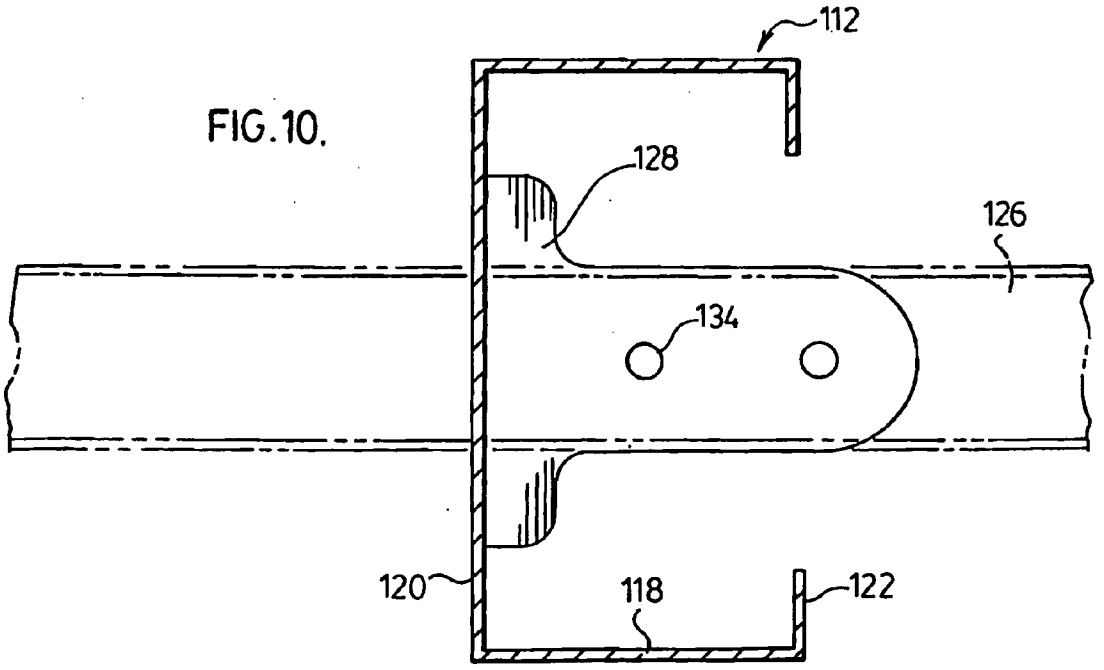


FIG. 10.

METAL STUD WITH BENDABLE TAB FOR BRIDGING MEMBER SUPPORT

FIELD OF THE INVENTION

[0001] The present invention relates to an improved metal stud for a metal stud wall having a bendable tab for attaching bridging members to the studs installed within the metal stud wall.

BACKGROUND OF THE INVENTION

[0002] Metal studs for use in constructing partition walls are becoming prevalent. Metal studs have a generally C-shaped cross section and are utilized in a manner similar to wooden studs for constructing partition walls. The metal studs are typically arranged vertically and tied together at the top and bottom by U-shaped channel members which act as top and bottom plates for the stud walls. Stud walls which are subjected to wind and/or axial loads, such as is found if the stud wall forms an exterior wall or is a load bearing wall, require lateral support to provide resistance from rotation and minor axis bending under wind and axial loads.

[0003] The lateral support for the metal stud walls is generally provided by installing bridging members which tie the metal studs together at points intermediate of the ends of the studs. These bridging members are generally internal bridging members installed through openings provided in the web of the metal stud. In order to transfer the support provided by the internal bridging members to the metal stud, the bridging members are physically tied to the metal stud. In most installations, L-shaped brackets are provided to transfer the support provided by the interior bridging member to the edges of the metal stud. These L-shaped brackets are attached to the metal stud and the bridging member with the leg of the bracket being fastened to the interior bridging member and the upright of the bracket being attached to the metal stud.

[0004] There have been attempts in the past to provide for means for attaching to the metal studs where a separate bracket for the bridging is not required. One example of such a system is illustrated in U.S. Pat. No. 5,943,838 issued Aug. 31, 1999 to Madsen et al. This patent illustrates a metal stud having an opening in the web through which a channel or bridging member can pass. The opening has at least one straight edge and a centrally disposed bendable tab extending into the opening. The width of the tab is substantially less than the width of the opening and the length is substantially less than the height of the opening to allow the tab to be bent. It is described in this patent that making the tab the full width or height of the opening did not permit it to be bent as squarely. Another drawback of this arrangement is that, as the width of the tab is less than the width of the channel or bridging member, the load transferring capabilities of the arrangement is not as good as that of the prior art separate bracket having a width the same as or greater than the width of the channel.

SUMMARY OF THE INVENTION

[0005] The present invention provides for a metal stud for use in a metal stud wall. The metal stud has a pair of opposed flanges and a central web joining the flanges. The web is provided with at least one opening to receive a bridging member passing there through. The web is provided with a bendable tab attached at a bottom of the opening to the web of the stud and parallel to and displaced out of the plane of the web of the stud. The tab is adapted to be bent to a position at right angles to the web for attachment of a bridging member.

[0006] In an aspect of the invention, the bendable tab is provided with a cut through or slot at the anticipated bend line to allow for easier bending of the tab.

BRIEF DESCRIPTION OF THE DRAWINGS

[0007] Preferred embodiments of the present invention are illustrated in the attached drawings in which:

[0008] FIG. **1** is a perspective view of a first embodiment of the stud of the present invention in a typical metal stud wall;

[0009] FIG. **2** is a side elevation view in cross section of the metal stud of FIG. **1**;

[0010] FIG. **3** is a side elevation view in cross section of the metal stud of FIG. **1** illustrating the bent tab;

[0011] FIG. **4** is a perspective view of the stud of FIG. **1** illustrating the bending of the tab and attachment of the bridging member;

[0012] FIG. **5** is a perspective view of the metal stud of FIG. **1** with the bridging member attached thereto;

[0013] FIG. **6** is a front plane view of a second embodiment of the metal stud of the present invention; and

[0014] FIG. **7** is a side elevation view in cross section of the stud of FIG. **6** illustrating the bending of the tab;

[0015] FIG. **8** is a perspective view of the stud of FIG. **6** illustrating the attaching of the bridging member;

[0016] FIG. **9** is a perspective view of the stud of FIG. **6** with the bridging member attached thereto; and

[0017] FIG. **10** is a top plane view of the stud and bridging member of FIG. **9**.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0018] FIG. **1** illustrates a section of a typical metal stud wall constructed utilizing a first preferred embodiment of a stud **12** according to the present invention. The stud wall is constructed of a series of parallel spaced apart metal studs **12** held in position by a bottom track (not shown) and a top track **14**. Metal studs **12** are connected to the bottom track and top track **14** by the use of suitable screws **16**. Metal stud **12** is generally C-shaped, having flanges **18**, connected along one edge by a central web **20** and having inwardly projecting extensions **22** along the second edge of each of the flanges **18**. The web **20** of the stud **12** is generally provided with openings such as circular openings (not shown) which are used for running utility services such as electrical wiring or plumbing pipes there through. The web **22** of the metal stud **12** is also provided with second openings **24** which are used to hold suitable bridging members **26**. The bridging members **26** are tied to the metal studs **12** to transfer the support of the bridging member **26** to the studs **12**. The present invention accomplishes that by a bendable tab **28** struck out of and attached to the opening **24** as will be described herein below. Typically the second

openings **24** are provided at regular spaced intervals along the length of the web **22** of the stud **12**. The spacing between the openings **24** is generally on the order of between about 2 and 4 feet to provide bridging at **4** foot centers for axial loading and at **5** foot centers for wind loading.

[**0019**] As illustrated in the figures, tab **28** is struck out or punched out of the web **20** of the stud **12** by a single cut line and displaced slightly out of the plane of the web **20** of the stud **12** during the punching operation. Displacing the tab **28** out of the plane of the web **20**, allows the user to easily bend the tab **28** down to the horizontal position as shown in FIG. **3** for the installation of the bridging member **26**. This bending of the tab can be accomplished by slipping a tool in the space between the tab **28** and the web **20** to provide the leverage to bend the tab **28** down to the horizontal position. In order to make the bending of the tab **28** even easier, it is preferred if the anticipated bend line of the tab **28** is provided with a slot or cut through such as the slot **32**. This allows the location of the bend line to be predicted. The provision of this cut through or slot **32** also allows the tab **28** to be bent squarely to provide for a secure connection of the bridging member **26**. This is of particular use with the heavier gauge studs such as 14 or 16 gauge as the use of the slot allows the tab to be bent over more easily.

[**0020**] As illustrated in particular in FIGS. **4** and **5**, once the tab **28** has been bent into the horizontal position, the bridging member **26** is inserted through the openings **24** and attached to the tab **28** by means of screws **34**. This provides for a secure attachment of the bridging member **26** to the stud **12**.

[**0021**] A second embodiment of a metal stud of the present invention is illustrated in FIGS. **6** through **10**. In this embodiment of the metal stud **112**, the width of the tab **128** where it is attached at the bottom of the opening **124** is wider than the width of the bridging member **126** to be held within the opening **124**. By providing a wider base of the tab **128**, the load transferring capabilities of the bridging member attached to the tab are transferred closer to the edges of the web **120** of the metal stud **112** thereby increasing the resistance of the wall constructed utilizing such studs **112** to the axial loads which may be placed upon the stud **112**. The walls of the cut line and the tab slant inwardly above the base to the upper region of the opening which has a width equal to the width of the bridging member. Such an arrangement is particularly useful for studs greater than the nominal 4 inch studs such as 6, 8 or 10 inch studs commonly utilized in load bearing partition walls.

[**0022**] Preferably, the width of the tab **128** at the bottom is about 35% of the width of the web **120** of the stud **112**. Typically, for a 6 inch stud, the width of the tab at the base will be about 2½" and will be sized in the upper region to accommodate a 1½" bridging member. For larger studs such as 8" and 10", 2½" bridging members are preferred and the opening at the top will be sized to accommodate these.

[**0023**] As illustrated in FIGS. **6** through **10**, metal stud **112** is generally C-shaped having flanges **118** connected along one edge by a central web **120** and having inwardly projecting extensions **122** along the second edge of each of the flanges **118**. The web **120** of the stud **112** is provided with openings **124** which are used to hold suitable bridging members **126**. The bridging members **126** are tied to the metal studs **112** by the bendable tab **128**. Bendable tab **128** is punched out from the web **120** of the stud **112** by a single cut line and during the punching operation is displaced out of the plane of the web **120** of the stud **112**. Preferably, in order to allow for easier bending of the tab **128**, a cut line or slot **132** is provided along the anticipated bend line of the tab.

[**0024**] In operation, tab **128** is bent downwardly to the horizontal position and the bridging member **126** is inserted through the opening **124** and attached to the tabs **128** by suitable screws **134**.

[**0025**] The metal stud of the present invention having the bendable tab attached at the bottom of an opening to receive a bridging member **26** and parallel and displaced out of the plane of the web **20** of the stud **12** allows for easy and quick installation of stud wall wherein the studs are tied together by the use of bridging members **26**. As the tab is struck out of the web **20** of the stud **12** by a single cut line the die for the production of the bendable tab are more robust and last longer than those of the prior art. In addition, the production rates are higher as there is no or minimal metal being removed from the opening which can possibly clog the die or the production line.

[**0026**] Although various preferred embodiments of the present invention have been described herein in detail, it would be appreciated by those skilled in the art that variations may be made thereto without departing from the spirit of the invention or the scope of the appended claims.

The embodiments of the invention in which an exclusive property or privilege is claimed are defined as follows:

1. A metal stud for use in a metal stud wall, the metal stud comprising a pair of opposed flanges and a central web joining the flanges, the web being provided with at least one opening to receive a bridging member passing there through, the web having a bendable tab attached at a bottom of the opening to the web of the stud and parallel to and displaced out of the plane of the web of the stud, the tab being adapted to be bent to a position at right angles to the web for attachment to a bridging member.

2. A metal stud according to claim 1, wherein the anticipated bend line of the tab is provided with a cut through or opening to allow for easier bending of the tab.

3. A metal stud according to claim 2, wherein the width of the tab at the bottom of the opening is at least 35% of the width of the web of the metal stud.

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