Aug. 15, 1961 W. E. ROSE 2,995,872

RESILIENT CLIP AND INSTALLATION THEREOF

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Fig. 1.

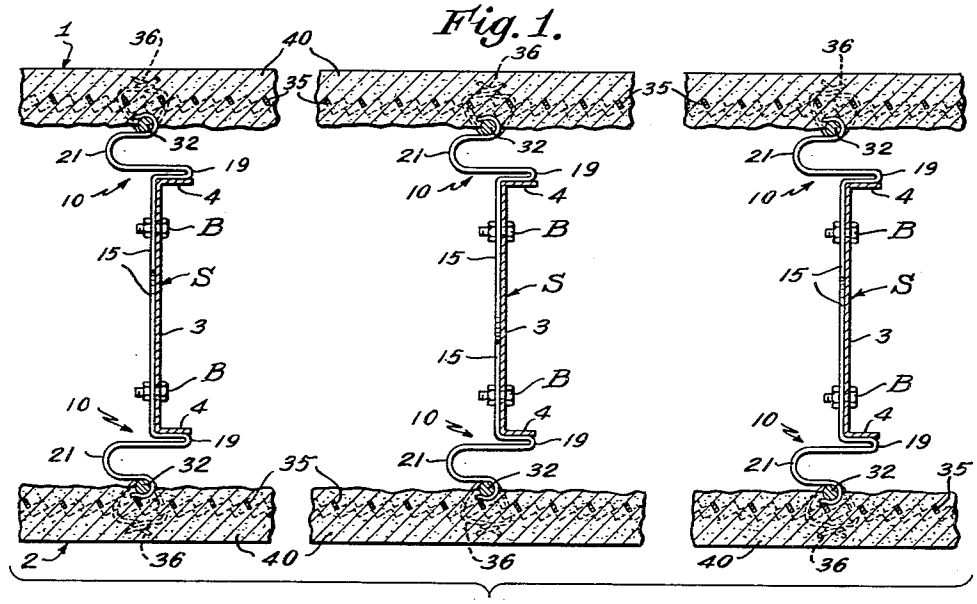


Fig. 2.

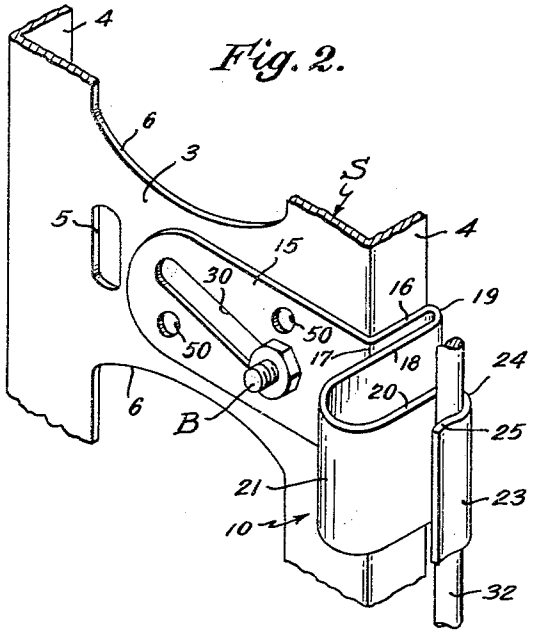
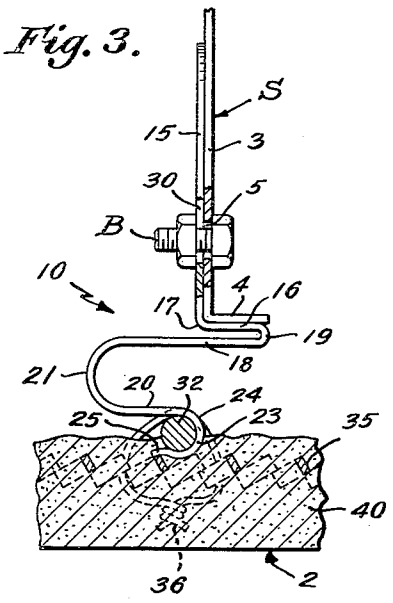


Fig. 3.



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RESILIENT CLIP AND INSTALLATION THEREOF

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Fig. 4.

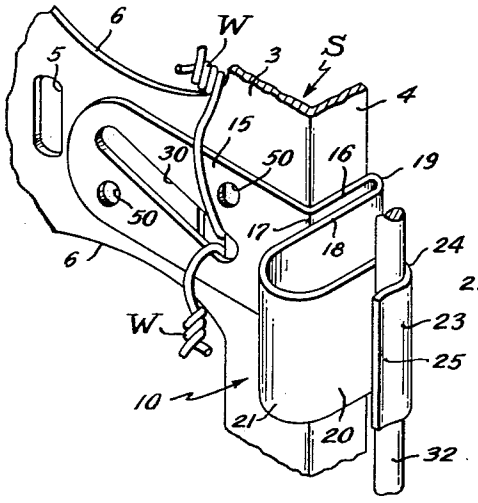


Fig. 5.

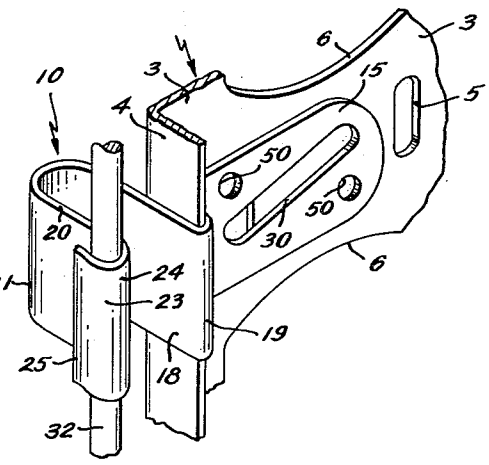
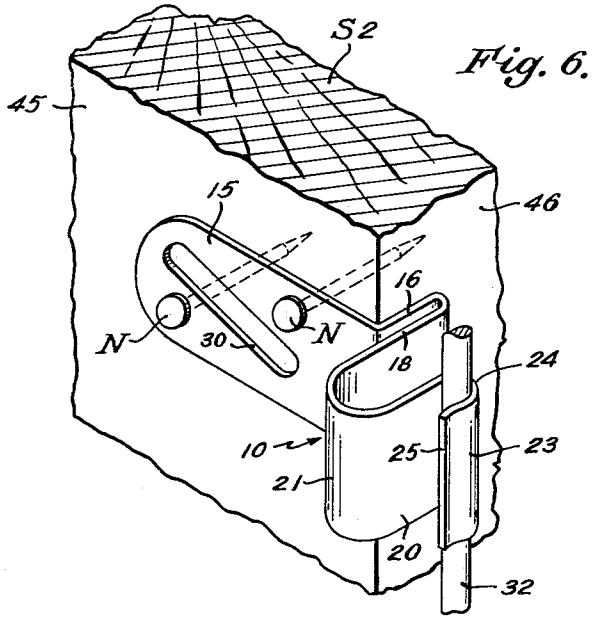


Fig. 6.



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RESILIENT CLIP AND INSTALLATION THEREOF

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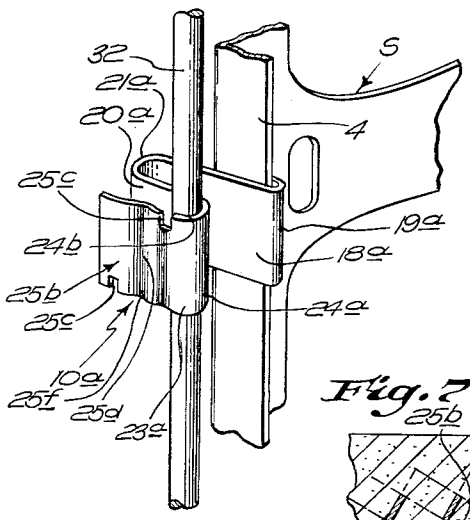


Fig. 7

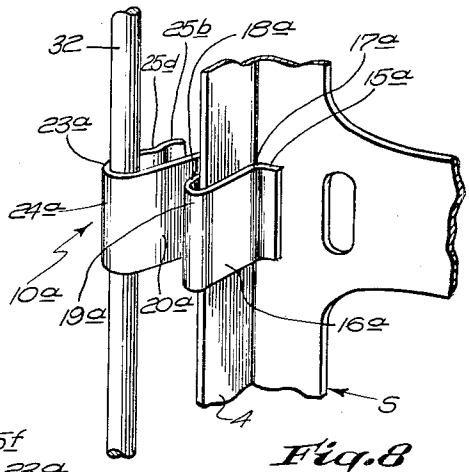
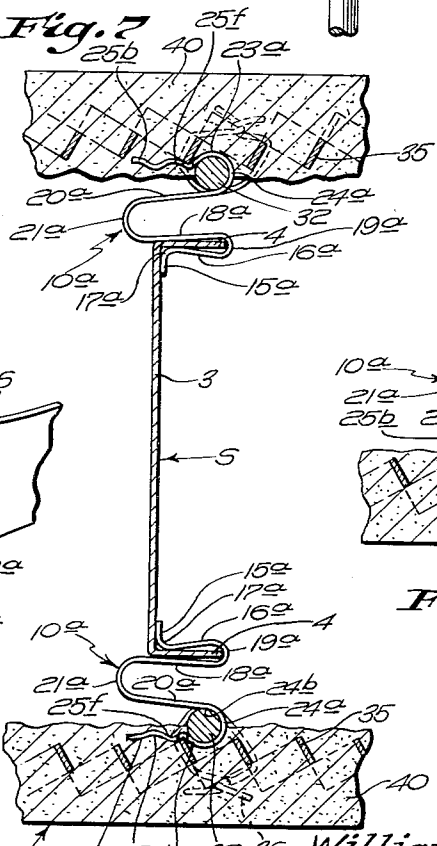


Fig. 8



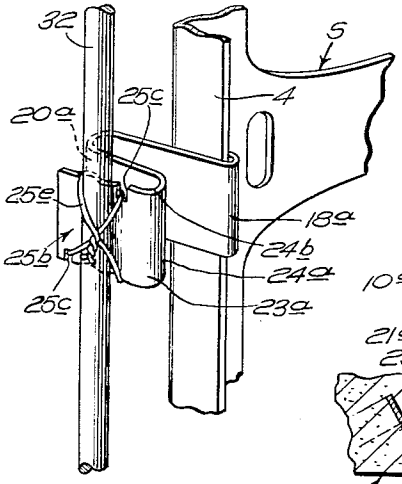


Fig. 10

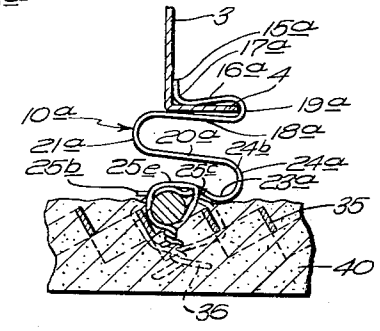


Fig. 11

Fig. 9

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2,995,872

RESILIENT CLIP AND INSTALLATION THEREOF

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Filed Sept. 23, 1958, Ser. No. 765,695
4 Claims. (Cl. 50—481)

This invention relates to a resilient clip formed of a strip of sheet metal for use and in combination with metal lathing and associated structure for supporting a plaster wall.

Expanded metal or wire mesh lathing and also metal studding together with associated parts formed of metal are used in the building trade in the formation of single and double wall partitions which are finished with plaster. This invention has as its objects, in connection with the use of such structure, to reduce its sound transmission characteristics, to increase its resistance to fire and to shock and to inhibit cracking of the plaster by improving it ability to absorb structural stresses and strains, to provide adjustability of depth between the walls of double partitions and of distance between studding and in size of reinforcing panels to accommodate pipes and vents and to increase the speed and economy of manufacture and installation.

Ordinarily, a partition of this type is formed by erecting studding, which may comprise the old fashioned wooden "two by fours" but which is preferably formed of steel members, then attaching to the studding a line of vertical cylindrical rods called "pencil rods," then attaching to the pencil rods the panels of metal lathing, and then plastering over the lathing.

The above stated objectives are accomplished according to this invention by the use of resilient clip means by which the vertical pencil rods ands associated lathing are attached to the studding.

In the drawings:

FIG. 1 is a fragmentary plan view partly in section showing a double wall partition which embodies this invention.

FIG. 2 is a perspective which is fragmentary and broken away showing a method of attaching one of the resilient clips of the invention to the steel stud which supports it by means of a bolt and nut, and also showing the vertical pencil rod which is supported by it.

FIG. 3 is an enlarged plan view partially in section of the clip and its associated parts.

FIG. 4 is a perspective view similar to FIG. 2 but showing a modification of the manner of a attaching the resilient clip to the steel stud.

FIG. 5 is a perspective view of the resilient clip of FIGS. 1 to 4 showing a further modification of the manner of attaching the clip to a steel stud.

FIG. 6 is a perspective view showing a manner of attaching the clip to a wooden stud.

FIG. 7 is a perspective view like FIG. 5 of another embodiment of the clip and installation of the present invention in which the clip is clipped to the steel stud and has clipped thereto a pencil rod.

FIG. 8 is a perspective view of the clip and installation of FIG. 7 taken from another direction.

FIG. 9 is a fragmentary plan view like FIG. 1 but showing two clips having the same construction as FIGS. 7 and 8.

FIG. 10 is a view corresponding to FIG. 7 but with the pencil rod tied to the clip rather than clipped thereto.

FIG. 11 is a view corresponding to FIG. 9 showing only a single clip and with the pencil rod tied to the clip as in FIG. 10.

In the drawings, the double wall partition illustrated in FIG. 1 includes the plaster walls **1** and **2** between which are arranged the vertical steel studs S at the usual intervals. Each stud S has a web portion **3** and a pair of edge flange portions **4** which are at right angles to the web portion **3**, and as best seen in FIG. 2, the web portion **3** has elongated holes **5** at spaced intervals for attaching structure to be described, and may also have cutout portions **6** for lightness of weight.

The reinforced plaster walls **1** and **2** are attached at a spaced distance to the studs by the resilient clip **10** of the invention. As shown in FIGS. 2 and 3, the clip **10** is made of a single strip of sheet metal and comprises a flat elongated flange portion **15**, a backing portion **16** which is formed by a substantially 90 degree bend **17** in the strip at one end of the flange portion **15**, a first intermediate portion **18** which is formed by a substantially 180 degree bend **19** in the strip at the further end of the backing portion **16** and which is preferably sharply formed so that the first intermediate portion **18** lies closely adjacent the backing portion **16** for a purpose to be described, a second intermediate portion **20** formed by an enlarged substantially 180 degree bend **21** at the further end of the first intermediate portion **18** and a rod receiving portion **23** formed by a substantially 180 degree bend **24** at the end of the second intermediate portion **20**.

In the wall structure illustrated in FIGS. 1 to 3 each resilient clip **10** is secured to a study S by means of a bolt B which passes through one of the holes **5** in the stud S and through an elongated slot **30** in the clip **10** which is formed lengthwise and slightly diagonally of the flange portion **15** for adaptability and ease of installation with respect to various forms and sizes of studs. The clip **10** is fastened by the method of FIGS. 1 to 3 with its flange portion **15** and its backing portion **16** abutting the web **3** and the flange **4** respectively of the stud S and on the outside of the stud. When two or more clips **10** have been secured in vertical alignment along one edge of a stud S, a cylindrical steel pencil rod **32** is inserted and retained in the bend **24** forming the rod receiving portion **23**, which preferably has a slighly inwardly curved entrance portion **25** which serves to confine the pencil rod **32** under the receiving portion **23** of the clip. A series of pencil rods **32** attached in line to the studs S form a structure to which may be attached the panels of metal lathing **35** which are secured to the rods **32** preferably by tie wire **36**. The lathing **35** is a wire mesh, the form illustrated being of the expanded metal lath variety. With the lathing in place the plaster **40** forming the finished wall may be applied. In the form illustrated in FIGS. 1 to 3 the resilient clips **10** have flange portions **15** which are somewhat longer than one-half the width of the studs S and in this case the clips **10** of the opposite walls of the double partition are staggered vertically with respect to each other so as not to interfere.

An alternative and somewhat cheaper method of attaching the clip **10** to the stud S is shown in FIG. 4 in which tie wire W is substituted for the bolt B, with the clip **10** lying in the same relative position against the stud S.

In FIG. 5 another alternative method of attaching the clip to the stud is shown in which the clip **10** is snapped or clipped onto the flange **4** of the stud S with the flange portion **15** and the backing portion **16** lying inside the corner formed by the web **3** and the flange **4** of the stud S. As above described the first intermediate portion **18** of the clip **10** lies closely adjacent to backing portion **16** and forms therewith a spring clamp which is capable of receiving and gripping the flange **4** of the stud S and as shown in FIG. 5, with the flange **4** of the stud S lying between these parts, the clip **10** and associated structure are supported by the stud S in an even more eco-

nomical and rapid method of attachment, which is satisfactory for some applications.

In FIG. 6 the resilient clip **10** of FIGS. 1 to 5 is shown as used in combination with a wooden stud S2 of the common "two by four" variety, having a flat vertical wide face **45** and a flat vertical edge face **46** at right angles to the face **45**. In this arrangement the clip **10** is placed against the stud S2 with its flange and backing portions **15** and **16** abutting the stud faces **45** and **46** and is secured to the stud S2 by nails N which are driven through additional holes **50** which are prefashioned in the flange **15** of the clip **10** for this alternative purpose.

Thus the clip of FIGS. 1 to 6 is provided with a number of alternative means for attachment to various sizes and types of wall studding which gives it a desirable adaptability and adjustability according to design requirements. By its ability to be attached inside or outside the edge corner of the steel stud S with the backing portion **16** either abutting the inside surface or the outside surface of flange **4** of the stud S, a range of adjustability is provided in the distance between the reinforced plaster wall **40** and the supporting stud **50** for flexibility and comprise between maximum room space and the accomodation of vents, pipes and closets and the like within the wall.

It will be seen that the successive bends in the metal strip which forms the clip of the invention are formed in alternatively opposite directions and that the length of the successive portions **16**, **18** and **20** are arranged so that in the preferred form, the rod receiving portion **23** lies on or near the plane of the flange portion **15**.

While the resiliency is provided throughout the length of the clip, the greatest portion of the resiliency is provided by the bends **19** and **21**.

While some variation in characteristics is allowable in the various bends and parts of the clip, the general form illustrated is preferred, in which the bend **21** has a larger diameter than any of the other bends, and in which the bend **24** of the rod receiving portion accomodates the pencil rod used with it and the rod receiving portion has the inwardly turned portion **25** which prevents the rod **32** from escaping.

FIGS. 7 to 11 show another embodiment of the clip and installation of the present invention comprising a clip **10*a*** which corresponds generally in shape to clip **10** of FIGS. 1 to 6 except for the following:

(1) Backing portion **16*a*** (corresponding to **16** in FIGS. 1 to 6) extends from bend **19*a*** (corresponding to **19** in FIGS. 1 to 6) toward the first intermediate portion **18*a*** (corresponding to **18** in FIGS. 1 to 6), to form with **18*a*** a clip which firmly grips the flange **4** of stud S, as shown. This is accomplished by making bend **19*a*** slightly more than 180 degrees.

(2) Instead of having the elongated flange **15** (with slot **30** and holes **50**), as shown in FIGS. 1 to 6, the clip **10*a*** has a short flange stub **15*a*** formed by the bend **17*a*** (corresponding to **17** in FIGS. 1 to 6) which extends at an angle of substantially 90 degrees from the portion **16*a*** so that when the clip is installed as shown in FIGS. 7 to 11 with the flange **4** clipped between **16*a*** and **18*a*** the flange stub **15*a*** abuts against the web portion **3**.

(3) The member **25*b*** which forms with the second intermediate portion **20*a*** a channel **24*b*** for receiving the pencil rod **32** to hold the rod is corrugated or sinuous in shape and is provided with a pair of staggered notches **25*c*** in the opposite edges thereof, as shown in FIGS. 7, 10 and 11, which may be used for securing the rod **32** to the outer surface of **25*b*** with the rod **32** located in the elongated depression **25*d*** (FIGS. 10 and 11) extending along the width of **25*b*** and formed in the outer surface by said sinuous or corrugated shape. Thus, the rod **32** may be secured to the outer surface of extension **25*b*** as aforementioned by a wire **25*e***, as shown in FIGS. 10 and 11, or alternately it may be clipped in the channel **24*b*** formed between **25*b*** and the second intermediate portion **20*a***, as shown in FIGS. 7 to 9.

(4) The inner surface of the extension **25*b*** is also formed with the elongated depression **25*f*** between the elongated depression **25*d*** and the innermost rod receiving portion **23*a***. The pencil rod **32** may be located between and gripped by the bottom of the elongated depression **25*f*** and the opposite surface of the element **20*a*** rather than in end rod receiving channel **24*b***. This is particularly desirable if the diameter of the pencil rod is so great that it is difficult to force it completely into the channel **24*b***.

(5) The second intermediate portion **20*a*** extends from the substantially 180 degree bend **21*a*** (corresponding to **21** in FIGS. 1 to 6) at the end of the first intermediate portion **18*a*** to a line which is substantially opposite to and parallel with the bend **19*a***, as shown, before it is bent back on itself at **24*a*** so that bend **24*a*** is opposite bend **19*a*** and both bends lie in a plane which is substantially parallel to the web **3** of stud S.

Clip **10*a*** is less expensive to manufacture than clip **10**. It has the advantage that it can be installed very easily with a minimum of time and effort merely by clipping it to the stud and inserting rod **32** in it. This eliminates the need for driving nails or attaching the clip to the stud by nuts and bolts or by wiring and also eliminates the necessity of attaching the rod to the clip by wiring, all of which are time consuming and consequently expensive in construction work.

One of the advantages of using clip **10*a*** with the rod **32** tied to the outer surface of the extension **25*b*** as shown in FIGS. 10 and 11, is that the rod and hence the lathing is spaced at a greater distance from the first intermediate portion **18*a*** to provide additional furring or space to clear pipes, etc. without resorting to the use of bolting the clip **10** as shown in FIG. 2 to achieve the extra clearance.

It is noted that the lengths of the first and second intermediate portions **18** and **20** in FIGS. 1 to 6 and **18*a*** and **20*a*** in FIGS. 7 to 11 are relatively long compared to the distance therebetween. This increases the resiliency of the clip in the direction perpendicular to the wall portions.

It is pointed out that bend **21*a*** does not have to be exactly 180 degrees, but can be somewhat larger or smaller, so long as it is not so large as to detrimentally reduce resiliency of the clip in the direction perpendicular to the planes of walls **1** and **2**, or so small as to detrimentally reduce the minimum distance between the first and second intermediate portions. The sharpness of the bend **21*a*** can also vary considerably so long as the bend is not so gradual as to detrimentally increase the stiffness of the clip or so sharp as to detrimentally reduce the minimum distance between the first and second intermediate portions.

Greatly improved sound proofing and other acoustical properties of rooms divided by the wall construction of the invention results from the greatly increased resiliency provided in the connection **10** and **10*a*** between the reinforced wall panels and the supporting studding S. This resiliency also increases the life of the plaster walls by reducing the tendency to crack as a result of shock and expansion and contraction and settlement of the building structure.

This application is a continuation-in-part application of United States patent application Serial No. 549,730, filed November 29, 1955, now abandoned, by William E. Rose, now deceased.

What is claimed is:

1. A resilient clip for attaching metal reinforcing to a stud in a wall structure comprising a strip of sheet metal comprising a substantially flat stud securing end portion, a backing portion formed by a substantially right angle bend at the inner end of said end portion, a first intermediate portion formed by a substantially 180 degree bend at the end of the backing portion opposite from the end forming the substantially right angle bend, said first intermediate portion being spaced from said backing portion

and extending along said backing portion beyond the plane of said end portion, a second intermediate portion formed by a substantially 180 degree bend at the end of the first intermediate portion opposite from the end thereof forming said first mentioned 180 degree bend, said second intermediate portion being spaced from and extending along the side of said first intermediate portion which is opposite the side thereof facing the backing portion, and a portion formed by a bend in the end of said second intermediate portion opposite from the end thereof forming said second 180 degree bend, said bend in said opposite end of said second intermediate portion being in a direction away from said end portion and defining a channel, said end portion having spaced nail holes and a bolt slot elongated in a direction transverse to said intermediate portions, said holes and slot providing alternate means for fastening said clip to said stud.

2. A resilient clip as set forth in claim 1, said end portion having a greater dimension in a direction transverse to said intermediate portions than the remainder of the clip in said direction.

3. A resilient clip as set forth in claim 1, said bolt slot

being arranged diagonally between said nail holes, thereby providing an adjustability for a bolt in relation to the clip both in said transverse direction and a direction substantially at a right angle thereto of the clip within the limits of the slot.

4. A resilient clip according to claim 1, said first intermediate portion and said backing portion forming a spring clamp capable of receiving the flange of a metal stud.

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