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Weeden

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[45] **May 22, 1973**

[54] **WIRE WALL PARTITION**

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[52] **U.S. Cl.** **256/65,** 256/24, 256/73

[51] **Int. Cl.** **E04h 17/04**

[58] **Field of Search**.....256/24, 73, 65–70, 256/25, 26; 287/20.92 D, 189.36 D; 160/135, 391

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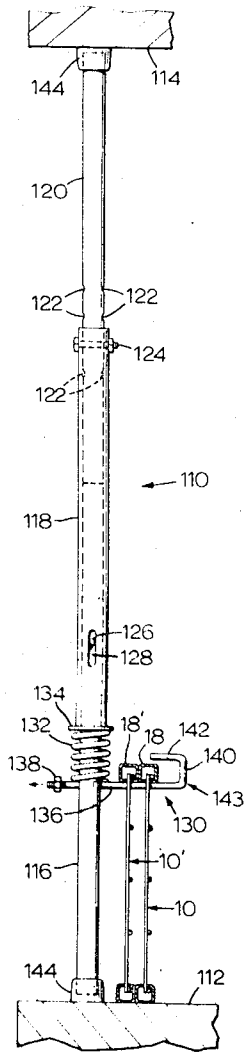
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[57] **ABSTRACT**

A wire wall partition made up of sections and uprights. Each of the sections has a pair of upright members and a pair of horizontal members forming a generally rectangular framework. Each of the members defines a slot for receiving a thickened peripheral portion of a wire mesh so that the members can be slid onto the mesh and once in position, clamped in place using corner brackets. Further brackets are provided for attaching each section to the uprights which may be attached permanently to a floor and ceiling or alternatively be of a type having a compression spring to permit frictional engagement of the upright between floors of a building under construction.

2 Claims, 7 Drawing Figures



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SHEET 1 OF 3

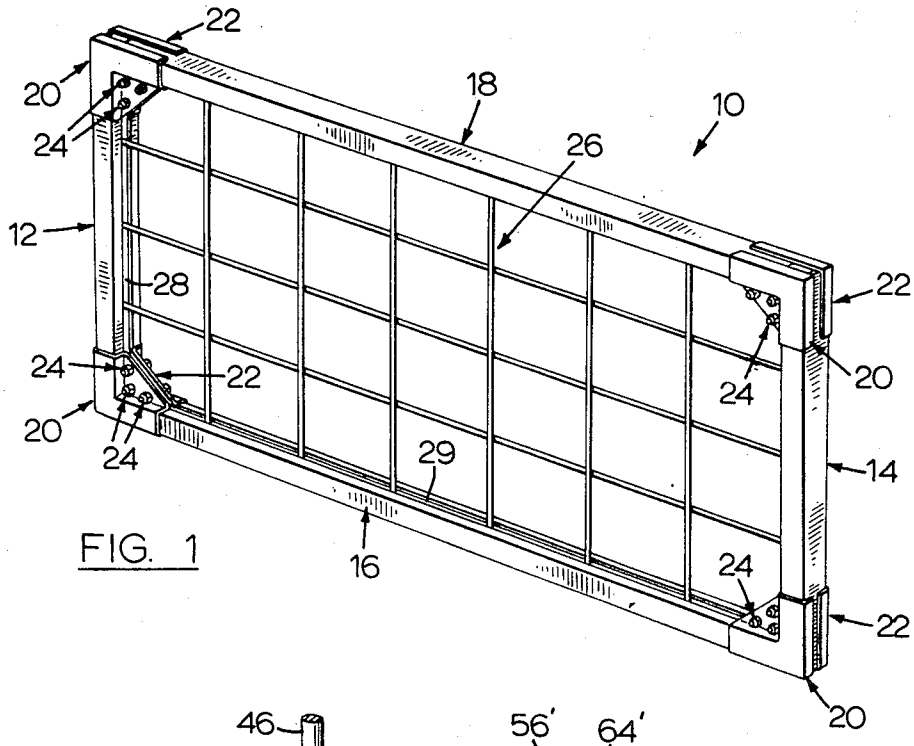


FIG. 1

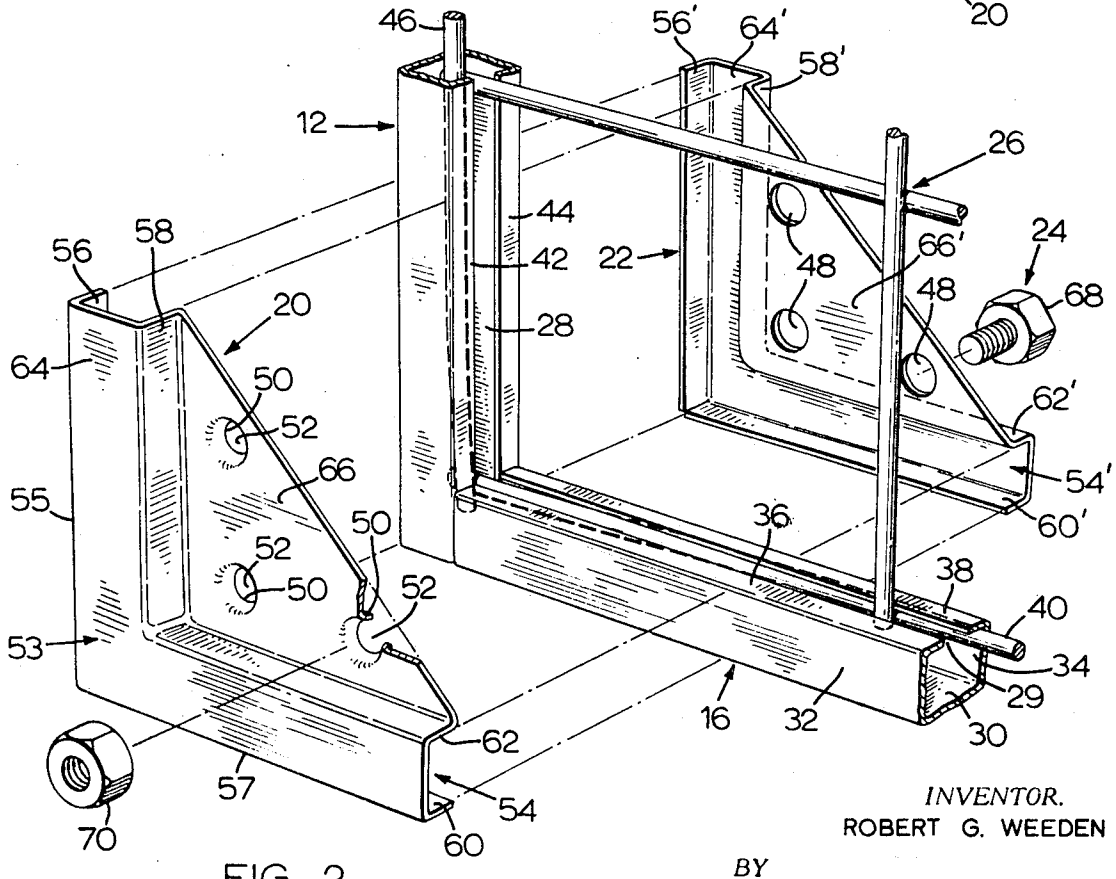


FIG. 2

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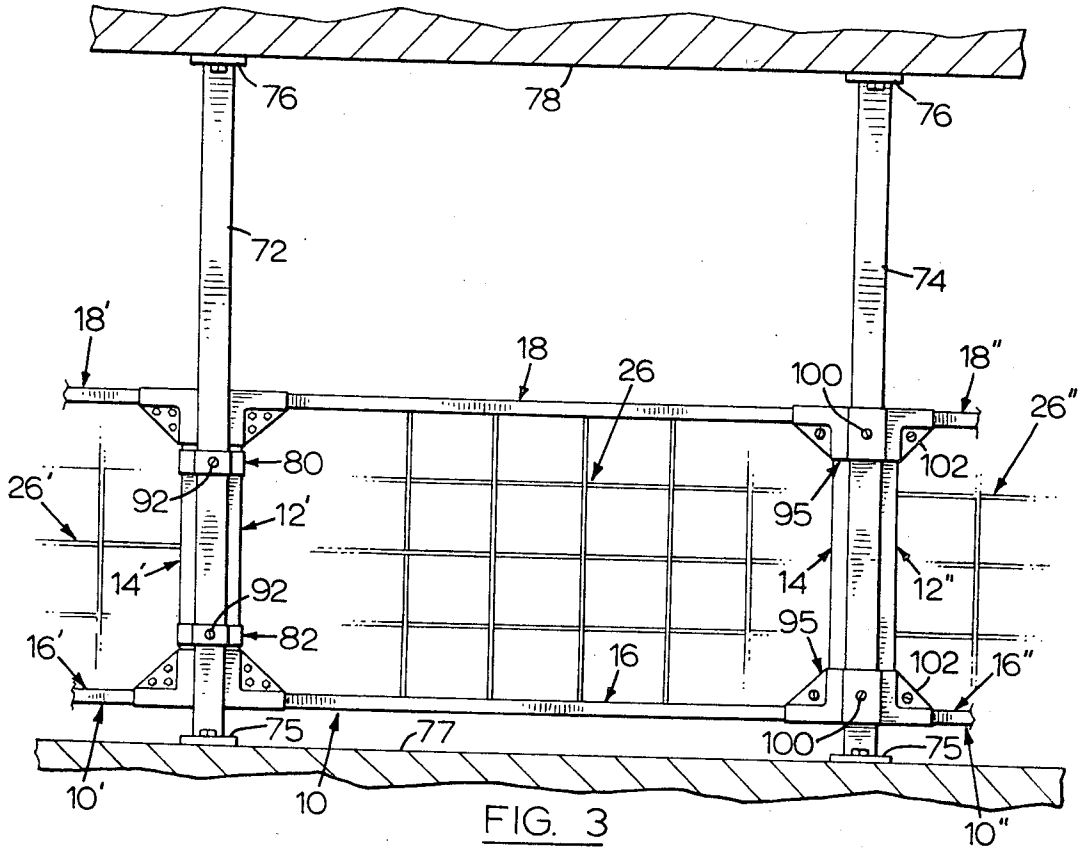


FIG. 3

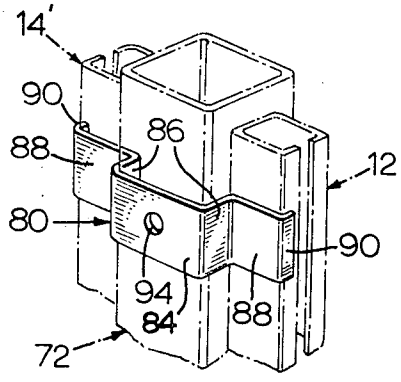


FIG. 4

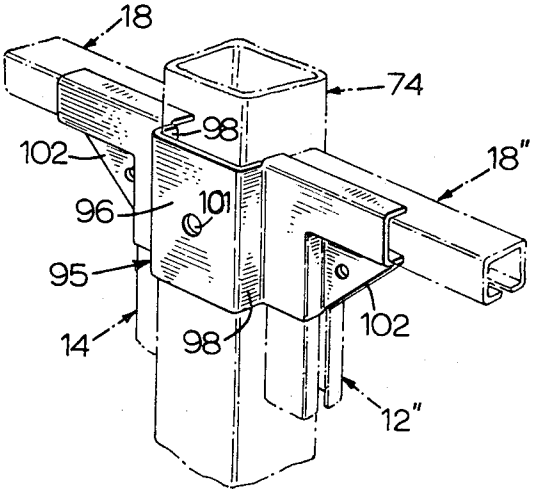


FIG. 5

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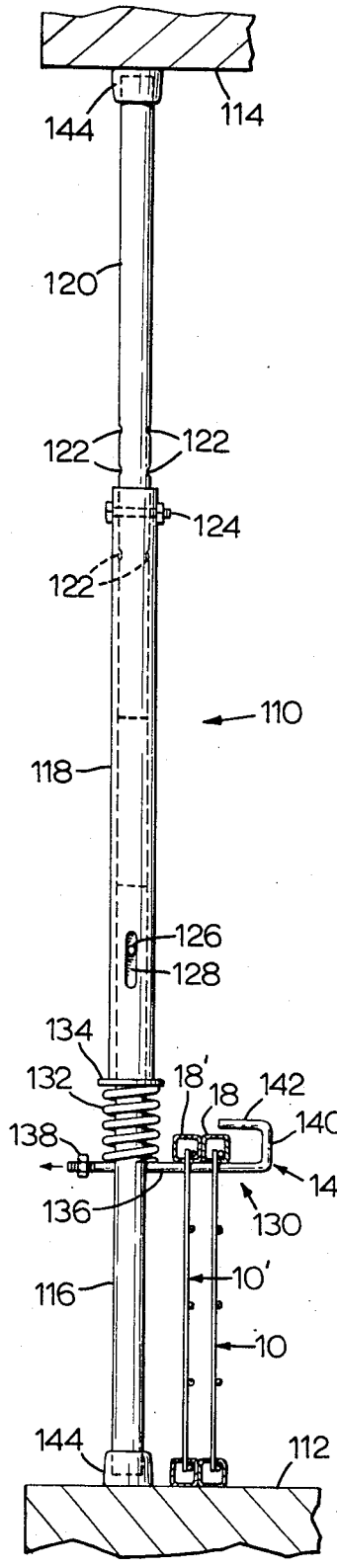


FIG. 6

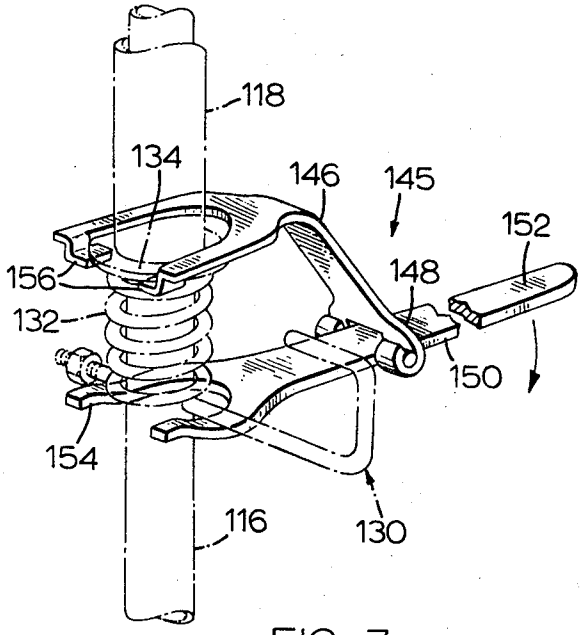


FIG. 7

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WIRE WALL PARTITION

This invention relates to a wire wall partition of a type used to surround areas of a factory floor in which stores are kept and also as a safety barrier on high rise building construction and the like.

Wire wall partitions are well known and used wherever a relatively sturdy wall is required which prevents access and yet has little effect on air movement and light distribution. The partitions are often used in factory areas to surround dangerous processes, and to prevent unauthorized access to storerooms and the like.

Previous partitions of this type consist of sections made up essentially of fabricated rectangular frames to which is welded a wire mesh screen. The units are then assembled between uprights which are attached to a floor and in some cases to a floor and the ceiling to form partitions. Such partitions are relatively expensive to manufacture because of the cost of positioning the screen on the rectangular frame and then welding each wire of the screen to the frame.

Buildings under construction often have safety rails of wood made up as required on the site and in situ. These rails are relatively expensive to make and once the wood is used to make a rail it is often scrapped upon completion of the building.

It is one of the objects of the present invention to provide sections of wire wall partitions which are relatively simple to assemble so that unskilled labor can assemble the sections. In another of its aspects, the present invention provides a wire wall partition suitable for use as a safety rail on a building under construction.

According to a particular preferred embodiment of the present invention, a secton of wire wall partition is provided. The section includes a generally rectangular frame comprising a pair of spaced-apart generally parallel upright members and a pair of longer horizontal members, the first of the horizontal members being a lower member and the second being an upper member. The members are attached where they meet by respective pairs of corner brackets which clamp the upright members to respective ends of the horizontal members. Each of the upright members and the horizontal members are generally U-shaped in cross-section terminating in co-planar, inwardly extending lips which define a slot extending longitudinally of the members. The width of the slot is slightly more than the diameter of the wires which make up the mesh. The mesh has peripheral wires extending horizontally and vertically and each of these wires is located inside a corresponding one of the members so that the mesh cannot be separated from the members.

The invention will be better understood with reference to the drawings, wherein,

FIG. 1 is a perspective view of a section of wire wall partition according to the invention;

FIG. 2 is an exploded perspective view of a corner of the section;

FIG. 3 is a front view of a wire wall partition according to the invention;

FIGS. 4 and 5 are perspective views of clips used in building the wire wall partition;

FIG. 6 is a side view of a telescopic upright; and

FIG. 7 is a perspective view of a tool for positioning the telescopic upright.

Reference is first made to FIG. 1 which shows a section **10** consisting of spaced-apart generally parallel upright members **12, 14** and horizontal members **16, 18.** The members define a generally rectangular framework and are held together at the corners by respective pairs of corner brackets **20,22** which are clamped by fasteners **24,** each pair of brackets having three fasteners. A mesh or panel element **26** is engaged in slots **28** in upright member **12** and slot **29** in lower member **16** as well as in slots in the other members, these other slots being hidden in this view.

Each of the members **12, 14, 16** and **18** are of similar cross-section and each pair of brackets **20, 22** may be assembled at any of the four corners of the framework. An exemplary corner assembly between upright member **12** and horizontal member **16** is shown in FIG. **2.** The upright member **12** is as long as the height of the framework and the lower member **16** buts against the upright member **12.** The cross-section of the lower member **16** is typical of all four members and is generally U-shaped. The section includes an outer wall **30,** and generally parallel walls **32, 34** extending inwardly and dependent from the wall **30.** Each of the walls **32, 34** terminates in one of a pair of co-planar lips **36, 38** which extend inwardly from inner edges of walls **32, 34** and terminating in edges defining the slot **29** for trapping a peripheral horizontal wire **40** of the mesh **26.** Similarly lips **42, 44** are provided on upright member **12** to define slot **28** and for trapping a peripheral upright wire **46** of the mesh **26.** As seen in FIG. **1** the mesh **26** consists of upright wires laid on horizontal wires and welded in place. However, if preferred, other forms of mesh may be used consistent with having a thickened peripheral portion such as that formed by wires **46** and **40** (FIG. **2**).

Corner bracket **22** is similar to corner bracket **20** with the exception that the bracket **22** has three generally circular openings **48** whereas the bracket **20** is deformed to define generally cylindrical upstanding lips **50** about each of the three holes **52** such that the lips **50** are location fits in respective openings **48** of bracket **22.** Apart from this exception, bracket **20** is typical of both brackets **20, 22.** Parts of bracket **22** which are similar to bracket **20** will be given primed numerals.

Bracket **20** is generally triangular in front view having a portion **53** defining a peripheral channel **54** in two parts **55, 57** at right angles to one another. The channel is generally U-shaped in section and the parts **55,57** are adapted to engage relatively closely over respective end parts of members **12** and **16** adjacent the junction of these members. The channel consists of pairs of spaced-apart generally parallel walls **56, 58** and **60,62** together with an outer wall **64.** The inner extremities of walls **58, 62** of parts **55, 57** are integrally connected to a triangular shaped web **66** in which the holes **52** are formed. The bracket **20** is press formed to define the holes (or openings in the case of the bracket **22**) and the peripheral channel **54.** The walls **56, 60** meet at the corner between the mutually perpendicular sides of the bracket and can be welded if required to strengthen the bracket.

To assemble the framework shown in FIG. **1,** the member **16** is engaged on the mesh by positioning the peripheral wire **40** (FIG. **2**) inside the member **16** and then sliding the member **16** horizontally until it takes up the position shown in FIG. **1.** This is repeated for the member **18** and then the member **12** is engaged with the peripheral wire **46** inside the member **12.** The last member **14** is then engaged by repeating the process.

Next, with the rectangular framework in a generally horizontal position, the second corner brackets **22** are engaged at the corners underneath the framework and then the brackets **20** are placed on top of the framework in engagement with respective corresponding brackets **22**. Fasteners **24** (FIG. **1**) are then engaged. The fasteners are typical bolts **68** which are engaged through holes **52** in brackets **20**, and nuts **70** are adapted to engage on the bolts for bringing the brackets into tight engagement about the corners of the framework. Once the fasteners **24** are engaged, the wire mesh cannot escape from the framework because the peripheral wires are trapped in the members forming the framework. If preferred, the lips **50** may be made sufficiently long to allow deforming the lips outwardly once the brackets **20, 22** are in position thereby locking the brackets together.

Reference is next made to FIG. **3** which shows the section **10** together with other similar sections **10' 10''** attached to square-sectioned uprights **72, 74** which are in turn attached by brackets **75, 76** to a floor **77** and a ceiling **78.** The wire wall partition so formed is typical of partitions using sections such as **10** which are attached to uprights as required. The sections can be attached by any suitable means, two of which are illustrated in FIG. **3.** Upright **72** has two clips **80, 82** on each side such that the clips locate sections **10, 10'** about upright **72.** The shape of clip **80** which is typical of both clips **80, 82** is best seen in FIG. **4.** The clip has a generally U-shaped main portion for engaging about the upright **72** and consisting of a first portion **84** terminating in generally parallel second portions **86** which in turn terminate at co-planar, outwardly turned third portions **88.** Each of the third portions **88** terminates in a relatively short lip **90** which lips engage respective inwardly facing sides of a corresponding member **12, 14'.** A screw **92** (FIG. **3**) or other suitable fastener passes through a hole **94** in the clip and is threadably engaged in the upright **72.**

If preferred, the clips holding the sections to the uprights can be combined with the brackets used in assembling the sections. Such a clip **95** is shown in FIG. **5.** Essentially the clip **95** consists of a generally U-shaped central portion having an outer wall **96** and spaced apart generally parallel walls **98** which terminate in portions similar in shape to the brackets **20** previously described. To assemble this arrangement, the clip **95** is attached to the upright **74** by a screw **100** (FIG. **3**) which passes through a hole **101** in clip **95** and then corresponding parts of frameworks **10, 10''** are engaged on the clip before a similar clip is positioned on the other side of the upright to engage the members forming the sections **10, 10''** and to lock them to the upright **74.** Another screw similar to screw **100** is used to attach the second clip and then further screws are engaged between webs **102** on each of the clips to ensure that the clips lock the members forming the sections.

The section **10** (FIG. **1**) can also be used as a safety rail on a building in the course of construction. Reference is made to FIG. **6** which shows a spring-loaded telescopic upright **110** for engagement between floors **112, 114** of a building structure. The telescopic upright **110** consists of lower, intermediate, and upper tubular members **116, 118,** and **120** arranged such that the lower and upper members are sliding fits inside the intermediate member **118.** The upper member **120** has holes **122** spaced along its length for receiving a bolt **124** which passes through a selected pair of the holes **122** and through the intermediate member **118.** The pair of holes **122** chosen will depend upon the distance between the floors **112, 114.** The lower member **116** has a pin **126** which is a sliding fit in a slot **128** in the intermediate member **118.** The pin prevents separation of the lower member **116** from the intermediate member **118** but may be omitted if preferred. The lower member **116** has pairs of diammetrically opposed openings intermediate its length for slidably receiving a hook element **130** for attaching sections **10, 10'** to the upright **110.** A spring **132** is adapted to apply a force on the hook element **130** to hold the element in position and also to exert outward forces on the floors **112, 114** to frictionally retain the upright **110** in position between the floors. The spring **132** bears against a washer **134** located under the intermediate member **118** for combining with a compression tool as will be described. Hook element **130** has a first portion **136** which extends through the member **118** and terminates at a first end in a nut **138** which is locked to the element **130** to prevent separation of the element from the lower member **116.** The other end of the portion **136** terminates in an upright portion **140** which in turn terminates in a portion **142** extending generally parallel to the first portion **136** to define a hook **143.** The distance between portions **136, 142** is such that members **18, 18'** of respective sections **10, 10'** can be engaged between the portions **136, 142** of element **130** to prevent separation of the sections **10, 10'** from the hook element. Neoprene caps **144** are provided in ends of upright **110** to increase frictional resistance for preventing accidental displacement of the uprights.

To assemble the upright **110,** the spring **132** is compressed (as will be described) and the upright is positioned between floors **112, 114.** The spring **132** is then released and a mallet is used to move the hook element **130** towards the right (as drawn) for receiving sections **10, 10'.** The hook **143** extends inwardly of the building and the sections **10, 10'** are dropped over the hook in position on the portion **136** with slight overlap between the section **10, 10'** sufficient to permit the element **130** to pan through both sections adjacent respective upright members of the sections. Next a mallet is used to move the hook element **130** to the left as drawn to position the members **18, 18'** within the hook **143.** Should an object or person fall against the sections **10, 10',** the sections are forced against the upright **110** and further outward movement is prevented.

Reference is now made to FIG. **7** which shows a tool **144** suitable for compressing spring **132.** The tool has an upper element **146** pivotally coupled at **148** to a lower element **150** intermediate the ends of element **150.** The element **150** is elongated, extending from a handle end **152** to a forked end **154** adapted to engage under hook element **130.** Other ends of the hooked end are curved upwardly to prevent the tool from slipping off hook element **130.** The distal end of element **146** is also forked and terminates in washer engagement lug **156** for gripping washer **134.**

In use, the tool **145** is engaged by slipping the lugs **156** about intermediate member **118** and dropping the element **146** downwardly and outwardly until lugs **156** are engaged about washer **134.** Next forked ends of element **150** are positioned under hook element **130** and with the lower end of the upright **110** in position on the

floor **112**, the element **150** is gripped at **152** and pushed downwardly to compress spring **132** while simultaneously positioning the upper end of upright **110** on the underside of floor **114**. The tool **144** is then disengaged bearing the upright **110** in compression under the influence of spring **132**. The upright **110** is disassembled by reversing the assembly procedure.

Although the section **10** has been described as having a particular wire mesh **26**, any suitable panel element can be used in place of mesh **26** provided that it has a thickened peripheral portion adjacent sides bounding the element for engaging in members such as member **12**. The shape of the element is preferably such that a figure bordering the element has straight sides.

Also the telescopic upright **110** may be in two parts if the height between floors **112, 114** is fixed. This is because upper member **120** may be dispensed with and intermediate member **118** adapted to engage the underside of the floor **114**.

What I claim as my invention is:

1. A section for use in a wall partition, safety rail and the like, the section comprising:

a substantially rectangular panel element having a thickened peripheral portion adjacent each one of its sides;

four elongated members adapted to support the panel element, each of the members being of substantially square cross-section having opposed spaced-apart longitudinal edges defining a slot, having a width less than the thickness of said thickened peripheral portion and sufficiently large to permit the member to slide longitudinally over the panel element adjacent an edge thereof and thereby enclose and entrap said thickened peripheral portion;

coupling means adapted to couple adjacent ends of the members at all four corners of the panel element in order to lock said elongated members in a rectangular form with the panel element restrained by the thickened peripheral portion to prevent separation of the panel element from the elongated members, said coupling means comprising four pairs of brackets and a fastener for engagement in the brackets to draw pairs of brackets together about an adjacent pair of ends of the elongated members, each bracket having a U-shaped portion defining a channel, the U-shaped portion being in two parts at right-angles to one another for receiving respective end parts of adjacent elongated members in the channel, each bracket further comprising a triangular web extending between said parts of said U-shaped portion, the web having at least one opening for receiving the fastener;

telescopic uprights having ends adapted to frictionally engage respective adjacent floors of a building and including spring means applying outward forces to increase the frictional engagement of said ends of the uprights on the floors; and

attaching means adapted to attach said section to said uprights, each attaching means comprising a hook member slidably engaged in said telescopic member and frictionally locked in place by said spring means when the telescopic upright is in position between floors, said hook member being adapted to be positioned about overlapping portions of adjacent sections to hold said sections against the telescopic upright.

2. Apparatus as claimed in claim **1** in which the panel member comprises a plurality of spaced-apart and parallel wires laid orthogonally on other spaced-apart and parallel wires and welded in place, each of the peripheral portions of the panel member being defined by the combination of a respective one of said wires and its junction with orthogonal wires.

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