United States Patent

Leblanc

[15] **3,690,084**

[45] **Sept. 12, 1972**

[54] **FILLER BACKING**

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[22] Filed: **April 12, 1971**

[21] Appl. No.: **133,029**

[52] **U.S. Cl.** **52/514**
[51] **Int. Cl.** **E04g 23/02**
[58] **Field of Search** 52/514

[56] **References Cited**

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2,638,774	5/1953	Wieman	52/514
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[57] **ABSTRACT**

A device for supporting patching compounds in its plastic state during the repair of holes in building walls of gypsum board construction. The backing device includes an apertured, foldable plate member which may be inserted through the hole to be patched and then erected so as to cover the hole. The invention is also characterized by a telescoping support member which passes through the aperture in the foldable plate and will retain the plate in position by acting against the plate and the inner surface of the opposing wall.

10 Claims, 7 Drawing Figures

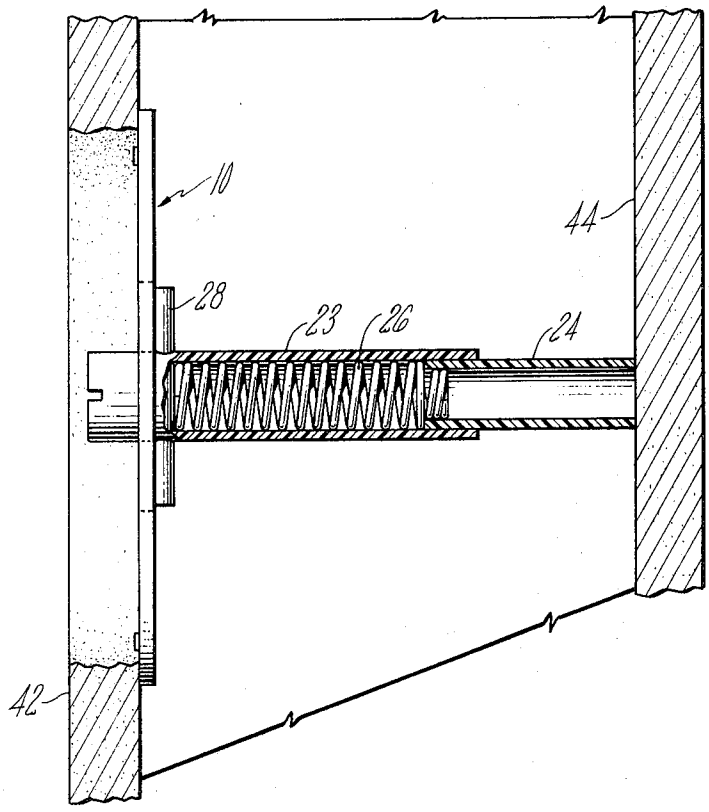


FIG. 1

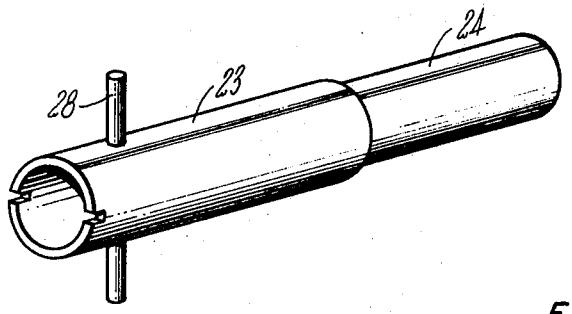


FIG. 3

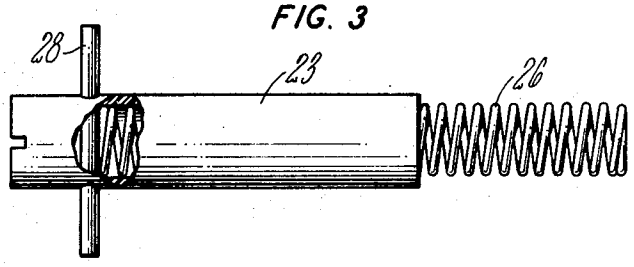
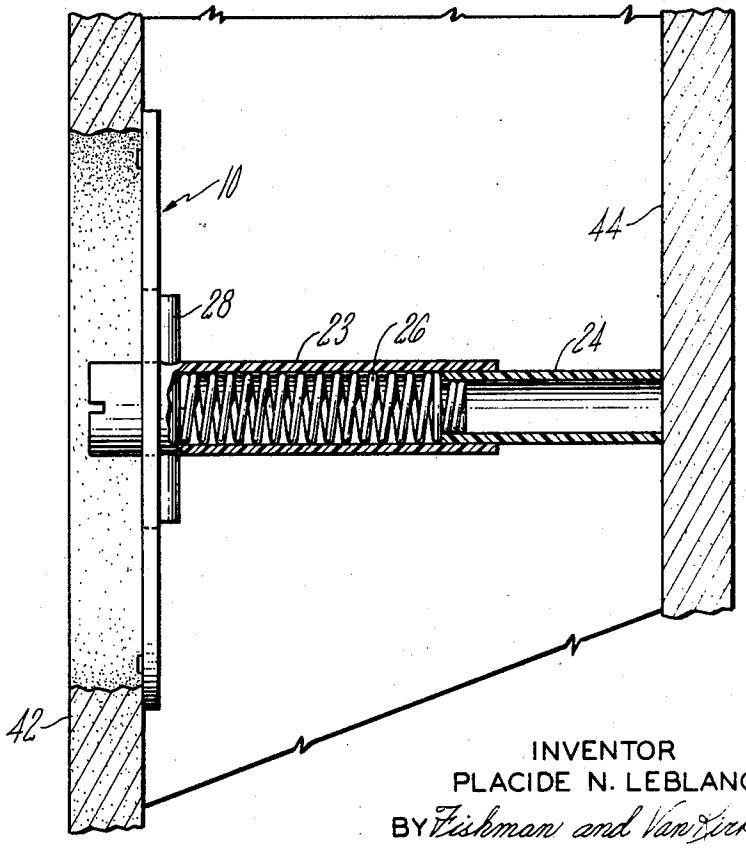


FIG. 2



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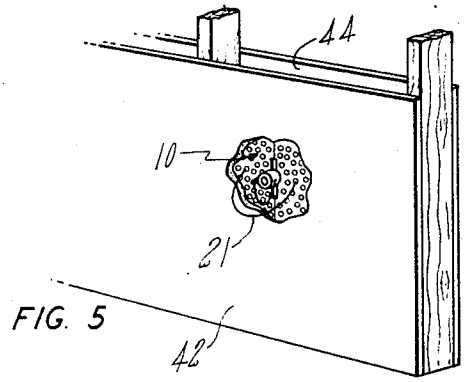


FIG. 5

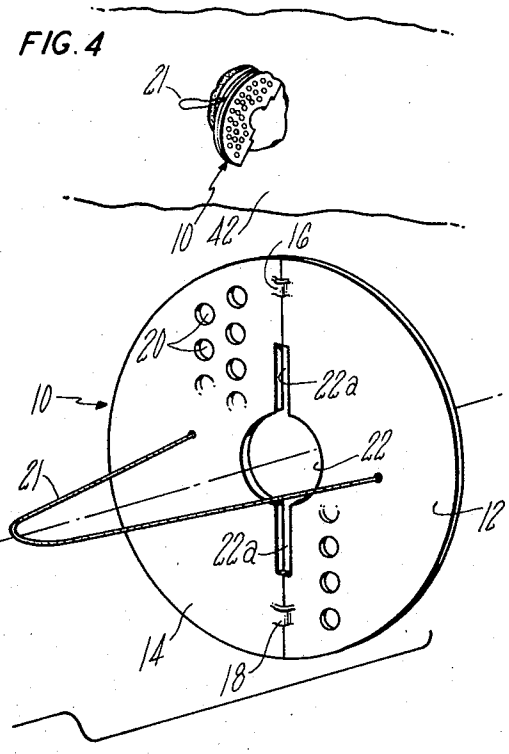


FIG. 4

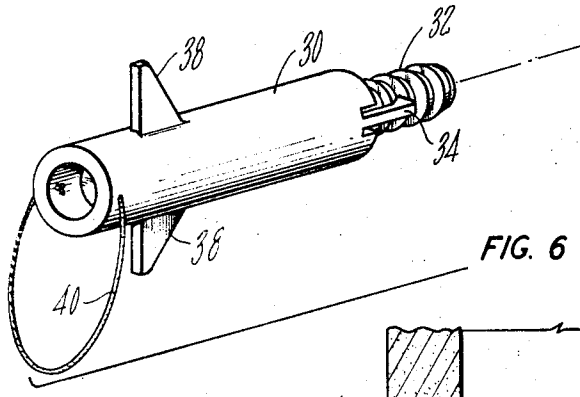


FIG. 6

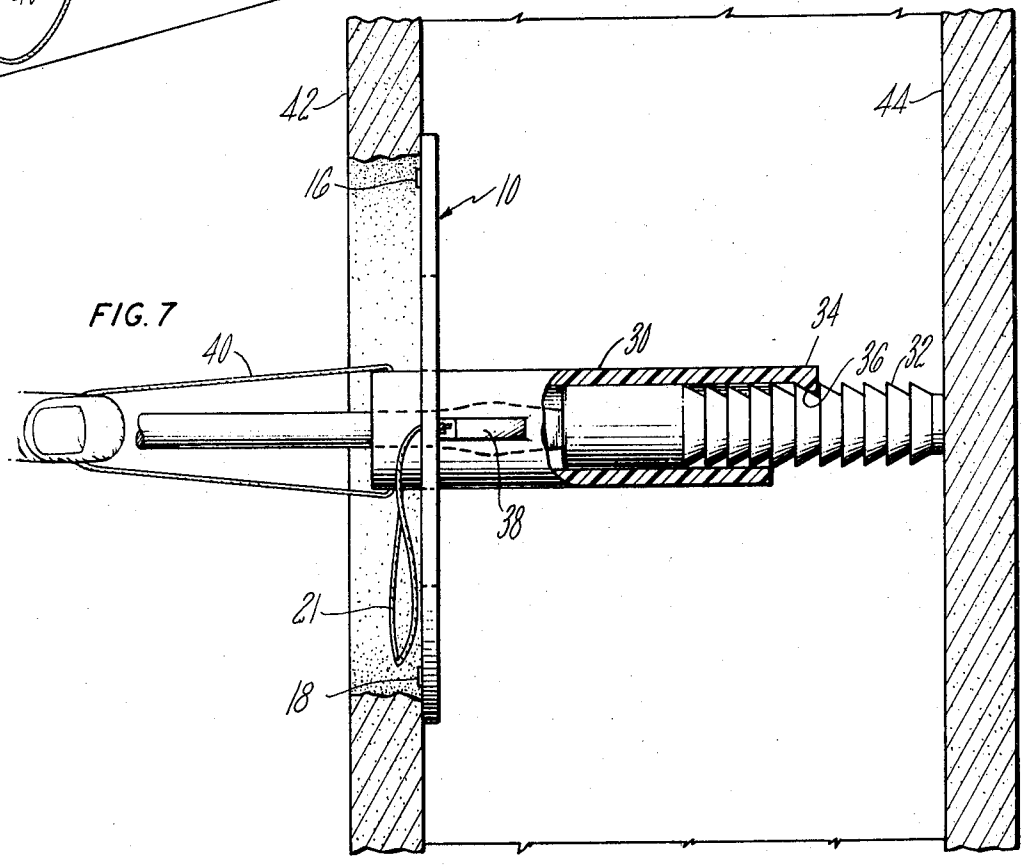


FIG. 7

FILLER BACKING

BACKGROUND OF THE INVENTION

1. Field of the Invention

The present invention relates to the patching of gypsum board building construction. More specifically, this invention relates to tools for use in the repair of holes in unlathed walls. Accordingly, the general objects of the present invention are to provide novel and improved methods and apparatus of such character.

2. Description of the Prior Art

While not limited thereto in its utility, the present invention is particularly well suited for use in the repair of intermediate size holes in unlathed building walls. Since the advent of dry wall or Sheetrock construction, a great deal of effort has been directed toward solving the problem of patching holes of moderate size in walls constructed of unlathed gypsum board or the like. A typical moderate sized hole is one left by the removal or relocation of an electrical receptacle or switch. Small size holes can readily be patched with spackle or other patching compounds which are applied in a plastic state. Large size holes are typically patched by cutting a piece of the gypsum board commensurate in size and shape with the hole, nailing the piece in position and employing a tape system to seal the joints. Intermediate size holes, particularly those of a few inches in diameter and located between studs have, however, presented a continuing problem. Due to the size of these holes, the unset patching compound could not be maintained in place until hardened. The alternative of enlarging the hole in order to expose the opposite, adjacent studs to thereby permit use of a large gypsum board patch, while typically employed, is uneconomical and undesirable for numerous other reasons which will be obvious to those skilled in the art.

In order to permit the use of patching compound to repair holes of intermediate size in wall constructions of the type being discussed, mechanics in the field have typically resorted to techniques such as stuffing newspaper through the hole so as to provide a backing for supporting the patching compound in its unset condition. Since the newspaper does not provide a relatively constant and firm surface against which to apply the plastic patching compound this technique has not proved to be particularly successful. A number of prior art devices which would provide backing for the patching compound have been proposed. These support or "filler backing" devices would typically be installed through the hole which is to be patched and would thereafter be erected internally of the wall so as to provide a backing member which spanned the hole and was flush with the inner surface of the wall to be patched. Such prior art devices are exemplified by the disclosures of U.S. Pat. Nos. 2,598,194; 2,638,774; 2,997,416; 3,226,893 and 3,325,955.

The prior art filler backing devices have been characterized by one or more serious deficiencies. These deficiencies include relatively high cost, which is an important consideration in view of the fact that the device must be left in the wall when the patching operation has been completed, and difficulties in use.

Among the difficulties in use are the necessity of performing operational steps in addition to installation of the filler backing device and application of the patching compound thereover. Such additional steps include cutting off a locking screw member flush with or in recessed relationship to the outer surface of the wall to be patched and/or the necessity of applying a second coat of patching compound to fill in a hole left by the removal of a locking member subsequent to the setting of the first application of patching compound.

SUMMARY OF THE INVENTION:

The present invention overcomes the above-discussed and other disadvantages of the prior art by providing a novel and improved backing device for supporting patching compound in a plastic state during the repair of holes in unlathed walls. The present invention is both easy to use and inexpensive to produce whereby it is economically feasible to leave the device in position inside of the patched wall once the repair operation has been completed. The present invention is also characterized by a repair technique which requires no steps subsequent to application of the patching compound.

In accordance with the invention, a foldable plate member, which may be constructed of cardboard or suitable plastic material, is inserted through a hole to be patched. The plate member will typically be comprised of two sections which are connected by hinge means and the plate member will have a centrally located aperture. The plate member is also provided with a drawstring whereby it may be held against the inner surface of the wall having the hole to be patched after it has been inserted through the hole and opened. With the plate member in position and held with the drawstring, a telescoping tubular member will be inserted through the aperture and thereafter adjusted so that locking extensions on the telescoping member will engage the rear side of the plate member. The telescoping member will be of sufficient length to contact the inner surface of the opposing wall thereby causing the telescoping member to be solidly positioned between the inner surfaces of the plate member and the opposing wall whereby the plate member will be held firmly in position after its drawstring has been released. In accordance with the invention, the telescoping member may be in the form of a ratchet assembly, it may be spring loaded or a combination of both spring loading and a ratchet mechanism may be utilized.

BRIEF DESCRIPTION OF THE DRAWING

The present invention may be better understood and its numerous objects and advantages will become apparent to those skilled in the art by reference to the accompanying drawing wherein like reference numerals refer to like elements in the several figures and in which:

FIG. 1 is a perspective view of the telescoping member portion of a first embodiment of the invention;

FIG. 2 is a side view, partly in section, of the embodiment of FIG. 1 shown in operative position;

FIG. 3 is a side view, partly in section, of a second embodiment of the telescoping member in accordance with the invention;

FIG. 4 depicts a first step in the utilization of the invention;

FIG. 5 depicts the invention in place prior to the application of a patching compound thereover;

FIG. 6 is an exploded view of the invention employing a third embodiment of the telescoping member; and

FIG. 7 is a side view, partly in section, depicting the final step in installation of the embodiment of FIG. 6.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

As previously noted, the present invention is particularly well suited for the patching of holes in building walls of the unlathed or gypsum board type construction. Such construction may be repaired by means of application of a suitable patching compound which is applied in plastic form and permitted to harden. In order to permit use of a patching compound in plastic form it is necessary that a backing member be provided in order that the patching compound will have a supporting surface to which it may adhere while in the plastic state.

In accordance with the present invention, and as may best be seen from a joint consideration of FIGS. 2, 5 and 7, in the installed position the filler backing or patching compound supporting device of the present invention takes the form of a plate or disc member which is positioned against the inner surface of the wall which is to be repaired. The plate or disc member, which is indicated generally at 10 in FIGS. 2 and 4–7, is defined by two plate sections 12 and 14. Referring to FIG. 6, plate sections 12 and 14 are coupled together via hinge means 16 and 18. The hinge means may take several forms and the particular type of hinge employed will be largely determined by the material from which plate member 10 is fabricated. Thus, for example, if plate member 10 is comprised of a cardboard material hinges 16 and 18 will typically be formed of a flexible adhesive tape. If plate member 10 is formed of a plastic material the hinges may, as shown in FIG. 6, be formed from the plastic material itself in a manner well known in the art. It is to be noted that hinges 16 and 18 do not have to be capable of withstanding repeated flexing since the plate member will only be employed once.

The plate member 10 is provided with a central aperture 22 having a pair of oppositely disposed slots 22*a* radiating outwardly therefrom. The aperture and slots are in part defined by cut out portions in the abutting edges of each of sections 12 and 14. The plate member 10 is also provided with a drawstring 21 which extends between sections 12 and 14; the point of attachment of string 21 preferably being along a line perpendicular to a line through the center of slots 22*a*.

It is also to be noted, and as may be seen from FIGS. 4–6, that plate member 10 will typically, although not necessarily, be provided with an array of holes 20. Perforation of plate member 10 is in the interest of providing a surface to which the patching compound will more readily adhere thereby facilitating the repair operation.

In addition to the perforated, foldable plate member 10, the present invention comprises a telescoping member which bridges the gap between the back or inwardly facing side of the plate member and the inner surface of the opposing wall. Considering the embodiment of FIGS. 1 and 2, the telescoping member comprises a first tubular section 23 and a second tubular section 24. The outer diameter of section 24 is less than the inner diameter of section 23 and, as may be seen from FIG. 2, the telescoping tubular members are mechanically interconnected by means of a spring 26. A first end of spring 26 is reduced in diameter and inserted in a first end of second tubular section 24 to thereby form a press fit with section 24. The other end of spring 26 contacts a pin 28 internally of tubular section 23. Pin 28 passes completely through tubular section 22 and extends outwardly from the opposite sides thereof to form locking lugs for the purposes to be described below. The length of the telescoping member of the embodiment of FIGS. 1 and 2 may be varied by applying force to the inwardly disposed end of tubular section 24 thus compressing spring 26 against pin 28.

The embodiment of the telescoping member depicted in FIG. 3 is similar to that of the embodiments of FIGS. 1 and 2 with the exception that the smaller diameter tubular section 24 has been omitted and a longer spring 26 is employed. The length of the telescoping member of FIG. 3 is varied by compressing spring 26 inwardly towards the tubular section 23.

In the embodiment of FIGS. 6 and 7, the telescoping member comprises an outer, tubular section 30 and an inner element 32 which cooperates with an extension 34 on section 30 to form a ratchet mechanism. The extension 34 of section 30 has a radially inward extending projection 36. Projection 36 defines a cam surface on the forward facing side thereof. Element 32 is provided with a plurality of grooves as shown which receive projection 36; the flat forward facing sides of the grooves cooperating with the flat rearward facing side of projection 36 to define a one-way ratchet mechanism. Element 32 is initially disposed inside of section 30 and the telescoping member is extended by forcing element 32 outwardly, or to the right as viewed in FIG. 7, with a suitable tool. As element 32 moves out of section 30, the pawl or projection 36 will snap from groove to groove and the telescoping member will be locked in the position to which it is ultimately opened. It is to be noted that both tubular section 30 and element 32 will typically be fabricated from a plastic material and extension 34 will thus have a sufficient degree of flexibility to enable the projection 36 to move upwardly as it proceeds to capture each succeeding groove in element 32.

While a pin, such as pin 28 of the embodiments of FIGS. 1 and 3 could be employed, the embodiment of FIGS. 6 and 7 is depicted as employing a pair of outwardly extending "wings" or projections 38 which function, in the manner to be described below, to capture plate 10 against the inside surface of the wall to be patched. Projections 38 and extension 34 would be formed on tubular section 30 during the molding thereof. Section 30 is also shown as being provided with a drawstring 40. String 40 is needed to hold the telescoping member in position during the extension thereof as will be described below. A drawstring may also be employed in the embodiments of FIGS. 1 and 3 for safety purposes if deemed necessary. That is, it may be desirable to employ a drawstring on the spring actuated telescoping members in order to insure that the members are not inadvertently dropped into the space between the wall to be patched and the opposing wall.

In operation, the plate member 10 is folded as shown in FIG. 4 and inserted through the hole in a wall 42

which is to be patched. Thereafter, by means of the drawstring **21** attached to the two halves of plate member **10**, the backing plate is unfolded and is held in position against the inner surface of wall **42**. Next, the telescoping member will be inserted through the aperture **22** in plate member **10** so that either the wings **38** or the ends of pin **28** pass through slots **22***a* and are positioned inwardly of plate member **10**. Considering the embodiments of FIGS. **1** and **3**, insertion of the telescoping member proceeds until spring **26** is compressed by means of either the spring or tube **24** being pressed against the oppositely disposed wall **44**. The telescoping member is thereafter turned, either by hand or a suitable tool, so as to pivot the pin **28** out of alignment with the extensions **22***a* of the hole in plate member **10**. The compression force is then released from the telescoping member. The spring tension will thereafter force pin **28** against the back of plate **10** thereby holding the plate in position in covering relation to the hole in wall **42**. In FIG. **2** the telescoping member is shown prior to rotation of the pin **28** out of alignment with slot **22***a* whereas FIG. **7** shows the embodiment of FIG. **6** after the locking rotation.

Considering the embodiment of FIGS. **6** and **7**, the telescoping member will be inserted and turned either by hand or with a suitable tool so that wings **38** will be out of alignment with slots **22***a*. The telescoping member and plate **10** will thereafter be held in position by maintaining outward tension on drawstring **40**. A tool, for example a screwdriver as shown in FIG. **7**, will then be used to extend the telescoping member by pushing on the end of element **32** until this element contacts the inner surface of the opposite wall **44**.

It is to be noted that the telescoping member may be turned by any of several methods. For example, as shown in FIG. **1**, the end of the larger diameter tubular section **23** may be notched so as to facilitate rotation of pin **28** out of alignment with slots **22***a* by means of a knife, screwdriver or other bladed tool. Alternatively, a screwdriver may be inserted to the vicinity of pin **28** and cooperation between the tool and pin may result in the turning action. Of course, as noted above, rotation of the telescoping member by hand may also be employed.

While a preferred embodiment has been shown and described, various modifications and substitutions may be made thereto without departing from the spirit and scope of the present invention. Accordingly, it may be seen that the present invention has been described by way of illustration and not limitation.

What is claimed is:

1. A backing device for use in repairing building construction characterized by opposed walls with a space therebetween, said backing device comprising:

a foldable plate, said plate including at least two segments joined by hinge means, said plate further being characterized by an aperture therethrough, said aperture being defined with the plate in a substantially planar erected condition;

telescoping means, said telescoping means having an extended length in excess of the spacing between the opposed building walls and having a cross-sectional area of sufficient dimension to permit passage of said telescoping means through said plate aperture; and

means carried by said telescoping means for engaging said plate whereby said plate may be inserted through a hole in a building wall and erected and said telescoping means thereafter inserted through the plate aperture and into contact with the opposing building walls such that the plate will be held in position over the building wall hole by the engaging means carried by the telescoping means.

2. The apparatus of claim **1** wherein said foldable plate includes two segments and each of said segments comprises:

a planar member having a cut-out in the edge thereof which will be hinged to the segment defining member, said cut-out defining a portion of the plate aperture.

3. The apparatus of claim **2** wherein said plate segment cut-outs define a circular aperture having a pair of opposed slots extending outwardly therefrom in opposite directions, said slots being commensurate in size and shape with said plate engaging means.

4. The apparatus of claim **3** further comprising:

erecting means connected to each of said plate segments, said erecting means including a flexible member extending between the plate segments.

5. The apparatus of claim **3** wherein said telescoping means comprises:

a first tubular member, said first tubular member supporting said locking means; and

means movably supported in said first tubular member.

6. The apparatus of claim **5** wherein said movably supported means comprises:

resilient means coaxial with said first tubular member, said resilient means having a diameter less than that of said first tubular member.

7. The apparatus of claim **6** wherein said resilient means comprises:

a spring.

8. The apparatus of claim **6** wherein said resilient means further comprises:

a second tubular member having an outer diameter less than the inner diameter of said first tubular member, said second tubular member being coupled to said first tubular member by said spring.

9. The apparatus of claim **7** further comprising:

erecting means connected to each of said plate segments, said erecting means including a flexible member extending between the plate segments.

10. The apparatus of claim **9** wherein said plate segments are each perforated by an array of holes.

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