United States Patent [19]

Phillips

[11] **3,791,041**

[45] **Feb. 12, 1974**

[54] **SHELF MARKING PUNCH**

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[22] Filed: **May 4, 1972**

[21] Appl. No.: **250,217**

[52] **U.S. Cl.** ..... **33/189,** 33/32 C, 408/72

[51] **Int. Cl.** **B26f 1/00**

[58] **Field of Search** . 33/189, 194, 41 D, 191, 32 C; 408/72

[56] **References Cited**

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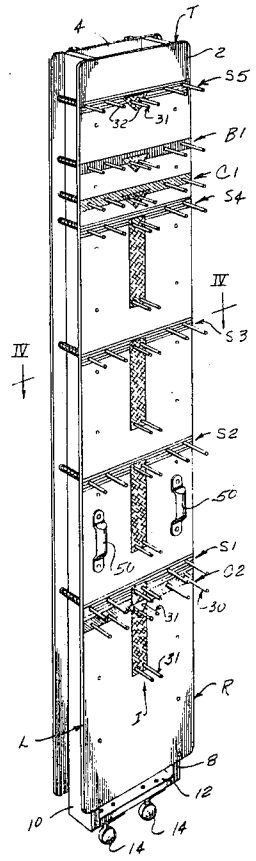
Primary Examiner—William D. Martin, Jr.

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[57] **ABSTRACT**

A shelf marking punch comprising a support plate having a lower end positioned along a floor and having spring retractable punch elements arranged in rows spaced vertically and horizontally over the plate. The rows have indicia adjacent thereto for designating one row or a plurality of rows of punches arranged to correspond to positions at which brackets should be mounted for various shelf arrangements employed in residential building.

4 Claims, 9 Drawing Figures



Patented Feb. 12, 1974 3,791,041

2 Sheets-Sheet 1

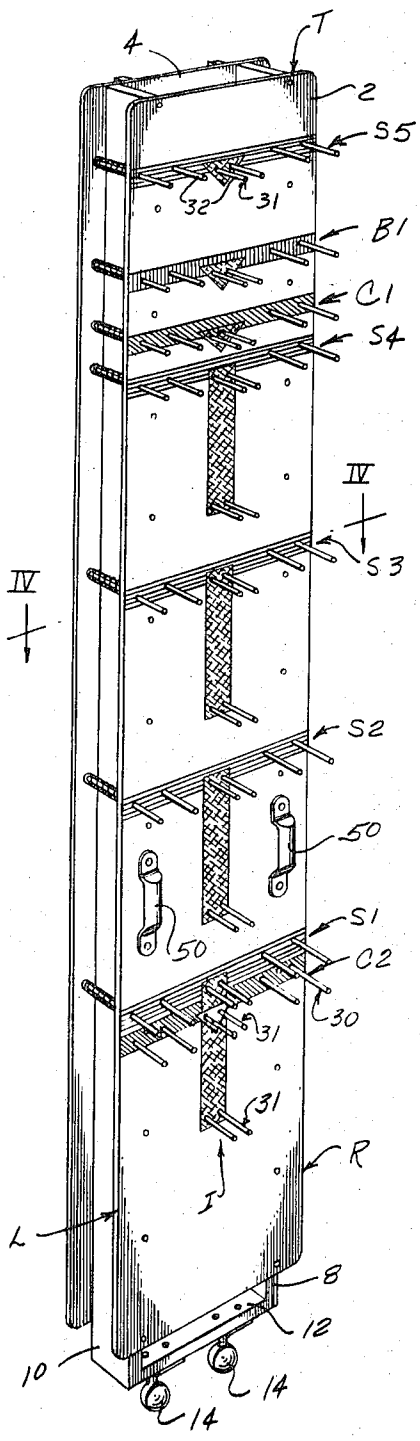


Fig. I

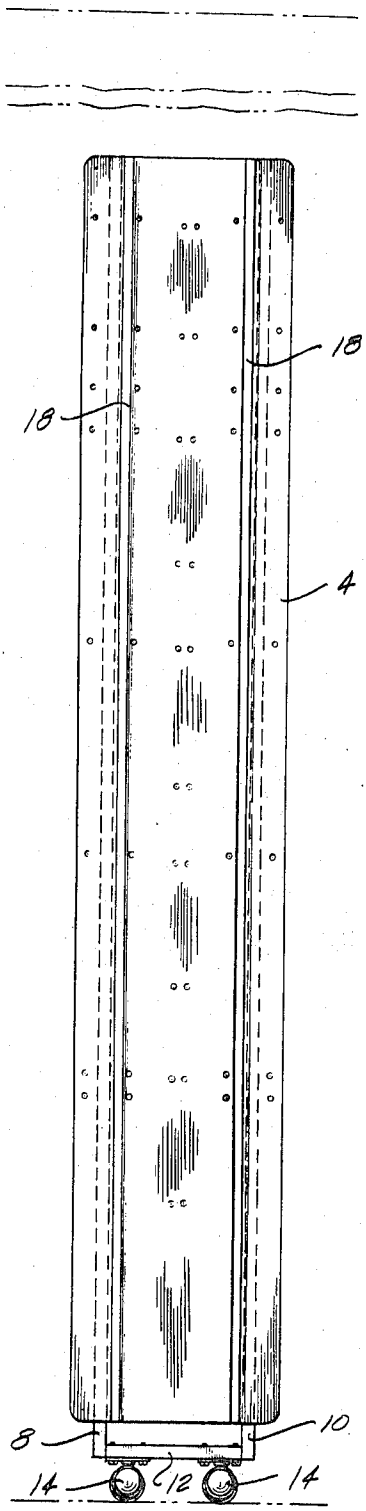


Fig. II

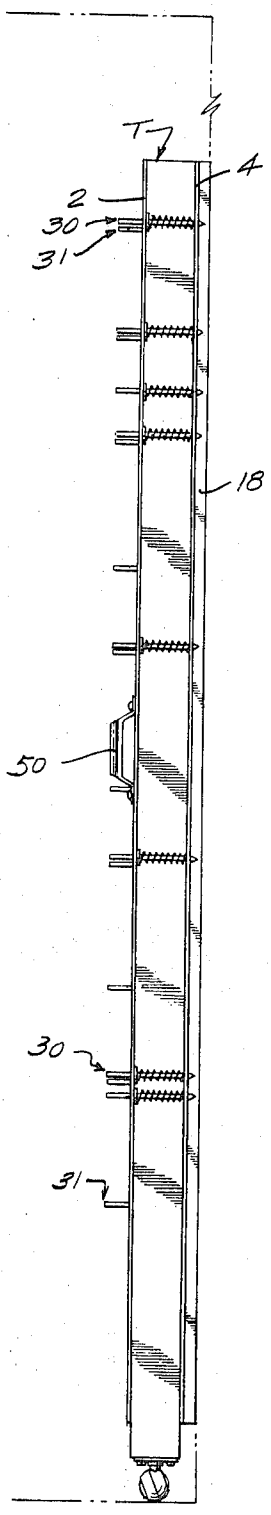


Fig. III

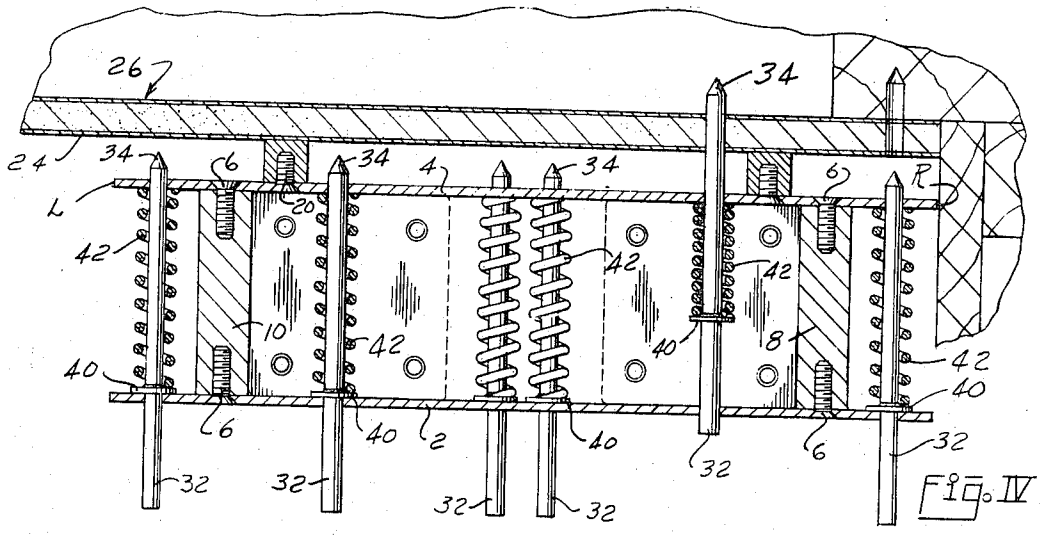


Fig. IV

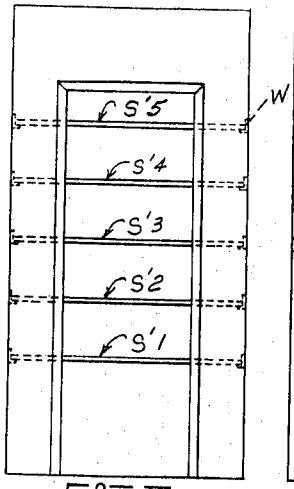


Fig. V

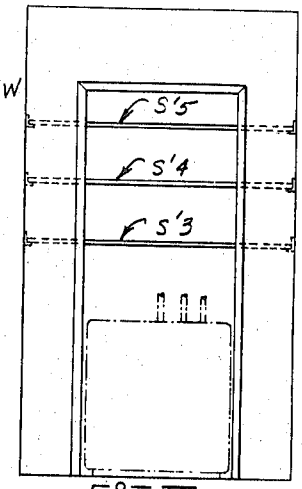


Fig. VI

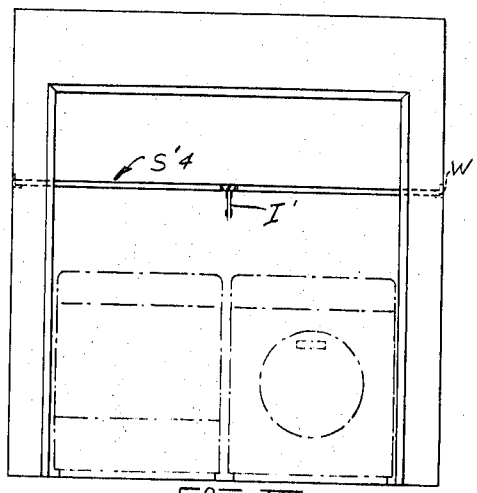


Fig. VII

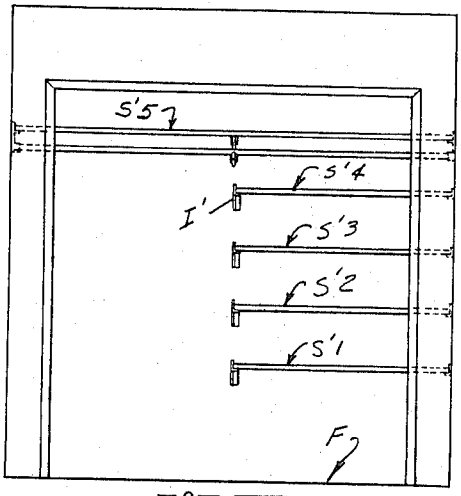


Fig. VIII

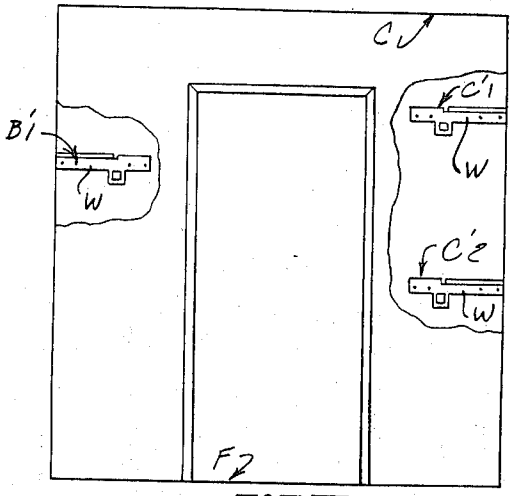


Fig. IX

SHELF MARKING PUNCH

BACKGROUND OF INVENTION

Building contractors generally arrange shelving in a substantially standard configuration in specified areas. For example, a clothes closet having one bar upon which clothes are hung generally has a shelf spaced 66 inches above the floor, while a closet having two bars generally has a lower bar spaced 42 inches above the floor and a second bar spaced 84 inches above the floor, a shelf being positioned immediately above each of the bars. Storage closets generally have five shelves spaced one foot apart, the bottom shelf being spaced two feet above the floor. One or more of the five shelves may be omitted from a storage closet, the remaining shelf spacing being retained. Utility closets generally have a shelf positioned above a washer and dryer, the shelf being positioned 60 inches above the floor which corresponds to the location of one of the shelves in a storage closet shelf arrangement.

Some builders employ prefabricated shelves constructed of various materials including metallic shelves having sections slidably connected making the length thereof adjustable and having framing members connectable between the wall and the back of the shelf making the width of the shelf somewhat adjustable. Such expanding type metal shelf installations have preformed screw openings for attachment to walls.

If a pre-formed screw opening is positionable in alignment with a stud in the wall a conventional screw is generally employed for attaching the shelf thereto. However, if the hole in the shelf does not coincide with the location of a stud in the wall, shelf brackets are generally employed to distribute loading imposed by the shelf over a substantial area of the wall surface. Various expandable type fasteners are generally employed for attachment of shelf brackets to sheetrock walls.

Heretofore carpenters have employed various measuring instruments of a general purpose type to measure and mark each fastener location. After the fastener location was marked a punch was employed to form an opening in sheetrock through which an expandable fastener or anchor was inserted or for punching starter holes for nails or screws into wood.

Such individual measurement and marking was subject to human error and often resulted in mislocation of holes.

The measuring of individual holes was not only time consuming from the viewpoint of the time required for the initial marking but also involved additional time and expense required for correcting errors which invariably resulted even if skilled workmen were employed.

SUMMARY OF INVENTION

I have developed a shelf marking punch comprising a support plate having spring retractable punch elements arranged in rows spaced vertically and horizontally over the surface thereof, the rows of punches being arranged in spaced relation corresponding to standard shelf arrangements generally employed. Rows of punches generally employed in combination with other rows of punches in an established shelf arrangement has like indicia adjacent thereto indicating to a workman which specific rows of punches are to be employed for a specified shelf arrangement.

Each punch in each of the vertically spaced rows is arranged in a position to accommodate pre-formed openings in standard arrangements of brackets employed for mounting shelves.

A primary object of the invention is to provide a marking device which is positionable against a wall such that punches are automatically positioned in various shelf arrangements permitting all of the holes required to accommodate brackets for supporting one end of each of a plurality of shelves in various shelf arrangements to be formed by merely striking each of a plurality of spaced punch elements in designated rows without moving the marking device.

Another object of the invention is to provide a shelf marking apparatus which employs a floor or ceiling as a reference plane such that shelf positions designated thereby will lie in a plane parallel to the reference floor or ceiling.

A still further object of the invention is to provide a shelf marking punch apparatus which may be employed for marking holes for mounting wall plates on a wall such that the plates extend parallel to the end of the shelf or for marking "offwall brackets" which extend perpendicular to a wall to which an end of a shelf is attached.

Other and further objects of the invention will become apparent upon referring to the detailed description hereinafter following and the drawings annexed hereto.

DESCRIPTION OF DRAWINGS

Drawings of a preferred embodiment of the invention are annexed hereto so that the invention may be better and more fully understood, in which:

FIG. I is a perspective view of a shelf marking punch apparatus;

FIG. II is a front elevational view thereof;

FIG. III is a side elevational view;

FIG. IV is a cross-sectional view taken substantially along line IV—IV of FIG. I;

FIG. V is a diagrammatic view illustrating shelf location in a storage closet;

FIG. VI is a diagrammatic view indicating shelf arrangement in a storage closet arranged for storage of large items;

FIG. VII is a diagrammatic view of storage closet having one shelf above a washer and dryer;

FIG. VIII is a diagrammatic view indicating shelf arrangement having a single clothes rod and storage shelves spanning a portion of the closet width; and

FIG. IX is a diagrammatic view illustrating shelf arrangement in a closet having a single clothes bar on one side thereof and double clothes bars on the other side thereof.

Numeral references are employed to designate like parts throughout the various figures of the drawing.

DESCRIPTION OF A PREFERRED EMBODIMENT

Referring to FIGS. I–IV of the drawing, the numberal 1 generally designates the shelf marking device comprising spaced plates 2 and 4, preferably sheets of rectangular configuration and construction of any suitable material such as wood, metal, plastic and the like.

Plates 1 and 2 are secured by suitable means, such as screws 6, to opposite sides of spacer elements 8 and 10 and preferably have lower ends joined by transversely extending member 12 arranged to form a supporting

surface for the marking apparatus. In the particular embodiment of the invention illustrated in FIG. I of the drawing the transversely extending member **12** has two wheels or casters **14** secured thereto permitting the marking apparatus to be rolled across the floor while maintaining plates **2** and **4** in a fixed relation above the floor which is generally employed as a reference plane. Surfaces on wheels **14** are lower reference surfaces for positioning plates **2** and **4.**

As best illustrated in FIGS. I and IV, plate **4** has spacer elements **18** secured to the outer surface thereof by suitable means such as screws **20.** Spacer elements **18** are preferably disposed in spaced apart parallel relation and preferably extend longitudinally of plate **4** such that when outer surfaces **22** of spacer elements **18** are positioned in engagement with the outer surface **24** of a wall **26** marking punch elements **30** and **31** will be disposed substantially perpendicular to the surface **24** of the wall.

As best illustrated in FIG. IV punch elements **30** and **31** comprise round rods, preferably one quarter inch in diameter for forming a hole into which a "Molly bolt", "Jiff-Lok", toggle bolts, or expandable type fasteners are inserted.

Each rod **32** has a pointed end **34** which extends through an opening **38** formed in plate **4.** The opposite end of each rod **32** extends through opening **36** formed in plate **2,** the length of each rod **32** being greater than the distance between the plates **2** and **4.** Openings **36** and **38** are axially aligned to position rods **32** in spaced parallel relation, each rod being perpendicular to the plates **2** and **4.**

Each rod **32** has a stop-element, such as washer **40** welded or otherwise secured thereto and positioned between plates **2** and **4** as illustrated in FIG. IV.

A resilient spring **42** is positioned such that one end thereof engages stop element **40** while the other end engages the inner surface of plate **4,** spring **42** extending around a central portion of rod element **32.**

From the foregoing should be readily apparent that each rod element **32** extending through openings **36** and **38** in plates **2** and **4** is urged by spring **42** to a position wherein stop element **40** engages inner surface of plate **2.** However, each rod element may be urged, as by striking same with a hammer, against the bias of spring **42** to a position wherein the pointed end **34** on the rod is driven through the surface **24** of a wall **26.**

Plate **2** preferably has hand grip means such as handles **50** secured to the surface thereof by suitable means such as screws **52,** the handles being positioned to facilitate movement of the punch device by rolling same over the surface of a floor F.

Several conventional shelf arrangements are illustrated in FIGS. V–IX. Shelves are generally mounted by securing a wall plate W to end walls of a closet adjacent opposite ends of a shelf. However, if an end of a shelf does not extend into engagement with a wall or if a shelf is of a length requiring support intermediate opposite ends thereof an intermediate or center shelf support bracket I is employed, the bracket I extending outwardly from the wall and having one end thereof secured to the wall by suitable fasteners.

Storage closets generally have a plurality of shelves S' spaced a predetermined distance above the floor F.

If a shelf arrangement illustrated in FIG. V is to be employed wherein five shelves are to be mounted in a closet, the lower shelf S'1 is positioned 24 inches above the floor F, each of the shelves S'2, S'3, S'4 and S'5 being spaced one foot apart and the shelf S'2 being spaced one foot above shelf S'1. One or more of the shelves S'1 – S'5 may be omitted in a specific shelf arrangement as illustrated in FIGS. VI and VII to provide space for storage of large items or to provide space for water heaters, washers, dryers, deep freezers and the like.

Clothes closets generally have a single clothes bar extending thereacross and having a single shelf mounted above the clothes bar on a wall bracket B'1, or have two clothes bars having shelves mounted thereabove on wall brackets C1, and C2, as illustrated in FIG. IX.

The shelf marking punch device **1** has a plurality of rows S1, S2, S4, and S5 of punches positioned vertically above the lower reference surface of wheels **14** distances corresponding to elevations of shelves S'1, S'2, S'3, S'4, and S'5, respectively.

Marking device **1** has a row of punches B1 arranged to correspond with the elevation of wall bracket B'1 illustrated in FIG. IX.

Marking device **1** has rows C1 and C2 of punches spaced to correspond to the elevation of shelves C'1 and C'2, illustrated in FIG. IX; however, the rows C1 and C2 are measured downwardly from the top edge T of plate **2** such that the rows of punches are positioned in the proper location when the top T of the marking device is positioned against the ceiling C which is eight feet above the floor F in standard construction.

In addition to rows S1 – S5, B1, and C1, C2 of punches, each of the rows has a corresponding row of punches arranged for punching holes for the intermediate brackets I' illustrated in FIGS. VII and VIII.

Each row of punches preferably has suitable indicia adjacent thereto to indicate which combination of rows of punches are to be employed for establishing a specific shelf arrangement.

A preferred form of indicia comprises a colored stripe of paint adjacent the punches employed for forming holes for brackets in the shelf arrangement. For example, punches of the rows S1–S5 extend through a blue painted stripe, punches of rows C1 and C2 extend through a green stripe, and punches of row B1 extend through a red stripe.

From the foregoing it should be readily apparent that holes can be punched for the wall plates W for the shelf arrangement illustrated in FIG. V by positioning the punch device **1** against the wall to which the plates are to be attached.

The surfaces of spacer elements **18** are positioned against the wall, the outer reference edge L or R of plates **2** and **4** being positioned against the intersecting back wall of the closet. Since five storage shelves are to be installed, each of the punches in rows S1–S5 which extend through the blue indicia stripes of paint will be struck with the hammer forming holes in the wall at the desired elevation and spacing. The punch device is then moved to the opposite wall of the closet and the operation is repeated completing the punching of holes for mounting each of the ten wall plates W.

The operation is the same for the shelf arrangements illustrated in FIGS. VI and VII except that the rows of punches are not driven through the wall at locations where shelves are to be omitted.

For forming holes for the intermediate bracket I' illustrated in FIG. VII, the distance D is determined to locate the center of the closet and the distance *d* is de-

termined and marked on the wall, the distance *d* being one-half of the width of plates 2 and 4. An edge of plate 4 is then positioned in alignment with the mark on the wall and the intermediate punches I adjacent row S4 of punches is struck with the hammer for positioning holes in the wall for mounting the intermediate bracket I'.

To accomplish the shelf arrangement illustrated in FIG. IX, the marking apparatus 1 is positioned as hereinbefore described and the punches of row B1 are struck forming mounting holes for the wall plate to support shelf B'1. To form holes for supporting wall plates of shelves C'1 and C'2 the top edge T of the marking device 1 is positioned against the ceiling C and punches in rows C1 and C2 are struck forcing the pointed ends 34 of the respective rods through the wall.

It should be appreciated that the individual rods 32 of each of the rows of rods are spaced apart distances corresponding to hole spacing of a specified wall bracket to be employed for mounting the shelves. While various manufacturers of pre-fabricated shelves employ different hole spacings in wall plates and center shelf supports, builders generally select a preferred brand which is used in all construction.

It should be appreciated that the spacing of punches 32 in the respective rows of punches may vary depending upon the spacing of holes in a bracket provided by a particular manufacturer.

It should be appreciated that other and further embodiments of my invention may be devised without departing from the basic concept thereof.

Having described my invention I claim:

1. A shelf position marking device comprising: spaced sheets having axially aligned openings extending therethrough; spacer elements between said sheets; means to secure each of said sheets to said spacer elements; rollers; means to secure said rollers to support said spaced sheets such that surfaces on said rollers lie in a lower reference plane parallel to a floor, at least one of said sheets having a side reference surface positionable against a wall; a plurality of vertically spaced horizontal rows of pointed rod members extending through said axially aligned openings in said spaced sheets, each of said horizontal rows being spaced from and parallel to said lower reference plane; stop means secured to each of said pointed rods, said stop means being engageable with one of said sheets to limit axial movement of each of said pointed rods; a spring about each of said pointed rods, each of said springs having a first end engageable with one of said spaced sheets and another end engaging said stop means to urge said pointed rod toward a first position wherein the end of the rod is spaced from a wall surface, each of said pointed rods being moveable to a second position through a wall surface to form spaced holes in the wall surface to receive shelf support fasteners.

2. The combination called for in claim 1 with the addition of hand grip means secured to one of said sheets.

3. The combination called for in claim 1 with the addition of means on one of said sheets arranged to space said sheet outwardly from a wall surface when said sheet is positioned parallel thereto.

4. The combination called for in claim 1 wherein said pointed rod members are arranged in horizontally spaced vertical rows, each of said vertical rows being spaced from and parallel to the side reference surface.

* * * * *