United States Patent [19]

Nash

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[45] **Aug. 13, 1974**

[54] **ADJUSTABLE POLE SUPPORT SYSTEM**

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[21] Appl. No.: **279,179**

[52] **U.S. Cl.** **211/86,** 211/176, 248/243

[51] **Int. Cl.** **A47f 5/10**

[58] **Field of Search** 211/86, 176; 108/107, 109, 108/110; 248/243, 224, 223

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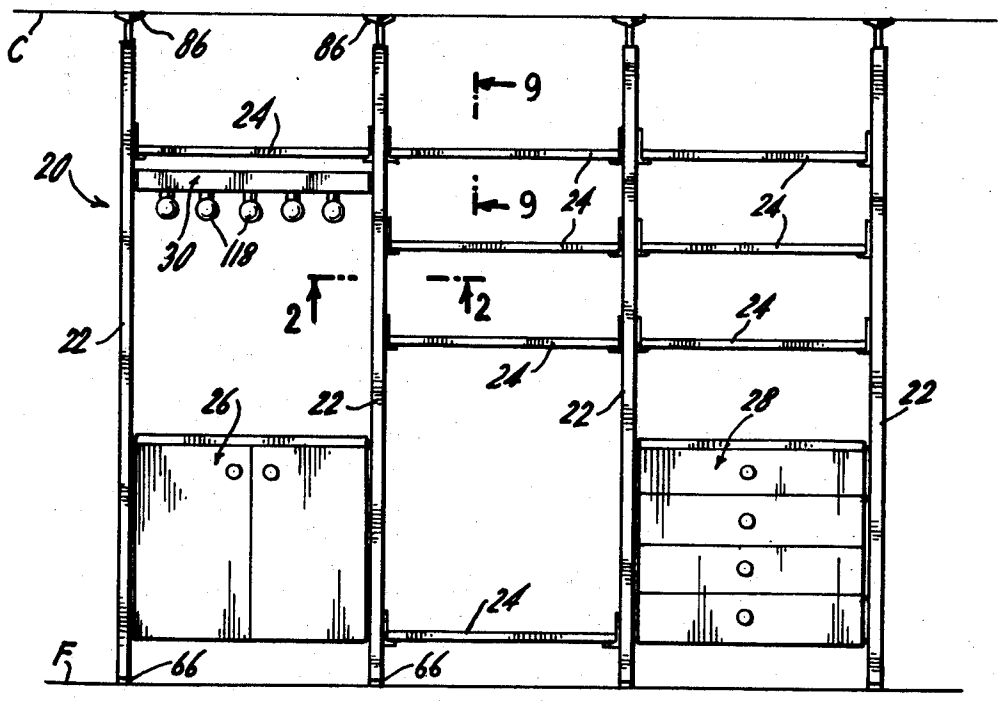
Primary Examiner—Ramon S. Britts

Attorney, Agent, or Firm—Amster & Rothstein

[57] **ABSTRACT**

A system of shelves, cabinets, lighting fixtures and other accessories is adjustably horizontally supported on vertical poles removably located between the floor and ceiling of a dwelling or other structure without structural damage thereto. The poles are designed for easy vertical alignment, provide numerous locations for article support mounting pins and may be easily decorated with caps which conceal mounting pin apertures from view. The wide variety of articles supportable by the pole system are prevented from relative rotational movement with respect to the poles by coaction between article supports and channels formed in the poles.

14 Claims, 21 Drawing Figures



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SHEET 1 OF 3

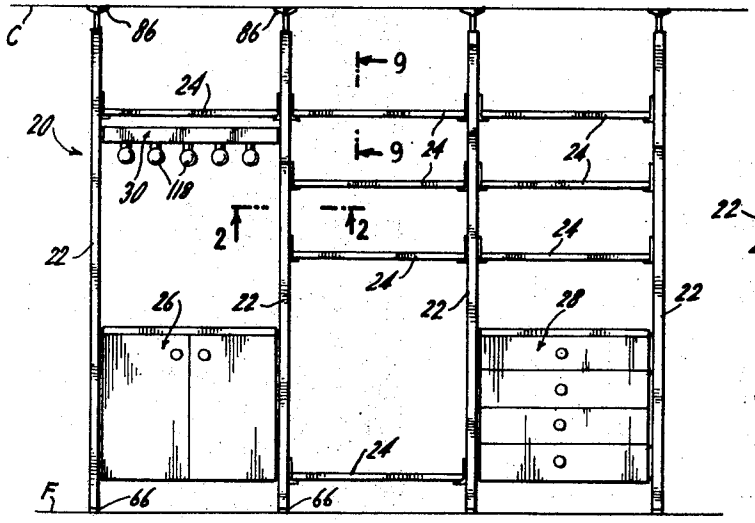


FIG. 1.

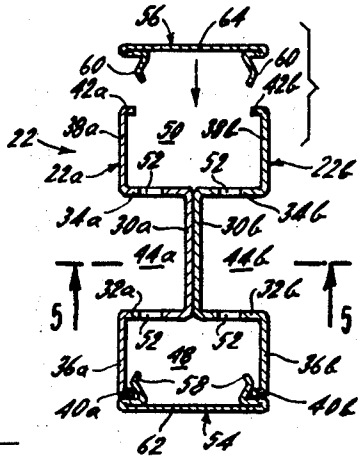


FIG. 2.

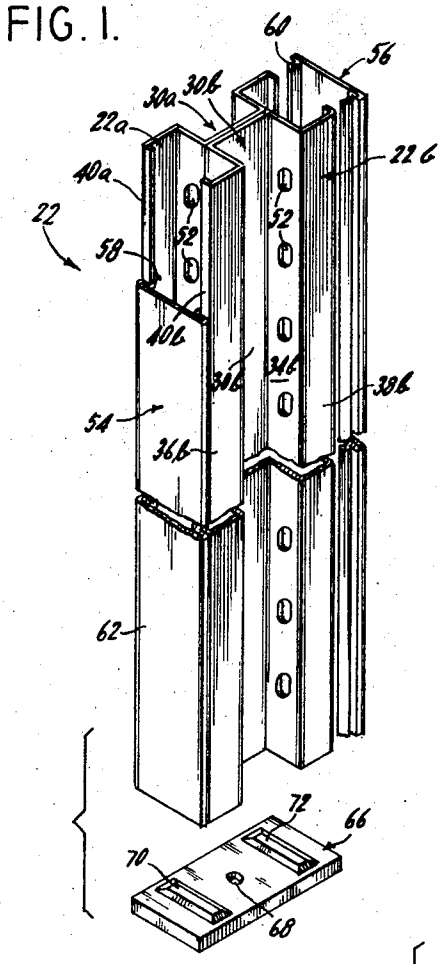


FIG. 3.

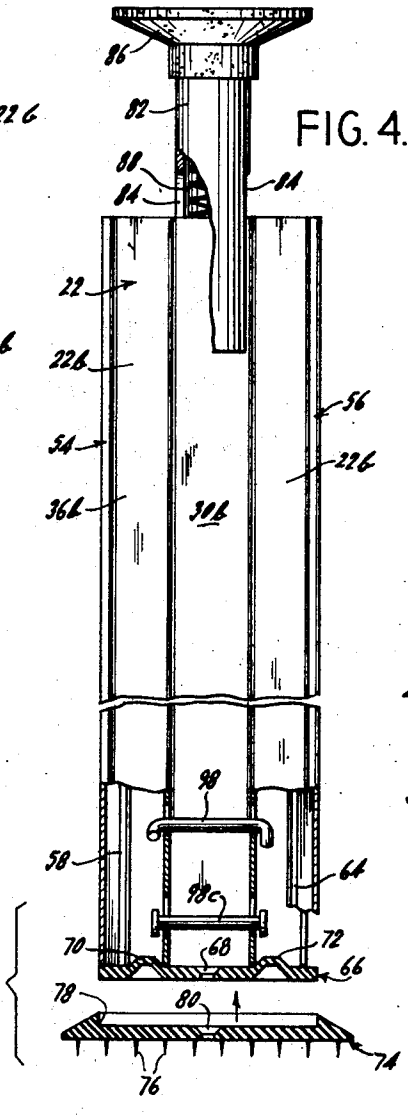


FIG. 4.

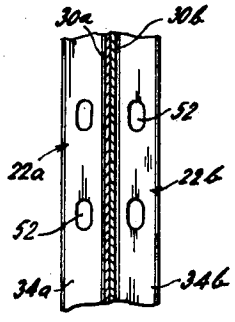


FIG. 5.



FIG. 6.

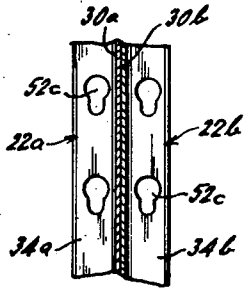


FIG. 7.



FIG. 8.

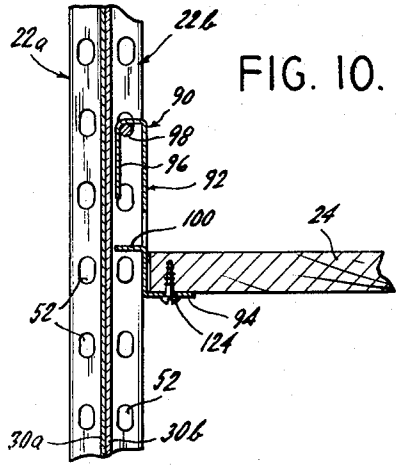


FIG. 10.

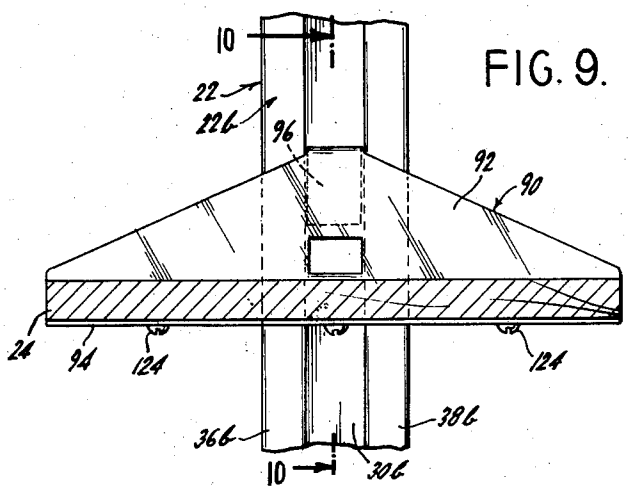


FIG. 9.

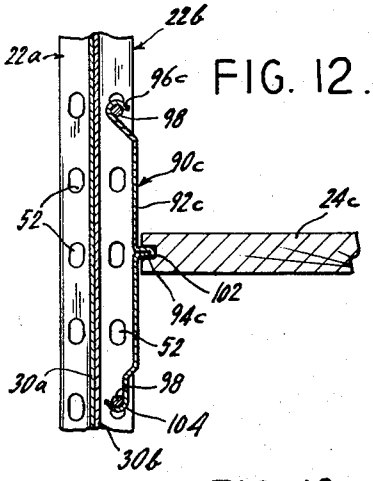


FIG. 12.

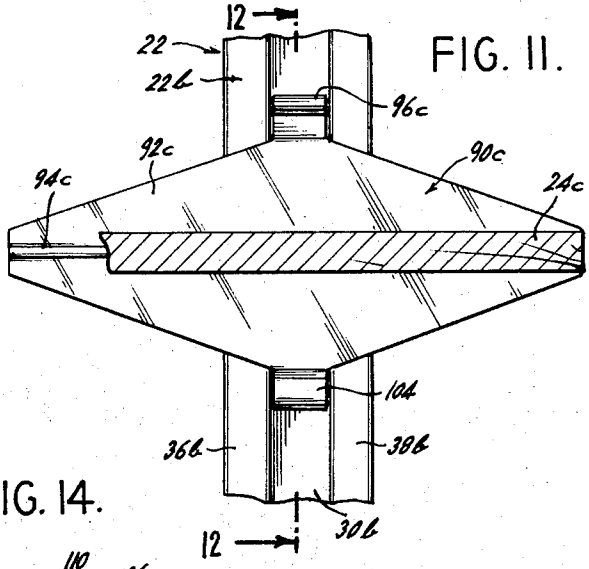


FIG. 11.

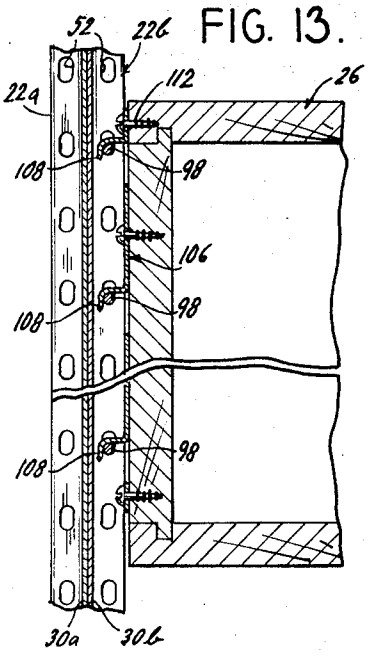


FIG. 13.

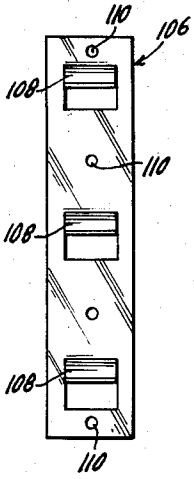


FIG. 14.

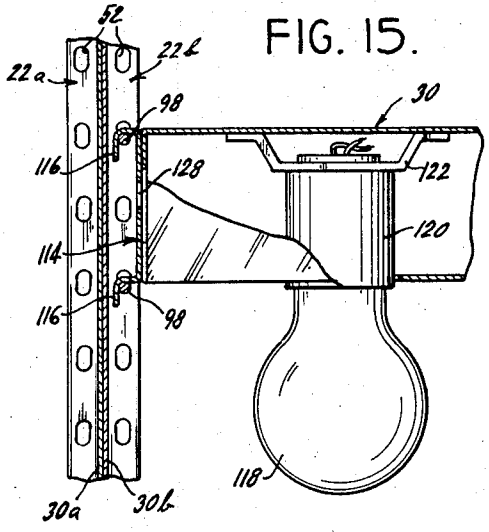


FIG. 15.

FIG. 17.

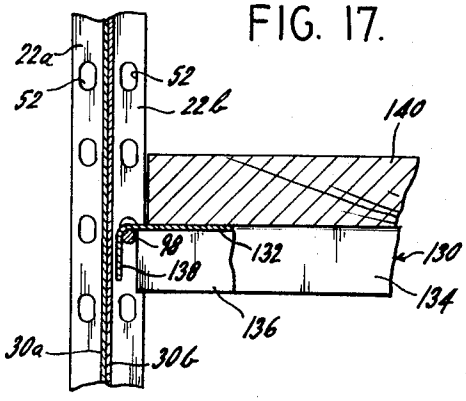


FIG. 16.

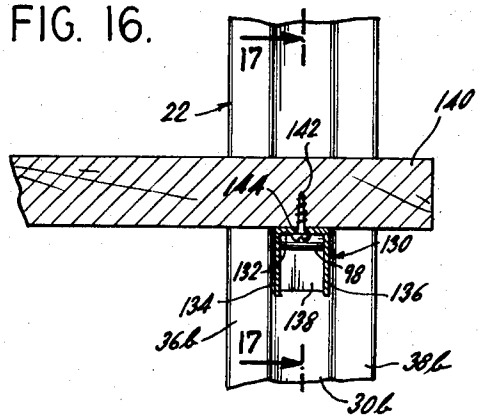
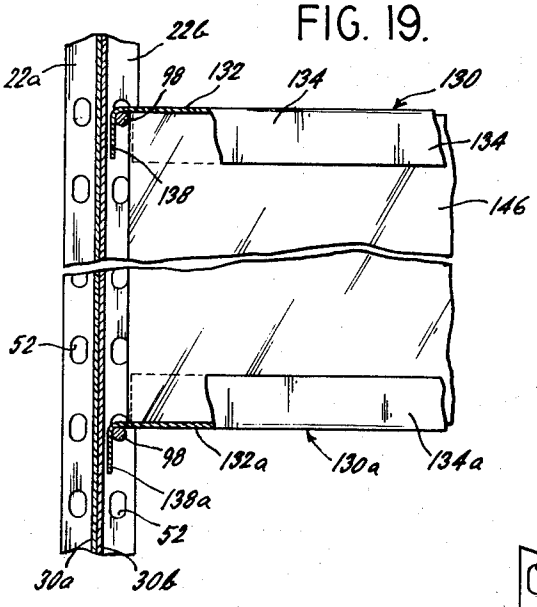


FIG. 19.



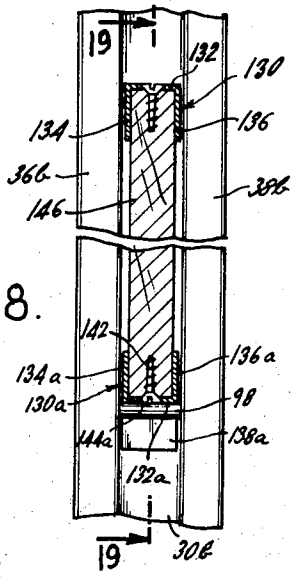
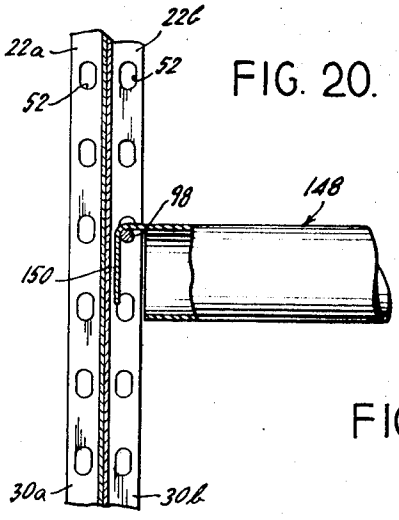


FIG. 18.

FIG. 20.



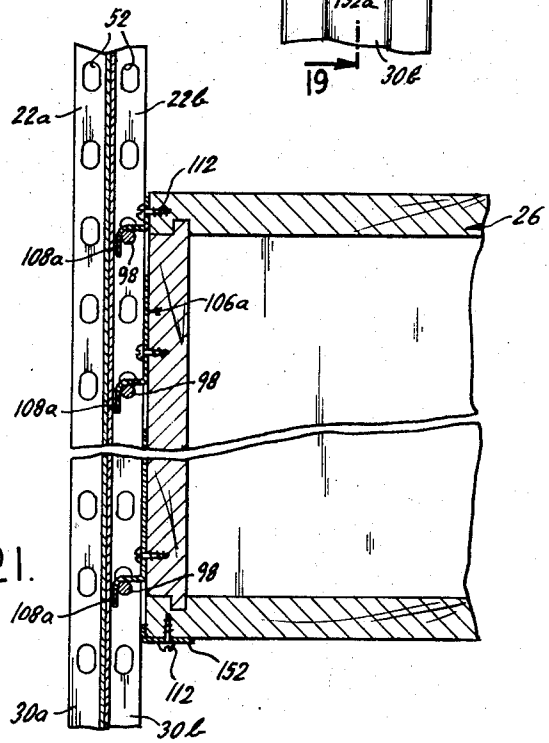


FIG. 21.

ADJUSTABLE POLE SUPPORT SYSTEM

The present invention relates generally to adjustable, supported furniture assemblies, and in particular to a pole supported furniture system in which furniture and accessories are removably mounted on vertical poles in a stable, horizontal arrangement.

The desire for variation in furniture arrangement, changing needs with regard to type and style of furniture and the need for semi-permanent location of changeable furniture units without attendant structural damage of leased premises has resulted in the popularity of adjustable pole-supported furniture systems. In addition to residential requirements, various commercial establishments require flexible storage and display facilities to cope with changing needs and the desire for presentation of attractive and decorative displays.

In typical examples of pole-supported furniture assemblies on the market, article support means are attached to poles by complicated and expensive mechanical contrivances in order to ensure rigid semi-permanent attachment of articles thereto along with resistance of the supported articles to rotational movement. Other attempts at solution of the problems of semi-permanent rigidity and rotational stability require the use of screws or other semi-permanent fastening means resulting in marring of the poles thereby greatly reducing flexibility of the system due to the appearance of unsightly remnants of previous arrangements.

Although, as noted above, pole supported adjustable furniture systems are available on the market, such systems are often expensive, limiting in the use which can be made therewith of "ordinary" furniture, difficult to assemble and adjust, unsightly when used in conjunction with electrical apparatus, and unstable when subjected to unbalanced loads. It would be desirable to provide a stable, easily installed and easily varied pole supported furniture system which was simple and inexpensive to manufacture, capable of maximum decorative use and adornment, and which could utilize cabinets, shelving materials and panelling of many different manufacturers. Further, a desired apparatus should be of a stable construction and permit the concealment of electrical conductors for lamps, radios, clocks, electronic equipment and the like which might be contained on or in the furniture suspended from the poles. Still further, a desirable system should be sufficiently flexible to permit the arrangement and easy rearrangement of a mixture of all of the various items of furniture mentioned.

Broadly, it is an object of the present invention to provide an adjustable pole supported furniture system which realizes one or more of the aforesaid objectives. Specifically, it is within the contemplation of the present invention to provide a pole supported adjustable furniture system for supporting articles of furniture and the like which is simple to assemble and disassemble, permits virtually unlimited variety in arrangement and use of materials and results in a stable, non-permanent, variable furniture unit.

In accordance with an illustrative embodiment demonstrating objects and features of the present invention, there is provided an adjustable pole support system comprising, in combination, at least two vertical support poles and means for vertically mounting said poles. Each of the poles comprises a vertically extending body having first, vertically extending left and right channels each having a rear wall. Left and right side walls extend outwardly from said left and right channel rear walls defining said left and right channels therebetween. Front and rear flanges extend outwardly from each of the left and right side walls with the ends of the flanges forming lips in a manner that second, front and rear channels are defined thereby and are bounded respectively by the side walls, the flanges and the lips. A plurality of horizontally opposed pairs of vertically spaced apertures appear in at least two of the side walls of the poles, each of said apertures extending between one of said first channels and one of said second channels. The apertures are of a size to accept pin means, two of which are provided and are supported by a pair of said horizontally opposed vertically spaced apertures. At least two article supports are provided for use in horizontally supporting an article between the poles. The article supports comprise a face which is constructed and arranged to horizontally support at least a portion of the article. A first attachment means on the article support removably fixes the article support to the pin means. A second attachment means on the article support is vertically spaced from the first attachment means and is constructed and arranged to coact with a channel of a pole to maintain the article support substantially horizontal under the application of torsional forces to said article support.

The above description, as well as further objects, features and advantages of the present invention will be more fully understood by reference to the following detailed description of a presently preferred but nonetheless illustrative embodiment in accordance with the present invention, when taken in conjunction with the accompanying drawings, wherein:

FIG. **1** is a front elevation view of a representative form of the present invention, showing various articles supported from poles;

FIG. **2** is a sectional view taken substantially along the line **2—2** of FIG. **1** and looking in the direction of the arrows showing a rear channel cap removed from a rear channel of a pole;

FIG. **3** is a fragmentary perspective view of the pole of FIG. **2**, showing the pole above a floor bearing pad;

FIG. **4** is a fragmentary side elevation view of a pole showing floor and ceiling bearing means in place thereon, a rug bearing pad in place thereunder, with parts of the structure broken away to show the internal structure of the ceiling bearing means and alternate, in situ, pin means;

FIG. **5** is a fragmentary sectional view taken substantially along the line **5—5** of FIG. **2** and looking in the direction of the arrows showing apertures in the pole;

FIG. **6** is a perspective view of one form of a pin means;

FIG. **7** is a fragmentary sectional view similar to FIG. **5** showing an alternate form for apertures in the pole;

FIG. **8** is a perspective view of an alternate form of a pin means;

FIG. **9** is a fragmentary sectional view taken substantially along the line **9—9** of FIG. **1** and looking in the direction of the arrows, showing a form of a shelf bracket and a shelf;

FIG. **10** is a fragmentary sectional view taken substantially along the line **10—10** of FIG. **9** and looking in the direction of the arrows;

FIG. 11 is a fragmentary sectional view similar to FIG. 9 showing an alternate form of a shelf bracket and shelf;

FIG. 12 is a fragmentary sectional view taken substantially along the line 12—12 of FIG. 11 and looking in the direction of the arrows;

FIG. 13 is a fragmentary sectional view similar to FIG. 12 showing a mounting bracket strip attached to a cabinet and the cabinet supported on a pole;

FIG. 14 is a front view of a mounting bracket strip;

FIG. 15 is a fragmentary sectional view similar to FIG. 13 showing the attachment of a light bar to a pole;

FIG. 16 is a fragmentary sectional view similar to FIG. 9 showing a support bar supporting a portion of an object thereon;

FIG. 17 is a fragmentary sectional view taken substantially along the line 17—17 of FIG. 16 and looking in the direction of the arrows;

FIG. 18 is a fragmentary sectional view showing a panel supported between brackets;

FIG. 19 is a fragmentary sectional view taken substantially along the line 19—19 of FIG. 18 and looking in the direction of the arrows;

FIG. 20 is a fragmentary sectional view similar to FIG. 15 showing the attachment of an alternate support bar to a pole; and,

FIG. 21 is a fragmentary sectional view similar to FIG. 13 showing an alternate mounting bracket strip attached to a cabinet and the cabinet supported on a pole.

Referring now specifically to the drawing, and first to FIG. 1, there is shown an illustrative adjustable pole support system embodying features of the present invention, generally designated by the reference numeral **20**, which includes four substantially identical poles **22** which are vertically supported between a ceiling C and a floor F in a manner to be described in detail hereinafter. In this illustrative form of the invention, a number of articles are shown horizontally supported by the poles **22** including shelves **24**, a cabinet **26**, a chest of drawers **28** and a light bar **30**.

The constructional details of the pole **22** are best seen in FIGS. 2 and 3 wherein the pole, which may be fabricated of brake-formed or roll-formed steel or other suitable material, is shown as being composed of two substantially identical vertically extending channel bars designated herein for convenience of notation as left and right pole sections **22***a*, **22***b*. The letters a and b are used throughout the description to denote, respectively, left and right substantially identical structures.

Centrally located, vertically extending left and right rear walls **30***a*, **30***b* of left and right pole sections **22***a*, **22***b* are attached to one another by any convenient means of permanent fastening, such as by spot welding or the like. Front and rear left and right side walls **32***a*, **34***a*, **32***b*, **34***b* extend outwardly from left and right rear walls **30***a*, **30***b* at right angles thereto in opposite directions from said rear walls on opposite sides of the pole **22**. Front and rear left and right flanges **36***a*, **38***a*, **36***b*, **38***b* extend outwardly from the respective side walls **32***a*, **34***a*, **32***b*, **34***b* at right angles thereto and terminate in right angle, inwardly directed lips **40***a*, **42***a*, **40***b*, **42***b*.

Thus, due to the constructional configuration of the pole sections **22***a*, **22***b*, vertically extending left and right channels **44***a*, **44***b* are formed within the pole **22**, bounded respectively by the rear walls **30***a*, **30***b*, the front side walls **32***a* , **32***b* and the rear side walls **34***a*, **34***b*. In addition, vertically extending front and rear channels **48, 50** are formed within the pole **22**, defined respectively by the juxtaposed substantially co-planar front and rear, left and right side walls **32***a*, **32***b* and **34***a*, **34***b*, the substantially parallel front and rear, left and right flanges **36***a*, **36***b* and **38***a*, **38***b*, as well as the front and rear, left and right lips **40***a*, **40***b* and **42***a*, **42***b*.

A plurality of vertically spaced apertures **52** (best seen in FIG. 5) appear within each of the side walls **32***a*, **32***b*, **34***a*, **34***b* (see FIG. 3) and extend between two adjacent channels, i.e., channel **44***a* and either channel **48** or **50**, and channel **44***b* and either channel **48** or **50** (see FIG. 2). Consequently, both the front and rear channels **48, 50** are in communication with the left and right channels **44***a*, **44***b* for a purpose to be described hereinafter.

In order to conceal the apertures **52** from view at the front of the pole system **20**, vertically extending front and rear channel caps **54, 56** are provided which include ears **58, 60** thereon for engagement with lips **40***a*, **40***b*, **42***a*, **42***b*, permitting removable attachment of said caps to the front and rear channels **48, 50**. The caps **54, 56** may be plain on their outer faces **62, 64** as illustrated, or the outer faces thereof may include various designs thereon. The caps **54, 56** may be made of any suitable material such as plastic in colors or various wood grain effects, or may be made of metals or other material to match or contrast with the material and finish of the poles **22**.

The lower ends of the poles **22** are maintained in a relatively fixed position on the floor F (see FIG. 1) by the use of a floor bearing pad **66**, which is made of any suitable material such as rubber or the like. The floor bearing pad **66** may be supplied in a set of three similar pads of three different thicknesses to aid in vertical mounting and positioning of the pole described more fully hereinafter. The floor bearing pad **66** includes a countersunk opening **68** located centrally therein (see FIGS. 3 and 4) for use in fastening the pad to the floor F as by screws or the like. The floor bearing pad **66** includes front and rear channel engaging bosses **70, 72** which, when the floor bearing pad **66** is fastened to the floor F and the pole **22** is placed thereon, extend into the lower ends of the front and rear channels **48, 50** to aid in stabilizing the lower end of the pole (see FIG. 4).

In the event that it is desired or necessary to use the pole system **20** on a rug or carpet, a rug bearing pad **74** (See FIG. 4) is provided which may be made of the same material as the floor bearing pad **66** and which includes a plurality of teeth **76** on the bottom thereof for engagement with carpet pile thereby rendering the rug bearing pad relatively immobile with respect thereto. The floor bearing pad **66** is inserted into the bottom of the pole **22** and the combination is inserted into a depression **78** within the rug bearing pad **74**. In the event that a more permanent affixation of the rug bearing pad **74** to the carpet is desired than can be accomplished by the use of the teeth **76** alone, a countersunk opening **80** is provided in the rug bearing pad to permit a more se-

cure fastening of the rug bearing pad to the subflooring as by screws or the like (not shown).

The upper portion of the pole **22** is held between the ceiling C and the floor F by virtue of compressive forces exerted on the pole **22** by any one of a variety of means. In the preferred embodiment illustrated, a generally cylindrical sleeve **82** (see FIG. **4**) includes a slot **84** therein of sufficient width to enable the slot to straddle the top of the combined rear walls **30***a*, **30***b*. A ceiling bearing pad **86** is inserted on the top of the sleeve **82**, is secured thereto by, e.g., pin means (not shown), and is designed to bear against the ceiling C. The aforementioned compressive force is supplied by a spring **88** contained within the sleeve **82** which bears against the ceiling bearing pad **86** and the combined rear walls **30***a*, **30***b*. The spring **88** is compressed by the positioning of the pole **22** between the floor F and the ceiling C. The compressive force may be varied by, for example, shortening the length of the sleeve **82** by any convenient means.

In order to support the shelves **24** in relatively fixed relation to the poles **22**, a shelf support bracket **90** is provided (see FIGS. **9** and **10**) which may be made of any suitable material such as sheet steel or the like. The shelf support bracket **90** includes a face **92** which has a flanged lower portion **94** bent at a right angle thereto which is designed to support one end of a shelf **24**. The upper portion of the shelf support bracket **90** is of a width equal to the width of the left or right channels **44***a* or **44***b* and has two right angle bends therein forming a shelf support bracket hook **96**.

The shelf support bracket hook **96** is designed to engage a bracket support pin **98**, in a manner to be more fully described hereinafter. A suggested form for the bracket support pin **98**, shown in FIGS. **4** and **6**, includes a pin of generally circular cross section and of a length to be supported by a pair of horizontally opposed apertures **52** in either the left or right channel **44***a* or **44***b*. The bracket support pin **98** includes ends which lie in non-parallel planes to prevent accidental disengagement of the pin from the apertures **52**.

To aid in providing lateral stability and the maintenance of a horizontal attitude for the shelves **24**, even when subjected to torsional forces due to unbalanced loading thereof, a lateral support tab **100** (see FIG. **10**) is formed in the face **92** of the shelf support bracket **90**. The lateral support tab **100** is of a width substantially equal to the width of the left or right channels **44***a* or **44***b* and projects rearwardly from the face **92** to contact side walls **32***a* and **34***a* or **32***b* and **34***b* of the pole's left or right channel to provide the required lateral stability.

FIGS. **11** and **12** best illustrate an alternate shelf support bracket **90***c*, which has a face **92***c*, which vertically spans a number of the vertically spaced apertures **52**. A flange **94***c* projects outwardly from the face **92***c* of the shelf support bracket **90***c*, and may either be of sufficient outward extent to support a shelf **24** in the manner of flange **94** of shelf support bracket **90** or, in the alternative, may be somewhat shorter and designed to mate with a cove **102** of a shelf **24***c*, as shown in FIG. **12**.

The upper end of shelf support bracket **90***c* is of a width approximately equal to the width of left or right pole channels **44***a* or **44***b*, and forms a shelf support bracket hook **96***c* with a forward facing opening for engaging an upper bracket support pin **98**. The lower end of shelf support bracket **92***c* is likewise of the width of the left or right pole channels **44***a* or **44***b* and forms a rearwardly opening hook **104** for engaging a vertically spaced, lower bracket support pin **98**.

Numerous articles of "standard" manufacture, other than shelves, may be supported from the pole system **20** such as the cabinet **26** and the chest of drawers **28**. The poles **22** are spaced sufficiently apart to accommodate the width of the "standard" articles. Any shelves **24** to be included between poles **22** which will support other articles of furniture must, naturally, be selected of a length compatible therewith.

For mounting "standard" articles of furniture on the pole system **20**, a mounting strip **106** is provided (see FIG. **14**) which includes, formed in the face thereof, a plurality of mounting hooks **108** of a width substantially equal to the width of the left or right channels **44**a or **44**b. A number of openings **110** are provided in the face of the mounting strip **106** for use in attachment of the mounting strip to, for example, the cabinet **26** by the screws **112** as shown in FIG. **13**. One or more mounting strips **106** may be attached to the articles of furniture to be supported by the pole **22**, depending on the size thereof and the support required.

In addition to the shelves **24** and **24**c and the other articles of furniture which may be supported by the pole system **20**, various other items may be similarly added thereto. For example, support bar **30** has a mounting strip **114** (see FIG. **15**) attached to each of the ends thereof. The mounting strip **114** includes hooks **116** spaced to engage support pins **98** for mounting of the support bar **30** between adjacent poles. In the embodiment illustrated, a plurality of incandescent bulbs **118** are shown contained within fixtures **120** attached to the interior of the support bar **30** by brackets **122**.

In assembling the adjustable pole support system **20**, components of equal length are selected to be supported between adjacent poles **22** and floor bearing pads **66** are located predetermined distances apart on the floor F. If additional stability is desired, the floor pads **66** are affixed to the floor F by the use of a screw or the like inserted through the aperture **68** within each floor bearing pad.

The spring **88** is placed within the sleeve **82**, the ceiling bearing pad **86** placed on the top of the sleeve and the entire sleeve assembly is placed with the slot **84** straddling rear walls **30***a* and **30***b* of a pole **22**. The pole **22** is located in registry with the positioned floor bearing pad **66** by placing the ceiling bearing pad against the ceiling over the floor bearing pad and the spring **88** is compressed by forcing the pole **22** upward. The pole **22** is then lowered over the floor bearing pad **66** in a manner that the front and rear channel engaging bosses **70, 72** engage the front and rear channels **48, 50** of the pole. If necessary, the sleeve **82** may be shortened by any convenient means, e.g., a hacksaw, to increase the compressive force applied to the pole.

The next adjacent pole **22** is positioned in a like manner, the above-mentioned predetermined distance from the first pole with the left and right channels of the respective poles facing each other. One or more floor bearing pads **74** of varying thickness is inserted beneath the second pole to horizontally align corresponding apertures of adjacent poles and also aid in providing the necessary compressive force to maintain vertical stability.

Naturally, if the adjustable pole system **20** is to be assembled on a rug or carpet, the rug bearing pad **74** would be placed on the rug prior to the placement of the pole **22.** Also, if it is desired, the rug bearing pad **74** may be used as the sole lower stabilizing means, the floor bearing pad **66** being dispensed with, if the proper horizontal alignment of corresponding apertures and sufficient compressive force is obtainable without the use thereof.

To support one of the shelves **24,** a bracket support pin **98** is placed in two horizontally opposed apertures **52** in the side walls of, for example, the right channel **46** of a pole **22.** A shelf support bracket **90** is placed with the shelf support bracket hook **96** over the bracket support pin **98.** Another bracket support pin **98** is placed at a corresponding vertical location within two horizontally opposed apertures **52** of the left channel **44** of a facing, adjacent pole **22** and another shelf support bracket **90** is placed with the shelf support bracket hook **96** thereof over the other bracket support pin **98.** The shelf **24** is then placed with its ends on the flanges **94** of the facing shelf support brackets **90.** Fastening means such as screws **124** (see FIGS. **9** and **10**) may be used to fasten the shelf **24** to the shelf support brackets **90.** In position in this manner, tabs **100** of the shelf support brackets **90** provide the required lateral stability and maintenance of horizontal position despite subjection of the shelf **24** to torsional forces by nonsymmetrical loading thereof.

As an alternative to the bracket support pin **98** designed to fit within apertures **52,** a bracket support pin **98***c* (see FIG. **8**) may be provided which is straight for its entire length and which has enlarged end pieces **126** requiring alternate apertures **52***c* as shown in FIG. **7.** Naturally, other variations in brackets, support pins and shape and arrangement of apertures are possible beyond those illustrated.

To use the shelf support bracket **90***c* shown in FIGS. **11** and **12,** two bracket support pins **98** are required for each shelf support bracket and are positioned a vertical distance apart determined by the vertical spacing of the upper and lower shelf support bracket hooks **96***c*, **104.** The poles **22** are arranged as described hereinbefore and the upper shelf support bracket hook **96***c* is initially forced to engage an upper bracket support pin **98.** The lower shelf support bracket hook **104** is then forced to engage a lower bracket support pin **98** which, due to the distance between the centers of the hooks **96***c* and **104,** causes the lower bracket support pin to be raised within the aperture **52.** The just-described arrangement of the bracket support pins **98** ensures rigid support of the shelf support bracket **90***c* by both the upper and lower bracket support pins. A similar shelf support bracket **90***c* is attached at a corresponding vertical location on an adjacent pole **22** and a shelf **24***c* having coves **102** at either end thereof is placed so as to have the coves engage the flanges **94***c* of the respective shelf support brackets **90** *c.*

Cabinets **26,** chests of drawers **28,** or other like articles of furniture are attached by securing mounting strips **106** to the sides thereof and engaging hooks **108** thereof with correspondingly placed bracket support pins **98** within appropriate apertures of properly spaced and secured poles **22.**

Light bar **30** which is shown supporting incandescent bulbs **118,** may also support fluorescent bulbs (not shown) or other devices. In any event, the light bar **30** and associated structure is supported by the adjustable pole support system **20** by the use of mounting bracket strips **114,** the hooks **116** of which engage properly placed bracket support pins **98.**

With the incandescent lights **118,** as with other electric or electronic apparatus (not shown) electrical connection to a power source is required. The necessary wiring for such apparatus may be passed through appropriate openings in the mounting plates, for example the opening **128** in mounting strip **114** (see FIG. **15**), and led through one of the apertures **52** to be carried within a front or rear channel **48** or **50.** The wiring may then exit from the channel **48** or **50** through an aperture **52** at or near the bottom of the rear of the pole **22.** The front and rear channels thus function as convenient conduits for any required electrical connections.

To conceal any included wiring, as well as the apertures **52,** the channel caps **54, 56** may be snapped in place on the pole **22** thereby decorating the front and rear channels **48, 50** as well. Additionally, portions of channel caps **54, 56** may be positioned between unoccupied vertical portions of right and left channels as the channel openings of all channels are substantially the same, thereby providing a finished appearance to the completed system. In addition, the left and right channels **44***a*, **44***b* of the first and last poles **22** of an assembled system can be completely covered with channel caps.

Among the many variations possible which are considered to be within the scope of the present invention would be the use of a generally U-shaped support bar **130** (see FIGS. **16** to **19**) which may be used for a variety of functions to be described.

The bar **130** includes a central longitudinally extending top leg **132** and front and rear longitudinally extending legs **134, 136** extending perpendicularly downward therefrom (see FIGS. **16** and **17**). A support bar hook **138,** of a width approximating the width between side walls **32, 34** of a pole **22** extends downwardly from the central leg **132** in the same direction therefrom as the front and rear legs **134, 136.** The support bar hook **138** is adapted to fit over a pin **98** supported by the pole **22** with a similar support bar hook **138** appearing on the opposite end of the support bar **130** (not shown) to support the bar between two poles **22.**

A table **140,** or the like (see FIGS. **16** and **17**), may have one end thereof supported on the top of the central leg **132** of the support bar **130** and extend between the poles **22** supporting the supporting bar **130.** The distal end of the table **140** may be supported by a support leg (not shown). For added stability, the table **140** may be secured to the support bar **130** by fastening means such as the screw **142** inserted therein through an opening **144** in the central leg **132** of the support bar **130.**

Alternately, a support bar **130***a* may be provided (see FIGS. **18** and **19**) which is similar to the support bar **130,** except that the hook **138***a* thereof is bent in the opposite direction from the front and rear legs **134***a*, **136***a* with respect to the central leg **132***a.* The support bar **130***a* is mounted with the hook **138***a* thereof over a pin **98** supported by a pole **22.** When mounted in this position, the central leg **132***a* is usable as a bottom support and a panel **146** of a thickness approximating the distance between the front and rear legs **134***a*, **136***a* is supportable by the support bar **130***a* within the U-

shaped channel formed by the front, central, and rear legs **134***a*, **132***a*, **136***a*.

In a like manner, a support bar **130** may be used to secure the upper portion of the panel **146** within the U-shaped channel therein, as shown in FIGS. **18** and **19.** Here again, fastening means such as a screw **142** or the like may be used to provide secure support of the panel **146** by the support bars **130, 130***a* by being inserted through openings **144, 144***a* therein. The support bars **130, 130***a* extend completely between two poles **22** and thus completely support a panel **146** therebetween useful as, for example, a chalk board or display board.

As yet another variation of the present invention, a generally cylindrical support bar **148** (see FIG. **20**) may be provided with a support bar hook **150** at each of its outer ends. The support bar **148** is of a length to be supported upon pins **98** of adjacent poles **22.** The cylindrical support bar **148** may be utilized in much the same manner as the support bars **130, 130**a described hereinbefore if the upper and lower portion thereof are open. Alternately, in commercial applications, the cylindrical support bar **148** may be used for the display of merchandise on hangers or other supports, thus permitting easy manipulation in combination with firm support of the merchandise hangers.

Also, a mounting bracket strip **106***a* (see FIG. **21**) is considered within the scope of the invention. The mounting bracket strip **106***a* is similar to the mounting bracket strip **106** (see FIGS. **13** and **14**), but includes an additional lower support flange **152** to aid in positioning the cabinet **26** or chest of drawers **28** which is mounted thereby.

Naturally, there are other variations considered to be within the scope of the present invention, which have not been shown, such as the adoption of channels **44***a*, **44***b*, **48** or **50** which are other than orthogonal. For example, triangular channels could be used with similar triangular shaped shelf support bracket hooks **96.** Further, various combinations of shapes of hooks and shapes of channels would function to provide the necessary resistance to torsional forces, though the presently illustrated combination is preferred.

As will be readily apparent to those skilled in the art, the invention may be used in other specific forms without departing from its spirit or essential characteristics. For example, the presently illustrated pole **22** can be made and sold with the substantially identical sections **22***a*, **22***b* spaced and apart from one another. The sections may then either be fastened together by upper and lower fastening means, auxiliary fastening means between the top and the bottom thereof, or may be used singly with articles being supported from a single pole at one or a multitude of levels. The present embodiment is, therefore, to be considered as illustrative and not restrictive, the scope of the invention being indicated by the claims rather than by the foregoing description, and all changes which come within the meaning and range of equivalence of the claims are therefore intended to be embraced therein.

What is claimed is:

1. An adjustable pole support system comprising, in combination, at least two vertical poles and means for vertically mounting said poles, each of said poles having a first pair of vertical channels with opposed, substantially parallel side walls spaced a given distance apart, a second pair of vertical channels each having a rear wall, said second pair of channels being disposed substantially at right angles to said first pair of channels, a plurality of pairs of horizontally opposed vertically spaced apertures in two of said vertical channels extending between the side wall of one of said first pair of vertical channels and said rear wall of one of said second pair of vertical channels, at least two pin means each removably supported within one of said first pair of channels by a pair of said horizontally opposed vertically spaced apertures, at least two article supports rigidly joined together in vertically spaced relationship for use in horizontal support of an article between said poles, each of said article supports including hook means engaging said pin means and being supported by said pin means, and said hook means having a width substantially equal to said given distance and having at least a part thereof extending in substantially the same direction as said side walls for coacting therewith to maintain said article supports substantially horizontal under the application of torsional forces thereto.

2. An adjustable pole support system according to claim **1** including vertical cap means for closing said vertical channels thereby rendering said vertically spaced apertures substantially undetectable.

3. An adjustable pole support system according to claim **1,** wherein said vertical mounting means includes a floor bearing pad having bosses on the top thereof for engaging the bottom of said second pair of vertical channels, a sleeve having a slot, said slot including means for mounting of said sleeve on the upper end of said pole, a ceiling bearing pad fixed to the top of said sleeve, a compression spring within said sleeve for bearing against the top of said vertical channel side walls and said ceiling bearing pad thereby providing sufficient compressive force on said pole for removably vertically mounting said pole between a ceiling and a floor.

4. An adjustable pole support system according to claim **1** wherein said article support has a face and includes an article support hook and a lateral support tab, both said article support hook and said lateral support tab extending in the same direction from said face of said article support and being of a width approximating the width between said side walls, a flange extending outwardly from the face of said article support in the opposite direction from said article support hook for at least partially supporting an article thereon.

5. An adjustable pole support system according to claim **1** wherein said article support includes a face having a forward projecting flange thereon for at least partially supporting an article, a forwardly opening hook on said article support for engaging one of said pin means, a rearwardly opening hook spaced vertically from said forwardly opening hook for engaging another of said pin means, both of said hooks being a width substantially the same width as said given distance between said side walls, whereby said first and second hooks maintain said article support substantially horizontal under the application of torsional forces thereto.

6. An adjustable pole support system according to claim **1** wherein said article support comprises a mounting bracket strip including at least two vertically spaced pin engaging hooks of substantially the same width as the given distance between said side walls for coacting therewith for maintaining said mounting bracket strip horizontal under the application of torsional forces thereto, and means for mounting said

mounting bracket strip to an article to be adjustably supported by said adjustable pole support system.

7. An adjustable pole support system according to claim 2 wherein each of said poles comprises a pair of abutting rear walls, side walls spaced a given distance from one another and extending outwardly from each of said rear walls defining left and right channels therebetween with said rear walls, each of said side walls having flanges extending outwardly therefrom with inwardly facing lips thereon wherein a pair of open front and rear vertically extending channels are formed being defined by said lips said flanges and said side walls, each of said article supports including support hooks having a width substantially equal to said given distance between said side walls, a plurality of pairs of horizontally opposed vertically spaced apertures in said walls extending between two of said channels, said cap means including ears for co-acting with said lips for removably mounting said cap means on said channels, thereby rendering said vertically spaced apertures substantially undetectable.

8. In combination an adjustable pole support system having at least one vertical pole having opposed, substantially parallel side walls bounding a channel, said channel side walls being spaced a given distance apart, an article support, a plurality of horizontally opposed vertically spaced mounting means within said channel side walls adjustably mounting said article support on said pole, first and second means on said article support mounting said article support on said vertically spaced mounting means, at least one of said first and second means defining a hook said first and second means being rigidly joined together in vertically spaced relationship with each other, each of said means being of a width substantially equal to said given distance and extending in substantially the same direction as said side walls for coaction therewith to retain said article support in a fixed position under the application of torsional forces thereto.

9. An adjustable pole support system according to claim 8 wherein said vertically spaced mounting means includes a plurality of generally oval apertures in said wide walls and further includes pin means for releasably coacting with said apertures for adjustably mounting said article support on said pole.

10. An adjustable pole support system according to claim 9, said pin means being generally cylindrical, the ends thereof being arranged to lie in non-parallel planes for preventing accidental removal of said pin means from said apertures.

11. An adjustable pole support system according to claim 8 wherein each of said first and second means is of a width to fit snugly in said channel between the side walls thereof.

12. An adjustable pole support system according to claim 8 wherein said first and second means includes a tab of a width to fit snugly in said channel between the side walls thereof.

13. An adjustable pole support system according to claim 9 including a further pin extending between and mounted on said side walls, said further pin being spaced from said first named pin, said other of said first and second means including a further hook, said further hook being engaged over said further pin.

14. An adjustable pole support system according to claim 9, said pin being generally cylindrical, the ends thereof being arranged to lie in non-parallel planes for preventing accidental demounting of said pin from said side walls.

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