

June 30, 1936.

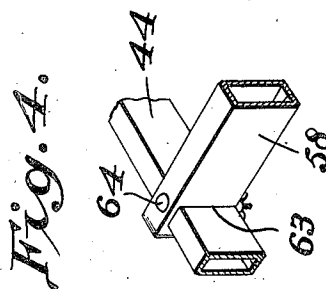
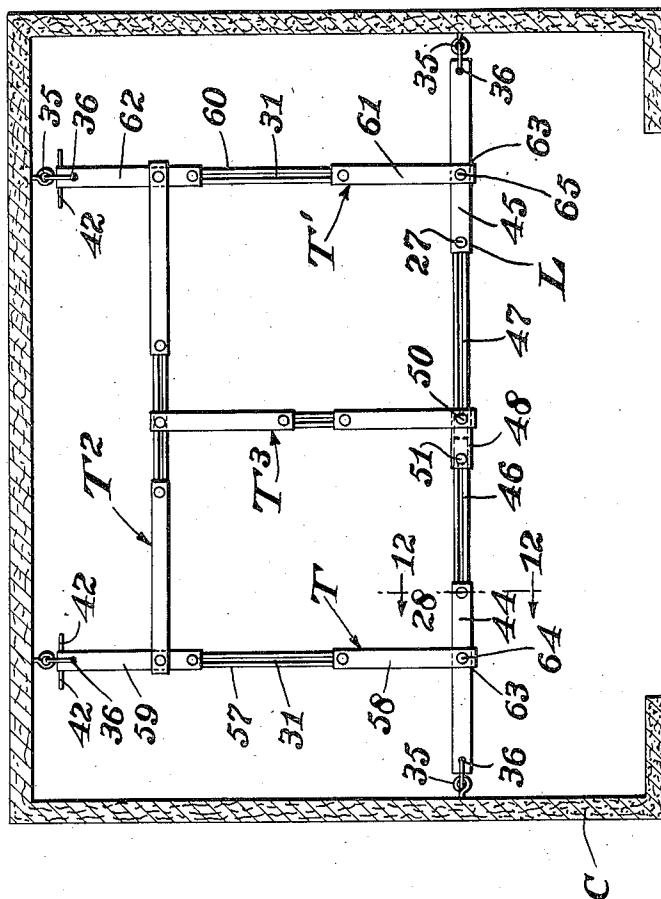
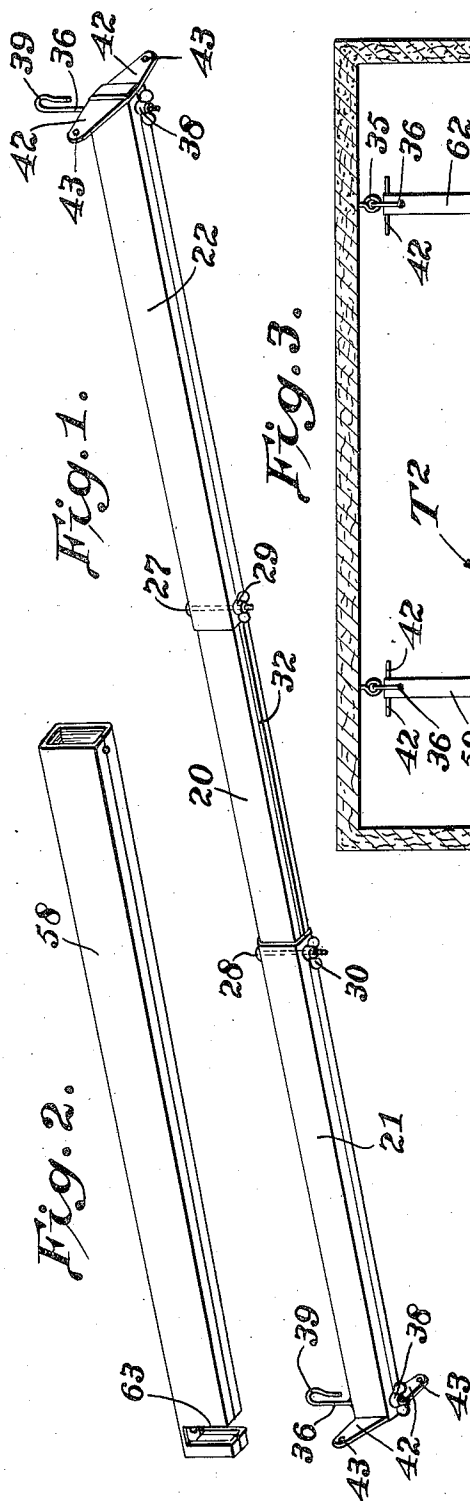
S. C. BRODY

2,045,942

SUPPORT

Filed April 5, 1935

2 Sheets-Sheet 1



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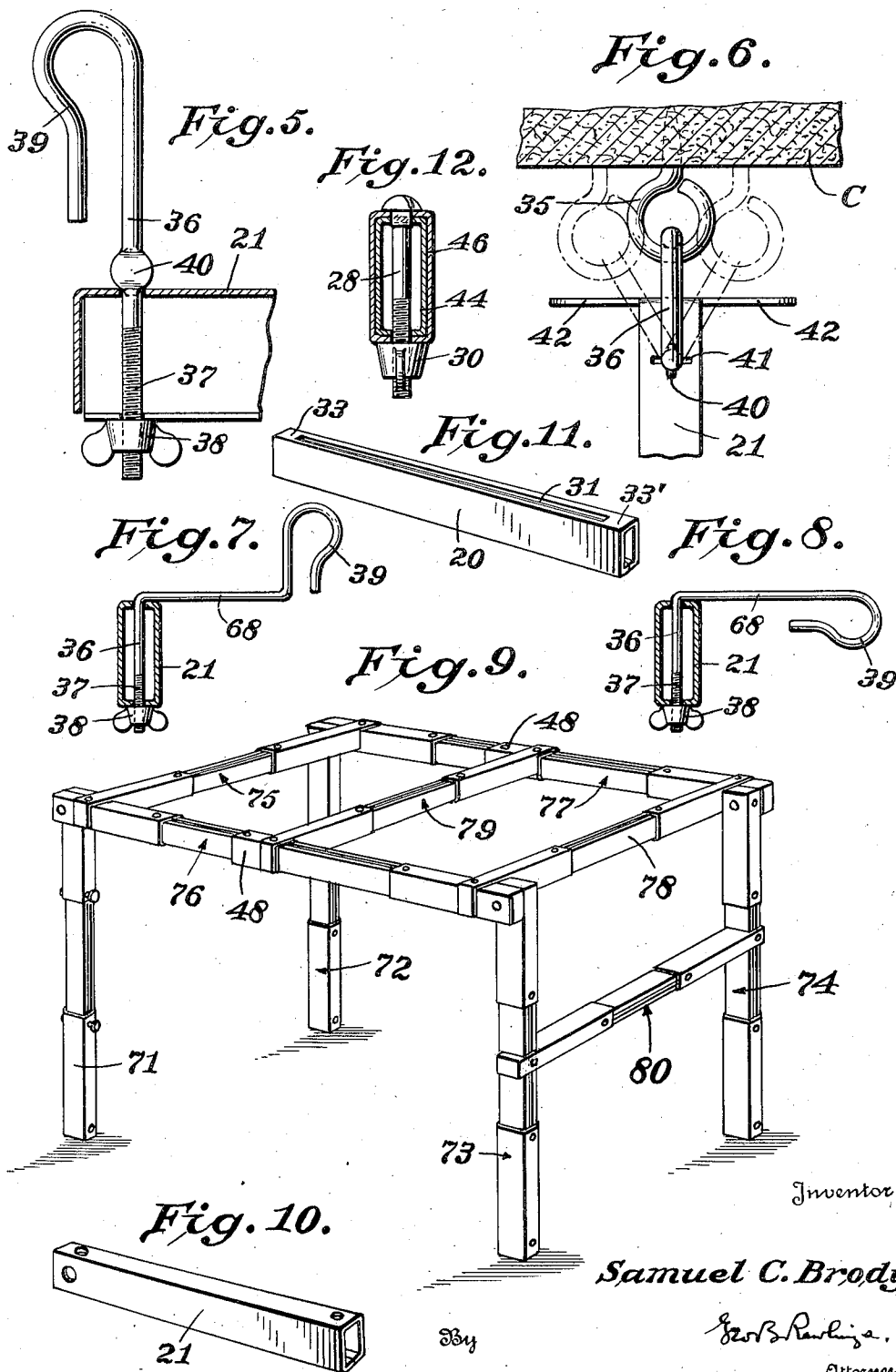
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2 Sheets-Sheet 2



UNITED STATES PATENT OFFICE

2,045,942

SUPPORT

Samuel C. Brody, Brighton, Mass.

Application April 5, 1935, Serial No. 14,950

8 Claims. (Cl. 211—182)

This invention is a continuation in part of my previous application, Serial No. 13, filed January 2, 1935 (Patent No. 2,020,991), and has to do with an assembly or plurality of adjustable expansive and extensible units composed of a plurality of sections or members which permits the adding, attaching and detaching of additional sections or members in both adjustable and stationary positions.

This assembly of units and/or attaching members or sections is adapted to be assembled, adjusted and/or regulated in such a manner as to provide a network of units which may be extended or attached in any direction and which provide a non-collapsible and extremely endurable and strong support for any article or object suspended or supported therefrom or thereon.

This assembly of units, sections or members is constructed in such a manner that they are adapted to be assembled and adjusted at will and may be extended in any direction and are adapted to permit cross members to be attached thereto and/or suspended therefrom, while permitting both the main sections or members and cross members, offset members, upright members, or the like to extend and/or to be adjusted at will in any desired directions or positions.

Another feature of my invention is that all cross, offset, upright, diagonal or horizontal end sections are designed to hold and are equipped with an adjustable detachable and expansive attachment means which permits either said sections by themselves or together in the assembly to be fastened, adjusted (swinging or otherwise) expanded or secured at any desired angle, position or direction.

Moreover, my units are so constructed as to enable them to be adjustably and instantly installed or attached to any of the ordinary supports, such as closet hooks or other hooks, nails and equivalent and/or independent supporting means, or by themselves in a unit form, or multiples thereof. The end sections of the units are equipped with independent attaching means, thus eliminating and obviating the necessity of any labor, such as nailing, screwing, or hammering during the course of installation of the unit. They are equally simple, easy and instantly detached.

My invention is simple and strong of construction and can be manufactured at an extremely low cost, thereby permitting the merchandising of the items at the minimum retail price. Among other advantages the units are constructed so that they will not sag, bend or

rattle when installed and/or adjusted and are adapted to hold or suspend practically any weight that the independent wall, their own unit network or forms or multiples thereof, or other outside supports will bear. My invention readily lends itself and is adaptable to be manufactured in any size or thickness.

In the accompanying drawings:—

Figure 1 is a perspective view as seen from below of one form of my sectional extension units in readiness to be installed and/or assembled with other sections, members or units.

Figure 2 is a perspective view as seen from below of one of the rod cross members shown in the assembly of Fig. 3.

Figure 3 is a plan section through a closet or other partly enclosed space equipped with an assemblage of sectional extension units in accordance with my invention, although not limited to four cross section units as shown there, as any number of cross section members and counter cross members may be installed or attached with my invention.

Figure 4 is a fragmentary perspective detail illustrating the positive interlocking and adjustment action between the various sections or members shown in Fig. 3.

Figure 5 is a detail of one of the supporting, rotating detachable portable and adjustable hooks.

Figures 6, 7 and 8 show further variations.

Figure 9 is a perspective showing a modification of several sectional unit assemblies.

Figure 10 is a detail perspective view of one of the end telescopic sections or members.

Figure 11 is a detail perspective view of one of the center sections; and

Figure 12 is a cross section on line 12—12 of Fig. 3.

As illustrated in these drawings, my extension unit consists of a plurality of telescopic or like sections. When composed of three sections, as shown in Fig. 1, my supporting unit has a center section 20 and a pair of end sections 21 and 22. The end sections are duplicates of each other and the center section telescopes into the end sections.

This arrangement may, however, be reversed and the center section be made to telescope over the end sections rather than into the same, as actually shown in these drawings.

The several sections may likewise be variously designed to permit and hold the telescopic or like adjustment. As here shown, the several sections are formed as hollow members of generally

oblong cross-section. So formed they present each a pair of spaced parallel front and rear walls respectively. These are connected along their upper edges by a top wall. Their lower edges are turned inwardly preferably at right angles towards each other as co-planar flanges which together constitute the bottom wall.

My invention, however, is not limited to a supporting unit of oblong or any other particular cross-section. The several sections may be of any desired cross-section.

The end sections 21 and 22 are each provided near its inner end with means for permitting and holding the adjustment or locking action of the telescopic center section 20. These means may be of any desired character.

As here shown they are simple wing bolts 27 and 28 fixed vertically through the end sections. The heads of the wing bolts are substantially flush with the upper walls of the end sections, and have a square shoulder extending below their heads so as to prevent the bolts from rotating inside the members while the wing nuts are being tightened. The wing bolts may be varied in construction to suit any particular needs. The wing nuts 29 and 30 of the wing bolts are positioned beneath the bottom walls of said end sections. For example, so positioned they are out of the way of the garment hangers, clothes, or other objects suspended therefrom, and hence do not interfere with the free adjustment of the hangers, clothes or other objects longitudinally along the end sections or the center section. My invention, however, is not limited to the supporting of hangers, garments or the like, but may be used for the support or reinforcement of anything.

The wing bolts are received in and slide freely along registering longitudinal slots 31 and 32, formed respectively in the top and bottom walls of the center section 20. These slots terminate short of the ends of the center section itself leaving at such ends unslotted wall portions or webs, as shown in Fig. 11, at both the top and bottom edges of the center sections. These webs function as limiting stops against which the wing bolts 27 and 28 contact to prevent accidental disassembly of any of the several sections.

When deliberately disassembling the several sections, it is only necessary to unscrew the wing nuts of the wing bolts and remove the bolts from said slots 31 and 32. When the wing bolts are positioned within the slots, the adjustment of the several sections relative to one another is held by tightening the wing nuts against the bottom walls of the end sections. This clamps the sections firmly and reliably, and enables the adjustment to be changed instantly by simply loosening up on the wing nuts, sliding the sections to the desired new position, and retightening said nuts. My invention is not limited in the use of wing nuts or wing bolts but will function just as reliably with the use of any equivalents thereto.

Adjacent their outer ends the end sections are provided with means adapted for quick detachable engagement with any suitable supporting devices, as the conventional or well known hooks 35 found in any closet or other enclosed space.

As here shown such quick-detachable suspension means are themselves hooks 36 or their equivalents. These hooks 36 are set vertically through the end sections, and as detailed in Figs. 5, 7 and 8 comprise each a threaded portion 37 on which is threaded a wing nut or its equivalent 38 and a hooked end portion 39.

The threaded portion 37 is set through the bot-

tom wall of each end section and the wing nut 38 threads on said threaded portion and clamps against said bottom wall. By loosening said nut and rotating the hook about its own axis, its hooked end portion 39 may be swung to various positions and again clamped. This enables the supporting unit to be suspended from the hooks 35 or their equivalent supporting devices regardless of the position of said devices 35, and locked in such adjusted position by tightening up on the wing nut.

The hooks 36 are also adjustable vertically in their bearings in the end sections so as to be engageable with suspension devices 35 positioned at different heights. In order to permit this action, the hook 36 is provided just above the top wall of the end section with a thin rounded portion or key 40. This normally rests on the top wall of the end section at right angles to the similarly shaped slot 41 therein through which the hook passes. If the hook is to be lowered, the wing nut 38 is first loosened, the hook rotated through a quarter revolution to align the thin part of the key 40 with the slot 41 and the hook lowered through said slot to the desired level and positioned by tightening up on the wing nut 38. By fully tightening or locking the wing nut the extremity of the hooked end portion 39 may be brought into clamped abutment with the supporting unit to form a rigid closed staple that is locked against any movement.

In order to provide a fixed or stationary bearing at the ends of the supporting unit, the end sections 21 and 22 are desirably provided with wall engaging bearing elements 42 adapted to rest flatly against a wall or other supporting surface.

These may be conveniently formed as oppositely extending flanges which are bent outwardly at right angles from the front and rear walls of the end sections 21 and 22, and are adapted to be screwed or otherwise fastened as at 43 to the wall or other support.

While desirable, such bearing flanges 42 are not essential and may be omitted where not needed without affecting the efficiency of the supporting unit, or they may be made and formed from any angles from the front and rear walls inwardly or backwardly after they have been formed.

As a variant, I provide for unlimited extensibility of the supporting unit while at the same time providing that strength and rigidity against collapsing, sagging or buckling so essential in a multi-section extension unit of this class, (as in the longest unit shown in Fig. 3).

This unit is a multi-section unit which may be indefinitely expanded as to length by the addition of detachable and interchangeable members or sections, these being reinforced and strengthened against collapse by means of novel reinforcement or coupling members so that the ultimate unit in whatever length to which it has been expanded is strong and rigid at all points along its extent.

For convenience of illustration I have shown in Fig. 3 a four-section supporting unit equipped with only one reinforcement member 43. It will be understood however that this showing is only illustrative and that units of far greater length may be built up by simply adding on extra members or sections and extra reinforcement coupling or collar members.

As shown in Fig. 3, the unit consists of two end sections 44 and 45 corresponding to the end

sections 21 and 22 of Fig. 1, two intermediate sections 46 and 47 corresponding generally to the intermediate section 20 of Fig. 1 and a central reinforcement member, coupling or collar 48.

5 The end sections 44 and 45 are provided at their outer ends with hooks or equivalent suspension elements similar to the hooks 36 of Fig. 1. The intermediate sections 46 and 47 are slotted at top and bottom similarly to the intermediate section 20 of Fig. 1, and the sections 44 and 45 are adjustably assembled with the sections 46 and 47 respectively by means of wing bolts similar to the wing bolts of Fig. 1. The bolts may have squared portions 49 below their heads (Fig. 12) which fit within the longitudinal slots 31 and 32 of sections 46 and 47 and/or any other similar slotted sections and prevent accidental rotation of the bolts therein.

20 The inner ends of the sections 46 and 47 are received within the tubular reinforcement collar 48, being held therein by means of other wing bolts 50 and 51 similar to the bolts 27 and 28, the collar adjacent either end being apertured to fixedly receive said bolts, and the heads of the bolts being received in the slots 31 and 32 of the sections 46 and 47. Both inner ends of 25 46 and 47 abut firmly up against each other when reinforced and locked by collar 48, which positively prevents any movement in any direction of any or either 46, 47 or 48 even if wing nuts are not screwed on at all or not screwed up tightly. When reinforced or locked in position, the collar abutment stop 33—33' in Fig. 11 positively prevents outward, inward, or any movement relative only thereto. Thus longitudinal 30 adjustment of the individual sections 44 and 45 and 35 and 47 relative to each other and to the reinforcement collar or sleeve 48 is permitted and held by means of the individual wing bolts 27 and 28 and 50 and 51, the reinforcement member 48 strengthening and stiffening the unit against collapse, sagging or bending in any and all positions of adjustment.

45 In Figs. 2, 3, 4 and 9, I have shown an assembly of units particularly designed to provide extensibility in several directions as well as a highly desirable flexibility and universality of attachment or positioning.

50 In said Fig. 3, the unit designated generally by the reference character L may be considered as a lengthwise span for a closet or other enclosure C and the units designated generally by the reference characters T, T', T² and T³ may be considered as cross, transverse or longitudinal supports.

55 The sections constituting the lengthwise and the crosswise supports may be considered as the same or equivalent to the end sections 21 and 22 and the center section 20 of the unit shown in Fig. 1, the several sections of these several units L and T, T', T² and T³ being interchangeably usable. For convenience of description, however, the sections of the span L are designated as 44, 45, 46 and 47; those of the cross span T as 57, 48 and 59; and those of the cross span T' as 60, 61 and 62. The cross section units T²—T³ are likewise made up of similar members.

70 The sections 58 and 61 are formed for quick detachable interlock with the sections 44 and 45, respectively, of the span L, the sections 58 and 61 being cut out or equivalently machined as indicated at 63 in Figs. 2 and 4 to interlock or attach with the sections 44 and 45, and being fastened in such interlocking relation by means of the wing bolts or equivalent fastenings 64 or 65.

In some instances where desired, the assembly of supporting units shown in Fig. 3 or any of the individual units or members may be provided with means for suspending it in a pivotal manner from any fixed support, as the screw eyes 35. 5 When so constructed, the end sections of any or all of the units carry swivel attachment devices 36 (see Fig. 6). By means of said swivels 36 the units may be suspended from eyes 35 which do not happen to exactly aline with the units, as indicated in full and dotted lines in Fig. 6.

A still further variant of the attachment hook or its equivalent is illustrated in Figs. 7 and 8, wherein the hook is generally similar in type and method of clamping as that illustrated in Fig. 5, but is especially designed to enable the supporting unit to be positioned in offset relation to a fixed suspension hook or equivalent supporting device. In the embodiment of Figs. 7 and 8 the shank of the hook 36 above the rod section 21 is bent upon itself at right angles and extends laterally of the rod section as an arm portion 68. This is bent upwardly and over upon itself to form the hook proper 39, (see Fig. 7 and under upon itself as in Fig. 8). Thus the hook portion 39 is offset with respect to the shank 36. By rotating the hook in its bearing in the section 21 the hook portion 39 may be adjusted relative to the section 21 and to any fixed suspension hook or equivalent supporting device. 30

35 Either of the attachment means of Figs. 6, 7 or 8 may be used with the assembly of Fig. 3, or the span units shown in Fig. 3 may be equipped some with the devices of Fig. 6 and some with those of Figs. 7 and 8.

Similarly as to the arrangement of span units shown in Fig. 3. These may be arranged in various combinations. They may extend at any angle and in any direction. There may be any number of them and they may be composed of any desired number of individual members or sections. 40

45 It will be understood that the several span units L, T, T', T² and T³ may be attached to one another or to each other without the aid of any independent support, these units being supported by one another, thereby forming an excellent, practical and rigid network.

50 It will further be understood that any member or section of any of the units may be slid longitudinally, vertically, crosswise or diagonally relative to any other unit, depending upon the direction or position desired.

55 In the form shown in Fig. 9, I provide a knock-down assembly consisting of a plurality of up-rights 71, 72, 73 and 74. There may be any number of these up-rights. As shown four up-rights are used, but this number may vary. The up-rights are similar to the units shown in Fig. 1, but the hooks 36 and flanges 42 may be omitted, 60 if desired.

65 These up-rights are adjustably, detachably and portably connected at their upper ends by adjustable, detachable and portable members 75, 76, 77 and 78 to form a rigid support for supporting garments, articles, objects, and in fact any desired item or thing.

The connecting members or sections may extend in any direction and are generally similar to the units shown in Figs. 1 or 3, either with or 70 without additional center members or sections, together with reinforcing collars 48 therefor, to provide unlimited extensibility.

75 If desired, the connecting members or sections or the up-rights, or any of them, may be con-

1 nected by additional cross-members or units 79
and 80 which likewise may extend in any direc-
tion desired. There may be as many of these
as wanted, and these are generally similar to
5 the units which constitute the uprights and/or
connecting members themselves.

The several units are portably, adjustably and
detachably fastened together in any desired man-
ner, as by means of bolts and nuts, or their
10 equivalents, which may be similar to the bolts
27, 28 and nuts 29, 30, or other engageable
means, as the notch 63 in Fig. 2. The support
units may be assembled or installed in any desired
size, length, width, or height, and may extend
15 in any direction or directions.

I claim:

1. A general extension unit assembly compris-
ing a plurality of extension units, each unit com-
prising a pair of end sections and at least one
20 intermediate section telescopically engageable
therewith, and an end section of at least one
unit being provided with means engageable with
a selected portion of a similar unit disposed in
angularly intersecting relation thereto for inter-
25 lockingly connecting such units as a framework.

2. An assembly as claimed in claim 1 wherein
the intermediate sections of the several units are
formed with longitudinal slots and wherein the
end sections of the several units are provided with
30 means disposed in said slots for permitting the
holding, locking and adjustment of the interme-
diate sections relative to the end sections.

3. An assembly as claimed in claim 1 wherein
certain of the end sections have attachment de-
35 vices swiveled thereto.

4. A general extension unit assembly compris-
ing a plurality of extension units, some of which
are disposed in angularly intersecting relation
to each other, each complete unit comprising a
40 pair of end sections and at least one intermediate
section telescopically engageable therewith, the
several units when assembled forming a bridge
or net or framework acting as a general support,
and certain of the sections constituting any one
45 unit being detachably, interchangeably and ad-
justably engageable with certain of the sections
constituting any other unit, and means whereby

that portion of any one unit which intersects
any portion of another unit may be interlocking-
ly connected thereto.

5. A general extension unit assembly compris-
ing a plurality of extension units, some of which 5
are disposed in angularly intersecting relation to
each other, each complete unit comprising a pair
of end sections and at least one intermediate
section telescopically engageable therewith, the
several units when assembled forming a bridge 10
or net or framework acting as a general support,
and certain of the sections constituting any one
unit being interchangeably engageable with cer-
tain of the sections constituting any other unit.

6. In a device of the character described, a 15
supporting unit, a member for adjustably sus-
pending the same from a support, said member
being both rotatively and vertically adjustable
relative to said unit and having a leg extending
through said unit and provided with an enlarge- 20
ment and with a suspension hook beyond said
enlargement, said enlargement being engageable
with said unit when the leg is rotated about its
axis to certain angular positions of adjustment
relative to said unit and said unit being designed 25
to permit the free passage of said enlargement
into said unit in other angular positions of the
leg, and means for adjusting the leg vertically
relative to the unit to clamp the extremity of
the suspension hook in engagement with said unit 30
to form a closed staple.

7. A general extension unit assembly, compris-
ing a plurality of extension units, each unit com-
prising a pair of end sections and at least one
intermediate section telescopically engageable 35
therewith, said units being engageable with simi-
lar units disposed in angularly intersecting rela-
tion thereto for interlockingly connecting such
units as a framework; and certain of the sections
of said units being interchangeable with one an- 40
other.

8. An assembly as claimed in claim 7 wherein
said units are also interchangeably attachable
and detachable with each other in their entirety
to enable the dimensions of the framework to be 45
increased or decreased in any desired direction.

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