

United States Patent [19]
Bannister

[11] 3,908,943
[45] Sept. 30, 1975

[54] SECTIONAL SUPPORT MEMBER

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[22] Filed: Oct. 15, 1973

[21] Appl. No.: 406,450

[30] Foreign Application Priority Data

Oct. 16, 1972 United Kingdom..... 47614/72

[52] U.S. Cl..... 248/159; 403/92

[51] Int. Cl. 2..... A47F 5/00

[58] Field of Search 248/159, 158; 211/163, 211/166, 131; 403/92, 84

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[57] ABSTRACT

A display system comprises a plurality of support members each comprising spaced apart body members secured together by connectors, each connector having a catch which corresponds in configuration with a body member, in which a mounting peg of a display panel of the system can be mounted, the catch being rotatable from a first position to free a passage for the mounting peg to a second position in which the mounting peg, and thus the panel, is secured in position in the body member.

17 Claims, 19 Drawing Figures

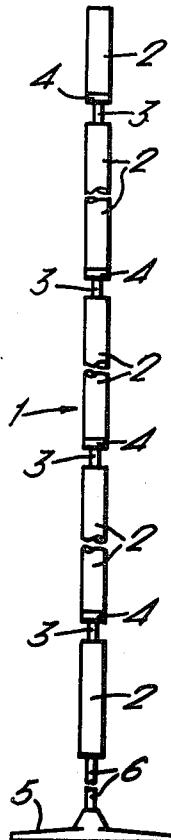


FIG. 1.

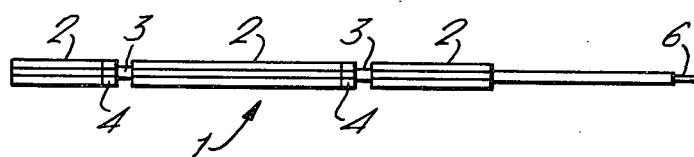


FIG. 2.

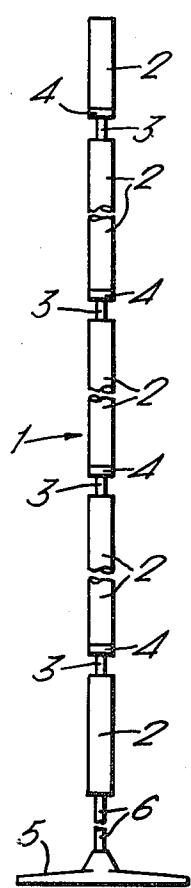
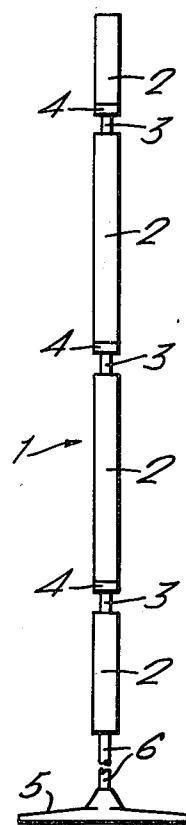
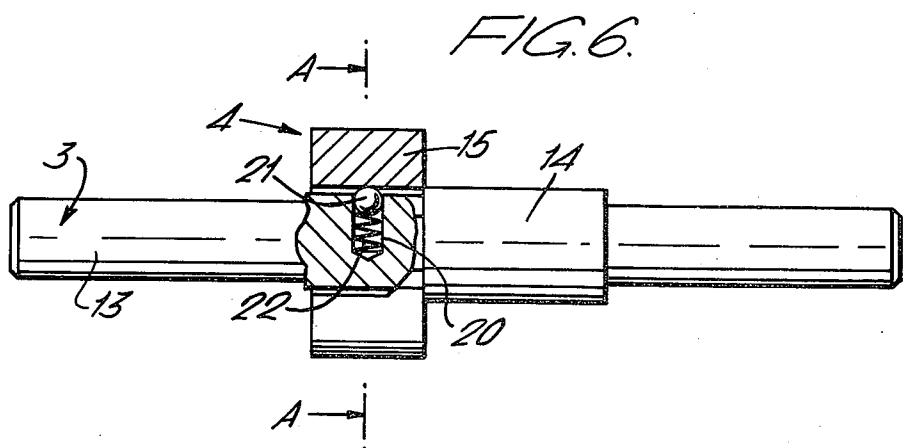
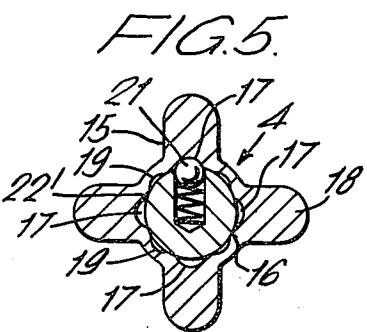
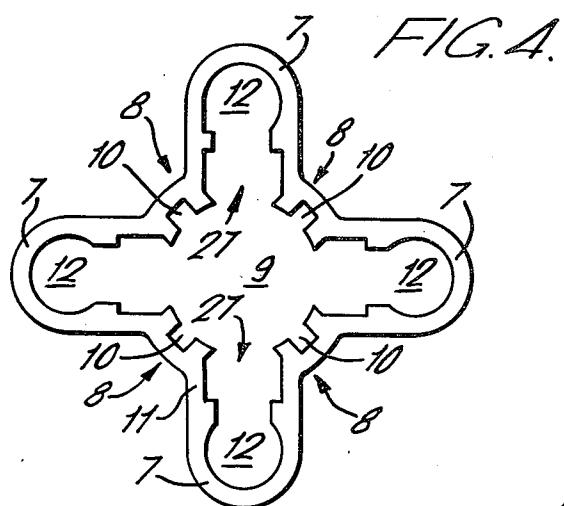
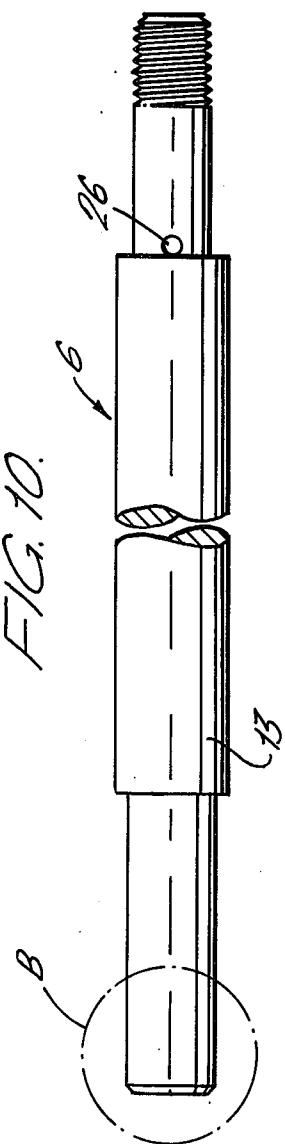
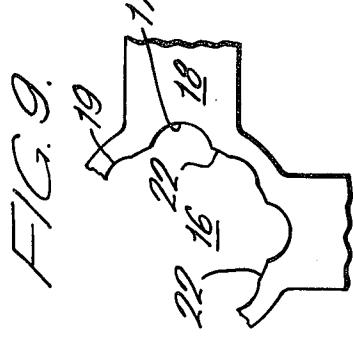
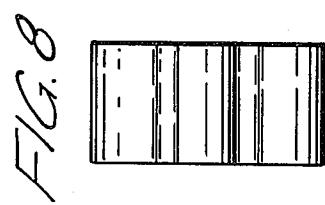
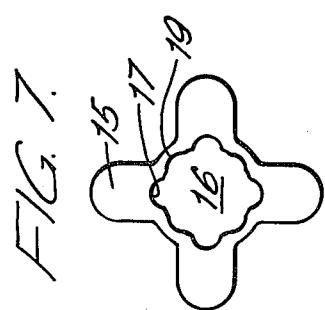
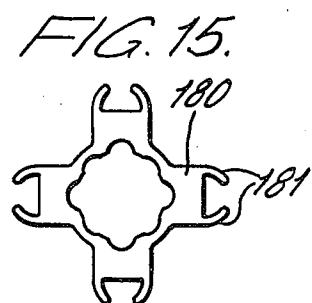
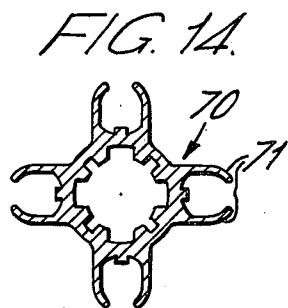
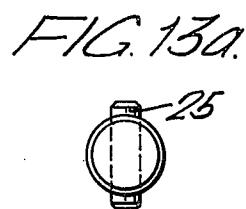
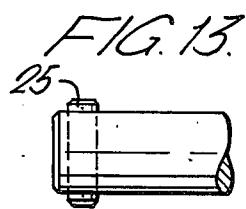
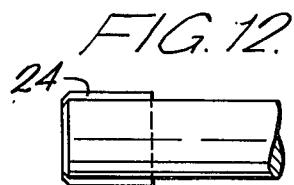
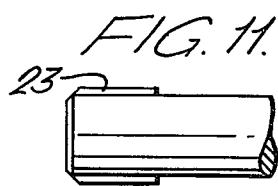


FIG. 3.









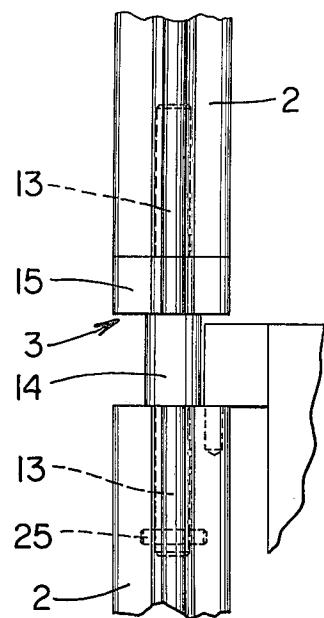


FIG.16

SECTIONAL SUPPORT MEMBER

The invention relates to display systems, and particularly to support members used in such systems.

Display systems are often used in schools, laboratories, exhibition halls and elsewhere to display temporarily information on panels, boards or the like. These panels have to be readily demountable from support members for storage and transport. The support members must themselves be light in weight and adapted to support the panels securely.

According to one aspect, the invention provides elements for forming a support member for a display system, comprising a plurality of body members each including means for receiving a connector or part thereof and having further receiving means arranged to receive a part of a display element of the system, and including one or more connectors or parts which can engage in the means for receiving the connector in or on adjacent body member, and a catch, whereby the connectors in use can connect together a pair of body members and the catch can lock the part of the display element in position.

According to a second aspect the invention provides a support member for a display system, comprising a plurality of spaced apart body members, the body members lying in the same plane and being secured together by a connector, at least one of the body members having receiving means arranged to receive a part of a display element of the system, the support member including a catch for locking the part in the at least one part.

Preferably the catch may comprise a rotatable member mounted on the connector. The catch is suitably adjacent one of the body members.

There is suitably a lock which automatically holds the rotatable member in a desired position.

The lock may comprise a ball mounted under spring pressure in a bore of the connector, the ball being adapted to engage in a recess on the body of the rotatable member. The ball may be of steel or nylon.

The spaced apart body members have a surface fluting and the catch may have a cross-sectional configuration which corresponds with that of the body members.

The plurality of body members may be hollow, the connector being received with a force fit in the bore.

The body members, the rotatable member and the connector may suitably be formed from aluminium. It will however be understood that any suitable material other than aluminium may be used.

According to a third aspect, there is provided a display system comprising at least a pair of support members as hereinbefore defined supporting therebetween a display board, panel or the like.

Embodiments of the invention are diagrammatically illustrated, by way of example, in the accompanying drawings, in which:

FIG. 1 shows an elevational view of one form of support member for a display system;

FIG. 2 shows a side elevation of a second embodiment of support member;

FIG. 3 shows a side elevation of a third embodiment of support member;

FIG. 4 shows a plan view of a body member, twice the actual size;

FIG. 5 shows a cross-sectional view taken on the line 'A—A' of FIG. 6 of a catch;

FIG. 6 shows a side elevational view, partly in cross-section of a connector;

FIG. 7 shows a life-size plan view of a rotatable member forming part of the catch;

FIG. 8 shows a side elevational view of the connector of FIG. 7;

FIG. 9 shows an enlarged view of part of the connector showing constructional details;

FIG. 10 shows a side elevational view of a foot connector of the support system;

FIGS. 11 to 13a shows respectively side views and plan views of a detail of three different embodiments of the end of the connector encircled 'B' in FIG. 10;

FIG. 14 shows a cross-section through a modified body member; and

FIG. 15 shows an end elevation of a corresponding catch.

FIG. 16 shows the assembled relationship between the support post, the intermediate connector, and the display device.

Referring to the drawings, a support member 1 comprises a plurality of body members 2 lying in the same plane and secured together by connectors 3, there being a catch 4 lying intermediate a pair of consecutive body members 2 adjacent the upper (FIGS. 2 and 3) one of a pair of consecutive body members.

The lower body member is mounted in a stabilising base or foot 5 by means of a foot connector 6.

The support members 1 shown in FIGS. 1, 2 and 3 are identical in construction but differ in height by using different lengths or combinations of lengths of body member 2.

Each body member 2 comprises an aluminium or plastics extrusion having the configuration as shown in FIG. 4. It is generally star-shaped in plan with four lobes or arms 7 which define longitudinal flutings or striations 8. Interiorly of the body member there is a central bore 9 of 13 mm diameter, four grooves 10 being symmetrically disposed around the bore 9 on the interior of a boundary wall 11. The lobes or arms 7 are hollow, having an interior bore 12 of diameter 6.7 mm and an external diameter of 9.7 mm.

Each connector 3 comprises a spigot 13, there being intermediate the length thereof a boss 14 and the catch 4 comprising a rotatable member 15 which has an identical external configuration to that of the body members and has an internal bore 16 of 15.30 mm diameter, the circumference of which is defined by a series of eight concave depressions, four of which 17 are on the radius of a respective adjacent arm or lobe 18 and are deeper than depressions 19 between the arms or lobes and lying on a radius at 45° to the radius of an arm or lobe 18. There is a transverse blind hole 20 in the spigot 13 in which a ball 21, for example a steel ball, of three-sixteenths inch diameter is mounted under the pressure of a spring 22. The ball 21 is retained in position by the internal surface of the rotatable member 15, the ball 21 being urged towards and engaging in one of the depressions 17 to lock the member 15 in a particular position. The member 15 can be rotated by finger pressure, in which case the ball 21 is forced into the blind hole 20 by a shoulder 22' between a pair of depressions 17 and 19. The ball 21 can hold the member 15 in an intermediate position at 45° to its locked position when it engages in one of the depressions 19.

The foot connector 6 and the connectors 3 for the body members 2 have at the end of the respective con-

nect to be placed in a body member (circle B in FIG. 10) either an antirotation rotation flange 23 (FIGS. 11 and 11a), a plate 24 (FIGS. 12 and 12a) or a bolt 25 (FIGS. 13 and 13a) which extends transversely to the axis of the spigot 13. The flange 23 has a thickness of 1.00 mm, and the plate 24 or bolt 25 have a thickness of 5.00 mm.

The flange 23 is displaced by 45° with respect to the axis of a hole 26 at the other end of the spigot 13, while the plate 24 and bolt 25 are parallel thereto.

FIGS. 14 and 15 show a modification in which lobes 70 and 180 comprise two arms 71, 181 which are radiused at their free ends, the configuration of the lobes being identical. The arms 181 define a groove in the or each respective lobe 180.

In use, a support member 1 is erected to a desired height by taking the appropriate body members 2 and connectors 3, and a foot connector 6 is rammed into one end of the bore 9 in the first or lower body 2. If an anti-rotation flange 23 is on the spigot 13, it is aligned to engage within a pair of diametrically opposed grooves 10 interiorly of the body member 2.

If a plate 24 or bolt 25 anti-rotation device is used, it is aligned with and forced into channels 27 in the body member 2.

A connector 3 is then rammed into the other end of the bore 9 in the first or lower body member, and a second body member is rammed onto the spigot 13 of the connector 3 so that the rotatable member 15 lies adjacent the end of the second body member 2, there being a distance of 50.00 mm between the upper end of the first body member and the lower end of the second body member which distance is occupied by the rotatable member 15 and the boss 14. The disposition of the anti-rotation flange, plate or bolt ensures that the arms or lobes of both body members and the rotatable member are aligned.

The support member is built up to the required height in a similar manner using the appropriate body members and connectors.

In every case, there is sufficient, for example a 1 mm, interference fit between engaging members to provide a firm union.

To erect a display system, for example a display panel having a pair of spacing apart support pegs at equal heights on two vertical, parallel edges, two support members 1 are placed a required distance apart to accommodate the panel and the rotatable members 15 adjacent the height of the pegs are rotated through 45° to expose the bores 12 in the arm or lobe 7 of the body members 2 immediately below them. The pegs are then dropped vertically into the respective bores 12 and the rotatable members 15 are returned to their initial position so that they lie above the pegs, which are thus locked in position. The panels can then be rotated to any desired position, the minimum angle between adjacent panels being 30°.

The rotatable members 15 are held in position by the ball 21 engaging in a depression 17.

The panel is dismounted by again rotating the rotatable members through 45°, and lifting the panel to remove the pegs from the bores in which they are sealed.

It will be understood that the distance between the top of one (lower) body member 2 and the undersurface of the next vertically uppermost catch 4 is just sufficient to accommodate a body of the respective peg

when in position in the body member 2 to support the panel.

Further, a display system of any desired configuration (as viewed in plan) can be built up by using a suitable number of support members, in each of which four panels can be supported in the illustrated embodiments through more or less can be accommodated by using a suitable number of lobes or arms 7, 71.

The body members and rotatable members may be extruded from aluminium and the spigots and connectors may be formed from aluminium. It will, however, be understood that any suitable material other than aluminium, for example plastics, can be used, and a method other than extrusion may be used to form the different members. Thus the bores 9 may not extend through the entire length of a body member. The bore may be replaced by a pair of aligned holes.

Also, a locking device other than the spring ball may be used.

I claim:

1. A support member for a display system, comprising:

a plurality of elongate body members, each body member having a central opening at each end and a regular surface profile in plan, said profile including a plurality of arms each of which includes receiving means in which display members of said display system may be received and supported; and connector means including elongate spigot means adapted to be engaged with a force fit in a said central opening of one of said body members, said connector means also including catch means intermediate the length thereof, said catch means having a profile corresponding with that of the body members and being rotatable relative to said spigot means between one position in which display members can be received in and dismounted from said arms and a second position in which said display members are secured in position in said arms whereby the display members cannot be removed from the arms.

2. A support member as defined in claim 1, including latch means adapted to engage part of said catch means, whereby the latch means can hold said catch means in said second position.

3. A support member as defined in claim 2, wherein said connector means includes transverse blind bore means and said latch means comprises a reciprocable member, said reciprocable member being mounted in said blind bore means.

4. A support member as defined in claim 3, wherein said reciprocable member comprises a ball, and wherein there is spring means mounted in said blind bore means, said blind bore means being formed in said spigot means, said spring means being adapted to urge said ball towards said catch means, said catch means having an internal surface in which there are symmetrically disposed recesses, said ball being arranged to engage in one of said recesses at a time.

5. A support member as defined in claim 2, wherein said connector means includes transverse blind bore means and said latch comprises a reciprocable member, said reciprocable member being mounted in said blind bore means, and wherein said reciprocable member comprises a ball, and wherein there is spring means mounted in said blind bore means, said spring means being adapted to urge said ball towards said rotatable

member means, said catch means having an internal surface in which there are symmetrically disposed recesses, said ball being arranged to engage in one of said recesses at a time, said catch means having symmetrically disposed arm means, said arm means comprising a surface configuration of said catch means, one of said recesses lying on the radius of each arm means on said internal surface, and the remainder of said recesses lying between said first mentioned recesses at substantially 45° to the radius of the arm means.

6. A support member as defined in claim 5, wherein the first mentioned recesses are deeper than said remaining recesses, said first mentioned recesses defining said second position and the remaining recesses defining said one position, and wherein there is shoulder means on the internal surface of said catch means, said shoulder means lying between adjacent recesses, whereby said ball is urged into said blind bore means by said shoulder means when said catch means is rotated.

7. A support member as defined in claim 1, wherein the elongate body member includes boundary wall defining the outer limits of said central opening, and wherein there is symmetrically disposed groove means, said groove means being on said boundary wall means forming said central opening.

8. A support member as defined in claim 7, wherein there are channel means formed in the elongate body member, said channel means being symmetrically disposed, one channel means being between each pair of adjacent groove means, each arm having said receiving means therein, said channel means merging at the outer end thereof with said receiving means of the respective arm, and the channel means merging at the inner end thereof with the central opening.

9. A support member as defined in claim 1, wherein each said body member defines bore means extending therethrough, said bore means defining said receiving means for receiving said connector means and wherein there is boundary wall means, said boundary wall means defining the outer limits of said bore means, and wherein there is symmetrically disposed groove means, said groove means being on said boundary wall means in said bore means, and further including channel means, said channel means being symmetrically disposed, one channel means being between each pair of adjacent groove means, said channel means merging with said receiving means of said arms, and wherein

there is a device comprising part of said connecting means for preventing relative rotation between said body member and said spigot means when said spigot means is received in said central opening.

5 10. A support member as defined in claim 9, wherein said device comprises a flange adapted to be received in one of said groove means.

11. A support member as defined in claim 9, wherein said device comprises a plate which projects from said spigot means and is adapted to engage in one of said channel means.

12. A support member as defined in claim 9, wherein said device comprises a pin projecting from said spigot means and is adapted to be received in one of said channel means.

13. A support member as defined in claim 1, wherein there is foot connector means for supporting the support member in use.

14. A support member as defined in claim 1, wherein 20 said body member has a cross-shaped cross section defined by a center portion and four of said arms projecting radially outwardly from said center portion, said central opening being formed in said center portion and each of said receiving means comprising a bore formed in each of said arms.

15. A support member as defined in claim 14, wherein each said bore and said central opening are in open communication with one another by means of an intermediate channel-shaped opening.

16. A support member according to claim 1, wherein 30 said elongate spigot means includes first and second shaftlike end portions interconnected by an intermediate enlarged shoulder portion, and said catch means being rotatably supported on said spigot means directly adjacent said shoulder portion, and locking means mounted on said spigot means and coacting with said body member for preventing rotation of said spigot means relative to said body member when said spigot means is inserted into the central opening of said body member, whereby only said catch means is rotatable relative to said body member.

17. A support member according to claim 16, further 40 including spring-urged detent means coacting between said spigot means and said catch means for resiliently maintaining said catch means in either of said one or second positions.

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