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SPATIALLY ADJUSTABLE ARCHITECTURAL MODEL

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2 Sheets-Sheet 2

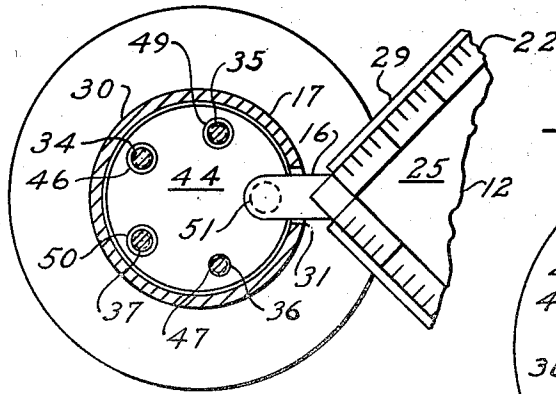


Fig. 4

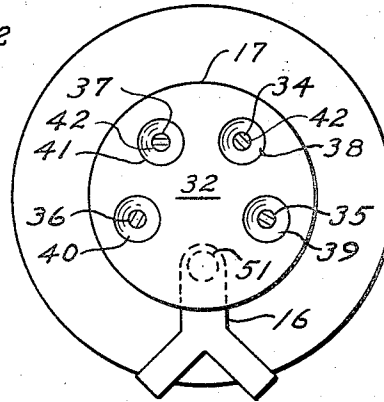


Fig. 3

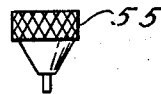


Fig. 5

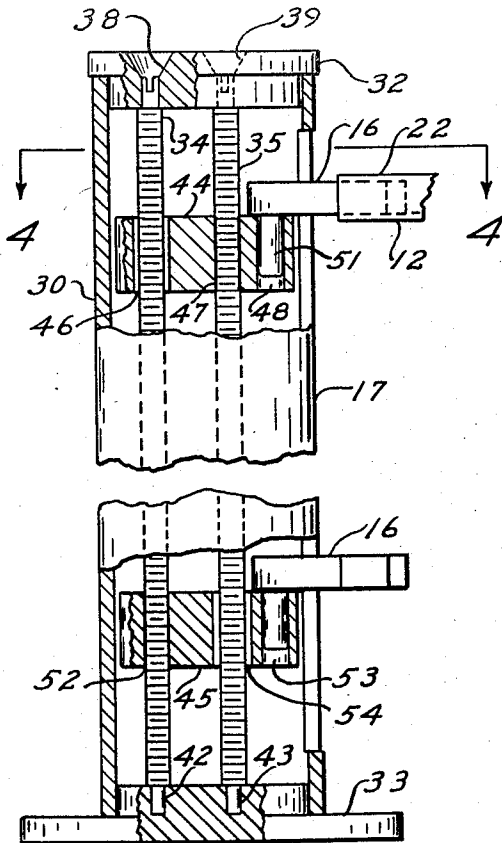


Fig. 2

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SPATIALLY ADJUSTABLE ARCHITECTURAL MODEL

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5 Claims. (Cl. 35-16)

The present invention is directed to visual aids and more particularly to architectural models which are spatially adjustable.

The use of architectural models has met with wide acceptance having resulted in substantial conservation of finances and labor. This practice has been particularly effective in reconstruction and reconditioning of standing buildings or facilities. A prime example arises when a new process involving the use of heavy apparatus and intricate intercommunications, such as is had in many chemical processes, is to be instituted in existing facilities.

To date, the models used have exhibited little, if any, adaptability. A single model can be used only to envision a single project; beyond that when further realignment of floors etc. require consideration, either a second model is needed or the original model must be knocked down and reassembled to accommodate each of the changes to be considered.

Accordingly it is a principal object of the present invention to provide an architectural model which can facilitate or can be used to envision an indefinite number of architectural projects.

Another object of the present invention is to provide a spatially adjustable architectural model.

Other objects of the invention will in part be obvious and will in part appear hereinafter.

These and other objects are attained in spatially adjustable architectural models comprising positioning members capable of adjustably supporting a plurality of horizontally positioned planar members in vertically spaced interrelationship, each of said positioning members comprising a hollow casing the longitudinal axis of which is vertically aligned, said casing being provided with a slot paralleling said longitudinal axis. A plurality of individually rotatable cams extending in parallel relationship to said longitudinal axis are positioned around the inner periphery of the casing, said cams being provided with cam followers, each of said cam followers being threadably attached to a single cam and capable of being projected through said slot to supportably contact the planar members.

For a fuller understanding of the nature and objects of the invention, reference should be had to the following detailed description taken in connection with the accompanying drawings, in which:

Fig. 1 is a diagrammatic prospective view of one embodiment of the architectural model of the present invention which is illustrated conjunctively with a proposed, hypothetical processing system.

Fig. 2 is a diagrammatic front view with parts broken illustrating one embodiment of a positioning member adapted for use in the present invention.

Fig. 3 is a diagrammatic top view, with parts broken, illustrating one embodiment of a positioning member adapted for use in the present invention.

Fig. 4 is a top section with parts broken taken along the lines 4-4 of Fig. 2.

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Fig. 5 is a side elevational view illustrating means for rotating the cams of said positioning means.

Referring to the drawings and initially to Fig. 1, assembled architectural model 10 is shown generally in conjunction with a proposed hypothetical processing system, the latter not numerically identified. A plurality of horizontally planar members 12-14 of any convenient size and shape and which can be unitary or sectional in nature are shown supported at their corners by vertically adjustable imposts 16-16. Imposts 16-16 in turn project from positioning members 17-20 in a manner to be more fully described. The entire model assembly 10 is positioned on surface 21 which can be a table, bench, or the like, and stationary positioning between surface 21 and assembly 10 can be provided for in any convenient manner.

Planar members 12-14 are illustrated as open frames 22-24 fitted with transparent rigid sheets 25-27, the latter constituted of glass, synthetic material and the like with which to simulate partial or complete floorings, roofings, etc. In addition, panels 25-27 can be provided with variously shaped orifices 28-28 to accommodate model apparatus units having various configurations, model stair wells, elevator shafts, ducts, flues, etc. To provide secure positioning of the various panels 12-14 on frames 22-24 the latter are provided with a shouldered configuration, generally 29-29 at their upper, peripheral edges. Graduations can be marked on frames 22-24 to contribute further perspective to the modeling being carried on. Graduations can also be furnished on panel members 12-14, positioning members 17-20 and on support surface 21.

Planar members 12-14, parenthetically model 10, is illustrated in Fig. 1 as being adapted to accommodate more than the number of these shown, are adapted to be vertically spaced in interrelationship to one another. This is provided for by the peculiar construction of positioning members 17-20 as shown with particularity in Figs. 2-4. As there shown, individual positioning member 17 constitutes a hollow casing 30, the longitudinal axis of which is vertically aligned. Slot 31 is provided in casing 30 as to extend in essentially parallel relationship to the longitudinal axis of casing 30; and caps 32 and 33 are attached respectively at the top and bottom of casing 30.

Vertically aligned cams 34-37 are positioned essentially around the inner periphery of casing 30 in substantially parallel relationship to the longitudinal axis of casing 30. Cams 34-37 are journaled into recesses or bearings 38-41 positioned in top cap 32 and bearings 42, 43 etc. in bottom cap 33. Grooves 42-42 shown with particularity in Fig. 3 are inset into the tops of cams 34-37 with which to allow purchase and rotate the cams. Access to grooves, 42-42 is through recesses bearing 38-41 which are extended through top cap 32. In another embodiment, not shown, the bottoms of cams 34-37 can also be grooved and bearings 42, 43 etc. can be extended through bottom cap 33 to allow for the rotation of cams 34-37 bottomwise of said model 10.

Cams 34-37 are threaded over their effective length to accommodate a threaded contact between a single cam 35 and a single follower 44, the latter in turn supporting impost 16. As shown in Fig. 4, follower 44 as well as remaining followers 45, etc. have a horizontal configuration corresponding to the internal diameter of casing 30 with sufficient tolerance remaining to allow for vertical movement of follower 44 etc. A number of bores 46, 47, 48, 49 and 50 are provided around about the outer periphery of follower 44, only one of which 47 is threaded to threadably engage a given single cam 35. In this regard it is to be noted that only one follower is to be

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threadably engaged with any one cam. The remaining bores 47, 48, 49 and 50 have diameters of sufficient width as to allow uninhibited passage of the remaining cams 34, 36—37 therethrough when follower 44 is being vertically positioned. As shown, bores 46—50 exceed by one in number cams 36—36. When the follower 44, or another follower 45, is located elsewhere in casing 30, as shown again in Fig. 2, threaded bore 52 thereof individually engages another cam, instant cam 34. The remaining bores 53, 54 etc. of follower 45 being unthreaded allow passage of the remaining cams 35, etc. and one, specifically, bore 53 positioned immediately in back of slot 32 serves to position another of the imposts which have been collectively referred to as 16. As can be seen here, the followers can be of a single construction allowing them to be interchanged throughout. The expedient of having the bores (a) uniformly spaces horizontally in the followers, and (b) exceeding by one the number of cams to be used, allows this to be so.

Imposts 16—16 can be supported or attached on followers 44, 45 etc. in any manner which allows it to project through slot 32 and support any one of planar members 12, 13, 14 etc. One convenient way of supporting impost 16 on follower 44 is to provide a pin 51 at the after part of impost 16 which latter fits into any one of the nonthreaded bores, 46, 48, 49 or 50 of follower 44. As shown, pin 51 is fitted into bore 48 which is located closest to slot 32. Practice of this expedient lends secure support to impost 16 by follower 44, while nonetheless allowing for fast disassemblage from the same.

Considered broadly, the imposts 16—16 are integral to said followers 44—45, with said imposts being then considered as lesser parts of the said followers. From this standpoint, imposts 16—16 can be unitary or integral parts of followers 44—45, or as prescribed above may be formed of lesser units designed to be conveniently assembled and disassembled. As illustrated in Fig. 4, impost 16 has a bifurcated configuration at the projecting end thereof, with which to support planar number 12.

In order to rotate cams 34—37, a screw driver 55 is shown in Fig. 5 having an effective blade thickness corresponding to grooves 42—42 positioned to the top of cams 34—37. Other expedients can be used to allow rotation of the said cams.

In utilizing the apparatus of the present invention, buildings of varied peripheral shapes can be simulated with the number of positioning members 17—20 being varied accordingly. In this regard, it is possible, but not necessary except possibly in extreme cases or for example in simulating a building having a circular configuration and a single supporting column, to vary the shape of imposts 16—16 at their projected ends. When convenience dictates, it is also possible to provide planar members 12—14 of varied peripheral configurations.

Having decided upon the peripheral configuration to be used, the next determination is with regard to the number of floors or other horizontal partitions to be represented by planar members 12—14. This in turn will

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determine the number of cams 34—37, followers 44, 45 etc. and imposts 16—16 to be used in the positioning members 17—20. The relative vertical interposition of planar members 12—14, as well as support surface 21, having been determined, followers 44—45 etc. and eventually imposts 16—16 are vertically prelocated in the approximate plane of same. Exact location of planar members 12—14 or changes in the same can then be had by rotation of cams 34—37. To further simulate actual conditions, the choice of panels 25—27 is made in accordance with equipment, and the like which is to be considered. Finally, various outer walls as well as interior partitions shown as 60—62 can be provided as desired.

It will thus be seen that the objects set forth above, including those made apparent by the preceding description are efficiently attained and, since certain changes may be made in the above model without departing from the scope of the invention, it is intended that all matter contained in the above description or shown in the accompanying drawings shall be interpreted as illustrative and not in a limiting sense.

What is claimed is:

1. A spatially adjustable architectural model comprising positioning members capable of adjustably supporting a plurality of horizontally positioned planar members in vertically spaced interrelationship, each of said positioning members comprising a hollow casing the longitudinal axis of which is vertically aligned, said casing being provided with a slot paralleling said longitudinal axis, a plurality of individually rotatable cams extending in parallel relationship to said longitudinal axis being positioned essentially around the inner periphery of said casing, said cams being provided with cam followers, each of which is threadably attached to an individual cam, and said cams capable of being projected through said slot to supportably contact said planar members.

2. The model according to claim 1 wherein the cams are journaled into caps provided at the top and bottom of said casing.

3. The model according to claim 2 wherein the cams being provided with grooves to the tops thereof are journaled in annular recesses, said recesses being positioned in and extending through the top cap accommodating means for rotating said cams.

4. The model according to claim 1 wherein the planar member comprises rigid frames supporting rigid transparent sheet materials.

5. The model according to claim 1 wherein the planar and positioning members are marked with scalings.

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