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(54) **A METHOD OF CONSTRUCTING EARTHQUAKE RESISTANT STRUCTURE WITH REINFORCED FOUNDATION AND WALL STRUCTURE**

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(52) **U.S. Cl.**

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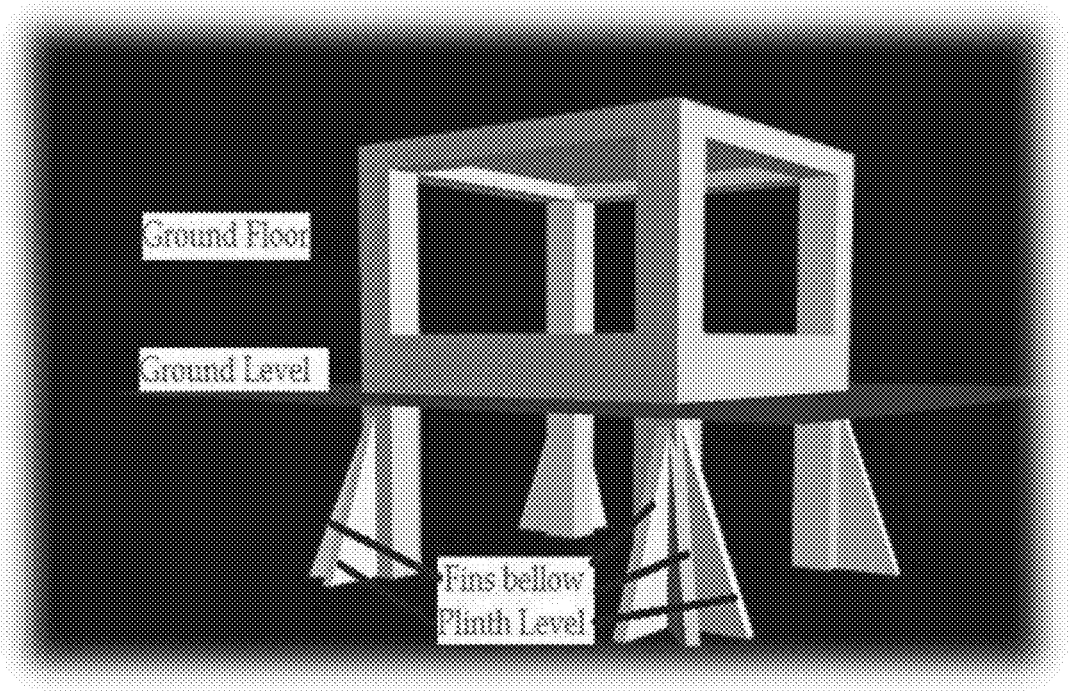
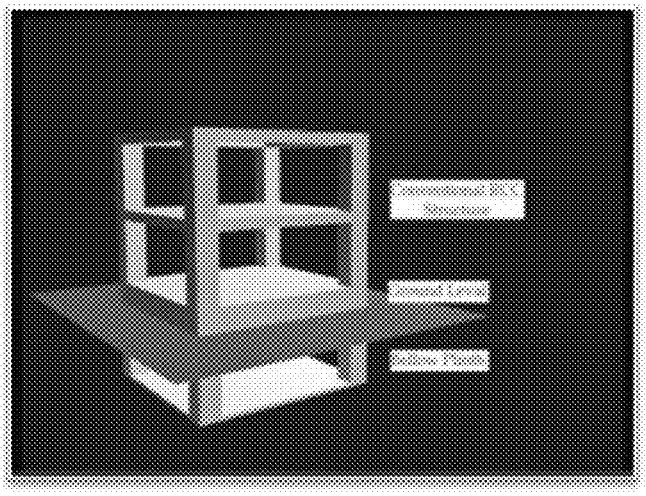
(57) **ABSTRACT**

A method of constructing seismic shock absorbing structure which transfers horizontal and vertical forces from the floor to allow buildings to withstand earthquake shocks. In a first embodiment, foundation column is structurally designed and casted in the form of a fin shape below plinth level. In another embodiment, strength of the construction frame is enhanced by structurally designing, casting and slotting in at least one of rhombus shaped beams, diagonal cross beams, corner beams, plus shaped beams, rectangle shaped beams, semi-quarter circular beams in horizontal, vertical and inclined directions at the plinth level, below and above the plinth level. In another embodiment, wall is interlocked with at least one of Reinforced Cement Concrete (RCC), cement composites, steel, iron, metal, concrete, polystyrene, polyurethane, wood, plastic, fired bricks, cardboard and clay blocks. In another embodiment, interlocked wall is reinforced with GI (Galvanized) welded mesh, fiberglass mesh and wire mesh.





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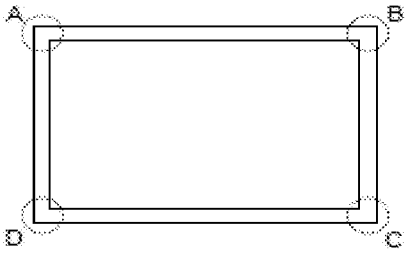

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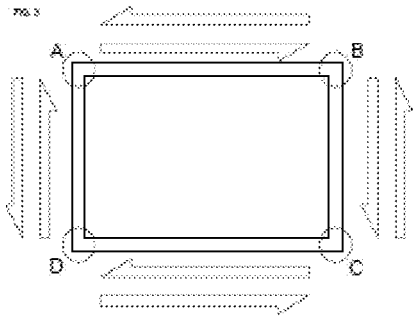

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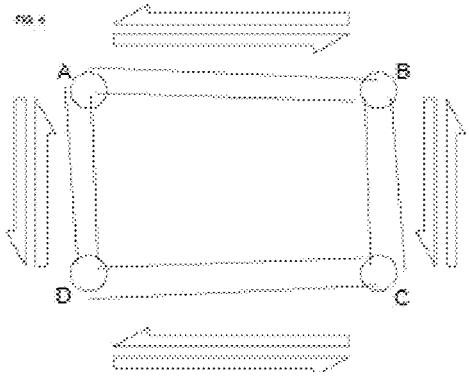

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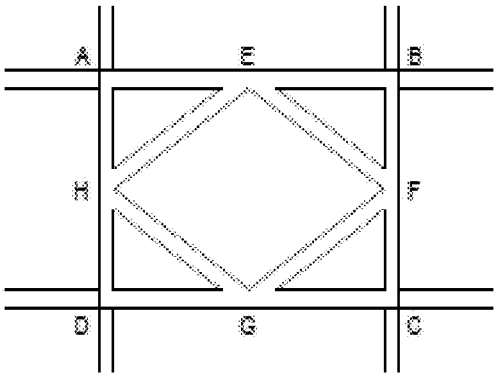

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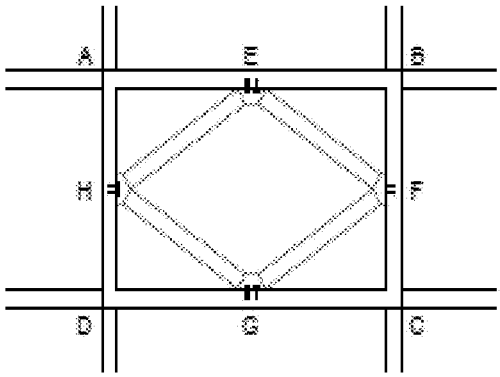

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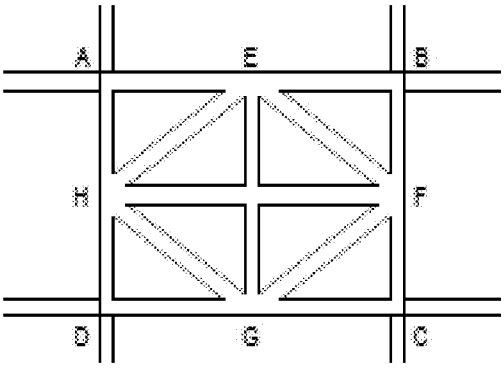

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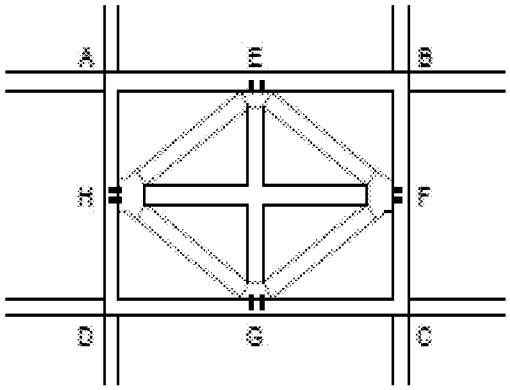

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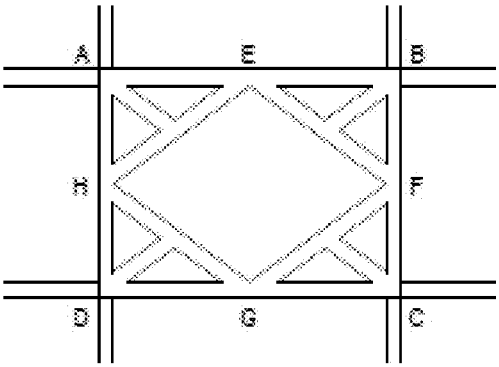

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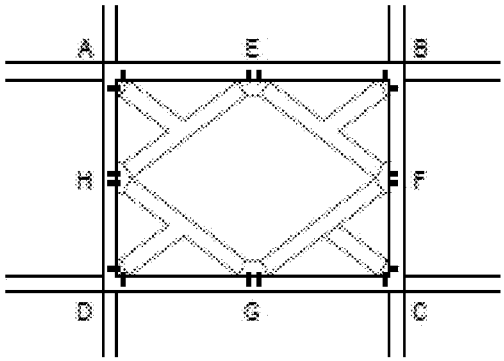

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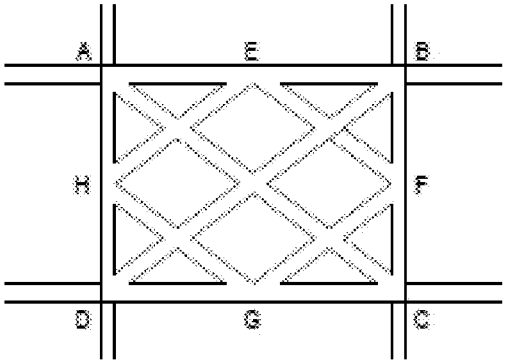

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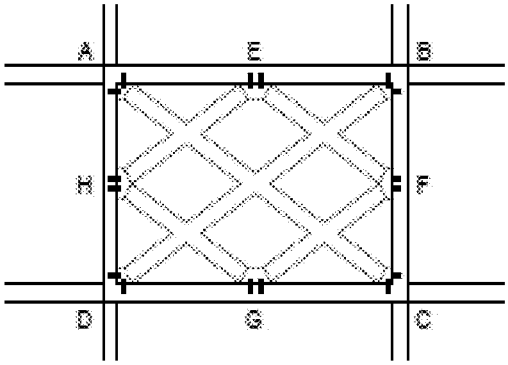

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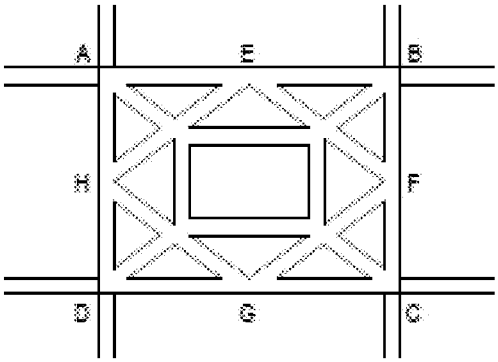

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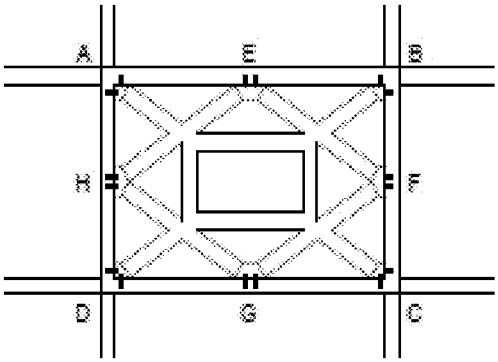

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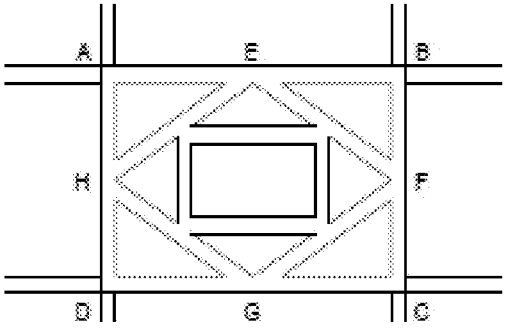

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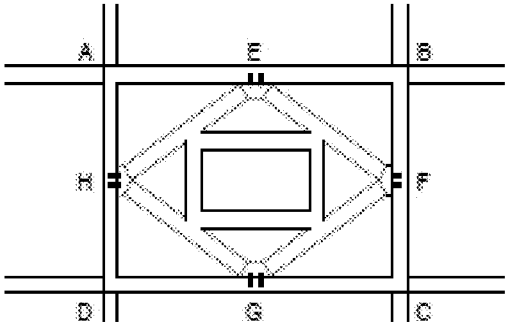

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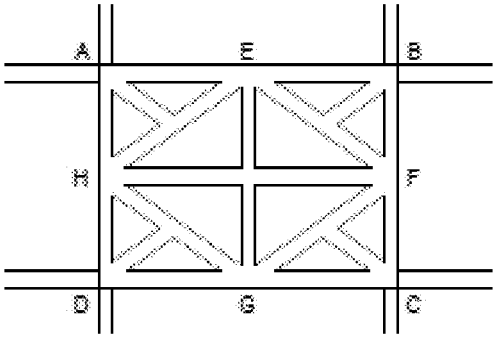

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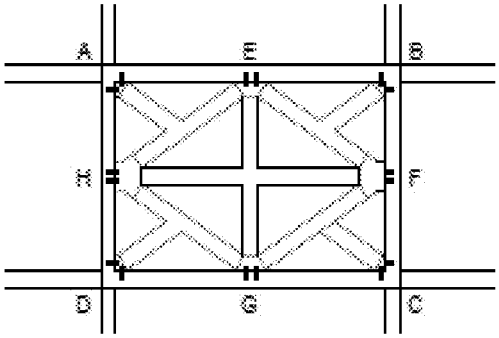

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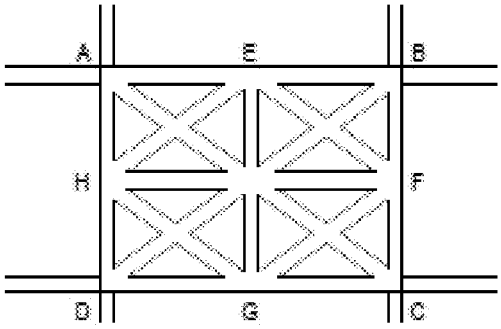

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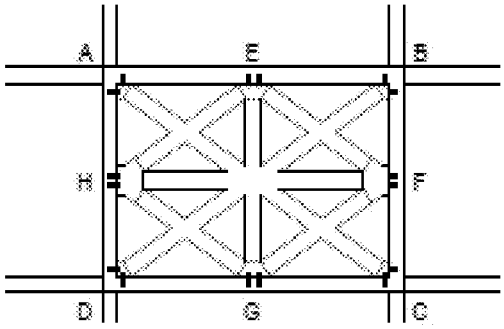

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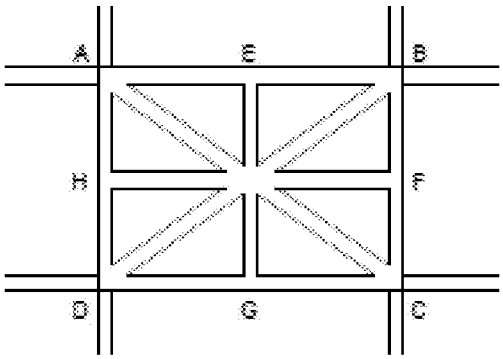

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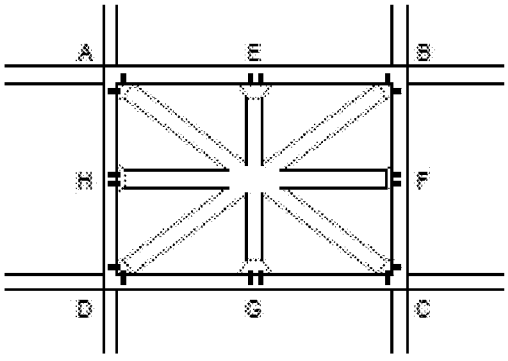

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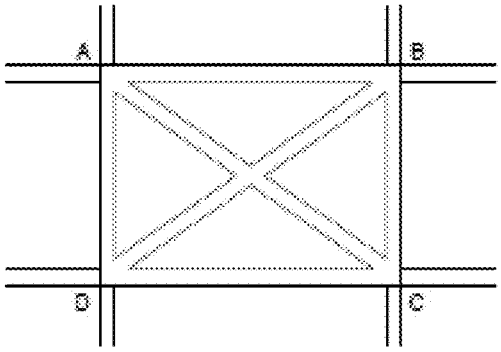

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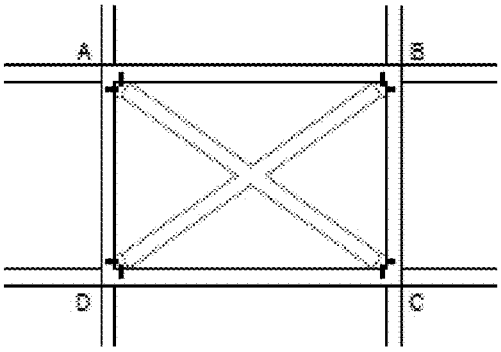

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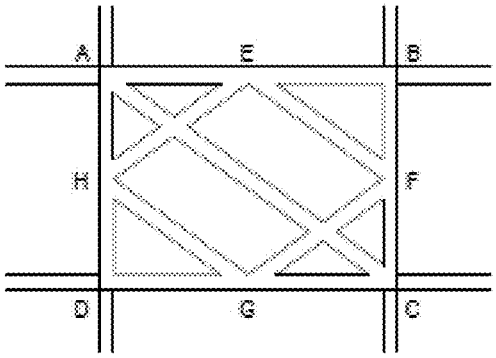

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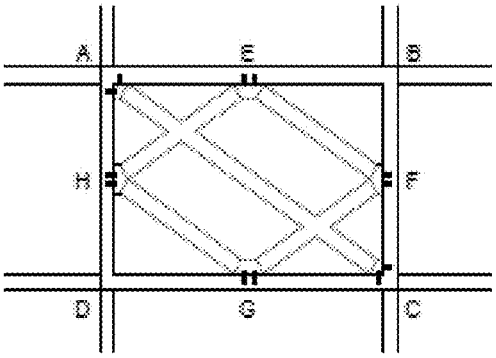

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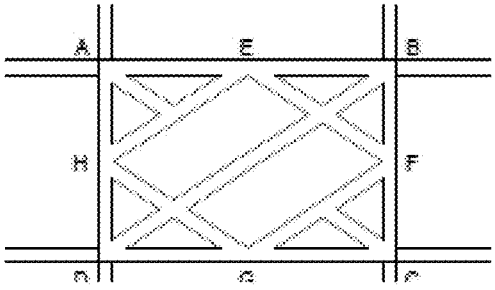

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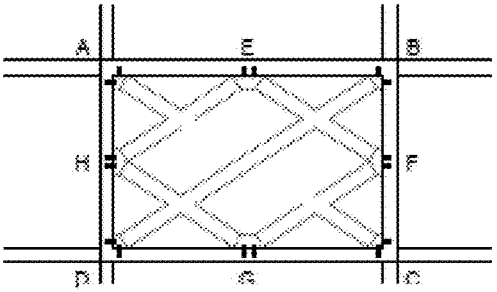

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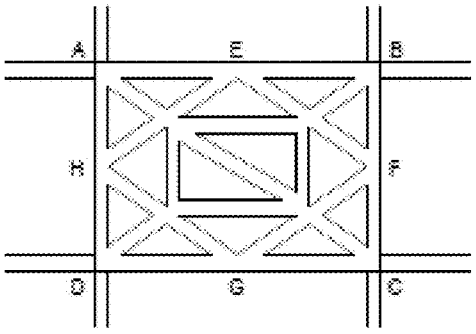

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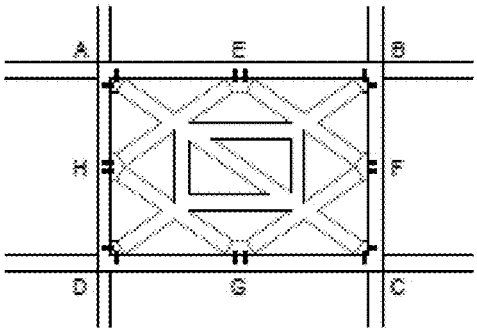

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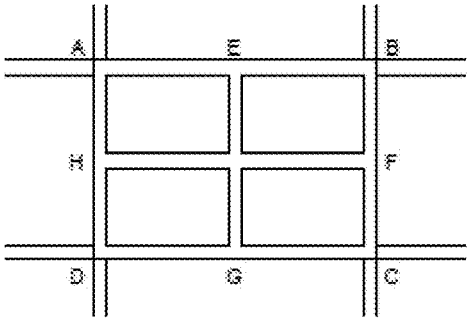

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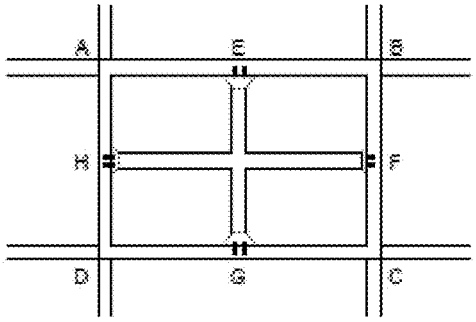

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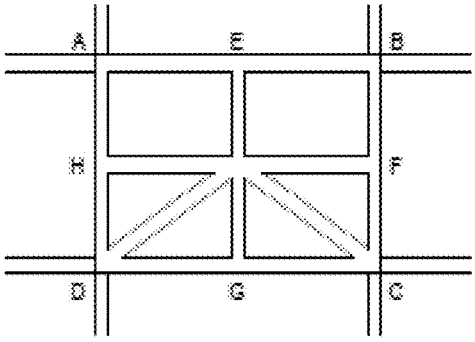

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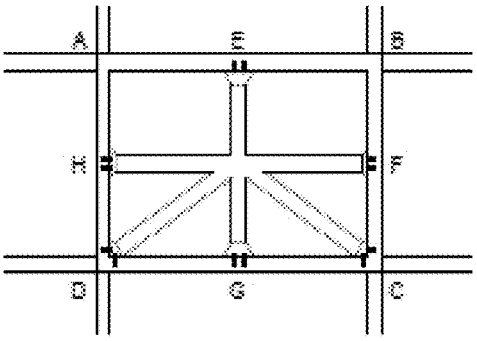

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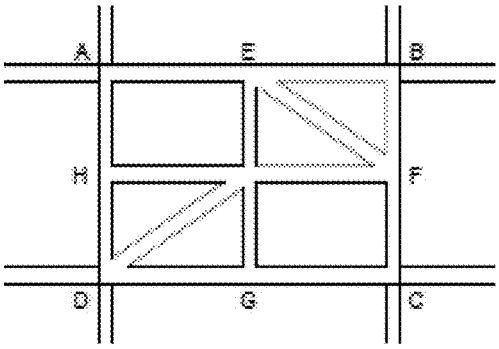

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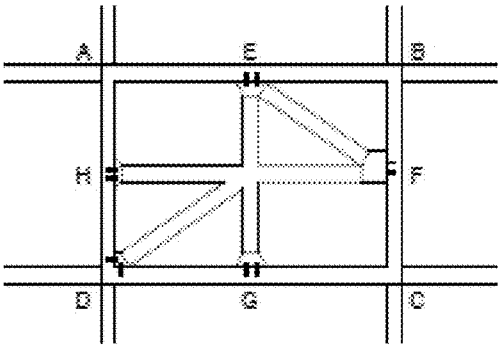

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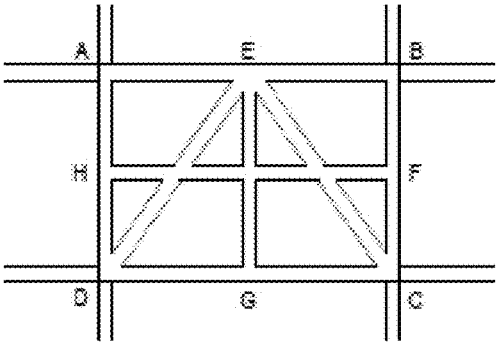

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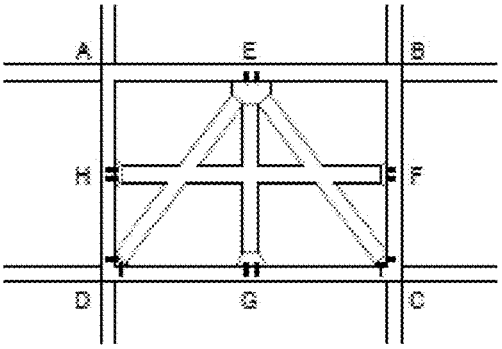

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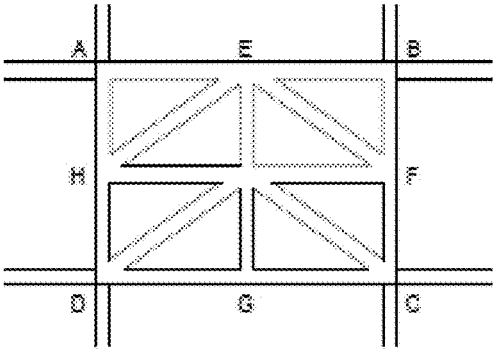

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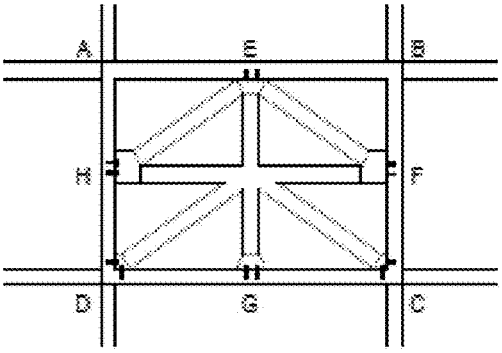

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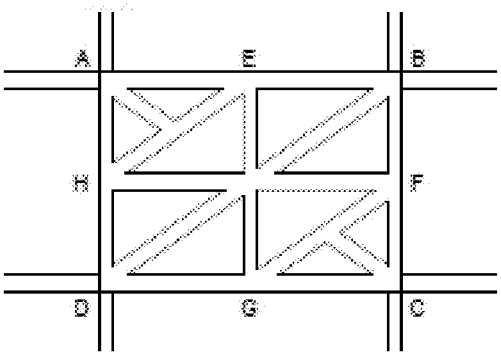

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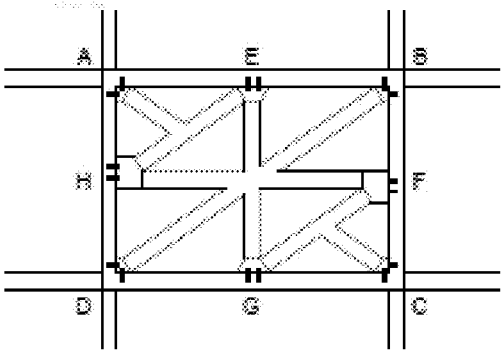

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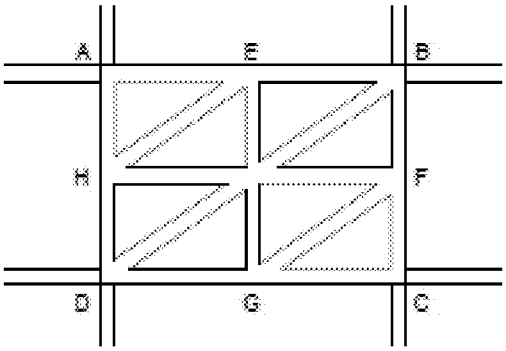

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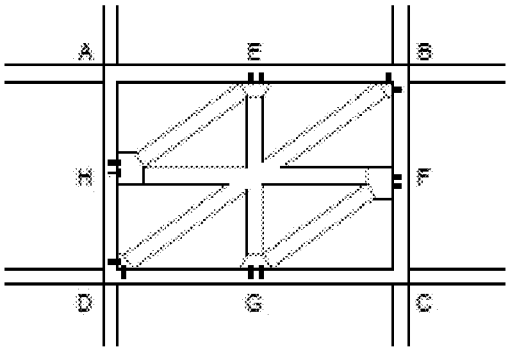

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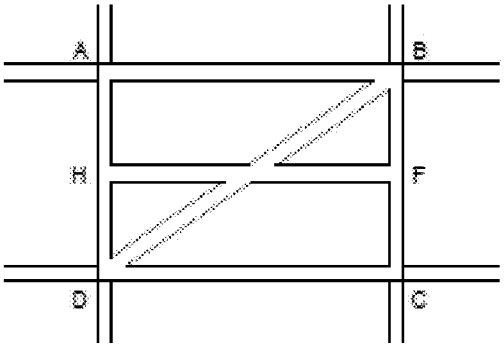

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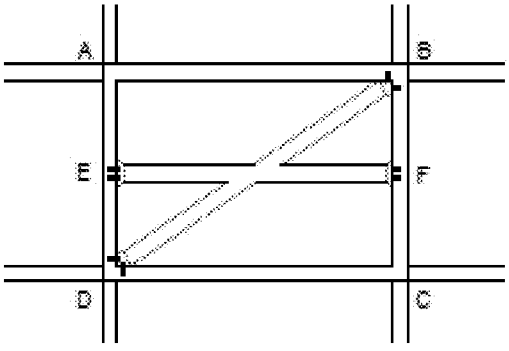

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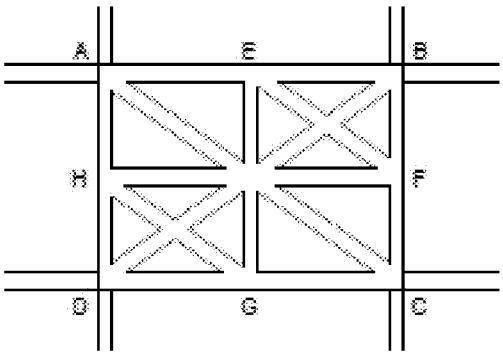

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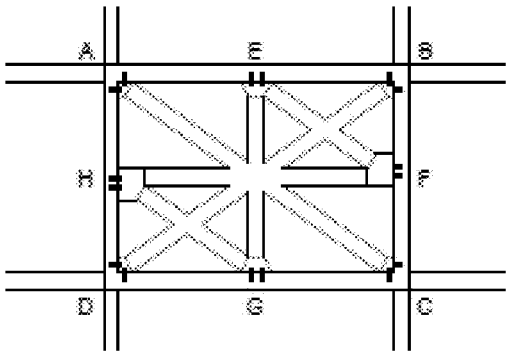

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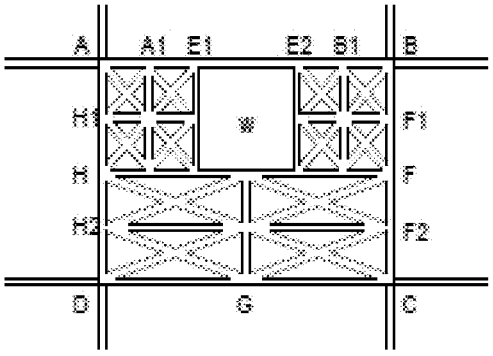

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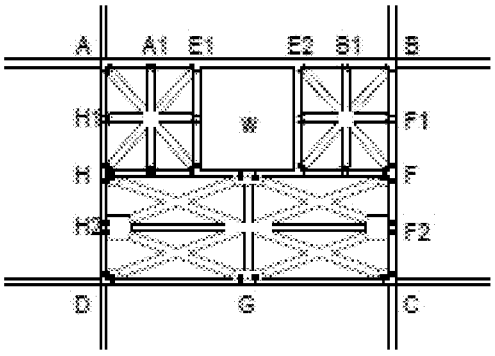
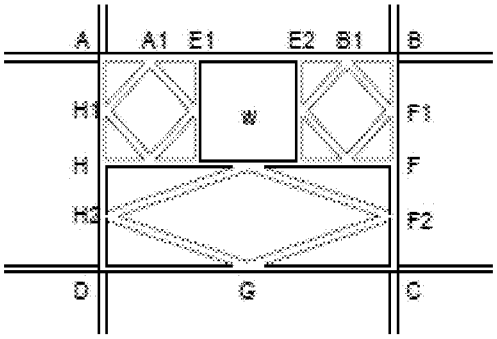


Fig. 50



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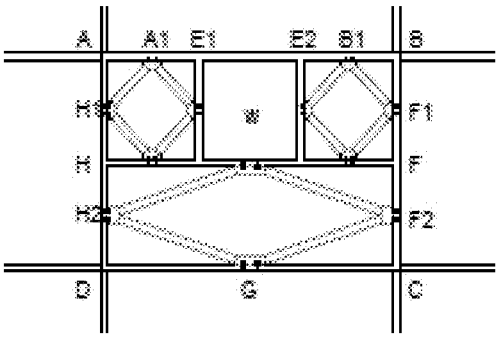

Fig. 52

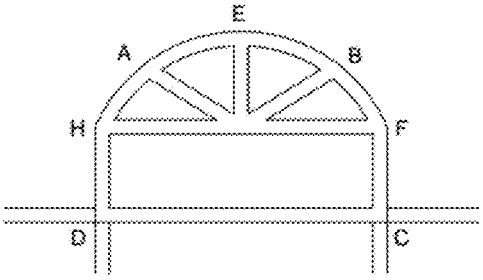

Fig. 53

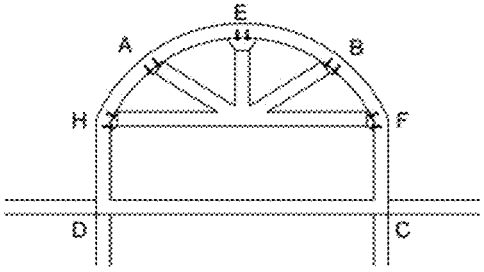

Fig. 54

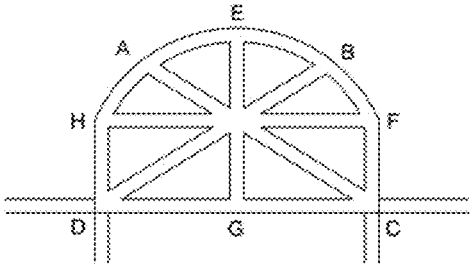

Fig. 55

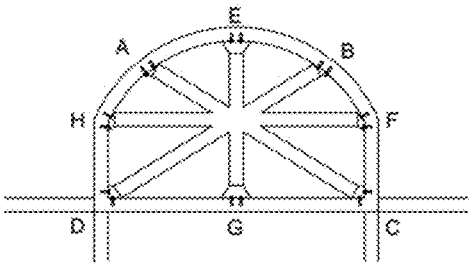

Fig. 56

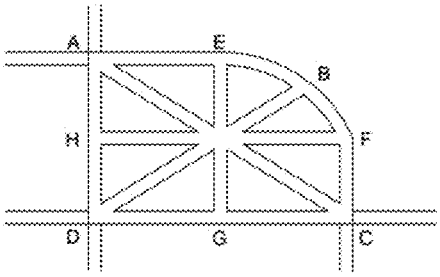

Fig. 57

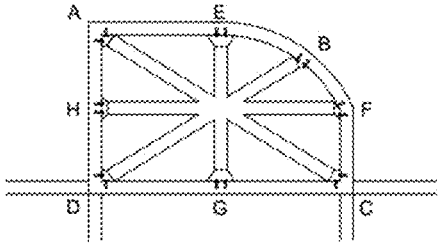

Fig. 58

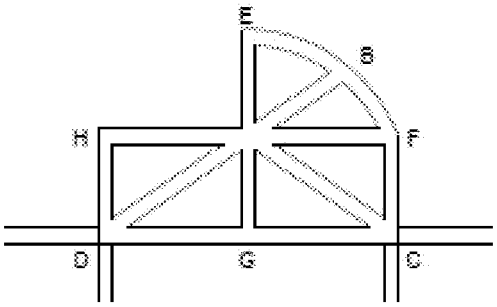

Fig. 59

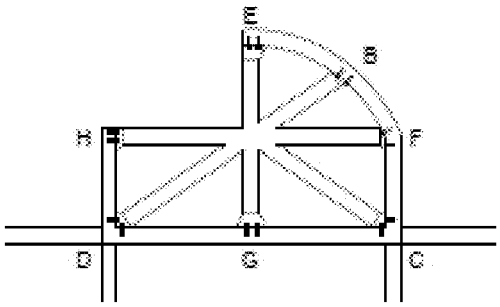

Fig. 60

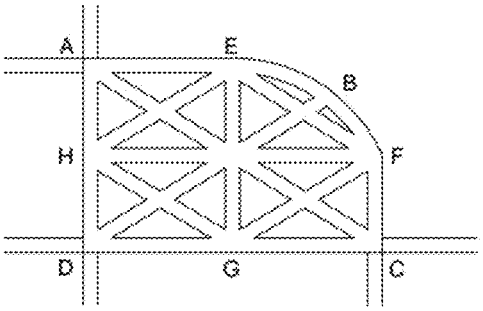

Fig. 61

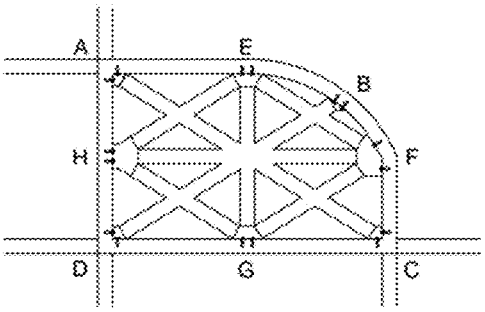

Fig. 62

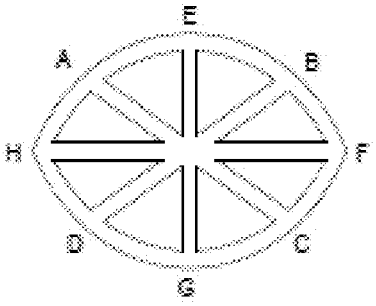

Fig. 63

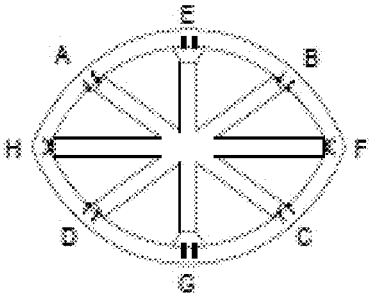

Fig. 64

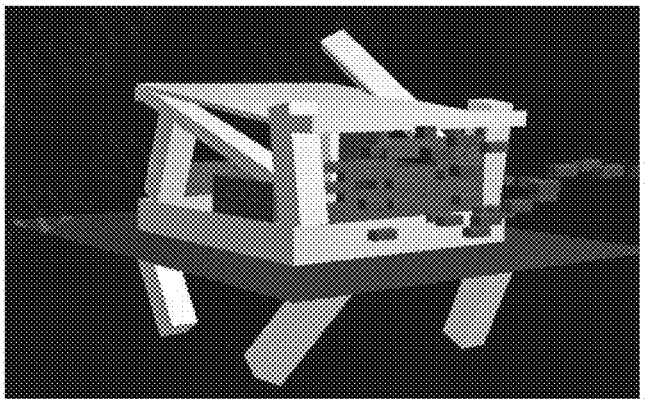

Fig. 65

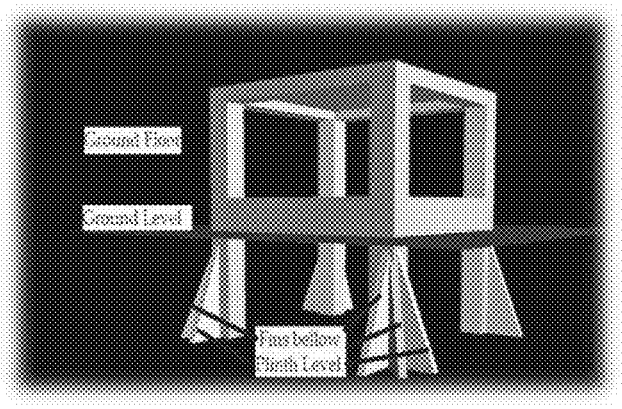

Fig. 66

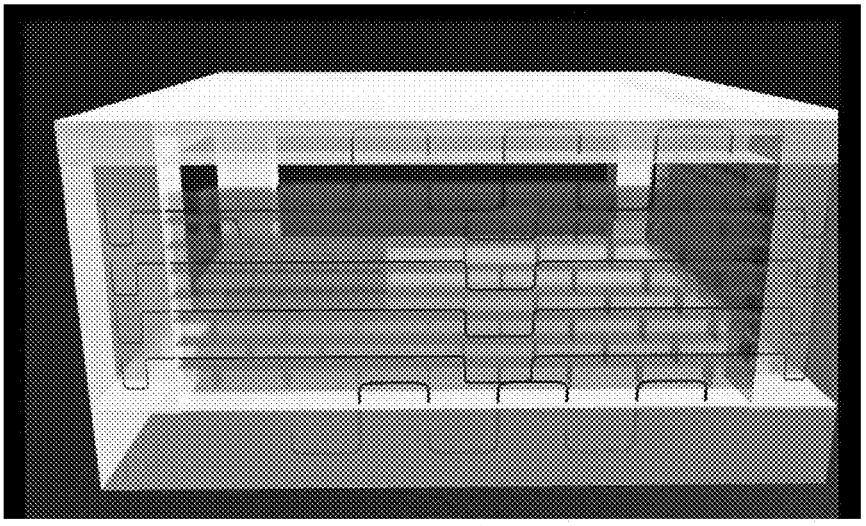

Fig. 67

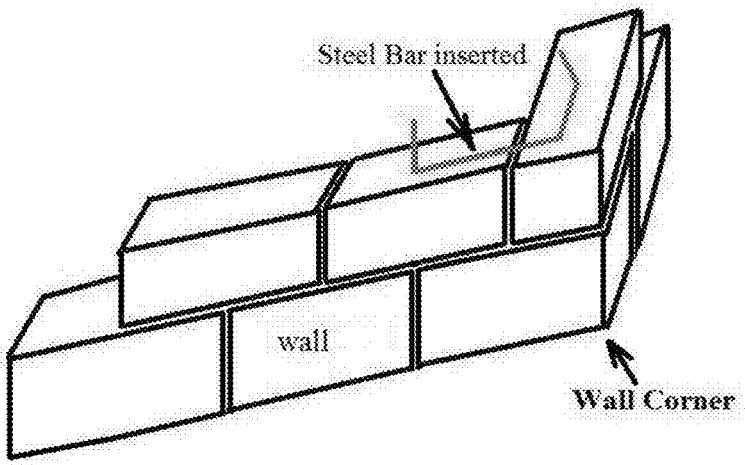

Fig. 68

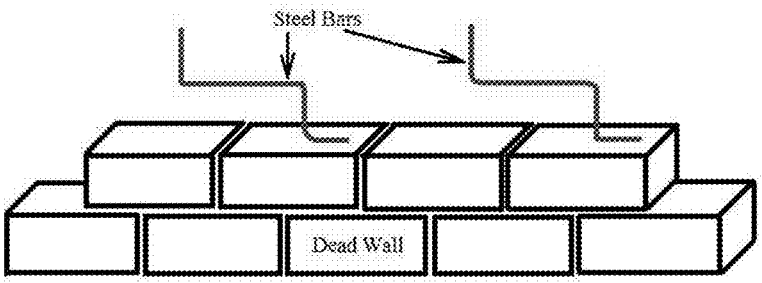

Fig. 69

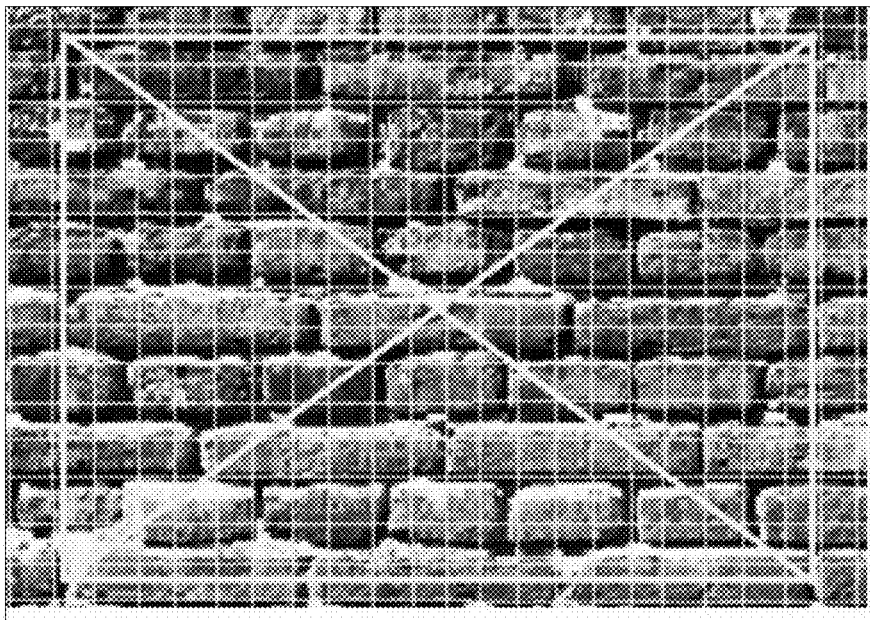

Fig. 70

A METHOD OF CONSTRUCTING EARTHQUAKE RESISTANT STRUCTURE WITH REINFORCED FOUNDATION AND WALL STRUCTURE

FIELD OF INVENTION

[0001] The Present invention relates to a seismic shock absorbing structure(s) which is constructed to transfer/absorb horizontal and vertical forces from the floor to allow buildings to withstand earthquake shocks.

[0002] More particularly field of the invention relates to earthquake resistant structures and a method of construction thereof.

[0003] More particularly, the field of invention provides Rhombus shaped Beams, Diagonal Cross Beams, Diagonal single Beam, Corner Beams, Plus shaped Beams, Rectangle shaped Beams, Radius Beams, Semi-Quarter Circular shaped Beams and additional multiple joints at the plinth level, above and below the plinth level in horizontal, vertical and/or inclined directions/planes.

[0004] Additionally the earthquake resistant structure has props in the form of fins to the columns of structure below the plinth level.

BACKGROUND OF THE INVENTION

[0005] Conventional Building structures are more prone to damage in earthquakes, as they are designed to support a vertical load in order to support walls, roof and all other structures inside from making them fall apart. There is limit to the strength of the Frames of the Structures.

[0006] Earthquakes can produce more than one type of seismic waves. Some of the waves travel vertically, some horizontally, and some circularly. Severe damages are caused by the lateral and sideways movement of the seismic waves. The foundation of a building tends to move with these vibrations during a tremor and if the base of the structure is not firmly bound with the surrounding and structure above, then the whole framework can break down, leading to a partial or total collapse of the building/structure.

[0007] The conventional approach to earthquake resistant design of buildings depends upon providing the building with strength, stiffness and inelastic deformation capacity which are sufficient to withstand a limited earthquake-generated force. This is generally accomplished through the selection of an appropriate structural configuration and the detailing of structural members, such as beams, columns and slabs and the connections between them.

[0008] While no structure can be completely immune to the damages from the earthquake. The prior art reveals that, there have been modifications made in the designing of the structure of the buildings or parts thereof to improve on the stability of the structures to withstand the forces generated due to earthquake, the following prior art provide different earthquake resistant technologies.

Patent Literature

[0009] U.S. Pat. No. 7,188,452: Sleeved Bracing Useful in the Construction of Earthquake Resistant Structures

[0010] The Prior Art reveals a buckling restrained brace includes an elongate, hollow sleeve, an elongate yielding core extending substantially through the length of the sleeve, and a buckling constraining element between the yielding core and the inner surface of the hollow sleeve and spaced apart from at least one surface of the yielding core, leaving a gap there between. The buckling constraining element may be spaced apart from and, thus, the gap may exist between two or more surfaces of the yielding core. Additionally, an inner sleeve, or liner, may be positioned between the buckling constraining element and the yielding core, with the liner being spaced apart from at least one surface of the yielding core. The buckling restrained brace is useful in absorbing loads, such as seismically induced loads, that are exerted upon a steel frame.

[0011] The difference in the present invention and the prior art is that, the prior art deals with a buckling restrained brace only to reduce the seismic induced loads that are exerted upon the steel frame, whereas the present invention, the arrangements specifies the utilization of Rhombus Shaped, Diagonal Cross, Rectangular Shaped, Corner, Plus Shaped, Radius Beams, Semi-Quarter Circular Shaped Beams at, below and above the plinth and angular beams at various inclined levels in the horizontal levels as well as vertical levels for providing stability to the structure.

[0012] EP PATENT NO. 2762655: Sheet for Covering Walls of Earthquake-Resistant Structures, Method for Screening Same, and Construction Method Using Same

[0013] Teaches a sheet for covering the walls of the earthquake resistant structure that is capable of suppressing damage to the wallpaper, even damages caused by seismic shocks. This sheet has a layered structure in which a resin layer including at least a foamed resin layer is layered in a material.

[0014] The difference between the prior art and the present invention are that, the prior art relates to the reinforced sheet for suppressing the seismic shocks and reducing the damages, whereas the present invention deals with the arrangement that the utilization of Rhombus Shaped, Diagonal Cross, Rectangular Shaped, Corner, Plus Shaped, Radius Beams, Semi-Quarter Circular Shaped Beams at below and above the plinth level and angular beams at various inclined levels in the horizontal levels as well as vertical levels for providing stability to the structure and reduce damage from the seismic waves.

[0015] PCT APPLICATION NO.: WO1999042667: Earthquake Resistant Building Structure Employing Sandbags

[0016] The Prior Art discloses, earthquake resistant building structures employing sand bags the building construction includes walls, domes, and curved roof structures retaining wall system and water embankments utilizing sandbags interconnected with barbed wire to create a strong, long lasting and earthquake resistant structure. Unlike beam and column structures, domes transfer their stress along the surface of the structure not from element to element. When the single element in the beam and column construction is overloaded to failure, the failure of that element will create a cascading effect on the adjacent elements, causing a general failure of all the elements in the vicinity of the failed part. In many cases, such a failure will cause the entire structure to collapse. A dome will not allow such an event to occur. There are protections provided by a dome which prevent such a failure. It is not possible to impose excessive load on the surface of the dome without causing a puncture failure. This results in the excessive load shed by the structure with only localized damage.

[0017] The difference between the Prior art and the present invention is that, the prior art suggest a dome structure and

the utilization of sand bags for the reinforcement, whereas the present invention is related to the horizontal as well as vertical and inclined structures that can be constructed. And the major reinforcement is provided by the Rhombus Shaped, Diagonal Cross, Rectangular Shaped, Corner, Plus Shaped, Radius Beams, Semi-Quarter Circular Shaped Beams structures that are arranged at different levels to provide stability to the main structure.

[0018] US PATENT APPLICATION NO.: 20090013619: Earthquake Resistant House

[0019] The prior art discloses a resistant structure including, a structure base assembly and a building structure positioned on a structure base assembly. The earthquake resistant structure includes a base isolation assembly which carries the building structure and structure base assembly.

[0020] U.S. Pat. No. 6,354,047 concerns Columnar structure with earthquake resistance imparted thereto and method of reinforcing the earthquake resistance of a columnar structure having a columnar structure such as a columnar member of a building structure or an earthquake-resistance columnar structure and a reinforcing the earthquake resistance of a columnar structure.

[0021] The prior art states about the base isolation assembly of the structure along with the structure base assembly, whereas the present invention relates to the Rhombus Shaped, Diagonal Cross, Rectangular Shaped, Corner, Plus Shaped, Radius Beams, Semi-Quarter Circular Shaped Beams and additional multiple joints at the plinth level, above and below the plinth level in horizontal, vertical and/or inclined directions/planes arranged to provide stability to the main structure.

[0022] Accordingly, there was need for a method of construction for horizontal, vertical and inclined structures to provide a composite energy absorbing structure which will withhold the lateral and vertical seismic load/force to keep the damage minimal resulting from earthquake.

[0023] This technical difficulty is being overcome by the present invention, which works for all types of building structures at the same time providing reinforced resistive structure, which can withstand the seismic shocks of the earthquakes.

[0024] U.S. Pat. No. 5,218,809 A: Earthquake Resistant Structures Utilizing a Confinement Reinforcing Framework

[0025] The prior art suggest that, in a poured concrete or masonry structure having reinforcing bars, an improvement is provided whereby a series of parallel, steel reinforcing frames are positioned at right angles to the reinforcing bars. Each frame comprises a prefabricated weldment of mutually parallel longitudinal rods and mutually parallel transverse rods forming a network of rectangular openings. The frame acts as a reinforcing perimeter in contact with the reinforcing bars to absorb shear forces and resist buckling. In the case of a poured concrete wall structure, the ends of the transverse rods may be bent upwardly into hooks for improved weld strength and for hanging further reinforcing materials. The invention improves the ductility of structures such as walls, columns and beams thereby providing an improvement in resistance to dynamic loads. Larger preassembled reinforcing frames may be lifted into place thereby reducing construction costs. Moreover, the reinforcing frames comprise, along with the reinforcing bars, an overall reinforcing framework that provides access passageways for inserting concrete compacting equipment within the structure

[0026] The difference between the prior art and the present invention is that, the prior art invention only relates to the reinforcement of the walls structure by providing steel mesh like frame, whereas the present invention relates to the intersecting Cross Beams, Rhombus Shaped, Diagonal Cross, Rectangular Shaped, Corner, Plus Shaped, Radius Beams, Semi-Quarter Circular Shaped Beams and additional multiple joints at the plinth level, above and below the plinth level in horizontal, vertical and/or inclined directions/planes for structural rigidity. Along with wall reinforcement and GI (Galvanized) welded mesh, fiberglass mesh and wire mesh reinforcement in walls to act as single unit.

[0027] U.S. Pat. No. 4,441,289: A Earthquake-Resistant Reinforcement Structure for an Existing Building with Compression Braces or Tension Braces

[0028] The prior art suggest a method for providing earthquake reinforcement for existing buildings by applying pre-compressive or pre-tensile stresses. In a first embodiment, a compression brace is provided on the beam pillar structure of the building in a diagonal direction to the structure so as to apply a pre-compressive stress to the compression brace. In another embodiment, a tension brace is provided on the beam pillar structure of the building so as to apply a pre-tensile stress to the tension brace in order to reinforce the building against an earthquake.

[0029] The difference between the prior art and the present invention is that, the prior art deals with the existing building, wherein tensile stress using braces is provided to columns to make them earthquake resistive, whereas, the present invention relates to the providing Rhombus Shaped, Diagonal Cross, Rectangular Shaped, Corner, Plus Shaped, Radius Beams, Semi-Quarter Circular Shaped Beams to provide the required rigidity and strength to the buildings thereby making them earthquake resistive.

Non Patent Literature

[0030] Earthquake-Resistant Masonry Buildings: Unesco Basic Guidelines for Designing Schools in Iran

[0031] The prior art teaches about the use of Masonry units, Reinforced concrete, steel frames for reinforcement of buildings. It suggests Fired bricks, concrete blocks (hollow or solid) and natural stone be used for the construction of masonry walls. Fired bricks, concrete blocks (hollow or solid) and natural stone be used for the construction of masonry walls. Plain or deformed bars may be used for structures, reinforced masonry and confined masonry. Especially shaped prefabricated ladder-type or truss-type reinforcement is to be sued in mortar bed-joints. To ensure structural integrity, vertical confining elements should be located at all corners and recesses of the building, and at all joints and wall intersections. In addition, they should be placed at both sides of any wall opening.

[0032] The difference between the cited prior art and the present invention are that the present invention deals with the foundational rigidity and strength of the building by including the Rhombus Shaped, Diagonal Cross, Rectangular Shaped, Corner, Plus Shaped, Radius Beams, Semi-Quarter Circular Shaped Beams where as the prior art teaches about the walls structure strength and rigidity by including the masonry units.

OBJECT OF THE INVENTION

[0033] The Main Object of the invention is to provide for a method of construction of buildings having higher resistive strength against the seismic shocks.

[0034] Further object of the invention is to provide for an effective, easy-to-use and economical method of construction of earthquake resistant structures, thereby reducing the loss of property and loss of life.

[0035] Furthermore object of the present invention is to provide method of construction of earthquake resistant structures to strengthen the Existing (old) structures against the seismic shocks.

SUMMARY OF THE INVENTION

[0036] Accordingly the present invention, A Method of Constructing Earthquake Resistant Structure with reinforced foundation and wall structure comprises use of interconnecting beam, interconnecting angled beam, foundation column and interlocked reinforced wall structure to strengthen the new construction as well as existing structures against the seismic shocks. This strengthening is achieved by structural designing, casting and fitting/slotting at least one of Rhombus Shaped, Diagonal Cross, Rectangular Shaped, Corner, Plus Shaped, Radius Beams, Semi-circular Shaped Beams, Quarter Circular Shaped Beams and Joints of all Beams, Fins below plinth level and at plinth level and at columns-slab-beams frames in multiple numbers and at various levels. The interconnecting beams thereby increase the rigidity of the entire frame of the structure. A reinforced masonry wall is also attached firmly to the frames of the structures and to the reinforced frames to act as a single resistive unit.

BRIEF DESCRIPTION OF THE DIAGRAMS

[0037] FIG. **1** shows the conventional reinforced structure, currently being practiced for most of the construction of the building.

[0038] FIG. **2** shows a conventional horizontal plinth beams plan, currently being practiced for construction of building. When we consider horizontal level then AB, BC, CD, DA are four horizontal plinth beams. This figure also indicates conventional vertical and or inclined Plan, currently being practiced for construction of building. When we consider FIG. **2** for vertical/inclined level then AB is upper beam-slab, BC is vertical column, CD is lower slab-beam and DA is vertical column of the structure frame.

[0039] FIG. **3** shows the horizontal, vertical, inclined abnormal forces exerted on the conventional horizontal, vertical/inclined frames of the structures.

[0040] FIG. **4** shows the damage caused to the horizontal as well as to the vertical and inclined joints due to the seismic forces, exerted at conventional horizontal plinth beam as well as vertical/inclined beams.

[0041] FIG. **5** shows the preferred Rhombus Shaped Beams inside the horizontal, vertical and inclined structure frames at plinth level and at upper multiple levels to improve the strength of the structure.

[0042] FIG. **6** shows the preferred Rhombus Shaped Beams inside the horizontal, vertical and inclined horizontal structure frames at plinth level and at upper multiple levels to improve the strength of the structure of the existing (old) building.

[0043] FIG. **7** shows the preferred Rhombus Shaped Beams and addition of Plus Shaped Beams at centre inside the horizontal, vertical and inclined structure frames at plinth level and at upper multiple levels to improve the strength of the structure.

[0044] FIG. **8** shows the preferred Rhombus Shaped Beams and addition of Plus Shaped Beams at centre inside the horizontal, vertical and inclined structure frames at plinth level and at upper multiple levels to improve the strength of the structure of the existing (old) building.

[0045] FIG. **9** shows the preferred Rhombus Shaped Beams and addition of four Corner Beams inside the horizontal, vertical and inclined structure frames at plinth level and at upper multiple levels to improve the strength of the structure.

[0046] FIG. **10** shows the preferred Rhombus Shaped Beams and addition of four Corner Beams inside the horizontal, vertical and inclined structure frames at plinth level and at upper multiple levels to improve the strength of the structure of the existing (old) building.

[0047] FIG. **11** shows the preferred Rhombus Shaped Beams with Diagonal two Cross Beams inside the horizontal, vertical and inclined structure frames at plinth level and at upper multiple levels to improve the strength of the structure.

[0048] FIG. **12** shows the preferred Rhombus Shaped Beams with Diagonal two Cross Beams inside the horizontal, vertical and inclined structure frames at plinth level and at upper multiple levels to improve the strength of the structure of the existing (old) building.

[0049] FIG. **13** shows the preferred Rhombus Shaped Beams with four Corner Beams and Rectangle Shaped Beams at centre inside the horizontal, vertical and inclined structure frames at plinth level and at upper multiple levels to improve the strength of the Structure.

[0050] FIG. **14** shows the preferred Rhombus Shaped Beams with four Corner Beams and Rectangle Shaped Beams at centre inside the horizontal, vertical and inclined structure frames at plinth level and at upper multiple levels to improve the strength of the structure of the existing (old) building.

[0051] FIG. **15** shows the preferred Rhombus Shaped Beams with Rectangle Shaped Beams at centre inside the horizontal, vertical and inclined structure frame at plinth level and at upper multiple levels to improve the strength of the structure.

[0052] FIG. **16** shows the preferred Rhombus Shaped Beams with Rectangle Shaped Beams at centre inside the horizontal, vertical and inclined structure frame at plinth level and at upper multiple levels to improve the strength of the structure of the existing (old) building.

[0053] FIG. **17** shows the preferred Rhombus Shaped Beams with four Corner Beams and Plus Shaped Beams at the centre inside the horizontal, vertical and inclined structure frames at plinth level and at upper multiple levels to improve the strength of the structure.

[0054] FIG. **18** shows the preferred Rhombus Shaped Beams with four Corner Beams and Plus Shaped Beams at the centre inside the horizontal, vertical and inclined structure frames at plinth level and at upper multiple levels to improve the strength of the structure of the existing (old) building.

[0055] FIG. **19** shows the preferred Rhombus Shaped Beams with two Diagonal Cross Beams and Plus Shaped Beams at centre inside the horizontal, vertical and inclined structure frames at plinth level and at upper multiple levels to improve the strength of the structure.

[0056] FIG. **20** shows the preferred Rhombus Shaped Beams with two Diagonal Cross Beams and Plus Shaped

Beams at centre inside the horizontal, vertical and inclined structure frames at plinth level and at upper multiple levels to improve the strength of the structure of the existing (old) building.

[0057] FIG. **21** shows the preferred two Diagonal Cross Beams with Plus Shaped Beams at centre inside the horizontal, vertical and inclined structure frames at plinth level and at upper multiple levels to improve the strength of the structure.

[0058] FIG. **22** shows the preferred two Diagonal Cross Beams with Plus Shaped Beams at centre inside the horizontal, vertical and inclined structure frames at plinth level and at upper multiple levels to improve the strength of the structure of the existing (old) building.

[0059] FIG. **23** shows the preferred Diagonal Cross Beams inside the horizontal, vertical and inclined structure frames at plinth level and at upper multiple levels to improve the strength of the structure.

[0060] FIG. **24** shows the preferred Diagonal Cross Beams inside the horizontal, vertical and inclined structure frames at plinth level and at upper multiple levels to improve the strength of the structure of the existing (old) building.

[0061] FIG. **25** shows the preferred Rhombus Shaped Beams with one Diagonal Cross Beam inside the horizontal, vertical and inclined structure frames at plinth level and at upper multiple levels to improve the strength of the structure.

[0062] FIG. **26** shows the preferred Rhombus Shaped Beams with one Diagonal Cross Beam inside the horizontal, vertical and inclined structure frames at plinth level and at upper multiple levels to improve the strength of the structure of the existing (old) building.

[0063] FIG. **27** shows the preferred Rhombus Shaped Beams with two Corner Beams and one Diagonal Beam inside the horizontal, vertical and inclined structure frames at plinth level and at upper multiple levels to improve the strength of the structure.

[0064] FIG. **28** shows the preferred Rhombus Shaped Beams with two Corner Beams and one Diagonal Beam inside the horizontal, vertical and inclined structure frames at plinth level and at upper multiple levels to improve the strength of the structure of the existing (old) building.

[0065] FIG. **29** shows the preferred Rhombus Shaped Beams with two Corner Beams, one Diagonal Beam and Rectangle Shaped Beams at centre inside the horizontal, vertical and inclined structure frames at plinth level and at upper multiple levels to improve the strength of the structure.

[0066] FIG. **30** shows the preferred Rhombus Shaped Beams with two Corner Beams, one Diagonal Beam and Rectangle Shaped Beams at centre inside the horizontal, vertical and inclined structure frames at plinth level and at upper multiple levels to improve the strength of the structure of the existing (old) building.

[0067] FIG. **31** shows the preferred Plus Shaped Beams inside the horizontal, vertical and inclined structure frames at plinth level and at upper multiple levels to improve the strength of the structure.

[0068] FIG. **32** shows the preferred Plus Shaped Beams inside the horizontal, vertical and inclined structure frames at plinth level and at upper multiple levels to improve the strength of the structure of the existing (old) building.

[0069] FIG. **33** shows the preferred Plus Shaped Beams at centre with two Corner Shaped Beams inside the horizontal, vertical and inclined structure frames at plinth level and at upper multiple levels to improve the strength of the structure.

[0070] FIG. **34** shows the preferred Plus Shaped Beams at centre with two Corner Shaped Beams inside the horizontal, vertical and inclined structure frames at plinth level and at upper multiple levels to improve the strength of the structure of the existing (old) building.

[0071] FIG. **35** shows the preferred Plus Shaped Beams at centre with one Corner Beam and one Diagonal Beam inside the horizontal, vertical and inclined structure frames at plinth level and at upper multiple levels to improve the strength of the structure.

[0072] FIG. **36** shows the preferred Plus Shaped Beams at centre with one Corner Beam and one Diagonal Beam inside the horizontal, vertical and inclined structure frames at plinth level and at upper multiple levels to improve the strength of the structure of the existing (old) building.

[0073] FIG. **37** shows the preferred Plus Shaped Beams at centre with Cross Shaped two Beams from the centre of Frame Beam to the two corners of the frame inside the horizontal, vertical and inclined structure frames at plinth level and at upper multiple levels to improve the strength of the structure.

[0074] FIG. **38** shows the preferred Plus Shaped Beams at centre with Cross Shaped two Beams from the centre of Frame Beam to the two corners of the frame inside the horizontal, vertical and inclined structure frames at plinth level and at upper multiple levels to improve the strength of the structure of the existing (old) building.

[0075] FIG. **39** shows the preferred Plus Shaped Beams at centre with two Diagonal Beams and two Corner Beams inside the horizontal, vertical and inclined structure frames at plinth level and at upper multiple levels to improve the strength of the structure.

[0076] FIG. **40** shows the preferred Plus Shaped Beams at centre with two Diagonal Beams and two Corner Beams inside the horizontal, vertical and inclined structure frames at plinth level and at upper multiple levels to improve the strength of the structure of the existing (old) building.

[0077] FIG. **41** shows the preferred Plus Shaped Beams at centre with one Diagonal Cross Beams and with two Diagonal Beams and two Corner Beams inside the horizontal, vertical and inclined structure frames at plinth level and at upper multiple levels to improve the strength of the structure.

[0078] FIG. **42** shows the preferred Plus Shaped Beams at centre with one Diagonal Cross Beams and with two Diagonal Beams and two Corner Beams inside the horizontal, vertical and inclined structure frames at plinth level and at upper multiple levels to improve the strength of the structure of the existing (old) building.

[0079] FIG. **43** shows the preferred Plus Shaped Beams at centre with one Diagonal Cross Beam and two Diagonal Beams inside the horizontal, vertical and inclined structure frames at plinth level and at upper multiple levels to improve the strength of the structure.

[0080] FIG. **44** shows the preferred Plus Shaped Beams at centre with one Diagonal Cross Beam and two Diagonal Beams inside the horizontal, vertical and inclined structure frames at plinth level and at upper multiple levels to improve the strength of the structure of the existing (old) building.

[0081] FIG. **45** shows the preferred one Centre to Centre Frame Beam with one Diagonal Beam inside the horizontal,

vertical and inclined structure frames at plinth level and at upper multiple levels to improve the strength of the structure.

[0082] FIG. **46** shows the preferred one Centre to Centre Frame Beam with one Diagonal Beam inside the horizontal, vertical and inclined structure frames at plinth level and at upper multiple levels to improve the strength of the structure of the existing (old) building.

[0083] FIG. **47** shows the preferred two Diagonal Cross Beams with Plus Shaped Beams at centre and two Diagonal Beams inside the horizontal, vertical and inclined structure frames at plinth level and at upper multiple levels to improve the strength of the structure.

[0084] FIG. **48** shows the preferred two Diagonal Cross Beams with Plus Shaped Beams at centre and two Diagonal Beams inside the horizontal, vertical and inclined structure frames at plinth level and at upper multiple levels to improve the strength of the structure of the existing (old) building.

[0085] FIG. **49** shows the preferred one Centre to Centre Beam and at adjacent/both sides of window; Rhombus Beams, Plus Shaped Beams and two Diagonal Beams. Below window, Rhombus Beams, Plus Shaped Beams and two Diagonal Beams inside the vertical and inclined structure frames at plinth level and at upper multiple levels to improve the strength of the structure.

[0086] FIG. **50** shows the preferred one Centre to Centre Beam and at adjacent/both sides of window; Plus Shaped Beams and two Diagonal Beams. Below window, Rhombus Beams with Plus Shaped Beams and two Diagonal Beams inside the vertical and inclined structure frames at plinth level and at upper multiple levels to improve the strength of the structure of the existing (old) building.

[0087] FIG. **51** shows the preferred one Centre to Centre Beam and at adjacent/both sides of window; Rhombus Beams. Below window Rhombus Beams inside the vertical and inclined structure frames at plinth level and at upper multiple levels to improve the strength of the structure.

[0088] FIG. **52** shows the preferred one Centre to Centre Beam and at adjacent/both sides of window; Rhombus Beams. Below window Rhombus Beams inside the, vertical and inclined structure frames at plinth level and at upper multiple levels to improve the strength of the structure of the existing (old) building.

[0089] FIG. **53** shows the preferred one Centre to Centre Beam with one Semi Circular Beam and three Radius Beams inside the horizontal, vertical and inclined structure frames at plinth level and at upper multiple levels to improve the strength of the structure.

[0090] FIG. **54** shows the preferred one Centre to Centre Beam with one Semi Circular Beam and three Radius Beams inside the horizontal, vertical and inclined structure frames at plinth level and at upper multiple levels to improve the strength of the structure of the existing (old) building.

[0091] FIG. **55** shows the preferred Plus Shaped Beams at centre with one Semi Circular Beam and two Diagonal Cross Beams inside the horizontal, vertical and inclined structure frames at plinth level and at upper multiple levels to improve the strength of the Structure.

[0092] FIG. **56** shows the preferred Plus Shaped Beams at centre with one Semi Circular Beam and two Diagonal Cross Beams inside the horizontal, vertical and inclined structure frames at plinth level and at upper multiple levels to improve the strength of the structure of the existing (old) building.

[0093] FIG. **57** shows the preferred Plus Shaped Beams at centre with one Quarter Circular Beam and two Diagonal Cross Beams inside the horizontal, vertical and inclined structure frames at plinth level and at upper multiple levels to improve the strength of the structure.

[0094] FIG. **58** shows the preferred Plus Shaped Beams at centre with one Quarter Circular Beam and two Diagonal Cross Beams inside the horizontal, vertical and inclined structure frames at plinth level and at upper multiple levels to improve the strength of the structure of the existing (old) building.

[0095] FIG. **59** shows the preferred Plus Shaped Beams at centre with one Quarter Circular Beam and one Diagonal Cross Beam and one Corner Beam inside the horizontal, vertical and inclined structure frames at plinth level and at upper multiple levels to improve the strength of the structure.

[0096] FIG. **60** shows the preferred Plus Shaped Beams at centre with one Quarter Circular Beam and one Diagonal Cross Beam and one Corner Beam inside the horizontal, vertical and inclined structure frames at plinth level and at upper multiple levels to improve the strength of the structure of the existing (old) building.

[0097] FIG. **61** shows the preferred Rhombus Beams and Plus Shaped Beams, with two Diagonal Cross Beams and one Quarter-Circle Shaped Beam inside the horizontal, vertical and inclined structure frames at plinth level and at upper multiple levels to improve the strength of the structure.

[0098] FIG. **62** shows the preferred Rhombus Beams and Plus Shaped Beams, with two Diagonal Cross Beams and one Quarter-Circle Shaped Beam inside the horizontal, vertical and inclined structure frames at plinth level and at upper multiple levels to improve the strength of the structure of the existing (old) building.

[0099] FIG. **63** shows the preferred two Semi Circular Beams with Plus Shaped Beams at centre and two Diagonal Cross Beams inside the horizontal, vertical and inclined Circular structure frames at plinth level and at upper multiple levels to improve the strength of the structure.

[0100] FIG. **64** shows the preferred two Semi Circular Beams with Plus Shaped Beams at centre and two Diagonal Cross Beams inside the horizontal, vertical and inclined Circular structure frames at plinth level and at upper multiple levels to improve the strength of the structure of the existing (old) building.

[0101] FIG. **65** shows the damaged Conventional building/structures due to earthquake.

[0102] FIG. **66** shows the preferred FINS shaped propping supports to the columns below the plinth level of building/structure.

[0103] FIG. **67** shows the preferred Reinforced Wall Masonry interlocked firmly to the Columns of the Building/Structure.

[0104] FIG. **68** shows the preferred Reinforced Masonry Interlocked firmly to the Corner walls.

[0105] FIG. **69** shows the preferred reinforced Masonry Interlocked firmly to the dead walls.

[0106] FIG. **70** shows the preferred Reinforced Masonry supported by additional steel and wire mesh, fiberglass.

DETAILED DESCRIPTION OF THE INVENTION

[0107] Related art in the field suggest that, the existing technologies in construction are proving to be ineffective to resist the seismic shocks generated by the earthquake more than 5-6 Richter scale and more Magnitude, thereby causing immense damage to the life and property worldwide.

[0108] The present invention, lays down a method of construction which provides increased strength and rigidity to the structural framework and various joints of the building/structures.

[0109] The structures/buildings experiencing massive stress due to the Earth's Tectonic Plates movements during Earthquake. The movement of these Tectonic Plates along with stress created in the frames of the structure when exceed the resistive strength causes damages to the structure leading to the collapse of the structures/buildings. The main damage is loss of property and loss of human lives at great extent.

[0110] In FIG. **5** the additional Rhombus Beams provided in the frame due to which the strength of the structure is improved at E, F, G and H joints to the great extent. Due to the movements of Tectonic Plates during Earthquakes stress is created at the frames. There must be additional force/stress required to damage the Joints E, F, G and H and at the same time additional force/stress also required to break the Beams EF, FG, GH and HE. We provide multiple Rhombus Beams at multiple levels in Horizontal, Vertical and Inclined directions in the building hence multiple additional resistive strength of the frames is created, which will cause no damages to the structures. Ultimately it will save the property and the human lives.

[0111] In the preferred embodiment, additional Rhombus Shaped, Diagonal Cross, Rectangular Shaped, Corner, Plus Shaped, Radius Beams, Semi-Quarter Circular Shaped Beams and hence additional joints of all [FIG. **5** To FIG. **64**] are provided below Plinth level and at upper multiple levels in Horizontal, Vertical and Inclined directions to improve additional multiple strength at great extent to the constructed frames of the structure for new as well as for existing (old) construction.

[0112] FIG. **65** shows the Conventional building/structures which are more prone to damage in earthquakes, since they are designed to support a vertical load in order to support walls, roof and all other structures. Due to the movements in the earth's Tectonic Plates during earthquake, massive stress created in the frames, when exceed the resistive strength causes damages to the structure leading to the collapse of the structures/buildings.

[0113] In the present embodiment, the columns below the plinth are provided with the additional props in the forms of Fins to the three and/or four sides (FIG. **66**). The modified columns resist the horizontal and vertical movements of the structure during earthquake in a better manner than the existing structures.

[0114] The complete structure with additional Rhombus shaped Beams, Diagonal Cross Beams, Diagonal single Beam, Corner Beams, Plus shaped Beams, Rectangular shaped Beams, Radius Beams, Semi-Quarter Circular shaped Beams and hence additional joints and Props in the form of FINS, provide better resistive structure than the existing constructional technology. In a certain embodiment, the position of the windows and doors may be modified in accordance with the Beams position.

[0115] In one another embodiment, Reinforced Masonry wall may be firmly attached to the Structure Frame as a single unit in the conventional construction method, no interlocking is provided between the frame structure and the wall masonry, thereby leading to an unbalanced brick walls ultimately collapsing on the slab. This impact on the slab, affect the strength and rigidity of the structure, thereby rendering heavy damage to the whole structure [FIG. **65**]. The interlocking [FIG. **67**] provides the required firmness and rigidity to the whole structure by binding the wall and FRAME structure at all directions as a single unit.

[0116] In the preferred embodiment, the Reinforced Masonry for Corner wall is interlocked with the Corner wall using steel design making the whole structure as a single unit thereby reducing the damage on the wall structure. [FIG. **68**] In the preferred embodiment, the Reinforced Masonry for Dead wall is interlocked with the steel design making the whole structure as a single unit thereby reducing the damage on the wall structure. [FIG. **69**]

[0117] In another embodiment, additional steel reinforcement and GI (Galvanized) welded mesh, fiber glass mesh and wire mesh with Diagonal Cross steel belt are provided additional support to the wall structure. [FIG. **70**]

[0118] The reinforced wall structure acting as a single unit, provide the additional advantage to the structure during, earthquakes of larger magnitude than the design limit. The whole wall structure acting as a single unit create render lesser damage to the property and life allowing the breathing space to the victims by providing the additional air pockets than the single bricks collapsing structure. The efforts of the rescue team are also substantially reduced, as a result of this single unit wall structure.

We claim:

1. A method of constructing a seismic shock absorbing earthquake resistant structure comprising of:

a) structural designing and casting of foundation column in the form of a fin shape;

b) structural designing and casting of a plinth beam, said plinth beam casted simultaneously with an interconnecting beam;

c) constructing an interlocked reinforced wall structure;

d) structural designing and casting of a column, beam and slab, said column, beam and slab are simultaneously casted with an interconnecting angled beam.

2. The interconnecting beam and angular beam as claimed m claim **1**, wherein the said beam is placed in at least at horizontal, vertical and inclined structure frames.

3. The interconnecting beam and angular beam as claimed in claim **1**, wherein the said beam is of rhombus shaped and placed at atleast one of plinth level, below plinth level and above plinth level.

4. The interconnecting beam and angular beam as claimed in claim **1**, wherein the said beam is of diagonal cross, corner, plus shaped and placed at atleast one of plinth level, below plinth level and above plinth level.

5. The interconnecting beam and angular beam as claimed in claim **1**, wherein the said beam is of semi circular shaped, quarter circular shaped, radius beam and placed at atleast one of plinth level, below plinth level and above plinth level.

6. The interconnecting beam and angular beam as claimed in claim **1**, wherein the said beam is of rectangle shaped and placed at atleast one of plinth level, below plinth level and above plinth level.

7. The interlocked reinforced wall structure as claimed in claim **1**, wherein the said wall is interlocked with at least one of Reinforced Cement Concrete (RCC), cement composites, steel, iron, metal, concrete, polystyrene polyurethane, wood, timber, plastics, fabrics, syporex, syporex blocks, bricks, stones, mud, clay, cardboard, hardboard, fired bricks, and clay blocks.

8. The interlocked reinforced wall structure as claimed in claim **1**, wherein the said wall is reinforced at least with GI (Galvanized) welded mesh, fiberglass mesh and wire mesh.

9. A method of constructing a seismic shock absorbing earthquake resistant structure, the said method comprising:

a) structural designing and inserting of a plinth beam, the said plinth beam slotting in simultaneously with an interconnecting beam;

b) structural designing and inserting of a column, beam and slab, said column, beam and slab are slotted in simultaneously with an interconnecting angled beam.

10. The interconnecting beam and angular beam as claimed in claim **9**, wherein the said beam is placed in at least at horizontal, vertical or inclined structure frames in at least one of rhombus shaped, diagonal cross shaped, corner, plus shaped, rectangle shaped, semi-quarter circular shaped and radius beam.

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