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(19) **United States**(12) **Patent Application Publication****Nelson**(10) **Pub. No.: US 2006/0156675 A1**(43) **Pub. Date: Jul. 20, 2006**(54) **FACER BEAM BARRIER SYSTEM**(52) **U.S. Cl. 52/633**(76) **Inventor: Thomas Page Nelson, Portsmouth, NH (US)**(57) **ABSTRACT**

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Thomas Page Nelson**Apt. 5****2nd fl.****63 Tsar Assen****Sofia 1463 (BG)**(21) **Appl. No.: 10/821,991**(22) **Filed: Apr. 12, 2004****Related U.S. Application Data**

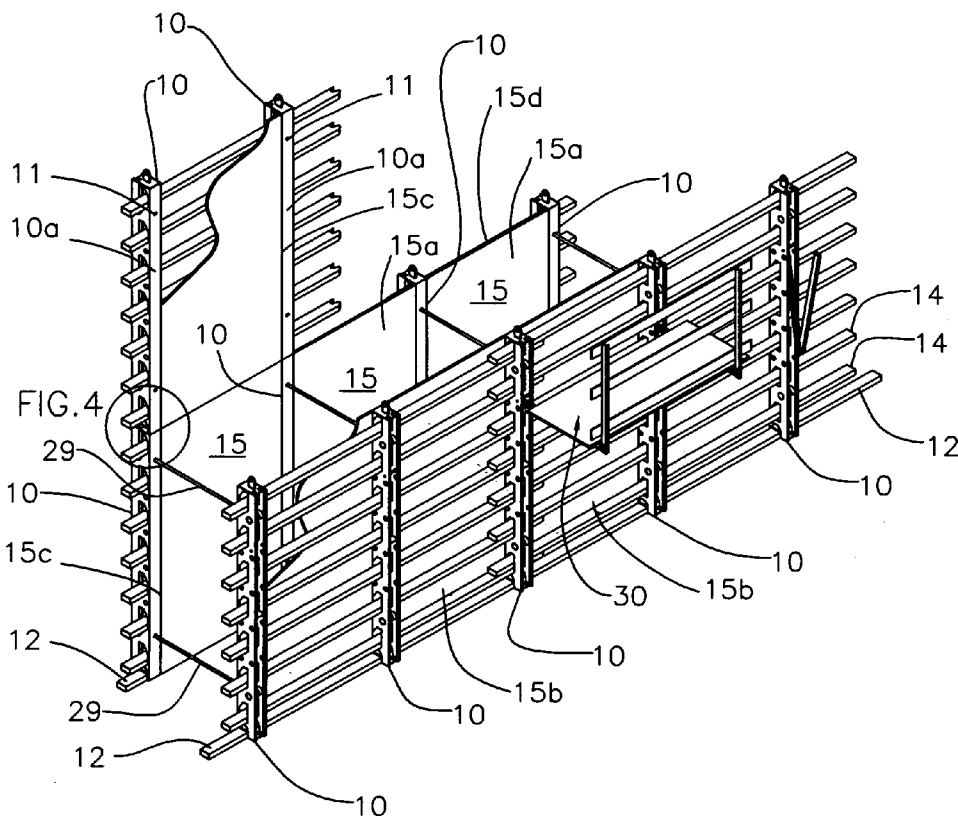
(63) Continuation-in-part of application No. 09/665,272, filed on Sep. 19, 2000, now Pat. No. 6,662,520.

(30) **Foreign Application Priority Data**

Jan. 31, 2003 (WO)..... PCT/US03/02891

Publication Classification(51) **Int. Cl.**
E04C 3/02 (2006.01)

This invention expands Nelson's Sub-Rigid Fast-Form Barrier System that it was originally a part of. The system disclosed herein is simple to manufacture and simple to use and promises wide commercial application as the labor costs for concrete construction become increasingly prohibitive. The extraordinary absence of nails, screws, bolts, welds or any other fastening device allows these barriers to compete with many conventional barrier systems and any concrete form system on the market today. The invention addresses eccentric beam loading where barriers must be economically fabricated to withstand liquid concrete pressure in a sub-rigid manner. While providing a lightweight beam with heavy weight strength it is also a goal of this invention to provide a form system that is self-contained, meaning that all fasteners to construct the barrier, ties that hold form barriers together, staging needed to erect the barriers, bolts used to plumb the barriers and brackets available to hoist the barriers are all integral parts of this invention. Another goal disclosed herein are barriers for concrete formwork that are made up of ninety percent standard building products found in any locality in the world. This barrier invention offers rapid erection time that can be accomplished by unskilled labor and result in a quality construction.



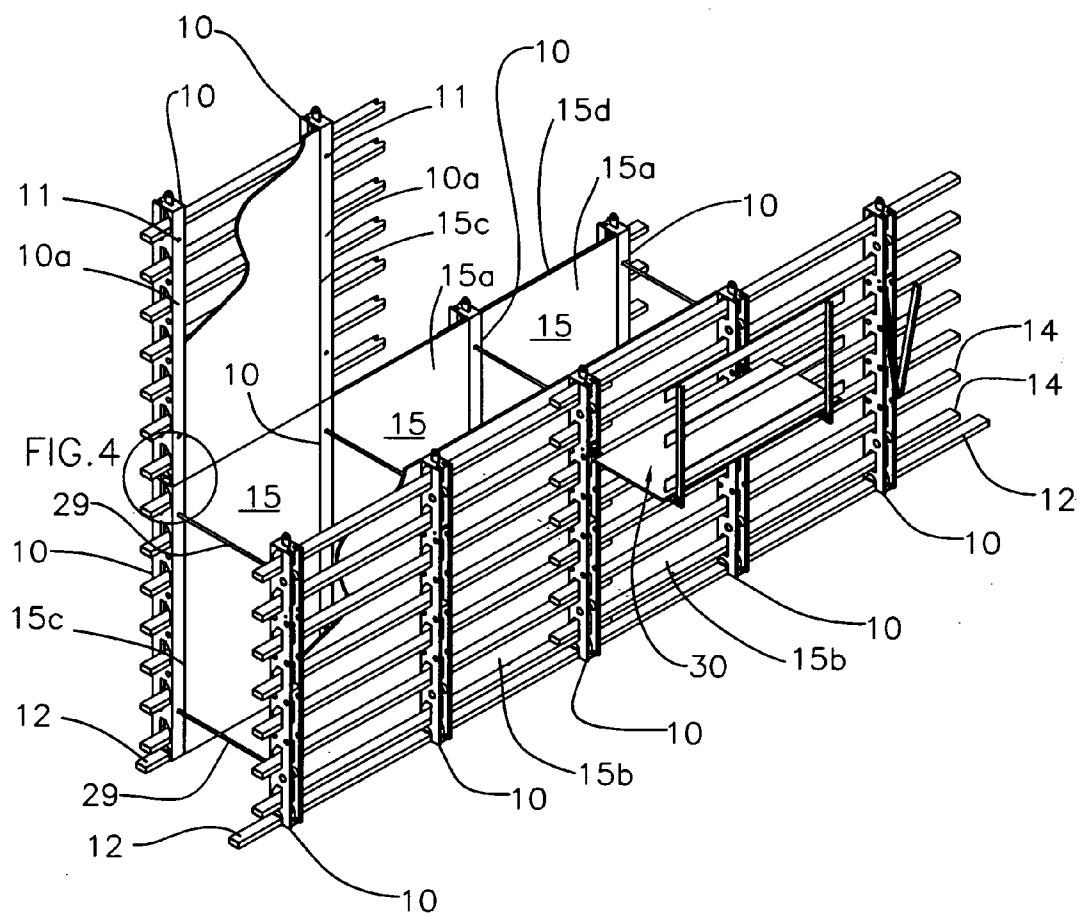
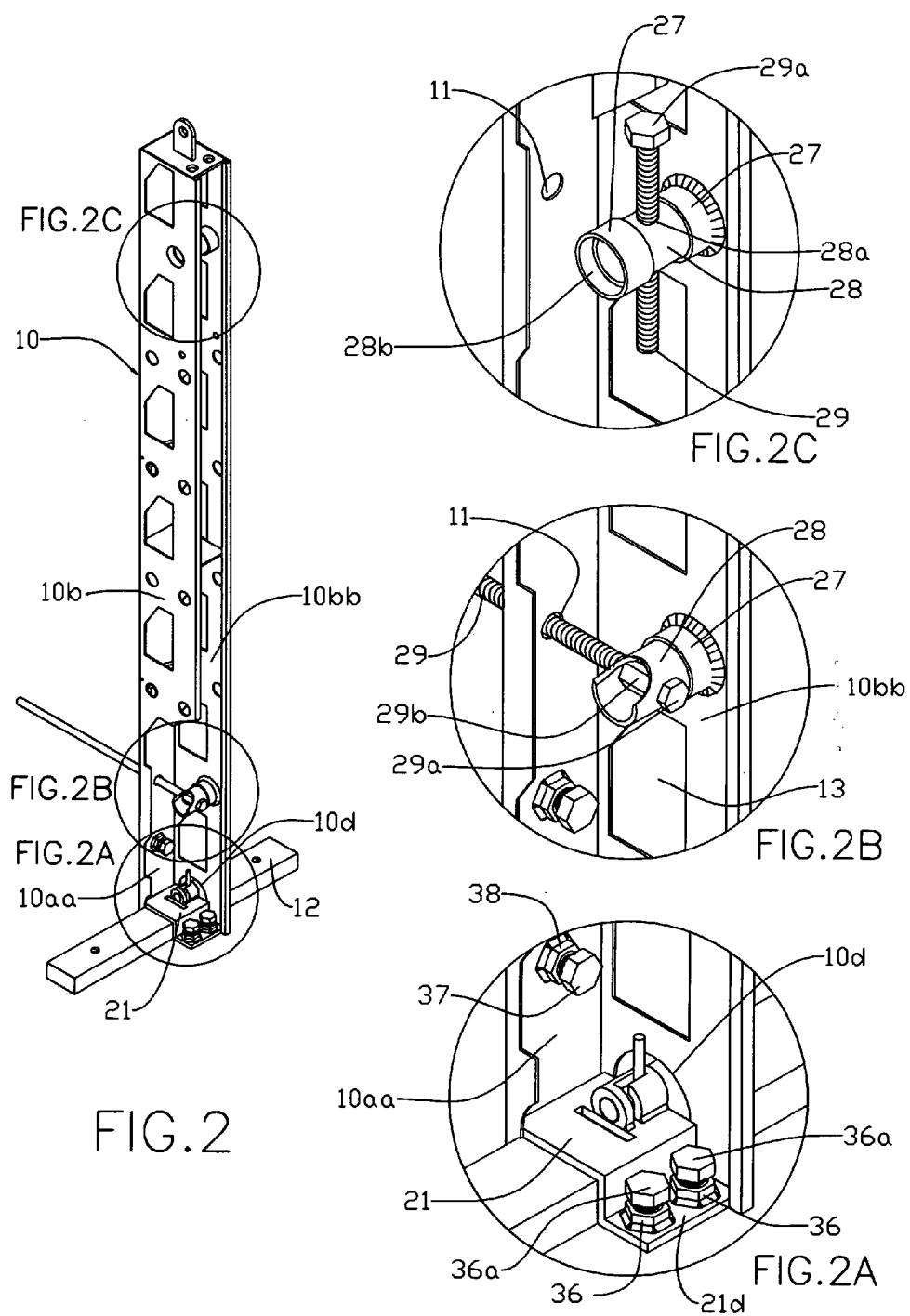


FIG. 1



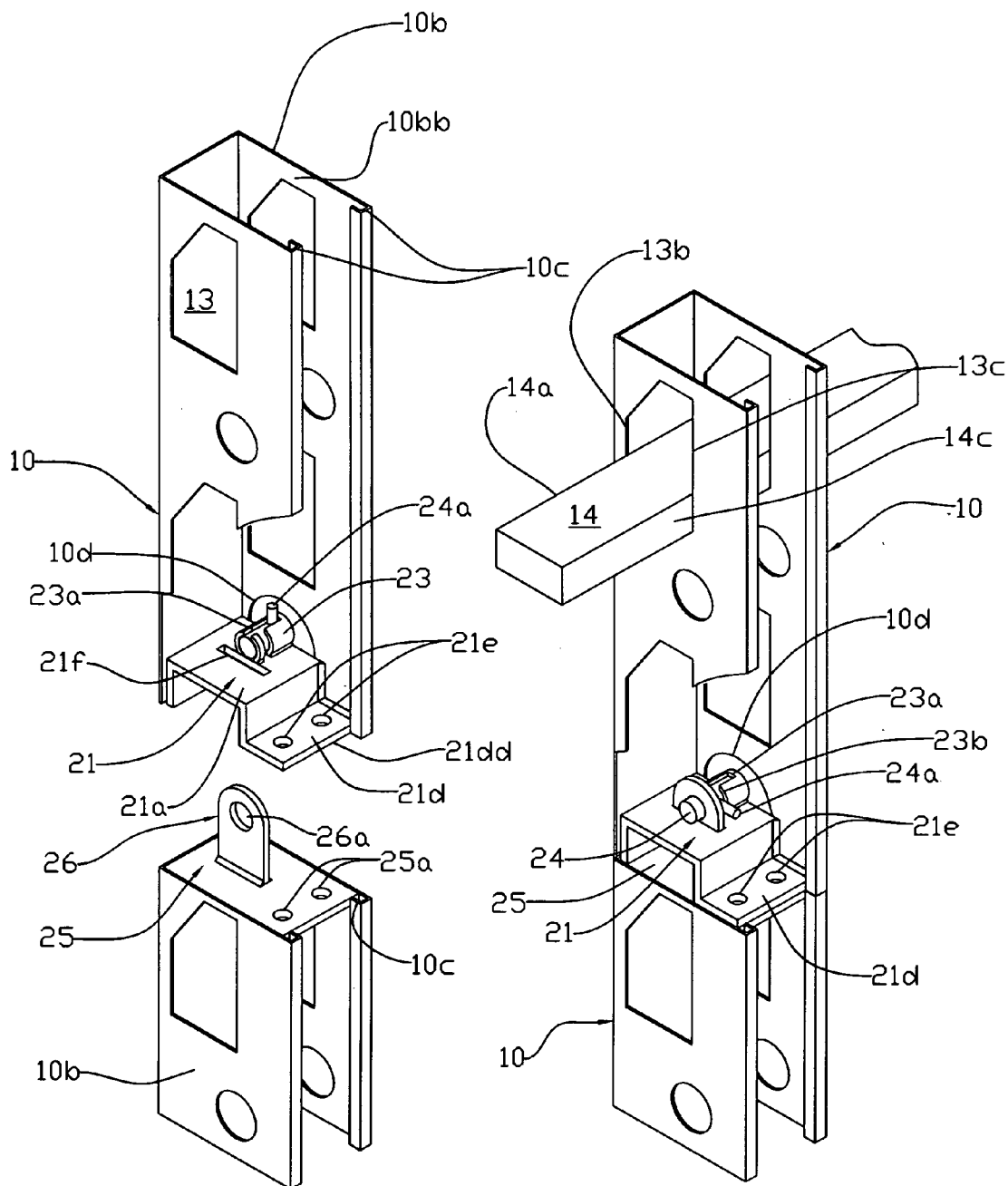
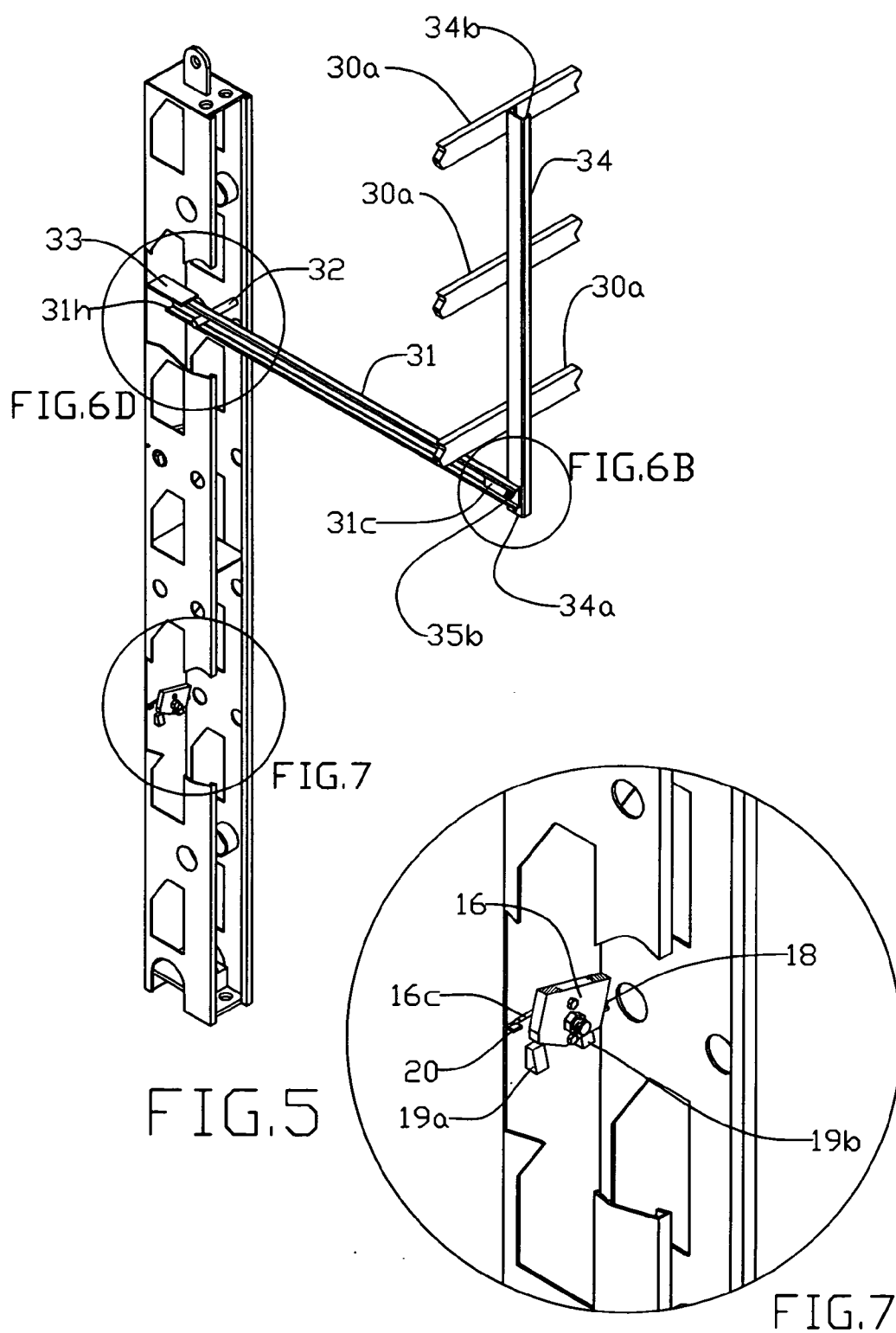


FIG.3

FIG.4



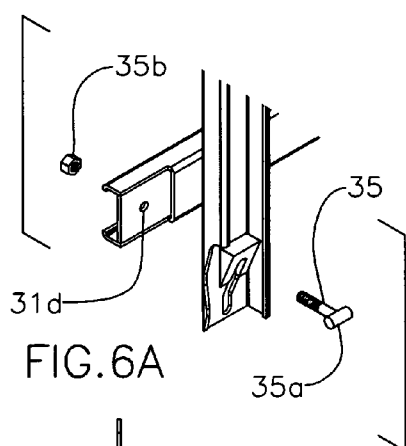


FIG. 6A

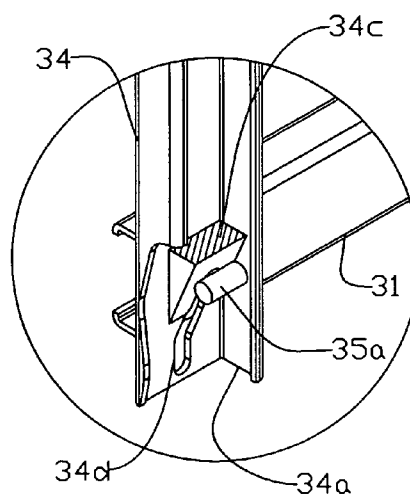


FIG. 6B

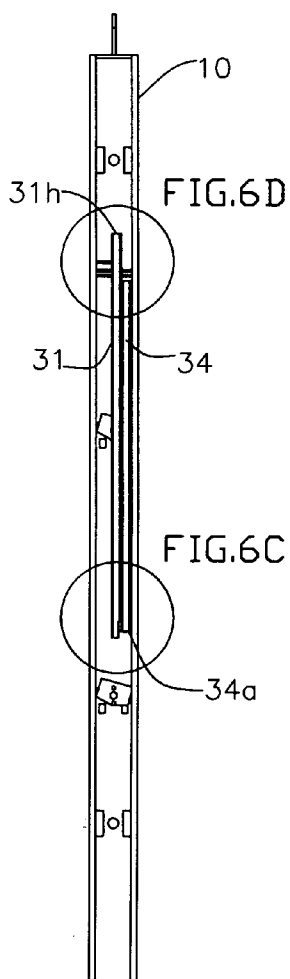


FIG. 6

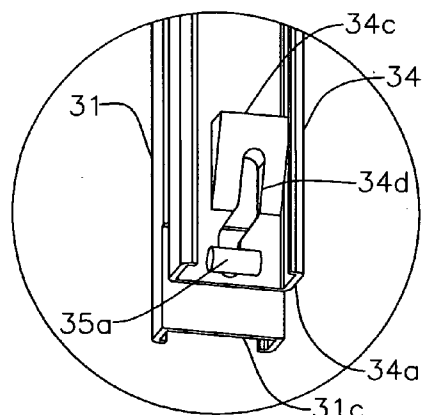


FIG. 6C

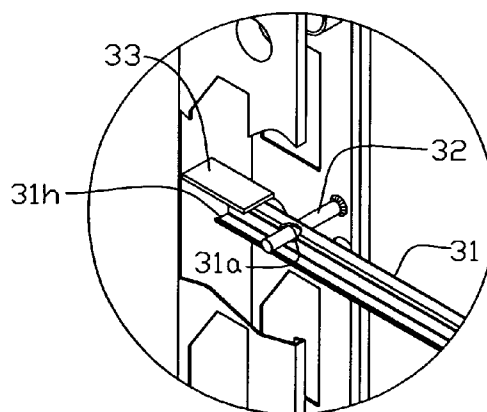


FIG. 6D

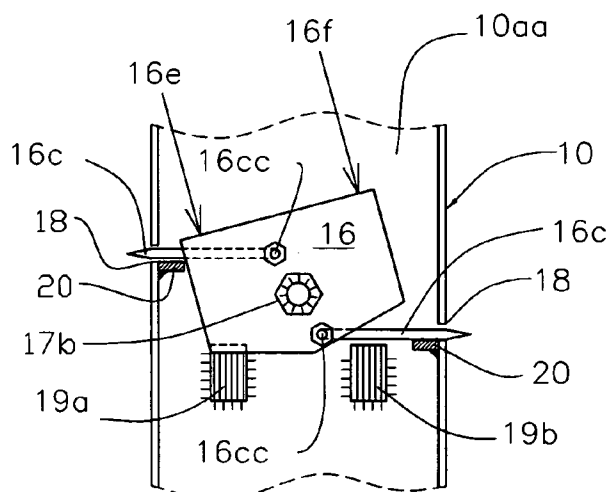


FIG. 7B

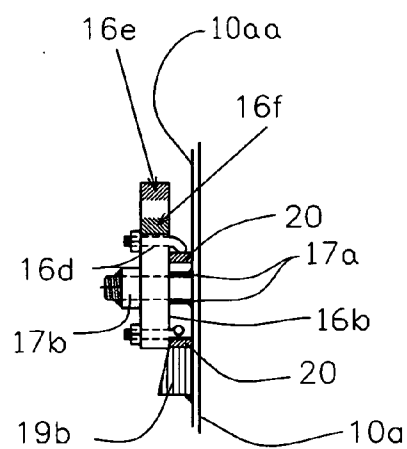


FIG. 7C

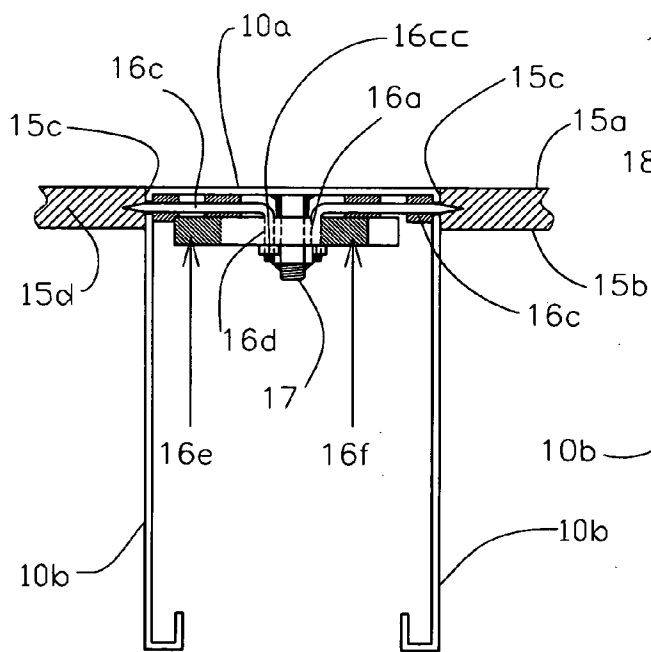


FIG. 7A

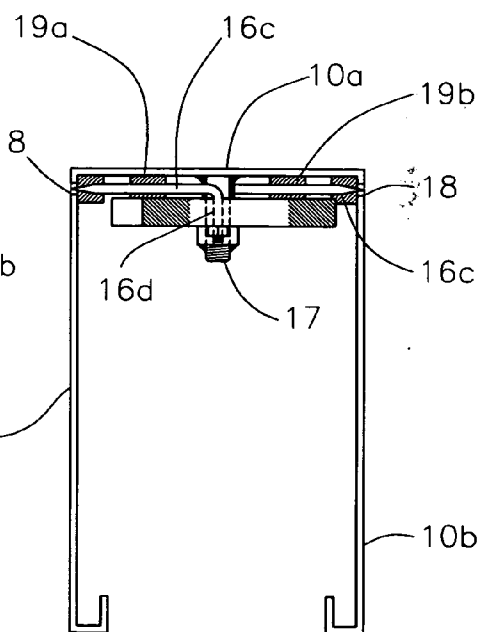


FIG. 7D

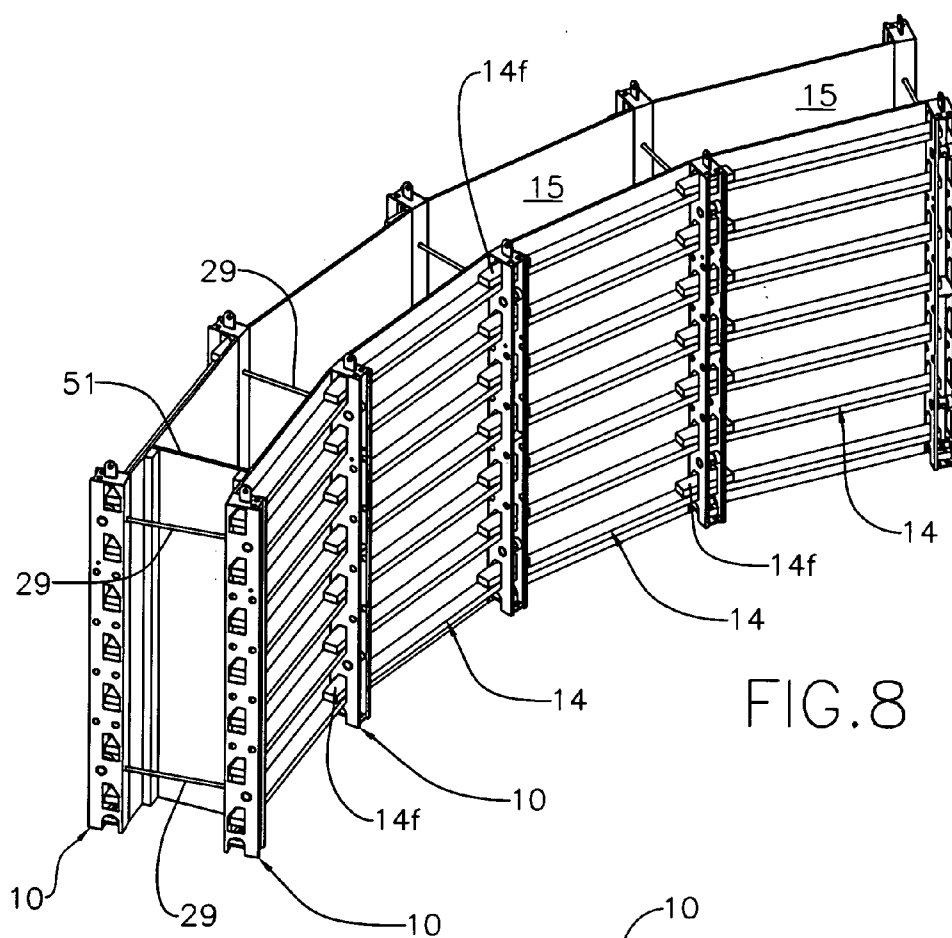


FIG. 8

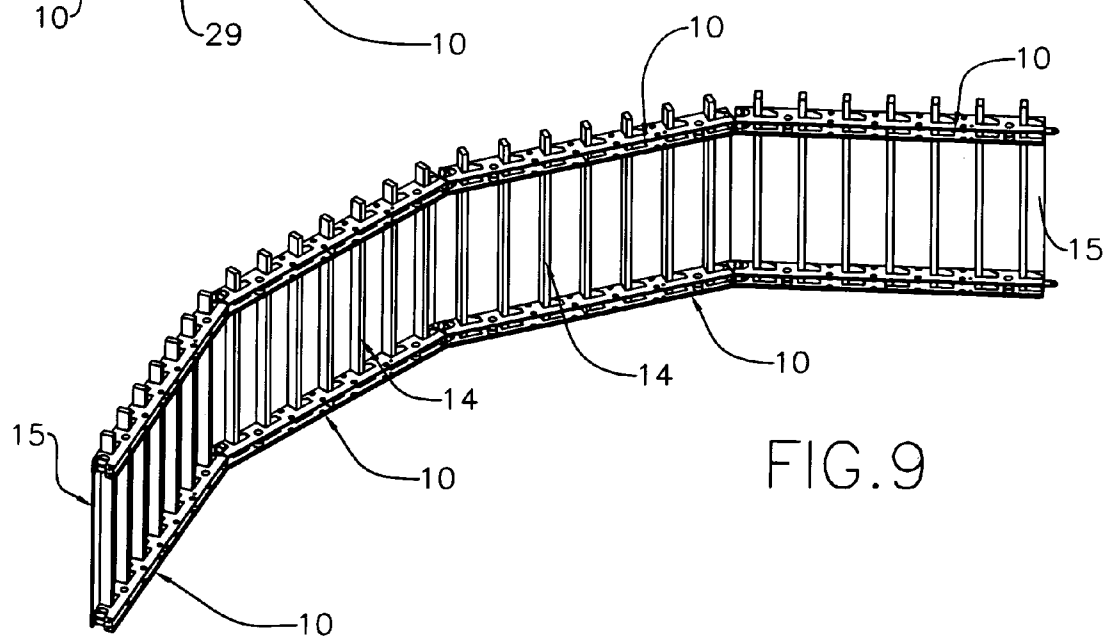


FIG. 9

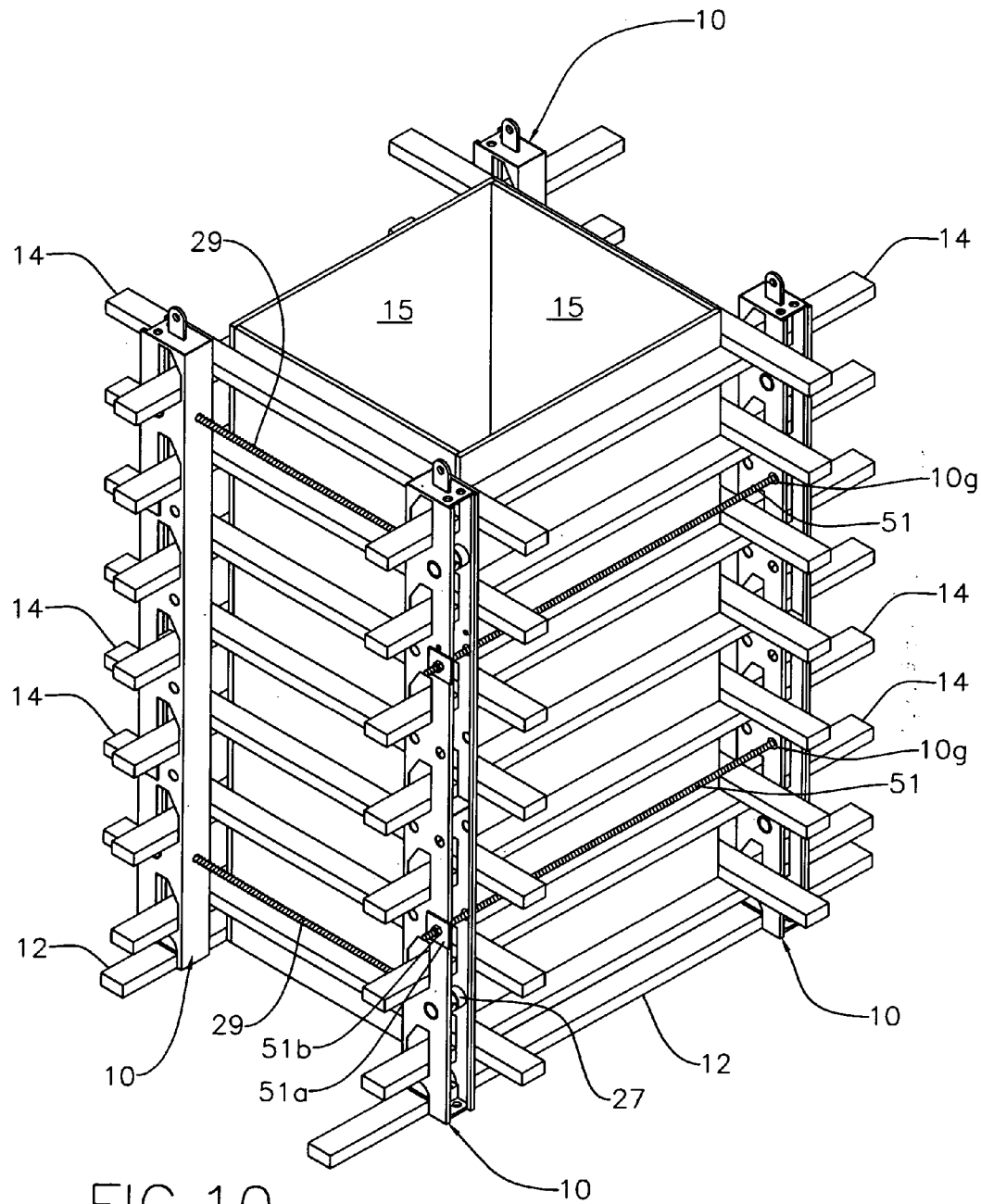


FIG. 10

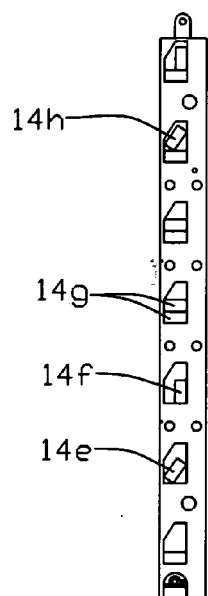


FIG. 11

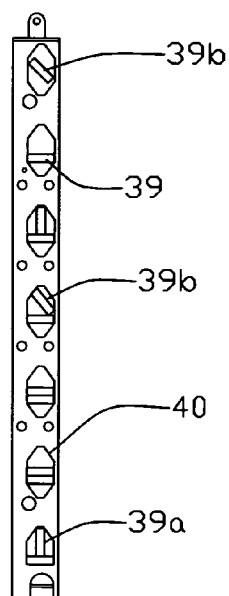


FIG. 11A

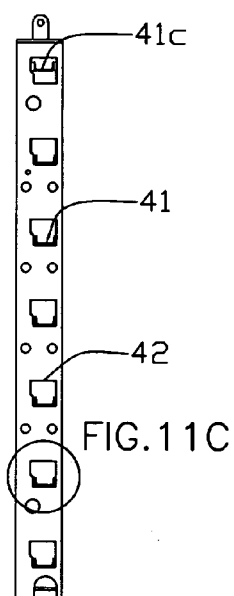


FIG. 11B

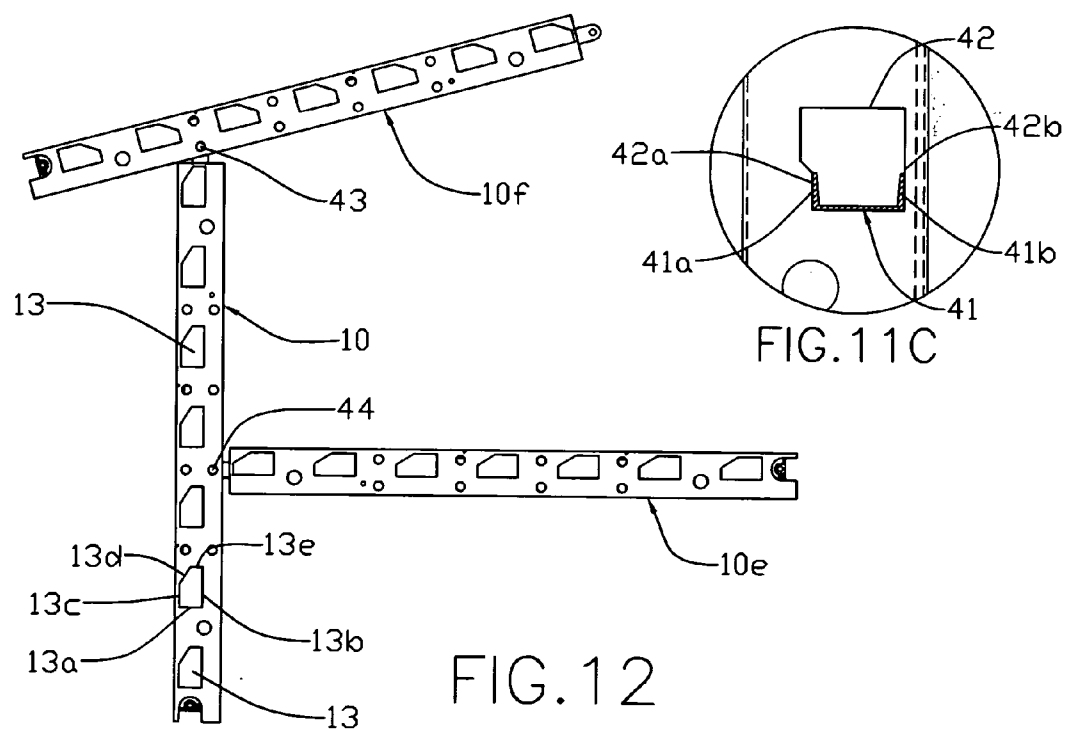
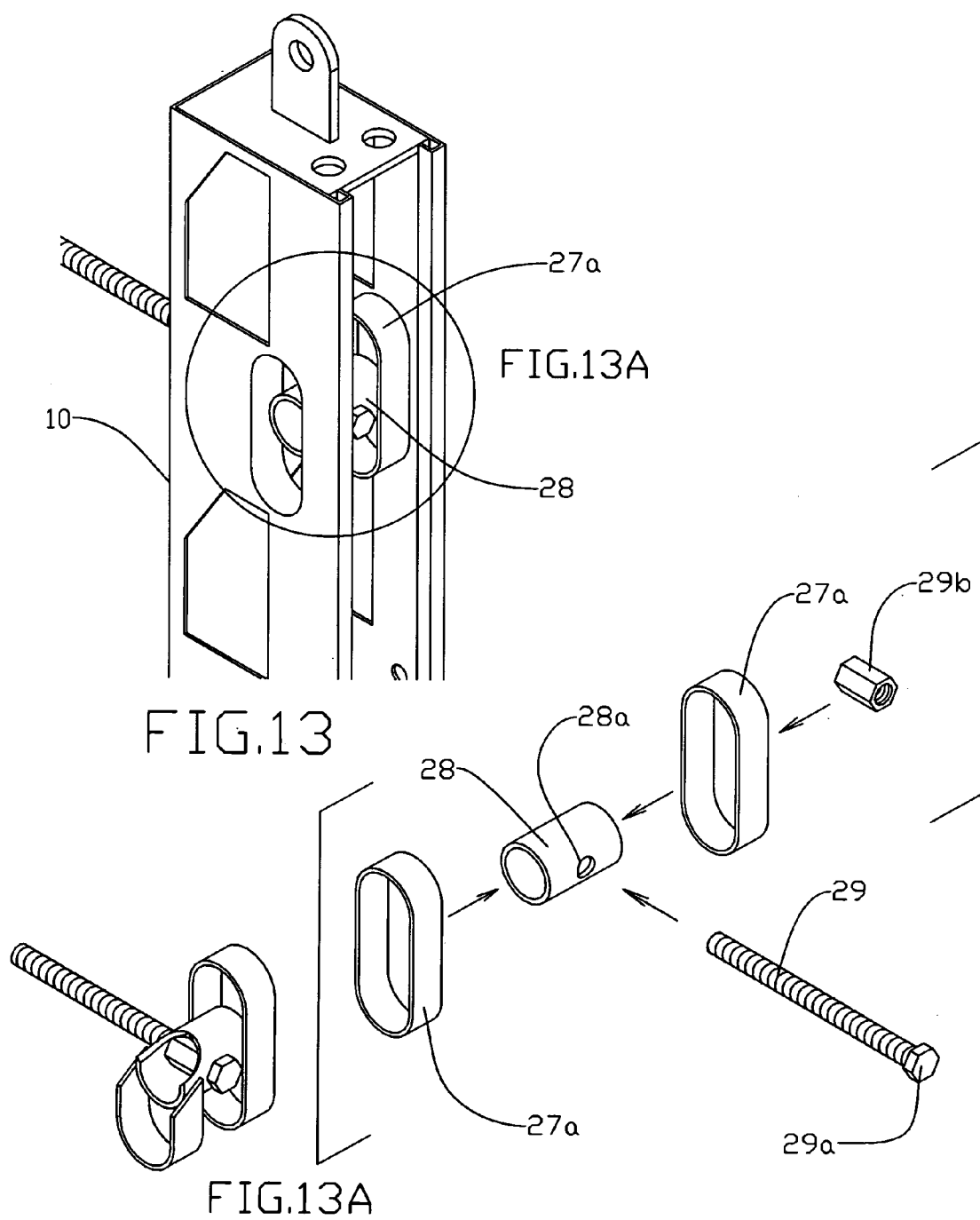
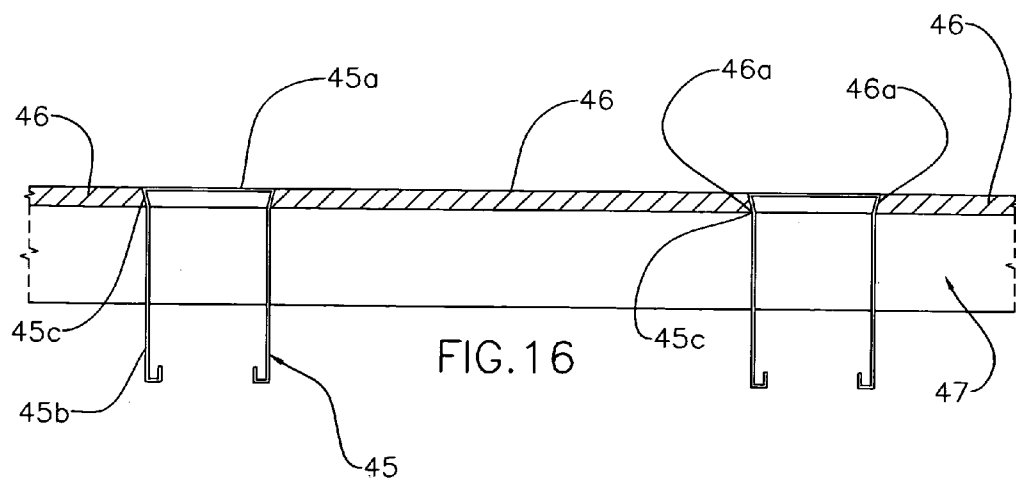
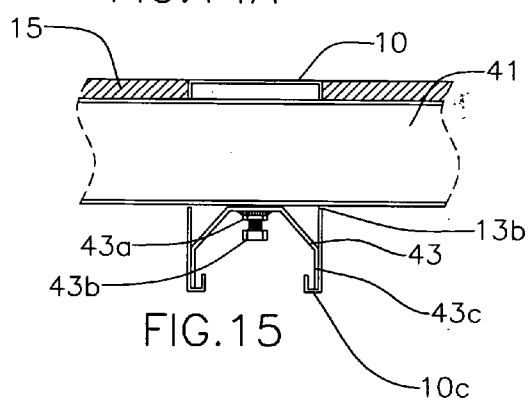
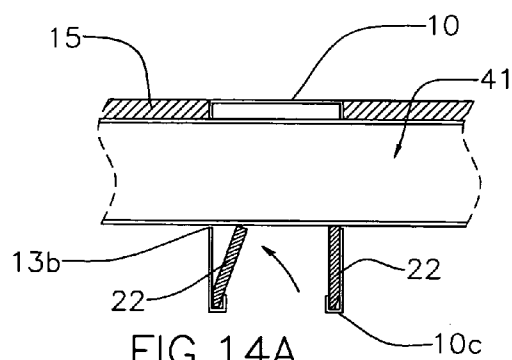
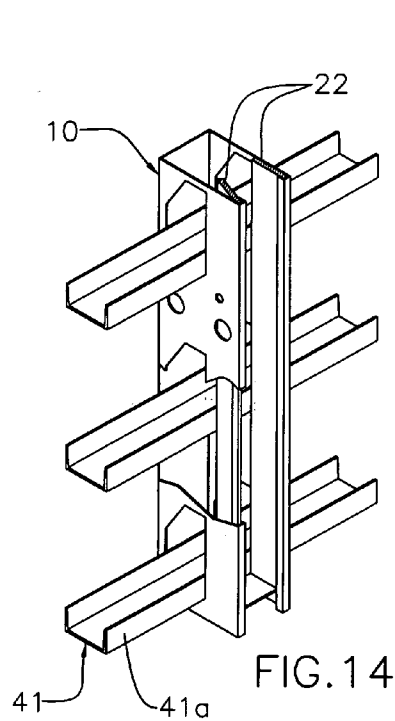
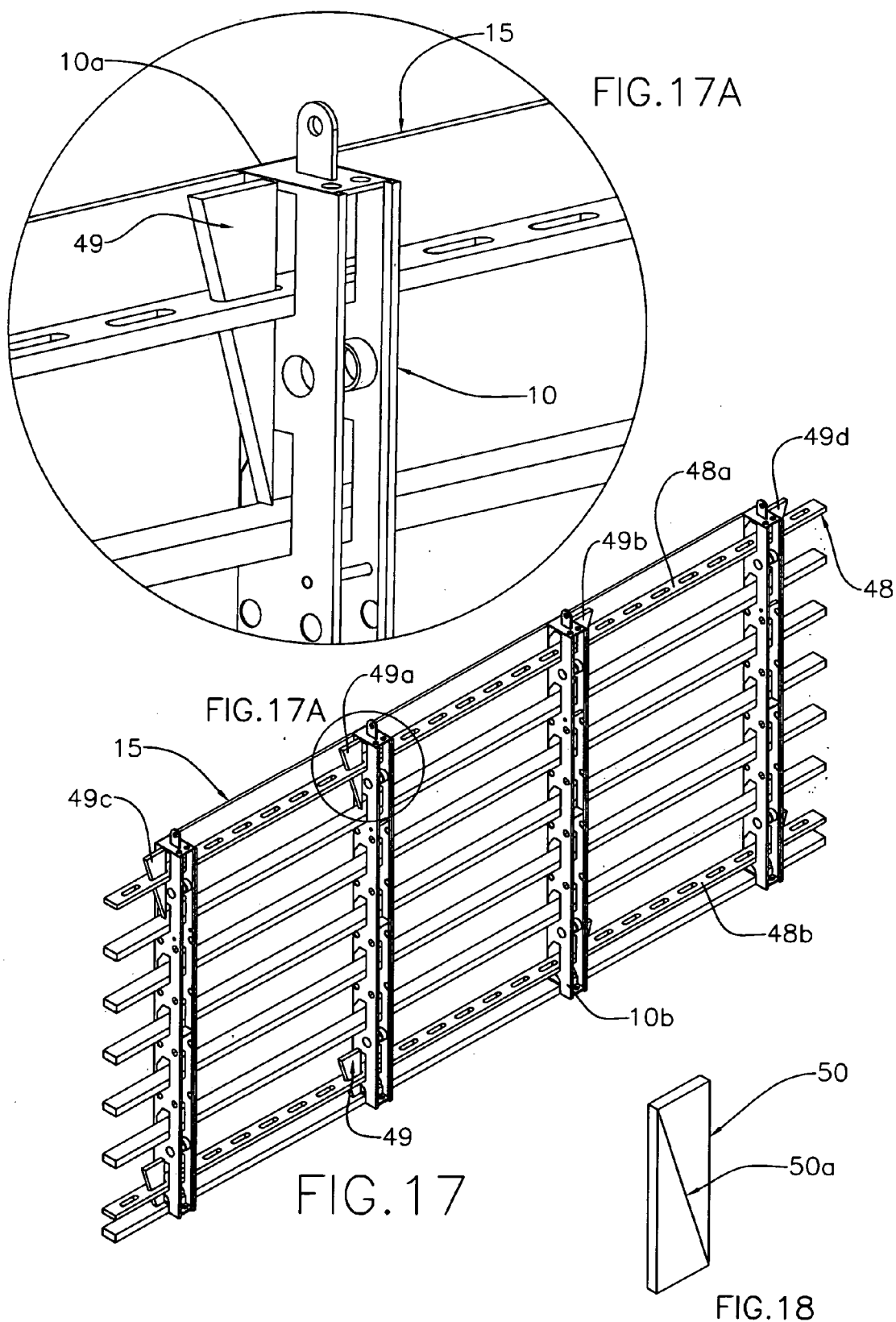


FIG. 12







FACER BEAM BARRIER SYSTEM

RELATED DOCUMENTS

[0001] This application is a continuation in part of U.S. Pat. No. 6,662,520 issued Dec. 16, 2004. As a part of application Ser. No. 10/281,374 this alternative designated as species "B" was disclosed in that application submitted Sep. 19, 2000. Species "B" is also a continuation in part of application Ser. No. 08/082,570 filed Jun. 6, 1993 in the U.S. Patent and Trademark Office, now abandoned.

FIELD OF THE INVENTION

[0002] This invention advances the joining of standard building materials for manufacturing mass produced, efficient, concrete form barriers. The barrier application herein will also serve in a wide variety of uses other than formwork

[0003] The inventor has many years experience in concrete form design as well as, managing general construction.

[0004] Formwork must be assembled quickly in a rigid or sub-rigid composition and maintained in a pre-engineered and static fabrication during concrete placement and subsequently dismantled and stockpiled for future multiple uses. While experimenting with various barriers for concrete formwork, it became apparent that the modality of this system, of applying variations of; elements, parameters, and cubic content, offers a new way to build many barriers that those schooled in the art will easily recognize.

[0005] The super-ordinate beam members guide the systematic fabrication of barriers without the use of separate nails, screws, or other fastening devices to join the main beam and sub-beam this is particularly attractive in formwork as these beams must be joined and separated repeatedly as the forms are moved from one placement to another.

[0006] When produced as scale models, the invention further offers an easy method of displaying the rapid assembly of a formwork barrier as well as the rapid disassembly of the barrier for sales and instructional purposes.

TECHNICAL FIELD

[0007] The Facer Beam Barrier System embodies the specifics of numerous classes and subclasses including;

[0008] US Class 52 732.2, 737.5, 656.1, 348, 762, 481.1, 729.1

[0009] International classifications EO4C 3/30

DESCRIPTION OF PRIOR ART

[0010] Systems of prior art teach a framing method of layering that consists of two or more layers of installed components in order to achieve a frame and cover with layers extending well beyond the limits of the load gathering dominant beam member. None of the prior art searched, that uses removable standard building materials, displays a single plane, self-contained, load gathering barrier system in which only 3 basic components can provide a continuous straight, or radius barrier, without any added parts and pieces. In fact every example of prior art indicates that conventional form systems are double the depth of the Facer Beam Barrier System in order to achieve the same amount of beam loading capacity.

[0011] None of the prior art searched by the inventor, reviewed, or found on the market displays a method similar to the ratiocinative, interlocking Facer Beam Barrier System of U.S. Pat. No. 6,662,520, of which this application is a continuation in part offering an alternate method of producing the super-ordinate beam.

[0012] The inventor conducted an informal prior art search and also had an international PCT search report done. International search report application number PCT/US03/02891 is applicable in part.

[0013] The International Search Report cited four previous patents as having relevant subject matter. They include;

[0014] U.S. Pat. No. 5,848,512 by Conn issued 15 Dec. 1998.

[0015] U.S. Pat. No. 4,177,968 by Chapman issued 11 Dec. 1979

[0016] U.S. Pat. No. 4,811,539 14 Mar. 1989 and U.S. Pat. No. 5,058,354 issued 22 Oct. 1991 by Menchetti

[0017] U.S. Pat. No. 4,858,407 by Smolik issued 22 Aug. 1989

[0018] And the inventor also refers to U.S. Pat. No. 3,452,960 granted to G. F. Bowden on 1 Jul. 1969

[0019] Many other patented formwork systems and framing systems were searched in order to prove this barrier system patent-able.

Non-Obvious Improvements and Applications

[0020] Most of the prior art applications that have structural similarity to the Facer Beam Barrier System are found in formwork applications, and a review of the following examples display the differences.

[0021] Bowden teaches a method of extending transverse sub-members in repetition with the ability to overlap and stabilize a plurality of collateral vertical wales, he does not teach a method of ease and efficiency for extending his materials collaterally in a vertical direction. Bowdens system is restricted to formwork applications and does not display the parameters desired for housing the sheathing within the main load-gathering member and does not display a method of attaching sub-members such as the material interface of the invention herein.

[0022] Bowdens system does not complete formwork application and removal with the ease, versatility, and competence of the facer beam system claimed herein. The multi-functional breech and chamber beam, the highlight of this new invention, goes well beyond Bowdens load-gathering beam.

[0023] Chapman and Bowden employ a combinatory logic that requires three different beam types in support of the plywood. Bowden and Chapman both lack the ability to remove plywood modules, or to remove subordinate beams with ease.

[0024] Menchetti fails to recognize a method of overlapping subordinate beam members and he does not reveal a method of incorporating the main member or super-ordinate beam as a facer beam. Menchetti's art does not address issues related to formwork such as self-contained; staging brackets, beam connections, lifting eyes and self contained

fastening systems (his fastening system is applied to each facer panel and is not a function of the main beam member).

[0025] The patent search revealed no form systems that have subordinate beams fall entirely inside the parameters of super-ordinate beams. All form systems to date offer layers upon layers of structural members designed to support and align less structurally competent members. The patent search revealed no barrier systems or formwork systems that employ the face of beam in concert with the facer panel to achieve a continuous flat plane that may be extend horizontally or vertically with 2 standard building components plus the super-ordinate beam of this invention.

[0026] Improvement over prior art lies in many obvious and non-obvious areas. The most significant improvement is the time saved in the integration of three main building components for a sub-rigid barrier.

[0027] Further economic advantages offer the construction contractor a super-ordinate beam designed to interlock standard structural supplies, such as nominal 2x6 lumber beams and 4x8 sheets of plywood, these supplies being those most commonly used for all sorts of construction barriers. With the super-ordinate facer beams a contractor can quickly assemble and disassemble any type of temporary or permanent barrier or enclosure he may need, from formwork, to the site office and warehouse buildings, to street barricades.

[0028] The inventor has referenced the following industry manuals, plus other support issues, in the course of designing this invention, and they include:

[0029] Formwork for Concrete by MK Hurd, Fourth Edition, prepared under direction ACI Committee 347, APA, The engineered Wood Association, Residential and Commercial Design/Construction Guide, Form No. E30Q/Revised November 1998/0400,

[0030] Publications by manufacturers of prior art include: PERI Formwork and Scaffolding, PERI GmbH, Export Division PO Box 1264, D-7912 Weissenhorn, Germany, Doka International, Deutsche Doka, Schalungstechnik GmbH, Frauenstrasse 35, D-82216 Maisach/Germany.

Objectives

[0031] Concrete may be the second most traded commodity in the world and every cubic meter of concrete placed requires a mold or form to hold it in place. The formwork industry today is, dominated by a few extremely large companies, based on rentals and returns. These large companies control the market and they shape the market to require their rental products and most of their rental products do not integrate with the competition.

[0032] The main objective of the Facer Beam System (species "B") from U.S. Pat. No. 6,662,520 is to offer a concrete formwork system that eliminates the product catalog that is full of unnecessary parts and pieces and offer a super-ordinate, breech and chamber, facer beam that contains all the appurtenances needed to complete a concrete form installation and subsequent removal.

[0033] Every one of the appurtenances mentioned, in the description, are a separate part of the systems offered today. When all these parts are functionally self-contained a great, industry wide, savings is available and escalating labor costs are brought back to a minimum.

[0034] Secondary objectives lie in the versatility of the breech and chamber beam and its ability to compete in any barrier composition whether it be for a house, factory, trailer bed, or a toy.

BRIEF SUMMARY OF THE INVENTION

[0035] The Facer Beam Barrier System is advancement in barriers, for the purpose of reducing man-hours in barrier installations. When fixed costs reduce variable cost, and when fixed cost is not significantly increased while variable costs are dramatically decreased, an economical advantage for the average consumer results.

[0036] This invention goes steps beyond simply reducing labor, as it reduces supervision and planning, by allowing the modular components to dictate their location and function in a tangible result.

[0037] Ratiocinative combinatory logic involves producing new standards for beams, beams that are historically offered as steel shapes, which allow loads to sit on their face or on their end. This invention, through reduction in cubic content, allows; deformed steel plates, hot rolled structural steel beams, cold roll-form metal beams, aluminum beams, plywood beams and the like, to be eligible for more functions.

[0038] The Facer Beam Barrier System offers a faster way to employ standard materials in the building of formwork for concrete while reducing man-hours in the installation and removal of said formwork through the significant reduction of supernumeraries and the simplicity of the combinatory logic employed.

[0039] The following descriptions will further disclose the advances this invention offers.

A BRIEF DESCRIPTION OF THE DRAWINGS

[0040] The objectives, features and advantages of the present invention will be appreciated when read in conjunction with the accompanying drawings, in which:

[0041] **FIG. 1** is an isometric view of a section of an assembled concrete form.

[0042] **FIG. 2** is an isometric view of the super-ordinate box []-beam with some appurtenances.

[0043] **FIG. 2A**, blowup cutaway view of the shoe situation plus the barrier plumbing bolts

[0044] **FIG. 2B** is a blowup cutaway view of the through-wall tie assembly in working position.

[0045] **FIG. 2C** is a blowup cutaway view of the tie assembly in storage position.

[0046] **FIG. 3** an isometric view, two super-ordinate beams coming together, with a cutaway of the pinning device

[0047] **FIG. 4** is an isometric cutaway view of two super-ordinate beams joining end to end.

[0048] **FIG. 5** is an isometric view of a super-ordinate beam, with cutaway views of two appurtenances.

[0049] **FIG. 6**, is a back-side view of the staging bracket assembly in storage position **FIG. 6A**, is an exploded isometric view of the attachment between railing arm and staging arm

[0050] FIG. 6B, is an isometric view of the railing arm attachment in working position

[0051] FIG. 6C, is an isometric view of the railing arm attachment in storage position

[0052] FIG. 6D, is an isometric view of the staging arm cantilever assembly.

[0053] FIG. 7 is an isometric cutaway view of the facer-fastening appurtenance.

[0054] FIG. 7A is a top view of the facer-fastening appurtenance.

[0055] FIG. 7B is a face view of the facer-fastening appurtenance.

[0056] FIG. 7C is a side view of the facer-fastening appurtenance.

[0057] FIG. 7D is a top view of the facer-fastening appurtenance.

[0058] FIG. 8 is an isometric view, of a radius form, with super-ordinate beams in a vertical position.

[0059] FIG. 9 is an isometric view of a radius form with the super-ordinate beams in a horizontal position.

[0060] FIG. 10 an isometric view of a column form with overlapped corners.

[0061] FIG. 11 is an end view, of subordinate beams variety of positioning.

[0062] FIG. 11A an end and side view of alternate shape, openings and subordinate beams.

[0063] FIG. 11B an end and side view of alternate shape, openings and subordinate beams.

[0064] FIG. 11C an expanded end & side view of alternate shape, openings and subordinate beams.

[0065] FIG. 12 an end view of beams being used in a house-framing situation

[0066] FIG. 13 an isometric view of alternative through wall tie assembly.

[0067] FIG. 13A a cutaway view with a bracketed exploded view, of tie retainer assembly

[0068] FIG. 14 is an isometric view of an alternative chambering method

[0069] FIG. 14A is a top view of the alternative chambering method in FIG. 14.

[0070] FIG. 15 is an isometric view of an additional alternative chambering method

[0071] FIG. 16 is a top view of an alternative facer retention method.

[0072] FIG. 17 is an isometric view of an alternative facer retention method.

[0073] FIG. 17A is an expanded isometric view of the wedging in FIG. 17.

[0074] FIG. 18 displays production of an elongated edge type wedge

A DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

[0075] The description provided herein explains the manufacture, assembly, disassembly and storage of the components of the Facer Beam Barrier System. Its versatile nature in meeting barrier requirements will be obvious to those schooled in the construction and use of barriers. As shown in the drawings like numerals represent like parts throughout the various views and the following description will be clear with reference to the drawing figures and views as numbered in the description.

[0076] FIG. 1 displays erected barriers used as concrete formwork and further displays a plurality of identical, elongated, multi-functional, super-ordinate, opened back box type []-facer beams 10 (FIGS. 1 and 2) arranged in parallel segments, with side webs 10b (FIG. 2) of box beams 10 generally wider than the face 10a (FIG. 1) and the open back of box beams 10, webs 10b are shaped by bending 90 degrees back and away from face 10a, webs 10b also have a deformed return lip 10c (FIG. 3) located at the back of webs 10b where they bend into the open back side of beam 10, lips 10c are a method of adding strength and stability to the composure of beam 10.

[0077] Box type facer beams 10, as shown, are deformed from steel plates, however said plates may also be, aluminum, plywood or any other structural elements that require fixing together at the corners.

[0078] Side webs 10b are machined providing a series of pentagon shaped openings 13 (FIGS. 3 and 12) openings 13 are patented (U.S. Pat. No. 6,662,520) "breach and chamber" openings, breach and chamber openings 13, form an irregular pentagon, pentagon 13 is comprised of walls 13a, 13b, 13c, 13d, and 13e (FIG. 12).

[0079] The breach portion, calculated and machined marginally larger than the parameters of subordinate beams 14 (FIG. 1), 14 generally rectangular and having four sides, 14a, 14b, 14c, 14d (FIG. 14), allows subordinate beams 14 to pass freely through the breach 13 of adjacent super-ordinate beams 10 openings 13, also when the barrier is employed in a vertical application as in FIG. 1, subordinate beam 14 in position 14f (FIG. 11) will be standing on edge 14a, edge 14a thus standing in the breach on wall 13a of opening 13, wherein 14a is horizontally manipulated, lengthwise into a desired location, then located, 14 may be forcibly rotated on a sliding axis 14e (FIG. 11) until 14 is cramped within the chamber of opening 13 with opening wall 13b (FIG. 4) cramping into beam edge 14a and opening wall 13c (FIG. 4) cramping into beam edge 14c.

[0080] Upon completion of the cramping procedure, subordinate beams 14 are thus cramped and thus interlocked within chamber portions 13 of super-ordinate beams 10

[0081] Also subordinate beams 14 systematically overlap one another 14h, 14g (FIG. 11) 14f (FIG. 8), within breach and chamber openings 13, in this manner the lateral beams 10 of the barrier in FIG. 1 may be extended in lateral segments infinitely using subordinate beams 14 of various lengths.

[0082] Sides 14a of beams 14, when cramped within the chamber of opening 13, are ready to support facer panel 15 (FIG. 1), 15 having a facer side 15a, a back side 15b,

elongated edges **15c** with top and bottom edges **15d** (FIGS. **1** & **7A**), panel side **15b** rests on beams **14** against sides **14a**, and between and butting edges **15c** against beam **10** webs **10b**, therein facer **15** is inventively sheathed within the confines established through the systematic interlocking facer beam barrier system assembly procedures, and when facer **15** edges **15c** are inside and against opposing beam webs **10b**, facers **10** face side **15a** is inventively in a static flat plane with super-ordinate beam face **10a**.

[0083] It is important to understand that in form system applications (FIG. **1**) the fastening of removable facer panels **15** requires only a minimum effort as concrete introduced between opposing barriers forces facers **15** against subordinate beams **14**.

[0084] Further the lateral spacing of super-ordinate beams **10** is inventively determined by the size of modular facers **15**.

[0085] FIG. **7** an isometric view with a cutaway portion and subsequently FIGS. **7A**, **7B**, **7C**, FIG. **7D** sectional views show a fastening mechanism **16** comprised of a plate **16** (FIG. **7B**) retained by a bolt **17** (FIG. **7A**), with a deformed shoulder **17a** (FIG. **7C**), fixed to face **10aa** (FIG. **7B**) of beam **10**, further **16** is locked to bolt **17** by nut **17b** (FIG. **7C**), deformed spikes **16c** (FIG. **7A**) have a ninety degree bend that allows them to penetrate plate **16** at holes **16a** (FIG. **7A**), there retained by nuts **16cc** (FIG. **7A**), and there to rotate freely as retractable fasteners.

[0086] The mechanism also requires wedge platforms **19a** and **19b** (FIG. **7**) to be fixed to inside face **10aa**.

[0087] Guide bars **20** (FIGS. **7** & **7B**) fixed to beam **10**, inside face, **10aa** and in line with holes **18** (FIG. **7B**), align and guide spikes **16c** in and out of working position.

[0088] **16e** and **16f** (FIGS. **7B** & **7C**) indicate points on plate **16** where manipulated hammer blows will rotate plate **16** on shoulder **17a**, shoulder **17a** spaces mechanism **16** an engineered distance from the inside face **10aa** of beam **10**, nut **17b** retains plate **16** yet allows free rotation of **16** in its engineered location.

[0089] When point **16e** is manipulated down onto wedge platform **19a**, spikes **16c** are extended beyond beam side-web **10b**, further FIG. **7A** displays spikes **16c** penetrating edges **15c** of facer panels **15** thus providing retention of **15** on a flat plane with beam face **10a**, wedge platform **19a** seats and arrests block **16**.

[0090] Device **16** thus offers a self-contained fastening appurtenance that may be retracted by manipulating plate **16** at point **16f** onto wedge platform **19b**, when retracted in this manner mechanism **16** is arrested in the stored location.

[0091] Device **16** thus inventively negates the need for independent fastening devices.

[0092] The sub-rigid barrier of FIG. **1**, thus assembled, offers a static flat plane, where calculated loads may be applied.

[0093] Furthermore shoe **12** (FIG. **2**) offers a guide for the Facer Beam **10** to sit on as beam bottom plate assembly **21** (FIG. **2**) is designed to bridge shoe **12**.

[0094] Shoe **12** is a non-member of the barrier system however shoe **12** is the same size and composition as

subordinate beam **14** and therefore plate assembly **21** is dimensioned and deformed to snugly fit over shoe **12**.

[0095] FIG. **4** is a cutaway isometric view at the bottom of an extended beam **10**, sitting on top of a first beam **10**, that displays the top plate **25** and bottom plate **21** attached together using the pin **24** (FIG. **4**) contained by its pin retainer **23** (FIG. **3**).

[0096] Slot **21f** (FIG. **3**) receives plate **26** and hole **26a** extends through slot **21f** where it receives pin **24** as **24** extends across slot **21f**, and subsequently pin handle **24a** is allowed to drop into slot **23b** (FIG. **4**) rendering pin **24** immovable thus creating an extended beam **10**.

[0097] Slot **23a** further allows pin **24** to be manipulated back to a retracted position where pin handle **24a** (FIG. **3**) is in line with beam **10** thus freeing the previously attached beams. Arched opening **10d** (FIG. **4**) is a view-port for manipulating pin **24**.

[0098] Face-to-face beams **10** (FIGS. **1**&**8**), display self-contained through wall form tie **29** in working position, ties **29** are seen crossing the space between face-to-face barriers and penetrate beams **10** at hole **11** (FIG. **2B**).

[0099] Tie **29** is a part of a tie assembly FIG. **2** better displayed in FIGS. **2A**, **2B**, & **2C**. The assembly is comprised of pipe nipples **27** installed and fixed at beam **10** inner face **10bb** (FIG. **2B**) as retainers for pipes **28**, nipples **27** further allow, pipes **28** to rotate functionally, within their inner circumference **28b**.

[0100] As shown, pipe **28** is a retainer for bolt **29** and **29** is designed to pass through hole **28a** then thread through the novel inner nut **29b** and bolt head **29a** manipulates bolt **29**.

[0101] Nut **29b** is engineered to fit snugly and structurally within the inner circumference **28b** of pipe **28**. Bolt **29** extends through the face of beam **10**, at hole **11** (FIG. **2C**), when threaded through nut **29b**.

[0102] Work platforms **30** (FIG. **1**), are supported by staging bracket arm **31** (FIG. **5**), for men working above ground level.

[0103] The staging bracket assembly of arm **31** is shown in working position with a railing arm **34** (FIG. **5**), retaining railings **30a** (FIG. **5**), fastened in an upright position.

[0104] Arm **34** is a safety device that rotates up to stand 90 degrees away from arm **31** in order to support railing members that protect workers from falling off the work platform.

[0105] Arm **31** has the capability of releasing and folding down and back alongside arm **34** into storage position (FIG. **6**).

[0106] Arm **31** further comprises a mechanical appurtenance with bolt **35** (FIG. **6A**), loosely attached at hole **31d** (FIG. **6A**) with a pin shaped end **35a** (FIG. **6A**) and a nut **35b** (FIG. **6A**), for retaining and attaching arm **34**, into working position.

[0107] Arm **34** has a wedge, shaped appurtenance **34c** (FIG. **6B**), fixed on one side and a slot **34d** (FIG. **6C**) machined through wedge **34c** and through the web of arm **34** at end **34a** (FIG. **6B**).

[0108] Slot 34d (FIG. 6B) fits over bolt 35a and is engineered to swivel on 35a into storage position, and easily back to working position.

[0109] Arm 31 may be tightly wedged alongside arm 34 with the same mechanism that holds arm 31 in working position.

[0110] Furthermore bracket arm 31 is fixed and retained to beam 10 by retention pin 32 (FIG. 6D), pin 32 attaches to the inside walls of opposing beam webs 10b (or bolts through the webs), and passes through a hole 31a (FIG. 6D), see cutaway in arm 31 at 31a. 31a allows arm 31 to slide side to side, guided by pin 32, within the confines of beam 10.

[0111] A plate 33 (FIG. 5 cutaway view) is fixed within the confines of beam 10 and arm 31 end 31h (FIG. 6D) is held fast under plate 33, placed under plate 33 by sliding arm 31 to the left side of the beam 10 enclosure along retention pin 32, in so doing arm 31 is cantilevered out over pin 32 where 31 may serve as a support for a working platform.

[0112] When a working platform 30 is not needed arm 31 may slide to the right side of the beam 10 enclosure where end 31h will be free from plate 33 thus allowing arm 31 to rotate at point 31a down within the confines of beam 10 where it is housed along with arm 34 (FIG. 6). FIG. 6C indicates a storage attachment method. FIG. 6A is a bracketed exploded view of the parts 35, 35a and 35b joining arms 31 and 34. FIG. 6B is an isometric view of arms 31 and 34 remove-ably locked together.

[0113] FIG. 2A is an expanded isometric view of beam 10, base-plate 21, and inside beam-face 10aa, where base-plate 21 drops down to plate 21d nuts 36 are shown as welded or otherwise fixed to plate 21d and nuts 36a may be threaded down thru nuts 36 until they contact the foundation where and if the threading continues the top of the beam will be pitched inward thus offering a method of plumbing beam 10. Nut 38 welded or otherwise fixed to inner beam face 10aa allows bolt 37 to be threaded thru and on against a hardened concrete structure, whereby the protruding bolt 37 will systematically drive beam 10 away from a hardened concrete structure, thus providing an inventive method of bond-breaking.

[0114] FIG. 8 is an isometric view of a segmented radius form and displayed are super-ordinate facer beams 10 in a vertical position inventively housing subordinate beams 14, spanning only one bay each, as the formwork turns a radius in segments. Short pieces 14f of subordinate beams 14 may be added and used to tie beams 14 together as they butt at the breech and chamber opening. Short pieces 14f may be deformed at the edge that backs the facer 15 in order that 14f fits the radius that tie beams 14 follow the shape of.

[0115] FIG. 9, is an isometric view of an inventive segmented radius form with the super-ordinate facer beams 10 in a horizontal position and subordinate beams 14 in a vertical position and this method also works as an alternative for forming of straight walls.

[0116] In FIG. 10, an isometric view of a column form is disclosed inventively employing super-ordinate facer beams 10 in a situation where extra ties 51 may run through holes 10g in super-ordinate beams 10 and using standard flat plate washers 51a and standard nuts 51b thus providing the ability for beams 10 to secure the column form in two directions.

[0117] FIG. 11 displays an end view of super-ordinate facer beams 10 with variations in positioning subordinate beams 14 with 14h depicting a rotating beam on a sliding axis as it overlaps a chambered beam and 14g indicates two chambered beams 14 in an overlapped situation and 14f indicates a beam 14 standing in the chamber and 14e indicates a single beam 14 rotating on a sliding axis into the chamber.

[0118] FIG. 11A, displays end and side views of inventive alternate shape, breech and chamber openings and subordinate beams, 39, 39a, 39b and 40 indicate various positioning attainable with alternative subordinate beams 39.

[0119] FIG. 11B, displays end and side views of inventive alternate shape, openings 42 and subordinate beams 41 and 41c indicates an open area above the chamber portion of opening 42 and FIG. 11C is an expanded view of opening 42 and opening 42 is dimensioned at the lower chamber portion between walls 42a and 42b marginally larger than the distance between the outside walls of flange 41a and 41b of subordinate beam 41, thus allowing 41 to freely drop in raise out of the chamber.

[0120] FIG. 12 displays an end view of facer beams 10, 10e, and 10f inventively used in a house-framing situation and a hole 43 indicates an opening aligning with hole 26a (FIG. 3) where vertical beam 10 may be fastened to a rafted beam 10f and hole 44 indicates another opening aligning with hole 26a that may be employed to attach a perpendicular structural floor framing beam 10e to a structural wall framing beam 10.

[0121] FIGS. 13 & 13A, display isometric views of an inventive alternative through wall tie assembly, that allows bolt 29 within pipe 28 to ride up and down in retainer guides 27a, and furthermore 28 is a reduced in length, a reduction that allows pipe 28 to move side to side within guides 27a and within the confines of beam 10. The bracketed exploded view of FIG. 13A identifies all the parts that are assembled within beam 10.

[0122] In FIGS. 14&14A, an isometric and top view respectively of an inventive alternative chambering method indicates appurtenances 22 added to act as removable back chamber wall 13b thus when removed subordinate beam 41 may run freely through opening 13 as opening 13 is machined larger between sides 13c and 13b (FIG. 12) than the dimension between flanges 41a and 41b of subordinate beam 41, FIG. 14a further displays lip 10c as a retainer and support for composition 22.

[0123] FIG. 15 is a top view of an inventive alternative chambering method is disclosed and indicates appurtenance 43 with a fixed retention nut 43a and a threaded bolt 43b threaded through nut 43a and fast against beam 41 and 43 displays legs 43c that are retained and supported by beam 10 lips 10c.

[0124] FIG. 16 is a top view indicating an alternative facer retention method whereby super-ordinate beams 45 are strategically deformed with side section 45c bending away acutely from face 45a and the surface of section 45c having a depth equal to the width of deformed facer edge 46a, 45c then meets 45b in an obtuse angle that leaves side-web 45b perpendicular to face 45a therein elongated edges 46a of facer 46 are deformed to create an obtuse angle where facer

edge **46a** meets beam face **45a** therefore facer **46** may be sheathed and arrested against subordinate beams **47** without the need for fasteners.

[0125] FIG. 17 displays a facer beam barrier system, wherein an alternative improvement in retaining the facer panel **15** comprises;

[0126] Subordinate beams **48** machined with a series elongated penetrations **48b** through the flat elongated surface side **48a** of beams **48**, penetrations **48b** may be centered in relation to side **48a** and penetrations **48b** are generally no wider than one third of the side to side distance across the flat side **48b** and penetrations **48b** are generally a length that assimilates the face **48b** width and penetrations **48b** are generally spaced apart a distance that allows frequent availability of penetrations **48b**,

The series of penetrations **48b** as shown (FIG. 17A) allow deformed wedges **49** to be manipulated into penetrations **48b**.

[0127] Wedges may be manufactured by selecting a rectangular piece of material the same composition as or stronger than the material composition of subordinate beams **48** and the rectangular material is machined to a thickness marginally less than the width of said penetrations, said rectangular material **50** (FIG. 18) is machined to a width determinably longer than the length of penetrations **48b** and rectangular material **50** is machined a determined length that will adequately span the height of breech and chamber opening **13** (FIG. 13) when material **50** is separated from corner to corner along line **50a** thus separated two wedges **49** are manufactured and may be engaged with penetrations **48b**.

[0128] Subsequently when wedges **49a** and **49b** are forced against side-webs **10b**, parallel beams **10** are forced to apply compression on facer edges **15c**. Therefore when a facer is between beams **10** it may be thus fastened in a flat plan with super-ordinate beam face **10a**.

[0129] Furthermore when a barrier is formed with three or more lateral super-ordinate beams **10**, with two or more facers **15** in place, opposing wedges **49c** and **49d** may be forcibly inserted at the outer sides of beams **10**, at each end of a barrier, thus compressing the entire barrier from side to side, thus providing a solid composition while maintaining a sub-rigid composition.

What I claim as my invention is:

1. The Facer Beam Barrier System, wherein the improvement comprises:

- a) a plurality of manufactured, identical, elongated, super-ordinate, breech and chamber, facer beams, spaced in adjacent lateral segments, and
- b) said beams, configured as rectangular box [] beams, each having 2 side webs, and a front (or top) face with an open back, and said box beams having an identical, symmetrical, aligned, series of machined openings, machined through each web portion, and
- c) a plurality of elongated ratiocinative, rectangular, subordinate beams, said subordinate beams passing through said super-ordinate beam openings, in a transverse series, and

- d) said openings providing an interlock-able intersection for said subordinate beams; and further said openings are each identically preformed in an irregular pentagon shape therein providing "breech and chambers" for said subordinate beams, and

- e) a plurality of said breech and chamber openings in a symmetrical series, said breech calculated and dimensioned for free transverse passage of said subordinate beams, said breech portion of said openings dimensioned and machined marginally larger than the cross-sectional parameters of said subordinate beams and said breech elongated in order to house one said subordinate beam within said chamber and still allow a second said subordinate beam to pass freely through said breech and further

- f) said series of openings having a front/face chamber wall and a back chamber wall parallel with said front/face chamber wall, said front/face wall is located and machined, a dimension, from said front (or top) of said box beam, said dimension assimilating the thickness of said modular facer, also said chambers preformed, assimilating and machined, a dimension, from front/face chamber wall to back chamber wall, marginally smaller than the width of said elongated subordinate beams, thus said dimension engineered to cramp single subordinate beams or overlapping (double) subordinate beams, installed one at a time, within said chamber, when said subordinate beams are systematically manipulated 90 degree's from said breech into said chamber, and

- g) at least one modular facer, inserted and secured firmly on the same face plane as, and between, said adjacent super-ordinate beams, with said facers elongated butt edges, butted tightly against said webs of said adjacent super-ordinate beams, and said facer is aligned with the face of said super-ordinate beam inventively offering a two dimensional extent of zero curvature, otherwise providing a continuous flat and uninterrupted plane, and

- h) the resulting composite thus providing a sub-rigid barrier.

2. The Facer Beam Barrier System of claim 1, wherein improvements, to said super-ordinate beams comprise;

- a) at least one hole in each web of said box beam, said hole being positioned a distance from said front (or top) of said box beam that is half the thickness of said facer, said hole being a diameter sufficient to allow a fastener to be inserted into said elongated butt edge of said facer without rupturing the thickness of said facer, and

- b) said fastener to be a permanent appurtenance to said super-ordinate box beam, said fastener capable of being inserted through said hole, and into the center of said facers elongated butt edge, by manipulation thereby interlocking said facer within the plane of the face of said super-ordinate beam, further said facer is fastened against said subordinate beams and between said super-ordinate beams in a sub-rigid manner without the inclusion of separate or disposable fasteners, and

- c) said appurtenance with a retraction device, said retraction device being devised to retract said fastener by means of manipulation, said retraction device capable

of securing said fastener in a retracted position that securely confines said fastener within the inner box structure of said super-ordinate beam when said beam is not in use and further

3. The Facer Beam Barrier System of claim 2, wherein improvements, to said super-ordinate beam comprise;

- a) said super-ordinate box beams to have a bottom plate and a top plate permanently attached to said super-ordinate beam, said plates nominated as multi-functional end plates, said plates fabricated of material that is ratiocinative with the material used to fabricate said box beams, said plates machined to a size that fits snugly inside the rectangular box []-beam shape, said plates to be permanently attached to said box beams by means of welding or other standard method of permanent attachment, and
- b) said bottom plate fabricated with a step up that assimilates the size of said subordinate beams, said step up in said plate to be directly in line and symmetrical with said breech and chamber openings, said step up being fabricated into said bottom plate for the purpose of bridging the bottom, of said super-ordinate beam, over a shoe, said shoe being the same size as said subordinate beams while said shoe remains a separate application, said shoe is generally used in vertical barrier construction in order to align said barrier on a predetermined construction line and also in order to offer an alternate fastening point where said bridged beam may seat tightly thus holding said barrier to said predetermined line, and
- c) said bottom plate fabricated to step down, to the bottom of beam length, behind said step up at said shoe, said step down in said bottom plate to provide a flat surface, said flat surface affording a contact surface for said top plate, said surface having at least one bolt sized hole to match at least one similar hole in said top plate, said bolt sized holes machined to align exactly when one super-ordinate beam is placed atop and in line with another super-ordinate beam for the purpose of extending the height or length of a Fast-Form Barrier, and
- d) said bottom plate with a machined slot in the portion of plate that bridges and sits atop said shoe, said slot may be a width that assimilates the thickness of said top and bottom plates, said slot is further machined to snugly receive an extended portion of said top plate when said bottom plate is set on and in line with said top plate extended portion, said extended portion having a machined hole through it for a purpose of receiving a retention pin and
- e) said bottom plate fabricated with a permanently fixed appurtenance above and in line with said slot, said appurtenance to comprise a barrel and a slide retention pin, said slide pin machined a diameter size that is marginally smaller than said machined hole in said top plate extension, said slide pin to be maneuverable in said slot by means of an affixed guide pin, said guide pin maneuverable only within the confines of a machined slot in said barrel, said slot machined slightly wider than the diameter of said guide pin, said barrel with guide pin slot and said guide pin are fabricated and attached to said bottom plate in a manner that allows the slide pin to be guided in or out of said hole in said

top plate extension when two beams are aligned and attached bottom of one beam to the top of a second beam, and

- f) said bottom plate functioning as a beam extension attachment with a self-contained means of retention, and
 - g) said slot functioning as a quick and exact alignment method each time identical super-ordinate beams are joined at the ends, and
 - h) said bottom plate further functioning as a method of bolting an extended super-ordinate beam in place, and
 - i) said bottom plate also functioning as a bridge over said shoe, and
 - j) a nut, welded on the inside surface of said bottom plate, and said nut is aligned with said hole at said step down in said bottom plate, and when a bolt is threaded through said welded nut, from the inside of said super-ordinate beam, and threaded down against whatever foundation is supporting the base of said barrier, said bottom plate may be partially raised, thus changing the vertical alignment of said beam and said barriers, thus functioning as a plumbing device that allows the user to adjust the vertical line of said super-ordinate beam, and further
 - k) said top plate fabricated with said fixed extension portion, said extension portion being made of plate similar to said top and bottom plates, said extension plate being capable of acting as a multi-purpose appurtenance thus adding function to said top plate, and thus providing a function, being the attachment of two beams together, in order to create one extended beam, and further
4. The Facer Beam Barrier System of claim 3, wherein improvements, to said super-ordinate beam, intended primarily for concrete formwork, comprise;
- a) said facer beam having a self contained tie assembly, wherein one or more tie holes are machined through the face of said super-ordinate beams, said tie holes machined for the purpose of using said barrier as a concrete form mold, said mold assembled when two barriers are erected in a face to face spaced apart manner, and said tie holes are in alignment, and tie bolts are installed through said tie holes and said tie bolts are attached within and too said face to face super-ordinate beams, said through bolt attachments are engineered to support whatever amount of liquid concrete is placed within said mold, and
 - b) said through bolt retainers, prefabricated and preinstalled as fixed appurtenances and said through bolt assembly's are engineered to function in concert with a nut and washer as part of said assembly, said form tie assembly engineered to be housed within said parameters of said super-ordinate beam, and said tie assembly, housed behind said tie hole machined through the face of said super-ordinate beam, and said housing further comprised of pipe nipples fixed by weld or other means to the inside of said webs of said box beams, the center of said pipe nipples to be on the same centerline axis as said tie hole, said pipe nipples to have an inside diameter marginally larger than the size of a tie bolt

retention pipe, said pipe nipples each to be a length that is $\frac{1}{3}$ or less the distance between the inside faces said box beam webs, said pipe nipples to be positioned generally toward the rear of the interior of said box beam and welded or permanently fixed to said inside of said webs, with said welds being applied around the outside circumference of said nipples, thus providing,

- c) a housing for said tie bolt retention pipe, said retention pipe inventively assuming the function of a standard flat washer, said retention pipe having an outside diameter that is marginally less than the inside diameter of said nipples, said pipe to be installed in said nipples prior to welding said nipples inside said webs, or alternatively said webs may be holed at said nipples, said hole to align with and assimilate the inside diameter of said nipples, thereby allowing said retention pipe to be installed from the outside of said box beam, and through said hole through said web, at and into said nipples, and further,
 - d) said retention pipe fabricated to a length that assimilates the distance between said webs of said box beam, and further said retention pipe is machined with a centered hole through both sides of said pipe, said hole through both sides of said pipe to be a diameter that matches said tie hole machined through said face of said super-ordinate beams, and
 - e) said retention pipe inventively equipped with a nut that fits snugly in the interior of said pipe and in line with said centered holes through both sides, and therefore when a tie bolt is introduced to said retention pipe, said tie bolt may be threaded through said retention pipe thus engaging and threading through said nut fit snugly in the interior of said pipe, and
 - f) a plurality of tie bolts are threaded through a plurality of said retention pipes and attached as said through bolt assembly within and between said face to face barriers thus a mold for concrete is completed, and
 - g) said tie bolts are retracted following concrete, placement and solidification, said retention pipes may be rotated within said nipples and said tie bolt may be stored and retained within said super-ordinate box beam, and said through bolt will be stored inside of and parallel with said web sides of said super-ordinate box beam thus providing a self-contained form tie assembly.
5. The Facer Beam Barrier System of claim 4, wherein improvements, to said super-ordinate beam, intended primarily for concrete formwork, comprise;
- a) a self-contained collapsible staging bracket, needed when assembly of the Facer Beam Barrier System is above mans reach and said bracket has a staging arm extending 90 degree's from the open back of and perpendicular to said box beams, said staging arm supporting a railing arm that stands vertical and 90 degrees up from said staging arm, said railing arm being vertical with said box beams when said staging bracket is in working position, said staging arm offering support for staging planks and said railing arm offering support for railings, and
 - b) said staging arm, temporarily or permanently, attached and housed within said box beam by means of a retention bolt that passes through a hole in said staging arm, said hole to be compatible with said bolt in order that said arm is free to rotate on said bolt, said bolt is secured to said box beam by passing through said webs and retained by the bolt head outside of one web and with a nut on the outside of the opposing web or said bolt may be, located, aligned, and welded to the opposing inside face of webs of said box beam, said staging bracket generally located toward the top of said box beams, with said bolt, in said box beam, penetrating said hole in said staging arm, thereby the attached to beam end of said staging arm being the opposite end from said railing arm attachment, said bolt allows said arm to rotate on said bolt while said staging arm reaches inside said box beam to a point just short enough of said inside front face of said beam to allow said staging arm to rotate without hitting said inside face, and further
 - c) a plate added in front of and above said staging retention bolt, said plate extends from the inside face of said box beam to the midpoint of said box beam, said plate having a top and bottom side and four edge sides, said top side facing up to the top of beam and said bottom facing the ground, said top and bottom sides perpendicular to the back side of the elongated face of said box beam, with one edge side of said plate attached to said back side of the elongated face of beam, and one of said edges attached to and against the left inside of web of said box beam, said plate extending from front face approximately half the distance to the back of beam and extending from its attachment on said left side approximately half the distance to the opposing inside wall of the right side-web, when viewing said box beam from the rear/open side,
 - d) therefore when said beam attached end of said staging arm is manipulated perpendicular with said beam and maneuvered under said plate, the beam-end/top-side of said arm makes contact with the underside of said plate, thereby said plate retains said arm in an extended, cantilevered, fixed position on said retention bolt and subsequently said staging arm may be manipulated by sliding said staging arm, over and along said retention bolt, to the right side of said box beam and away from said plate, and when said staging arm, boxed end, is free from said plate said arm may be rotated, on said retention bolt, 90 degrees downward, whereby it will be in line with the length of said box beam and thus resting within said box beam and further
 - e) a mechanism, engineered and applied, that allows said railing arm to rotate up and away from said staging arm on a bolt that is attached to said staging arm, said bolt includes a head, said railing arm has a short channel machined into it for engagement with said bolt and said bolt head retains as said bolt guides said railing arm along said bolt, said channel includes an extruded wedge mechanism at and around its end point, and when said railing arm rotates up to its working position, said channel allows it to slide down and along said bolt attached to said staging arm, and said channel includes an offset which guides said railing arm down over said wedge mechanism whereby said wedge offers a locking device as said bolt guides said arm up and sideways and thus seats said railing arm against a depressed shoulder

machined into said staging arm, said seat perfectly situates said railing arm in a perpendicular and locked position, said locking device is engineered to allow said railing arm to be easily unlocked, by forcing said railing arm off said wedge and pin and unseating said railing arm from said staging arm and rotating said arms into parallel alignment when said staging arm, therefore

f) when said staging arm is released from said cantilevered position and said railing arm is unlocked and unseated from said staging arm, both arms compactly and systematically fold together and drop into said super-ordinate beam for storage in said resting position,

g) thus a self contained staging and railing support apparatus for a vertical form system is provided

6. The Facer Beam Barrier System of claim 5 wherein an improvement comprises;

a) two of said barriers placed in a face to face situation with said self-contained tie system, of opposing barriers, being connected to one another in order to provide a form/mold for concrete and

b) said facer fastening system employed and

c) said multi-functional bottom plate being employed to plumb said barriers of said form and

d) said self-contained collapsible staging bracket being employed for the purpose of supporting a work platform for people placing concrete within said formwork and

e) bulkheads being placed at the ends and between said opposing barriers, therefore

f) providing a formwork for concrete system with a super-ordinate self-contained facer beam inventively controlling the entire assembly with said form system having the ability to be extended vertically or horizontally in an infinite composition.

7. The super-ordinate box beams, of the Facer Beam Barrier System of claim 6 wherein an alternative improvement comprises;

a) an alternative method of the self contained tie assembly, wherein said retention pipe is not equipped with a nut that fits snugly in the interior of said pipe and in line with said hole through both sides of said pipe, and

b) said tie bolt, in said retention pipe, is allowed to run freely through said retention pipe,

c) said tie bolt, with said back nut, rotated into a workable tie bolt assembly, and

d) said tie bolt, with back nut, rotated into a storage position inside of said web portions of said super-ordinate beam, and

e) a self-contained form tie assembly is provided.

8. The super-ordinate box beams, of the Facer Beam Barrier System of claim 6 wherein an alternative improvement comprises;

a) the self contained tie assembly, replaces, said nipples that receive said retention pipes, with guide bars that allow said retention pipe to travel up and down within said guide bars and within said box beam webs, and said guide bars are running parallel with said face of beam and said guide bars assimilating said nipples in their depth and distance from face of beam, thus

allowing said tie bolt retention assembly to travel up and down or back and forth within said guide bars therefore said tie may be angled through said hole in said box beam face, and

b) said retention pipe reduced in length to a measurement marginally more than two thirds of the distance between said webs of said box beam thus allowing said retention pipe to freely move side to side within said guide bars, thus allowing said tie bolt retention assembly to be angled, through said hole in said box beam face, in a side to side manner, and

c) said self contained tie assembly system functioning with tie bolts having the ability to angle in any direction when passing through said hole in said super-ordinate box beam face.

9. The super-ordinate box beams, of the Facer Beam Barrier System of claim 6 wherein an improvement comprises said tie assembly system of claim 6 alternatively employing a flat washer at the back of said beam in place of said retention pipe.

10. The Facer Beam Barrier System according to claim 1, wherein an improvement comprises said series of breech and chamber openings, in said super-ordinate beams, may be machined in alternative forms provided said forms conform to the essence of the invention, said forms may appear as 4 sided, or 6 sided or in other shapes as long as they serve as a breech and chamber.

11. The Facer Beam Barrier System of claim 3 wherein an improvement comprises building a house, wherein the top plate, with said extension plate, with said retention pin-hole, being used as an attachment point for an intersection of,

a) a flooring beam, said flooring beam being said super-ordinate beam, and

b) a rafter beam, said rafter beam being said super-ordinate beam.

c) a crane hook, to pick the walls of said house up and set them in place prior to attaching said rafter beam.

12. A Facer Beam Barrier System according to claim 6, wherein an improvement comprises said super-ordinate beams assembled horizontally with said subordinate beams interlocked in a vertical position.

13. The Facer Beam Barrier System fabricated according to claim 3, wherein an improvement comprises said barriers arranged and joined together as a scale model sub-rigid building that may be implemented as a model or toy house or the like.

14. The Form Tie Assemblies of claim 6 wherein an improvement comprises said form tie assemblies being fixed between any 2 beams or any 2 webs and used as a generic rotating self contained tie assembly for concrete formwork.

15. The Facer Beam Barrier System of claim 6 wherein an improvement comprises said super-ordinate beams arranged in lateral segments that follow a radius with subordinate beams reduced in size in order to be ratiocinative with said breech and chamber openings as said super-ordinate beams angle away from the line that said subordinate beam is chambered on, as said radius creates a segmented form application.

16. The subordinate beams of The Facer Beam Barrier System of claim 1, wherein an improvement in retaining said facer comprises;

a) said subordinate beams machined with a series elongated penetrations through the flat elongated surface side of said beams, said penetrations to be centered on

said flat side and said penetrations to be a ratiocinative width dimension, said penetrations to be a ratiocinative length dimension, said penetrations have a space between them, said space to be a ratiocinative dimension that does not diminish the beams strength beyond its intended purpose, and

- b) said series of penetrations in said subordinate beams thus running perpendicular to said super-ordinate beams when said subordinate beams are locked within said chamber in the composition of said barrier, therefore

- a) Unique wedges may be employed with said penetrations, said wedges manufactured by selecting a rectangular piece of material the same composition as or stronger than the material composition of said subordinate beams, said rectangular material machined to a thickness marginally less than the width of said penetrations, said rectangular material machined to a width determinably longer than the length of said penetrations, said rectangular material machined a length at least double said width of said rectangular material, said rectangular material further deformed by slitting a flat side from one corner across the center point to the opposing corner thus providing two wedge shaped pieces, said wedge shaped pieces thus providing unique wedges to be employed with said penetrations, and

- b) Furthermore said penetrations running perpendicular with said super-ordinate beams are of a frequency that provides a penetration on either side of said super-ordinate beam,

- c) Therefore when said wedges are strategically inserted into said penetrations, said wedges may be forced down thus wedged against said side web of said super-ordinate beam thus forcing said super-ordinate beam a desired dimension to the right or left of said super-ordinate beams chambered location,

- d) Consequently lateral super-ordinate beams may be forced toward one another with said wedges inserted into said penetrations in said subordinate beams,

- e) Therefore when a facer is between said lateral super-ordinate beams and said wedges are inserted in said penetrations along the outer sides and parallel with and against said lateral super-ordinate beams, said facer may be compressed between said super-ordinate beams and thus fastened in a flat plan with said super-ordinate beam face.

- f) Furthermore when a barrier is formed with three or more lateral super-ordinate beams with two or more facers in place and opposing wedges are inserted at the outer sides of the beams at each end of said barrier, said barrier may be compressed from side to side thus providing added rigidity while maintaining a sub-rigid composition.

17. The super-ordinate beams of The Facer Beam Barrier System of claim 1, wherein an improvement comprises;

- a) said super-ordinate beams strategically deformed in a manner, that creates an obtuse angle, where said side-webs previously bend 90 degrees back from said super-ordinate beam face, said obtuse angle traveling away from said beam face a dimension assimilating the depth of said facer panel at which point said chamber wall begins, at said chamber wall said side-web is further deformed to bend back to 90 degrees with said facer panel,

- g) said elongated butt edges of said facer strategically deformed to fit said obtuse angle strategically deformed into said side-webs of said super-ordinate beams when said facer panels are seated against said subordinate beams,

- h) said strategically deformed facer panel sheathed and arrested within and against said strategically deformed super-ordinate beam in the composition of said Facer Beam Barrier System.

18. The super-ordinate beams of The Facer Beam Barrier System of claim 6, wherein an improvement comprises using said self-contained multi-functional facer beam, as a two-way tie retainer beam, for a column form, by providing;

- a) two opposing column sides with said super-ordinate beams laterally spaced apart, a dimension that amounts to the width of one finished column side, plus the thickness of two facer panels, plus the width of two subordinate beams, and held in this spaced apart location by inserting and chambering standard subordinate beams, subsequently

- b) said plywood is centered on said standard subordinate beams that systematically divide said lateral super-ordinate beams and said plywood is attached to said subordinate beams with conventional fasteners such as nails, and further

- c) two opposite and self-opposing column sides comprise facer panels, conventionally fastened to un-chambered subordinate beams, that are extended beyond said facers edges a dimension equal to at least twice the width of said subordinate beams, and further

- d) said un-chambered subordinate beams, with facer attached, may be lapped over said standard subordinate beams and manipulated back against the sides of said laterally spaced apart super-ordinate beams, and further

- e) this composition may be held together by engaging top and bottom tie assemblies of face to face super-ordinate beams and adding alternative top and bottom tie assemblies through the sides of said laterally spaced apart super-ordinate beams, whereas said super-ordinate beams are manufactured with a pattern of extra side-web holes for such purposes, and

- f) said alternative tie assemblies composed of standard bolts, nuts, and plate washers and said tie assemblies providing continuous ties around said column form at the top and bottom

19. The Facer Beam Barrier System according to claim 1, wherein an improvement comprises said series of breech and chamber openings machined in any super-ordinate beam that conforms to the essence of the invention.

20. The Facer Beam Barrier System of claim 6 wherein an improvement comprises said overlapping subordinate beams overlapped and interlocked together within said breech and chamber openings and also overlapped with independent fasteners;

- a) at an inside corner,
- c) at an outside corner,
- d) within said breech and chamber opening,
- e) at a column corner.