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(54) DISMOUNTABLE SYSTEMS FOR PILLARS AND SUPPORTS OF BUILDINGS.

(57) Dismountable and salvable structure for pillars and supports of buildings, comprised of an anchoring plate (10) which may be levelled by means of lower anchoring nuts screwed on threaded anchoring bars (8) which are independently positioned by means of perimetral and interior stirrups (12) before pouring the concrete. After pouring the concrete on the base, the anchoring plate is fixed by means of upper anchoring nuts (2) and is used as a levelling base for the modules of the pillars which are provided with trussed beam wings (6), nuts for anchoring the closures (4), and gaps (7) for the passage of utilities. Thereby, such system may be provided as structural elements in disassembled conditions, together with a manual of instructions to enable the building firm or constructor to mount such system with its own labor.

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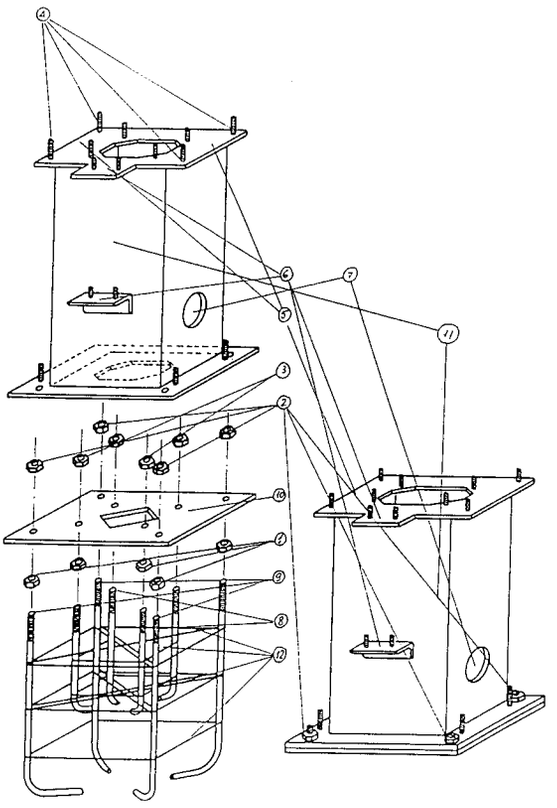


FIG 2

This invention relates to a dismountable system which is suitable in several cases, for instance:

1) To reduce costs of manpower because of skilled labor force is not required.

2) The main purpose of the invention is to get a desmountable structure which can be disassembled, carried out and assembled again at other different construction whith the known advantages. Nevertheless the system can be welded.

3) In other hand, since the parts can be performed at construction site the load, transport and unload costs can be minimized.

4) The parts of the system can be supplied disassembled, together with a Instructions Book and, in this case, the client can perform the assemblage with his manpower.

5) The modulus of the system can be used again at the same construction which can be performed by areas.

6) All parts in particular, and system in general, can be welded.

According to hereinabove, the system here related make good in order to carry a increase of output for getting a suitable ratio of schedule-grade- cost.

The construction is made in several steps as follow:

Step 1

After layin-out and excavation has been performed and the trenches compacted manual or mechanically a layer of lean concrete is poured on that. After placing the responsive block, the steel bar are situated and when the concrete is pouring the anchor bolts, all together, are placed, with a free space under anchor plates for leveling the anchor plates with the upper nuts.

After leveling anchor plates, the upper nuts are installed for fixing said anchor plates and filling the upper side of the concrete slab.

Advantages of this invention will become apparent from the following description of exemplary embodiments shown in the accompanying drawings, wherein:

Figure 1 is a isometric view, elevational view and cross-section illustrating an anchor plate with anchor bolts and fastening.

Figure 2, according to step 1 and step 2, shows the leveling step and placing of the anchor plate (step 1) and screwing on of lower column (step 2). All the numerals means the same.

1) Screw lower anchor bolts for leveling anchor plate before pouring concrete for placing or lower column (upper side of figure).

3) Screw anchor bolts of lower column

4) Screw anchor bolts of closing (closing modulus, walls and trusses)

5) Closing brim for supporting closing and walls

6) Brim of truss beams (changeable position)

7) Access to services (changeable position)

8) Anchor bolts of lower column

9) Outer anchor bolts (anchor plate of lower column)

10) Anchor plate

11) Base self-supporting of column, beam and base of closing

12) Inner and peripheral stirrups

Figure 3 is a general isometric view of step 1 which shows, moreover, its connecting to steps 1 and 2.

Step 2

In this step the placing of bases and lower columnus and draining horizontal network is performed.

The draining network will be performed with PVC pipes and said pipes could be suspended from trusses and frame work modulus and to come out to exterior through service openings at lower columns.

For placing lower columns, the upper nuts of anchor plates are removed and after that, and after levels has been checked, the lower column is placed on anchor plate puting in coincidence the holes of lower column and the screwed bars of anchor bolts.

After lower columns is situated, the nuts will be pressed again.

Figure 3 shows a isometric view illustrating the connection between steps 1 and 2, and the connection between steps 2 and 5.

Figure 4 shows several different views of parts of lower column in plant, isometric and elevational views

Figure 5 shows a variant of foundation by means of columns instead of columns. In this case the pile is driven in the filling with a push screw. The sutd bolts are pating into after the push screw is threaded again. The stud bolts set up and penetrates in the filled. On the piles can be placed an anchor plate or the lower column directly.

For performing piles, the pipes will be compiled and stud bolts will have the same measure that final pile.

Step 3

Fig 6 shows a fitting made with plate

Fig 7 shows a special part for coupling two column parts. Said special part supports tie and truss beams.

Fig 8 shows a isometric view illustrating a detail of support for truss beams.

Fig 9 shows differents details of column parts (rebars, form works, etc)

Fig 15, 16 and 17 shows different kind of column anchor plates according to type of column where we can see the difference between the following.

- Isolated column and beam
- Column betwen two closing walls with chambers and beam perpendicular to walls.
- Column between two closing walls and two beams parallel to walls
- Column between four closing walles and chambers, and two beams perpendicular between them
- Corner column with closing walles and chamber and beam.
- Column between four walls, closing and chamber, an four beams.
- Isolated column
- Isolated column and two walls
- Isolated column and three walls
- Isolated column and four walls
- Isolated column and walls
- End column with wall, closing and chamber
- etc

The beam trusses (Figure 8) are placed in a such manner that holes of anchor plates of said beam trusses are in coincidence with screwed bolts that lower columns have at its brims. After that, nuts on screwed bolts are pressed.

Step 4

Modulus, which replaces to traditional framework, being, as figure 20 indicates, rectangular pipes, but this form can be replaced by normal profil "L" shaped and mesh when backfill with concrete is desired.

In any case, modulus will have posterior ends inverted "U" shaped which will put in on upper side of beam, between the two profils, "L" shaped which forms said beam.

Step 5

After step 4, it start to place the parts which forms the columns, with the parts indicates at figures 15, 16 and 17 according column position in the proyect that is being performed.

In figure 21 can be seen:

1) Base between beams, without closing
2) Base with beam and inner walls
3) Isolated column between beams
4) Column with two inner walls
5) Brim, beam and walls

In figure 22 can be seen:

1) Outer straigth section of lower column base between columns.
2) Corner lower column
3) Parts of corner columns
4) Parts of outer straight section of columns between columns
5) Anchor bolt of column.

In figure 23 can be seen:

1) Corner column with closing and chamber
2) Straight portion of outer column with closing and chamber
3) Isolated column with closing at wall and beam
4) Column with two walls
5) Corner column with wall

Step 6

This step can be solved in two different ways (see figures 25 and 26)

A) Steel modulus performed with rectangular pipes that are screwed to brim columns and that are placed between parts; wall closing air chamber which remain under framework of ground floor; part leading from framework to upper part of holes of the said steel modulus and part leading to first floor framework or truss, which contains the blinds

B) Modulus performed with profils "L" shaped, alike previous way and with same placing, but screwing planking in way A) and shooting light concrete in way. B), said light concrete being planked at its inner side with wood, bored sheet, etc.

Step 7

The chamber system (see figure 26) will be the same that closing system from step 6, screwing the walls between them and to modulus which forms the chambers.

For inside partitions any other traditional system can be used (brick, plaster, etc)

Step 8

In this step the truss supporting plates, which are indicates in Figurs 27, 28, 29 and 30, are placed. Said truss supporting plates will be screwed to last part of columns, which will be prepared.

Step 9

The trusses, performed by coupling different parts, and its supports will be fixed as figures 31 y 32 shows.

Step 10

Modulus are similar to floor framework modulus but with its "V" shaped border as Figures 31 and 32 shows.

Step 11

Planking are screwed to modulus.

Step 12

The closing can be concrete closing or planking according step 6.

Step 13

Traditional systems

Step 14

This step is leaded such as figure 33 is indicated according to follow:

1) The frame will be adapted to measure and number of bluishes.
2) A plaster planking or like is placed on frame
3) Planking and bluishe will be joined with cement or like.
4) After forging and hardening, the frame is carried-out to site construction.
5) After that, planking and wall will be joined.

If desired to screw planking to wall, said planking will be displaced toward the part which will remain above and the bolt is covered by bluishes of inner side of upper portion

Claims

1. A dismountable system of columns and supports for buildings, characterised in that recoverable parts of structure are used, which can be dismounted, carried out and mounted again at other different construction.

2. A dismountable system of columns and supports for buildings, characterised in that anchor bolt are introduced in concrete and ends of said anchor bolts are threaded in order that, once anchor plates has been placed on said anchor bolts, the anchor plate can be fixed and leveled by means of upper and lower nuts.

3. A dismountable system of columns and supports for buildings, characterised in that the anchor bolts which bears anchor plate are fastened between them and independently from all other elements.

4. A dismountable system of columns and supports for buildings, characterised in that parts of column which lean on anchor plates have openings in order to give a sustable lay-out to draining networks and in order to have borders formed by "L" shaped profiles for beam and truss bearings.

5. A dismountable system of columns and supports for building, characterized by a variant of isolated foundations with piles instead anchor bolts in which a pile is driven in soil backfilled and also a push bolt.

After push bolt is removed from pile, the stud bolt are introduced in the pile and after that the push bolt is threaded again with which the stud bolts will be open and will be introduced into the sail.

An another plate will be placed on the piles or directly, the lower column. Piles will be performed by coupling of pipes, which are portion piles by threading of the pipes and placing the stud bolts threading of the pipes and placing the stud bolts which will have the same measure that final pile.

6. A dismountable system of columns and supportes for buildings, characterised in that on the borders formed by "L" shaped profils, which are welded on column parts, truss beams are rested and on said truss beame, framework are supported.

7. A dismountable system, of columns and supports for buildings, characterised by differents kind of anchor plates of column according to kind of column.

8. A dismountable system of columns and supports for buildings, characterised by closing modulus relatives to wall with door, wall with window and wall with door and window.

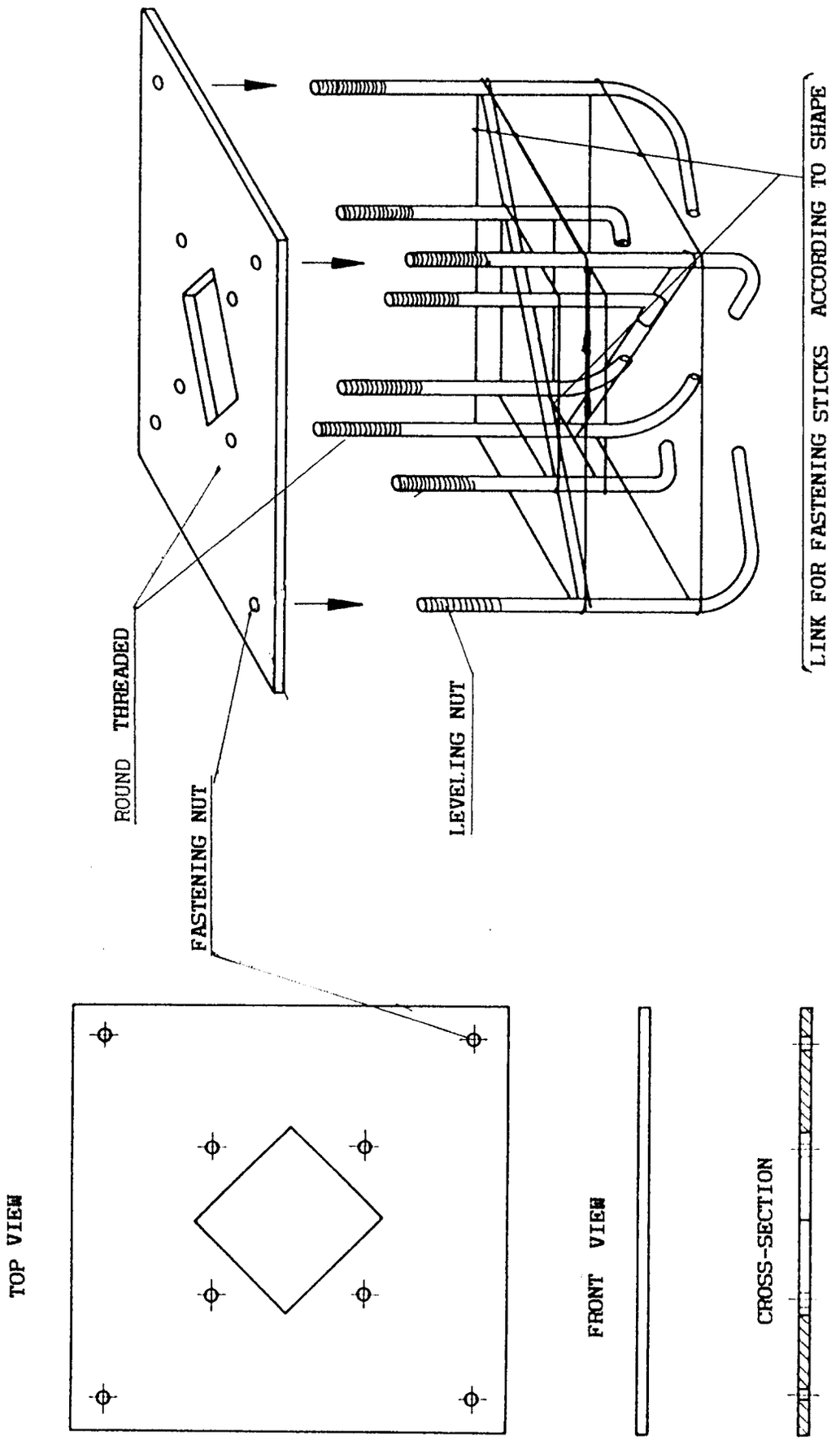

TOP VIEW
FRONT VIEW
CROSS-SECTION
ROUND THREADED
FASTENING NUT
LEVELING NUT
LINK FOR FASTENING STICKS ACCORDING TO SHAPE

FIG.1

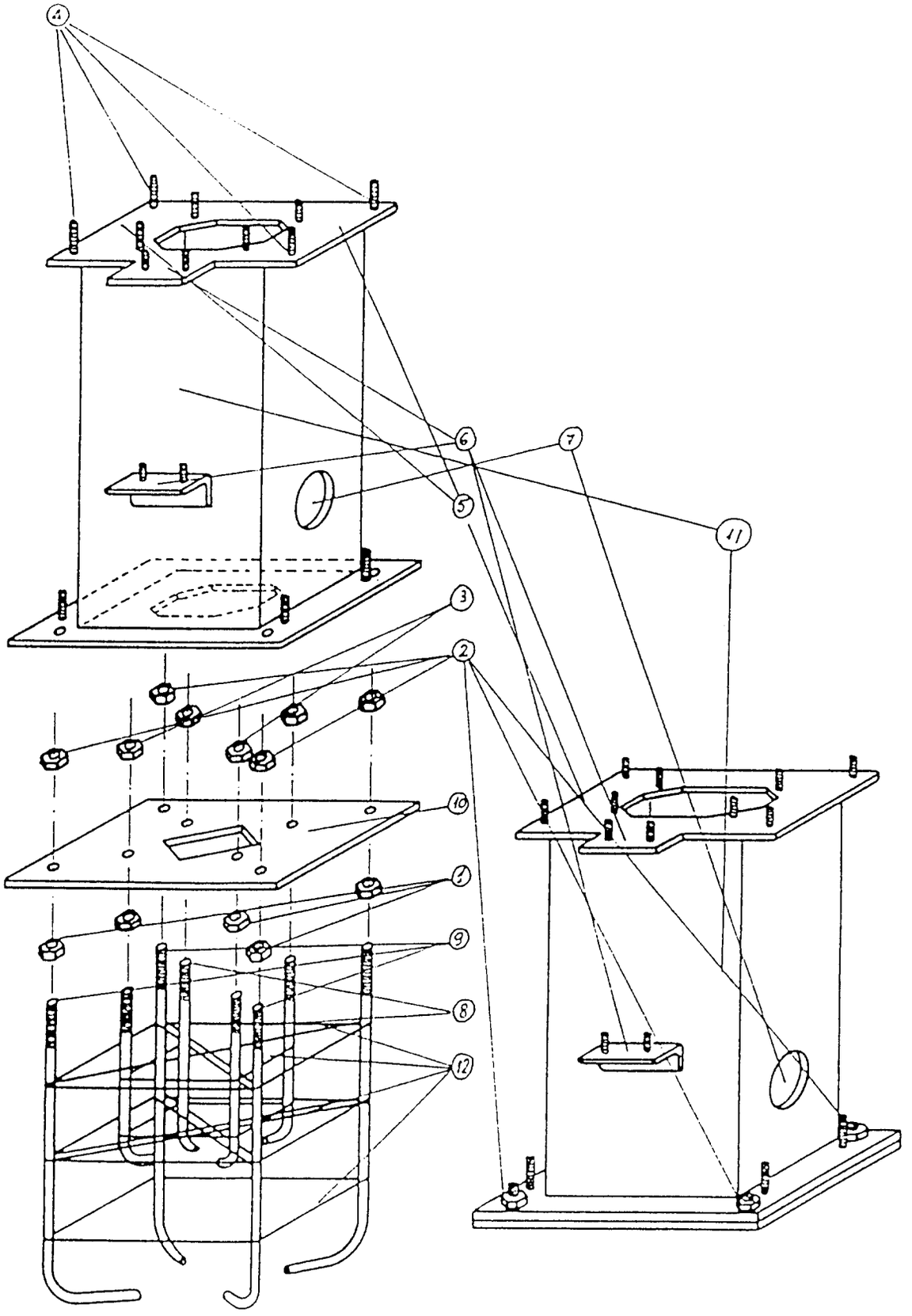


FIG 2

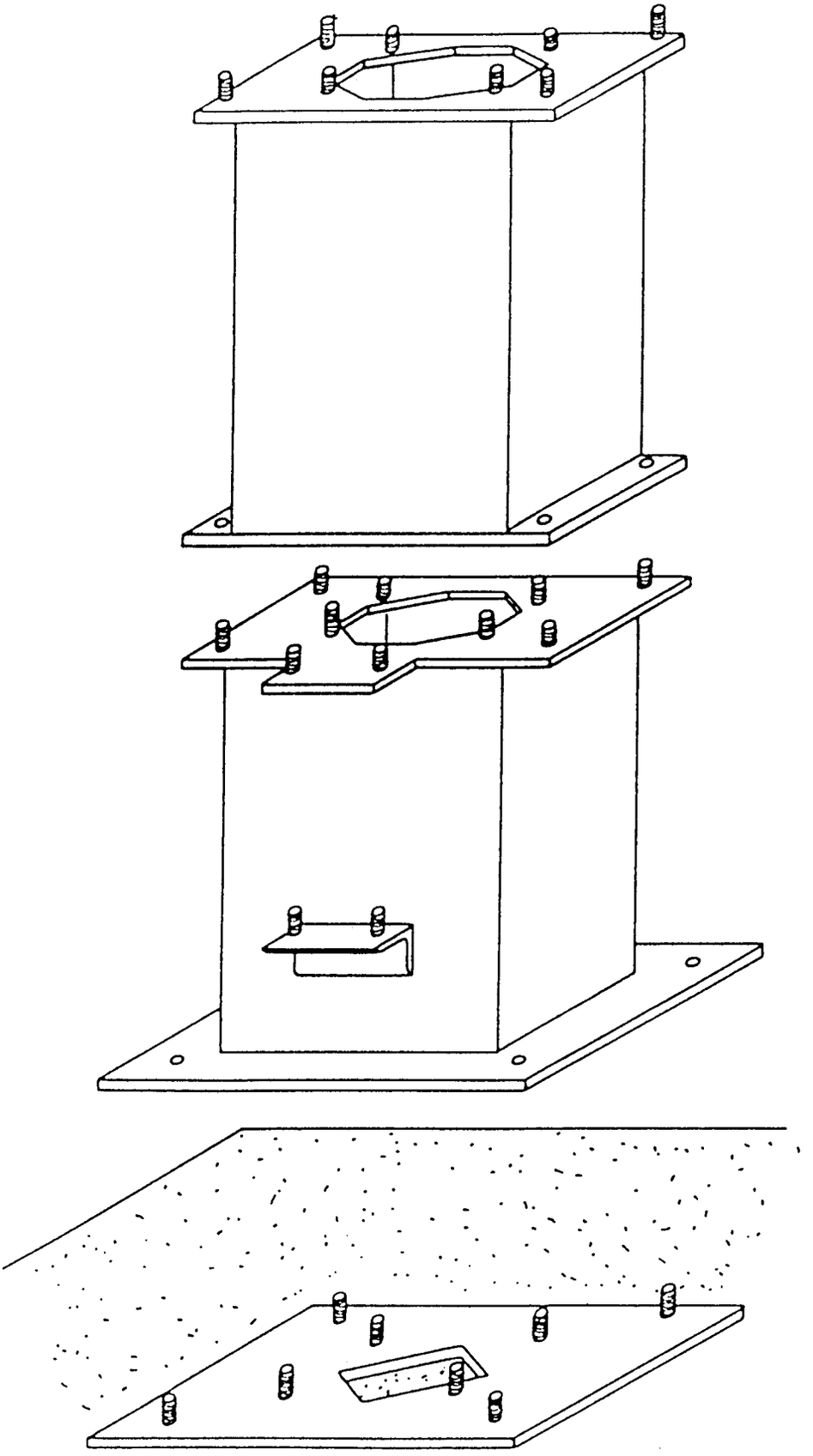


FIG. 3

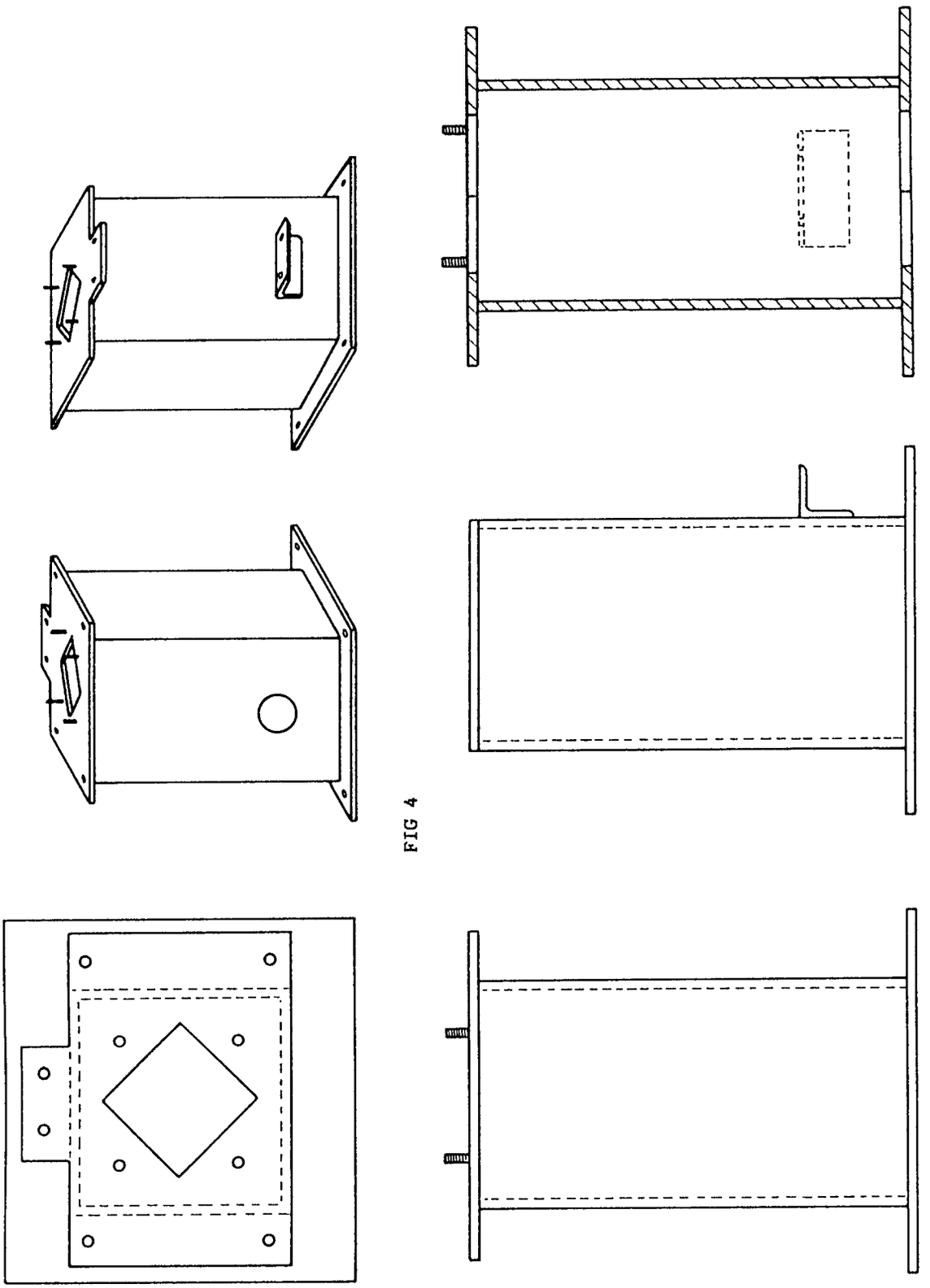
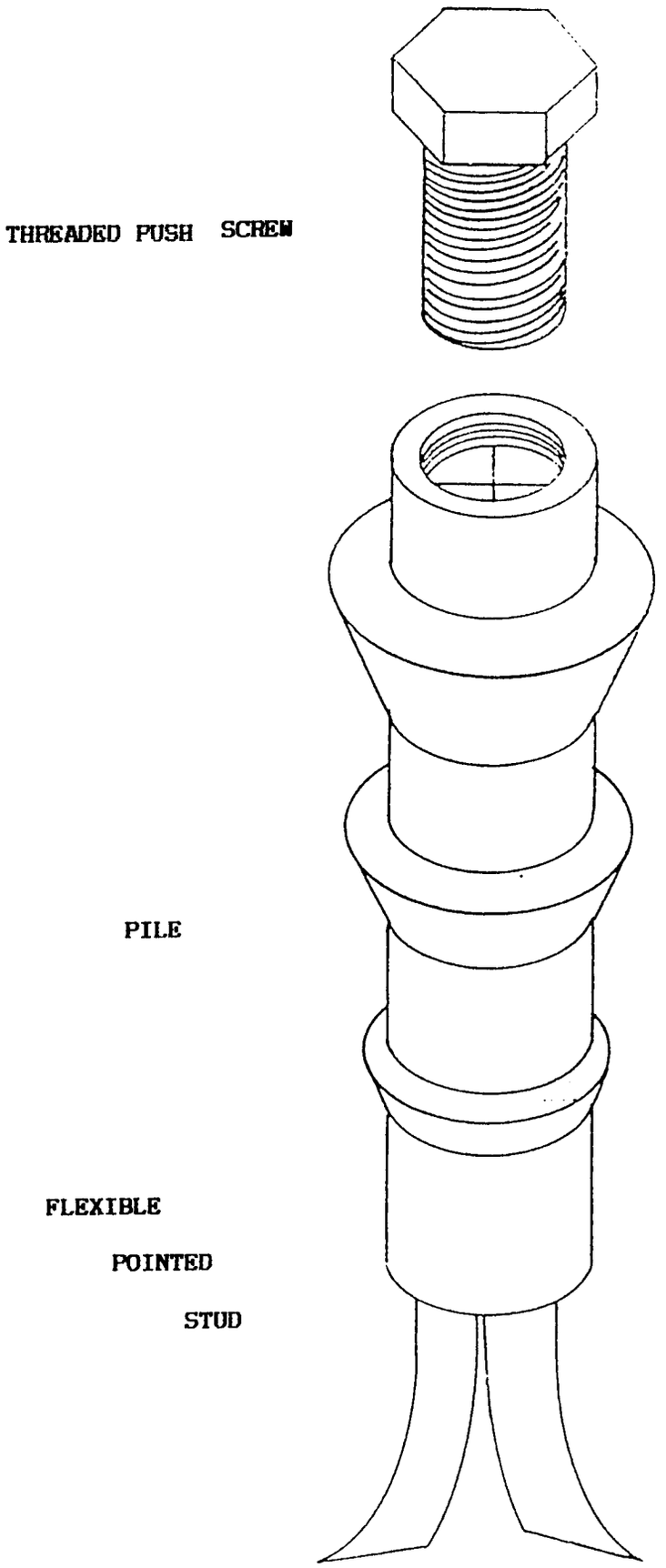


FIG 4


THREADED PUSH SCREW
PILE
FLEXIBLE
POINTED
STUD

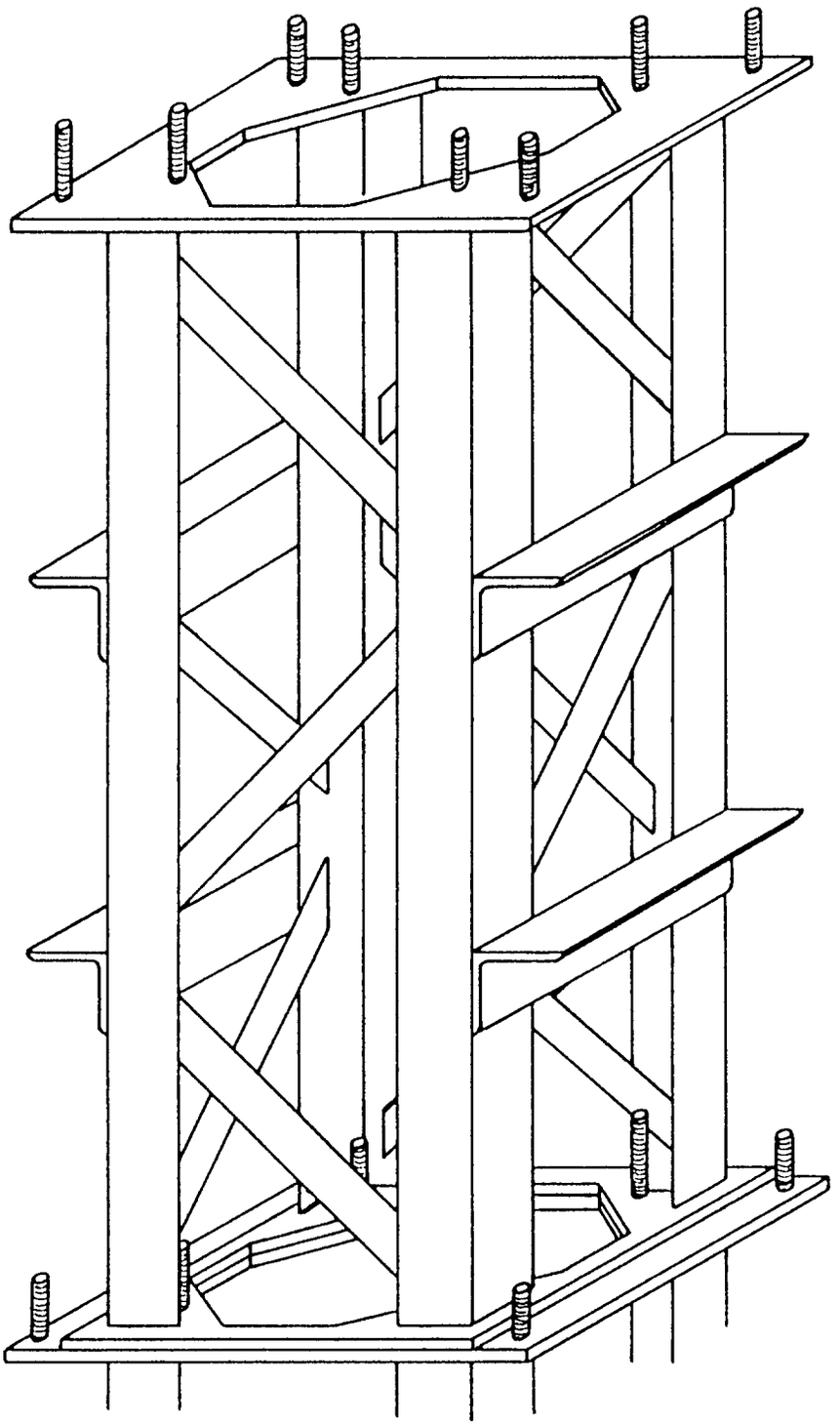
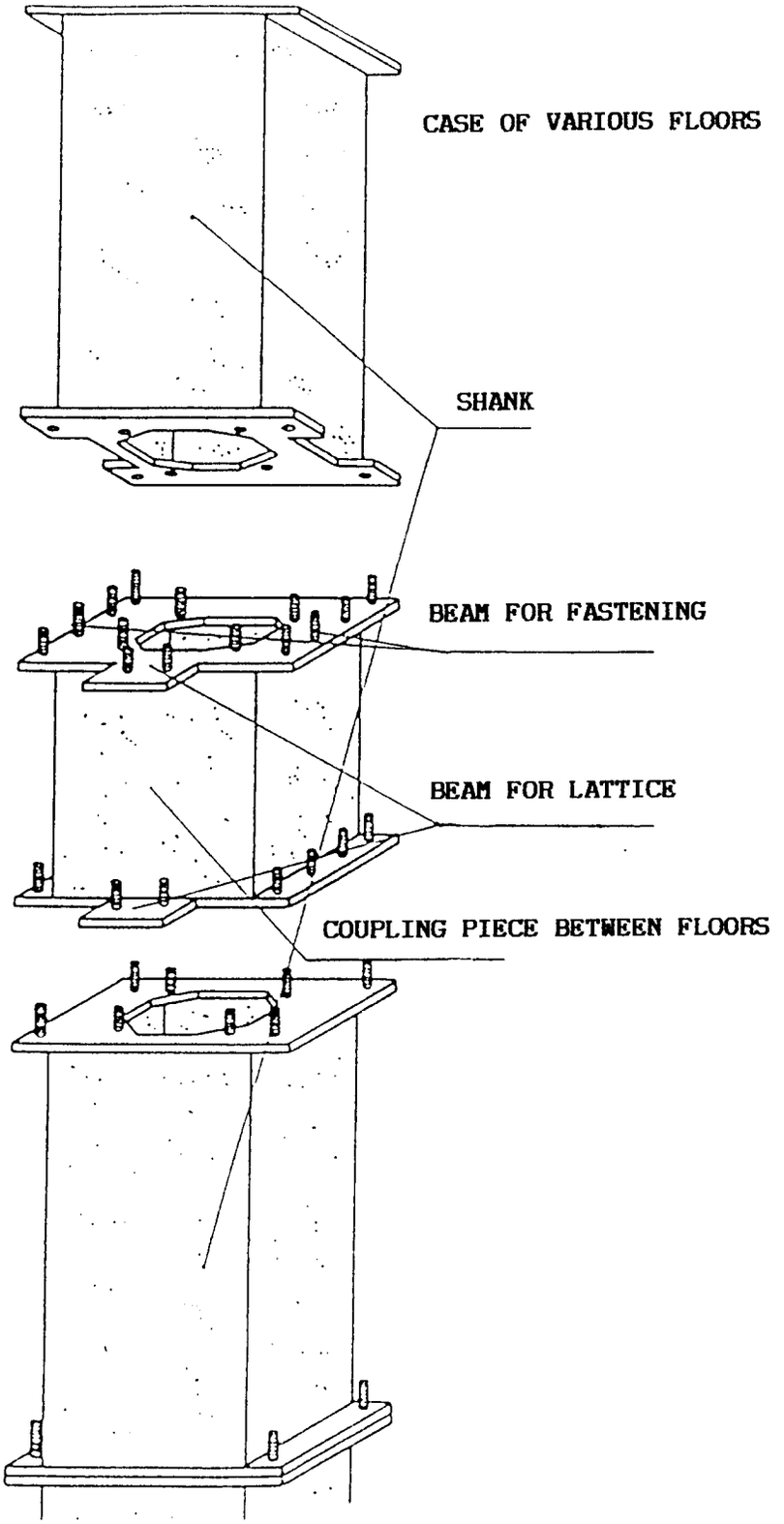


FIG. 6

FIG. 7


CASE OF VARIOUS FLOORS
SHANK
BEAM FOR FASTENING
BEAM FOR LATTICE
COUPLING PIECE BETWEEN FLOORS

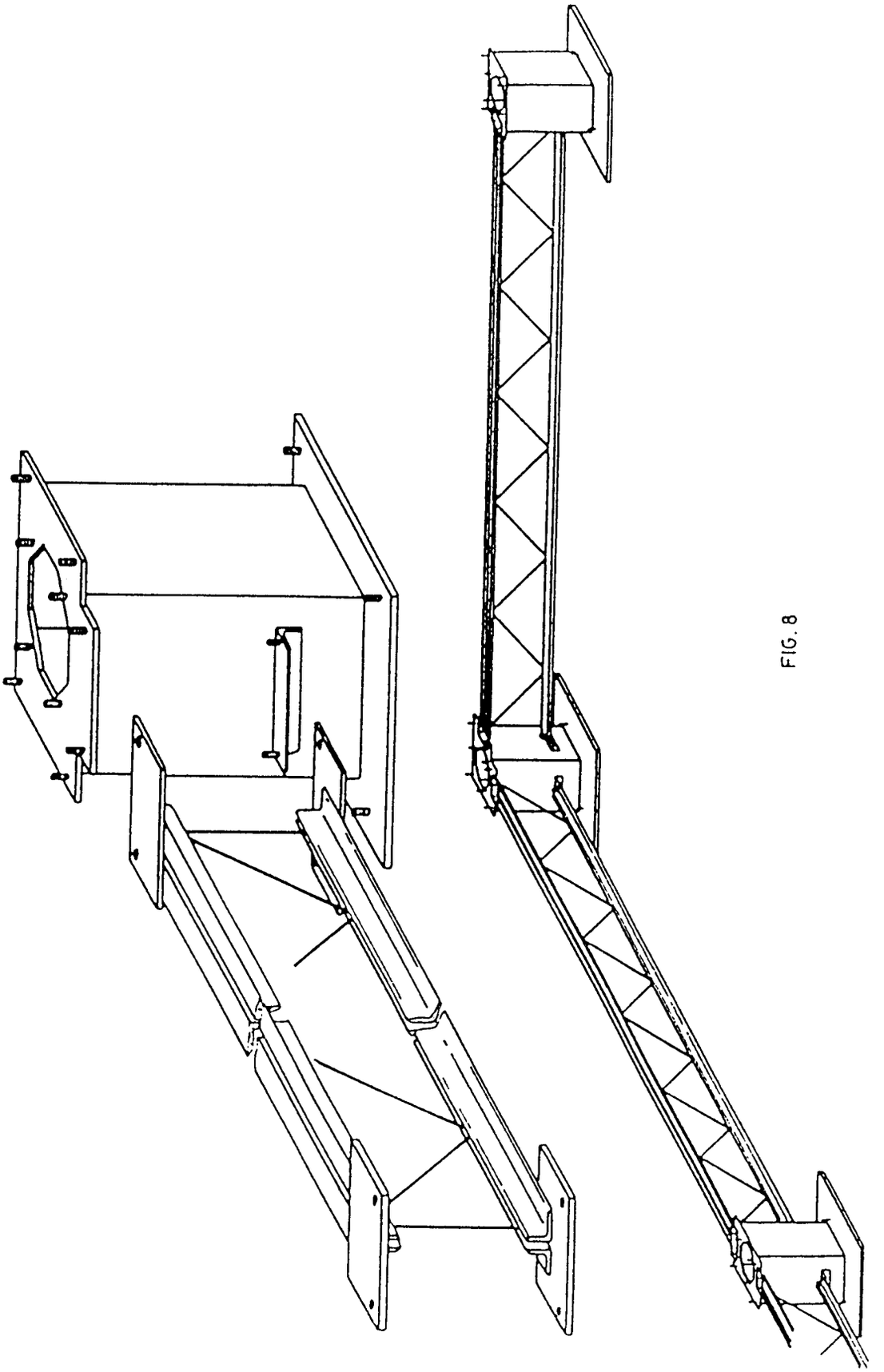


FIG. 8

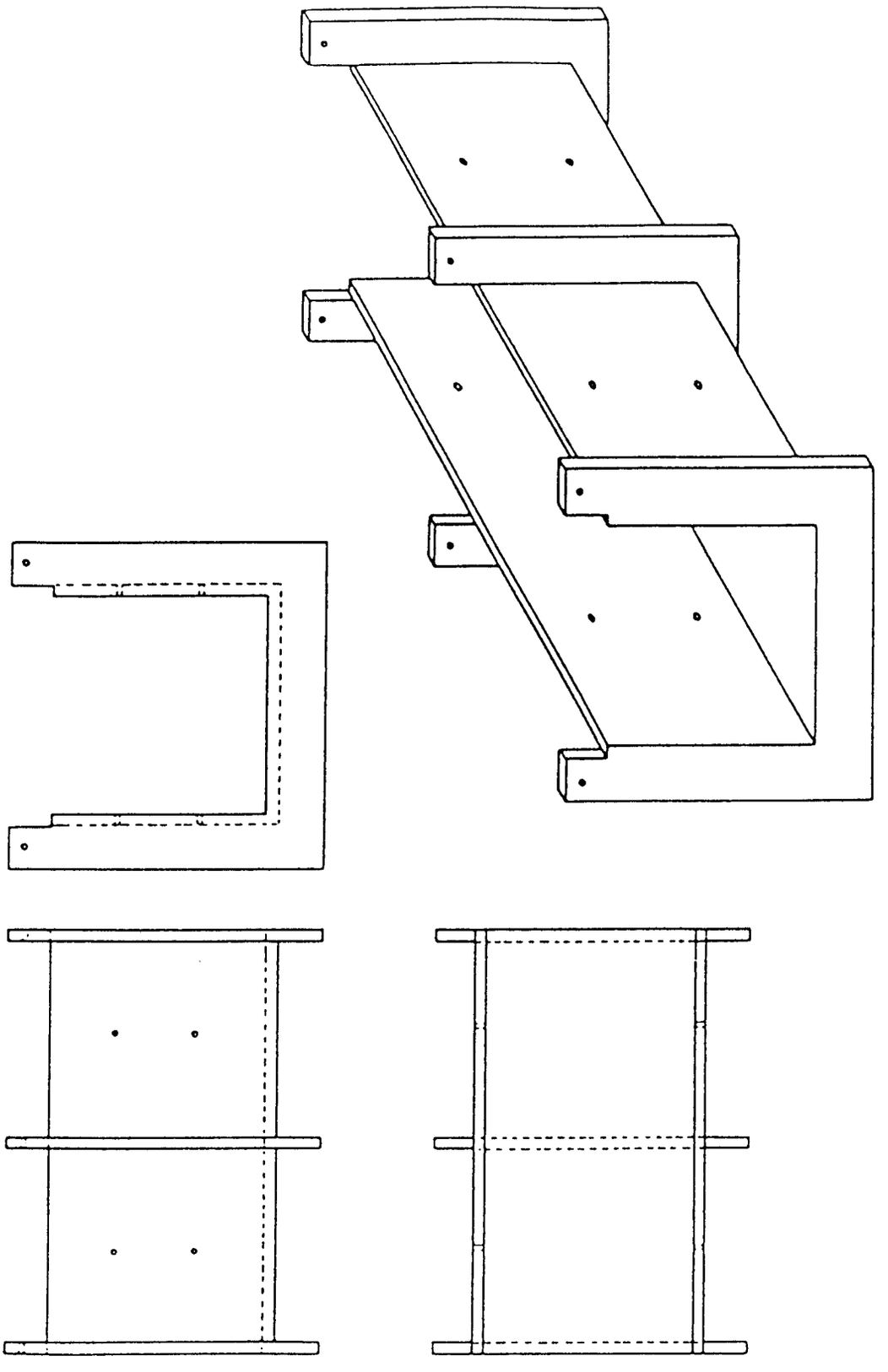


FIG. 9

SHANK TYPE ARMOUR

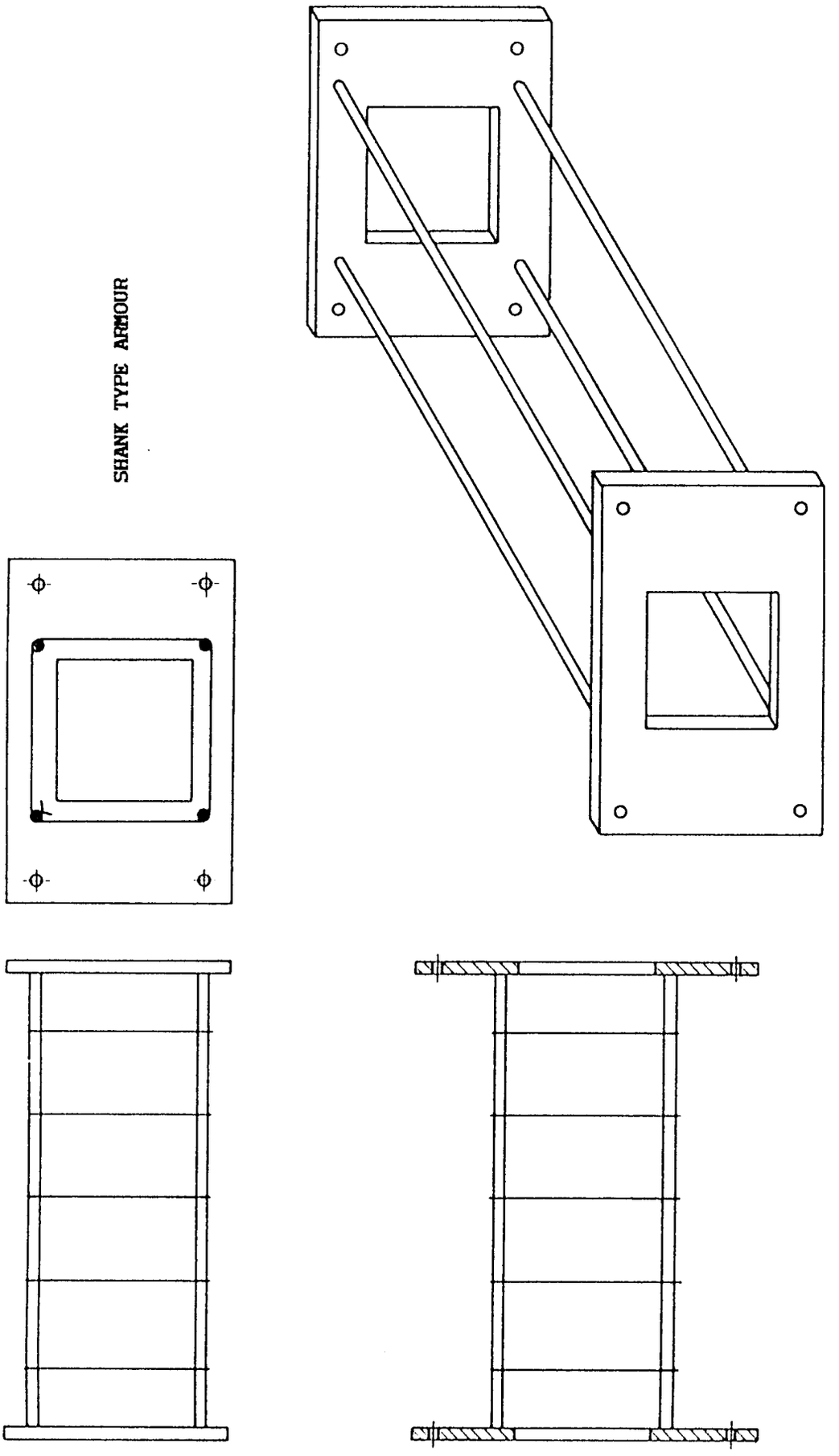


FIG.10

"SHANK" TYPE ARMOUR

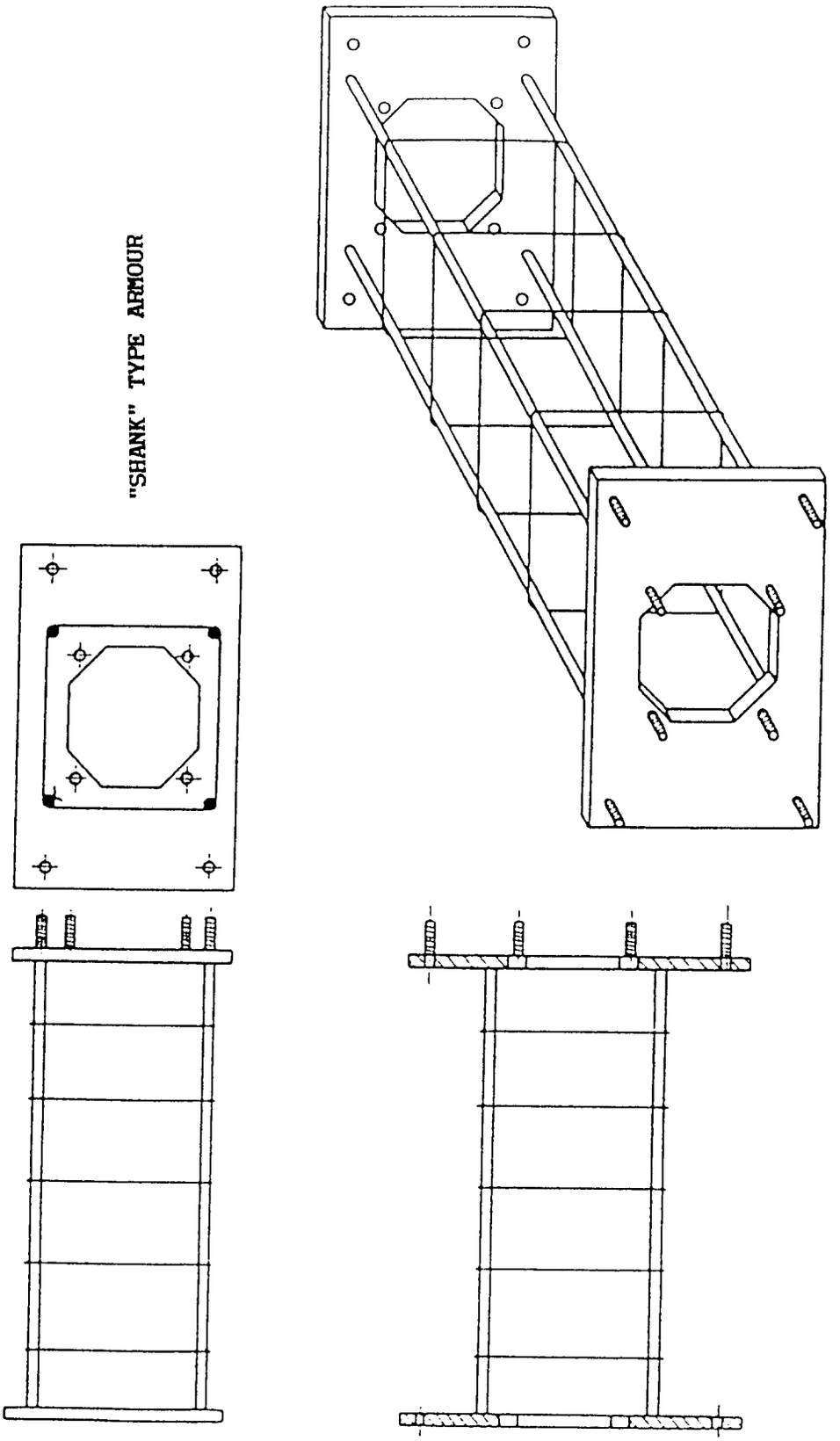


FIG. 11

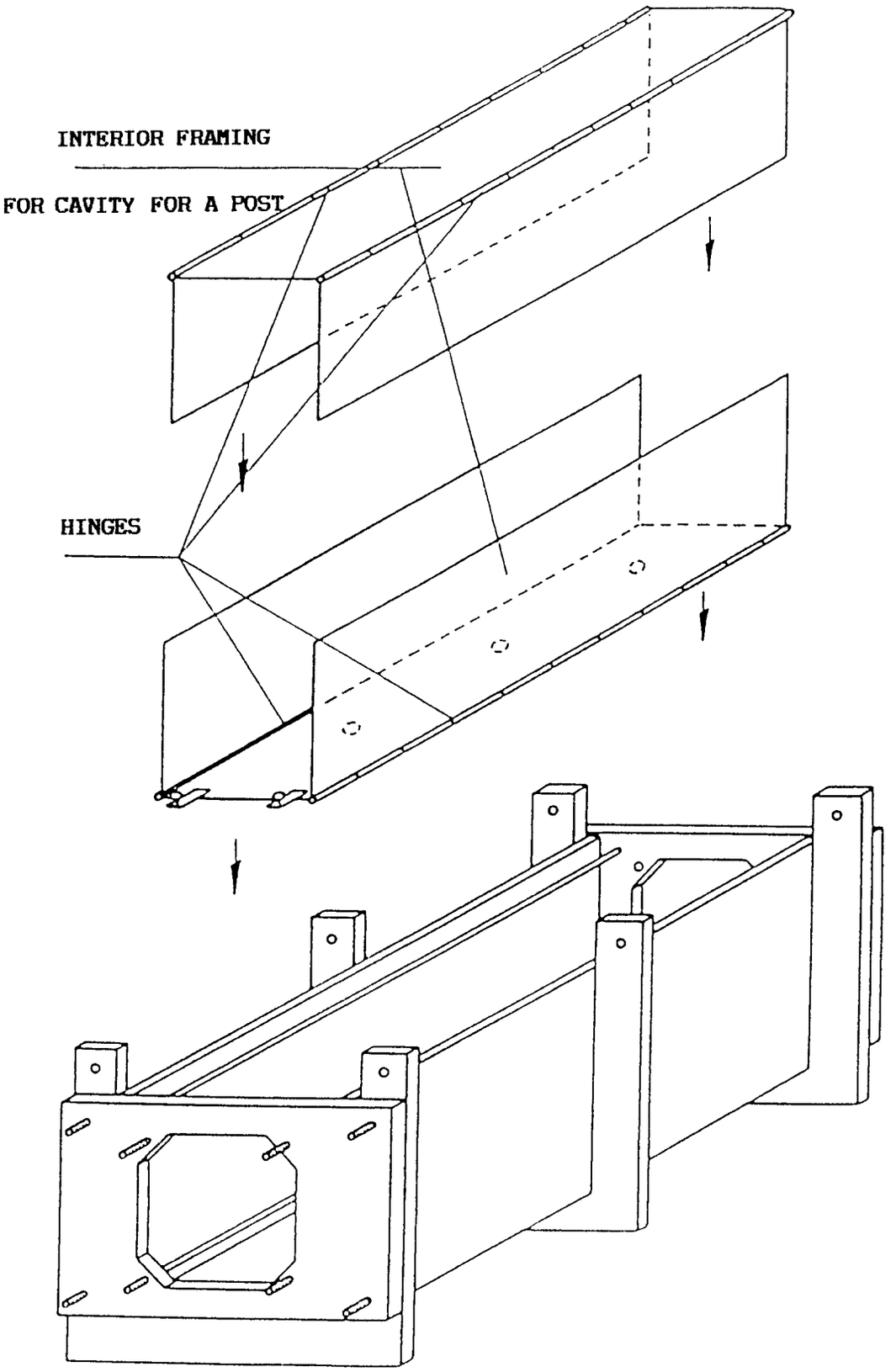


FIG. 12

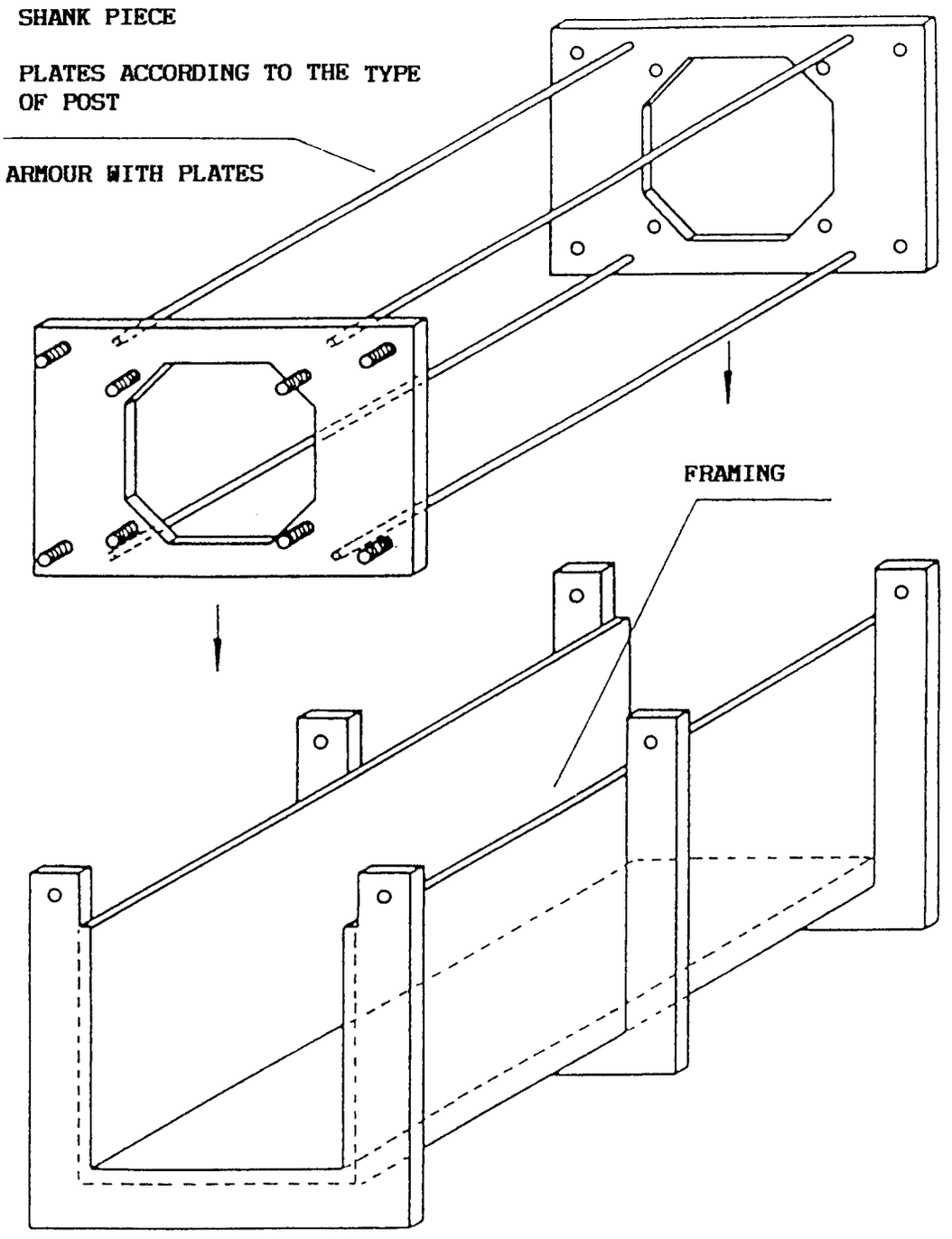

SHANK PIECE
PLATES ACCORDING TO THE TYPE OF POST
ARMOUR WITH PLATES
FRAMING

FIG. 13

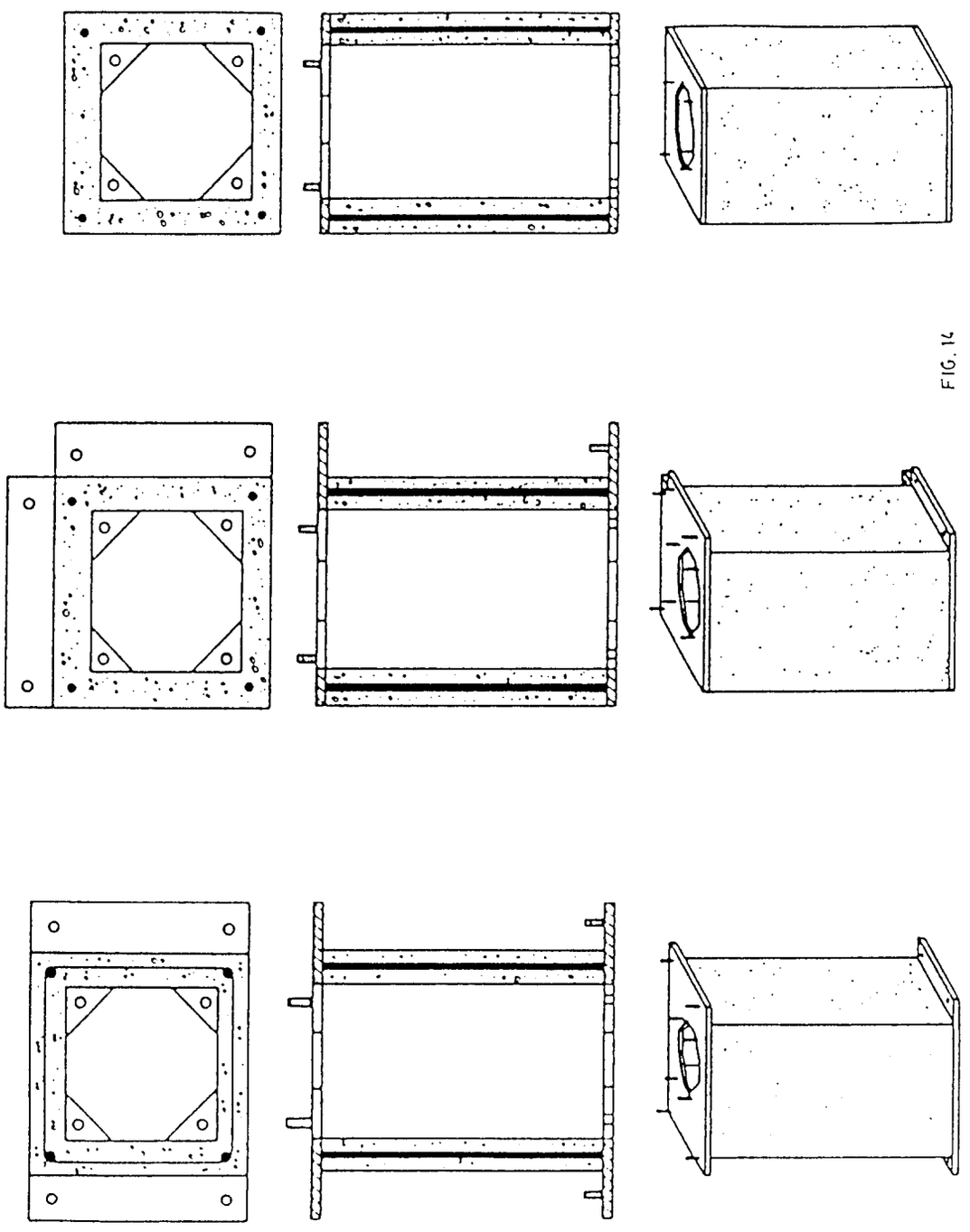


FIG. 14

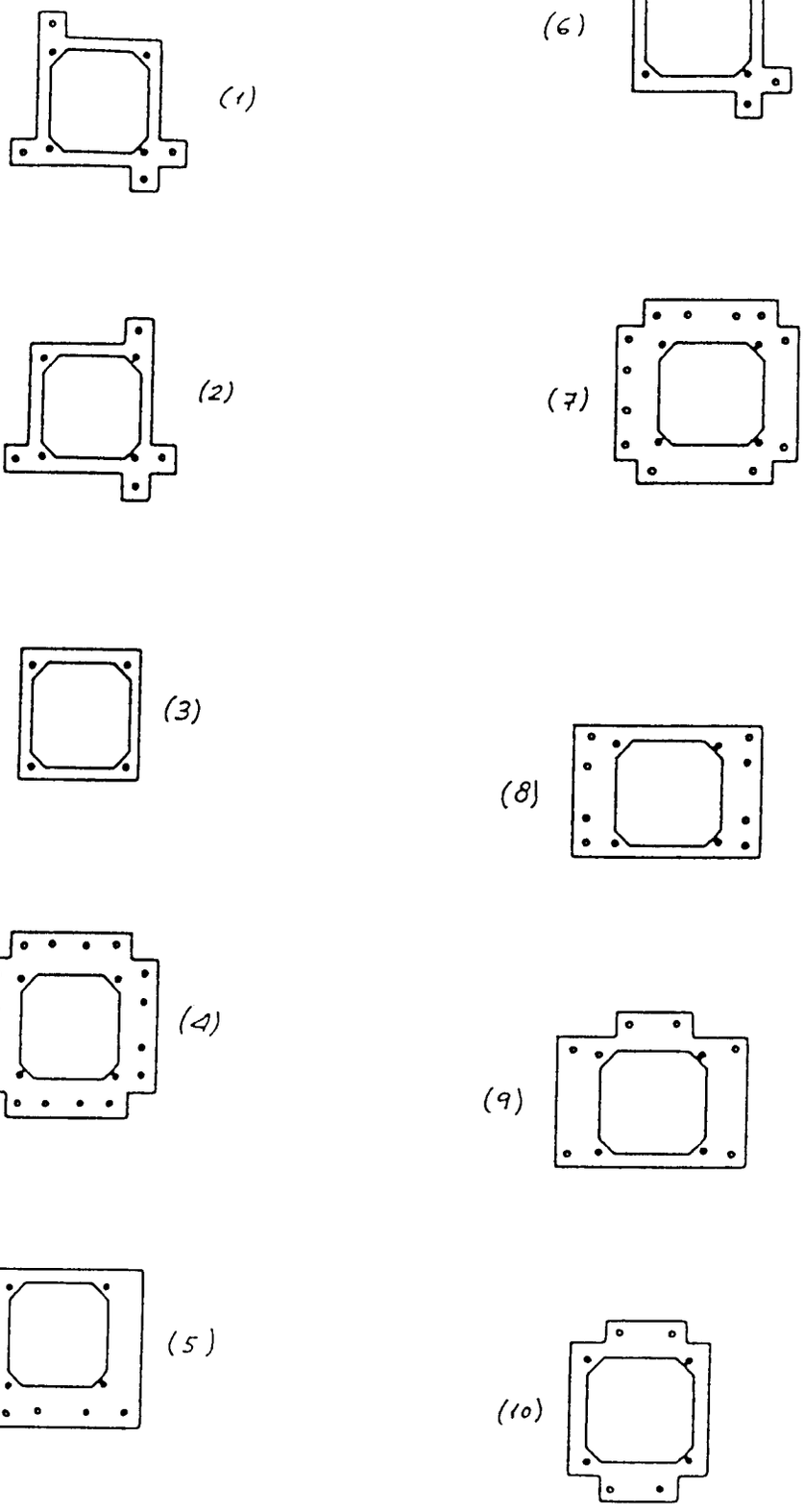


FIG. 15

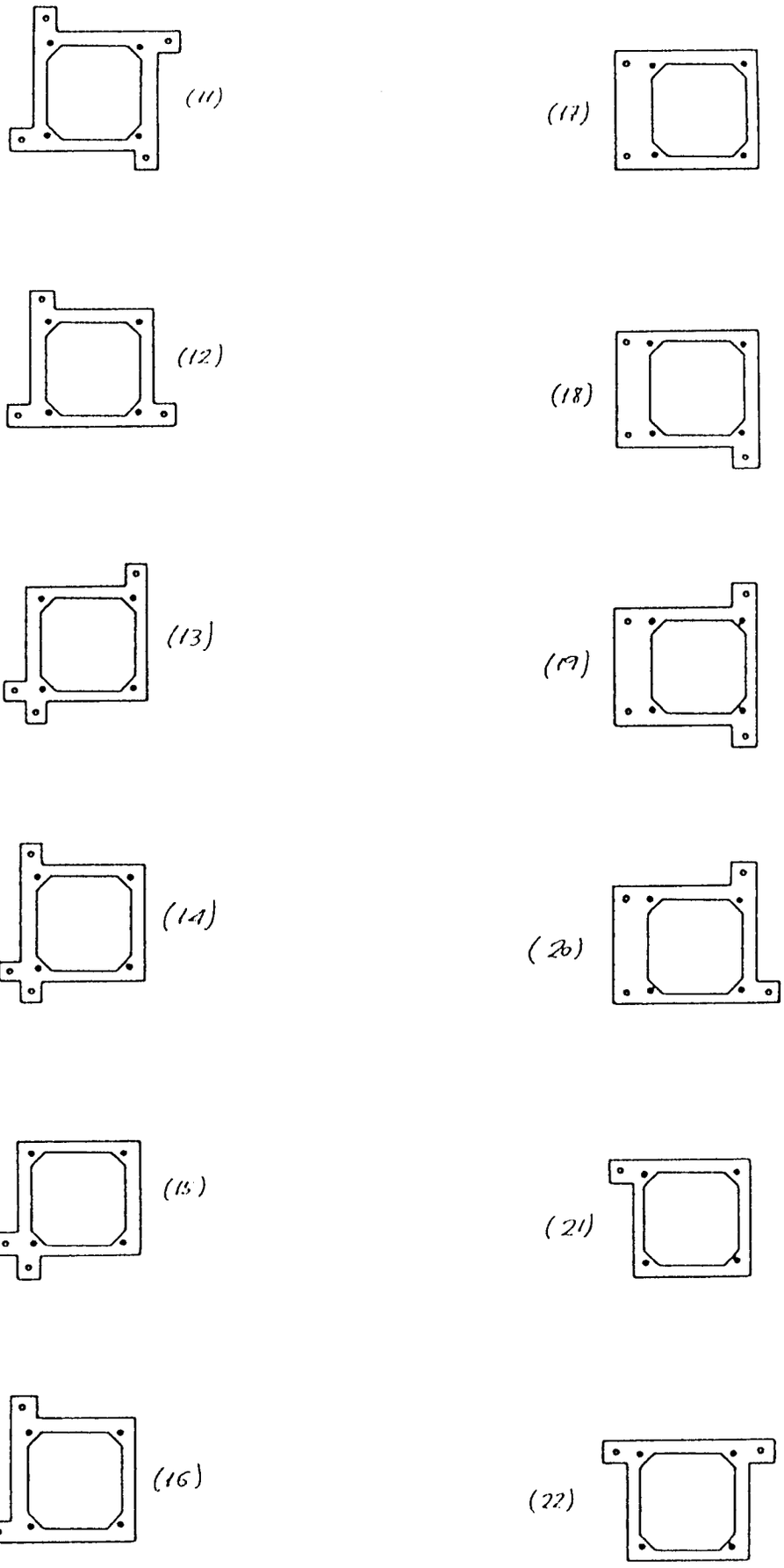
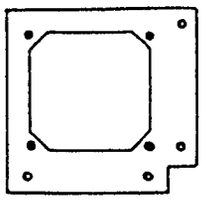


FIG. 16



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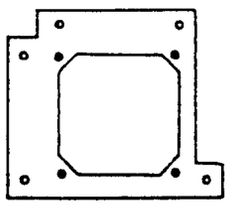

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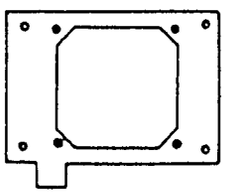

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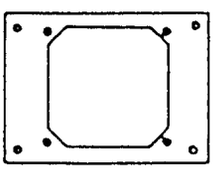

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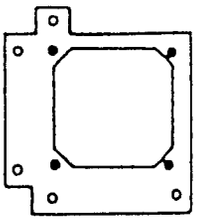

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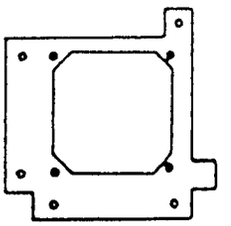

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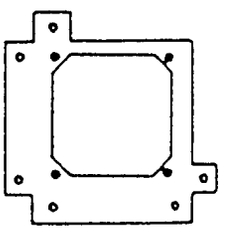

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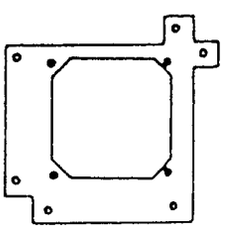


(30)

FIG. 17

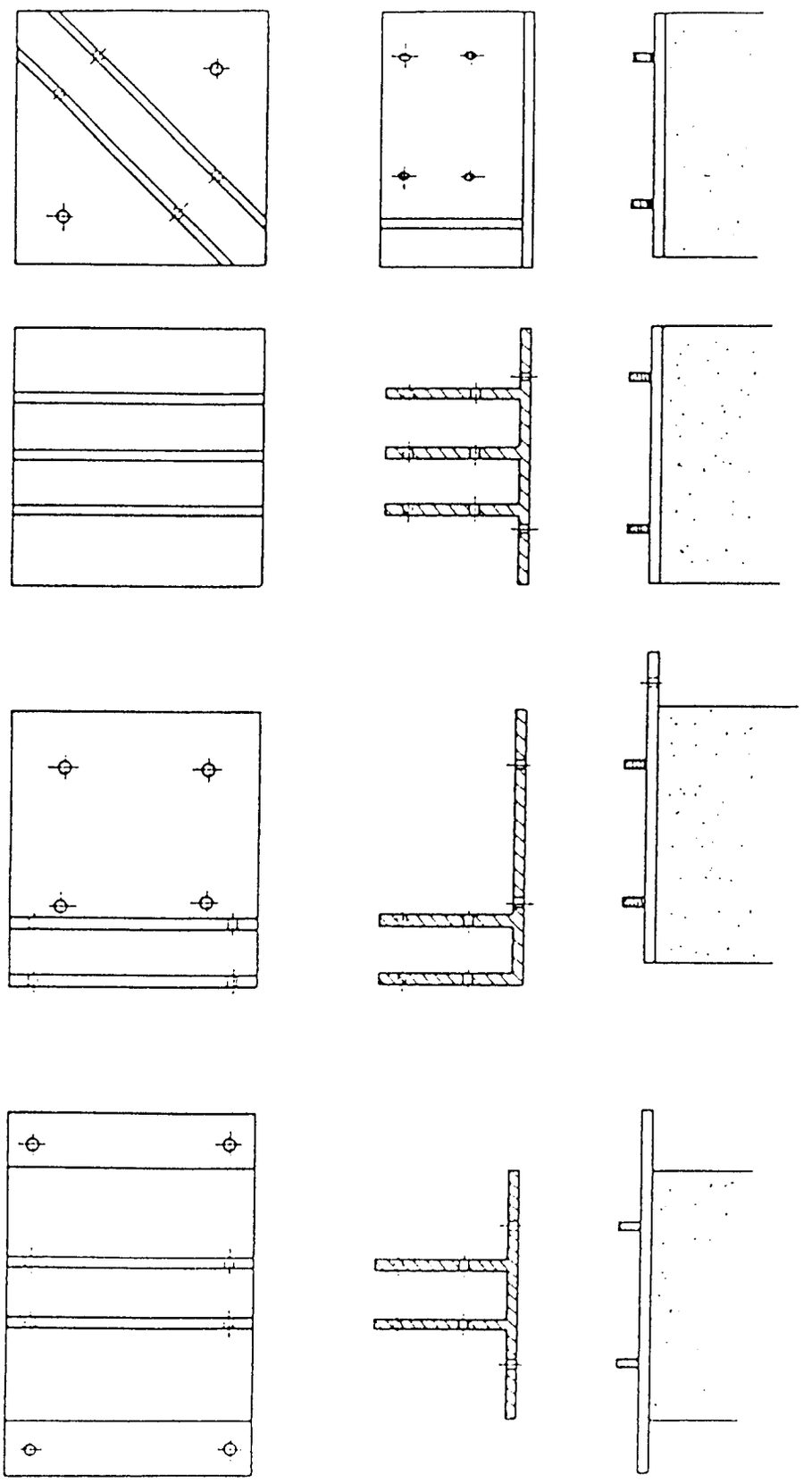


FIG. 18

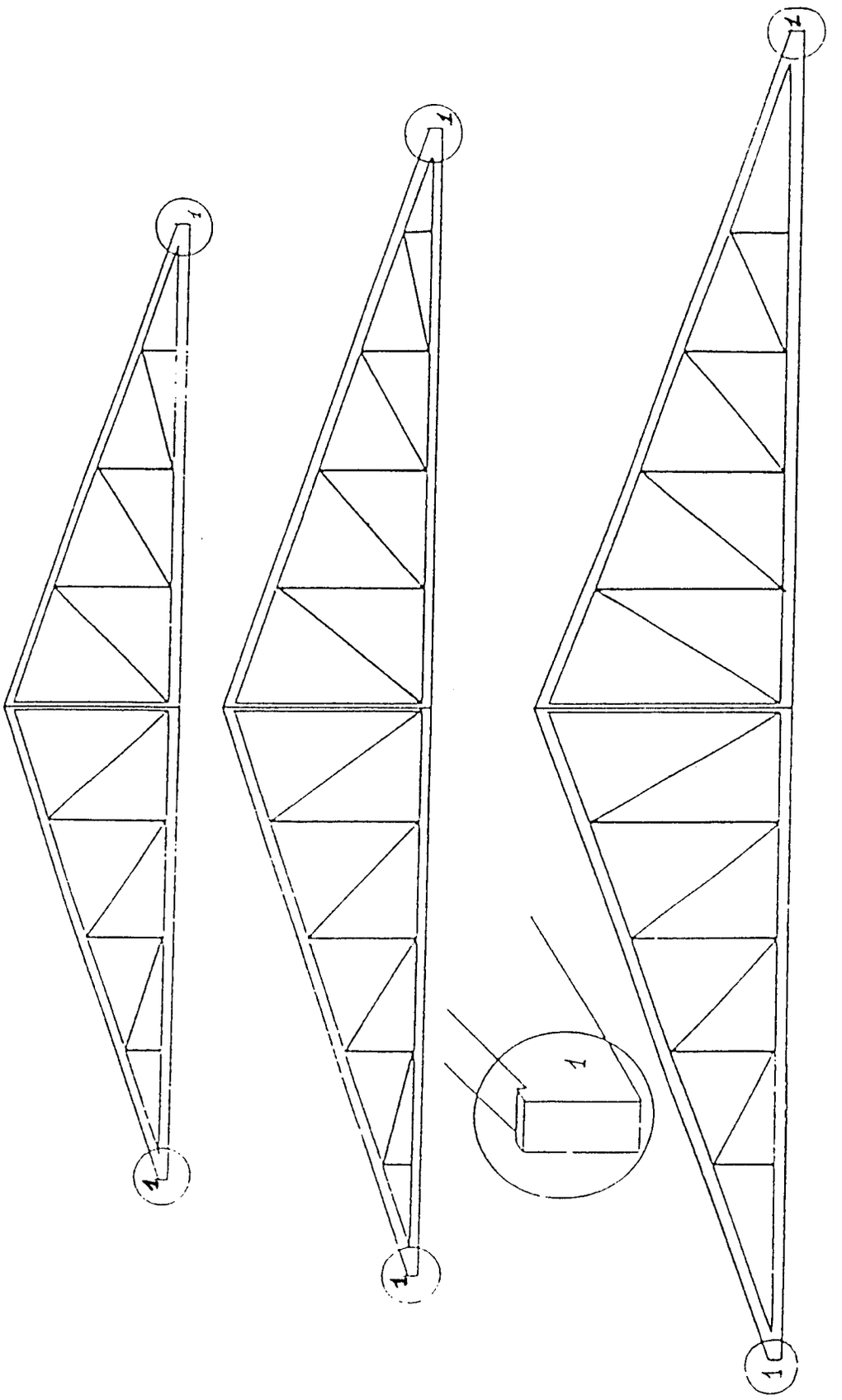


FIG. 19

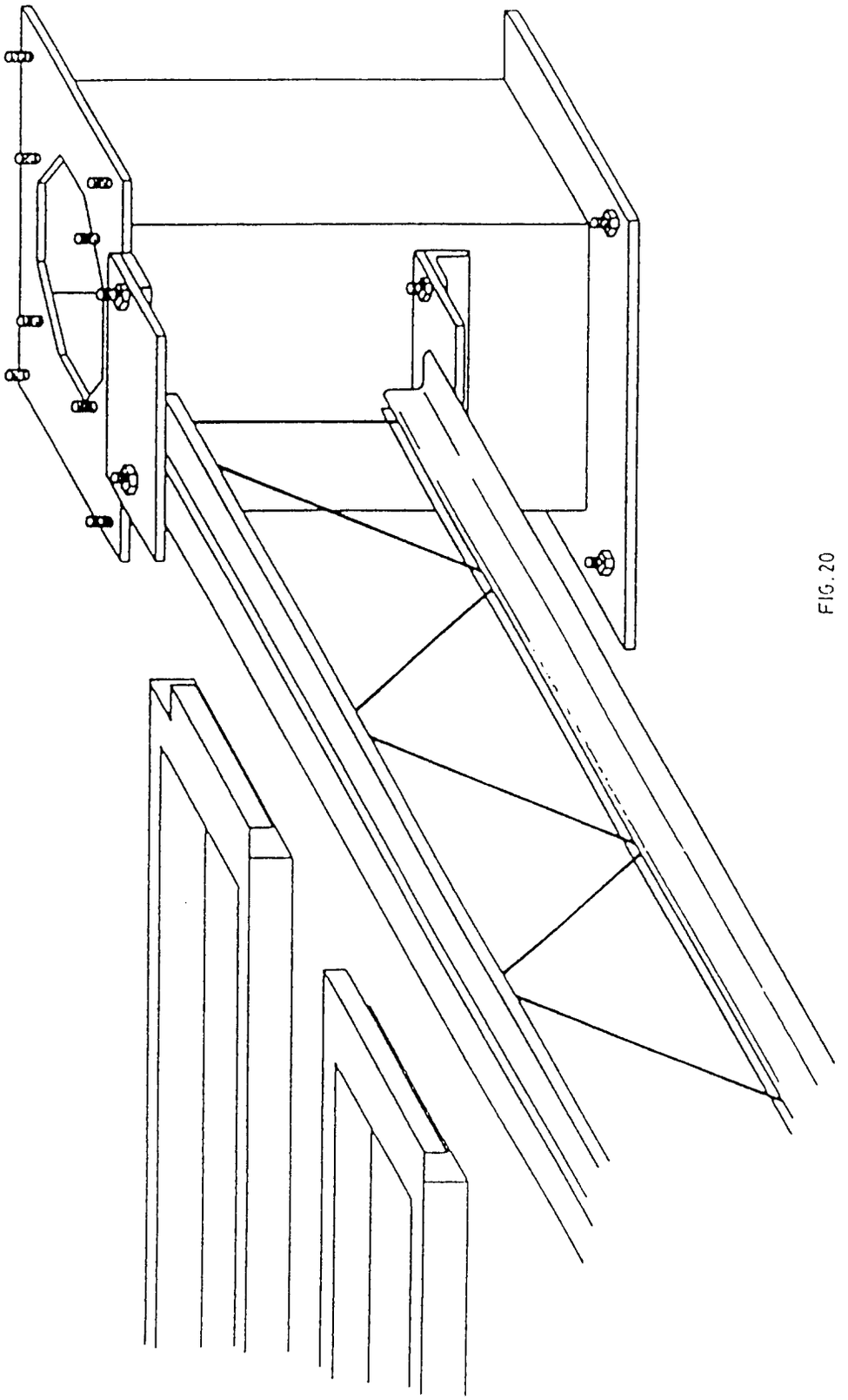


FIG. 20

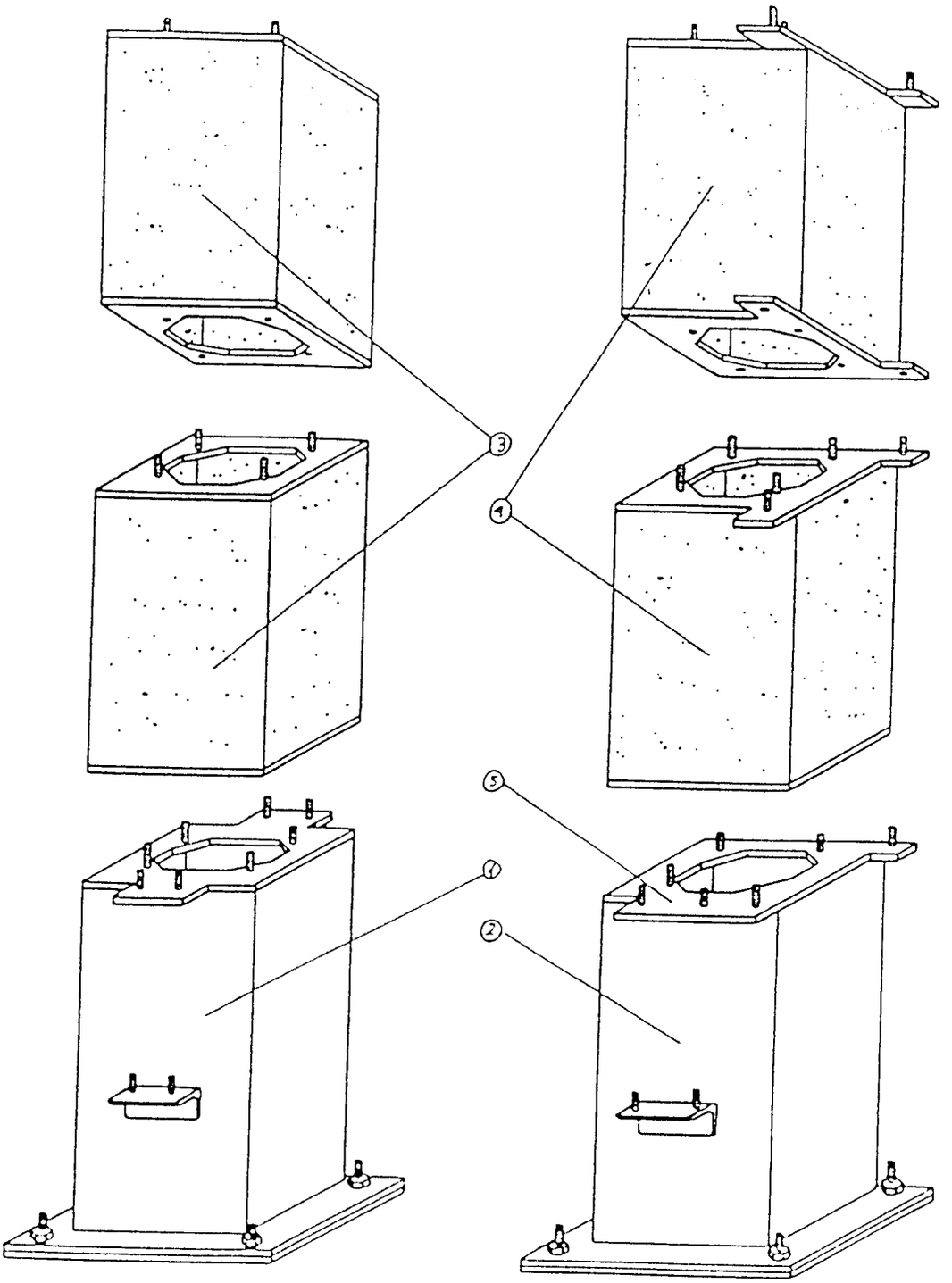


FIG. 21

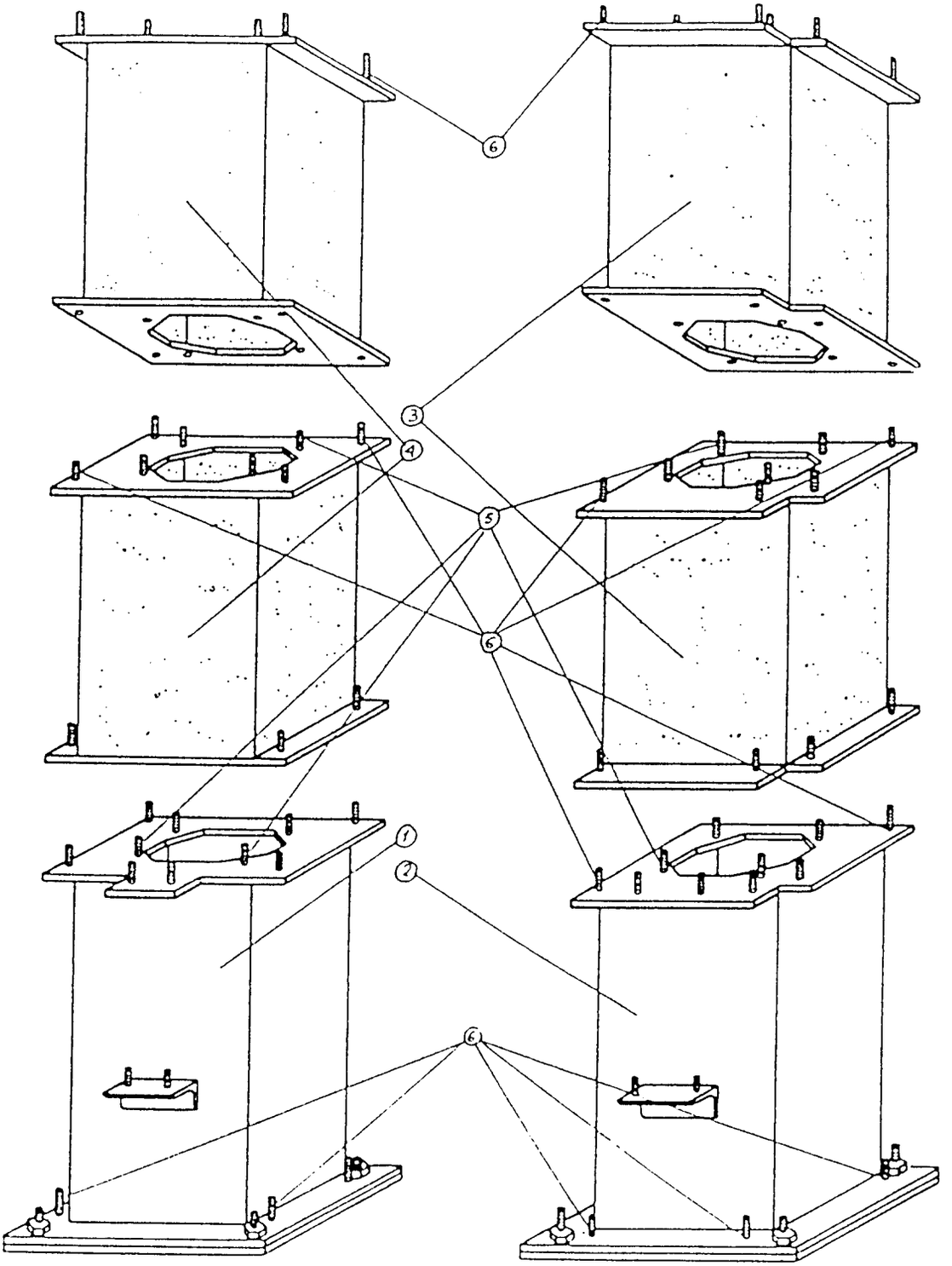


FIG. 22

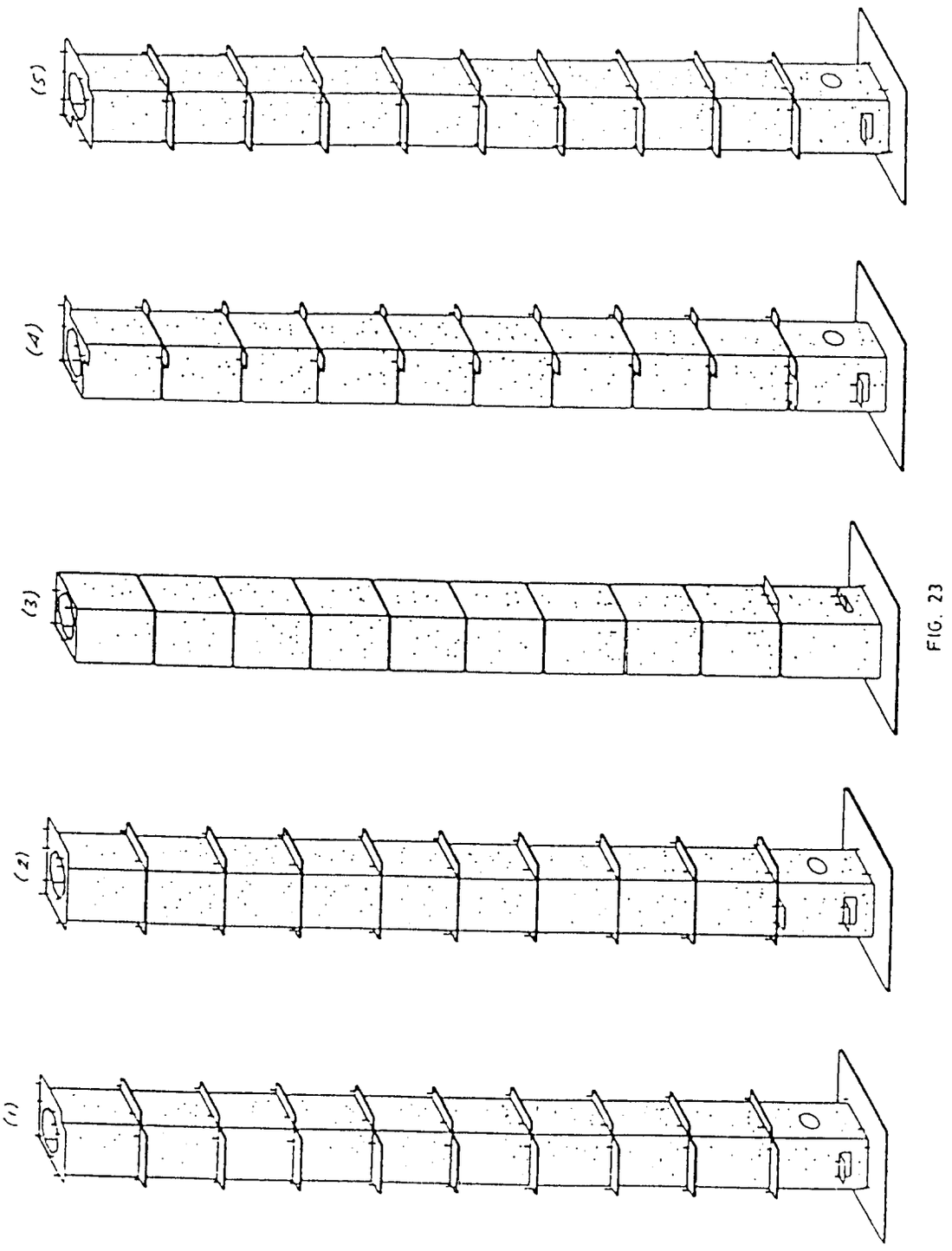


FIG. 23

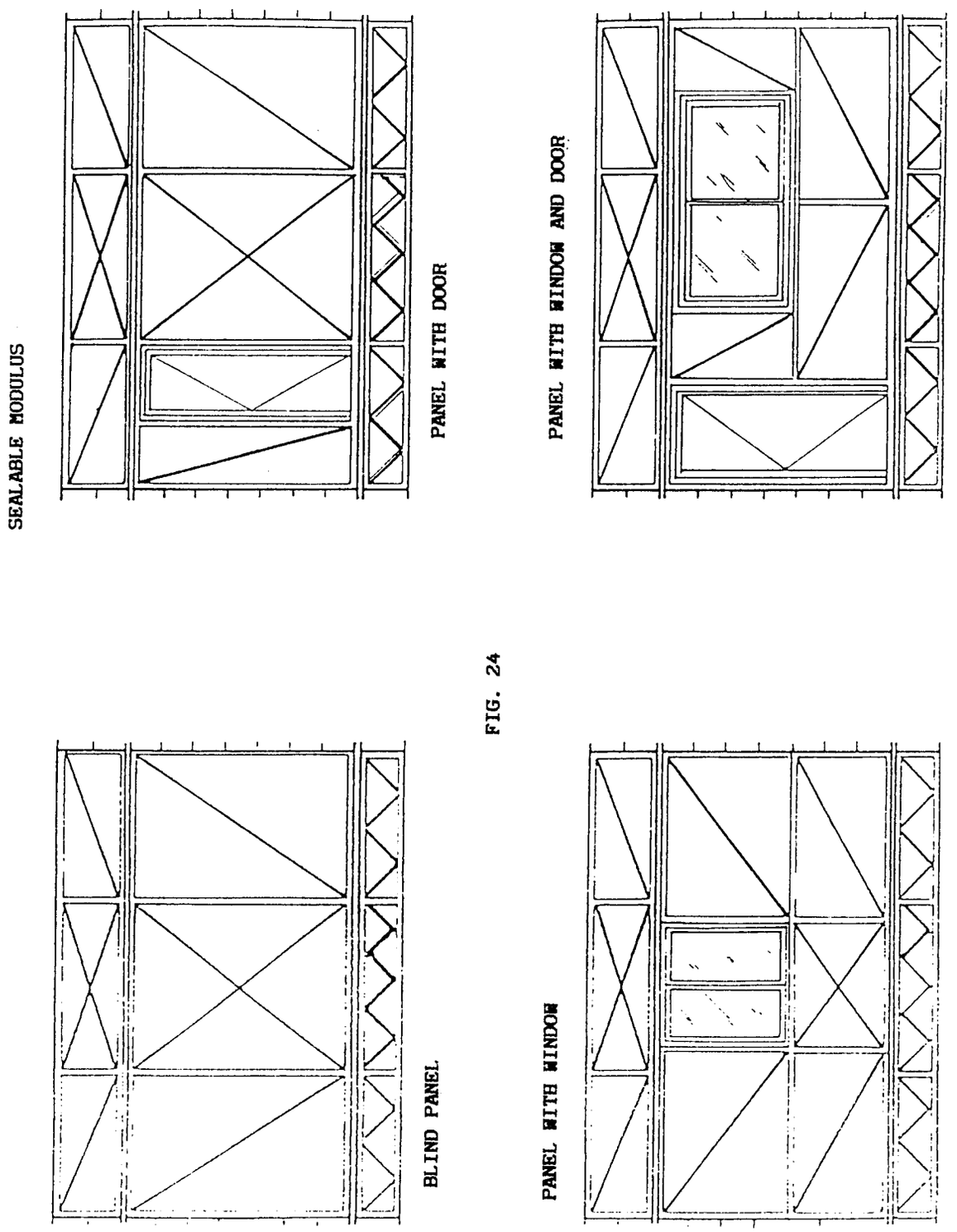

SEALABLE MODULUS
PANEL WITH DOOR
PANEL WITH WINDOW AND DOOR
BLIND PANEL
PANEL WITH WINDOW

FIG. 24

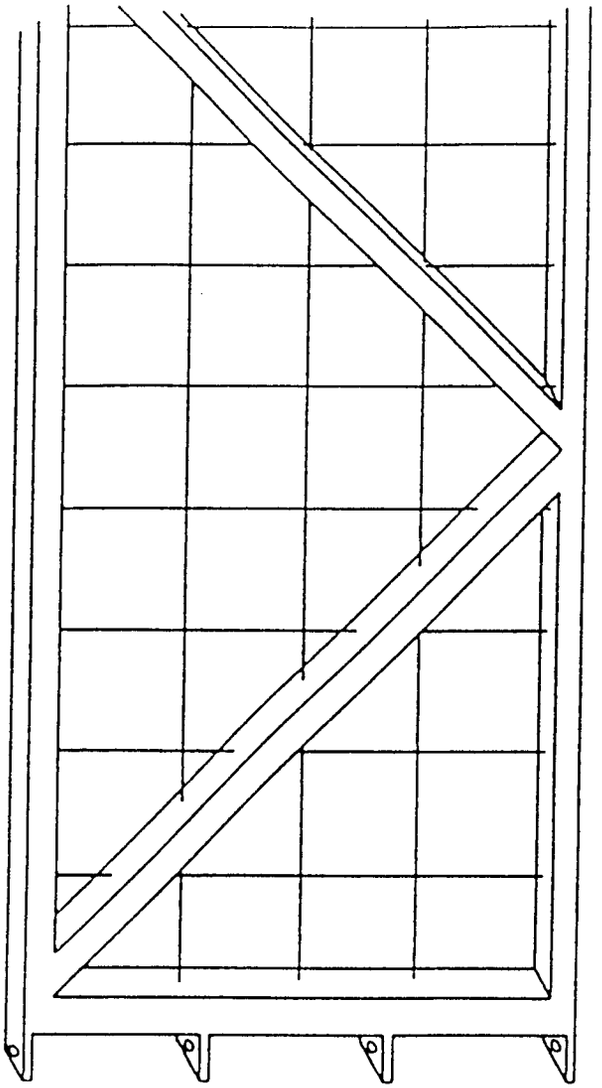
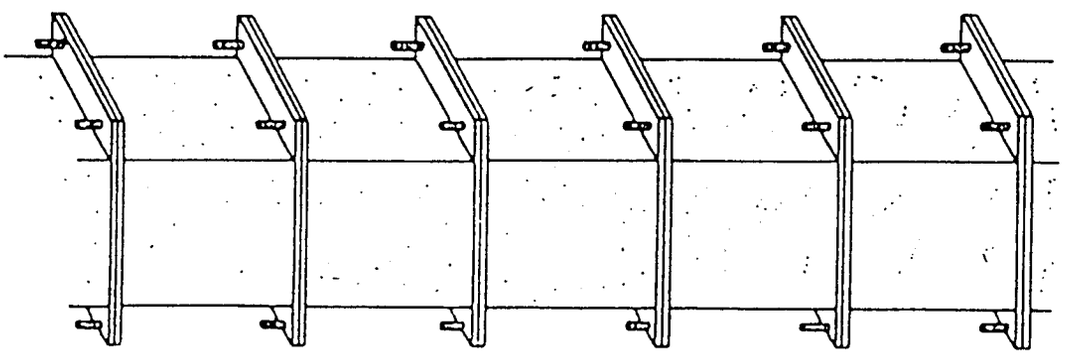
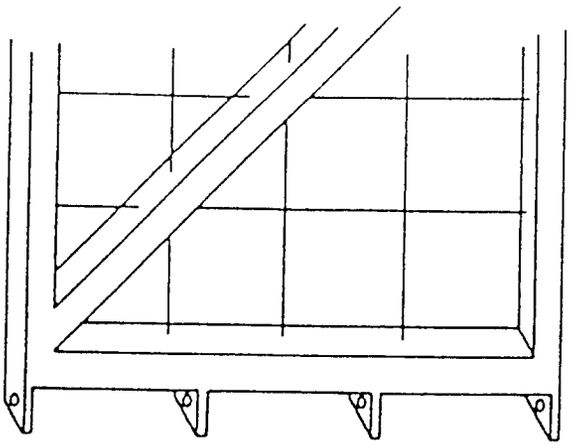
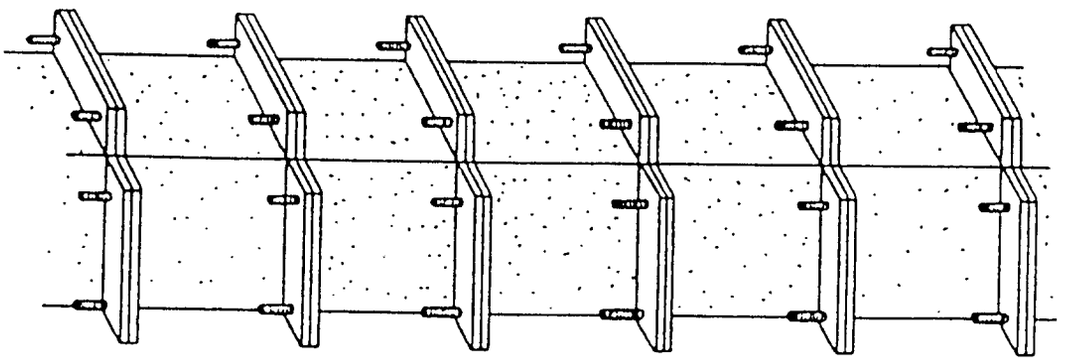


FIG. 25







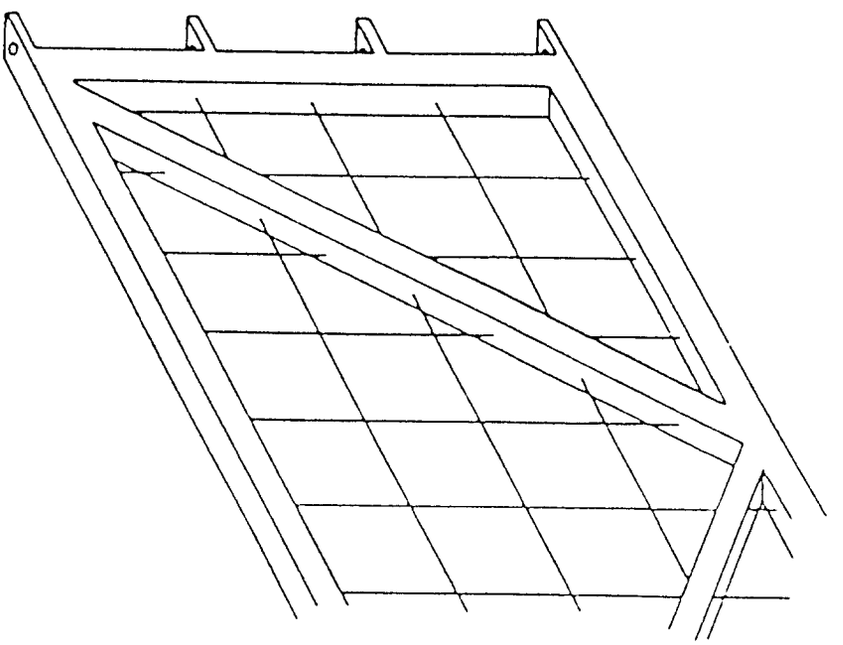


FIG. 26

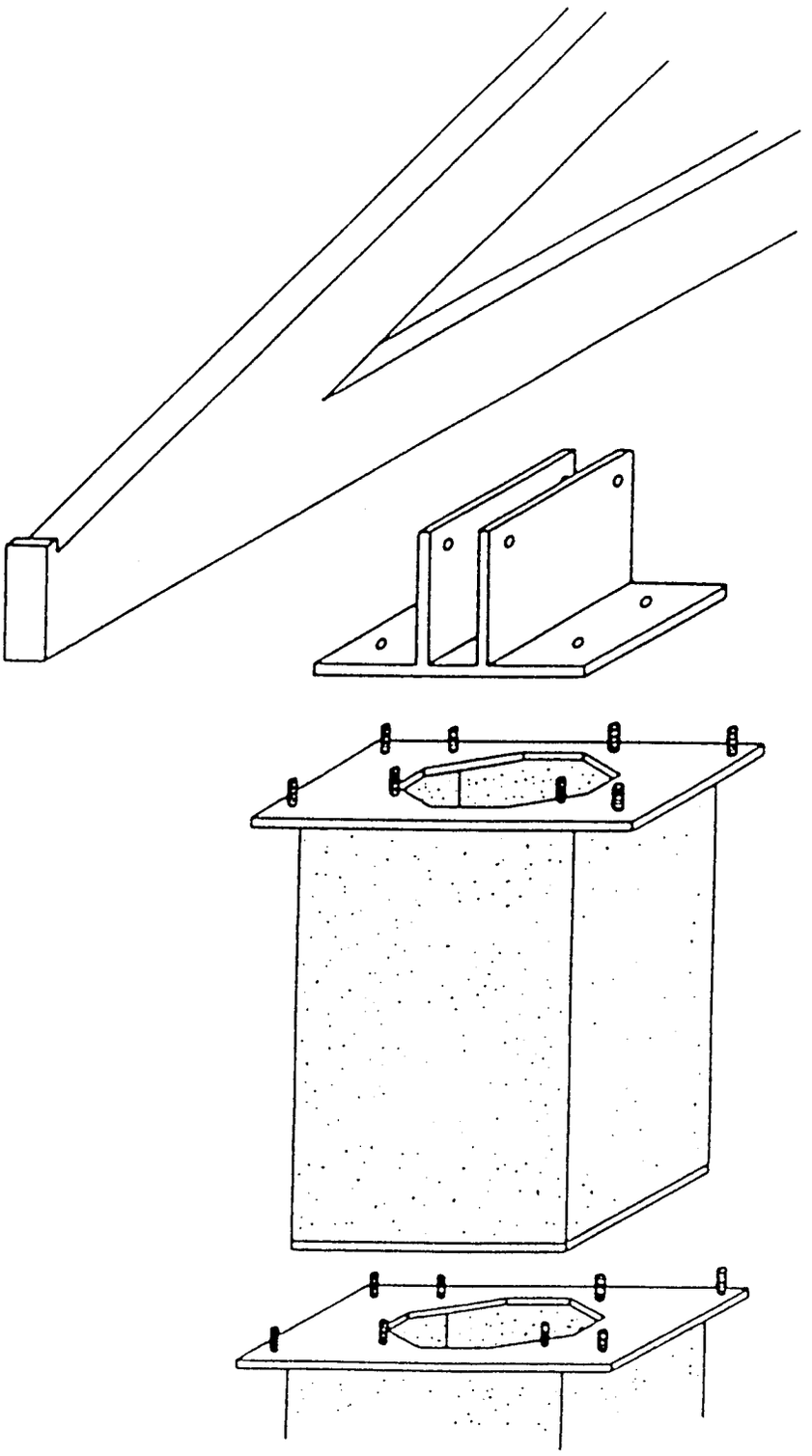


FIG. 27

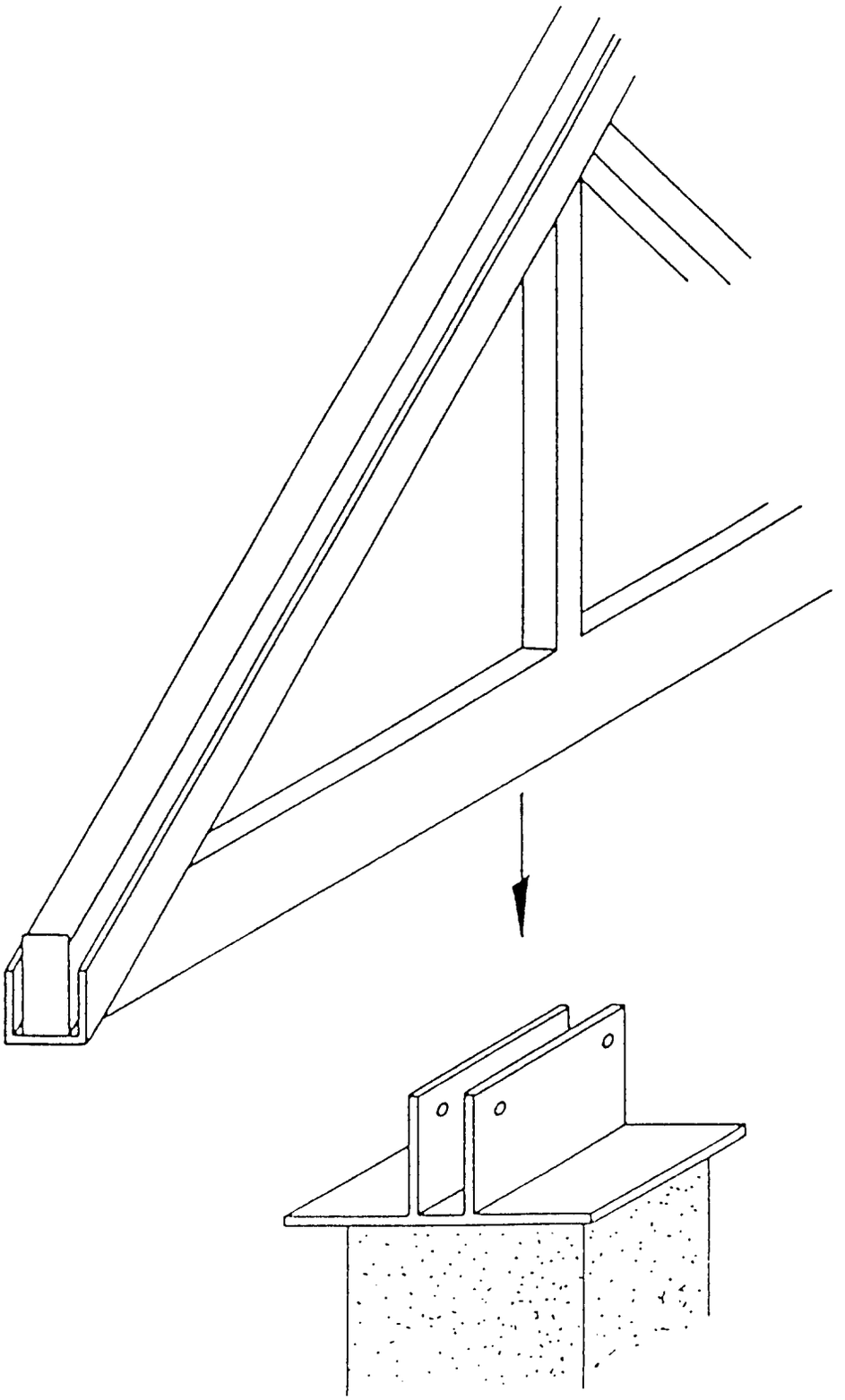


FIG 28

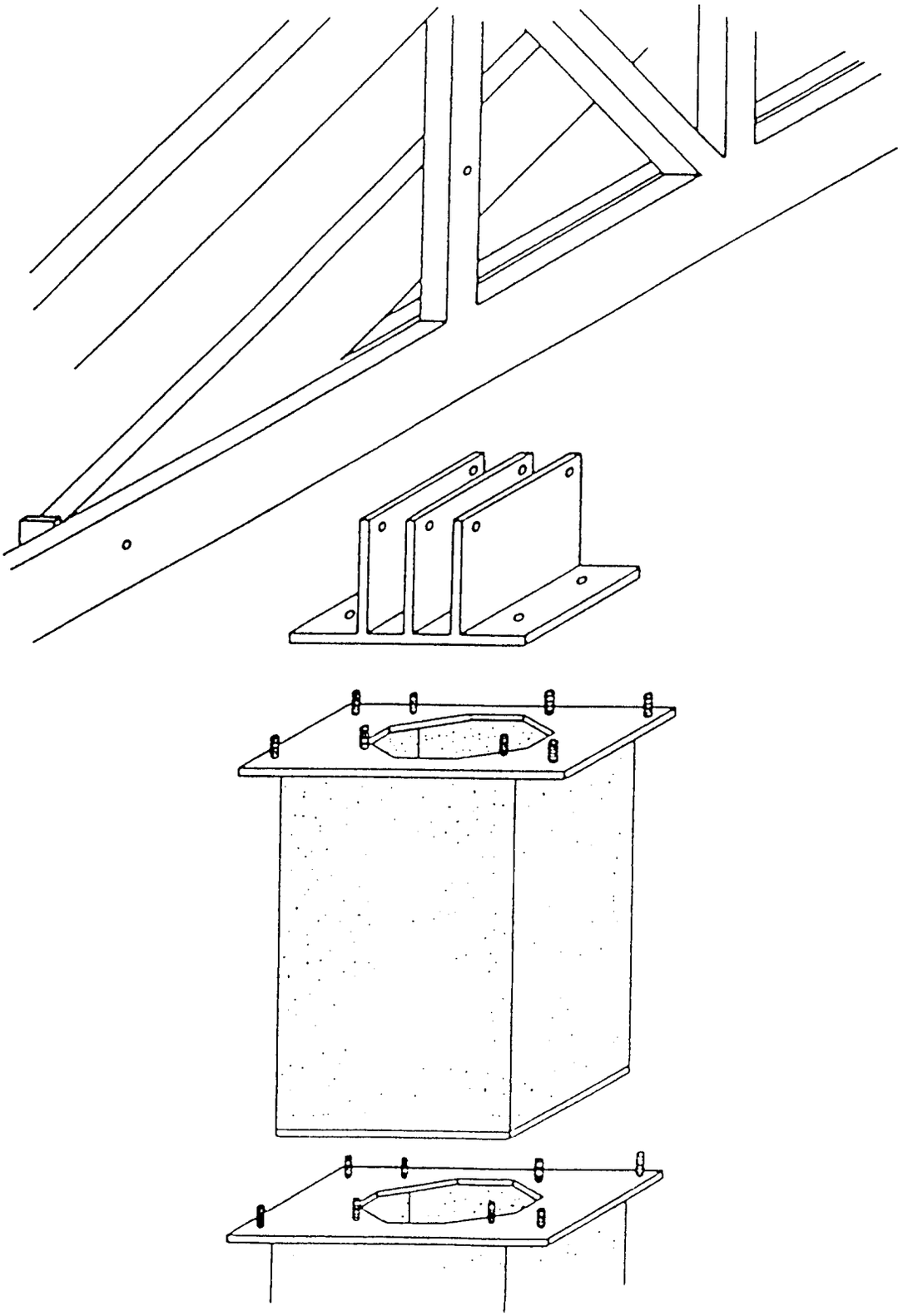


FIG. 29

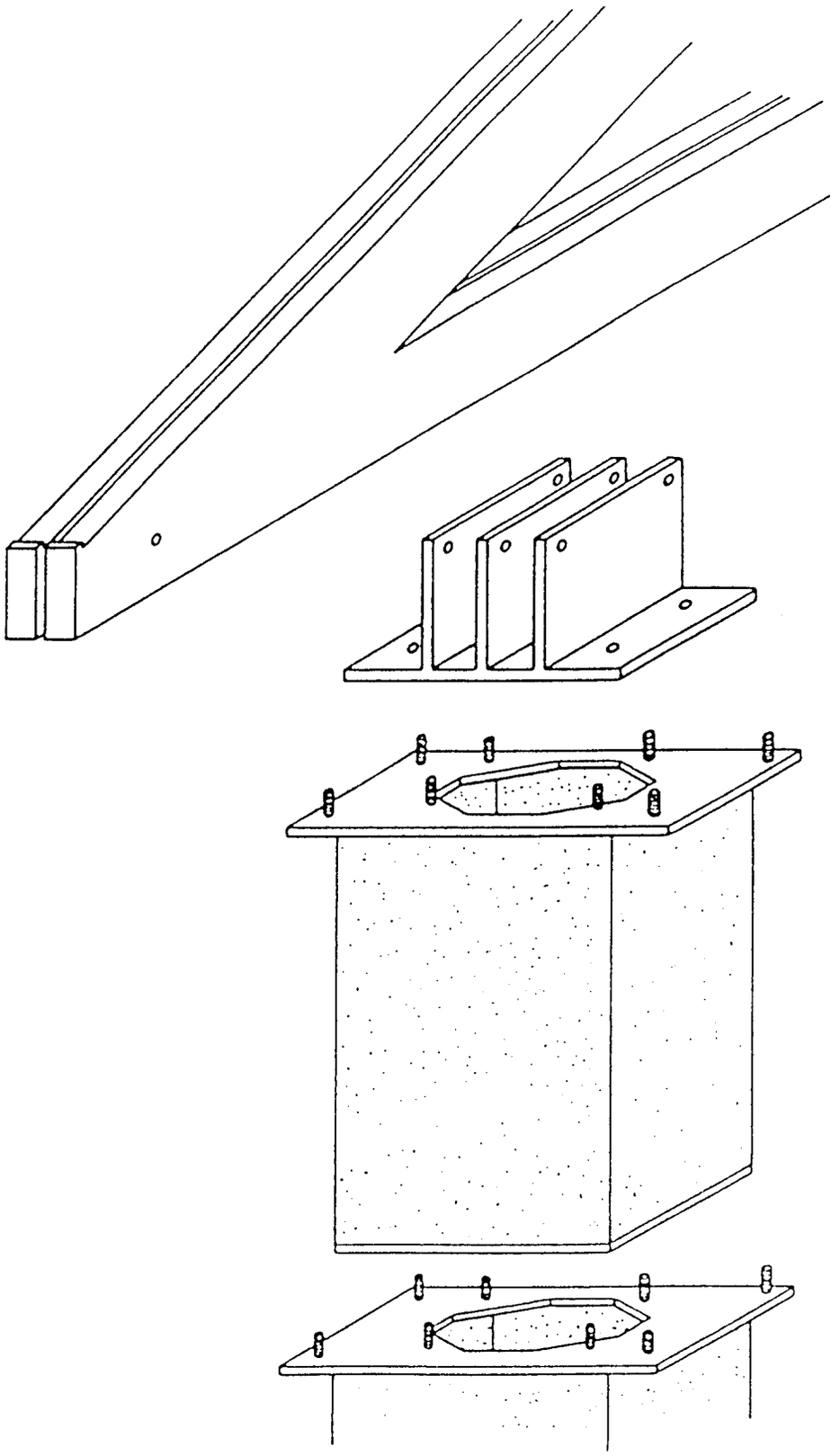


FIG. 30

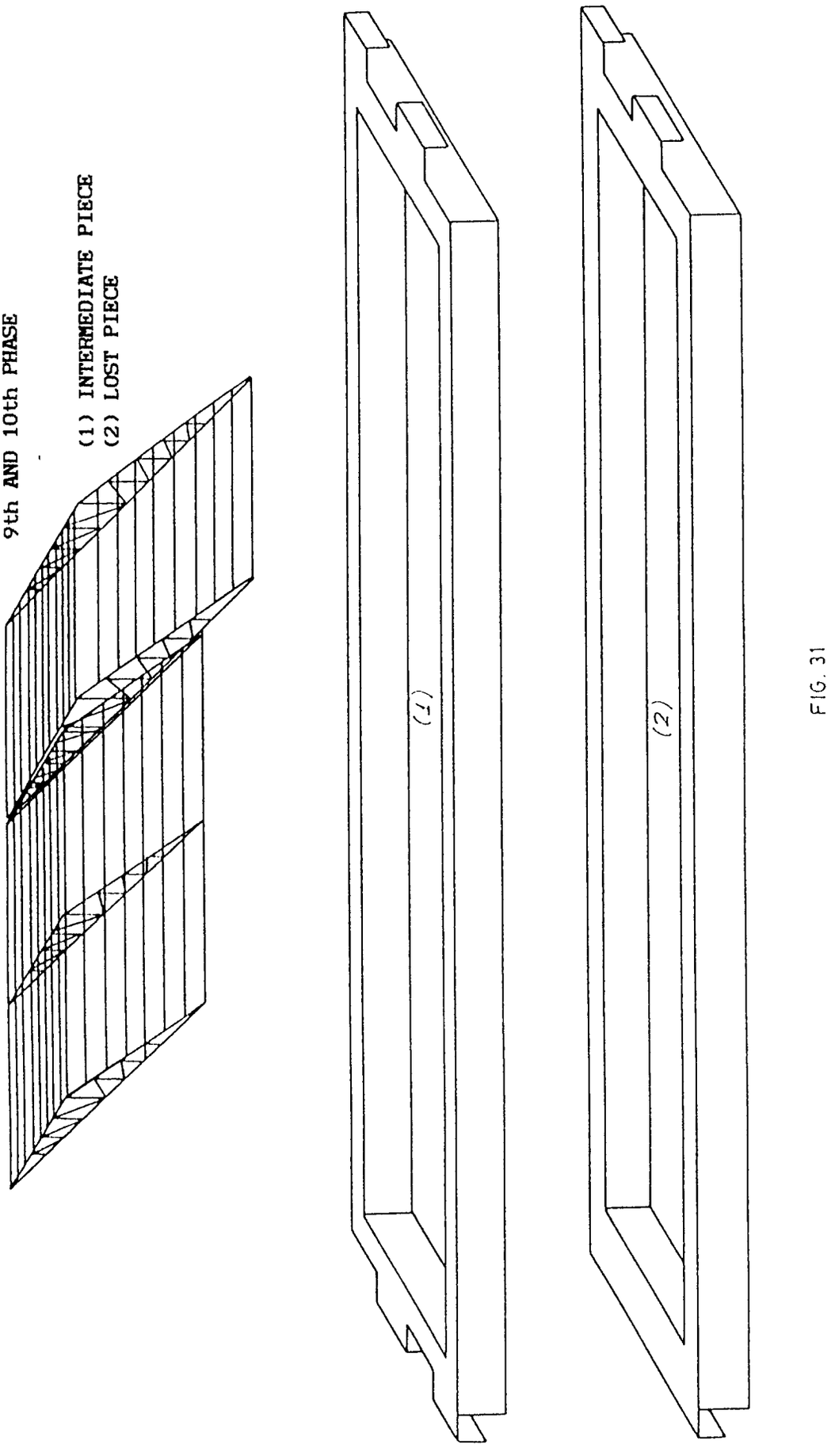


FIG. 31

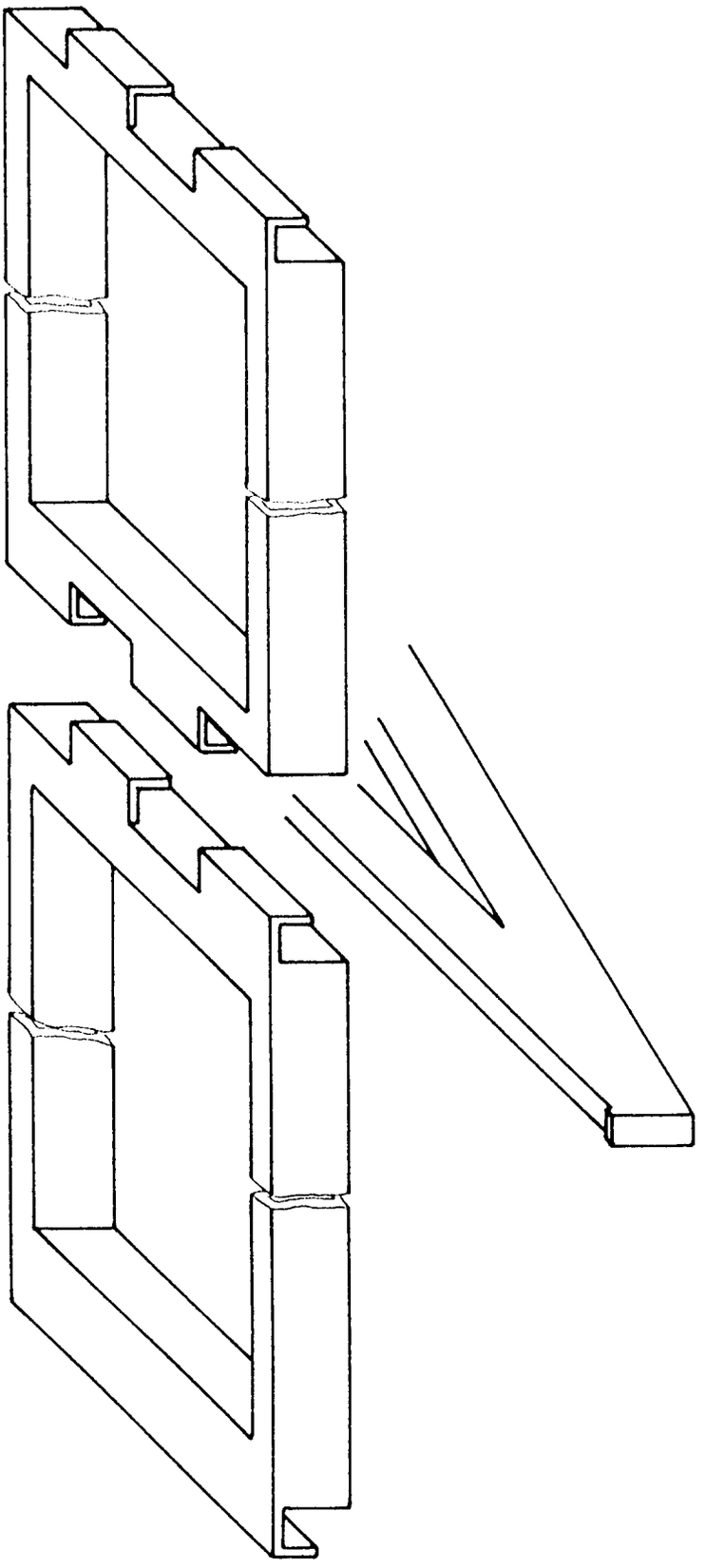


FIG. 32

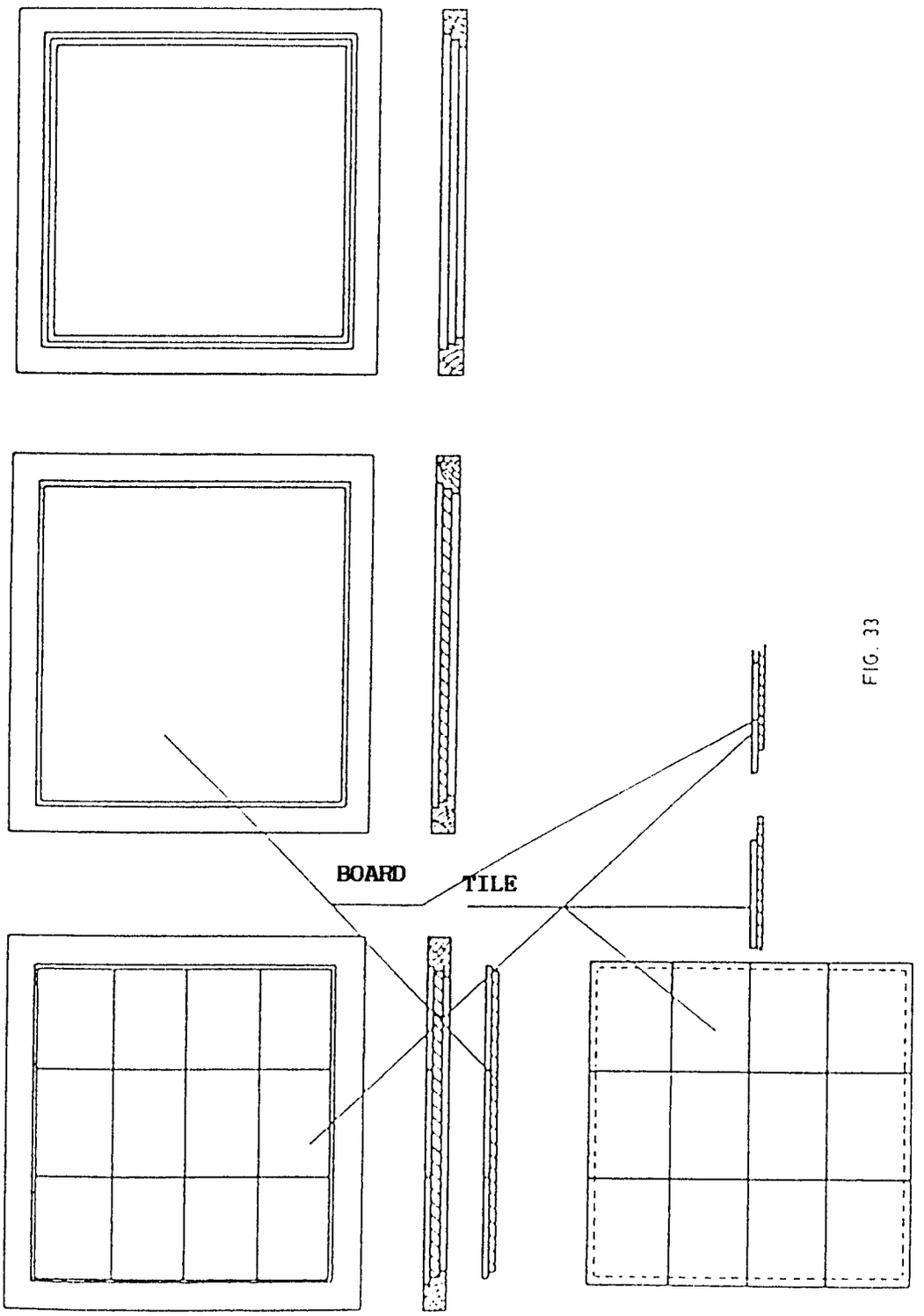


FIG. 33

INTERNATIONAL SEARCH REPORT

International application No.
PCT/ES 92/00064

A. CLASSIFICATION OF SUBJECT MATTER

IPC[5] E04B1/343; F16B15/04

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC[5] E04B; F16B

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X Y	EP,A,0 361 039 (MINISTERO DELL'UNIVERSITA E DELLE RICERCA SCIENTIFICA E TECNOLOGICA) 4 April 1990 see abstract see column 5, line 5 - line 21; figure 3	1,2,4 5-7
X	US,A,3 785 097 (SEYMOUR) 15 January 1974 see the whole document	3
Y	DE,C,203 046 (BENTE) 8 June 1906 see the whole document	5
Y	FR,A,2 546 953 (CHENEL) 7 December 1984 see figures 1,2	6

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☐ Further documents are listed in the continuation of Box C. ☐ See patent family annex.

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"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

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"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
12 February 1993 (12.02.93)	15 March 1993 (15.03.93)
Name and mailing address of the ISA EUROPEAN PATENT OFFICE Facsimile No	Authorized officer Telephone No

Form PCT/ISA/210 (second sheet) (July 1992)

INTERNATIONAL SEARCH REPORT

International application No.
PCT/ES 92/00064

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	EP,A,0 112 300 (GIANINI) 27 June 1984 see page 14, line 12 - page 15, line 3; figure 15 --- ------	7