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⑤④ **Broadband antenna system.**

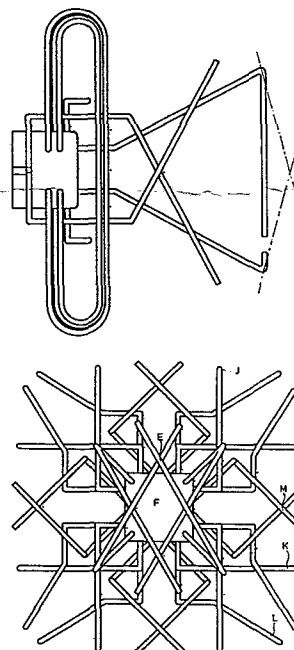
⑤⑦ The broadband antenna system here considered and assembled from the elements described, is serving for the reception of signals for Radio and Television.

The special features are:

- the compactness,
- the reception of signals from every direction,
- the insensibility for disturbing elements and climatic conditions (atmosferics),
- the versatility and easy manageability,
- weak signals produce a good picture and sound, both for black/white and color TV without the use of separate amplifiers.

With this invention it has to be postulated that the described aerial can be used as a replacement for the TV- and Radioaerialsystem of today, that are so disfiguring our environment and that need so much space.

On places outside the transmitting field of a transmitter also this aerial on limited height will not be able to make the signals visable.



TITLE MODIFIED
see front page

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Wide range aerial system.

The invention applies to a wide range system for the reception of radiowaves for the FM band and the other wave-frequencies, and for the reception of Television image lines on the VHF/UHF channels and/or other signals an aerial can be used for.

Up to the present the reception of Radiowaves and TV image lines usually take place through a pole on which Rasters and Dipoles in various shapes and sizes are installed, those must be pointed on the senders that transmit the signals.

The Radiowaves and TV image lines are received by an aerial. The aerial only receives the signals well when it is pointed directly to the transmitting-station, and when the aerial is placed in a way that there are no obstacles between the transmitter and the receiver; like Sky-scrapers, Buildingsteel, and/or other constructions that could have an influence on the transmitted signals.

Beside the need that the aerial is pointed very well to the transmitter, the quality of the reception of Radiowaves and TV image lines depends with today's system very much of other disturbing elements like Planes, Cars, Motorbikes, all kind of Machineries and Climat conditions (atmospherics).

The above mentioned circumstances can have a huge influence on the reception possibilities of Radiowaves and TV image lines. With today's system without amplification there is also the need that the transmitted signals for Television must have a minimal power of 15-25 dB to enable
5 an acceptable reception of the signals.

The aerial systems for Radio and TV used so far have some more disadvantages: the immense maintenance need, the space occupancy and the disfigurement.

The goal of this invention is to come up with an aerial system that,
10 without affecting the quality of picture and sound, will avoid the said disadvantages. While constructing an aerial according to the described invention and the drawings enclosed, this goal is reached.

It has to be postulated that the aerial described here must be seen as a replacement for today's systems for the reception of Radiowaves
15 and TV image lines that disfigure our environment so much.

The description deals mainly with the principle of TV waves, but the same thing applies- and even in equal proportions- for Radiowaves with all its possible channels.

THE WIDE RANGE AERIAL SYSTEM

20 The wide range aerial system is constructed from a number of elements made from aluminium bars of round 4mm- that is 0.16 inch in section- to get the sensibility as high as possible and the weight as low as possible. For the construction of the aerial other materials can be used too, like; Spring-steel, Copper and Brass. All these materials the elements can be made from.

25 The position of the Dipoles assure that these elements will receive transmitted signals, incoming through the elements E-J-K-L- and M are transmitted to a steering screen (draw.XGI).

This screen takes care that the pictures (signals) and waves to be received are free from reflection and other disturbing elements.

30 It is very important that even signals with a power of only a few decibels can be received and then be amplified in such a way- by means of the construction of the elements- that they can be transmitted as well visible picture.

This is in direct contrast with today's system, while now amplifying elements and amplifiers near the aerial are needed to make weak and
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bad TV image lines receivable and usefull for reproduction.

Through an insulated system the signals enter the housing of the elements, where they are connected to 4 element-holders. Next the signals are transmitted to a series of prints that take care for the following transmitting of the signals. The prints are connected and linked by means of a Pole connection filter with 2 tube trimmers avoiding an overload of signals on the exit signal of the aerial. Otherwise an overload could enter the receiver and disturb the picture.

With the 2 tube trimmers and connection filter installed, it is possible to create a power stability of 60-75 ohm. Without further arrangements the aerial so can be connected to the existing coax cable and is therefore also usable for all aerial junctions, even for all then existing aerial-systems in every design and construction.

Depending on the type and construction of the aerial, the prints also can be omitted. In that case the parts are placed in the housing without connection, which is possible because after the assembling the housing will be filled with cast resin or epoxy resin resulting in a definite separation of the elements and avoiding internal failures.

In certain cases an amplifier will be needed and if so, during the assembling this has to be taken in to account. Although there are several possibilities, the best results you get with a pole amplifier mounted on a print within the housing (OM 335 DMT).

As shown on the drawings there are different designs of the aerial available. Living close to the transmitters sometimes one single element is sufficient, of course depending on the demands made and the given possibilities of the receivable channels.

DEFINITION OF THE DRAWINGS

The drawings I and III show the side-views of the aerial types A-B-C-D and E, while the drawings II-IV-V-VI and VII show the top-views of the different types. The elements of above mentioned aerials are made from a certain kind of Duralmin Aluminium, where the bars round 4mm are made from .

For this kind of Aluminium is chosen because of the different atmospheric influences. Depending on the circumstances also other materials can be used - some of them are mentioned before. Both thicker and thinner types

are useful depending on the demands made and the chosen possibilities.

The elements L (see draw. XII L) are placed in an element-holder acc. to drawing IX A. Over or under this holder the elements J and K are installed (draw. XI J and XII K).

5 In the top of the elementholder the elements E (draw. IX E) are screwed. At the bottom the print or steeringscreen is mounted using 4 treads M4, making it one unit according to draw. IX E and X I.

There is a possibility that in the final production the elementholder and the elements E will be producted like one single unit (see draw.
10 IX A and IX E).

The two long mountingpins of the connectionfilter (draw. XI H) are passed through the two prints (draw. X GII and GIII) and assembled on print G I (draw. X G I) there after the tow trimmers are placed on print III (draw. X III).

15 Before the assembling the whole construction however has to be placed in the housing (draw. X F). After wards this housing is filled up with cast- or epoxy-resin.

Depending on the type, the elements M are placed (draw. XIII M) on the print II and III (draw. X GII and GIII), after that the trimmers are
20 assembled and connected. After assembling and casting a lid (draw. XI I) is placed and the unit is ready now for the setting and control procedures.

After checking the reception of Radiowaves and TV image lines the aerial is ready for installation. The aerial can be installed in many ways. It depends on the situation of the object the aerial has to be
25 placed on.

For that reason there are a lot of mounting possibilities, for instance shortening the pole of the existing aerial (after removing the aerial) in such a way that the new aerial just reses above the roof. Another way is to install this type of aerial on an attie. It is advised to determine the
30 best place for the aerial with the help of a measuring receiver.

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THE CLAIMS.

1 The required claims we ask for intend to be for all drawings and all types of this WIDE RANGE AERIAL SYSTEM.

It also has be taken in to account that from the steeringsscreen there are many many more possibilities for the connection of the aerial
5 to the receiving-unit.

So it is possible that there will be many changes in the connection possibilities, because there are so many, and especially we think of the field of the Central Aerial System.

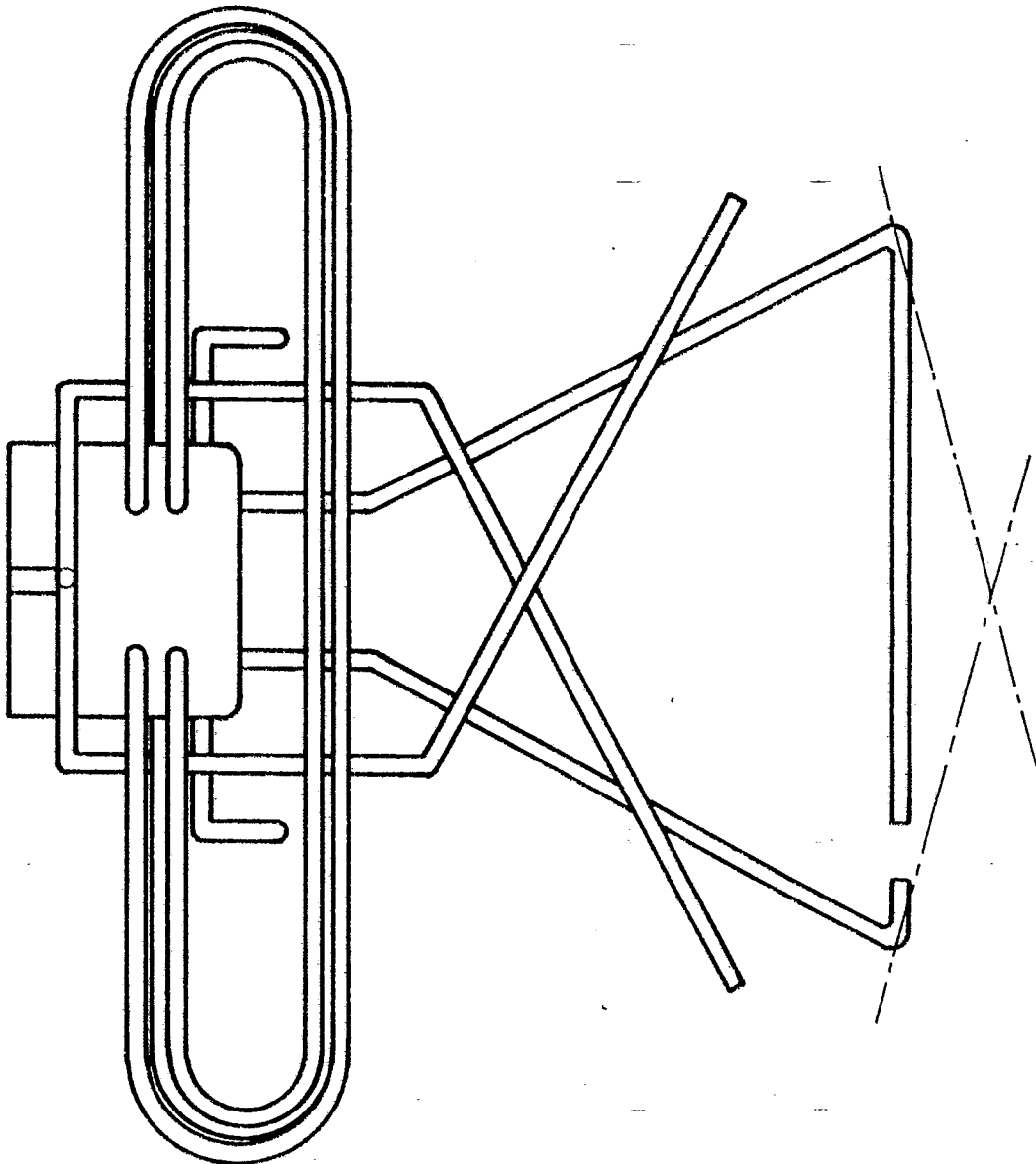
- Draw. I - Side-view of the Aerial type A.
- 10 Draw. II - Top-view of the Aerial type A.
- Draw. III - Side-view of the Aerial type B-C-D- and E.
- Draw. IV - Top-view of the Aerial type B.
- Draw. V - Top-view of the Aerial type C.
- Draw. VI - Top-view of the Aerial type D
- 15 Draw. VII - Top-view of the Aerial type E.
- Draw. VIII - View and section of the housing.
- Draw. IX - A-Elementholder.
 - B-Separationpipe for the prints
 - C-Distanceinsulater for the elements.
 - 20 - D-Fancy and insulationcap for the elem. E.
 - E-FM elements suitable for placing in different corners.

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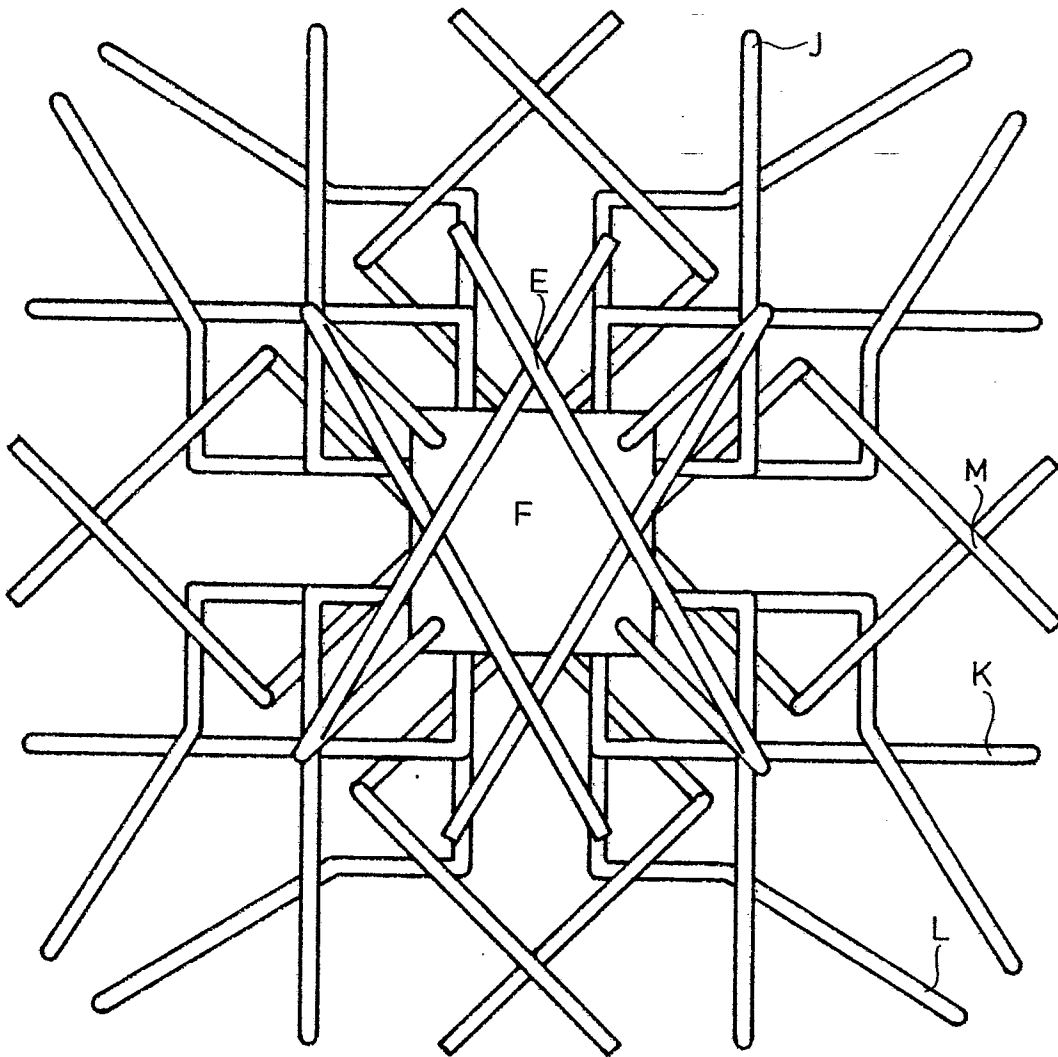
- Draw. X - F-Bottom and side-view of the housing, to be made from
FVC or another synthetic material not be become sta-
tic.
- 5 - GI-Print for the elementholder and the pole connection-
filter, also in use as a steeringscreen.
- GII-The connectionprint for the steeringscreen/mk filter
and the two tubetrimmers.
- GIII-Print for the two M elements in use for aerial type
A.
- 10 Draw. XI -H-Connectionfilter including 2 tubetrimmers for set-
ting the outgoing power.
- I-The lid for the housing F.
- J-The big Dipole for the reception of channels 1-70.
- Draw. XII -K-The small Dipole for the channels 1-70.
- 15 -L-The elements in use for the channels 12-70. The set-
corner of this elements can differ from 0 to 180 de-
grees.
- Draw. XIII -M-The connection elements in use for all channels,
but on the drawing only placed in type A.

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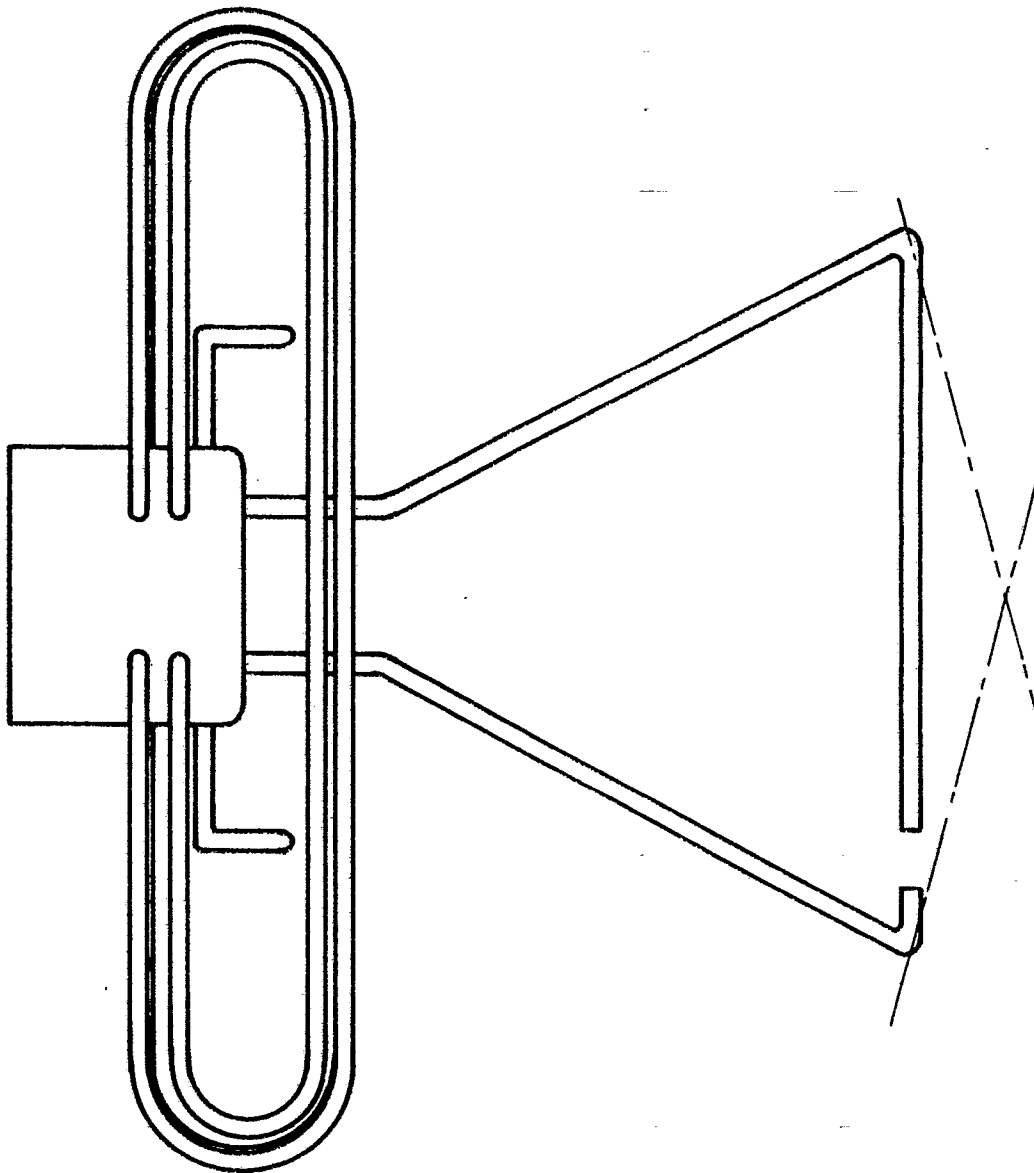
DRAWING I



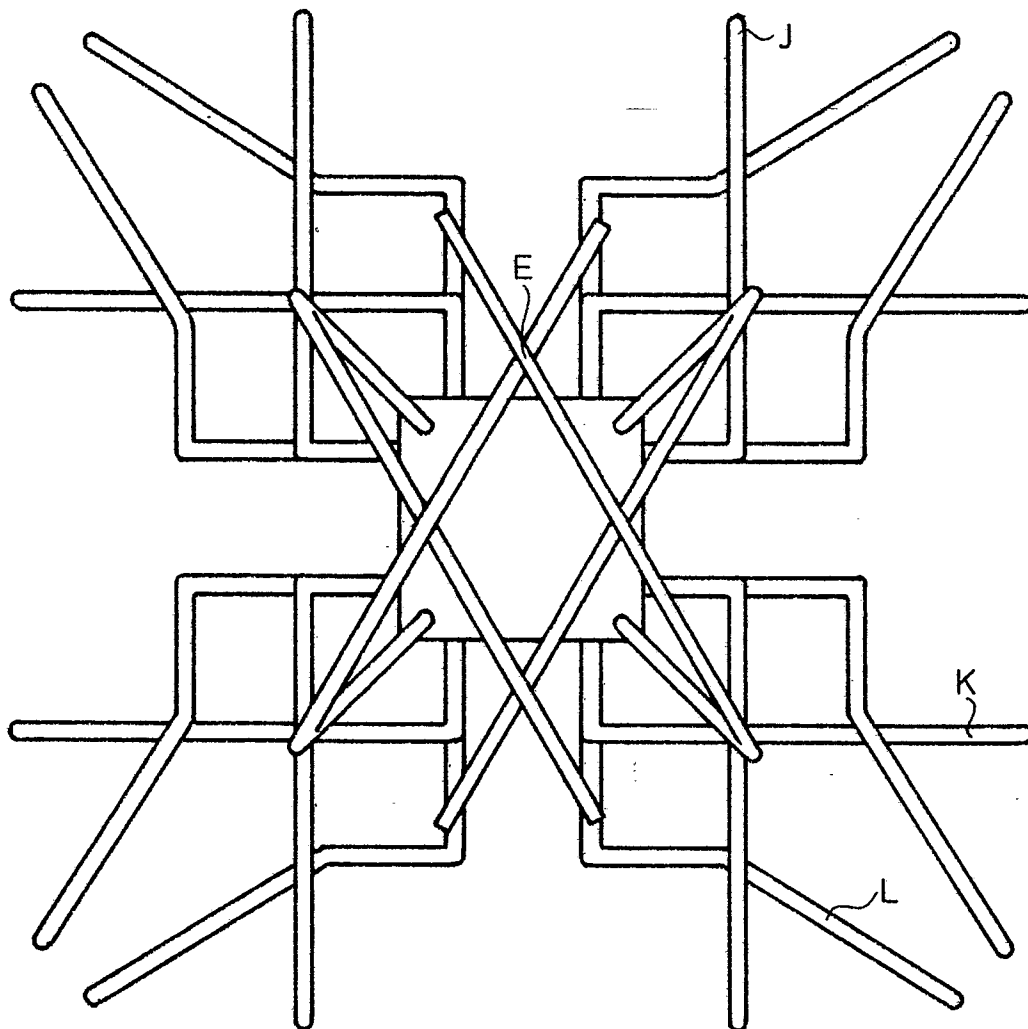
DRAWING. II

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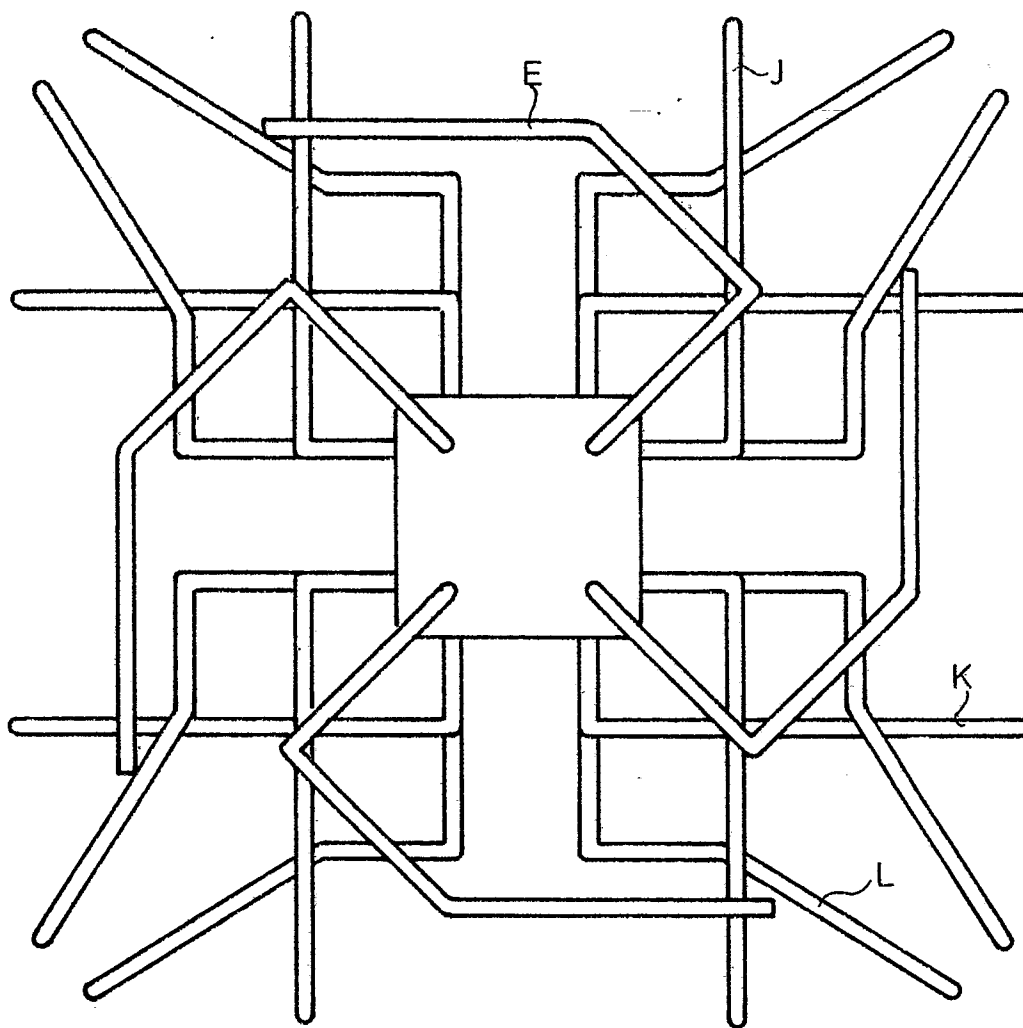
DRAWING III



DRAWING IV

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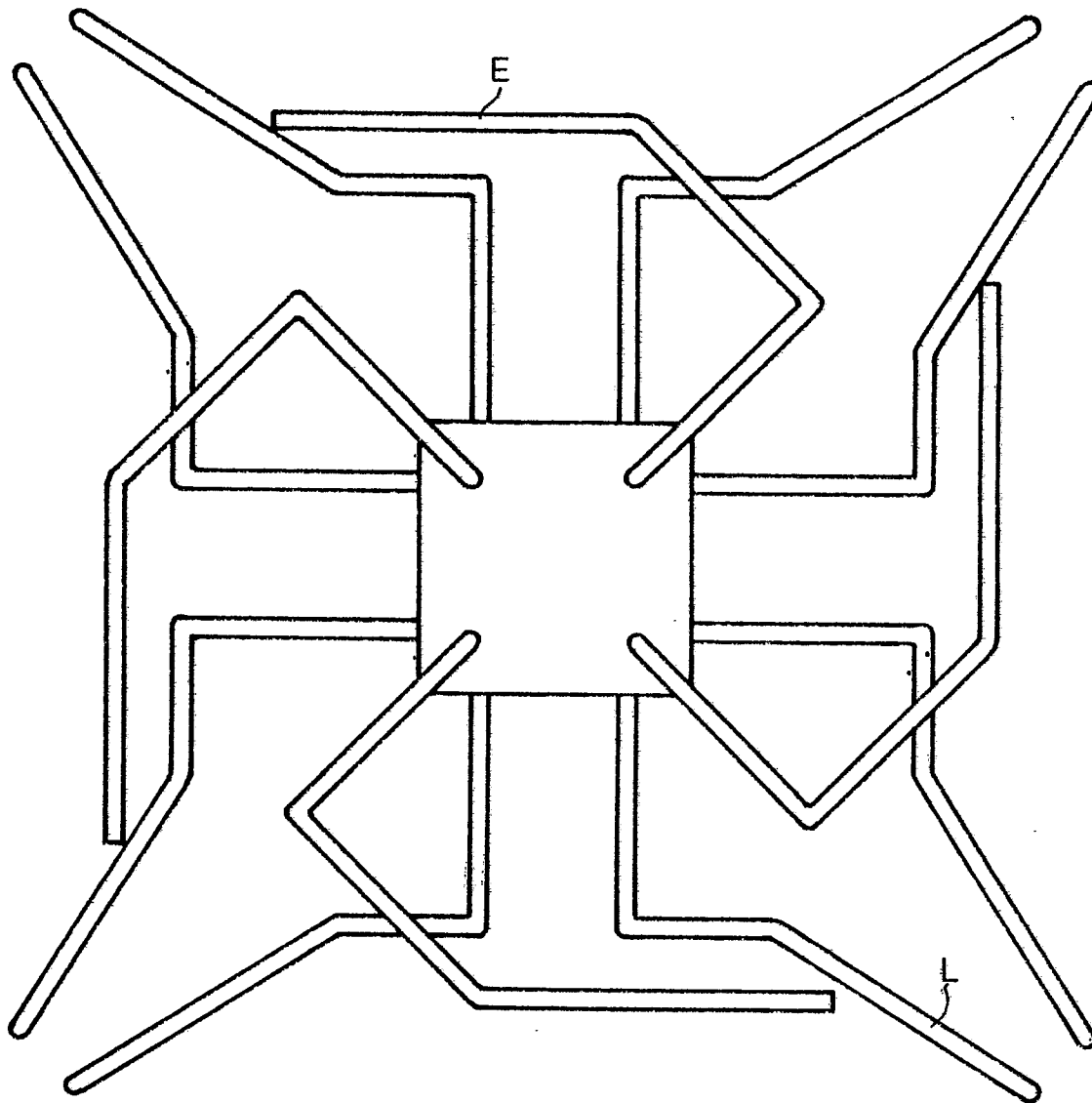
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DRAWING V

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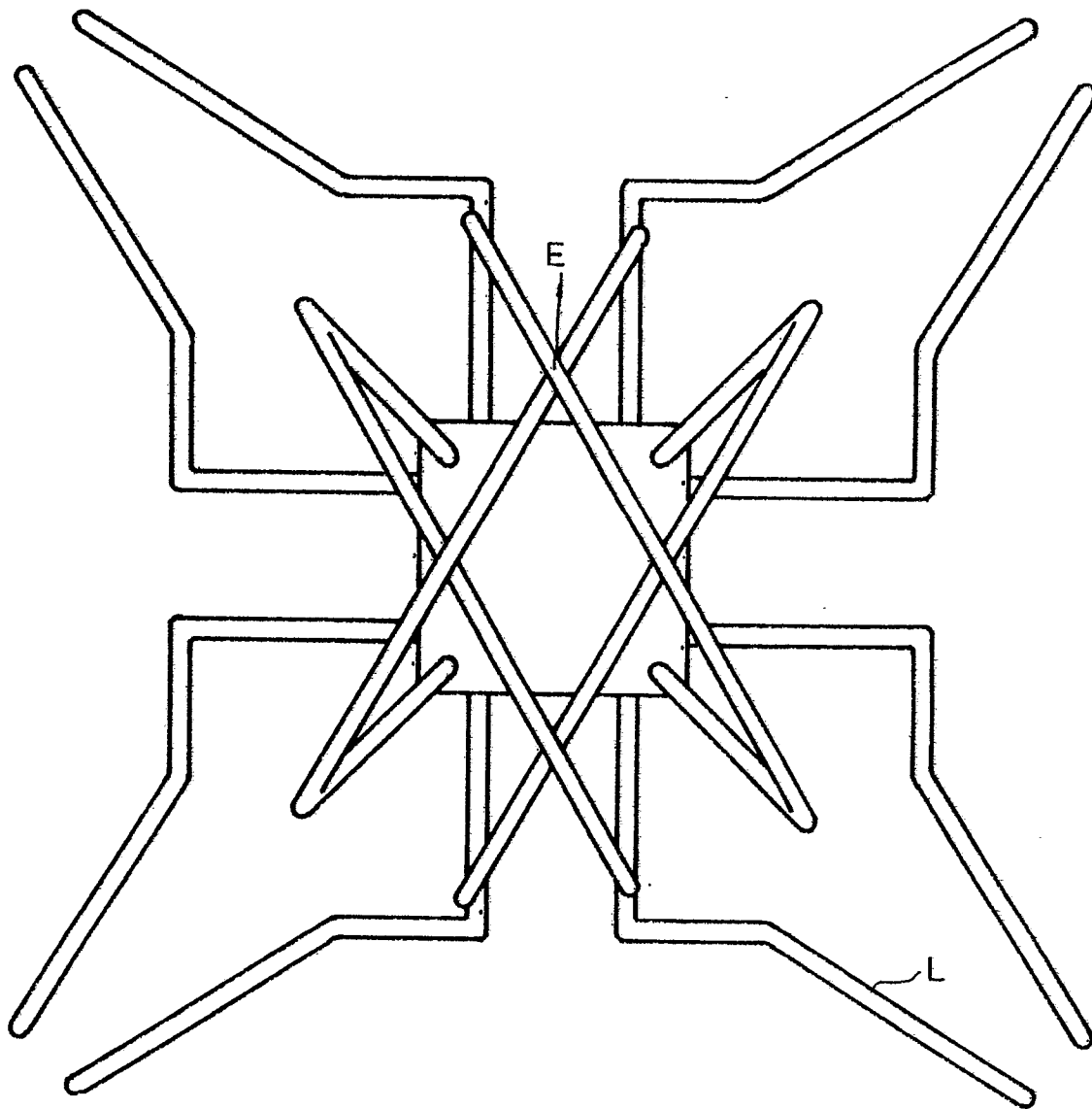
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DRAWING VI

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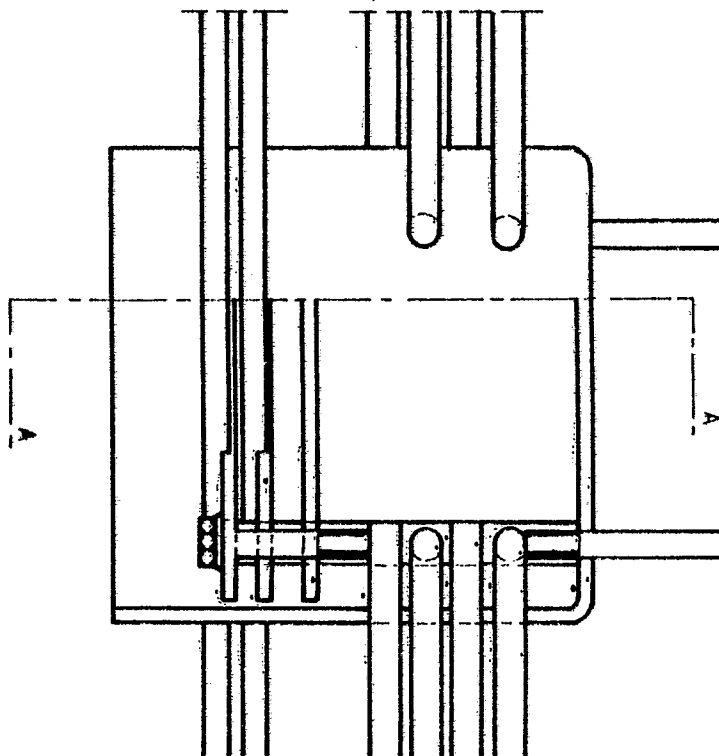
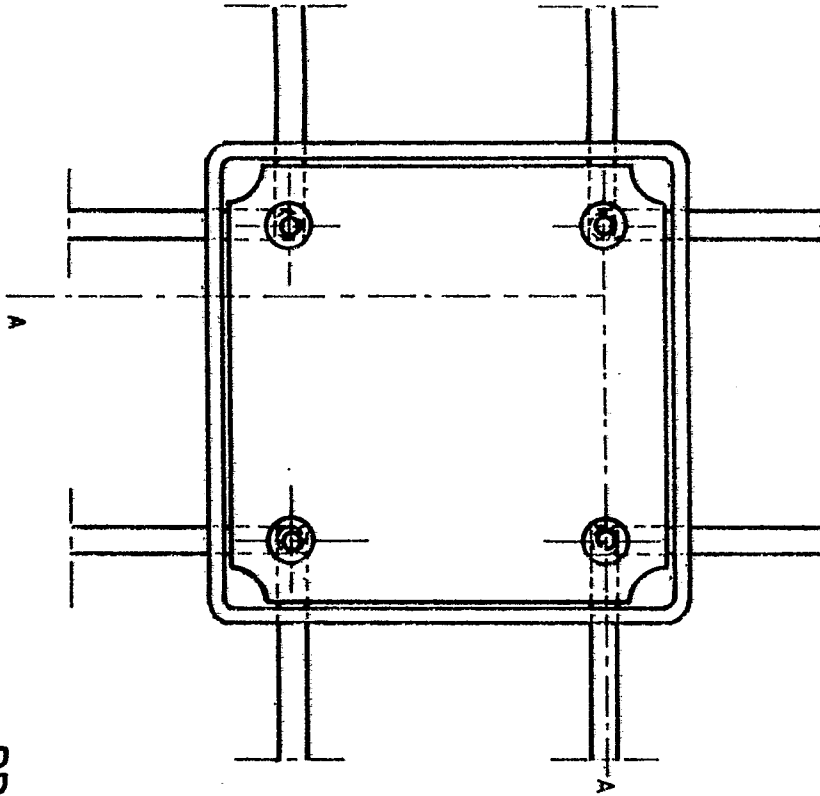
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DRAWING VII

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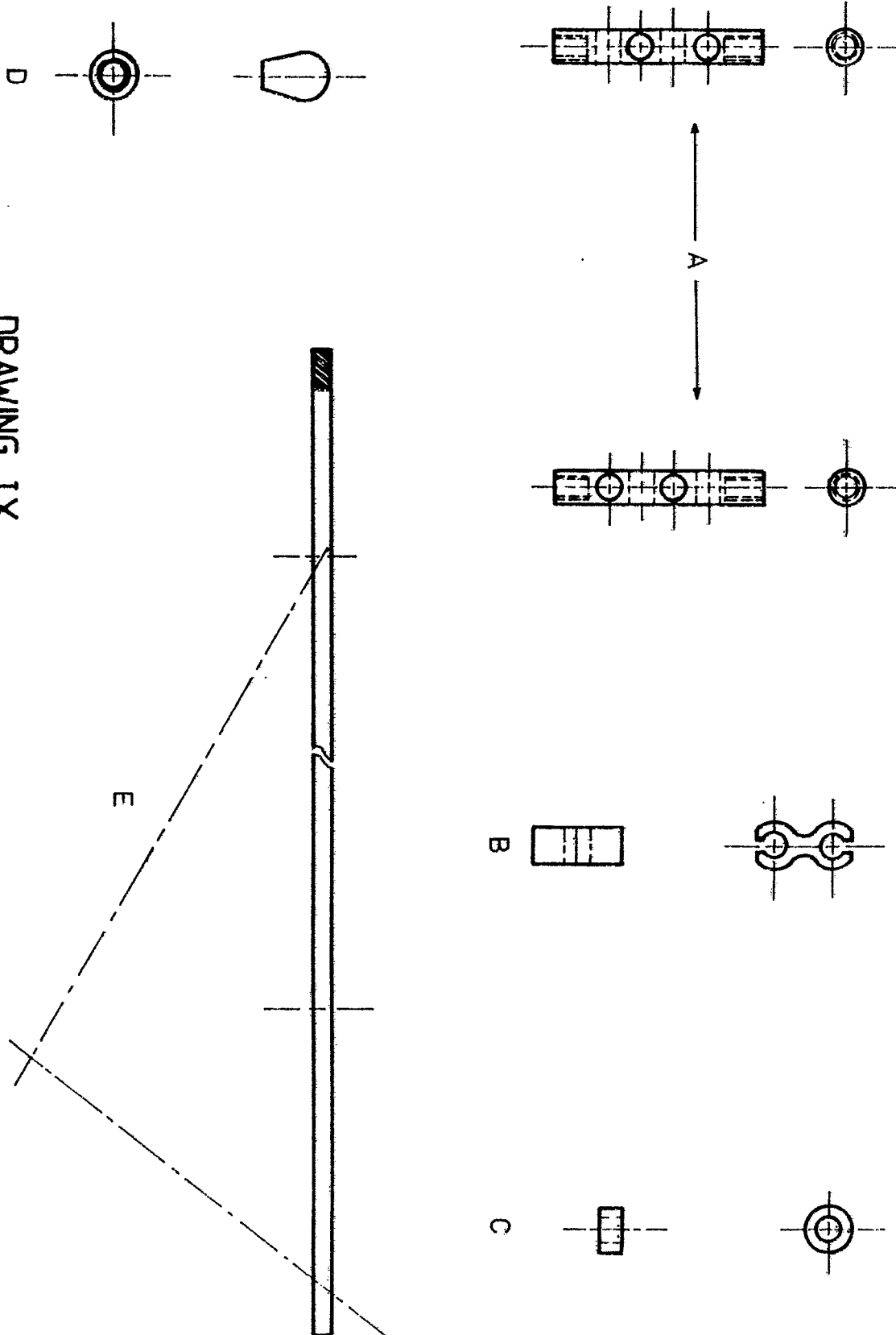
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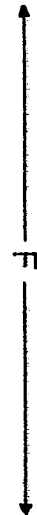
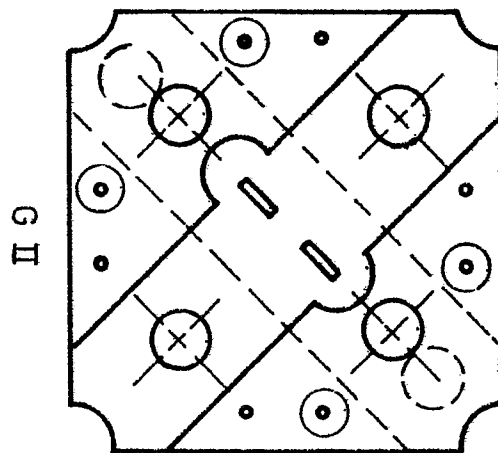
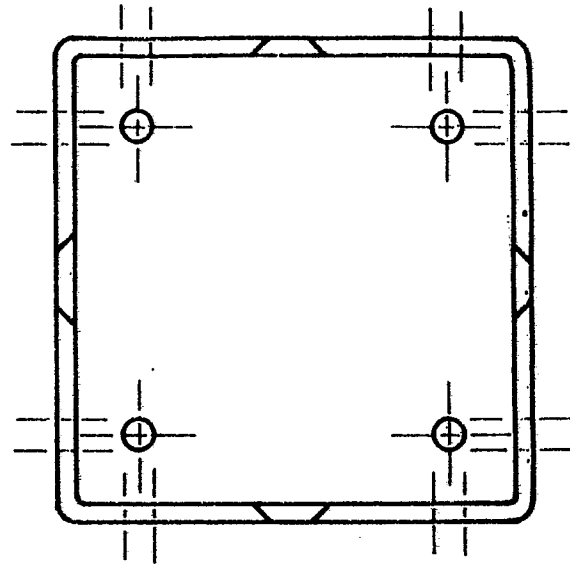
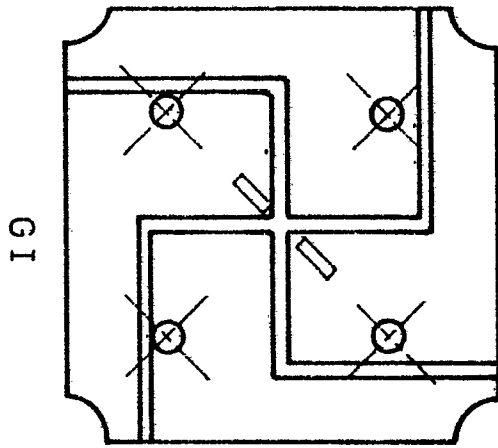
DRAWING VIII

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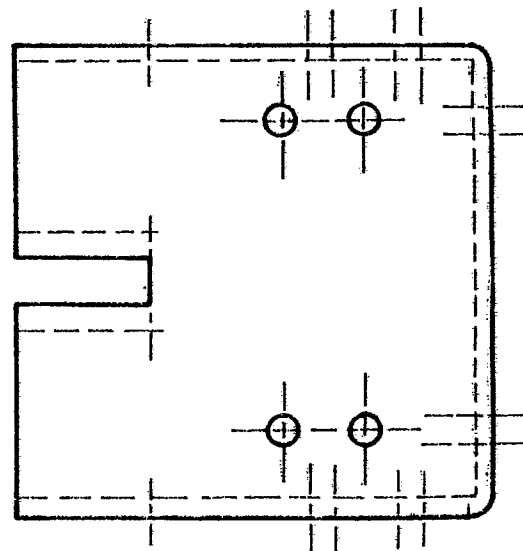
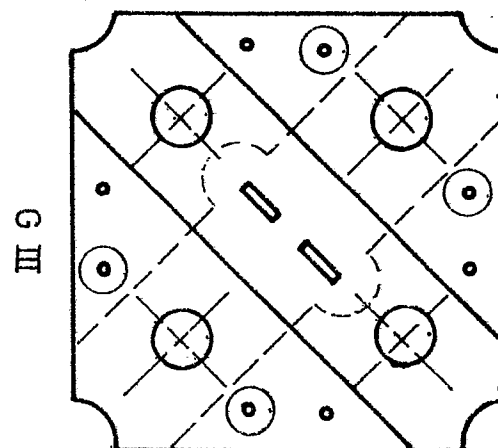
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DRAWING IX

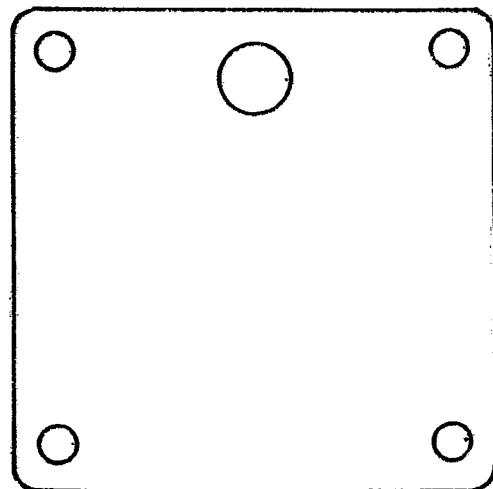
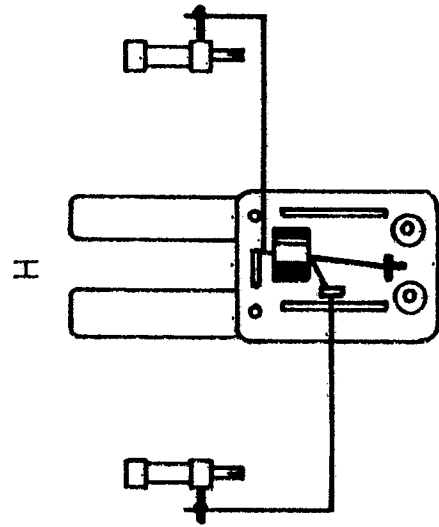
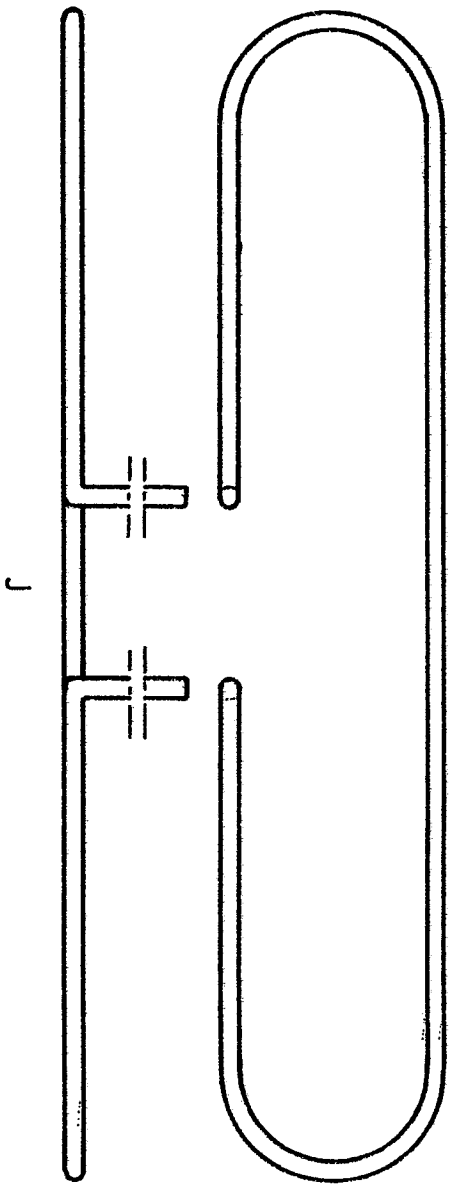


DRAWING X



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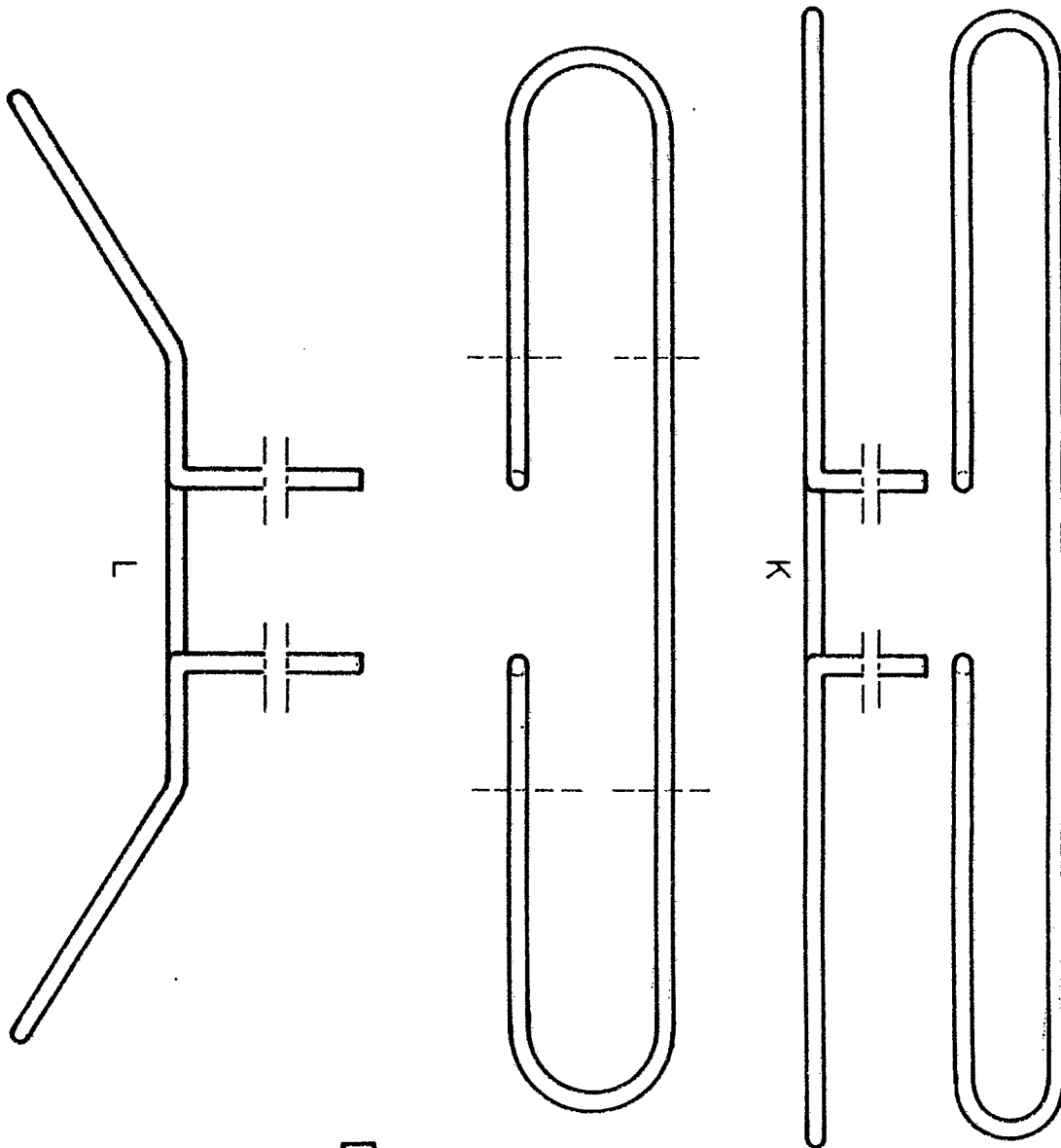
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DRAWING XI

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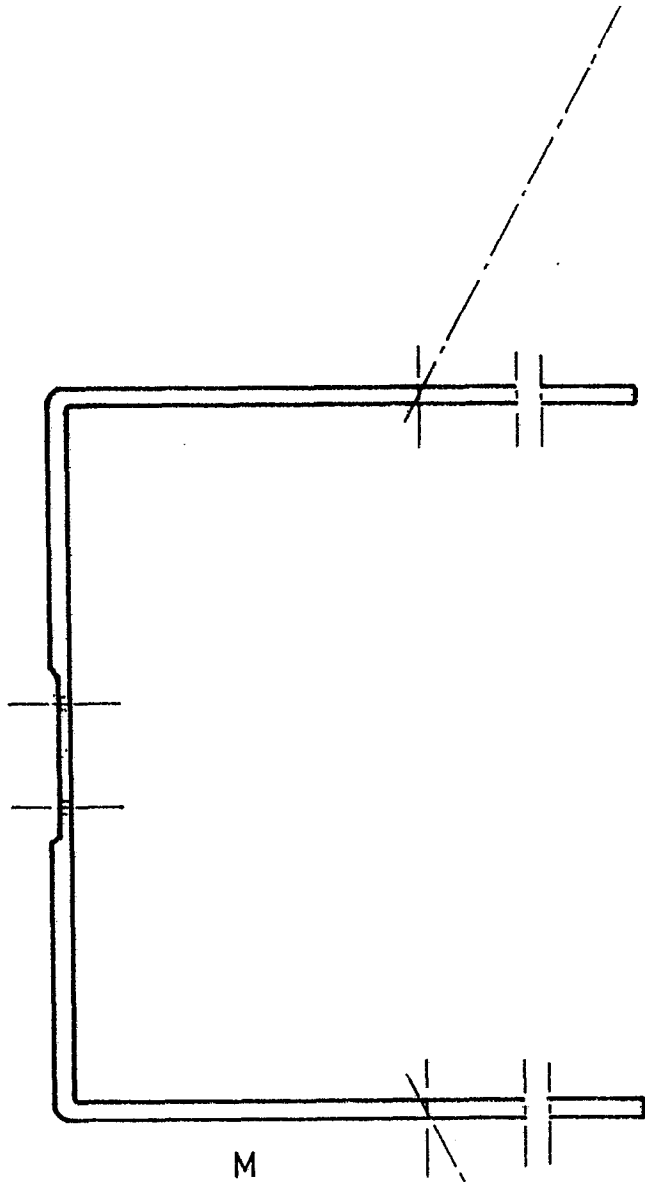
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DRAWING XII

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DRAWING XIII

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European Patent
Office

PARTIAL EUROPEAN SEARCH REPORT
which under Rule 45 of the European Patent Convention
shall be considered, for the purposes of subsequent
proceedings, as the European search report

Application number

EP 80 20 1214

DOCUMENTS CONSIDERED TO BE RELEVANT			CLASSIFICATION OF THE APPLICATION (Int. Cl. ³)
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	
A	<u>US - A - 3 932 874 (WOODWARD)</u> * Abstract; figure 6 * --		H 01 Q 9/44
A	<u>US - A - 2 780 808 (M.P. MIDDLEMARK)</u> * Figure 1, column 1, lines 28 - 33 * --		
A	<u>GB - A - 1 024 367 (SIEMENS & HALSKE AG)</u> * Figure 1 * --		TECHNICAL FIELDS SEARCHED (Int.Cl. ³)
A	<u>US - A - 4 030 101 (SATO)</u> * Figure 2 * --		H 01 Q
A	<u>US - A - 4 083 051 (WOODWARD)</u> * Figures 2,4 * -----		
INCOMPLETE SEARCH			CATEGORY OF CITED DOCUMENTS
<p>The Search Division considers that the present European patent application does not comply with the provisions of the European Patent Convention to such an extent that it is not possible to carry out a meaningful search into the state of the art on the basis of some of the claims.</p> <p>Claims searched completely: Claims searched incompletely: Claims not searched: Reason for the limitation of the search:</p> <p>It is impossible to arrive at a reasonable conclusion as to the scope of the claimed invention.</p>			<p>X: particularly relevant A: technological background O: non-written disclosure P: intermediate document T: theory or principle underlying the invention E: conflicting application D: document cited in the application L: citation for other reasons</p>
<p>Place of search</p> <p>The Hague</p>			<p>Date of completion of the search</p> <p>26-08-1981</p>
<p>Examiner</p> <p>VAN DER PEET</p>			<p>&: member of the same patent family, corresponding document</p>