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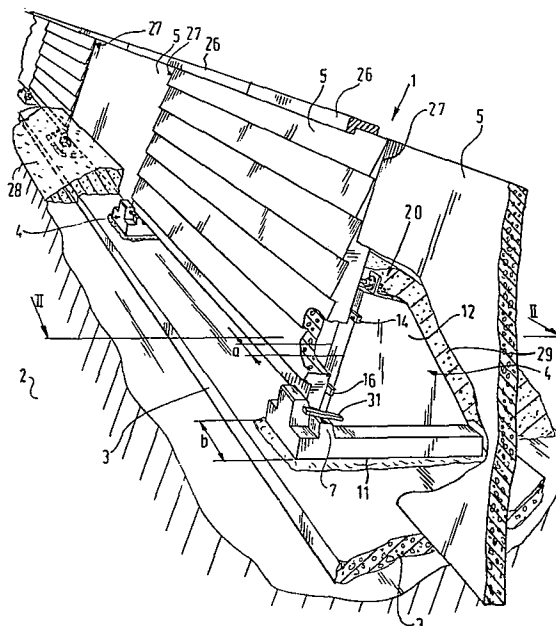
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(54)

Sound repelling and/or absorbing wall.

(57)

Sound repelling and/or absorbing wall, consisting of a series of supports (4) and a series of panels (5) borne by supports. The position of the panels in respect of the supports is adjustable.



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Sound repelling and/or absorbing wall.

The invention relates to a sound repelling and/or absorbing wall to be erected at the side of a noise-producing area, for example, an industrial site, a thoroughfare or the like, said wall comprising a series of relatively spaced
5 supports disposed on a foundation, every two consecutive supports holding a screen designed for repelling or absorbing the noise, said supports serving to transfer the weight of the screen and the forces exerted thereon to the foundation.

A wall of the kind set forth is known from German
10 Patent Application 1,090,247, laid up for public inspection.

In this known wall the panels are connected in a fixed position with the supports positioned as accurately as possible. Due to setting of the ground or to manufacturing inaccuracies of the panels, the panels cannot be satisfactorily aligned.
15

The invention has for its object to construct a wall of the kind set forth in a simple manner, the panels of which can be satisfactorily aligned. To this end the screen located between two consecutive supports is formed by a single panel, the lower end of which bears on supporting
20 bearings of two consecutive supports and which bears between its top and bottom ends on supporting bearings of said two supports arranged at a considerably higher level than the lower end of the panel, said supports being provided with

adjusting means for setting the position of the panel with respect to the supports. The panels can be satisfactorily aligned relative to one another not only during the manufacture of the wall, but even after the ground has set 5 any disturbed alignment can be corrected. Moreover, the angle between the panel and the sound producer can afterwards be adjusted differently for improving sound repulsion. For this purpose the adjusting means comprise a nut-screw bolt joint.

A simple structure of the wall is obtained, when 10 each panel and each support consist of a prefabricated concrete element.

The sound attenuating wall according to the invention may serve, in addition, as a soil retaining wall, when prefabricated concrete slabs are lying on the feet of the 15 supports.

The wall according to the invention may even be employed on weak grounds, when a pile foundation is provided beneath the supports, the piles supporting girders below the supports.

20 The invention will be described more fully hereinafter by way of example with reference to a few embodiments of a preferred wall in accordance with the invention.

The drawing shows schematically in:

Fig. 1 a perspective view of a wall according to 25 the invention, partly broken away,

Fig. 2 a sectional view taken on the line II-II in Fig. 1

Fig. 3 on an enlarged scale a detail III of Fig. 2

Fig. 4 on an enlarged scale a detail IV of Fig. 2,

30 Figs. 5, 6 and 7 sectional views like that of Fig. 2 of other walls in accordance with the invention,

Fig. 8 on an enlarged scale a detail VIII of Fig. 7 and

Fig. 9 a perspective view like that of Fig. 1 of a 35 variant of the wall in accordance with the invention,

The wall 1 erected at the side of a thoroughfare 2 serves to repel and/or absorb the traffic noise.

The wall 1 comprises a series of relatively spaced, prefabricated, concrete supports 4 disposed on a foundation 3 and a series of panels 5, each held by two consecutive supports 4. The panels 5 are formed, profiled and/or coated with the appropriate material to serve as a sound repelling and/or absorbing screen. The panels 5 between the supports 4 consist of a prefabricated, concrete monolith. The panels 5 may be straight or curved and may consist of a monolithic composite in dependence upon the local, acoustic requirements.

The supports 4 serve to transfer the weight of the panels 5 and the forces exerted on the panels 5, for example, snow and wind loads to the foundation 3. The lower end 6 of each panel 5 bears on bearings 7 of two consecutive supports 4 and between its top end 8 and its bottom end 6, preferably about at the centre 9, the panel bears on bearings 10 of said two supports 4 located at a considerably greater height than the lower end of the panel 5, said supports being provided with adjusting means for setting the position of the panel 5 with respect to the supports 4 in order to ensure that the panels 5 of the wall 1 join one another along flowing lines. The supporting bearing 7 like the bottom surface 11 has a width b, which exceeds the wall thickness a of the body 12 of the support 4. The adjusting means are formed by wedges 31 which are pushed between the supporting bearing 7 and the panels 5 at the side of the web 12 in the direction of the arrow 13. According as the panel 5 concerned has to be further lifted with respect to the support 4, the wedge 31 is pushed further.

In order to enlarge the tipping angle c between the supporting bearing 10 and the panel 5 a wedge 14 is driven between the rear side 15 of the panel 5 and the supporting bearing 10. In order to set the tipping angle c and to adjust the horizontal distance between the web 12 and the panel 5 a wedge 16 may be driven at the lower end of the panel 5 between the panel 5 and the web 12, after which the lower end 6

is fixed in place by means of an additional wedge 17 between the lower end 6 and a nose 18 and/or by means of hardening cement 19.

The adjustment of the tipping angle α is preferably performed by means of a nut-and-screw-bolt joint 20, a corner-support 21 of which is fastened to the supporting bearing 10 by a bolt 22 and a nut 23 and a set bolt 24 of which, anchored to the panel 5, is displaceable in its direction of length with respect to the supporting bearing 10 by means of nuts 25. After this fine adjustment is accomplished and the neighbouring panels 5 are smoothly aligned, the wedge 14 is driven between the supporting bearing 10 and the panel 5 in order to ensure permanent fixation of the panel 5 in the position set by means of the joint 20.

Finally concrete, U-shaped profiles 26 are deposited on the top ends 8 of the panels 5, said profiles bridging two neighbouring panels 5 at the joints 27 and sand ridges 28 and 29 are poured in front of and behind the wall 1.

The supports 4 can be adjusted with respect to the foundation 3 by means of wedges 30 pushed beneath them before the panels 5 are deposited.

If the subsoil 32 is weak, the foundation 3 may be formed by piles 34 connected with girders 35 (Fig. 5).

The wall of Fig. 6 differs from that in Fig. 2 only in that it can retain a high amount of soil 36. The soil 36 bears behind the panels 5 on concrete slabs 37, the ends of which bear on foot plates 38 of two consecutive supports 4.

The wall 1 of Fig. 7 comprises supports 4 formed by the heads 44 of piles 40 driven into the ground 39 in inclined positions. The panels 5 then bear on two (or more) consecutive piles 40 through corner-shaped consoles 41 forming supporting bearings 7 and being fastened to the piles 40 by means of bolts 42. Again wedges 16 and 17 may be used for holding the panels 5 in an adjusted position. The top ends 45 of the pile heads 44 serve as supporting girders and are each provided with a joint 20 with a wedge 14.

Fig. 9 shows that the panels 5 need not necessarily

be deposited by their longitudinal ends 47 and 48 on supports 4, and that they can advantageously bear on supports 4 between said ends 47 and 48. It is then in principle slightly more difficult to smoothly align the edges 47 and 48, but
5 this alignment can be facilitated by means of a tongue-and-groove joint 50 as shown in Fig. 9.

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CLAIMS

1. A sound repelling and/or absorbing wall to be erected at the side of a noise-producing area, for example, an industrial site, a thoroughfare or the like, said wall comprising a series of relatively spaced supports disposed on
5 a foundation, every two consecutive supports holding a screen designed for repelling or absorbing the noise, the supports serving to transfer the weight of the screen and the forces exerted thereon to the foundation characterized in that the screen located between two consecutive supports is formed by
10 a single panel, the lower end of which bears on supporting bearings of two consecutive supports and which bears between its top and bottom ends on supporting bearings of said two consecutive supports arranged at a considerably higher level than the lower end of the panel, said supports being provided
15 with adjusting means for setting the position of the panel with respect to the supports.

2. A wall as claimed in Claim 1 characterized in that the adjusting means are formed by wedges.

3. A wall as claimed in Claim 1 or 2 characterized
20 in that the adjusting means comprise a nut-screwbolt joint.

4. A wall as claimed in anyone of the preceding Claims characterized in that each panel is formed by a prefa-

bricated, concrete element.

5. A wall as claimed in anyone of the preceding Claims characterized in that each support is formed by a prefabricated, concrete element.

5 6. A wall as claimed in anyone of the preceding Claims characterized by prefabricated, concrete slabs lying on the feet of the supports.

7. A wall as claimed in anyone of the preceding claims characterized by a pile foundation provided beneath
10 the supports and girders supported by the piles and located beneath the supports.

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FIG. 1

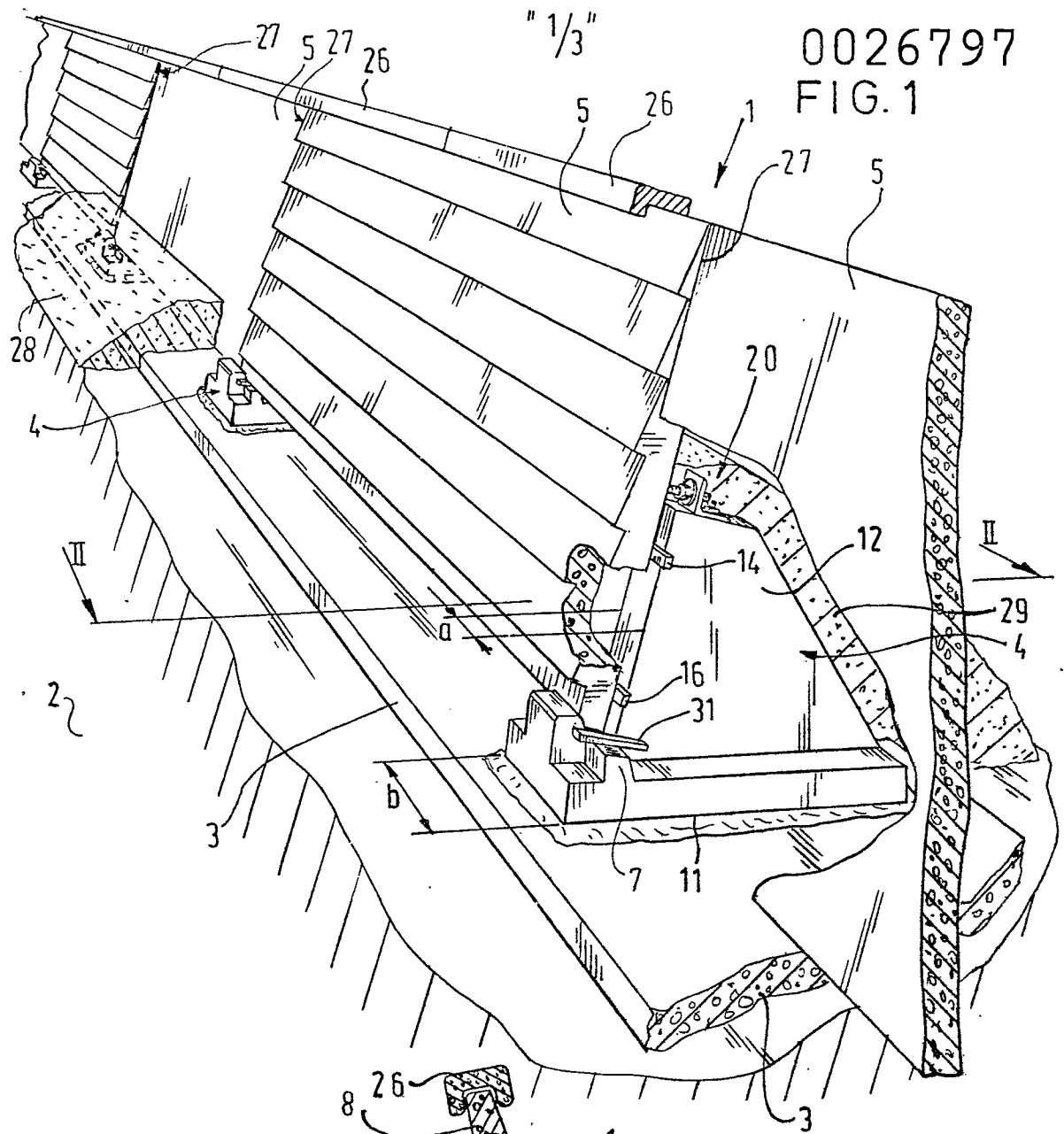
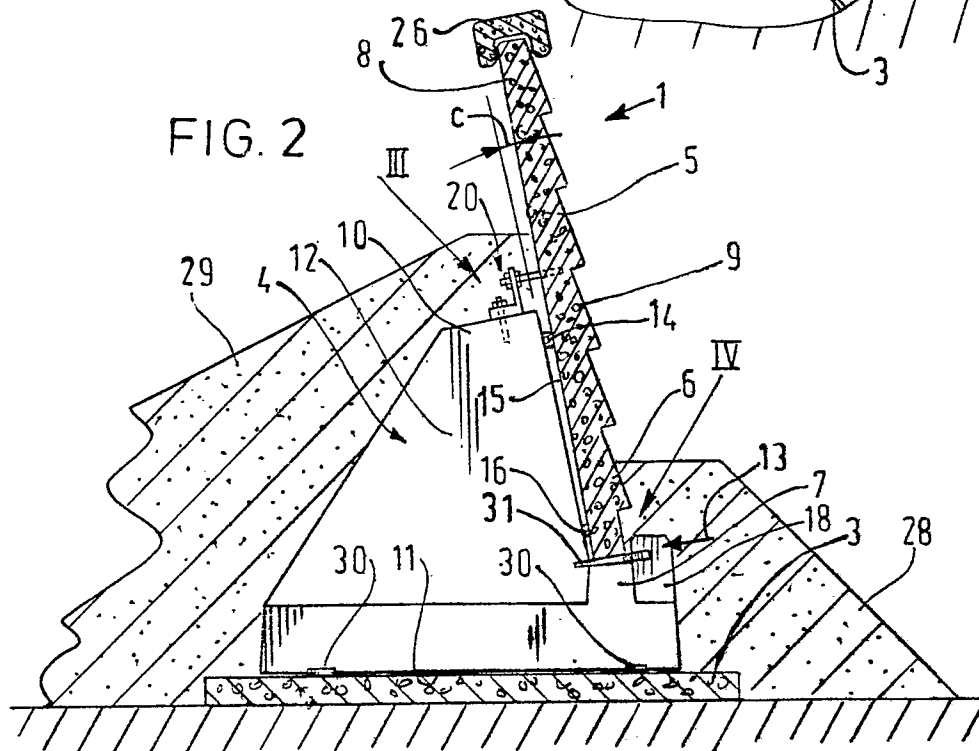


FIG. 2



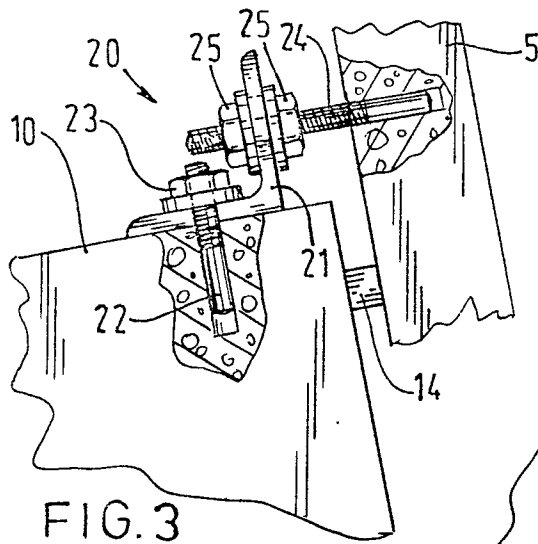


FIG. 3

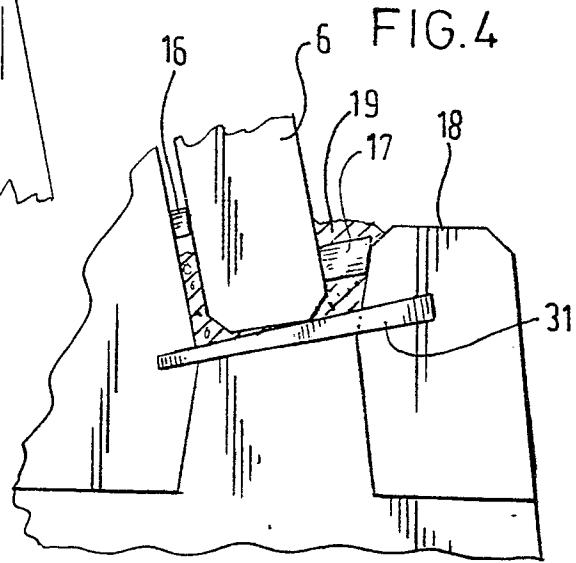


FIG. 4

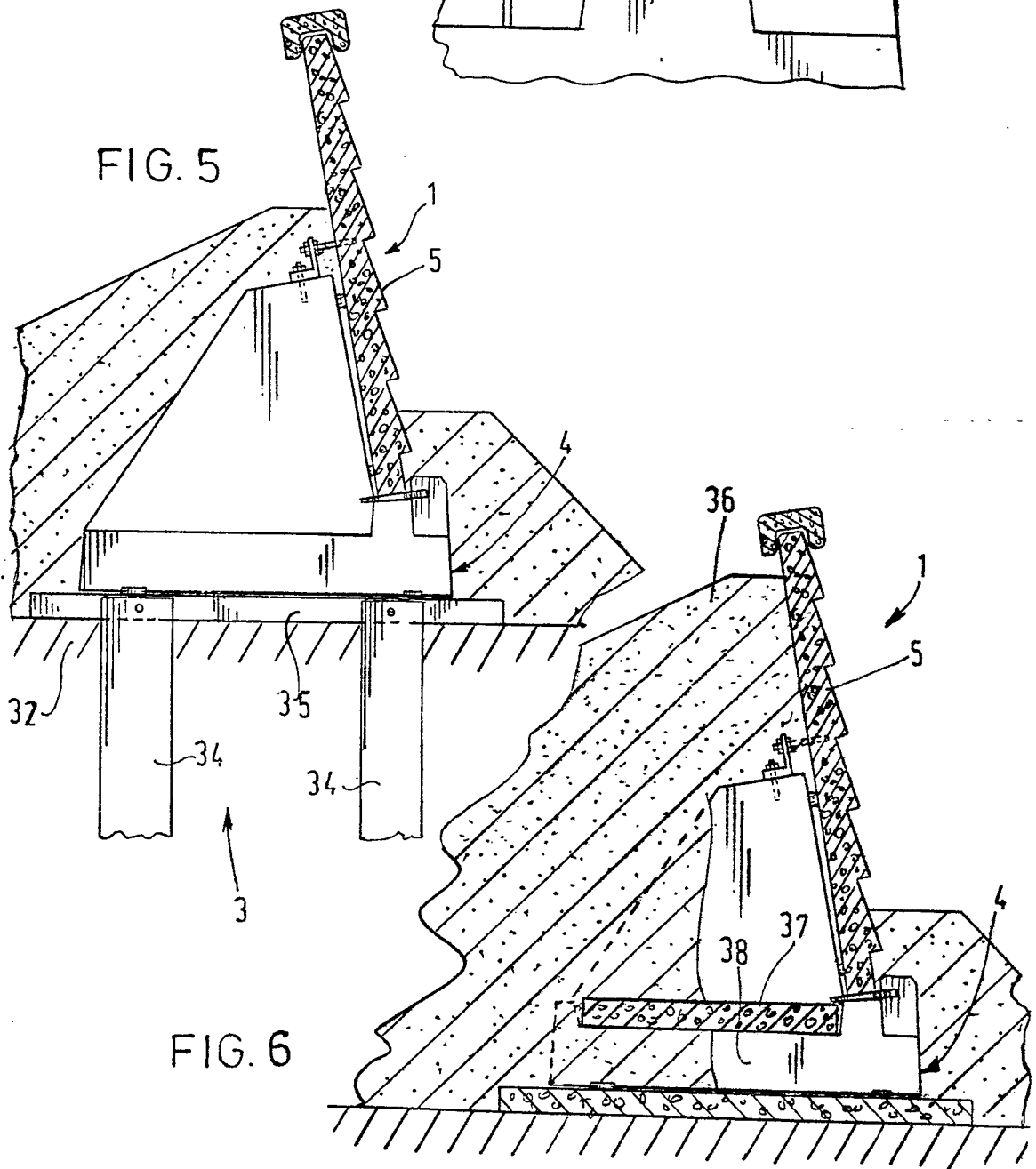


FIG. 5

FIG. 6

FIG. 7

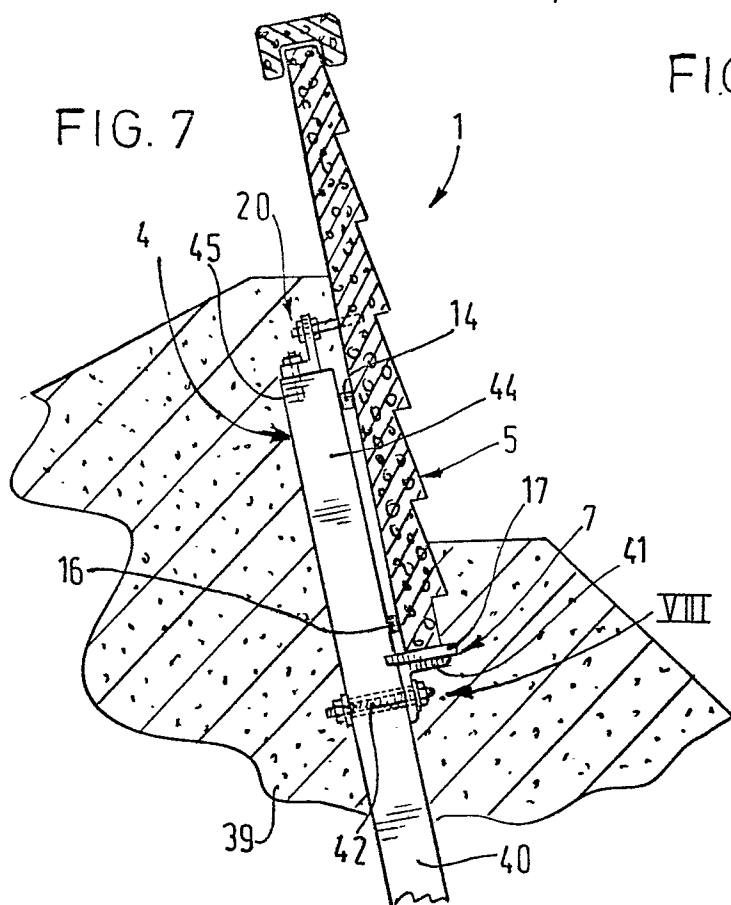


FIG. 8

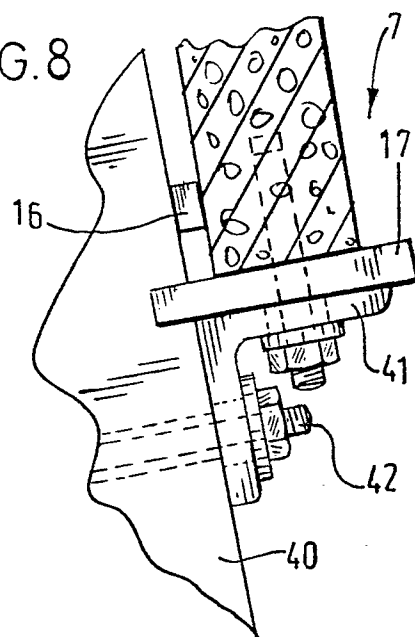
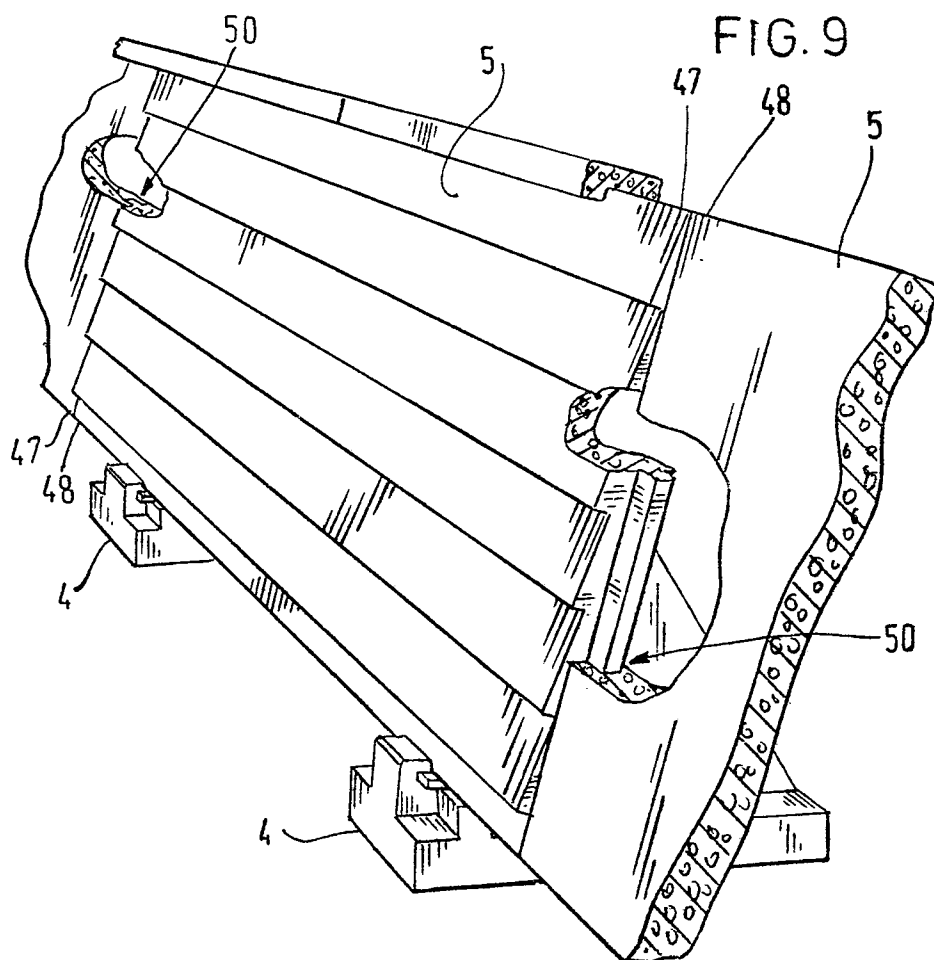


FIG. 9





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EUROPEAN SEARCH REPORT

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Application number

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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	DE - A1 - 2 456 915 (ACROW-WOLFF GMBH) * whole document *	1,4-6	E 01 F 8/00 E 02 D 29/02
	DE - B - 1 634 302 (C. CHIAVES) * column 3, lines 36 to 61; column 4, line 50 to column 6, line 50 *	1,2, 4,6	
	DE - U - 7 440 129 (K. KRONIMUS) * page 3, paragraph 2 to page 5; page 6, last line to page 7; fig. 1, 2 *	1,3-6	
	DE - A - 2 256 984 (HOESCH WERKE AG) * page 4, paragraph 2 to page 5; fig. *	1,3	E 01 F 8/00 E 02 D 17/00 E 02 D 29/00
	DE - U - 7 522 101 (VKI-RHEINHOLD & MAHLA AG) * fig. *	7	
	DE - U - 7 508 340 (WIRUS-WERKE W. RUHENSTROTH GMBH) * fig. 9 *		
X The present search report has been drawn up for all claims			TECHNICAL FIELDS SEARCHED (Int.Cl.3)
			CATEGORY OF CITED DOCUMENTS 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 &: member of the same patent family, corresponding document
Place of search	Date of completion of the search	Examiner	
Berlin	19-05-1980	PAETZEL	