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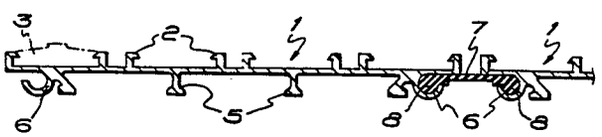
(54) Floor coverings.

(57) Floor covering for use in entrances to public buildings which avoids the known disadvantages of both mats and grilles, comprising a number of rigid longitudinal members (1) with adjacent longitudinal members (1) held in spaced relationship by a longitudinal flexible linking member (7, 13).



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This invention relates to floor coverings of the type suitable for installation in entrances, hallways, lobbies, etc. of hotels, public buildings, office blocks, shops and other places likely to have a large volume of pedestrian traffic.

In any building likely to have a large volume of pedestrian traffic, it is advantageous to provide in the entrance a mat or grille across which the pedestrian must walk such that any dirt or debris adhering to the shoes of the pedestrian is substantially removed before the pedestrian reaches the interior of the building itself. This can reduce considerably the amount of dirt and the like deposited on the floor of the building itself. However with a conventional rubber or carpet-like mat, heavy wear takes place requiring the frequent replacement of the mat. With metal grilles the life is considerably longer but any uneveness in the floor surface on which a grille is placed leads to the grille moving as a pedestrian walks across it, causing noise and wear on both the grille and the floor.

The object of the present invention is to provide a floor covering that can serve as a mat or grille and which avoids the known disadvantages of

both mats and grilles.

According to the present invention a floor covering comprises a number of rigid longitudinal members with adjacent longitudinal members held in spaced relationship by a longitudinal flexible linking member. Thus the longitudinal members may be formed from a suitable metal such as aluminium alloy and when the floor covering of the invention has the durability of known metal grilles. With the rigid longitudinal members being held together by flexible members, the floor covering has sufficient flexibility to allow it to accommodate any uneveness on the floor on which the floor covering is laid and when the floor covering of the invention retains the advantage of conventional rubber and the like matting.

Preferably each rigid longitudinal member is formed as an extrusion and has an upper profiled surface to enable it to accept one or more tread inserts of, e.g., rubber or carpet material, or profiled to form a scraper bar it being further preferred that the lower surface of that member is also profiled to accept one or more inserts to act as a foot or cushion between the underside of the floor covering of the invention and the floor on which is rests.

To enable adjacent longitudinal members to be flexibly linked together, each longitudinal edge of the member is formed with a groove into which fits one side of the flexible linking member. Thus, the flexible linking member may be formed by a longitudinally generally rectangular length of, e.g., rubber. However to allow for the uniform spacing of the longitudinal rigid members and at the same time allow any dirt or debris deposited on the floor covering to fall to the floor on which the floor covering rests, it is preferred to form the flexible link between the two adjacent rigid members with a series of spaces or through-slots, or from a series of short links, each formed as a generally L-shaped member, the long side of which constitutes a rib to engage in the recess in one rigid member and the short side of which acts as an interconnecting flange and has a short rib to engage in the recess of the adjacent member. Thus by utilising a number of such members not only are adjacent members flexibly held in correct spaced relationship but also gaps are provided between adjacent members through which dirt, debris and the like can fall. When the longitudinal members are formed to receive more than one tread insert, through-slots may be formed between the profiled

sections adapted to receive the tread inserts.

There are various further possible alternatives and modifications within the invention. Thus, instead of utilising rubber or the like tread inserts across the full width of the floor covering of the invention it is possible to provide inserts formed from carpet material. It is also possible to provide some of the members with rubber inserts and the remainder with carpet inserts such that the part of the floor covering adjacent the street is utilised to remove the worst of the wet or dirt before the pedestrian steps on to the carpet tread insert section to give a final cleaning to the shoes. It would be further possible to provide in place of some of the rubber or the like inserts, a metal insert having a profiled top surface designed to act as a boot or shoe scraper.

Normally a floor covering of the invention will be placed within a conventional mat or grille well and when the plane of the upper surface of the floor covering would coincide with that of the interior of the floor of the building. If however no such well is provided, then the floor covering of the invention can at one or both ends be provided with a lead-in/lead-out ramp formed from,

e.g., rubber or the like connected by a flange extending from the ramp terminating in a rib engaging in the uppermost recess in the longitudinal members.

Several embodiments of the invention will now be described with reference to the accompanying drawings, in which :-

Figure 1 is a plan view of part of a floor covering longitudinal member according to the invention;

Figure 2 is a section on the line II-II of Figure 1, showing in addition the flexible connection to an adjacent longitudinal member;,

Figure 3 is a sectional perspective view of part of the flexible connecting member of Figure 2;

Figure 4 is a perspective view of part of an alternative floor covering according to the invention;

Figure 5 is a perspective view of an alternative form of flexible connecting member; and

Figure 6 is a perspective view of part of a lead-in/lead-out section for use in conjunction with the floor covering of the invention.

In Figures 1 to 3, floor covering to serve as a mat or grille for use at, e.g., the entrance to a building has a number of longitudinal sections

1 formed as an extrusion from a suitable aluminium alloy. Each longitudinal section is formed with an upper profiled surface having pairs of channel forming members 2 to receive tread inserts 3. The longitudinal sections, between the adjacent members 2 of adjacent pairs are formed with longitudinal, spaced, through holes 4 for the passage of water and/or dirt. On the undersurface, each longitudinal member is formed with a number of feet 5, and to each side with outwardly facing recess-forming members 6.

Adjacent longitudinal sections 1 are connected by flexible connecting members 7, which, as is shown particularly by Figure 3 are formed with longitudinal ribs 8 for engagement in the recesses of adjacent members 6.

The tread inserts 3 can be formed from a hard wearing rubber or rubber-like compound, or they can be formed from carpet material. Yet again, selected channel forming members can be provided with metal inserts with a profiled top surface designed to act as a boot or shoe scraper. Thus, a hybrid structure can usefully be provided, where a number of longitudinal sections 1 can be provided, flexibly connected by the members 7, the channels immediately adjacent the door opening

having metal scraper inserts, followed by rubber inserts to remove further dirt and moisture, and terminating in sections with carpet inserts to match adjacent carpeting and to effect a final cleaning of the soles of boots or shoes.

When the floor covering is in a well adjacent a door opening, the feet 5 hold the operative surface of the floor covering at approximately the height of the adjacent floor. If, however, no well is present, it is preferred to provide a lead-in/lead-out section such as shown in Figure 6. Thus, a tapered member 9 is provided having a longitudinal rib 10 to fit the recess of the outermost recess forming member 6.

In the alternative construction shown in Figures 4 and 5, a number of longitudinal sections 11 are provided, each having a profiled upper surface to receive a single tread insert 12, adjacent sections 11 being flexibly secured together by a flexible member 13. Each flexible member may be of the form shown in Figure 3, but to provide gaps to allow the passage of water and/or dirt, adjacent longitudinal sections 11 can be secured together by a number of flexible members 13, each of which is, as is shown by Figure 5, formed as a generally L-shaped piece the longside

forming a rib 14 to fit a recess 15 formed on the underside of the member and the short side forming a connecting section 16 and terminating in a rib 17 to fit a recess 18 formed on the adjacent longitudinal section.

Whether provided in a well, or free standing, the floor covering of the invention can be cushioned to reduce noise and wear. Thus, as is shown in Figure 4, the underside of the member can be formed with recesses 19 to receive rubber or rubber-like inserts 20 by which the longitudinal sections 11 rest on the floor. Obviously, the longitudinal sections 1 of Figures 1 to 3 can have such recess and rubber or rubber-like inserts formed in the feet 5. Alternatively, the feet 5 can be surrounded by a rubber or rubber-like material.

As a still further alternative, not shown, an individual longitudinal section 11 or part of the longitudinal section 1 can be formed with an integral scraper bar.

CLAIMS

1. A floor covering comprising a number of rigid longitudinal members with adjacent longitudinal members held in spaced relationship by a longitudinal flexible linking member.

2. A floor covering as in Claim 1, wherein each longitudinal member has an upper (in use) profiled surface for the acceptance of one or more tread inserts.

3. A floor covering as in Claim 1, wherein at least one longitudinal member has an upper (in use) surface profiled to form a scraper bar.

4. A floor covering as in any of Claims 1 to 3, wherein each longitudinal member has a lower (in use) surface profiled to accept one or more inserts to act as a foot or cushion between the underside of the floor covering and the floor on which it rests.

5. A floor covering as in any of Claims 1 to 4, wherein to enable adjacent longitudinal members to be flexibly linked together, each longitudinal edge of the member is formed with a groove into which fits one side of the flexible linking member.

6. A floor covering as in Claim 5, wherein

the flexible linking member is formed by a longitudinally generally rectangular length of, e.g., rubber.

7. A floor covering as in Claim 6, wherein each flexible link is formed with a series of spaces or through-slots for the passage of debris.

8. A floor covering as in Claim 6, wherein each flexible link is formed as a generally L-shaped member, the long side of which constitutes a rib to engage in the recess in one rigid member and the short side of which acts as an interconnecting flange and has a short rib to engage in the recess of the adjacent member to create a series of spaces for the passage of debris.

9. A floor covering as in any of Claims 1 to 6, wherein each longitudinal member has an upper (in use) profiled surface for the acceptance of at least two tread inserts, the space between adjacent profiled sections being provided with a series of through-slots for the passage of debris.

10. A floor covering as in any of Claims 1 to 9, wherein at one or both ends, there is provided a lead-in/lead-out ramp.

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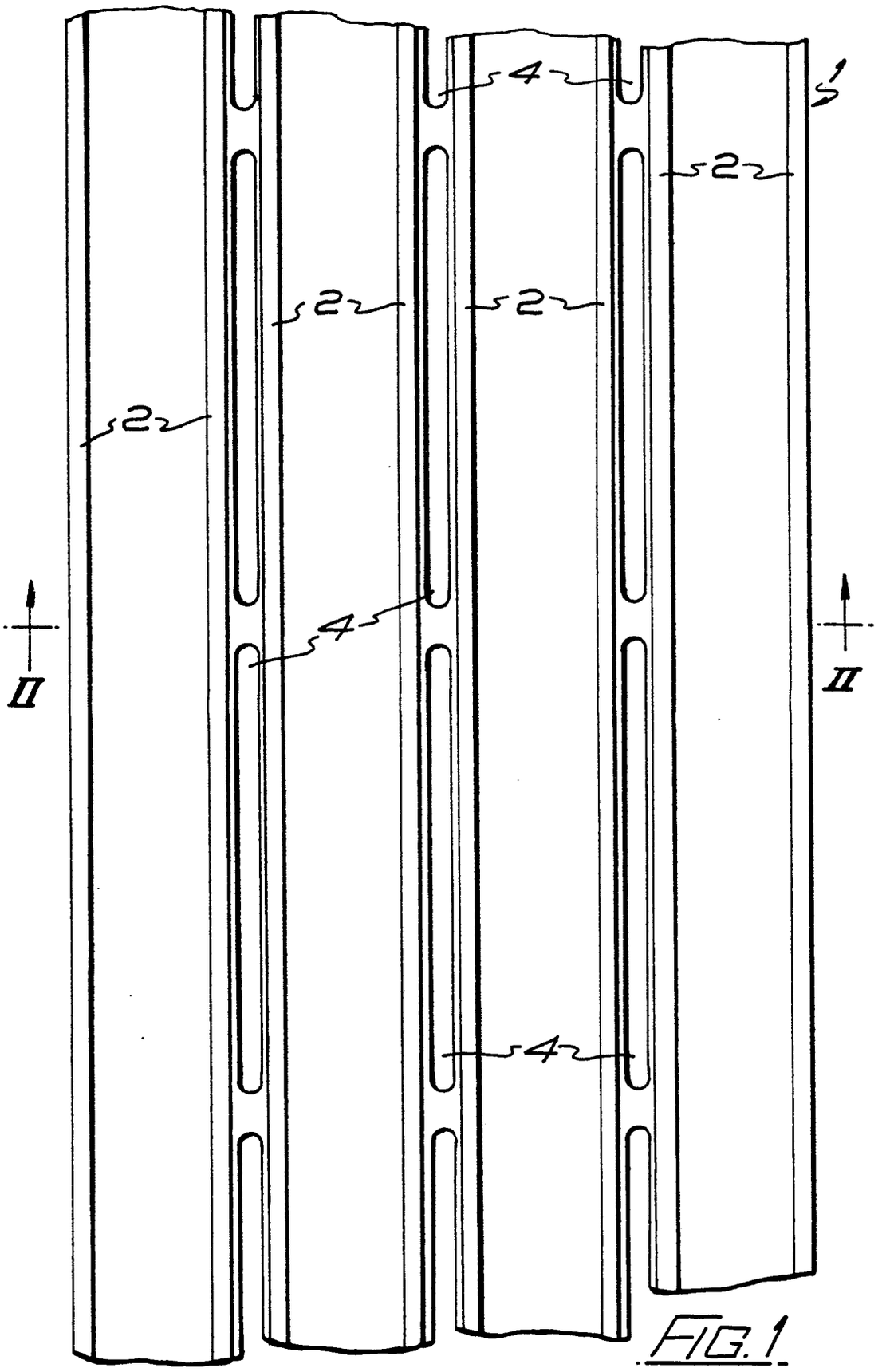

FIG. 1

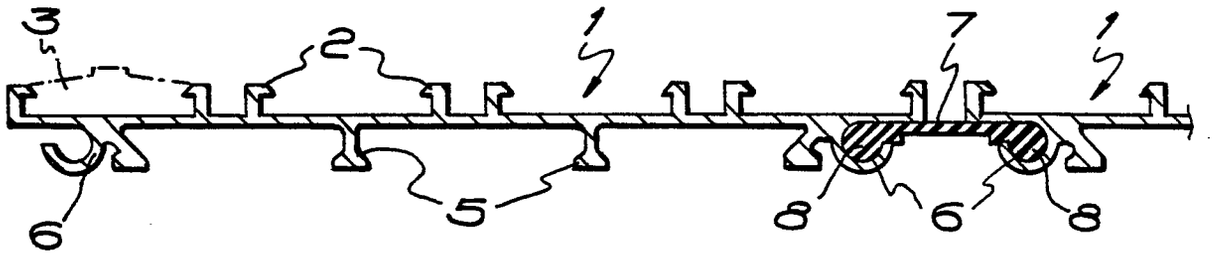

FIG. 2

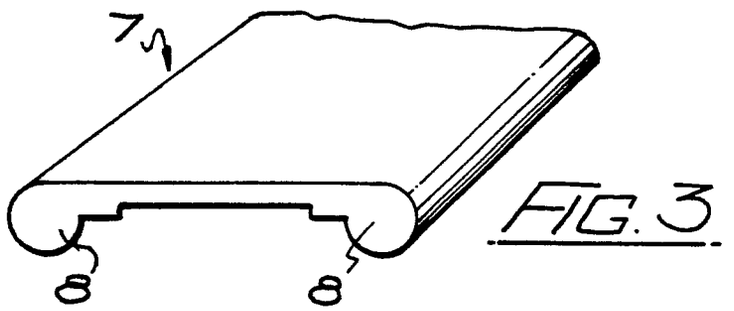

FIG. 3

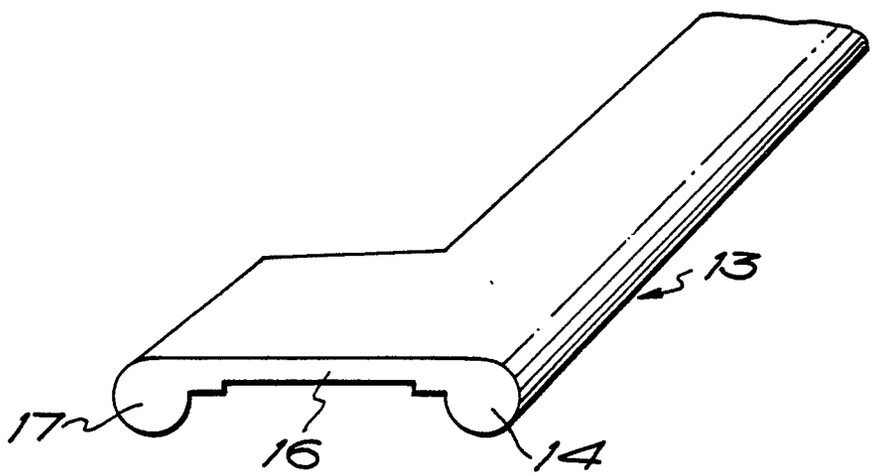

FIG. 5

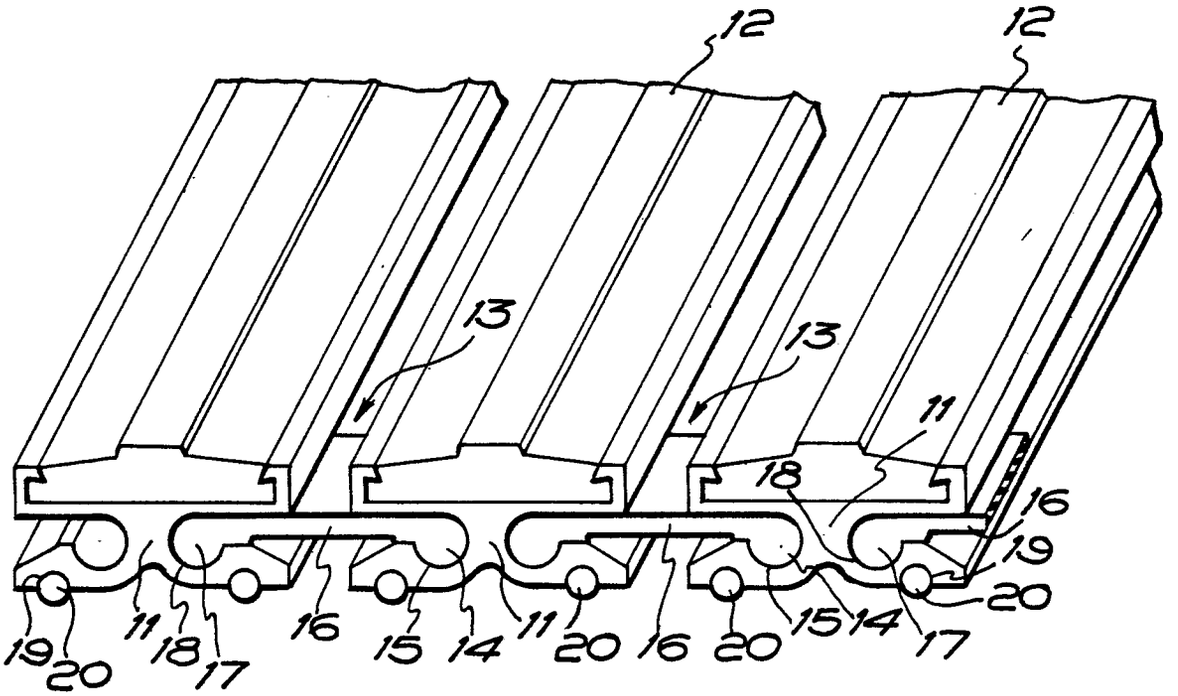

FIG. 4

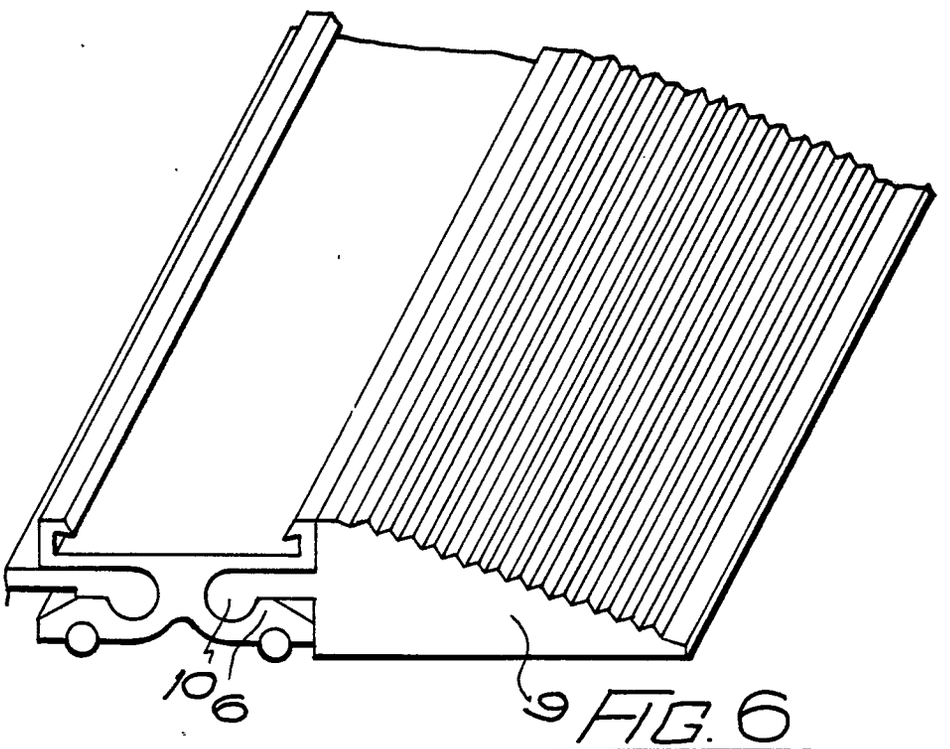

FIG. 6

European Patent Office

EUROPEAN SEARCH REPORT

0067024
Application number

EP 82 30 2801.4

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim
X	DE - C - 668 656 (C.C. TIEDEMANN) * complete document *	1,2,5, 9,10
X	DE - A1 - 2 811 408 (E. ARENS) * page 13, paragraph 6; fig. 1, 2, 4, 9 *	1,5,6
P,X	DE - U1 - 8 118 222 (H. KAMPMANN KG) * page 11, lines 10 to 13; fig. 1, 2 *	1,2,5, 7,9
A	DE - U1 - 7 917 225 (SCHRUPP & CO. GMBH) * claim 1 *	1
A	US - A - 4 029 834 (G.F. BARTLETT) * complete document *	1,2,4, 7,9,10
A	DE - U - 6 930 293 (E. ARENS KG) * fig. 2, 3 *	3

CLASSIFICATION OF THE APPLICATION (Int. Cl. 3)

E 04 F 19/10
A 47 L 23/22
E 04 C 2/42
F 16 S 3/02

TECHNICAL FIELDS SEARCHED (Int.Cl. 3)

A 47 L 23/00
E 04 C 2/00
E 04 F 19/00
F 16 S 3/00

CATEGORY OF CITED DOCUMENTS

X: particularly relevant if taken alone
Y: particularly relevant if combined with another document of the same category
A: technological background
O: non-written disclosure
P: intermediate document
T: theory or principle underlying the invention
E: earlier patent document, but published on, or after the filing date
D: document cited in the application
L: document cited for other reasons

&: member of the same patent family, corresponding document

X The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
Berlin	19-08-1982	KRABEL

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