(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) Publication number: **0 616 085 A1**

(12) # EUROPEAN PATENT APPLICATION

(21) Application number: **94103898.6**

(51) Int. Cl.[5]: **E03D 1/01**

(22) Date of filing: **14.03.94**

(30) Priority: **16.03.93 IT MI930497**

(43) Date of publication of application:
21.09.94 Bulletin 94/38

(84) Designated Contracting States:
AT BE CH DE DK ES FR GB GR IE LI LU MC NL PT SE

(71) Applicant: **CIBIEMME PLAST S.p.A.**
Via U. Salis, 28
I-20161 Milano (IT)

(72) Inventor: **Granata, Francesco**
via Mosé Bianchi, 22
Cernusco Sul Naviglio (Milano) (IT)

(74) Representative: **Lecce, Giovanni**
Dott. Giovanni Lecce & C. S.r.l.
Via G. Negri 10
I-20123 Milano (IT)

(54) **Recessed WC basin.**

(57) Recessed WC basin provided on the opposing sides with a plurality of holes or hollow spaces (26) perimetrally arranged for housing plugs which lock a net (32) from recyclable thermoplastic material.

Window (50) and end pipe union (34) are offset relatively to the vertical axis of cabinet (12).

The window (50) is circumscribed by a frame (44) provided with one or two branches (46) developed towards the inside to support float ball (52).

A one-piece drain (54) is provided with a tubular element (56) suitable to fit in pipe union (34), integral with a flexible strip (60) which develops up to window (50) to allow an easy introduction or removal of said drain (54).

EP 0 616 085 A1

This invention relates to a recessed WS basin. More in particular, this invention relates to a basin for washing WC bowls.

The basin subject matter of this invention has been designed and constructed to achieve the following objects:

- easy assembly, which makes the production process reliable;
- easy and correct installation;
- easy maintenance: in fact, all the compoments are "use-error-proof"-designed, thanks to special technical devices which allow to reinsert the replacement detail in the correct position;
- perfect hydraulic tightness between the elements which constitute the waste apparatus;
- more efficient and quicker downflow of waste water, to ensure a perfect washing of the WC bowl.

As is known, bowls are usually installed in bath-rooms, which are connected to above standing wall-fastened water basins.

When required, the water contained in the basin is discharged in said bowl.

WC basins are usually made from plastic, metal and ceramic material, and may be applied either outside or inside the wall.

Externally applied basins have a removable lid, which gives access to the inside, to perform operations of installation, maintenance or replacement of the various components, such as, for instance, float ball, valve, gaskets and so on.

Internally applied, i.e. recessed basins, are housed in a special hollow space or directly cemented in the thickness of the wall, above the bowl.

This second type of basin is very common and ofted preferred, especially in small bath-rooms, as it does not take up room and it allows to put the bowl very near the wall. The utilization of recessed basins allows also to obtain an aesthetical advantage, as only a panel of limited size is fastened to the wall to cover the opening and the inspection hollow space necessary for maintenance. The panel may be provided with a button which causes the delivery of the water downflow.

However, the known recessed basins have severe drawbacks, both during the installation stage and in the stage of maintenance or replacement of the components contained in the inside.

A first drawback takes place during the stage of installation of the basin into the recess provided in the wall and concerns the fact that the net utilized to facilitate the anchoring of the plastering, is caused to be integral with the opposing surfaces by simple glueing. This connection of the net is quite precarious and tends to detach, partly or fully, so that the net has to be re-fixed to the basin walls, to allow the anchoring of the plastering.

Another drawbacks takes place in the known WC basins, when the warious components, and in particular the drain, are assembled.

As known, the drain is made up by different parts which are assembled in the inside of the basin, which involves uncomfortable interventions by the operator.

A further drawbacks takes place in the discharge stage of the flow of water contained in the basin; the liquid flows generally rather slowly. Besides, one notices noisy vibrations of the float ball, especially when the basin fills up again.

Still a further drawback is constituted by the fact that in the known WC basins, the operations for the replacement of the float-ball group and/or the discharge group are extremely difficult and complex, and often, to replace an element, other elements must be removed which are independent on the one to be replaced.

An object of this invention is to obviate the generically aforementioned drawbacks.

More in particular, an object of this invention is to provide a recessed WS basin allowing in the first place the efficient and final fastening to its surfaces of the plaster anchoring net.

A further object of this invention is to provide a recessed WC basin allowing an easy and quick introduction and removal of the drain and valve body as well as the float ball as "one integral body".

A further object of this invention is to provide a recessed WS basin allowing to obtain a noiseless and particularly a quick water flow.

A further object of this invention is to provide a recessed WC basin suitable to ensure a high level of reliability and duration with time, and also such as to be easily installed.

According to this invention, these and still further objects are achieved by a recessed WS basin comprising a cabinet of a substantially parallelepipedal form, provided in the lower part with a pipe union and with top-placed flanges, with holes for the mechanical positioning, as well as an opening or window on the front, characterized basically in that said pipe union and said window are offset relatively to the centre line of said cabinet.

The construction and functional characteristics of the recessed WS basin subject matter of this invention shall be better understood from the following description wherein reference is made to the enclosed drawings which are to be construed as a non limitative preferred embodiment, wherein:

- Fig. 1 shows a schematic view of the recessed WS basin subject matter of this invention, with the portions of net to be fastened to the opposing front and back sides of same;

- Fig. 2 shows a schematic through view of one of the housing seats of the basin for embedding the member suitable to fasten the net;
- Fig. 3 is a schematic front view, partly sectioned, of the basin of Fig. 1:
- Fig. 4 is a schematic view of a longitudinal section with a plane passing through line A-A of Fig. 3;
- Fig. 5 is a schematic view of a through section of the basin, with a plane passing through line B-B of Fig. 3; and
- Fig. 6 is a schematic view of a through section of the basin with a plane passing through line C-C of Fig. 3.

With reference to Fig. 1, the recessed WS basin subject matter of this invention, indicated as a whole by 10, comprises a cabinet (12) having a substantially orthogonal parallelepipedal shape and a limited depth, and advantageously integrally made according to the well known technique of blow-moulding of an indeformable and recyclable thermoplastic material. Said cabinet (12) comprises a front surface (12'') and a back surface (48) parallel relatively to one another and connected by a side band (12'). Said cabinet (12) is provided, in correspondence of the upper side corners, with slight bevels (14), from which flanges (16) develop which have substantially triangular sections. Each flange (16) has the free sides aligned with the side band (12') of said cabinet and is provided with holes (18). In correspondence of each of the lower side corners, cabinet (10) has also a markedly extended bevelled portion. Each of the aforementioned bevelled portions forms an inclined wall (20, 20'), with a different angle, from which a flange (22) develops centrally, having a substantially triangular section and whose free sides are aligned with the side band (12') of cabinet (10). The lower flanges (22), just as the upper ones (16), are provided each with a hole (24). The function of said holes (18,24) is to hang up or mechanically fasten basin (12) in the special recess, through generic square hooks or the like.

The recessed WC basin subject matter of this invention is provided with a pluratily of dead holes or hollow spaces (26), placed near the perimeter along the opposing front (12'') and back surfaces. Said dead holes (26), obtained in the blow-moulding stage of basin (12), are the seats for housing stem (28) of a plug provided with a head (30) or some other mechanical means suitable for anchoring a net (32). The tightly-meshed net (32) is then mechanically fastened definitively to the opposing front (12'') and back surfaces of basin (12) my means of said plugs, as shown on Fig. 2. Head (30) of the plugs, having by way of example and preferably a round shape, has a larger diameter compared to the width and/or height of the meshes which form said net.

The WC basin subject matter of this invention is provided in its lower end, with a pipe union (34) integral with said basin, having being obtained in the blow-moulding stage. Pipe union (34) develops towards the outside in an off-center position relatively to the vertical axis or central axis of the parellelepiped which forms the WC basin (12).

Pipe union (34) develops from a limitedly extended flat portion (36) of side band (12') in correspondence of the lower part of basin (12), said flat portion (35) being circumscribed by and connected to the inclined walls (20, 20').

As previously said and as shall be explained more in detail later on, the aforementioned opposing inclined lower walls (20, 20') have a different inclination. As a consequence, the flat portion (36) to which said inclined walls (20, 20') are connected is off-centered; also off-centered is pipe union (34) which ??? projects outwards from said flat portion (36). Said pipe union (34), according to a preferred embodiment given by way of example, is shifted relatively to the vertical axis of the parallelepiped of basin (12) by a length comprised, by way of example, between 50 and 60 mm.

At least the front surface (12'') of basin (12) is provided, parallelly to the axis of pipe union (34) and at a short distance from same, with two prints near to one another. Said prints (38) develops in depth, are shaped, by way of example and preferably, as diamonds, and have a lenght indicatively comprised between 40 and 100 mm. Said prints (38), which are shown in detail on Fig. 5, are a guide for the self-centering of the drain which is inserted into basin (12), as shall be specified in the following. In a higher position relatively to prints (38), the opposing front and back surfaces of basin (12) are provided with further prints (40) whose ends (42), substantially funnel-shaped, develop in depth so as to connect among one another and to stiffen said basin (see Fig. 4).

Basin (12) is also provided with a conventional window provided on the front surface (12''), through which the internal components are inserted and then assembled. Said window is off-centre and its vertical axis coincides with the one of pipe union (34). It is circumscribed by a frame (44) provided with at least a branch (46) integral with the opposing surface of basin (12); more precisely, to the inner surface of back wall (48) (see Fig. 4). Frame (44), advantageoulsy made from rigid thermoplastic material, is preferably fastened to basin (12) by means of generic screws, both to the front surface (12'') along the perimeter (50) of the window and to the opposing back surface (48). Said frame, inasmuch it develops also transversally in basin (12), is an excellent support for the float ball group (52) and constitutes a further element for the transversal

stiffening of the basin.

In the recessed WC basin a drain (54) is inserted, advantageously integrally made, suitable to house a conventional waste valve (not shown). The aforementioned drain is constituted by a tubular element (56) having a reduced height and a diameter slightly smaller that that of pipe union (34), inserted in said pipe union. A gasket from rubber or the like is fitted on said tubular element (56). A strip (58) of limited thickness is integral with the tubular element (56), said strip being in its turn connected to a flexible strip (60). The length of said strip (60) is such that it reaches with its upper end the height of window (50) when element (56) is fitted into the final seat of pipe union (34).

Drain (54) is correctly positioned in the recessed WC basin by inserting the jack, placed at the upper end of the flexible strip (60), into the special elastic seat provided in the back part of window (50); said positioning is obtained by snap-inserting the jack into the elastic seat, in a very easy way. The float ball (52), introduced into basin (12) through window (50), is positioned and fastened by means of a special threaded locking ring, in the special seat of branch (46) of frame (44). As a consequence, said group (52), being supported adequately, does not give rise to noisy vibrations and cannot be positioned in positions unsuitable for a correct working. The insertion of drain (54) can be achieved very simply and quickly, thanks to the presence of prints (38) which by extending towards the inside of the cabinet, guide said drain, causing it to self-center and to exactly fit into pipe union (34): the flexible strip (60) allows to introduce and easily position said drain into basin (12) and to place it in its seat. As much easy and quick are the interventions for removing the float ball group (52) and/or drain (54), for maintenance reasons.

Given the special inclination of the bottom of basin (12) relatively to the differently inclined walls 20 and 20'', the water downflow from said basin takes place in a very quick and efficacious way: the fluid flows and re-mixes at different speeds along the aforementioned walls, especially in correspondence of the outlet pipe union (35) toward which said fluid is conveyed in a substantially unidirectional way and noiselessly.

As can be understood from the above, the many advantages achieved by the invention are quite evident.

The recessed WC basin subject matter of this invention solves the known problems connected with the installation of recessed basins and with the maintenance of same with time.

Particularly advantageous is the offset arrangement of the waste pipe union and of the access upper window, which foster respectively the water quick downflow and the easy assembly or removal of the drain provided with a valve or the float ball group, the latter being adequately supported.

This construction allows to achieve remarkable savings both of installation and in case of maintenance interventions or replacement of parts.

The invention has been described with reference to an embodiment which is illustrated only by way of example, being understood that many changes and variants can be introduced in said invention, all of them falling within the protection scope of the invention concept.

For instance, on the WC basin (12), prints (38) could be obtained, shaped and /or developed in length or width differently from what has been described and illustrated by way of example for the self-centering of the drain (54). In the same way, frame (44) could have two or more branches, and possibly a plate for the support and fastening of the float ball group (52). Also the lower inclined walls (20, 20'') of basin (12) could have a concave or convex development instead of a straight one.

Claims

1. WC recessed basin comprising a cabinet (12) having a substantially parallelepipedal shape and a limited depth, provided in its lower part with a pipe union (34) and flanges (16, 22) placed on the tops and provided with holes (18, 24) for the connection to masonry, as well as an opening or window (50) on the front surface (12''), characterized in that said pipe union (34) and window (50) are offset relatively to the vertical axis of said basin.

2. WC basin acording to claim 1, characterized in that pipe union (34) is integral with basin (12), being obtained in the moulding stage.

3. WC basin according to claim 1 or claim 2, characterized in that basin (12) is provided on one or both the front and the back surfaces, with a plurality of dead holes or hollow spaces (26) where stems (28) of plugs are pressure fitted which fasten a portion of the tightly-meshed net (32).

4. WS basin according to any of the above claims, characterized in that it is provided on the front surface (12'') and near the pipe union (34) with two or more coupled prints (38), which are more marked towards the inside and which constitute the guide for the self-centering of a drain (54).

5. WC basin according to any of the above claims, characterized in that drain (54) is integrally obtained and is constituted by a tubular

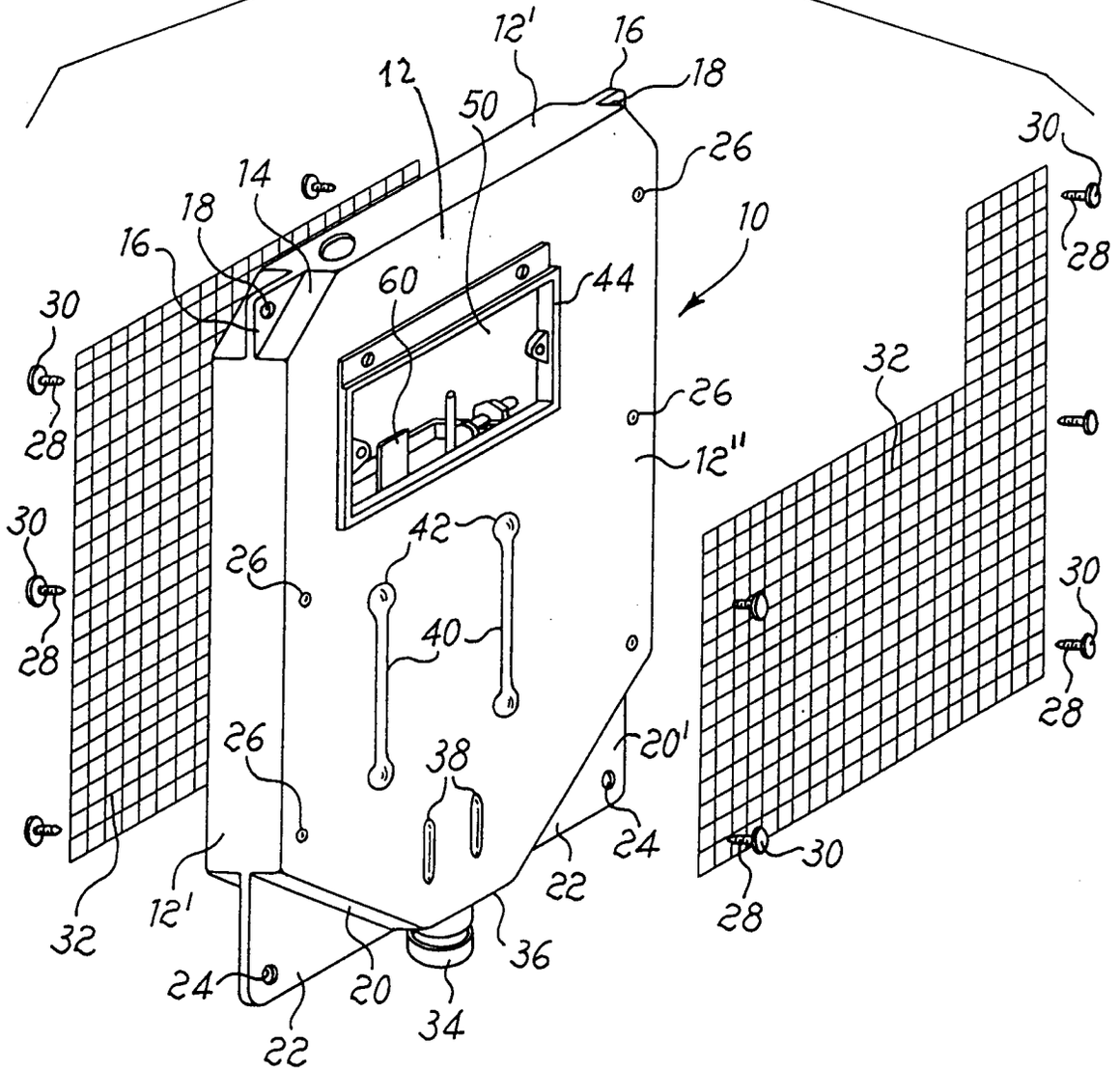
element (46) to which a flexible strip (40) is connected wich reaches with its top end the height of window (50) when said drain is placed in its final seat in the union drain (34).

6. WS basin according to any of the above claims, characterized in that the upper end of a flexible strip (60) is provided with a means which allows the connection to frame (44), constituted by a snap-element which fits into a special elastic seat.

7. WS basin according to any of the above claims, characterized in that opening (50) is perimetrally circumscribed by a frame (44) which is connected by at least a branch (46) to the back wall (48) to form a support for the float ball group (52).

8. WC basin according to any of the above claims, characterized in that it is provided, on both the front and back surfaces, with two or more prints (40) whose ends are connected to one another within the basin and to one another by a special stiffening depression.

Fig.1


12'
16
18
12
50
26
30
14
18
10
16
60
44
30
28
26
12"
32
30
42
26
40
30
28
26
38
20'
24
22
30
28
32
12'
24
20
36
34
22

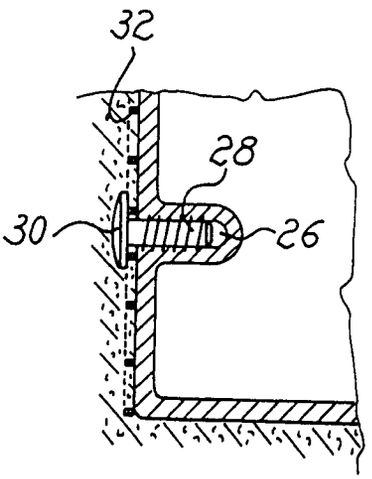

32
28
30
26

Fig.2

Fig.3

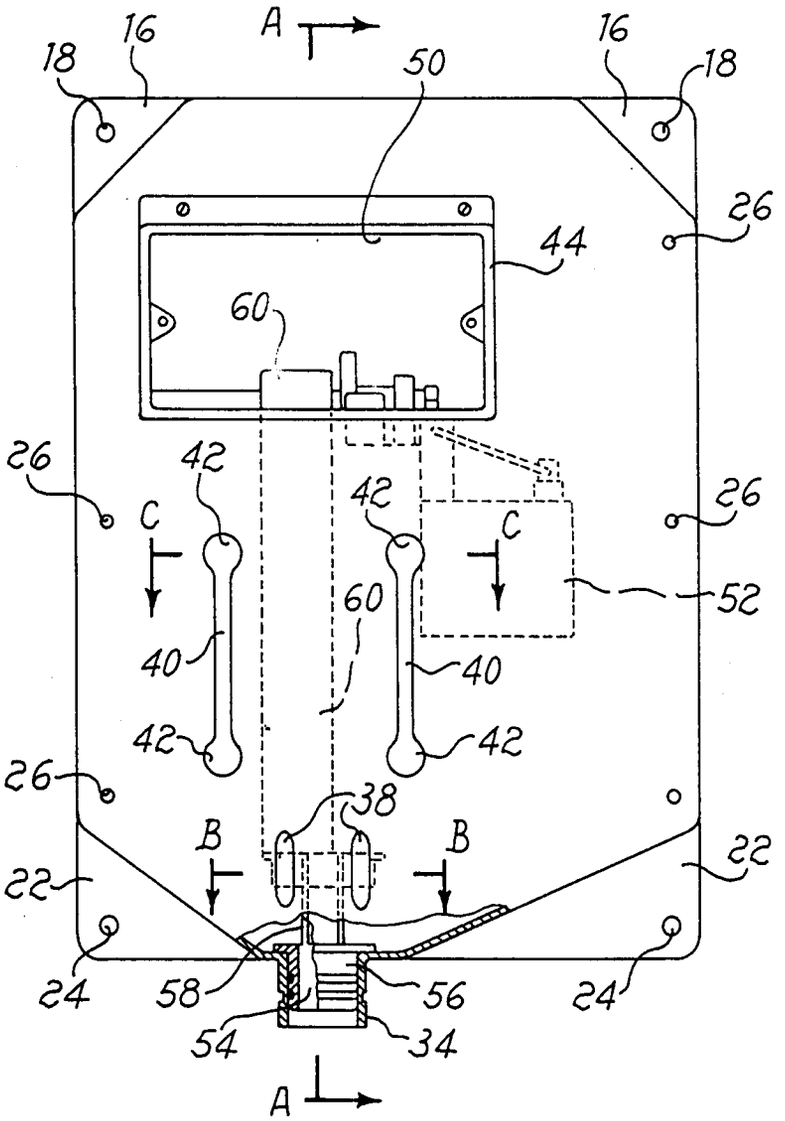


Fig.4

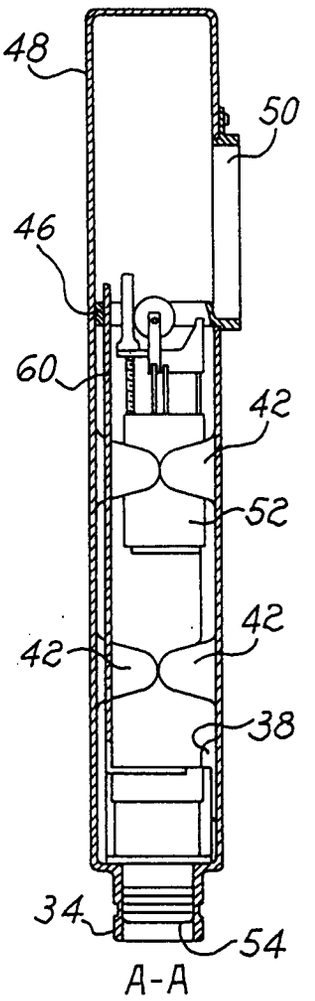


Fig.5

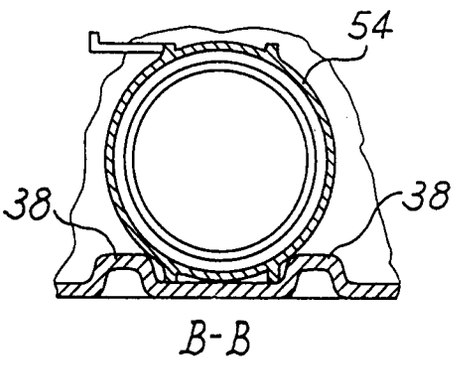
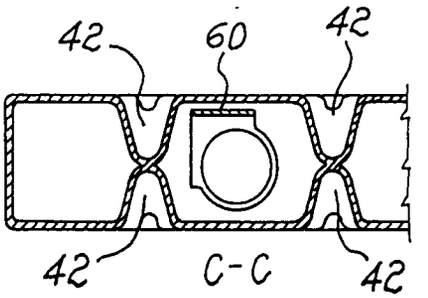


Fig.6



European Patent Office

EUROPEAN SEARCH REPORT

Application Number
EP 94 10 3898

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.5)
Y	DE-A-31 50 497 (EUROGARDA) * the whole document *	1	E03D1/01
A		4,8	
Y	DE-A-20 09 654 (G. ROST) * page 3, paragraph 5; figure 1 *	1	
A	FR-A-1 180 372 (S.A.R.L.) * page 2, column 1, line 41 - line 48; figure 1 *	2	
A	US-A-3 945 055 (B. HOLLARS) * column 3, line 14 - line 48; figure 1 *	1	
A	CH-A-386 940 (GEBERT ARMATUREN) * the whole document *	1	
A	US-A-2 597 239 (H. GOETZ) * figures 1,3 *	4	

TECHNICAL FIELDS SEARCHED (Int.Cl.5)

E03D

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	23 June 1994	Kriekoukis, S

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

EPO FORM 1503 03.82 (P04C01)