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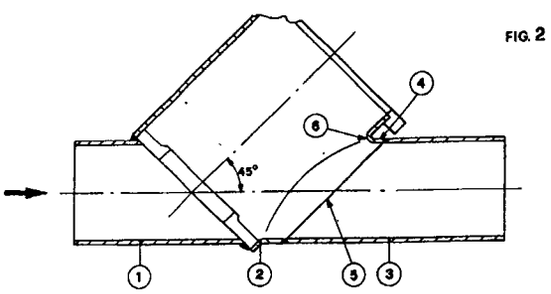
(54) **Method for obtaining a valve body and valve body obtained through said method.**

(57) A method for obtaining a valve body wherein a hole is cut into the wall of a first tube (2) and is subsequently widened by pressing, thus obtaining a tubular bent portion (4) extending outwards from first tube (2). First tube (2) being subsequently connected with a second tube (3) by welding edges (5) of the bent portion to the edges of the second tube (3).

FIG. 2



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Free-flow valves may be obtained by casting (in different materials) or by means of electric welded sheet metal or tube, generally made of stainless steel, as shown in Fig. 1 attached hereto.

The sheet-metal or tube type comprises a fluid inlet tube (1), Fig. 1, a central body (2), Fig. 1, presenting a 45° inclination, with upper flange sealing seat to secure either a manual or a pneumatic control, and a fluid outlet tube (3), Fig. 1.

The description of the process to be followed to obtain said upper flange sealing seat may be overlooked, being it similar in all cases; currently, said central body (2), Fig. 1, is obtained by cutting (by means of shears, plasma, etc.) into the sheet metal the shaped hole whereon tube (3), Fig. 1, is to be welded.

Next, the sheet metal is bowed to form a tube and then the joint is welded manually. Or else, a tube may be used in place of metal sheet, and said shaped hole may be cut therein, by means of shears or plasma, with a 45° inclination. In the latter case, more complex tooling is necessary to work on tube, as compared to sheet metal.

To obtain tube (3), Fig. 1, the sheet metal is shaped, so that the inclined end may fit the shape of the hole of body (2), Fig. 1, it is then bowed to form a tube and then the joint is manually welded thereon. Finally, body (2), Fig. 1, is joined to tube (3), Fig. 1, by means of manual welding following the complex intersection profile of the two inclined cylindrical shapes which are also of different dimensions.

A trimming and chamfering operation is to be carried out inside body (2), Fig. 1, next to the joint with tube (3), Fig. 1, to eliminate flash, sharp edges and uneveness.

Forming of tube (1), Fig. 1, is carried out by cutting, with a 45° inclination, a tube presenting suitable diameter, which is then welded on to body (2), Fig. 1.

Aim of the present invention is the innovating method for obtaining and assembling the structure of the valve body in issue.

Said aim being achieved by the present invention in that is relates to a method for obtaining a valve body as described in Claim 1.

The present invention will be now described with reference to the attached drawings, in which:

Fig. 1 shows the conventional solution;

Fig. 2 shows the innovating solution subject of the present invention; and

Fig. 3 shows the method for obtaining the present invention.

To build body 2, Fig. 2, after cutting a suitable initial hole into a tube, the hole, with a 45° inclination, is obtained, by pressing, along with relevant bent portion 4 (Fig. 2).

Pressing is carried out by pushing punch A (Fig. 3) through the hole initially cut into body 2 (Fig. 3), the latter being inserted into dies B and C (Fig. 3).

The same result may be obtained by means of other pressing methods, as well.

Said bent portion 4, after a quick flattening of its edges 5 (Fig. 2), is ready to be placed coaxially to and welded by automatic welding with tube 3, Fig. 2.

A tube 1 is subsequently cut in an oblique manner with respect to said tube axis and is welded with a portion of the perimeter of body 2.

On the grounds of the foregoing, working of tube 3 is clearly made easier, in that it starts directly from the tube which, after being cut with a 45° inclination, is ready to be welded by automatic welding on body 2, Fig. 2. The same, easy procedure can be followed in connection with tube 1, Fig. 2, as well.

A further advantage arising from said bent portion is represented by radius 6, Fig. 2, which forms automatically between said bent portion and said body, allowing for a more regular flow of the fluid; and, therefore, a smaller loss of pressure in respect to the conventional solution.

Moreover, either inner trimming and chamfering operations are no longer necessary.

A further advantage of the present invention is represented by the evident improvement, from the point of view of both aesthetics and operation, arising from pressing and automatic welding.

Claims

1. A method for obtaining a valve body, characterized in that it comprises the following stages:

cutting of an initial hole into the wall of a first tube (2);

widening, by pressing, of said initial hole thus obtaining a tubular bent portion (4) extending outwards from first tube (2);

cutting of a second tube (3), in an oblique manner with respect to the axis of same tube (3);

connection of said first (2) and second (3) tube with said tubular bent portion (4), coaxial to said second tube (3);

welding of one end edge (5) of said bent portion (4) with an oblique end edge of said second tube (3).

2. A method as claimed in Claim 1, characterized in that it comprises one stage, during which said edge (5) of said bent portion (4) is flattened.

3. A method as claimed in either Claim 1 or 2, characterized in that it comprises one stage, during which a third tube (1) is cut in an oblique manner with respect to the axis of same tube (1); and

said third tube (1) being subsequently welded on to an end portion of said first tube (2).

4. A valve body, characterized in that it comprises:

a first tube (2) presenting a tubular bent portion (4) extending outwards from same tube;

a second tube (3), coaxial to said tubular bent portion (4); and

an end edge (5) of said bent portion (4) being welded to an oblique edge of said second tube (3).

5. A valve body as claimed in Claim 4, characterized in that said tubular bent portion (4) presents an axis forming an oblique angle with the axis of said first tube (2).

6. A valve body as claimed in Claim 5, characterized in that said tubular bent portion (4) presents an axis having a 45° inclination with respect to the axis of said first tube (2).

7. A valve body as claimed in any one of Claims 4 to 6, characterized in that it comprises a third tube (1), welded to an end portion of said first tube (2).

FIG. 1

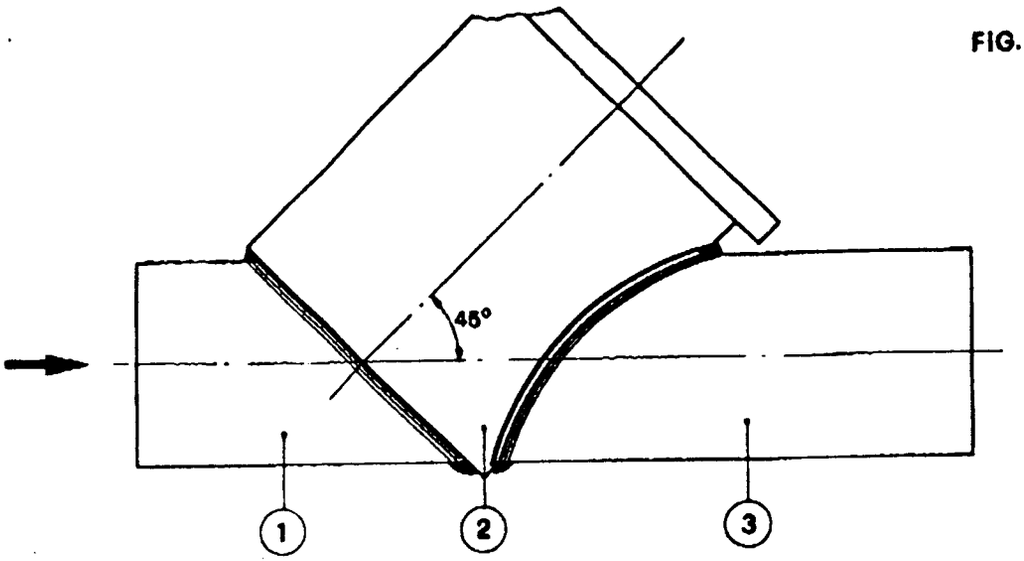


FIG. 2

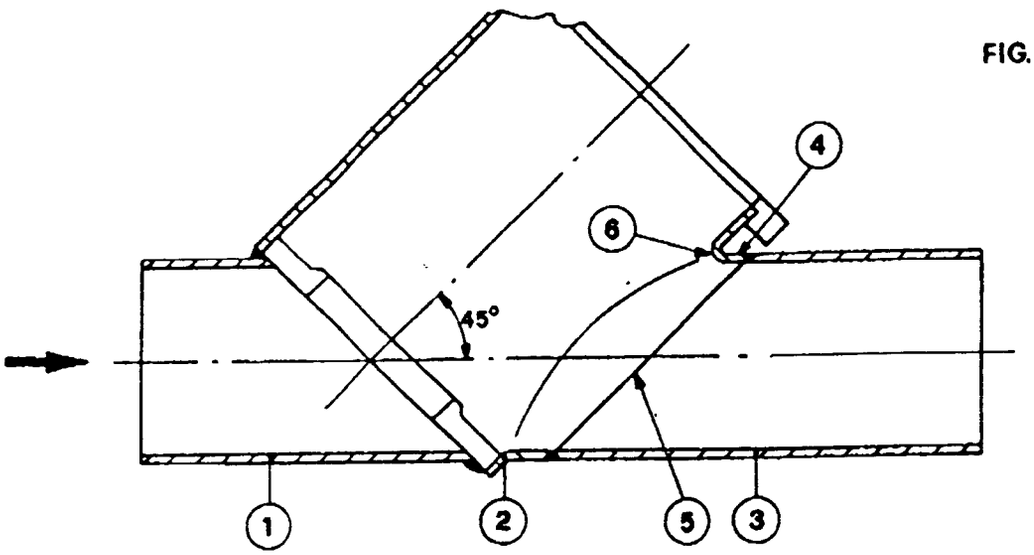
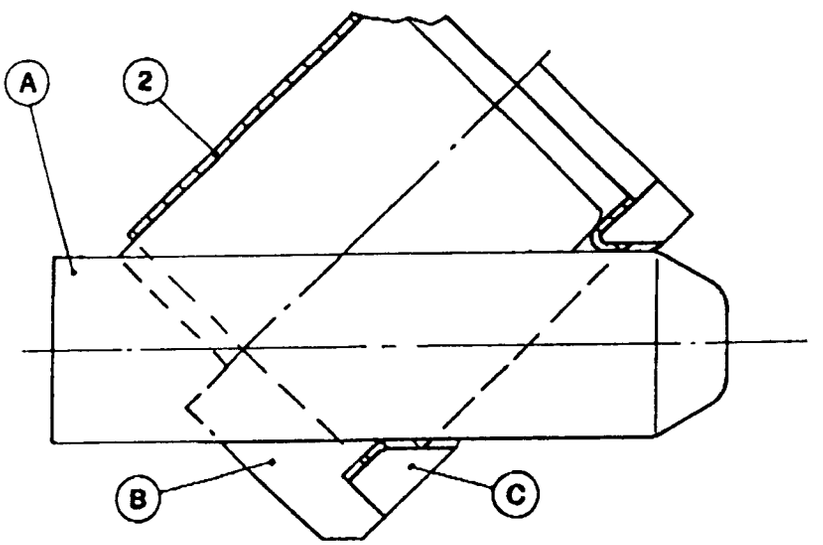


FIG. 3



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EUROPEAN SEARCH REPORT

Application Number

EP 93 10 5862

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	US-A-2 736 949 (KRAEMER) * column 5, line 55 - column 10, line 23 * * claim 1; figures 1-5 *	1,4-6	F16L1/00 B21K1/24 B21C37/29 B21D53/10
Y	DE-B-1 045 751 (HARTMANN) * claim 1; figures 1,3 *	1,4-6	
A	FR-A-1 271 227 (GACHOT)		
A	US-A-4 972 577 (DIERIKX)		
A	FR-A-1 217 174 (HUET)		

TECHNICAL FIELDS SEARCHED (Int. Cl.5)
B21K B21C B21D F16K

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	19 JULY 1993	GERARD O.

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
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