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71 Applicant: **BETEMI OY**
Betonikuja 5
SF-21600 Parainen (FI)

72 Inventor: **Virtanen, Olli**
Kyrkäng
SF-21610 Parainen (FI)

74 Representative: **Roth, Ernst Adolf Michael**
GÖTEBORGS PATENTBYRA AB Box 5005
S-402 21 Göteborg (SE)

54 **Production method for a concrete pillar or beam.**

57 A production method for fabricating a concrete pillar or beam, in which method the concrete mix is sprayed against the wall of a mold (1, 2, 3, 4, 5) having a predetermined shape, after which the concrete surface is smoothed by levelling. The concrete surface is levelled with the help of a surfacing disc (6), whereby the pillar or beam is rotated so as to place one side of the pillar or beam at a time facing the surfacing disc so that the pillar or beam achieves a section of a square, rectangle, pentagon, hexagon, or a similar form.

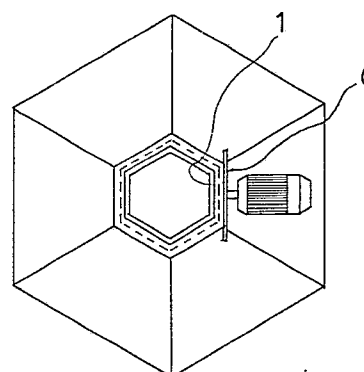


Fig.2

Description

PRODUCTION METHOD FOR A CONCRETE PILLAR OR BEAM

The present invention concerns a production method for fabricating a concrete pillar or beam, according to which method the concrete mix is sprayed against the wall of a mold having a predetermined shape, after which the concrete surface is smoothed by levelling.

With reference to Finnish patent applications 872244 and 872245, similar production methods have been previously disclosed. The aim of the present invention is to achieve advancements in this production method. The method in accordance with the invention is characterized in that the concrete surface is levelled with the help of a surfacing disc, whereby the pillar or beam is rotated so as to place one side of the pillar or beam at a time facing the surfacing disc so that the pillar or beam achieves a section of a square, rectangle, pentagon, hexagon, or a similar form. Thus, with the help of the invention, pillar constructions with an appealing look are achieved that are readily transferrable and transportable by virtue of their hollow-core construction. Although the concrete pillar has a hollow-core structure, its compressive strength will be sufficient for a majority of applications. If necessary, the hollow core can be filled with concrete mix.

An embodiment of the invention is characterized by having the mold rotatable about its vertical axis and having a positional clamping facility for spraying and surfacing. This approach results in a quick production method for a concrete pillar, which is then transported for curing and hardening after spraying and surfacing.

Another embodiment of the invention is characterized by having the mold placed in a horizontal rotator, and the rotator is used for turning the beam during production to alternately align three of the four sides of the beam facing the concrete spray gun and the surfacing disc so as to achieve a U-shape cored beam structure. This approach results in a cored beam structure, which has a predetermined structural strength and can be, when required, further steel-reinforced and filled with concrete mix at the construction site.

A further embodiment of the invention is characterized by having the mold structure fabricated by winding plastic material, thin steel sheet or like material over elongated bars positioned so as to achieve a desired shape of the mold. The mold structure is further provided with, e.g., reinforcement fabric which offers improved adherence for the sprayed concrete mix prior to the surfacing operation.

In the following, the invention will be examined in more detail by means of exemplifying embodiments with reference to the attached drawings, in which

Figs. 1 and 2 show a cross-sectional view of a production method for a pillar with hexagonal cross-section.

Figs. 3...8 show a production method for a beam structure with U-shaped cross-section.

Fig. 9 shows the removal of a ready-cast

beam structure from the rotator.

Figs. 10...12 show cross-sections of different mold structures.

Figs. 13...17 show a production method for a vertically aligned beam.

According to the production method, concrete mix is sprayed against the walls of a mold 1, 2, 3, 4, 5 having a predetermined shape, after which the concrete surface is levelled. The concrete surface is levelled with the help of a surfacing disc 6 so by way of rotating the pillar or beam so as to place one side of the pillar or beam at a time facing the surfacing disc so that the pillar or beam achieves a desired cross-section.

In accordance with the Figs. 1 and 2 as well as Figs. 13...17, the mold is rotatable about its vertical axis and has a positional clamping facility for spraying and surfacing. In accordance with Figs. 3...9, the mold 2 is placed in a horizontally aligned rotator 7, and the rotator is used for turning the beam during production to align three of the four sides of the beam facing the concrete spray gun and the surfacing disc apparatus so as to achieve a U-shaped cored beam structure. The cored beam and the mold are removed from the rotator 7 as indicated by arrow 8. Illustrated in Figs. 10 and 13 is a method for forming the mold structure using plastic sheet wound over thin bars 9. Bars 10 and wire 11 form a fabric structure, which provides adherence to the concrete mix.

In accordance with Fig. 11, the mold can be formed from metal sheets 4 shaped as angle profiles.

In accordance with Fig. 12, the mold is formed of angle steel profiles and elongated metal sheet strips 3.

Claims

1. A production method for fabricating a concrete pillar or beam, in which method the concrete mix is sprayed against the wall of a mold (1, 2, 3, 4, 5) having a predetermined shape, after which the concrete surface is smoothed by levelling, **characterized** in that the concrete surface is levelled with the help of a surfacing disc (6), whereby the pillar or beam is rotated so as to place one side of the pillar or beam at a time facing the surfacing disc so that the pillar or beam achieves a section of a square, rectangle, pentagon, hexagon, or a similar form.

2. A method as claimed in claim 1, **characterized** in that the mold (1, 5) is rotatable about its vertical axis and has a positional clamping facility for spraying and surfacing.

3. A method as claimed in claim 1, **characterized** in that the mold (2) is placed in a horizontal rotator, and the rotator is used for turning the beam during production to alter-

nately align three of the four sides of the beam facing the concrete spray gun and the surfacing disc so as to achieve a U-shape cored beam structure.

4. A method as claimed in any of the claims

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1...3, **characterized** in that the mold structure is fabricated by winding plastic material, thin steel sheet or like material over elongated bars positioned so as to achieve a desired shape of the mold.

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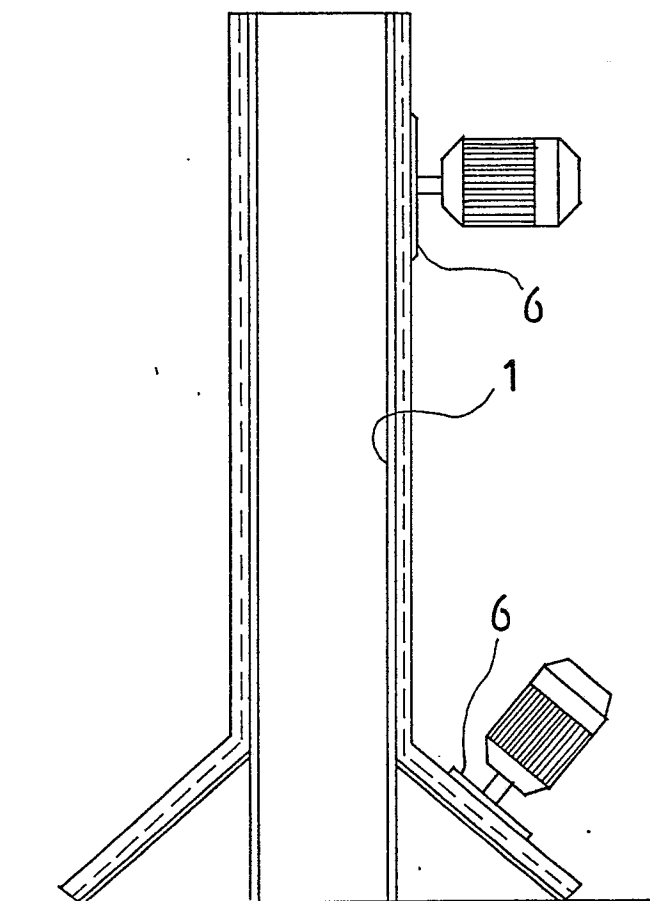


Fig.1

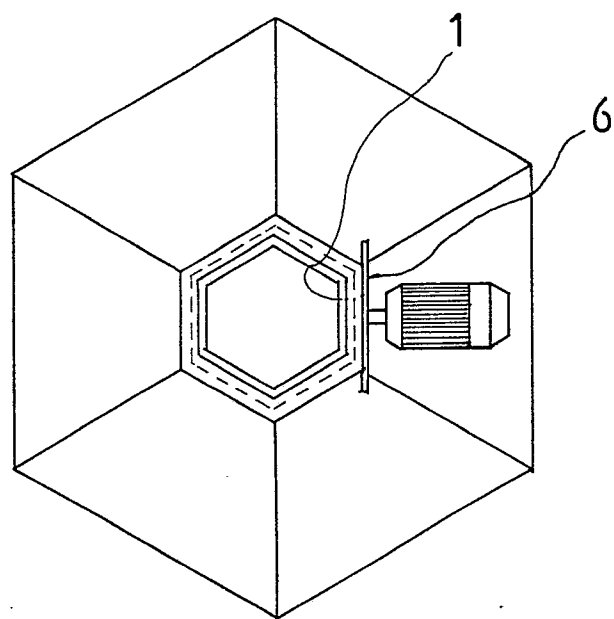


Fig.2

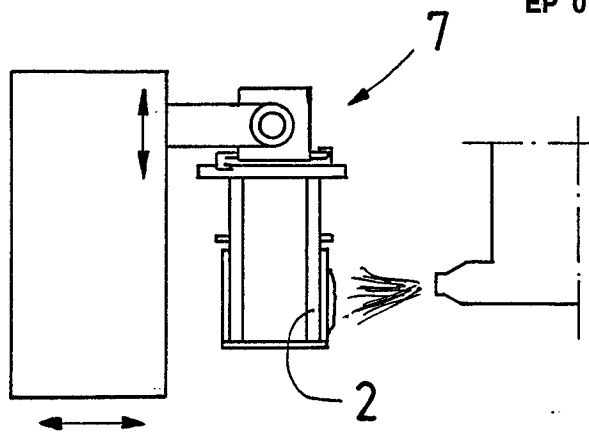


Fig. 3

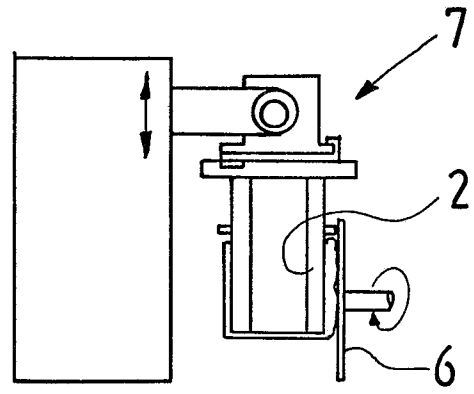


Fig. 4

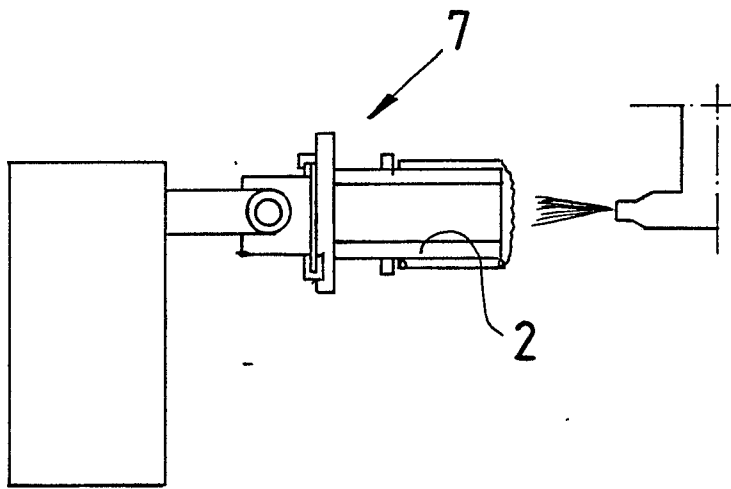


Fig. 5

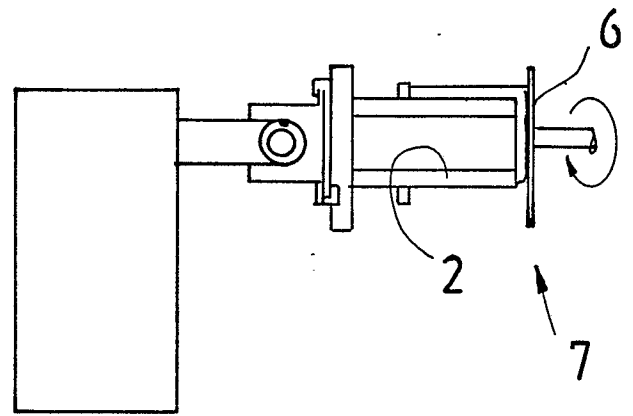


Fig. 6

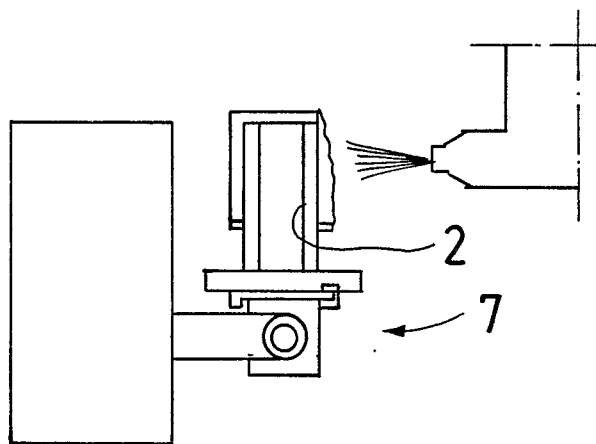


Fig. 7

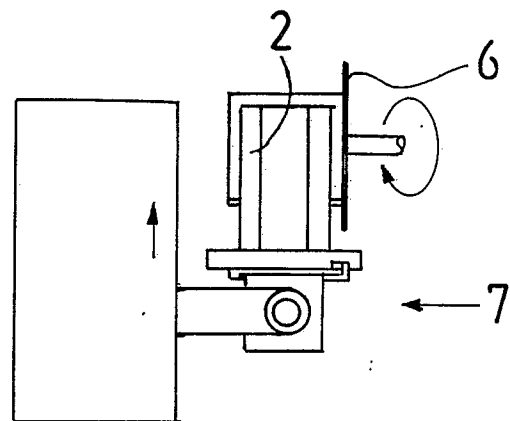
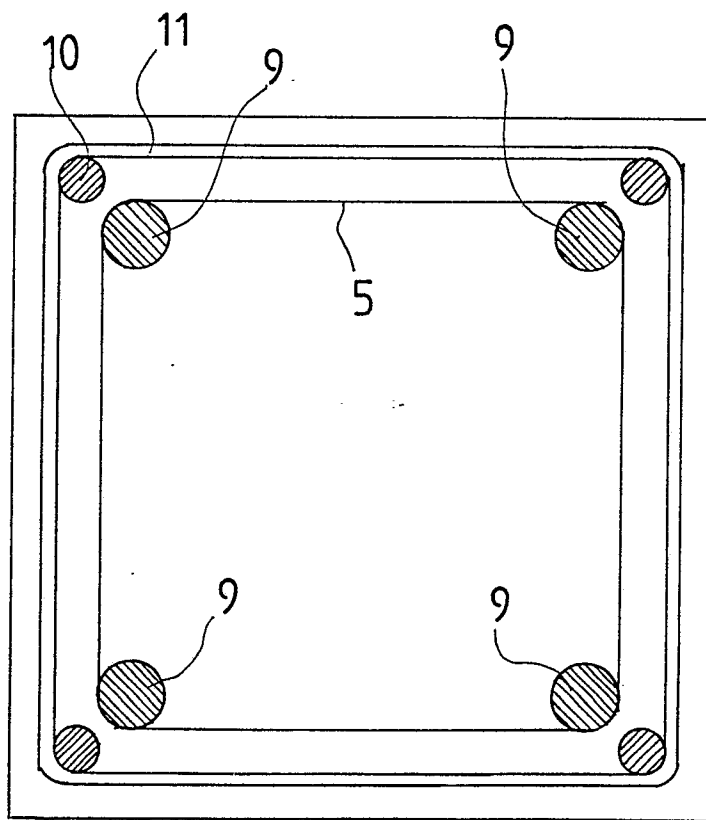
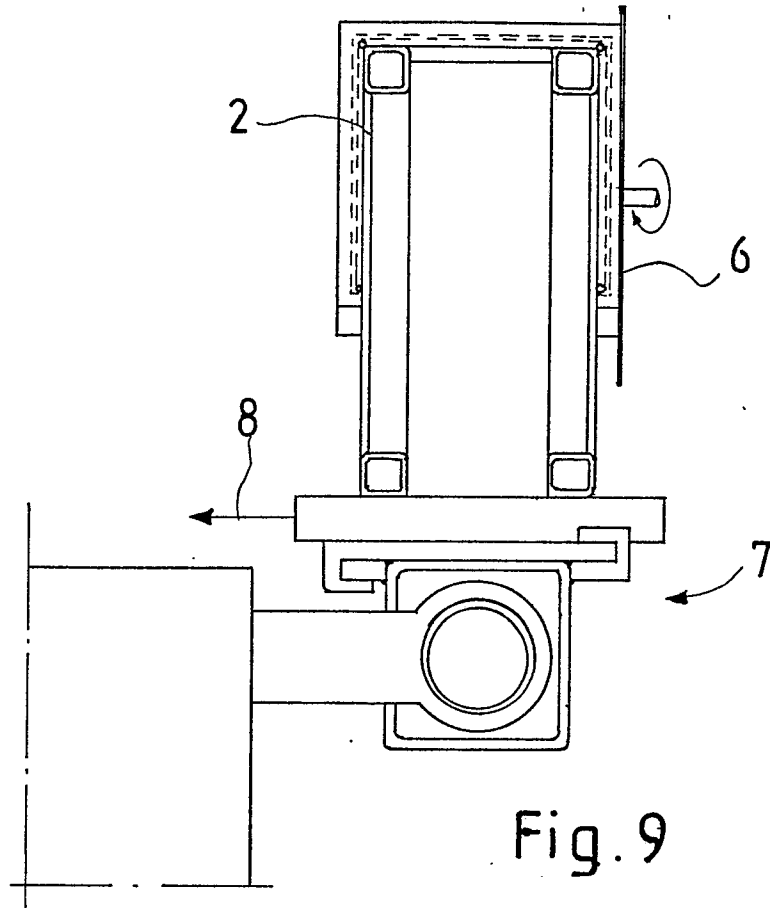


Fig. 8



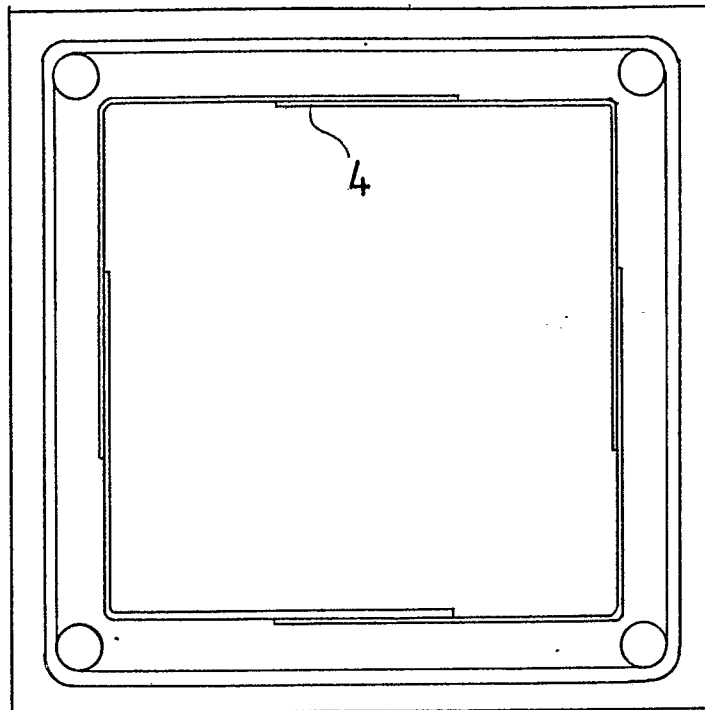


Fig.11

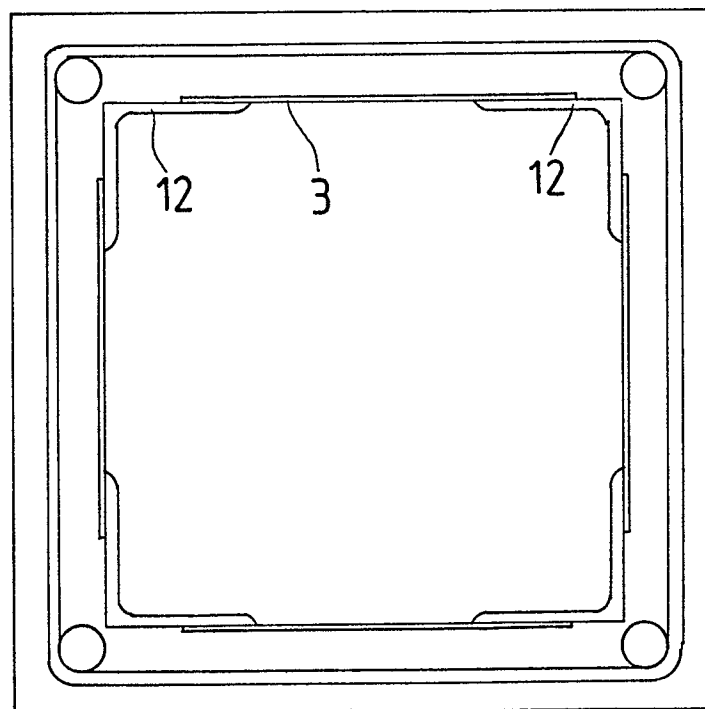


Fig.12

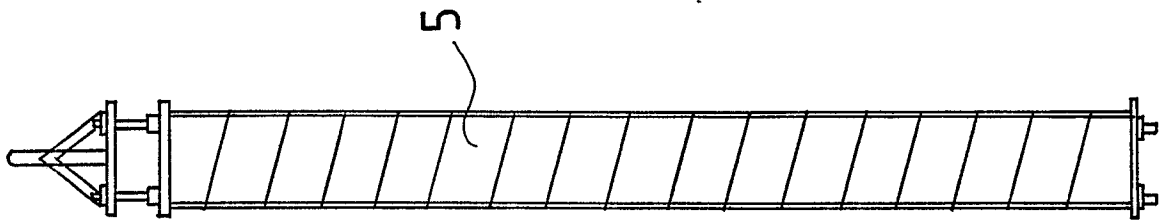


Fig. 13

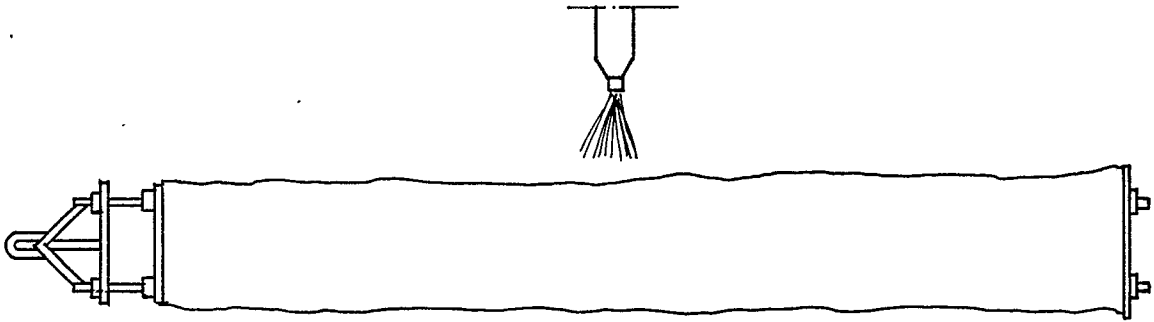


Fig. 14

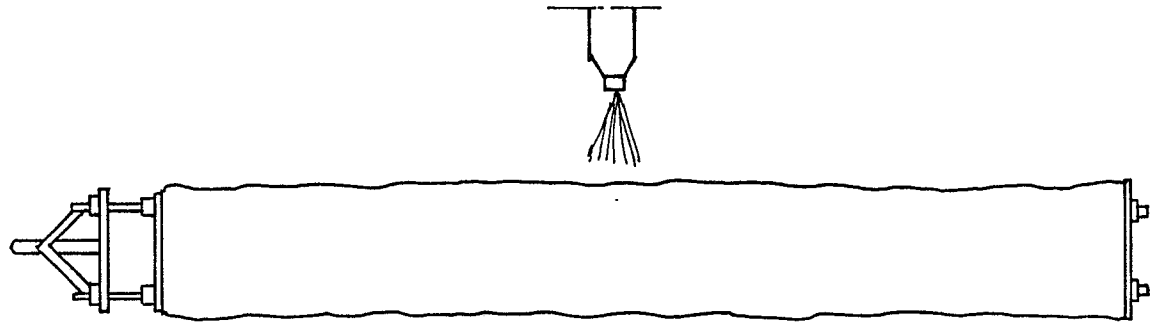


Fig. 15

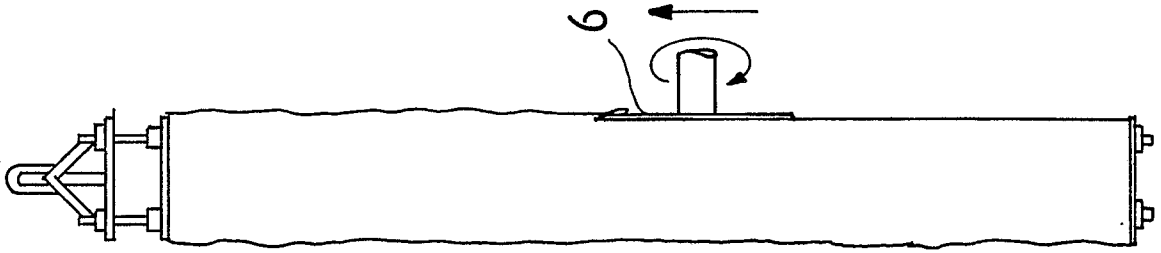


Fig. 16

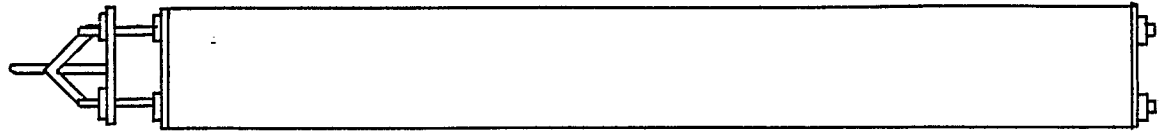


Fig. 17