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(71) Applicant: **HOLLANDSCHE BETON GROEP
N.V.
489, Generaal Spoorlaan
NL-2285 TA Rijswijk(NL)**

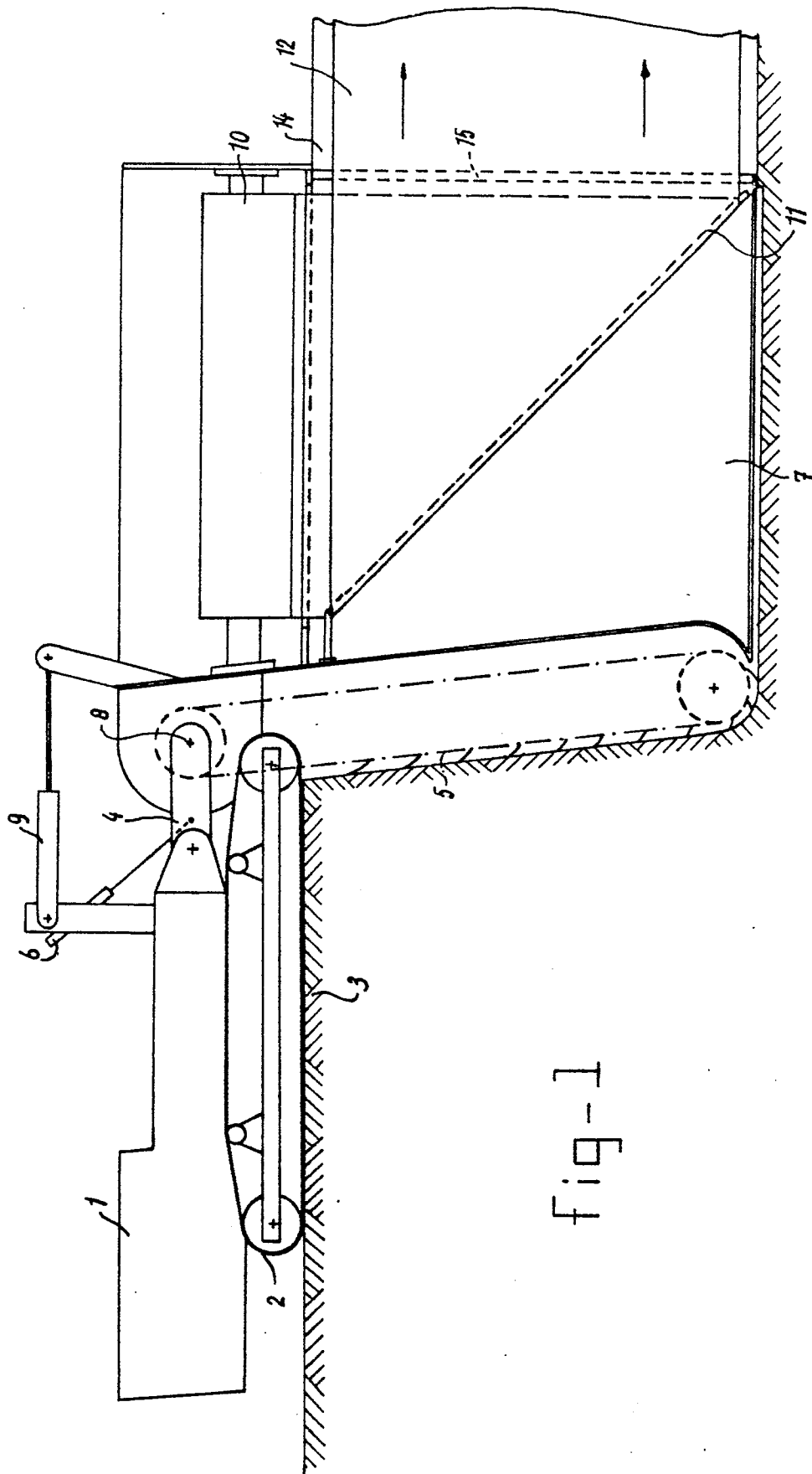
(72) Inventor: **de Sitter, Wolter Reinold
Vestpoort 49
NL-2611 ME Delft(NL)**

(74) Representative: **van der Beek, George Frans
et al
Nederlandsch Octroolbureau Johan de
Wittlaan 15 P.O. Box 29720
NL-2502 LS 's-Gravenhage(NL)**

(54) **Method of manufacturing a screen in the soil.**

(57) The invention is a method for manufacturing a screen into the soil by first manufacturing a slot (16), guiding a foil section (12) from a supply roll (10) from above into the slot and guiding it over an inclined rod (11) such that the foil section extends in the longitudinal direction of the slot (16) which slot - (16) upstream the supply of the foil section (12) is filled up, the invention being that the space into which the supply of the foil section (12) takes place is filled with water to which a viscosity increasing agent has been added, such as bentonite, whilst upstream a narrow slit, (15) through which the foil section (12) enters the slot, (16) the filling material is supplied and that the flow of filling material towards the area of supply (7) of the foil section (12) is prevented by keeping the liquid pressure in the area of supply (7) of the foil section (12) higher than upstream the narrow slot (15) through which the foil - (12) extends into the slit made in the soil.

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Method of manufacturing a screen in the soil.

The invention relates to a method of manufacturing a screen in the soil during which a slot is made into the soil into which slot a foil from a supply roll is guided such that the longitudinal axis of the foil section extends according to the plan of the slot with the width of the foil section corresponding to the depth of the slot, which slot upstream of the place of supply of the foil section is filled up, a barrier being generated between the location of supply of the filling material and the location of supply of the foil section, in the form of a narrowing of the slot which has to prevent the flowing of filling material into the direction of the location of supply of the foil section but permits the passage of the foil section.

Such a method is known from e.g. US specification 4,337,006, in particular fig. 10. With said known method the filling material, which upstream is supplied into the slot which has already been provided with the foil section, comprises gravel or the like dry granular bulk material. The narrow slot only allows the passage of the foil section or sections. In the space of supply of the foil section, accordingly downstream the narrowing air is only present. With said dry method the narrowing through which the foil section enters the slot, has to be very narrow since otherwise gravel still will enter through the slot into the space into which the foil section is supplied. This means that the foil section is subjected to large friction and often it cannot be sufficiently prevented that gravel enters into the space of supply of the foil section through the narrowing. With said method the foil section is unwound from a supply roll which has been placed into a casing with its axis of rotation vertical. The manner of supply of the foil section to said casing is not essential, however.

Purpose of the invention is to provide a method in which the foil section more easily can move outwardly through the narrowing into the slot and a filling material can be supplied which cannot be applied at all with the known dry method, such as a filling material which is liquid in the beginning.

According to the invention this purpose is achieved in that the space within which the supply of the foil section takes place downstream the narrowing is kept filled with water to which has been added an agent increasing the viscosity such as bentonite, the filling material which upstream the narrowing has been supplied comprises concrete mortar and the pressure in the space downstream the narrowing is kept higher than upstream the narrowing. The filling material accordingly now is a liquid filling material which after insertion hardens and together with the foil section forms a screen

which can take up load. Due to the fact that the space of supply of the foil section has been filled with a liquid of increased viscosity and that in said space there is a pressure which is higher than the pressure which is exerted upstream by the concrete mortar, it is avoided in a positive way that filling material enters into the space for the supply of the foil section.

It is known in itself, e.g. from French specification 2,038,719 to manufacture a screen from foil sections and concrete mortar. Herewith, however, foil sections placed vertically next to each other and overlapping each other, are brought into a previously manufactured slot so that the problem of pollution of the foil supply device by filling material does not occur because the foil sections are inserted into the slot from above. It is observed moreover that in the non-prepublished Dutch patent application 8500421 a method and device have been proposed for inserting a foil section for a screen into the soil in which said foil section is guided over a rod or roller extending at an angle with the horizontal such that the foil section entering from above into the slot from a supply roll, after passing said inclined rod or roller, extends with its longitudinal axis in the direction of the slot and therewith also has a width which corresponds to the depth of the slot. Experiments did teach that if in that case one applies as filling material concrete mortar problems are formed in that the filling material enters the area of the reversing rod or roller. The method according to the present invention can be applied therewith by providing a narrowing between the area of the reversing rod or roller around which the foil section is supplied and the upstream located space into which concrete mortar is supplied with upstream of said narrowing the concrete mortar and downstream, accordingly in the space within which is present the reversing rod or roller, the high viscous liquid is applied. Said liquid self does not form an objection for properly guiding the foil section about the reversing rod or roller and prevents the entering of concrete mortar.

In the non-prepublished Dutch patent application 8403640 a method is described for providing a screen into the soil according to which the foil section is also guided from a supply roller above the surface about a rod extending into the slot at an angle to the horizontal, said foil section having a width which corresponds to the depth of the slot and extends also in the direction of the plan of the slot. Therewith downstream the guiding rod bentonite is supplied which is mixed with soil loosened by the digging device manufacturing the slot, which mixture of bentonite and soil is pumped away after

which bentonite and soil are separated from each other and the soil together with water is fed into the slot upstream the device for inserting the foil section into the slot, in which part of the slot separation of soil and water takes place. Therewith immediately upstream the guiding rod a mixture of bentonite and water is formed which farther upstream forms a separation zone with the water separated from the mixture of soil and water pumped into the slot. Said zone of separation is unclear. By applying the narrowing in combination with the mixture of bentonite and water downstream the narrowing one can avoid with larger certainty that soil from the mixture of soil and water approaches the lower end of the guiding rod. Moreover one then also may apply other filling materials, such as concrete mortar.

The invention now will be further elucidated with reference to the drawings.

Fig. 1 in side view schematically shows a device for performing the method according to the invention.

Fig. 2 is a plan view belonging to it.

The drawings show a tractor 1 with tracks 2 which is movable over the soil 3. Said tractor carries a digging chain 5 from an arm 4 which by means of the cylinder 6 can be lowered or raised respectively. A foil supply device 7 has been suspended pivotably from the arm 4 which device can swing about the pivot point 8 by means of the cylinder 9. This device carries a foil supply roll 10. Inside the casing there is a guide rod 11 placed at 45° about which the foil section moving from above downwardly is guided into a horizontal direction and accordingly extends in the direction of the plan of the slot as indicated at 12.

The slot walls are indicated with 13 and 14. The casing 7 has a narrowing or slit 15 through which the foil section 12 may move outwardly.

According to the invention now water is supplied with a viscosity increasing agent such as bentonite, to the space of the device or casing 7 containing the guiding rod 11, whereas in the space 16 upstream the narrowing 15 cement mortar is supplied by means of which the foil section 12 is pressed against the wall 13 of the slot.

Instead of bentonite the viscosity of the water can be increased as well by adding glucose, starch preparations, carboxyl methyl cellulose and other means.

In this way a hydraulic lock is formed at the location of the narrowing or slit 15. The pressure increase inside the space 7 can be obtained by applying a higher liquid level than outside.

In this way a lock has been obtained through which the foil section can move without friction and without the concrete mortar reaching the environment of the guide rod 11.

Claims

Method of manufacturing a screen in the soil during which a slot is made into the soil into which slot a foil from a supply roll is guided such that the longitudinal axis of the foil section extends according to the plan of the slot with the width of the foil section corresponding to the depth of the slot, which slot upstream of the place of supply of the foil section is filled up, a barrier being generated between the location of supply of the filling material and the location of supply of the foil section, in the form of a narrowing of the slot which has to prevent the flowing of filling material into the direction of the location of supply of the foil section but permits the passage of the foil section, characterized in that the space within which the supply of the foil section takes place downstream the narrowing is kept filled with water to which has been added an agent increasing the viscosity, such as bentonite, the filling material which upstream the narrowing has been supplied comprises concrete mortar and the pressure in the space downstream the narrowing is kept higher than upstream the narrowing.

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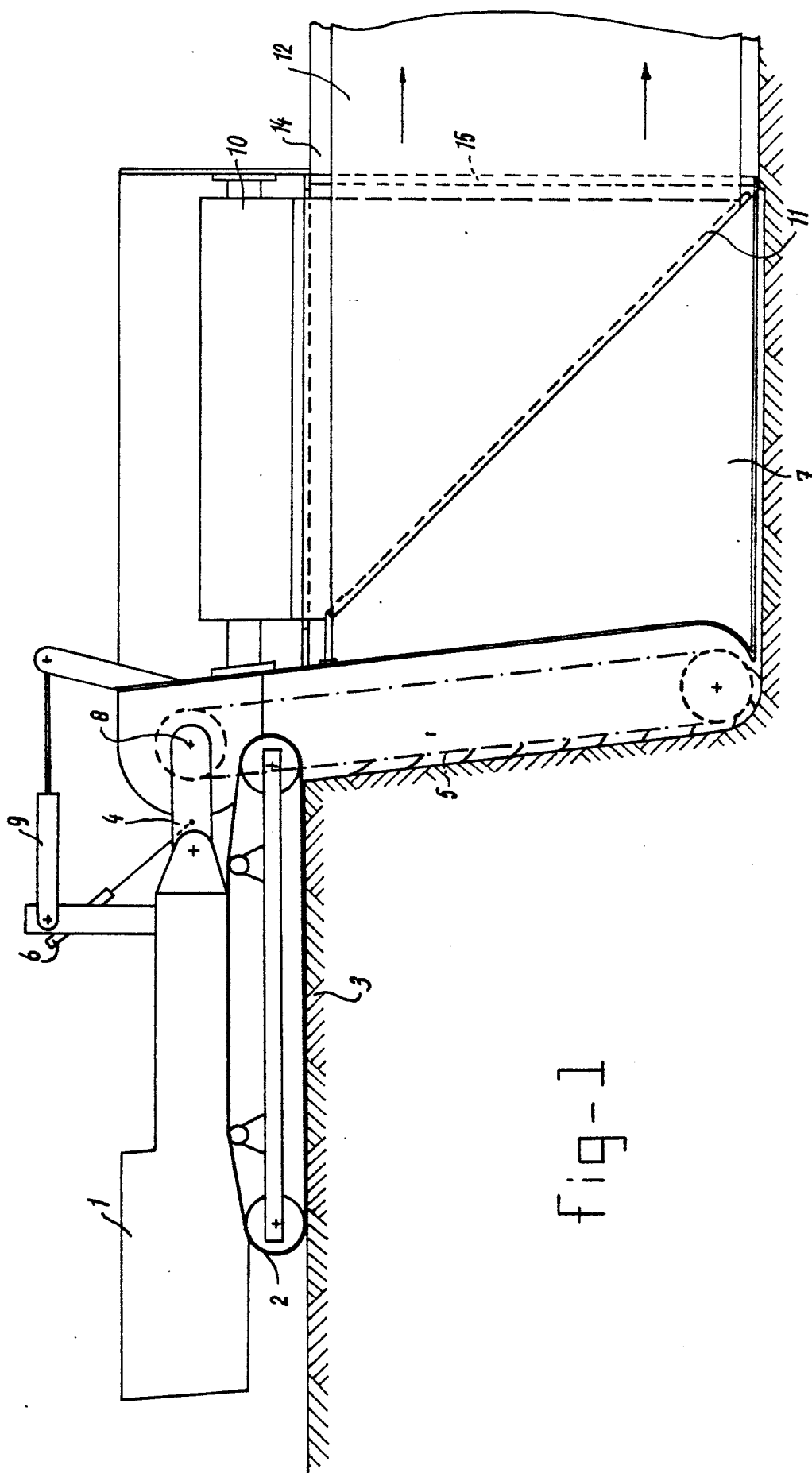
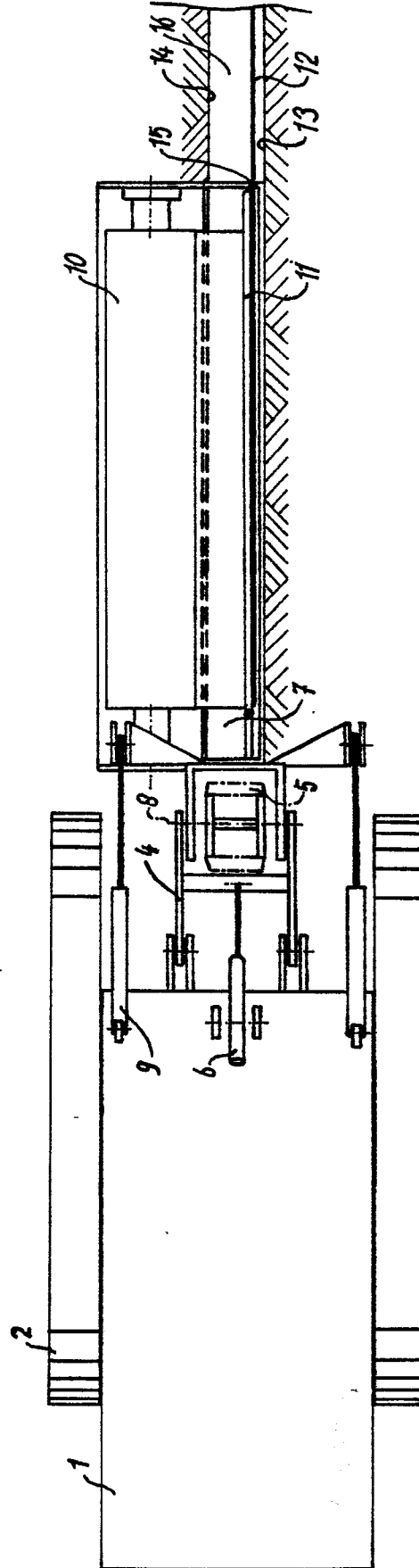


fig-1

fig-2





EP 86 20 1139

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.4)
A	NL-A-6 900 976 (PRZEDSIĘBIORSTWO) * Page 1, lines 1-14; page 2, lines 1-5; page 3, lines 9-22; page 4, lines 4-17; figures 1,2 *	1	E 02 D 19/18
A	US-A-2 048 710 (RANNEY) -----		
			TECHNICAL FIELDS SEARCHED (Int. Cl.4)
			E 02 D
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 29-08-1986	Examiner RUYMBEKE L.G.M.
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			