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(54) Title: SCREENING MAT

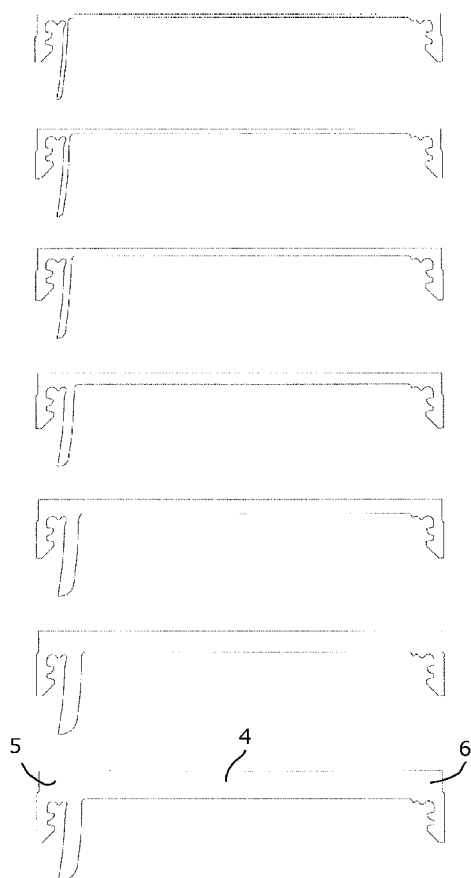


Fig. 2

(57) Abstract: The present invention concerns screening media (4) for a vibrating screen (1). The vibrating screen (1) is used to fractionize for example crushed stones or gravel into fractions of stones with different sizes. The screening media (4) is made by extrusion. Fibres are integrated in the material of the screening media (4) before extrusion, to reinforce the screening media (4).

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SCREENING MAT

Technical Field

20 The present invention concerns a screening mat, to be used in a vibrating screen.

Prior Art

25 Vibrating screens are used to fractionize for example crushed stones and gravel into fractions of stones with different sizes. For the fractionizing screening media is used having screening holes, whereby stones smaller than the screening holes will pass through the screening holes. Stones bigger than the screening holes will be transported on top of the screening media and feed out at the end of the vibrating screen.

30 The screening media has traditionally been made in a press or formed in a mould.

Summary of the Invention

35 According to the present invention the screening media is made by extrusion and are then cut into screening mats of appropriate widths or lengths. The screening media is made of a rubber or polymeric material. In extrusion the screening mats are produced either longitudinally or transversally. The extruded screening media has side parts, adapted to be fixed in a carrier of the vibrating

screen. See for example the application entitled "A Vibrating Screen Having Modular Screening Media" filed by the same applicant.

By making the screening media through extrusion the manufacturing process may be faster, endless screening mats may be produced, the
5 manufacturing costs are lowered and the manufacturing is more flexible.

To reinforce the screening media, fibres are integrated in the rubber or polymeric material used for the extrusion. By the integrated fibres the strength of the screening media will increase. The fibres may be made of a polymer, such as polyester or polyamide, or any other suitable material giving a
10 reinforcement of the screening media. In one embodiment carbon fibres are used. The screening media is normally made of rubber or polyurethane. The material of the screening media is reusable.

By means of the reinforcement the screening media will be able to take a bigger load without yielding. Thereby it is possible to decrease the thickness
15 of the screening media. It is also possible to decrease the amount of material between the openings of the screening media, increasing the total open area of the screening media. These measures will increase the screening efficiency of the screening media.

The screening holes are punched in the extruded screening media. By
20 means of the reinforcing fibres of the screening media the dimensional stability is increased. The increased dimensional stability of the screening media makes it possible to have a closer fit in the punching step.

The extrusion of the rubber or polymeric material, including reinforcing fibres, gives the same properties throughout the entire screening media. By
25 controlling the ratio of the reinforcing fibres in the screening media, it is possible to control the properties of the extruded screening media without amending the rubber material. Thus, the same rubber or polymeric material may be used independently of the desired characteristics of the screening media.

For storage and transportation the extruded screening media may be
30 rolled into coils. In time of use screening media is rolled off from the coil and is then cut into suitable lengths. The extruded screening media may also be delivered in relatively long lengths and then cut into appropriate lengths at installation. The cut off screening mats, either from coils or long lengths, are then installed in the vibrating screen. Today normally the screening mats are
35 stored and transported in form of modules, including a support structure for the

screening mat. However, the only part that is worn at normal use is the screening mat. By only replacing the screening mats and not using modules including a support structure less parts are transported and discarded, which is beneficial both financially and for the environment. Furthermore, the parts replaced are of the one and same material making recycling easier.

Further objects and advantages of the present invention will be obvious to a person skilled in the art when reading the detailed description below of different embodiments of the invention.

Brief Description of the Drawings

The invention will be described further below by way of example and with reference to the enclosed drawings. In the drawings:

Fig. 1 is a perspective view of a vibrating screen in which screening media according to the present invention may be used, and

Fig. 2 is a cross sectional view of one example of screening media, with different dimension, manufactured in accordance with the present invention.

Detailed Description of Embodiments

A person skilled in the art realizes that the cross sectional form of the screening media may vary within the scope of protection of the present invention.

In Fig. 1 one example of a vibrating screen 1 is shown schematically. Normally, the vibrating screen 1 has some kind of support structure 2, on which screening mats 3 are placed. Normally a number of screening mats 3 are placed side by side. In Fig. 2 one general example of a screening media 4 is shown in different dimensions. The shown screening media 4 has end parts 5, 6, which are formed to be received in some kind of carrier or the like of the support structure 2, to fix the screening mats 3, cut from the screening media 4, to the support structure 2. The exact form of the end parts 5, 6 of the screening media 4 is of no importance for the present invention and may vary depending on the design of the vibrating screen 1 and the parts receiving the end parts 5, 6 of respective screening mat 3. The end parts 5, 6 are integrated parts of the screening media 4, and are thus formed in the extrusion of the screening media 4. By using extrusion it is relatively easy to vary forms and dimensions of the extruded screening media.

After the extrusion, screening holes are formed in the screening media 4 by punching. The extruded screen media 4 is normally rolled into a coil of appropriate size, or cut into relatively long lengths. If rolled into a coil the screening media 4 is rolled off from the formed coil in time of use and screening
5 mats 3 are cut in lengths or widths appropriate for the vibrating screen 1, in which the screening mats 3 are to be installed. If the screening media is delivered in long lengths it is also cut to appropriate lengths in time of use.

According to the present invention the screening media 4 is manufactured by extrusion. Fibres are blended into or integrated in the
10 polymeric or rubber material used for the extrusion. As indicated above, the fibres may be made of a polymer, such as polyester or polyamide, or may be carbon fibres. By means of the fibres the extruded screening media 4 is reinforced. Thereby the screening media 4 may take a bigger load without yielding. As indicated above it is possible to control the properties of the
15 screening media 4 by controlling the amount of reinforcing fibres in the screening media.

The disclosures in the Swedish patent application No. 1050199-7, from which this application claims priority, are incorporated herein by reference.

CLAIMS

1. Screening media (4) to be placed in a vibrating screen (1),
fractionizing crushed stones or gravel, **characterized** in that the screening
5 media (4) is made by extrusion.
2. Screening media (4) of claim 1, wherein the screening media (4) is
made of a rubber or polymeric material, such as polyurethane and wherein
fibres are integrated in the material of the screening media before extrusion.
3. Screening media (4) of claim 2, wherein the fibres integrated in the
10 rubber or polymeric material is polyester, polyamide or carbon fibres.
4. Screening media (4) of claim 2 or 3, wherein the amount of integrated
reinforcing fibres is controlled, to control the properties of the screening media
(4).
5. Screening media (4) of any of the previous claims, wherein screening
15 holes are punched in the extruded screening media (4).
6. Screening media (4) of any of the previous claims, wherein the
extruded screening media (4) is cut into screening mats (3) of appropriate width
or length.
7. Screening media (4) of claim 6, wherein side parts (5, 6) of the
20 screening media (4) are extruded with a form adapted to the form of a support
structure (2) of the vibrating screen (1) to receive the screening mats (3) cut
from the screening media (4).
8. Screening media (4) of any of the previous claims, wherein it is rolled
into a coil after extrusion.
- 25 9. Screening media (4) of any of the claims 1-6, wherein the screening
media (4) is extruded in long lengths for later cutting into lengths adapted to the
vibrating screen (1) in which the screening media (4) is to be installed.
10. Screening media (4) of any of the previous claims, wherein the
screening media (4) is extruded in a longitudinal direction.
- 30 11. Screening media (4) of any of the claims 1-9, wherein the screening
media (4) is extruded in a transversal direction.

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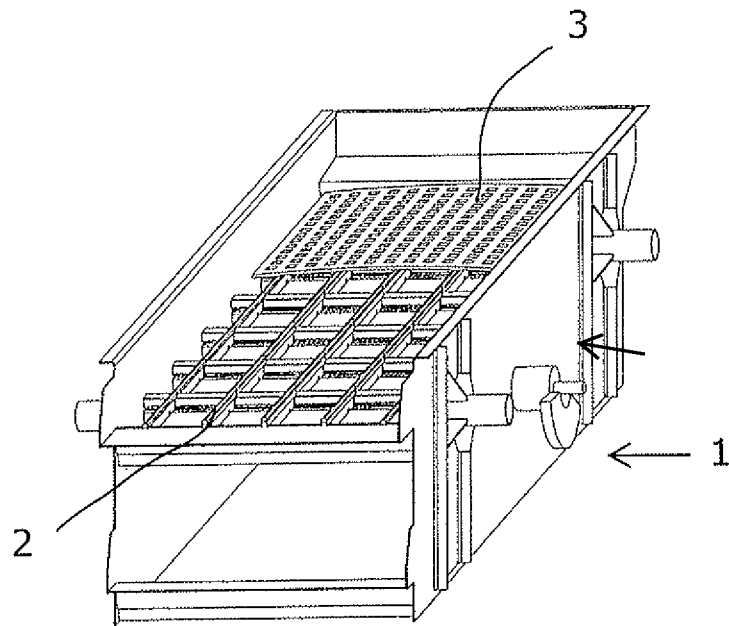


Fig. 1

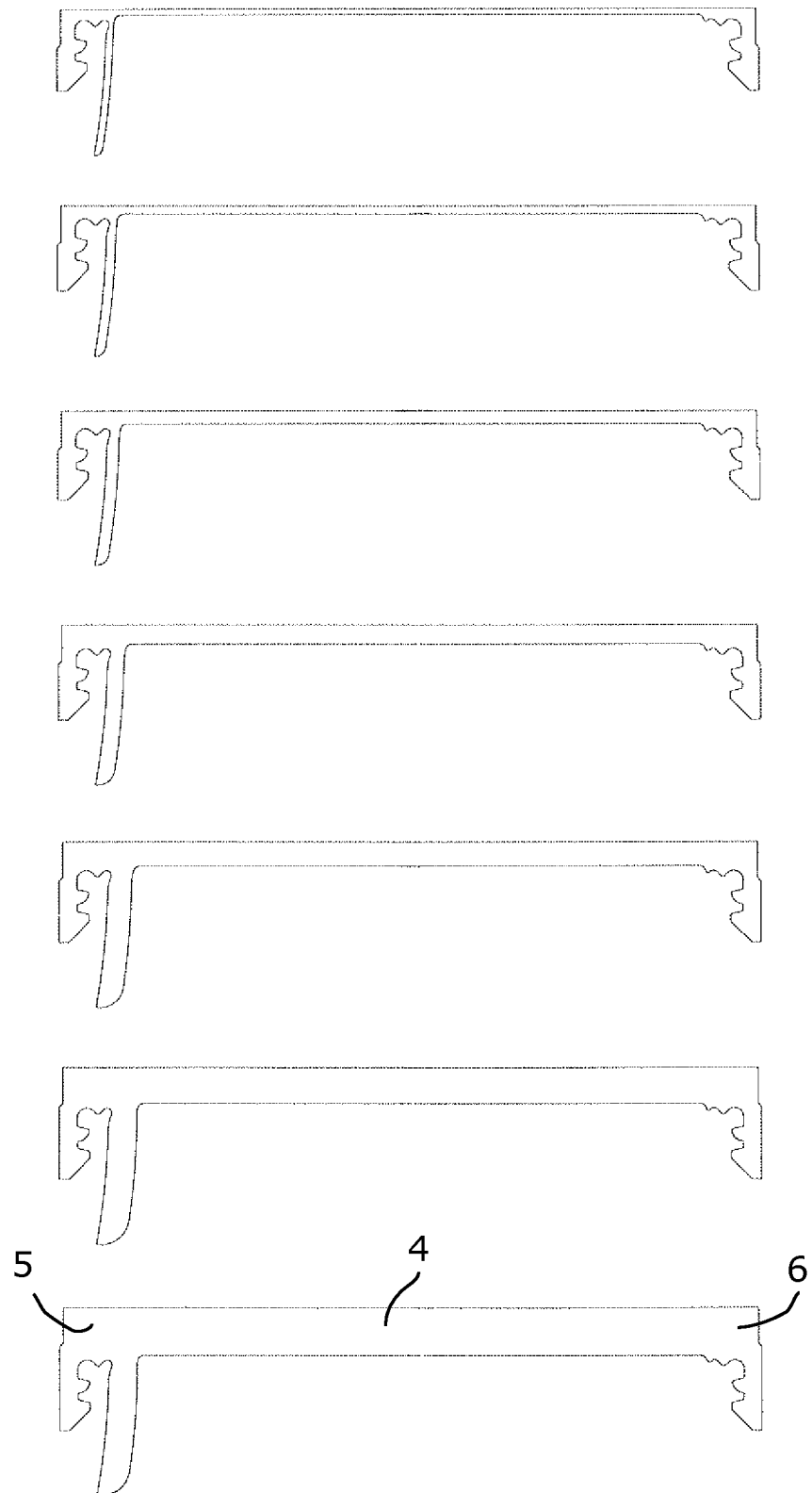


Fig. 2

INTERNATIONAL SEARCH REPORT

International application No.
PCT/SE2011/050073

A. CLASSIFICATION OF SUBJECT MATTER IPC: see extra sheet According to International Patent Classification (IPC) or to both national classification and IPC		
B. FIELDS SEARCHED Minimum documentation searched (classification system followed by classification symbols) IPC: B07B		
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched SE, DK, FI, NO classes as above		
Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) EPO-Internal, PAJ, WPI data		
C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 4885040 A (WOLFF KURT), 5 December 1989 (1989-12-05); whole document	1, 5-11
Y	--	2-4
Y	SE 430473 B (SKEGA AB), 21 November 1983 (1983-11-21); whole document	2-4
A	WO 2008014552 A1 (LUDOWICI MINERAL PROC EQUIPMEN ET AL), 7 February 2008 (2008-02-07); abstract	1-11
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☐ Further documents are listed in the continuation of Box C. ☒ See patent family annex.		
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Date of the actual completion of the international search 01-06-2011		Date of mailing of the international search report 07-06-2011
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Cited literature, if any, will be enclosed in paper form.

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