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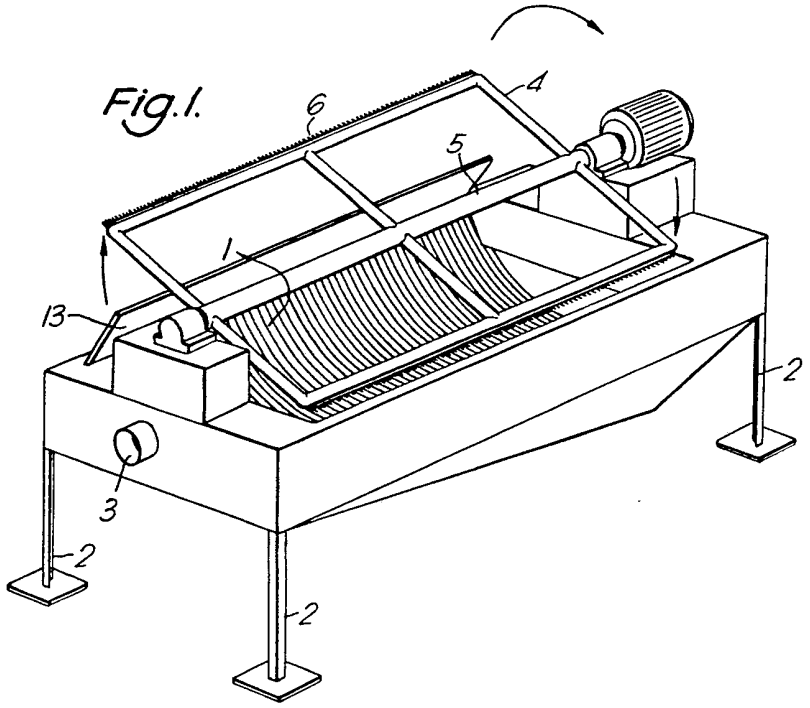
# (54) Sewage screen

(57) Sewage screening apparatus comprises an arcuate (concave upwards) array of parallel bars 1 and an inlet 3 from which the sewage flows across the bars, in which the bars taper downwardly in cross-section. Solids retained on the bars are removed by a rotating assembly comprising a spring-loaded rubber strip (11), arranged to flick upwards as it moves clear of the bars, possibly together with a brush.

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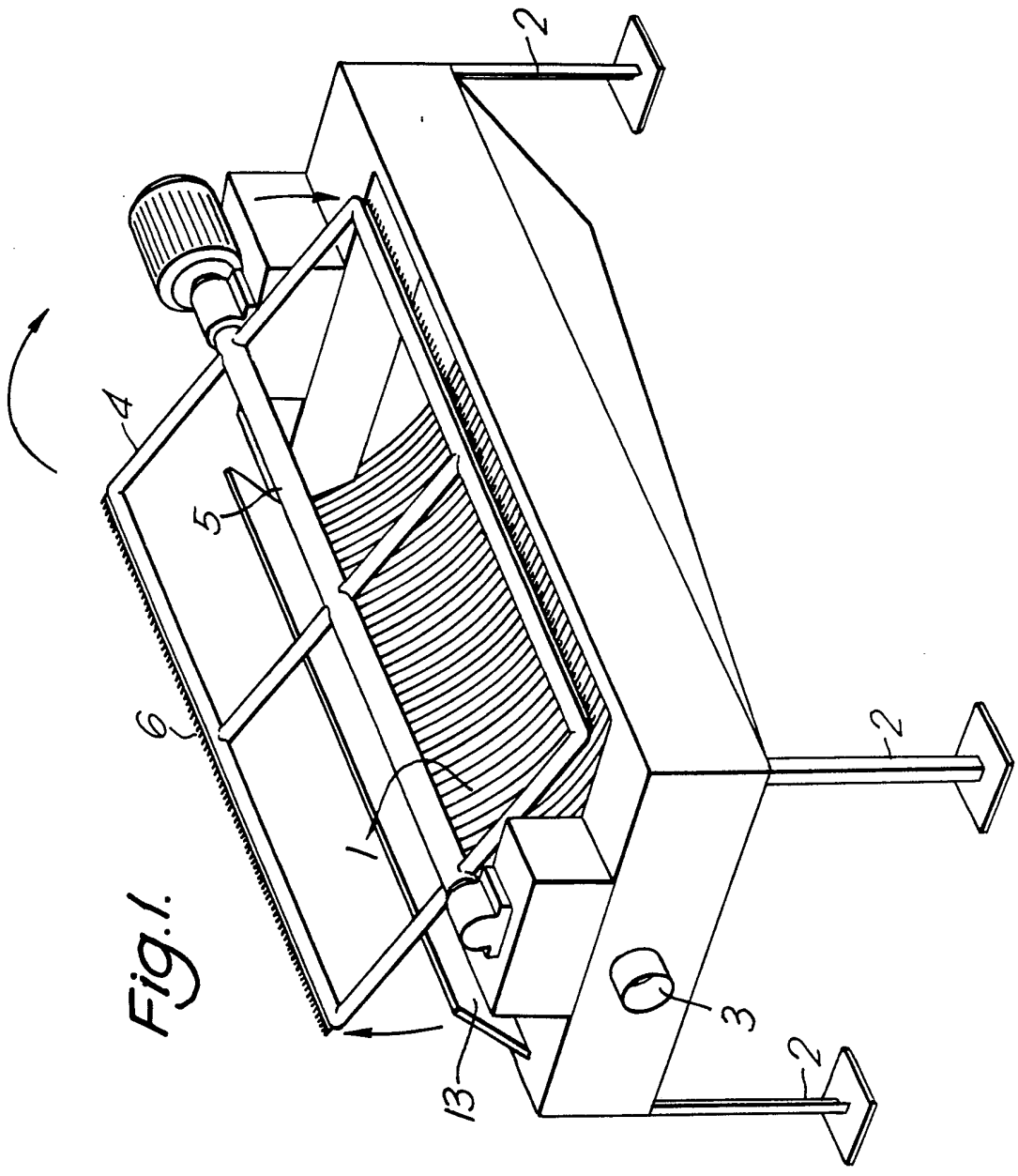



Fig.1.

Fig.2.

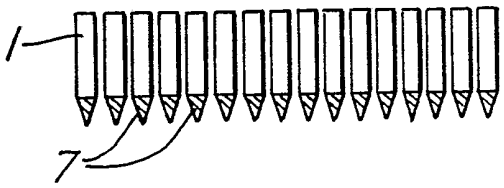
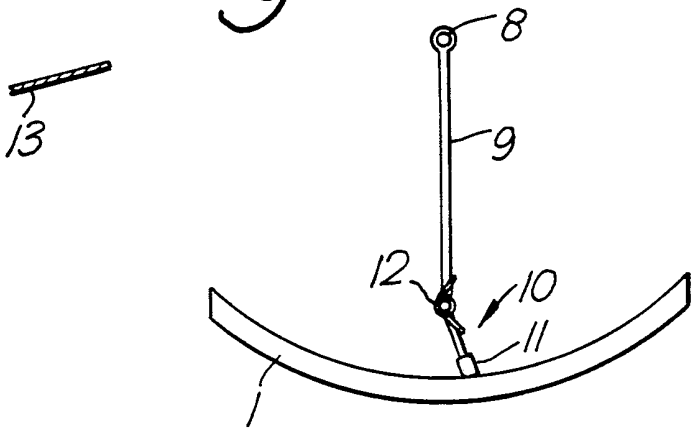



Fig.3.



# SEWAGE TREATMENT

This invention relates to apparatus suitable for use in a sewage treatment system, and especially for the screening of sewage at the inlet to a sewage treatment plant.

It is very desirable to screen sewage, before treatment, in order to remove plastics and other non-digestible materials which may otherwise simply block sewage treatment apparatus.

"D screens" of the type illustrated generally in Figure 1 of the accompanying drawings, are known. They comprise an arcuate (concave upwards) array of parallel bars and an inlet from which liquid to be filtered is directed to pass over and substantially transversely to the bars. Means for cleaning the members is rotatably mounted above the array, with heads comprising brushes which, on rotation, clean the upper surfaces of, and between the members.

So that a conventional D screen can function at a satisfactory through-put, the spacing between the bars of the screen has usually been 12-15 mm. However, this is sufficiently large that the screen does not function to remove small items such as the cotton-wool-covered thin plastics sticks which are widely used in medicine and in the home, and which are very often jettisoned into the sewage system after use.

According to the present invention, the bars of a D screen are wedge wires, i.e. they taper downwardly in cross-section. This simple development ensures that material which should pass through the screen is less likely to block it. Two important advantages follow.

The first advantage is that the spacing between bars can be much less than before, perhaps 3-10 mm, e.g. 6 mm. Therefore, the screen is much more effective at removing undesirable objects than a conventional D screen. It should also be noted that, because the inlet flow is transverse to the bars, sticks or other elongate objects

that are thinner than the spacing are also retained on the screen.

The second advantage is that the screen is much more easily cleaned. It is not essential that the cleaning head extends between the bars. Solids retained on the screen are on its upper surface only, so that they can be wiped off, e.g. by rotating a continuous flexible pad in contact with the screen. It is preferred to use, in addition, a brush, e.g. of nylon or other suitable material, which cleans between the bars after the pad has removed most of the accumulated debris. A pad and brush can simply be provided on a single cleaning head.

Typically the upper surface of each bar is 1 to 5, e.g. 1.8, mm wide. Each bar may taper to a thinner or no width over a depth of 2 to 8, e.g. 3.7, mm.

The invention will now be described by way of example only with reference to the accompanying drawings, in which:

Fig. 1 is a view of a D screen which is of generally known type or, if it has the components shown in Figures 2 and 3, of the invention;

Fig. 2 is a section (not to scale) through a screen embodying the present invention; and

Fig. 3 shows, schematically, detail of a preferred embodiment of this invention.

Fig. 1 shows an array of arcuate bars 1 mounted on a stand having legs 2. The apparatus includes a liquid inlet 3. The incoming liquid passes transversely with respect to the bars 1. A frame 4 is rotatably mounted on an axial member 5 above the screen, and includes opposed cleaning heads 6. Rotation of the frame cleans the bars 1, as necessary.

Fig. 2 shows the array of bars 1. Each bar tapers downwardly, in cross-section, to a point 7. Material is retained on top of the bars or passes between them, but is not retained in a gap of some length and constant width between the bars, as is the case in a conventional D screen.

Fig. 3 shows a bar 1 and part of a cleaning mechanism mounted for rotation on an axial member 8 above the bars. The mechanism comprises an arm 9 and a cleaning head 10 comprising a continuous rubber pad 11, sprung-mounted on the arm so that, on rotation of the arm, the rubber pad trails as it wipes the bar 1. As the arm 9 progresses in the direction of the arrow, residue on the screen is wiped by the pad 11 until the pad comes out of contact with the bar 1. At that point, the spring is no longer in tension, and the residue is "flicked" against a member (not shown in detail) having a surface 13. Since this surface is horizontally-displaced with respect to the screen, residue can be collected as it drops off without interfering with the function of the screen.

It may be preferred to use, instead of the pad 11, a combination of a flexible blade and a brush or other cleaning head that, if desired, is spring-mounted.

CLAIMS

1. Liquid screening apparatus comprising an arcuate (concave upwards) array of parallel bars and an inlet from which liquid to be filtered is directed to pass over and substantially transversely to the bars, in which the bars taper downwardly in cross-section.

2. Apparatus according to claim 1, in which the bars are spaced by 3 to 10 mm.

3. Apparatus according to claim 1 or claim 2, which additionally comprises, rotatably mounted above the array, means for wiping and thereby cleaning the bars.

4. Apparatus according to claim 3, in which the wiping means comprises a continuous flexible pad and, optionally, a trailing brush.

5. Apparatus according to claim 3 or claim 4, in which the wiping means is mounted on a sprung arm which is in tension while the wiping means is rotated in contact with the bars.

6. Apparatus according to claim 5, which additionally comprises a member having a surface, horizontally displaced with respect to the array, against which residue is thrown when the tension is released as the wiping means comes out of contact with the bars.

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