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(54) **Screed rail**

(57) A screed rail (2) of galvanised steel plate is disclosed, with a web (4) with lateral crankings (6) which in use form groove-and-tongue locking joints at respective sides of the screed rail between adjacent concrete slabs, and an upper vertical edge strip (8) used as support for a vibrator beam by pouring a concrete slab (10), e.g. a floor, between two fixed screed rails (2), the screed rail (2) constituting a permanent formwork side for the concrete slab (10), where the said upper edge strip (8) comprises a bent edge (12) arranged to extend along the floor surface, i.e. so that the edge (12) is covering a possible contraction crack, and that the screed rail (2), at the side facing away from the bent edge (12), is provided with connecting means and/or surface structure arranged to ensure good adherence between the said side of the screed rail (2) and the concrete slab (10). By means of simple measures it is hereby possible to avoid the previously mentioned drawbacks and to achieve some hitherto unknown advantages in use. At the side opposite said the said bent edge, the screed rail is thus designed so that good adherence to the concrete slab is ensured, i.e. so that a possible contraction crack will always appear at the side where the bent edge is situated so that the contraction edge will always be covered by the bent edge.

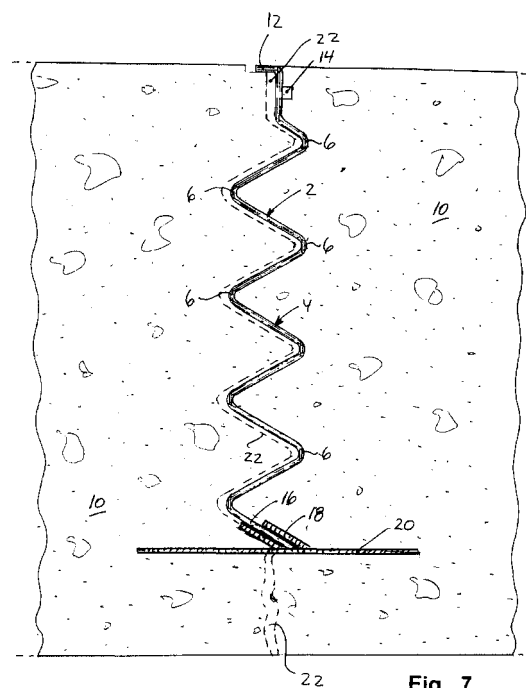


Fig. 7

Description

[0001] By making concrete floors or corresponding large plane concrete surfaces, the so-called screed rails are used, consisting of prefab screed rails with a top part on which a vibrator beam may be slidingly supported in connection with pouring of the floor sections formed between the screed rails. These are mounted and/or point supported in elongate runs or sections on a compacted, levelled bed of sand/gravel, or upon a suitable insulation material. The screed rails remain in the floor as permanent formwork delimiting the pouring runs laterally.

[0002] Besides, it is known it use a considerably tougher re-usable screed rail or formwork which is made of steel and aluminium and removed again after pouring of floor sections, i.e. before the intermediate floor sections are poured against the connecting sections which the dismounted re-usable screed rail has established for the side edges of the floor sections.

[0003] Concrete screed rails of steel or with steel top strip are known, for example, from DK-U3-9600236 and DK-U3-9300270 which are further developments of the concrete screed rails used for many years and known, for example, from DK design registration 0401 1992.

[0004] However, some problems or drawbacks have appeared when using the said prior art screed rails of steel or concrete with or without steel top strip, of which the greatest problem is the very great transport costs due to large dead weight of screed rails. Furthermore, it is a problem that concrete screed rails are liable to break during transport if they are not correctly supported.

[0005] SE-B-464 310 describes a mounting holder for a screed rail consisting of an upright standing on a base part with a holding part for fixing the screed rail. The holding part may be fixed at variable levels in relation to the upright.

[0006] DK-U3-9700399 furthermore describes a screed rail made of galvanised steel plate and having a base part and a web standing up from it with lateral crankings which in use form groove-and-tongue locking joints at respective sides of the screed rail between adjacent concrete slabs, and an upper vertical edge strip used as support for a vibrator beam by pouring a concrete slab, e.g. a floor, between two fixed screed rails, the screed rail constituting a permanent formwork side for the concrete slab. The base part is constituted by a longitudinal, vertical edge part as the base part, the web and the upper edge strip are formed with holes or apertures for the passing through of possible reinforcement bars.

[0007] On this background, the purpose of the invention is to indicate a new and improved screed rail of the kind mentioned in the introduction, where the screed rail, by simple means, makes possible to avoid the above mentioned drawbacks and to achieve hitherto unknown advantages in use.

[0008] The screed rail according to the invention is

characterised in that the said upper edge strip comprises a bent edge arranged to extend along the floor surface, i.e. so that the edge is covering a possible contraction crack, and that the screed rail, at the side facing away from the bent edge, is provided with connecting means and/or surface structure arranged to ensure good adherence between the said side of the screed rail and the concrete slab. Hereby, by means of simple measures, it becomes possible to avoid the above mentioned drawbacks and to achieve some hitherto unknown advantages. At the side opposite to the said bent edge, the screed rail is shaped so that good adherence to the concrete slab is achieved, i.e. so that a possible contraction crack will always appear at the side where the bent edge is situated so that the contraction edge will always be covered by the bent edge.

[0009] Another very important advantage of the screed rail according to the invention is that the bent edge of the upper edge strip provides a good sliding surface for the vibrator beam so that wear damages otherwise inflicted by a sharply cut steel edge may be avoided.

[0010] The screed rail according to the invention is suitably designed in such a way that the said bent edge is perpendicular to the edge strip and has a width between 3 and 10 mm, preferably about 5 mm.

[0011] In a particularly simple embodiment of the screed rail according to the invention, the said connecting means are constituted by a number of punched and bent flaps. Alternatively, the connecting means are constituted by a number of holes for accommodating nails that are passed through the holes from the side of the screed rail where the bent edge is situated. A further alternative may be that the surface structure is constituted by an epoxy coating in which sand grains are fixed. Or the surface structure at the screed rail may be achieved by means of other direct surface treatment which makes the surface more suited for attachment to the concrete slab.

[0012] With the purpose of achieving an easy mounting or temporary fixing of the screed rail according to the invention it may be advantageous that the lower, preferably inclining, part of the web constitutes a base part for receiving a complementary shaped socket part of a support for the screed rail. This may suitably have a varying number of lateral crankings, corresponding to a height from about 50 to about 140 mm.

[0013] In general, the screed rail according to the invention has the following advantages:

- easy to pack (stack together) for shipment
- more uniform (irrespective of the size)
- more easy to make (by bending or rolling)
- less consumption of material
- less liable to skewness
- relatively light (in relation to rigidity)
- easy to mount
- superior adherence to the concrete at one side

- possible contraction crack is hidden under bent edge
- less wear of vibrator beam

[0014] The invention is explained in more detail in connection with the drawing in which:

Figs. 1-5 shows end views of preferred embodiments of screed rails according to the invention with varying heights,
 Fig. 6 shows and end view of a second embodiment of a screed rail according to the invention, and
 Fig. 7 shows a section through a joint between two concrete slabs made by means of a screed rail according to the invention of Fig. 1.

[0015] The screed rail 2 shown in Figs. 1 - 5 is made of galvanised steel plate with a thickness of 1 - 2 mm as the screed rail 2, e.g. cf. claim 7, is made with varying heights of about 50 - 140 mm and in lengths of 2- 4 m, preferably 3 m. The screed rail 2 comprises a web 4 with lateral crankings 6 and a longitudinal upper edge strip 8 which, by pouring a concrete slab 10 (Fig. 7), e.g. a floor, between two fixed screed rails 2, is used as support for a vibrator beam. The edge strip 8 has a bent edge 12 at the top which preferably is perpendicular to the edge strip 8 and which, see Fig. 7, is arranged to cover a contraction crack 22. Opposite to the bent edge 12, the edge strip 8 is formed with a number of punched and bent flaps 14 for constituting anchors for secure fastening of the side of the screed rail 2 to the concrete slab 10, i.e. so that a possible contraction crack 22 will always be at the side of the screed rail 2 where the bent edge 12 is located.

[0016] When pouring the concrete slab 12, preferably the side of the screed rails 2 with the flaps 14 is poured first, i.e. every other screed rail 2 is turned around so that the flaps 14 face each other in every other pouring step. In practice, however, it is not very significant if the first pouring is performed at the side where the bent anchoring flaps 14 are situated since a possible contraction crack 22 normally is formed only after some days when the whole floor surface has dried completely. As indicated, the anchor flaps 14 may be substituted by an epoxy coating in which sand grains are fixed. Another alternative may, as indicated, be simple holes in which nails may be driven so that these form anchors protruding into the concrete slab whereas the nail heads are disposed at the opposite side of the screed rail.

[0017] Besides, as shown in Fig. 7, a lower, inclining part of the web 4 of the screed rail 2 constitutes a base part 16 intended for receiving into a complementary shaped socket part 18 of a mounting holder 20 which thereby may be designed particularly simple and cheap, i.e. that the mounting holder 20 is so cheap that it can remain in the concrete slab 10.

[0018] In Fig. 6 is shown an alternative design of a screed rail 24 according to the invention where the indicated surface structure at one side of the screed rail 24 may, for example, consist of the above mention epoxy coating with sand grains.

Claims

1. A screed rail (2) of galvanised steel plate and with a web (4) with lateral crankings (6) which in use form groove-and-tongue locking joints at respective sides of the screed rail between adjacent concrete slabs, and an upper vertical edge strip (8) used as support for a vibrator beam by pouring a concrete slab (10), e.g. a floor, between two fixed screed rails (2), the screed rail (2) constituting a permanent formwork side for the concrete slab (10), **characterised in that** the said upper edge strip (8) comprises a bent edge (12) arranged to extend along the floor surface, i.e. so that the edge (12) is covering a possible contraction crack, and that the screed rail (2), at the side facing away from the bent edge (12), is provided with connecting means and/or surface structure arranged to ensure good adherence between the said side of the screed rail (2) and the concrete slab (10).
2. A screed rail (2) according to claim 1, **characterised in that** the bent edge (12) is perpendicular to the edge strip (8) and has a width between 3 and 10 mm, preferably about 5 mm.
3. A screed rail (2) according to claim 1, **characterised in that** the connecting means are constituted by a number of punched and bent flaps (14).
4. A screed rail (2) according to claim 1, **characterised in that** the connecting means are constituted by a number of holes for accommodating nails that are passed through the holes from the side of the screed rail where the bent edge is situated.
5. A screed rail (2) according to claim 1, **characterised in that** the surface structure is constituted by an epoxy coating in which sand grains are fixed.
6. A screed rail (2) according to claim 1, **characterised in that** the lower, preferably inclining, part of the web (4) constitutes a base part (16) for receiving a complementary shaped socket part (18) of a support (20) for the screed rail (2).
7. A screed rail (2) according to claim 1, **characterised in that** it has varying number of lateral crankings (6), corresponding to a height from about 50 mm to about 140 mm.

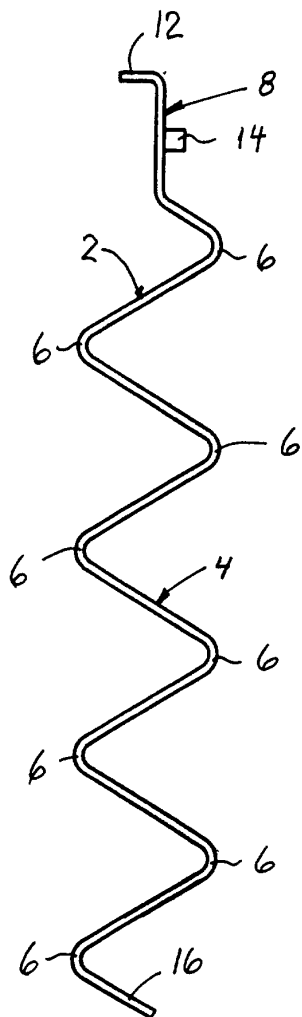


Fig. 1

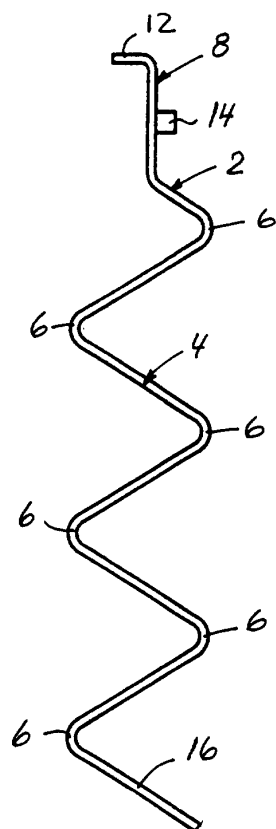


Fig. 2

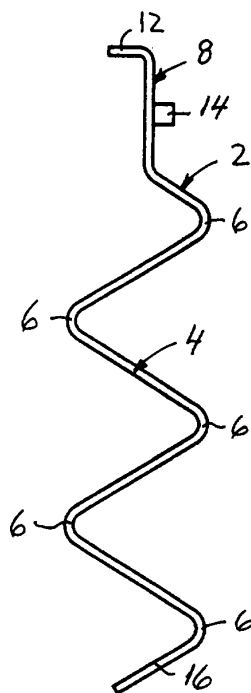


Fig. 3

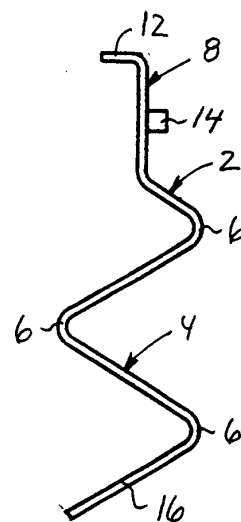


Fig. 4

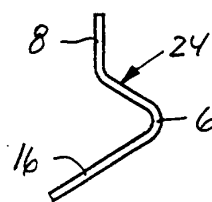


Fig. 6

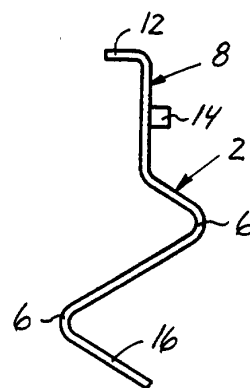


Fig. 5

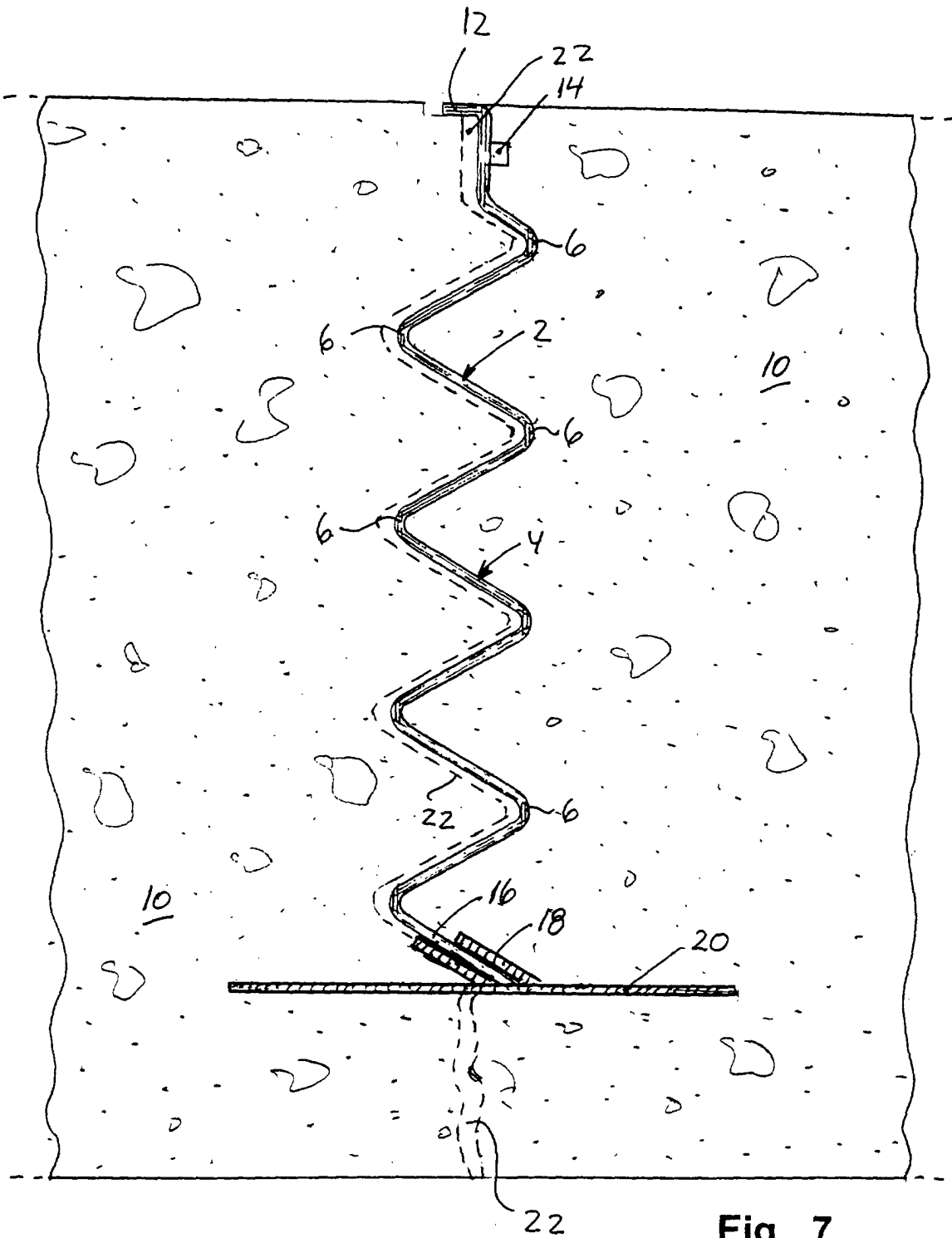


Fig. 7