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EP 8530-204/kk

Description

The invention refers to a joint-type shuttering element for concrete structures of the kind described in the preamble of claim 1.

A joint-type shuttering element of this kind is known from DE-AS 1 259 546. The holding arrangements for the joint strip of the known joint-type shuttering element consist of at least two parts, wherein one of the holding arrangement parts was connected to a plate-like shuttering part made of expanded metal. In an embodiment, the joint strip is retained by a form-fit adaptation of each of the two holding arrangement parts at a central enlargement of the joint strip. Owing to the elasticity of the joint strips mostly consisting of rubber, the shuttering panels can turn out of their aligning orientation so that they include an arcute or an obtuse angle with one another, respectively. This aggravates work with the known joint-type shuttering element.

In a further embodiment the holding arrangement parts are composed of four angular laths, wherein two of said laths are fastened to the shuttering parts and the two other laths act as counter bearings, and are fastened at the laths of the shuttering parts by screws or bolts including a central cross web of the joint strip. This embodiment is manufactured at relatively high cost and is still not prevented from an undesired establishment of a wrong angle of its two shuttering parts and against a compression of the joint strip.

The object of the invention is to provide a joint-type shuttering element which can be manufactured and handled easily.

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The object is solved by the features cited in claim 1.

A rigid connected between the two shuttering parts is provided by the basket-like curved structure according to the invention and is maintained during the shuttering works. The joint strip is only inserted into the basket-like curved structure and does not have any retainment function for the coherence of the joint-type shuttering element.

The joint-type shuttering element according to the invention can be manufactured especially easily if the curved structure according to claim 2 consists of a lattice mat bent in a U-shape.

The joint strip can be retained in the curved structure without further attachment by the measure according to claim 3.

The material described in claim 4 is especially favourable for the shuttering parts, since by this material the parts of the joint-type shuttering element can be easily aligned with respect to one another and can be welded to each other.

For reasons of an additional inner stiffening of the joint-type shuttering element and for further fastening the curved structure, the angular bars according to claim 5 can be provided.

It is ensured by the embodiment according to claim 6 that the joint strip remains extended in its entire width and does not bend e.g. under the influence of the pressure of the concrete.

The fixing of the position of the joint strip in the interior of the curved structure is further improved by the embodiment according to claim 7.

An embodiment of the invention will now by described under reference to the drawings:

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Fig. 1 is a perspective, simplified view of the joint-type shuttering element according to the invention, and

Fig. 2 shows the section II/II of Figure 1.

A joint-type shuttering element 1 can be seen in Figure 1 which shows two plate-like, rectangular shuttering parts 2a and 2b which are shown only schematically owing to reasons of clarity, and an intermediate, basket-like curved structure 3 as a holding arrangement for a joint strip which is also not shown in Figure 1 owing to reasons of clarity. The basket-like curved structure 3 consists of a curved part having a U-shaped cross section that was bent from a lattice mat, preferrably from a welded wire mesh. The curved part 3 has two side pieces 3a and 3b extending transversely to the plane of the shuttering parts 2a, 2b and which are each connected to one of the shuttering parts. The two side pieces 3a, 3b are connected to one another by a web 3c.

As can be seen in Figure 2, the shuttering parts 2a and 2b each consist of a panel 4 made of expanded metal, with metal bars 5 and 6, respectively, being welded onto the two surfaces thereof. The metal bars on the one surface as well as the metal bars 6 on the other surface are spaced parallelly to one another, wherein, however, the bars 5 on one of the surfaces extend parallelly to the curved structure and the bars 6 on the other surface of the expanded metal panel 4 extend perpendicularly to the curve part 3.

The curved part 3 is welded to the shuttering parts 2a, 2b in a manner that the shuttering parts 2a, 2b perpendicularly contact approximately the center of the side pieces 3a or 3b, respectively of the curved part 3. The length of the web 3c as well as the length of the side pieces 3a, 3b of the curved part 3 are adapted to the dimensions of a conventional joint strip 7 made of rubber or the like in a manner that the joint strip 7 at least with its entire width can be embedded into the interior of

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the curved part and can be retained therein at the side pieces 3a, 3b by means of friction of its enlargement.

In order to prevent the joint strip 7 from being pushed out of the curved structure during the concrete work process, i.e. for further fixing the position of the joint strip 7, at least the free ends of the side pieces 3a, 3b are bent into the position shown in dotted lines in Fig. 2 after inserting the joint strip 7. In this position they are retained by one or a plurality of connecting wires 9, that bridge over the remaining spacing between the two free ends of the side pieces 3a, 33b that are bent together.

For a favourable coherence of the components of the joint-type shuttering element, the lattice mat used for the curved part 3 is bent in a manner that the longitudinal bars point outwardly. The cut to size of the lattice mat is possibly carried out in a manner that one of the longitudinal bars thereof is approximately located in the center of the side pieces 3a and 3b. The shuttering parts 2a and 2b are also cut in a manner that one of the longitudinal bars 5 extends at the longitudinal edge contacting the curved part 3. By the aid of these two longitudinal bars the shuttering parts 2a, 2b can then be safely and at a right angle welded to the side pieces 3a, 3b of the curved part 3. For an additional stiffening, the angular bars 8a or 8b, respectively, further shown in Figure 1 can be used, said angular bars being welded to the side opposite the web 3c at a shuttering part 2a, and 2b, respectively and at the contacting, free leg 3a, 3b of the curved part 3. The number of angular bars 8 depends on the desired stiffening.

The joint-type shuttering element according to the invention can be used in the same manner as known joint-type shuttering elements, i.e. it can be provided first of all as a part of a shuttering for a first concrete structure contacting the joint. If this first concrete structure is formed, i.e. if the concrete is moulded at one side of the shuttering parts 2a, 2b by

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including half of the side piece length of the side pieces 3a, 3b of the curved part 3 and half of the width of the joint strip 7, the second one of the concrete structures contacting the joint can be moulded.

As a modification of the described and drawn embodiment, different conventional shuttering materials can be used for the shuttering parts. The basket-like curved structure may have a different cross-section or may consist of individual curved parts that are individually connected to the respective shuttering parts. It is important, however, that the curved structure has an open wall so that the joint strip can be embedded into the concrete. The angular bars are not necessarily required. Known stiffenings can possibly be used. Brackets or the like may be used instead of the connecting wire for the coherence of the side pieces of the curved structure that are bent together.

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Claims

1) Joint-type shuttering element for concrete structures, having two flat shuttering parts and a holding arrangement, which is located between and fastened to said shuttering parts, for a joint strip, **characterized in that** the holding arrangement has a basket-like curved structure (3) with two side pieces (3a, 3b) which extend transversely to the shuttering parts (2a, 2b) and are connected to one another and, in each case, to one of said shuttering parts (2a, 2b).

2) Joint-type shuttering element according to claim 1, **characterized in that** the curved structure (3) has a curved part in the form of a lattice mat bent in a U-shape.

3) Joint-type shuttering element according to claim 1 or 2, **characterized in that** it contains a joint strip (7) and the width of the curved structure (3) is matched to the width of the joint strip (7) in such a way that the latter is held in said curved structure (33) by friction.

4) Joint-type shuttering element according to one of claims 1 to 3, **characterized in that** the shuttering parts (2a, 2b) consist, in each case, of an expanded metal panel (4) provided on both surfaces with metal bars (5, 6) extending in different directions, the metal bars (6) on one surface extending transversely to the curved structure (3) and the metal bars (5) on the other surface extending parallel to said structure.

5) Joint-type shuttering element according to one of claims 1 to 4, **characterized in that** angular bars (8a, 8b) are provided for

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fastening the shuttering parts (2a, 2b) to the curved structure (3).

6) Joint-type shuttering element according to one of claims 3 to 5, **characterized in that** the length of the side pieces (3a, 3b) of the curved structure (3) is equal to or greater than the width of the joint strip (7).

7) Joint-type shuttering element according to one of claims 1 to 6, **characterized in that** the side pieces (3a, 3b) consist of a bendable material and can be bent together after the insertion of the joint strip (7), thereby enclosing the latter.

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