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COMPLETE SPECIFICATION

A Device for Moulding Gutters in Concrete or like Self-Hardening Material

I, LAURENCE BISHOP POOLE, a National of the Union of South Africa, of "Hinemoa," St. Patrick's Road, Pretoria, Transvaal Province, Union of South Africa, do hereby declare the invention, for which I pray that a patent may be granted to me, and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention relates to a device for moulding gutters in concrete or like self-hardening material, and refers more particularly to rain water gutters as used to convey such water discharging from the bottom end of a down pipe, away from the foundations of a building. Usually such gutters are formed by the use of one or more concrete blocks or slabs of rectangular shape, which are provided with a part-circular channel-like groove in one side thereof.

An object of the present invention is to provide a simple device to enable such gutter slabs to be moulded either *in situ*, or as pre-cast blocks for subsequent use.

According to the invention a device for the purpose set forth, consists of a substantially rectangular mould frame open at top and bottom, along the top open side of which extends a part-circular gutter-moulding member which is mounted for partial rotary motion about a longitudinal axis thereof parallel with the longitudinal centre line of said mould frame, the arrangement being such that, when said mould frame, after being placed on a substantially level surface, is filled with a mass of plastic concrete or the like, oscillating movement of the said gutter-moulding member about its axis will cause a part-circular trough-like depression to be moulded in the top side of said mass of concrete or the like.

More particularly the said gutter-moulding member is arcuate in cross-section and is itself of trough-like form, and wherein its longitudinal sides are sharpened to form cutting edges which, during the said oscillatory movement, scrape surplus concrete or the like from the said plastic mass thereof in the mould frame, which surplus is thereby scooped into said gutter-moulding member and may thereafter be used for filling gaps or depressions in the moulded mass, or retained therein for use in moulding the next gutter block or slab.

According to a preferred construction, the mould frame is made of metal plate and at least its longitudinal side walls are arranged to slope inwardly towards the top open side thereof to facilitate vertical or upward withdrawal of the frame from a block or slab on completion of the moulding operation. The two end walls of said frame are provided with upwardly projecting extensions which form end bearings or bearing supports for trunnion pins or the like on which the ends of the gutter-moulding member are mounted. At least one of said pins is keyed to an end of the gutter-moulding member and its outwardly projecting end is provided with a hand lever for operating the device. In this preferred construction the gutter-moulding member is conveniently made by cutting a length of metal pipe longitudinally and fixing end plates to each end thereof, such as by welding.

To prevent waste of the concrete or the like, each of the side walls of the mould frame is provided exteriorly along its top edge with a small gutter to receive any concrete which tends to spill over said edges during the moulding operation.

When it is desired to mould a gutter block or slab with provision for the joining of one or more branch gutters thereto,

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one or more suitably shaped core piece or pieces is or are arranged to be fixed to the inside of one or both of the side wall members of the mould frame.

In order that the invention may be more clearly understood and carried into practice, reference is now made to the accompanying drawings in which like reference numerals refer to like parts throughout the several views.

In the drawings:—

Figure 1 is a perspective view of a device constructed according to the invention;

Figure 2 is a sectional end elevation taken on the line X—X in figure 1;

Figure 3 is a perspective view of a core piece, constructed according to the invention; and

Figure 4 is a sectional end elevation of the device, showing the core piece fitted in position, the section of the core piece being taken on the line Y—Y in figure 3.

Referring to the drawings, reference 1 denotes the substantially rectangular mould frame and 2 denotes the part-circular gutter-moulding member mounted by its end plate 2a, on the trunnion pins 3 and 3a in bearings 4, which are situated in the two end walls 5 of the mould frame 1.

It will be seen from figure 2, that the longitudinal side walls of the mould frame 1 slope inwardly, to facilitate removal after the moulding operation and fixed to their outer sides by means of welds 7 are two strips 6, which with the side walls form longitudinal side gutters.

The gutter-moulding member 2 has its edges 8 sharpened to form cutting edges, and is arranged to be given oscillatory movement by means of a handle 9, which is keyed to the trunnion pin 3a, which pin is fixed to the end plate 2a of the said member 2.

The core piece 10 is preferably constructed of two or more sheet metal pieces welded together by welds 11, and its diametral width is preferably equal to that of the gutter-moulding member 2. The core piece 10 is adapted to be fitted within the mould frame 1 for mouldng gutter branches as shown in figure 4, and is held in position by means of a lip 12 co-acting with the top edge of one of the side walls of the moulding frame 1. Before the moulding process commences, one or more core pieces 10 is or are placed in any required position or positions along the length of the longitudinal mould frame and on either side of the gutter-moulding member 2.

In operation the mould frame 1 is placed on a flat surface, the gutter moulding member 2 is rotated to one side, and placed in position on the opposite side. The member 2 is then rotated in the opposite direction and this side filled. The gutter-moulding member 2 is then oscillated from side to side by means of the handle 9, so that a trough-like depression is formed in the surface of the concrete, some surplus concrete being scooped within the cavity of the gutter-moulding member 2, while further surplus concrete is collected in the two side gutters. When the mould process is completed, the mould frame is lifted vertically off the moulded gutter slab, which is then allowed to set.

What I claim is:—

1. A device for moulding gutters in concrete or like self-hardening material, consisting of a substantially rectangular mould frame open at top and bottom, along the top open side of which extends a part-circular gutter-moulding member which is mounted for partial rotary motion about a longitudinal axis thereof parallel with the longitudinal centre line of said mould frame, the arrangement being such that, when said mould frame, after being placed on a substantially level surface, is filled with a mass of plastic concrete or the like, oscillating movement of the said gutter-moulding member about its axis will cause a part-circular trough-like depression to be moulded in the top side of said mass of concrete or the like.

2. A device for moulding gutters as claimed in claim 1, wherein the gutter-moulding member is arcuate in cross-section and is itself of trough-like form, and wherein its longitudinal sides are sharpened to form cutting edges which, during the said oscillatory movement, scrape surplus concrete or the like from the said plastic mass thereof in the mould frame, which surplus is thereby scooped into said gutter-moulding member and is used for filling gaps or depressions in the moulded mass, or retained therein for use in moulding the next gutter block or slab.

3. A device for moulding gutters as claimed in claims 1 or 2, wherein the mould frame is made of metal plate and at least its longitudinal side walls are arranged to slope inwardly towards the top open side thereof to facilitate vertical or upward withdrawal of the frame from a gutter block or slab on completion of the moulding operation, and the two end walls of said frame are provided with upwardly projecting extensions which form end bearings or bearing supports for trunnion pins or the like on which the ends of the gutter-moulding member are mounted.

4. A device for moulding gutters as claimed in claims 1, 2 or 3, wherein the gutter-moulding member is conveniently

one or more suitably shaped core piece or pieces is or are arranged to be fixed to the inside of one or both of the side wall members of the mould frame.

In order that the invention may be more clearly understood and carried into practice, reference is now made to the accompanying drawings in which like reference numerals refer to like parts throughout the several views.

In the drawings:—

Figure 1 is a perspective view of a device constructed according to the invention;

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Figure 3 is a perspective view of a core piece, constructed according to the invention; and

Figure 4 is a sectional end elevation of the device, showing the core piece fitted in position, the section of the core piece being taken on the line Y—Y in figure 3.

Referring to the drawings, reference 1 denotes the substantially rectangular mould frame and 2 denotes the part-circular gutter-moulding member mounted by its end plate 2a, on the trunnion pins 3 and 3a in bearings 4, which are situated in the two end walls 5 of the mould frame 1.

It will be seen from figure 2, that the longitudinal side walls of the mould frame 1 slope inwardly, to facilitate removal after the moulding operation and fixed to their outer sides by means of welds 7 are two strips 6, which with the side walls form longitudinal side gutters.

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The core piece 10 is preferably constructed of two or more sheet metal pieces welded together by welds 11, and its diametral width is preferably equal to that of the gutter-moulding member 2. The core piece 10 is adapted to be fitted within the mould frame 1 for mouldng gutter branches as shown in figure 4, and is held in position by means of a lip 12 co-acting with the top edge of one of the side walls of the moulding frame 1. Before the moulding process commences, one or more core pieces 10 is or are placed in any required position or positions along the length of the longitudinal mould frame and on either side of the gutter-moulding member 2.

In operation the mould frame 1 is placed on a flat surface, the gutter moulding member 2 is rotated to one side, and placed in position on the opposite side. The member 2 is then rotated in the opposite direction and this side filled. The gutter-moulding member 2 is then oscillated from side to side by means of the handle 9, so that a trough-like depression is formed in the surface of the concrete, some surplus concrete being scooped within the cavity of the gutter-moulding member 2, while further surplus concrete is collected in the two side gutters. When the mould process is completed, the mould frame is lifted vertically off the moulded gutter slab, which is then allowed to set.

What I claim is:—

1. A device for moulding gutters in concrete or like self-hardening material, consisting of a substantially rectangular mould frame open at top and bottom, along the top open side of which extends a part-circular gutter-moulding member which is mounted for partial rotary motion about a longitudinal axis thereof parallel with the longitudinal centre line of said mould frame, the arrangement being such that, when said mould frame, after being placed on a substantially level surface, is filled with a mass of plastic concrete or the like, oscillating movement of the said gutter-moulding member about its axis will cause a part-circular trough-like depression to be moulded in the top side of said mass of concrete or the like.

2. A device for moulding gutters as claimed in claim 1, wherein the gutter-moulding member is arcuate in cross-section and is itself of trough-like form, and wherein its longitudinal sides are sharpened to form cutting edges which, during the said oscillatory movement, scrape surplus concrete or the like from the said plastic mass thereof in the mould frame, which surplus is thereby scooped into said gutter-moulding member and is used for filling gaps or depressions in the moulded mass, or retained therein for use in moulding the next gutter block or slab.

3. A device for moulding gutters as claimed in claims 1 or 2, wherein the mould frame is made of metal plate and at least its longitudinal side walls are arranged to slope inwardly towards the top open side thereof to facilitate vertical or upward withdrawal of the frame from a gutter block or slab on completion of the moulding operation, and the two end walls of said frame are provided with upwardly projecting extensions which form end bearings or bearing supports for trunnion pins or the like on which the ends of the gutter-moulding member are mounted.

4. A device for moulding gutters as claimed in claims 1, 2 or 3, wherein the gutter-moulding member is conveniently

made by cutting a length of metal pipe longitudinally and fixing end plates to each end thereof, such as by welding, and wherein at least one of the aforesaid trunnion pins is keyed to one of the said end plates and its outwardly projecting end is provided with a hand lever for operating the device.

5. A device for moulding gutters as claimed in claims 1 or 3, wherein the mould frame is provided exteriorly along the top edge of each of the longitudinal side walls with a small gutter to receive any concrete which tends to spill over said edges during the moulding operation.

6. A device for moulding gutters as claimed in any of the preceding claims, wherein one or more suitably shaped core piece or pieces is or are arranged to be fixed to the inside of one or both of the side wall members of the mould frame, when it is desired to mould a gutter block or slab with provision for the joining of one or more branch gutters thereto.

7. A device for moulding gutters in concrete or like material, arranged, constructed and operating, as particularly described with reference to the drawings.

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