

PATENT SPECIFICATION

DRAWINGS ATTACHED

1,119,099

1,119,099



Date of Application and filing Complete
Specification: 23 September, 1966.

No. 42500/66

Application made in Sweden (No. 12390) on 24 September, 1965.

Complete Specification Published: 10 July, 1968.

© Crown Copyright, 1968.

Index at Acceptance:—E1 W (4A29, 4A230).

Int. Cl.:—E 04 c 5/16.

COMPLETE SPECIFICATION

Improvements in Reinforcement Spacers for Moulding Operations

I, ARNE BRENN, of Prost Hallings vei 44B, Oslo, Norway, a citizen of the Kingdom of Norway, 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:—

The present invention relates to reinforcement spacers for the support of reinforcing rods or bars in moulds for concrete.

In recent years, a number of types of ready-made reinforcement spacers have been available for use in the moulding of concrete in place of the wooden blocks previously used for this purpose. The advantage of these ready-made reinforcement spacers is that they need not be removed when the concrete is poured into the mould, but can remain to become moulded fast. This is possible by reason of their trimmer shape and small bearing surfaces.

The reinforcing bars for the various types of concrete construction are necessarily of different diameters or thicknesses, and the spacing of the bars with respect to the outer surface of the finished concrete construction may vary, all in accordance with the type of construction. The workmen binding the bars have had to use different reinforcement spacers for the various dimensions and spacings of the bars, and this has entailed the necessity for providing different types of spacers at the same building site so that the binder can use the spacer most suitable to the construction he is presently engaged with. As may be readily understood, this leads to waste of time and unnecessary labour.

Another disadvantage of known spacers is their lack of securing means to enable the bars to be securely held in position. This is of great significance in the reinforcement

of a vertical wall.

An object of the present invention is to provide a reinforcement spacer which can be used in various constructions, and for different cross-sectional dimensions of the reinforcing bars, so that the binder can, with the same reinforcement spacer, support bars at various heights and, with one and the same spacer, securely support reinforcing bars of various cross-sectional dimensions.

A further object of the invention is to provide a reinforcement spacer which can be readily secured to the reinforcing bar, so that the spacer accompanies the bar when the latter is moved, and so as to prevent the spacer from falling off in the event of the bars being moved somewhat from the wall of the mould.

According to the invention, a spacer for supporting reinforcing bars in moulds for concrete comprises four legs, a quadrilateral plate interconnecting the four legs and located nearer to one end of the legs than the other, one pair of opposite edges of the plate being longer than the other pair of opposite edges of the plate. This spacer presents a plurality of support surfaces for the reinforcing bars, so that by merely turning or inverting the spacer, the binder can select a desired spacing in any particular case, particularly the height of the bar from the bottom of the mould. By turning the spacer, he can also obtain a bearing surface which fits the cross-sectional dimension of the bar with which he is working at the time.

In a preferred embodiment of the invention, the legs are substantially straight and parallel to each other, the outer portions of adjacent pairs of legs being disposed further outwardly than portions of the plate intermediate thereto, so that the spacer has

[Price 4s. 6d.]

a stable rest position on each of its four sides on the sides of an adjacent pair of legs and also stable rest positions on the ends of the legs. As the distances between the legs are of two different lengths, 10-12 mm. bars, for instance, can be securely held or clamped between the legs if the longest side of the plate is disposed longitudinally of the bar and 16 mm. bars can be securely held or clamped between the legs if the spacer is turned through 90°. The spacer may obviously be dimensioned according to the standard of reinforcement at the actual construction location.

The side edges of the plate are advantageously curved inwardly of the plate.

One embodiment of the invention is described hereinafter by way of example and with reference to the accompanying drawing, wherein:—

Figure 1 is a perspective view of an improved reinforcement spacer, and

Figures 2 to 6 are diagrammatic elevations of the spacer seen in Figure 1, each of these Figures showing a useful setting of the spacer which is different from that in any other of such Figures, and the chain line circle, or segment thereof, in each of these Figures being indicative of a reinforcement rod supported by the spacer.

In Figure 1 of the drawing, the spacer comprises posts 1, 2, 3 and 4, secured to respective corners of a quadrilateral plate 5 having incurved edge portions 6, 7, 8 and 9. An opening 10 is located in the centre of the plate 5 to allow the spacer to be readily nailed to a wooden mould as shown in Figures 2 and 3. The plate 5 is longer in one direction than the other, which affords additional settings of the spacer which would not be afforded by a square shape, as will appear.

As seen in Figures 1 to 4, the plate 5 is so disposed that the free ends of the posts 1 to 4 are of different lengths above and beneath the plate. The posts thus provide long legs and short legs, which enables the reinforcing bars to be supported at different heights from the base of a mould according to whether the said bars rest upon one or other side of the plate, as will be clear from Figs. 2 and 3. In Figure 2, the spacer stands on the long legs as in Figure 1 and there is a distance *a* from the said base up to the seating of a bar indicated in chain line, which distance is greater than the distance *b* in Figure 3, in which the spacer has been inverted.

In Figures 2 and 3, a short side of the plate is towards the viewer, whereas in

Figure 4 the spacer has been turned through 90° horizontally so that a long side is viewed. As will be apparent, this permits the seating of a bar of larger diameter upon the spacer.

In Figure 5, the reinforcement spacer is turned on to its side so that the two posts 3 and 4 rest upon the base surface and the reinforcing bar is supported by the curved bearing surface 9 on a short side of the plate 5. The shape of the spacer allows a maximum distance *c* from the seating of the bar to the said base.

In Figure 6, the spacer is again on a long side, but with the posts 1 and 4 resting upon the said base so that a long side 7 forms a support for a bar of larger diameter than that in Figure 5. There is, of course, no reason why the spacer should not be turned into other positions even if it is to be used for thicker reinforcing bars. However, the bearing surface will not then be so well adapted to support such bars.

WHAT I CLAIM IS:—

1. A reinforcement spacer for supporting reinforcing bars in moulds for concrete, comprising four legs, a quadrilateral plate interconnecting the four legs and located nearer to one end of the legs than the other, one pair of opposite edges of the plate being longer than the other pair of opposite edges of the plate.

2. A spacer as claimed in claim 1, wherein the legs are substantially straight and parallel to each other, the outer portions of adjacent pairs of legs being disposed further outwardly than portions of the plate intermediate thereto, so that the spacer has a stable rest position on each of its four sides on the sides of an adjacent pair of legs and also stable rest positions on the ends of the legs.

3. A spacer as claimed in claim 1 or 2, wherein the edges of the plate are curved inwardly towards the centre of the plate.

4. A spacer as claimed in claim 1, wherein the legs are secured in the corners of the plate so that each of the four edges of the plate terminates at its ends in a pair of legs.

5. A reinforcement spacer for supporting reinforcing bars in moulds for concrete constructed and adapted for use substantially as hereinbefore described with reference to the accompanying drawing.

JENSEN & SON,
Agents for the Applicant,
77, Chancery Lane,
London W.C.2.
Chartered Patent Agents.

a stable rest position on each of its four sides on the sides of an adjacent pair of legs and also stable rest positions on the ends of the legs. As the distances between the legs are of two different lengths, 10-12 mm. bars, for instance, can be securely held or clamped between the legs if the longest side of the plate is disposed longitudinally of the bar and 16 mm. bars can be securely held or clamped between the legs if the spacer is turned through 90°. The spacer may obviously be dimensioned according to the standard of reinforcement at the actual construction location.

The side edges of the plate are advantageously curved inwardly of the plate.

One embodiment of the invention is described hereinafter by way of example and with reference to the accompanying drawing, wherein:—

Figure 1 is a perspective view of an improved reinforcement spacer, and

Figures 2 to 6 are diagrammatic elevations of the spacer seen in Figure 1, each of these Figures showing a useful setting of the spacer which is different from that in any other of such Figures, and the chain line circle, or segment thereof, in each of these Figures being indicative of a reinforcement rod supported by the spacer.

In Figure 1 of the drawing, the spacer comprises posts 1, 2, 3 and 4, secured to respective corners of a quadrilateral plate 5 having incurved edge portions 6, 7, 8 and 9. An opening 10 is located in the centre of the plate 5 to allow the spacer to be readily nailed to a wooden mould as shown in Figures 2 and 3. The plate 5 is longer in one direction than the other, which affords additional settings of the spacer which would not be afforded by a square shape, as will appear.

As seen in Figures 1 to 4, the plate 5 is so disposed that the free ends of the posts 1 to 4 are of different lengths above and beneath the plate. The posts thus provide long legs and short legs, which enables the reinforcing bars to be supported at different heights from the base of a mould according to whether the said bars rest upon one or other side of the plate, as will be clear from Figs. 2 and 3. In Figure 2, the spacer stands on the long legs as in Figure 1 and there is a distance a from the said base up to the seating of a bar indicated in chain line, which distance is greater than the distance b in Figure 3, in which the spacer has been inverted.

In Figures 2 and 3, a short side of the plate is towards the viewer, whereas in

Figure 4 the spacer has been turned through 90° horizontally so that a long side is viewed. As will be apparent, this permits the seating of a bar of larger diameter upon the spacer.

In Figure 5, the reinforcement spacer is turned on to its side so that the two posts 3 and 4 rest upon the base surface and the reinforcing bar is supported by the curved bearing surface 9 on a short side of the plate 5. The shape of the spacer allows a maximum distance c from the seating of the bar to the said base.

In Figure 6, the spacer is again on a long side, but with the posts 1 and 4 resting upon the said base so that a long side 7 forms a support for a bar of larger diameter than that in Figure 5. There is, of course, no reason why the spacer should not be turned into other positions even if it is to be used for thicker reinforcing bars. However, the bearing surface will not then be so well adapted to support such bars.

WHAT I CLAIM IS:—

1. A reinforcement spacer for supporting reinforcing bars in moulds for concrete, comprising four legs, a quadrilateral plate interconnecting the four legs and located nearer to one end of the legs than the other, one pair of opposite edges of the plate being longer than the other pair of opposite edges of the plate.

2. A spacer as claimed in claim 1, wherein the legs are substantially straight and parallel to each other, the outer portions of adjacent pairs of legs being disposed further outwardly than portions of the plate intermediate thereto, so that the spacer has a stable rest position on each of its four sides on the sides of an adjacent pair of legs and also stable rest positions on the ends of the legs.

3. A spacer as claimed in claim 1 or 2, wherein the edges of the plate are curved inwardly towards the centre of the plate.

4. A spacer as claimed in claim 1, wherein the legs are secured in the corners of the plate so that each of the four edges of the plate terminates at its ends in a pair of legs.

5. A reinforcement spacer for supporting reinforcing bars in moulds for concrete constructed and adapted for use substantially as hereinbefore described with reference to the accompanying drawing.

JENSEN & SON,

Agents for the Applicant,

77, Chancery Lane,

London W.C.2.

Chartered Patent Agents.

