

# United States Patent

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[72] Inventors Johann Knorr;  
Otman Kleinhagauer, both of Kapfenberg,  
Styria, Austria  
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[73] Assignee Gebr. Bohler & Co. Aktiengesellschaft  
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[54] **TRACK SUPPORTING ROLLER GUIDE MEANS  
FOR CASTING TRACKS IN CASTING  
INSTALLATIONS AND MORE PARTICULARLY IN  
CURVED CASTING INSTALLATIONS**  
6 Claims, 3 Drawing Figs.

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193/35, 226/176, 226/189  
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82; 226/176, 177, 189; 193/25, 35; 72/166—170,  
171—175

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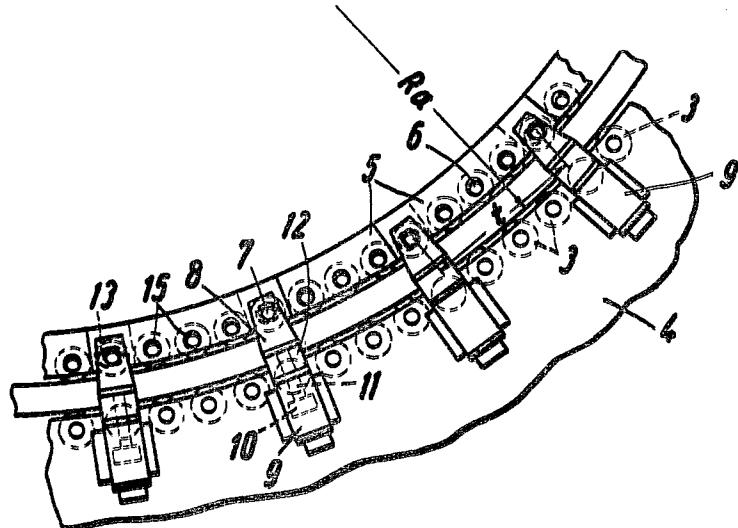
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Primary Examiner—J. Spencer Overholser  
Assistant Examiner—John E. Roethel  
Attorney—Holman & Stern

**ABSTRACT:** A track supporting roller guide for casting tracks in curved casting installations in which rotatable track supporting rollers are essentially arranged on two equidistant curves or rows with the supporting rollers of at least one curve or row being attached to the lengths of a link chain which link chain is adjustable in the direction of the track.



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Fig. 1

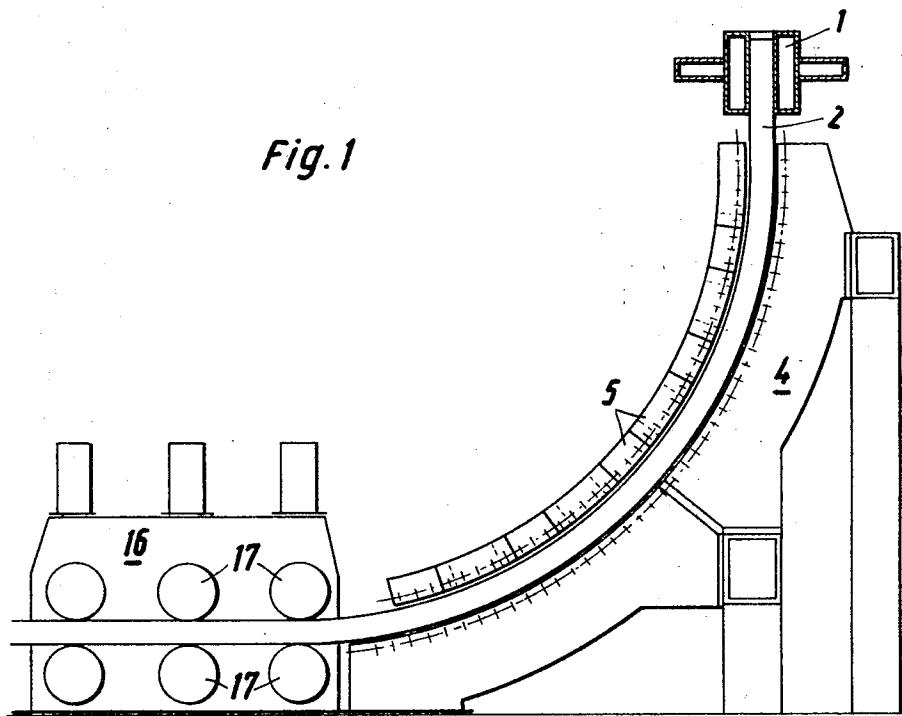


Fig. 3

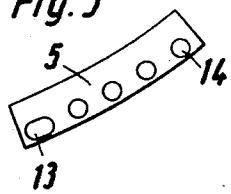
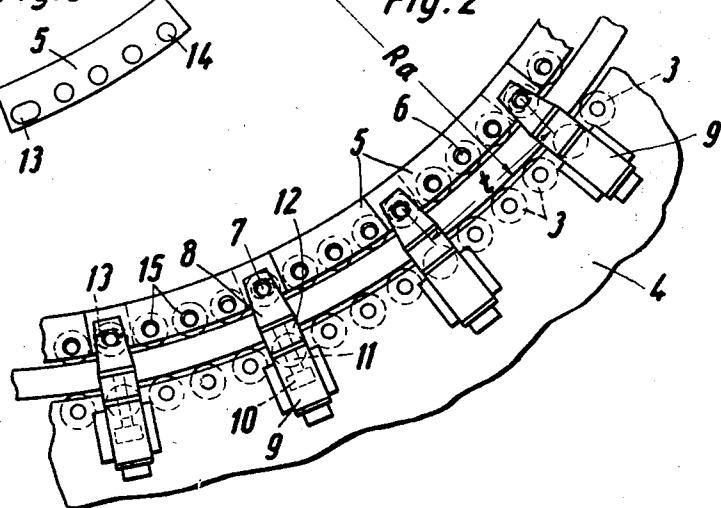


Fig. 2



Inventors

JOHANN KNORR <sup>2nd</sup>  
OTMAR KLEINHAGAUER

By Holman, Glascock, Downing  
Sebold

ATTORNEYS

**TRACK SUPPORTING ROLLER GUIDE MEANS FOR  
CASTING TRACKS IN CASTING INSTALLATIONS AND  
MORE PARTICULARLY IN CURVED CASTING  
INSTALLATIONS**

**BACKGROUND OF THE INVENTION**

The present invention relates to a track supporting roller guide for casting tracks in casting installations and more particularly in curved casting installations wherein rotatable track supporting rollers arranged on two equidistant curves or rows are shiftable in relation to one another.

In the so-called curved casting installations, the cast track which emerges in a perpendicular direction from a liquid-cooled mold runs in the zone of a secondary cooling zone (in which a further cooling of the track is effected via a direct spraying thereof with water) through and between rotatable track supporting rollers arranged essentially on two quarter arcs of a circle. Hence, such supporting rollers will effect the desired deflection of the track from a perpendicular direction into a horizontal direction. Moreover, it has been known to develop the supporting rollers in such installations with the assistance of individually adjustable screw spindles. In such a situation, however, it is extremely difficult and quite time consuming to carry out the precise or exact adaptation of the distance of the supporting rollers with respect to the thickness of the pertinent profile of the track which, as a rule, varies considerably in order to realize an even fit of the track supporting rollers on the surface of the track.

**SUMMARY OF THE INVENTION**

The present invention is based on the problem of overcoming the objectionable characteristics above mentioned and providing a track supporting roller guide which allows an adjustment of the distance of the supporting rollers relative to the thickness of the pertinent quite different casting profiles in a rapid and simple fashion. According to the invention, the desired results are achieved, in the case of a track supporting roller guide of the type previously mentioned, by reason of the fact that the track supporting rollers of at least one of the two curves or rows are attached to the lengths of a link chain capable of adjustment in the direction of the track. In the case of curved casting installations, it is particularly efficacious that the adjustable link chain be provided on the inside of the two curves.

Further important objects and advantages of the present invention will become more readily apparent to persons skilled in the art from the following detailed specification and annexed drawings, and in which drawings:

**BRIEF DESCRIPTION OF THE DRAWINGS**

FIG. 1 is a diagrammatic view in side elevation of the entire track supporting roller guide assemblage for a curved casting installation embodying the present invention.

FIG. 2 is a fragmentary view illustrating a section of the track supporting roller guide, the view being on a somewhat larger scale, and

FIG. 3 is a detailed view, also on an enlarged scale, of an individual link member of the link chain.

**DETAILED DESCRIPTION OF THE INVENTION**

Referring to the drawings and more particularly to FIG. 1, it will be noted that a liquid-cooled mold 1 is provided and a cast track 2 emerges therefrom in an essentially or approximately perpendicular direction and moves into a zone of a secondary cooling between rotatable track supporting rollers 3 arranged substantially on two quarter arcs of a circle. As a result, the supporting rollers 3 will effect a deflection of the track 2 from a perpendicular direction into a horizontal direction.

The supporting rollers 3 provided for the outer or outside quarter arc of the circle are fixedly mounted on a frame 4. The majority of the supporting rollers 3 arranged on the inside of

the quarter arc of the circle are attached to members 5 provided in the form of tongues with the assistance of axle bolts 6. The remaining supporting rollers 3 of the inside quarter of the arc of the circle are mounted on joint bolts 7 which connect the members 5 of the link chains with one another.

In order to shift the link chain in a direction towards the track 2 hydraulically or pneumatically operated means are provided and such means includes cylinders 9, pistons 10 and piston rods 11. More specifically, it will be noted that supports 8 are arranged on both sides of the link chain and the supports 8 are connected with the link chain by means of the bolts 7. The pistons 10 via the piston rods 11 coact with the supports to effect the desired results as is believed readily apparent from FIG. 2.

In order to make a precise or exact adjustment of the distance of the supporting rollers 3 which face each other in a quick and reliable fashion and of the pertinent track profiles which may be of different thicknesses, distancing elements or pieces 12 which are easily exchangeable are provided between the cylinders 9 and the supports 8. To compensate for the changes in length which occur during shifting of the link chain, each member 5 of the link chain is provided with an elongated aperture 13 at one end and a round aperture 14 at the opposite end. It will be noted that a bolt 7 passes through the apertures 13 and 14. Moreover, shiftable cams 15 are provided between the bores of the rollers 3 and the bolts 6 for adjusting the supporting rollers 3 attached to the link chain. By virtue of this arrangement, it is possible to readjust the supporting rollers whenever the members 5 of the link chain run out of their true position during the course of time. One each member 5 of the link chain only enough supporting rollers 3 are mounted so that in the case of an adjustment of the link chain for a different thickness of the track 2, the difference in the radius caused thereby will not require a compensation by adjustment of the cams 15. As a general rule, this difference in radius is immaterial whenever the ratio of the link chain spacing "r" to the radius "Ra" of the outside curve is 0.05-0.10.

The track 2 upon leaving the casting curve defined essentially by the supporting rollers 3, will reach a conveying roller arrangement 17 mounted in a driving frame 16 which will effect an even forward movement of the track 2.

When compared to the hitherto known track supporting roller guides, the present roller guiding offers an important advantage in that it is possible by virtue thereof to adjust the distance of the supporting rollers in a rapid and simple fashion to the varying thicknesses of the track profiles. Moreover, it should be pointed out that the present supporting roller guide is not only suitable for curved casting installations but, in the same manner, it is also practicable for perpendicular or horizontal casting installations.

This invention is not to be confined to any strict conformity to the showings in the drawings but changes or modifications may be made therein so long as such changes or modifications mark no material departure from the spirit and scope of the appended claims.

I claim:

1. A track supporting roller guide for casting tracks produced by means of a liquid-cooled mold in casting systems, particularly curved casting systems, in which rotatable and mutually changeable supporting rollers for the track are arranged on two equidistant curves, a frame means, a link chain one end of which is located adjacent the liquid-cooled mold, means attaching only those rollers located on one side of the track to the link chain, means attaching the rollers on the other side of the track to the frame means, joint bolts connecting the links of the chain and a support at the frame means capable of being preset for supporting each of the joint bolts.

2. The track supporting roller guide as claimed in claim 1 in which each link of the link chain is provided with an elongated aperture at one end and a round aperture at the opposite end for compensating for changes in length which occur during shifting of the link chain.

3. The track supporting roller guide as claimed in claim 1 in which each support is provided with two arms located at both sides of the chain, with said arms holding the joint bolt.

4. The track supporting roller guide as claimed in claim 1 in which means are provided to adjust each support, said means including a fluid cylinder affixed to the frame means, a piston mounted within the cylinder and a distance piece positioned between the support and the cylinder.

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5. The track supporting roller guide as claimed in claim 1 in which the joint bolts which connect the links of the chain together also mount supporting rollers.

6. The track supporting roller guide as claimed in claim 1 in which the ratio distance of the two joint bolts to the radius of the outer curve is 0.05:0.10.

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