

Title : Roller rail for a drive gear for a hanging supported partition wall

Description

5 The invention relates to a roller rail for a drive gear with a partition wall or the kind hanging supported from the drive gear, whereby the roller rail presents a box type hollow profile with a guiding slot for the penetration of a carrying component linked to the partition wall and the hollow profile consists of U-profiles mirror
10 symmetrically arranged towards each other on both sides of the guiding slot which profile's U-webs build the exterior hollow profile's delimitation and which U-legs pointing towards each other are designed in a way that two U-legs arranged in opposite direction form a connection profile to connect the roller rail to a floor construction or the kind and two U-legs arranged in opposite
15 direction delimit the guiding slot.

DE 40 41 925 C1 reveals a roller rail according to the above mentioned species where a drive gear, described as carrying and guiding component is guided in the roller rail, consists basically of a square carrier roller reception presenting carrier rollers on both
20 sides so that the carrier rollers of one carrying and guiding component run in the running surfaces of the U-legs arranged in opposite direction and delimiting the guiding slot.

Furthermore the object of the internal development state of the applicant is a roller rail of the initially mentioned species where the
25 individual partition wall is suspended from two distant drive gears whereby each individual drive gear presents at least one carrier roller and whereby the carrier roller of one drive gear is supported on the running surface of one U-leg delimiting the guiding slot and another carrier roller of the other drive gear is supported on the

running surface of the other U-leg arranged in opposite direction and delimiting the guiding slot.

The before mentioned roller rails have in common that they enclose the drive gear on all sides with the exception of the guiding slot
5 required for the penetration of the carrying component for the partition wall. For maintenance and repair service however, it is advantageous to guarantee accessibility to the drive gear without having to disconnect the entire partition wall from the unit or if necessary without having to uninstall several partition wall panels.

10 One possible solution is disclosed by the applicant's "HSW-G mounting instructions" with reference to a guide rail corresponding to the before mentioned DE 40 41 925 C1; here, according to illustration 8 in the mounting instructions, an inspection part is provided that may be disconnected from the guide rail. The before
15 mentioned inspection part consists of a complete section of the roller rail and after detachment from the floor construction it may be removed from the roller rail. For centring purpose between the inspection part and the adjoining roller rail sections, guiding grooves are provided in the adjoining roller rail sections and in the
20 inspection part there are guiding brackets engaging in the guiding grooves and serving as counter-guiding. The guiding grooves and guiding brackets are found in the connection area to the floor construction. Practical operation has experienced that the slightest inferior inspection part twisting with regard to the adjoining roller rail
25 sections has led to malfunctions when the drive gear passes the inspection part. As the roller rail building a guiding channel for the drive gear is completely opened when removing the inspection part according to the above mentioned mounting instructions, it is necessary to lift the partition wall from the floor or to support it, if
30 the drive gear is driven in the area of the inspection opening for

maintenance or repair service as the guidance in this area for the drive gear's carrier rollers is completely neutralised..

The problem of the invention is to design a roller rail according to the initially mentioned species in a way that maintenance

5 respectively repair service is made possible without having to neutralise the carrying function of the carrier roller and without hindering the guiding properties of the roller rail in the area of the inspection opening respectively the inspection closer (inspection part), when creating an appropriate inspection opening respectively
10 an inspection closer.

The invention solves the problem with the teaching according to claim 1. Consequently one web assigned to the roller rail and one U-leg assigned to the web delimiting the U-profile over a partial length of the roller rail are detachably connected to the roller rail.

15 This means that independently from the fact, whether the individual drive gear is guided with two carrier rollers in both U-profiles or only with one carrier roller in one U-profile, in each case one of the U-profiles may be detached, so that one drive gear's carrier roller is always accessible from one side. When using a drive gear with
20 two carrier rollers according to DE 40 41 925 C1 respectively one of both carrier rollers maintains its carrying properties, when using only one carrier roller per drive gear, the inspection opening is placed in a way that it is arranged on the opposite side of the carrier roller of the roller rail so that the carrier roller bearing is
25 accessible. As moreover the roller rail is not completely interrupted, the roller rail's guiding properties are maintained and twisting of adjoining roller rail sections as a result of the known inspection part is excluded.

30 More characteristics of the invention are characterised by the sub-claims.

It has been advantageous to combine both U-legs arranged in opposite direction and building a connection profile to connect the roller rail to the floor construction or the kind, in one piece to each other, e.g. the inspection part is designed to simply consist of one
5 U-web and of one U-leg delimiting the guiding slot.

One advantageous mounting possibility for the inspection part is feasible in case the U-profile's web presents undercut grooves on the web's outside surface, preferably several of the kind are arranged running along the web's height. In this case, the
10 inspection part's web may be fixed by means of an exterior bracket sitting close to the inspection part's web outside surface and to the adjoining U-profile's web outside surface and which is detachably linked to the web of the adjoining U-profile. This detachable connection may preferably be realised by means of bolts
15 penetrating the exterior bracket which bolts engage into interior brackets arranged in the inspection part web's undercut grooves and arranged in the adjoining U-profile's web, or by hammer-head bolts penetrating the exterior bracket which bolt's heads are supported in the inspection part web's undercut grooves and in the
20 adjoining U-profile's web. In each case, the inspection part consisting basically of the U-profile's web and the U-profile's leg delimiting the guiding slot, is located at the adjoining part of the roller rail in a way that the aligned drive gear guidance is guaranteed.

25 The U-leg delimiting the guiding slot forms in a known way the running surface for the carrier roller; as far as this running surface consists of anti-wear inserts or anti-wear layers, in further development of the invention it is proposed to offset the anti-wear insert's or anti-wear layer's joints with regard to the joints between
30 the inspection part's U-legs and the U-legs of the adjoining U-profile, whereby this is preferably realised in a way that the anti-

wear inserts or anti-wear layers of the U-leg adjoining the inspection part protrude the U-leg's joint, e.g. project into the inspection opening area. As the anti-wear inserts are made of hardened material and are supported in the before mentioned U-leg's guidings, they perform a supplementary centring between the detachable inspection part and the adjoining roller rail section.

In practical operation, the typical procedure is to arrange over the length of the roller rail at least two inspection openings placed mirror symmetrically towards each other which openings are offset in the roller rail's longitudinal direction with the intention to allow accessibility to each drive gear from both sides.

This invention results in a drive gear which allows inspection and repair service of drive gears of hanging supported partition walls without loosing any guidance properties of the roller rail, and without neutralising the drive gear's supporting function in the area of the inspection opening.

Hereinafter, the invention is explained in a diagram on the basis of one possible execution example of a partition wall system that may be automatically operated.

- 20 Figure 1 shows: a cross section of the roller rail in the inspection opening area
- Figure 2 shows: a cross section according to figure 1 with inspection part represented by dotted lines
- Figure 3 shows: a cross section of the inspection part
- 25 Figure 4 shows: a lateral view of the roller rail, the inspection part being inserted
- Figure 5 shows: a lateral view according to figure 4, the inspection part being removed.

The cross section according to figure 1 shows a roller rail 1 in the area of an inspection part 17 in which is guided a drive gear (figure 2), presenting basically a carrier roller 3, guiding rollers 4 and a carrying component 5 for the connection to a non-represented partition wall.

Furthermore figure 4 shows a driving pinion 6 assigned to the drive gear 2 which pinion combs with a rack 7.

As figures 1 and 2 reveal furthermore, the roller rail 1 consists of a box type hollow profile 8 presenting a guiding slot 9. The box type hollow profile 8 is basically made of two U-profiles 10 which U-webs 11 form the hollow profile's 8 exterior delimitation and present the U-legs 12, 13 directed towards each other. The U-legs 12 arranged in opposite direction, shown on the upper focal plane, are connected to each other in one piece and by the way form a connection profile 14 for the connection to a non-represented floor construction.

The web's outside surfaces 15 of the U-webs 11 present several undercut grooves 16 which are superimposed.

In figure 2, the inspection part 17 is represented by a dotted line and in figure 3 by a continuous line. Basically it includes one of both U-webs 11 and one of both U-legs 13 arranged in opposite direction delimiting the guiding slot 9. The connection of the inspection part 17 to the adjoining areas of the roller rail 1 is realised by means of an exterior bracket 19 (cf. figure 4) through which are passing the bolts 20. In this execution example, the bolts 20 engage into interior brackets 21 which are supported in the undercut grooves 16. The U-legs 13 build a running surface 22 for the carrier roller 3 and present an anti-wear insert 23 on which the carrier roller 3 is running.

As represented in figure 5, the anti-wear inserts' 23 joints S' are offset with regard to the U-legs' 13 joints S, with the result that the anti-wear inserts 23 project into the inspection opening 18 like an additional centring between the inspection part 17 and the adjoining roller rail 1 sections.

According to figure 4, the bracket's 19 width is larger than the inspection opening's 18 width so that the bracket 19 may be screwed on the one side with the inspection part 17 and on the other side with the adjoining section of the roller rail 1. In the inspection part's 17 area, a rack 7 required with automated systems for the actuation, also has to be divided in order to allow removing the complete inspection part 17 together with the rack 7 after releasing the bracket 19 from the roller rail 1. The execution of a roller rail 1 with inspection part 17 may be realised as well with automated as with manually operated partition wall systems.

References

- 1 Roller rail
- 2 Drive gear
- 3 Carrier roller
- 20 4 Guiding rollers
- 5 Carrying component.
- 6 Driving pinion
- 7 Rack
- 8 Box type hollow profile
- 25 9 Guiding slot
- 10 U-profile
- 11 U-web
- 12 U-leg
- 13 U-leg

- 14 Connection profile
- 15 Web's outside surface
- 16 Undercut grooves
- 17 Inspection part
- s 18 Inspection opening
- 19 Exterior bracket
- 20 Bolts
- 21 Interior brackets
- 22 Running surface
- 10 23 Anti-wear inserts
- S' Anti-wear inserts' joints
- S U-leg's joints

Claims

- 1) Roller rail for a drive gear with a partition wall or the kind
15 hanging supported from the drive gear, whereby the roller rail
presents a box type hollow profile with a guiding slot for the
penetration of a carrying component connected to the
partition wall and the hollow profile consists of U-profiles
20 mirror symmetrically arranged towards each other on both
sides of the guiding slot, which U-webs build the hollow
profile's exterior delimitation and the U-legs pointing towards
each other are designed so that two U-legs arranged in
opposite direction build a connection profile for the
25 connection of the roller rail to a floor construction or the kind
and two U-legs arranged in opposite direction delimit the
guiding slot, characterised in that one web (11) and one U-
profile's (10) U-leg (13) assigned to the web (11) and
delimiting the guiding slot (9) are detachably connected to the
roller rail (1) over a partial length of it.



- 2) Roller rail according to claim 1, characterised in that both U-legs (12) arranged in opposite direction and building a connection profile (14) for the connection of the roller rail (1) to a floor construction or the kind, are combined in one-piece.
- 5 3) Roller rail according to claims 1 and 2, characterised in that the U-profile's (10) web (11) presents several undercut grooves (16) on the web's outside surface (15).
- 4) Roller rail according to claim 3, characterised in that the U-profile's (10) web (11) presents several undercut grooves
10 (16) running over the web's height.
- 5) Roller rail according to one of the claims 1 to 4, characterised in that the web (11) detachable over a partial length of the roller rail (1) builds with its assigned U-leg (13) delimiting the guiding slot (9) the closer piece (inspection part 17) of an
15 inspection opening (18).
- 6) Roller rail according to one of the claims 1 to 5, characterised in that over the length of the roller rail (1) at least two inspection openings (18) are provided mirror symmetrically arranged towards each other and offset with regard to the
20 roller rail's (1) longitudinal direction.
- 7) Roller rail according to one of the claims 1 to 6, characterised in that the inspection part (17) is detachably linked with the adjoining U-profile's (10) web (11) by means of the exterior bracket (19) sitting close to the inspection part's (17) web's
25 outside surface (15) and sitting close to the adjoining U-profile's (10) web's outside surface (15).
- 8) Roller rail according to claim 7, characterised in that the detachable connection is realised by bolts (20) penetrating the exterior bracket (19), bolts engaging into interior brackets
30 (21) arranged in the undercut grooves (16) of the inspection



part's (17) web (11) and of the adjoining U-profile's (10) web (11).

- 5 9) Roller rail according to claim 7, characterised in that the detachable connection is realised by means of hammer-head bolts penetrating the exterior bracket (19), bolts which are supported with their heads in the undercut grooves (16) of the inspection part's (17) web (11) and in the adjoining U-profile's (10) web (11).
- 10 10) Roller rail according to one of the claims 1 to 9, characterised in that the U-legs (13) arranged in opposite direction delimiting the guiding slot (9) and building a running surface (22) for the carrier roller (3) present anti-wear inserts (23) or anti-wear layers in the running surface (22) area, which joints (S') are offset with regard to the joints (S) between the
- 15 inspection part's (17) U-legs (13) and the adjoining U-profiles (10) U-legs (13).
- 20 11) Roller rail according to claim 10, characterised in that the anti-wear inserts (23) or anti-wear layers of the U-leg (13) adjoining the inspection part (17) protrude the U-legs' (13) joint (S).
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