The present invention relates to a handguide arrangement for balustrades in association with, for example, stairs or walking ramps, which comprises an elongate gripping element (1) adapted to the length of the balustrade and which forms the body of a preferably continuous handguide. The function of a handguide is to be able to constitute a support for and/or create a sense of security for a user of, for example, the above mentioned stair, by constituting a redundant handgrip or hand support in addition to the user’s own legs or moving aids. The gripping element (1) has, seen in cross section (2), a configuration which constitutes a combination between a rectangular cross section and one or more mathematically continuous or discontinuous cross sectional configurations, for example substantially circular or ellipsoidal. In such instance, the sides of the rectangular configuration form planar sections (3) of the gripping element while the same, in association with the corners or edges of the rectangular configuration, display rounded, shaped sections (4) corresponding to one or more of the relevant curve configurations. In connection with the gripping element (1) being grasped, there occurs an interlocking friction union between the user’s hand and the gripping element.
HANDGUIDE ARRANGEMENT FOR BALUSTRADES

Technical field
The present invention relates to a handguide arrangement for balustrades in association with, for example, stairs or ramps, comprising an elongate gripping element which is adapted to the length of the balustrade and which forms the body of a preferably continuous handguide whose function is to be able to constitute support for and/or create a sense of security on the part of a user by constituting a redundant handgrip or hand support in addition to the user's own legs or moving aids.

Background art
In prior art solutions relating to handguide arrangements for balustrades, use has usually been made of some form of standard profile of steel, aluminium or wood. The cross sectional configuration has been circular or rectangular tube profiles of standard type. Such are generally known in the art and are not least economical and simple to produce. Since they are therefore stored for immediate delivery they have subsequently been put into use without any greater consideration of their functional aspects. Exceptions have been in specific cases special profiles of wood which have been custom manufactured. This production has not, however, as far as it has been possible to ascertain, been made with any particular consideration of ergonomics or functional aspects but rather in view of interior decoration or design aspects. People suffering from grip problems, pain – and in particular rheumatic pain – often find it very difficult to use edged or rectangular handguides. For this reason, circular profiles have come into use. However, a circular profile suffers from the particular drawback that it may be difficult to gain a stable grip on, in particular it may be difficult to realise what position the handguide is to be grasped in at each individual point in time. In particular patients suffering from rheumatism often have hands and fingers which stiffen in positions which, for normally healthy people, appear to be improbable. This latter factor may be one reason why handguides have not previously been devoted much consideration. Among technicians, demands are often placed on a friction union instead of a configuration union. Friction unions are in
general highly effective unions, but in order to function, require a relatively powerful grip in order to be able to benefit from the friction in transferring forces. Elderly people, in particular those who suffer from one handicap or another, may find it difficult to create sufficient force for it to be possible to achieve a friction union.

The object of the present invention is therefore to realise a handguide arrangement which permits that which may be described as an interlocking friction union, since thereby even persons who, for any of the above-outlined reasons, can no longer grasp about a handguide with sufficient force will be able to do so to a considerably greater extent than previously in order thereby to benefit from the support or sense of security which is the actual meaning of a handguide.

**Brief outline of the invention**

According to the present invention, the gripping element is, seen in cross section, of a configuration which constitutes a combination between a rectangular cross section and one or more mathematically continuous or discontinuous cross sectional configurations, for example a circle or an ellipse, in such a manner that the sides of the rectangular configuration form planar sides of the gripping element, while, in conjunction with the corners or edges of the rectangular configuration, displaying a gently rounded configuration corresponding to one or more of the pertinent curved configurations, as a result of which, when gripping element is grasped, an interlocking friction union is established between the user's hand and the gripping element.

The "rounded edged" shape of the handguide according to the present invention gives people who, for some of the above-accounted reasons, can no longer grasp about a conventional handguide with sufficient force, the possibility of doing so expediently.
As a result of the configuration with one or more planar sides, at least one planar side can be used as a working support surface – or as a surface against which, after mounting of the handguide in place, an applied load can be distributed broadly.

The handguide according to the present invention is relatively simple to produce by hot-rolling of an initially rectangular hollow steel profile. Consequently, it may be manufactured in an extremely cost-effective manner.

An extruded aluminium profile can appropriately also be utilised according to the present invention for realising a simple and possibly dismountable handguide arrangement. Such profiles are particularly usable in connection with, for example, temporary handicap adjustment of entrances for dwellings.

Regardless of what material from which the handguide is manufactured, it may naturally also be manufactured from a plastic material, the final product, with its configuration according to the present invention, may be given even further improved grip either before or after having been customised to an end product, by being coated with one or more layers of a material of known and modifiable coefficient of friction. Such a layer may also include anti-corrosive components. If the handguide is produced from aluminium and is to be combined, for example, with a balustrade of steel, such a coating may be utilised for insulating, and thereby avoiding electrochemical phenomena which otherwise might easily occur in a combination of different metallic materials.

The present invention will be described in greater detail hereinbelow, with reference to one embodiment shown on the accompanying drawing, in which: Fig. 1 is a perspective view of a gripping element for a handguide according to the present invention of a determined length.
General description

The perspective view which is shown according to Fig. 1 illustrates one design of a gripping element 1 for a handguide which is here represented with a specific length which, however, may be optional. The gripping element 1 is of tubular design, its cross section being apparent at reference numeral 2. It should be observed that the material thickness of the gripping element 1 which is shown in the figure is only shown schematically and this must, naturally, be adapted to the material from which the handguide 1 is produced. The gripping element 1 displays, in the illustrated embodiment, four cross sectionally planar sections 3 which derive from the square basic configuration from which the illustrated embodiment departs, and also for curved sections 4 which, in this case, are defined as circular sections. However, this basic configuration may also be irregularly rectangular as well as that the curved portions may deviate from a circular configuration. Nor need the basic configuration be continuous in a mathematically correct sense, but may be modified gradually in small steps, for which reason the overall impression of a gentle configuration is not disturbed. However, these alternative embodiments are not shown on the figure, since almost infinite variation possibilities exist.

The present invention should not be considered as restricted by the foregoing description, but is restricted only by the appended claims.
CLAIMS

1. A handguide arrangement for balustrades in connection with, for example, stairs or walking ramps, which comprises an elongate gripping element (1) adapted to the length of the balustrade and which forms the body in a preferably continuous handguide whose function is to be able to constitute a support for and / or create a sense of security for a user by constituting a redundant manual grip or manual support in addition to the user’s own legs or movement aids, characterised in that the gripping element (1), seen in cross section (see 2) is of a configuration which constitutes a combination between a rectangular cross section and one or more mathematically continuous or discontinuous cross sectional configurations, for example a circle or an ellipse, in such a manner that the sides of the rectangular configuration form planar sections (3) of the gripping element, while same, in connection with the corners or edges of the rectangular configuration, display roundly formed sections (4) corresponding to one or more of the relevant curve configurations, whereby, in connection with the grasping of the gripping element (1), there arises an interlocking friction union between the user’s hand and the gripping element.

2. The handguide arrangement as claimed in claim 1, characterised in that associated gripping elements (1) consist of a hollow steel profile hot-rolled in a rolling-mill.

3. The handguide arrangement as claimed in claim 1, characterised in that associated gripping elements (1) consist of an extruded aluminium profile.

4. The handguide arrangement as claimed in any of the preceding claims, characterised in that the outside of the gripping element (1) is treated with an anti-corrosive surface coating.
5. The handguide arrangement as claimed in claim 4, characterized in that the surface coating includes components which promote a friction build-up between the handguide and the hand grasping the handguide.
**INTERNATIONAL SEARCH REPORT**

**International application No.**
PCT/SE 02/00374

**A. CLASSIFICATION OF SUBJECT MATTER**

**IPC7:** E04F 11/18
According to International Patent Classification (IPC) or to both national classification and IPC

**B. FIELDS SEARCHED**

Minimum documentation searched (classification system followed by classification symbols)

**IPC7:** E04F

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

SE, DK, FI, NO classes as above

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

EPO-INTERNAL, WPI DATA, PAJ

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

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Further documents are listed in the continuation of Box C. See patent family annex.

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**Date of the actual completion of the international search**

24 June 2002

**Date of mailing of the international search report**

26-06-2002

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