

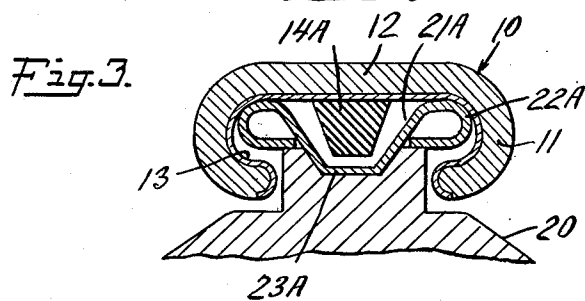
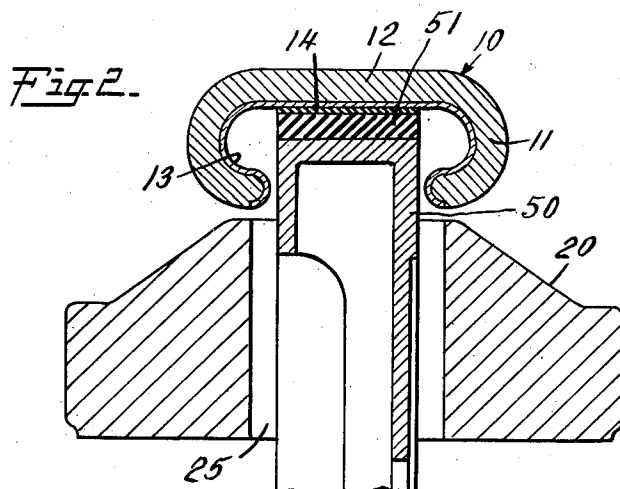
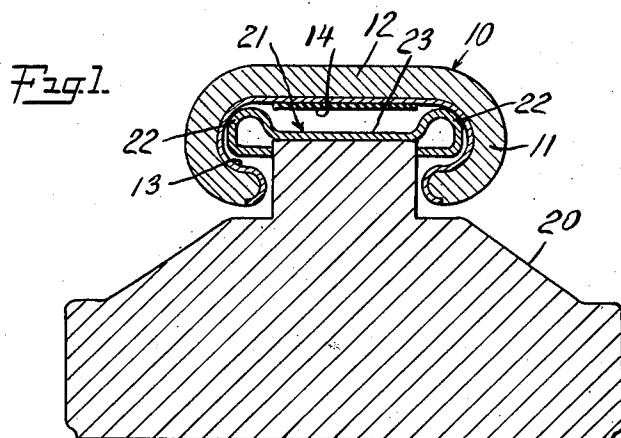
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HANDRAIL FOR MOVING STAIRWAYS

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HANDRAIL FOR MOVING STAIRWAYS

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8 Claims. (Cl. 198—16)

This invention relates to improvements in hand rails for moving stairways.

Its object is to provide a flexible movable hand rail of novel construction with portions of its inner surface which are slidable on guides, of a material having a low coefficient of friction and with an intermediate part of its inner surface which is adapted to be driven, of a material or shape that will cooperate with driving means to provide a frictional differential between itself and the slidable surfaces, thereby providing a hand rail of simple construction having tractional properties that will permit of its being driven at low driving tension without slipping so that all parts of the hand rail may be operated in the same plane, to thereby reduce the space occupied by the balustrades which enclose parts of the hand rail, and to lengthen the useful life of the hand rail by reducing the tension necessary to drive it.

The invention will be understood by referring to the drawing and from the following description, and its novel features will be pointed out in appended claims.

In the drawing,

Fig. 1 is a cross section of a hand rail which embodies my invention, together with a similar section of its guide rail and of a bannister upon which the latter is supported;

Fig. 2 is a similar cross section showing a hand rail of the same construction, and a portion of a driving member, in this case a pulley; and

Fig. 3 is a cross section illustrating a modification of construction.

10 designates a hand rail of rubber or other flexible material of a flattened C cross sectional shape having substantially semi-circular ends 11 and a flat intermediate part 12. This is the usual shape of hand rails of this character and forms no part of my invention, except that a valuable feature of the invention is that no material change in the usual shape of such hand rails is necessary. The inner surface of the hand rail is a layer 13 of a flexible material which has a low coefficient of friction, such as canvas. Intermediate the curved ends of the rail is a band 14 of a flexible material which has a higher coefficient of friction, such as rubber. This band 14, in fact all of the parts so far described, may be continuous and endless. The band 14 is preferably affixed to the hand rail.

20 designates a bannister upon which is supported the upper run of a track or guide 21. The ends of this track are bent to form transversely curved portions 22 upon which the upper run of the hand rail is supported and over which it slides.

Intermediate these curved ends is a flat portion 23 which rests upon and is secured to the bannister 20. This intermediate portion is depressed to form a clearance for the band 14. It is understood that the lower or return run of the hand rail is supported upon a rail of the same or similar character.

The section in Fig. 2 is taken vertically through the center of a driving pulley 50 which extends through the bannister 20 which is slotted at this place, as at 25, to form a clearance for the pulley. The band 14 rests upon the periphery of pulley 50 in driving engagement therewith. As shown, the periphery of the pulley is formed of a material 51 of a high coefficient of friction, such for example, as rubber.

I have shown the band 14 as flat, as that is its most simple and preferred shape and construction, but the invention is not limited in this particular. I have, for example, shown in Fig. 3 a traction member 14A in the form of a beveled edge belt. This may be affixed to the hand rail in any desired manner.

With this particular construction, the rail 21A is shaped as shown to form a clearance for the driven member 14A. As shown, the intermediate portion 23A is considerably lower than the curved ends 22A in order to form a space through which the driven member 14A may pass without interference.

Other modifications may be made within the spirit and scope of this invention and I intend no limitations other than those in the appended claims.

What I claim is:

1. A hand rail for moving stairways comprising a flexible body having a central portion and channel shaped sides with inner surfaces adapted to slide on guides, and a frictional non-metallic traction member on the central portion of said body of a material having a higher coefficient of friction than that of said slidable surfaces.

2. A hand rail for moving stairways comprising a flexible body having a central portion and channel shaped sides, a lining for said body of a material having a low coefficient of friction adapted to slide on guides, and a driven member of a material of a higher coefficient of friction on said central portion of the body.

3. A hand rail for moving stairways comprising a flexible body having a central portion and channel shaped sides, a lining for said body of a material having a low coefficient of friction adapted to slide on guides, and a driven member of a material of a higher coefficient of friction

on the lining on said central portion of the body.

4. A hand rail for moving stairways comprising a flexible body having a flattened central portion and channel shaped sides with inner surfaces adapted to slide on guides, and a substantially flat frictional non-metallic traction member on the central portion of said body of a material having a higher coefficient of friction than that of said slidable surfaces.
5. A hand rail for moving stairways comprising a flexible body having a central portion and channel shaped sides with inner surfaces adapted to slide on guides, and a frictional non-metallic traction member on the central portion of said body of a material having a higher coefficient of friction than that of said slidable surfaces, combined with a stationary guide having spaced tracks slidably supporting the hand rail by its channel shaped sides.
6. A hand rail for moving stairways comprising a flexible body having a central portion and channel shaped sides with inner surfaces adapted to slide on guides, and a frictional non-metallic traction member on the central portion of said body of a material having a higher coefficient of

friction than that of said slidable surfaces, combined with a driving member in engagement with said traction member.

7. A hand rail for moving stairways comprising a flexible body having a central portion and channel shaped sides with inner surfaces adapted to slide on guides, and a frictional non-metallic traction member on the central portion of said body of a material having a higher coefficient of friction than that of said slidable surfaces, combined with a driving pulley having a tire of resilient material in engagement with said traction member.

8. A hand rail for moving stairways comprising a flexible body having a central portion and channel shaped sides with inner surfaces adapted to slide on guides, and a frictional non-metallic traction member on the central portion of said body of a material having a higher coefficient of friction than that of said slidable surfaces, combined with a stationary guide having spaced tracks slidably supporting the hand rail by its channel shaped sides and with a driving member in engagement with said traction member.

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