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H. L. EARLE

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PROTECTIVE DEVICE FOR MOVING STAIRWAYS

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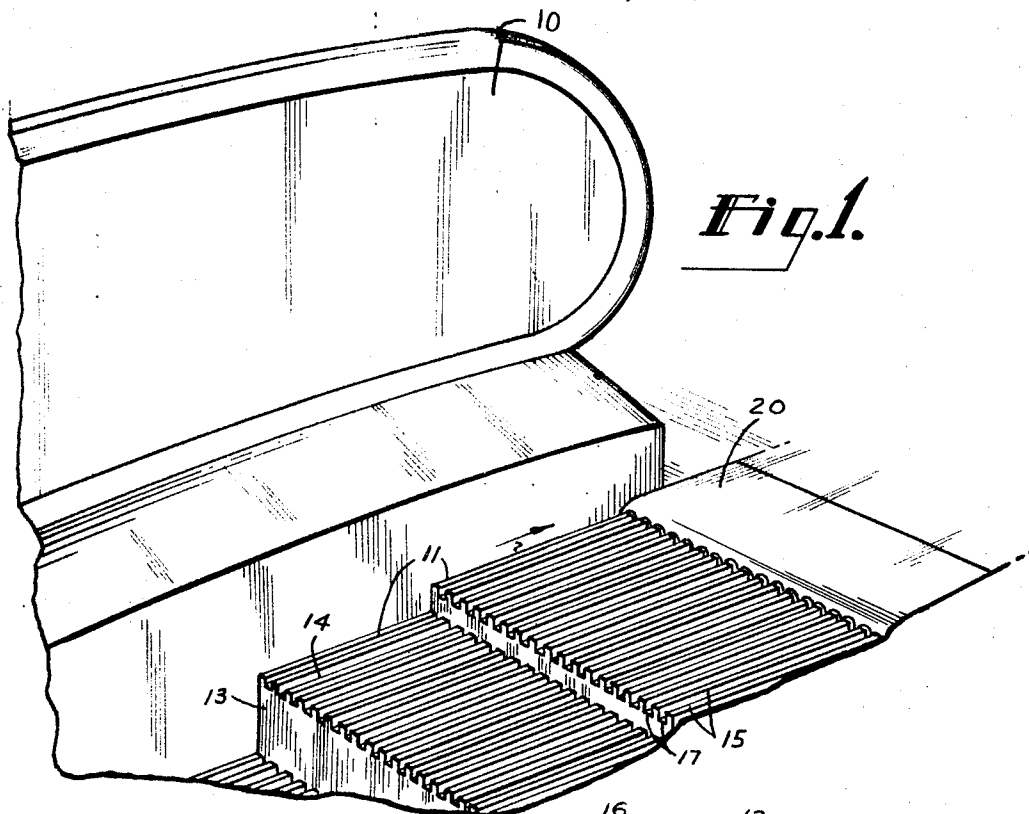


Fig. 1.

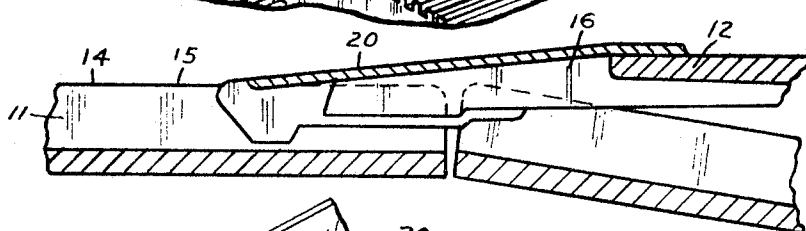


Fig. 2.

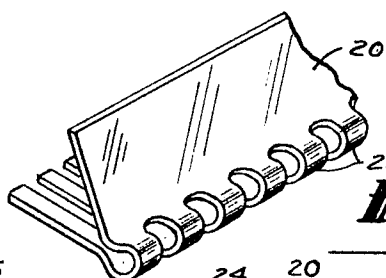


Fig. 3.

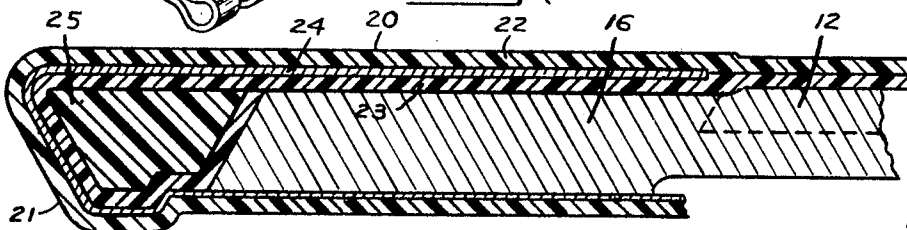


Fig. 4.

INVENTOR
HENRY L. EARLE

BY *William A. Zalusak*
ATTORNEY

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PROTECTIVE DEVICE FOR MOVING STAIRWAYS
Henry L. Earle, Maplewood, N.J., assignor to Nest, Inc.,
Bayonne, N.J.

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6 Claims

ABSTRACT OF THE DISCLOSURE

A protective device for a moving stairway wherein the moving steps are provided with longitudinal cleats and a fixed comb plate is provided with a plurality of longitudinally extending teeth meshing with the cleats, including a top plate of resilient material covering the teeth and having resilient independently flexible fingers registering with the slots between the cleats.

BACKGROUND OF THE INVENTION

The invention relates to protective devices for moving stairways in which the step treads are provided with a plurality of longitudinally extending treads. Comb plates, usually of metal attached to the floor toward which the steps move are normally provided with rigid fingers meshing with the slots between the cleats for the purpose of providing some protection for the feet of the persons using the stairway.

The open area of the comb plates permit sharp ended objects such as spiked shoes, umbrellas and like objects to penetrate and jam between the step tread and the plate. Variations of clearance between the step tread and comb plate both vertically and horizontally makes it necessary to provide tolerance resulting in spacings into which for example children's fingers have been clamped and injured. Further the leading edges or ends of the comb plate fingers being rigid and not properly designed can catch in holes or depressions in for example shoes, causing a jamming action resulting in damage or physical injury.

SUMMARY OF THE INVENTION

A protective device of the kind referred to includes a top plate of resilient material adapted to engage the top of a comb plate and extend forwardly of the moving stairway and completely cover the teeth of the comb plate. The top plate is provided with resilient fingers registering with the slots between the stair cleats, have blunt leading edges or ends and are individually and independently flexible relative to each other. The top plate and fingers are made of laminated layers including an intermediate reinforcing mesh. The top plate and fingers thereon enfold and engage the upper and lower surfaces of the comb plate teeth or escalator fingers.

BRIEF DESCRIPTION OF THE DRAWING

FIGURE 1 is a perspective of a moving stairway with my invention applied;

FIGURE 2 is a longitudinal section of a device made according to my invention and taken along a slot and to one side of a finger;

FIGURE 3 is a partial perspective broadly showing the device made according to my invention before being applied to the fixed comb plate; and,

FIGURE 4 is an enlarged vertical section taken along a finger of the device shown in the other figures.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring to the figures (FIGURES 1 and 2), the balustrade on the upper end of the ascending stairs is shown

at 10. The steps of the moving stairway are designated 11. The comb plate is designated 12.

Each step (FIGURE 2) comprises a step. A tread 14 is secured to a frame 13. The tread 14 is formed with a plurality of longitudinal cleats 15, which are staggered in relation to the extending teeth or fingers 16 allowing them to extend into the tread grooves 17.

In accordance with my invention I cover the entire open area of the conventional comb plate and fingers with the protective device shown in FIGURES 2, 3 and 4.

The device comprises a flexible or resilient top plate 20 of moulded plastic material for example vinyl with integral fingers 21. The top plate and fingers are made of bonded laminated materials. The upper and lower outer layers 22 and 23 engage the opposite sides of a reinforcing mesh 24 of any suitable material. Layer 23 receives and enfolds a bumper element 25 which can be of a resilient flexible material for example molded plastic or rubber. One side of reinforcing layer 23 engages the end of one of the teeth 16. The mesh 24 engages the underside of the teeth 16. The fingers 21 are dimensioned to provide a very small clearance between the fingers 21 and treads to avoid wear.

The fingers are individually and independently flexible relative to each other. The fingers are also blunt ended as shown to provide further safety against engaging objects passing over the fingers.

I claim:

1. A protective device for a moving stairway wherein the moving steps are provided with longitudinal cleats and a fixed comb plate is provided with a plurality of longitudinally extending teeth meshing with said cleats, said protective device including:

- (a) a top plate adapted to engage the top of said comb plate and extending forwardly thereof toward said moving stairway,
- (b) a plurality of resilient fingers integral with said top plate and registering with the slots between said cleats and extending forwardly of said plate,
- (c) said resilient fingers having blunt leading edges, and engaging and enfolding said teeth.

2. A protective device for a moving stairway wherein the moving steps are provided with longitudinal cleats and a fixed comb plate is provided with a plurality of longitudinally extending teeth meshing with said cleats, said protective device including:

- (a) a top plate of resilient material adapted to engage the top of said comb plate and extend forwardly thereof toward said moving stairway and completely covering said teeth,
- (b) a plurality of (resilient) fingers on said top plate registering with the slots between said cleats but out of contact with said steps and extending forwardly of said plate,
- (c) said (resilient) fingers having, blunt leading edges and engaging and enfolding said teeth,
- (d) said resilient fingers having individual and independent flexing relative to each other.

3. A protective device for a moving stairway wherein the moving steps are provided with longitudinal cleats and a fixed comb plate is provided with a plurality of longitudinally extending teeth meshing with said cleats, said protective device including:

- (a) a top plate adapted to engage the top of said comb plate and extend forwardly thereof toward said moving stairway,
- (b) a plurality of fingers integral said top plate and registering with the slots between said cleats and extending forwardly of said plate,
- (c) said resilient fingers having individual and independent flexing relative to each other.

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- (d) said top plate and fingers comprising two layers of flexible material with an intermediate layer of reinforcing mesh material,
- (e) said fingers enfolding said teeth and in contact with both sides and the end of said teeth.
4. A protective device for a moving stairway wherein the moving steps are provided with longitudinal cleats and a fixed comb plate is provided with a plurality of longitudinally extending teeth meshing with said cleats, said protective device including:
- (a) a top plate adapted to engage the top of said comb plate and extend forwardly thereof toward said moving stairway and completely covering said teeth,
- (b) a plurality of fingers on said top plate registering with the slots between said cleats and extending forwardly of said plate,
- (c) said fingers having blunt leading edges, and
- (d) said top plate and fingers comprising a plurality of layers of flexible material engaging both sides of the teeth of said comb plate.
5. A protective device for a moving stairway wherein the moving steps are provided with longitudinal cleats and a fixed comb plate is provided with a plurality of longitudinally extending teeth meshing with said cleats, said protective device including:
- (a) a top plate adapted to engage the top of said comb plate and extend forwardly thereof toward said moving stairway and completely covering said teeth,
- (b) a plurality of fingers on said top plate registering with the slots between said cleats and extending forwardly of said plate,
- (c) said fingers having blunt leading edges, and

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- (d) said top plate and fingers comprising two layers of flexible material with an intermediate layer of reinforcing mesh engaging both sides of the teeth on said comb plate.
6. A protective device for a moving stairway wherein the moving steps are provided with longitudinal cleats and a fixed comb plate is provided with a plurality of longitudinally extending teeth meshing with said cleats, said protective device including:
- (a) a top plate adapted to engage the top of said comb plate and extend forwardly thereof toward said moving stairway and completely covering said teeth,
- (b) a plurality of fingers on said top plate registering with the slots between said cleats and extending forwardly of said plate,
- (c) said fingers having blunt leading edges, and
- (d) said top plate and fingers comprising two layers of flexible material with an intermediate layer of reinforcing mesh engaging both sides of the teeth on said comb plate,
- (e) and a bumper element enfolded and enclosed by the layer of flexible material of each of the fingers in contact with the surfaces of the teeth of the comb plate.

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RICHARD E. AEGERTER, Primary Examiner