H. Z. COBB.

FLEXIBLE HAND RAIL FOR ESCALATORS

APPLICATION FILED FEB. 8, 1916.

1,186,550. Patented June 13, 1916.

Fig. 1.

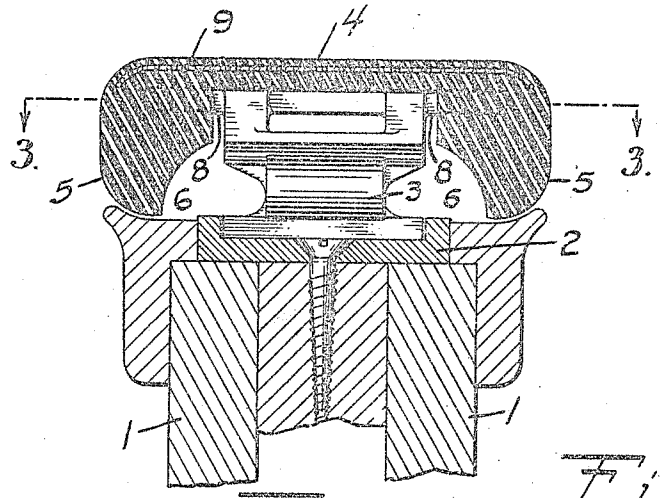


Fig. 2.

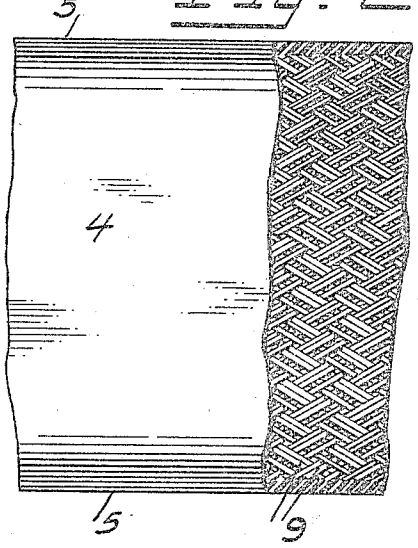
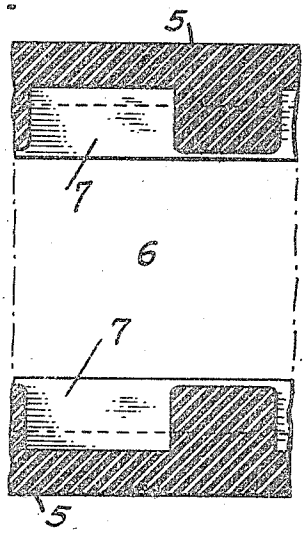


Fig. 3.



WITNESS:

F. G. Fay Jr.

INVENTOR

Henry Z. Cobb,

BY

Ernest Hopkinson

HIS ATTORNEY

UNITED STATES PATENT OFFICE.

HENRY Z. COBB, OF WINCHESTER, MASSACHUSETTS, ASSIGNOR TO REVERE RUBBER COMPANY, A CORPORATION OF RHODE ISLAND.

FLEXIBLE HAND-RAIL FOR ESCALATORS.

1,186,550. Specification of Letters Patent. Patented June 13, 1916.

Application filed February 8, 1916. Serial No. 77,077.

To all whom it may concern:

Be it known that I, HENRY Z. COBB, a citizen of the United States, residing at Winchester, county of Middlesex, State of Massachusetts, have invented certain new and useful Improvements in Flexible Hand-Rails for Escalators, of which the following is a full, clear, and exact description.

My invention relates to movable guards or coverings adapted to be carried along the tops of the low partitions or wainscoting forming the sides of an escalator and to which passengers may cling to steady themselves when lacking confidence or certainty in their footing.

The function and operation of my improved hand rail is similar to those well known in the art, the present improvement therein being in its construction whereby greater durability is attained and the danger arising from distortion, cracking and breaking is eliminated.

The type of escalator rail to which this form of my invention particularly applies is that in which the flexible portion, to be grasped by the hands of the passengers, is carried upon and propelled by a sprocket chain which passes over suitable sprocket wheels to which power is applied.

Heretofore in the manufacture of these flexible hand rails they have been molded in the form of solid rubber strips having an inner recessed or channeled portion provided with internal sockets into which the lateral projections from the sprocket chain are adapted to fit to lock the rail and chain together. This form of rail necessarily makes the central portion of the rail much thinner than the marginal portions, consequently the said central portion was subjected to much more stretching and contraction than the marginal portions which are thicker and contain much more rubber. This continual stretching and contraction often causes the rubber to crack or break across the outside surface forming fissures or cracks which open and close as the rail passes over a curved portion of its support. This obviously endangers the hands, fingers, and persons of passengers and may catch the clothing, thereby causing more serious bodily injury or even death.

The object of my invention therefore is to overcome these defects and to improve the construction of such hand rails whereby greater durability and efficiency are obtained.

For a detailed description of one embodiment of my invention reference may be had to the following specification and to the accompanying drawing forming a part thereof in which—

Figure 1 is a vertical transverse section of my improved hand rail shown in place upon a common form of support therefor; Fig. 2 is a plan view thereof, part of the outer surface being shown cut away to disclose the reinforcing member; and Fig. 3 is a horizontal sectional view of the hand rail alone taken substantially upon the line 3—3, Fig. 1.

Referring to the drawing the numeral 1 indicates the top of the partition or side wall of an escalator, the numeral 2 a channel iron mounted thereon in which the sprocket chain 3 is seated, thereby forming a track or guide. The numeral 4 indicates the top of the rail, forming with the sides 5 a channel 6 having internal lateral recesses or sockets 7 into which the projections 8 from the links 3 are seated. 9 is a strip of braided fabric placed just under the outer surface of the hand rail.

My improved hand rail is molded in the usual manner in a vulcanizing mold, the fabric 9 being placed in position before the rubber is inclosed in the mold and a surface covering of rubber superposed thereon.

The braided fabric 9 being loosely intermeshed, allows the rubber to stretch and contract up to a certain point, but beyond that point transfers the bending line to the thicker portions of the rail so that the tendency of the surface of the rail to crack or separate is eliminated. Furthermore, the fabric reinforces the rail transversely, so that the rubber has less tendency to stretch transversely and become separated from the projections on the sprocket chain. The diagonal direction of the braided strands causes all of the strands to strengthen the rubber without interfering with its flexibility.

Thus all the functions and actions of the hand rail are improved and all danger to life and limb of passengers is eliminated by my improved construction.

What I claim and desire to protect by Letters Patent is:

1. A hand rail or similar article, comprising a channeled member of flexible ma-

terial, means for attaching the same to a driving member in said channel, and a reticulated reinforcing member located adjacent the outer surface of said rail, said reinforcing member being elastic in all directions up to a certain limit and preventing rupture of said flexible material at or beyond such limit.

2. A hand rail or similar article, comprising a channeled member of rubber, means for attaching the same to a driving member in said channel, and a reinforcing member of fabric having diagonally intersecting strands vulcanized thereon adjacent the outer surface of said rail.

3. A hand rail or similar article, comprising a channeled member of vulcanized rubber, means for holding a driving member in said channel, and a reinforcing member consisting of braided fabric having all of its strands running diagonally, embedded in said rubber adjacent the outer surface thereof.

Signed at Chelsea, Mass., this 1st day of February, 1916.

HENRY Z. COBB.