This invention relates to a cushion for use in connection with coverings for stair treads and floors, and has for its object to prevent excessive wear of the covering by taking up the shock from the latter when under use and further to prevent the covering contacting with that portion of the surface upon which is positioned the cushion.

A further object of the invention is to provide, in a manner as hereinafter set forth, a cushion constructed when used in connection with a stair tread covering to prevent excessive wear of the covering by taking up the shock from it under use, and further preventing the covering from making contact with the stairs, particularly at the nose or outer edge of the step where the greatest wear upon the covering occurs.

A further object of the invention is to provide, in a manner as hereinafter set forth, a cushion for the purpose referred to possessing a resilient characteristic and formed with inherent means to provide, when pressure is applied thereto by a person treading upon the covering with which the cushion is used an air cushioning effect.

A further object of the invention is to provide, in a manner as hereinafter set forth, a cushion for the purpose referred to so constructed as to prevent it from slamming down under use.

A further object of the invention is to provide, in a manner as hereinafter set forth, a cushion for the purpose referred to for bringing the covering supported thereby back to its normal position after being depressed by a person walking thereover.

Further objects of the invention are to provide, in a manner as hereinafter set forth, a cushion of pad-like form which is simple in its construction and arrangement, strong, durable, compact, thoroughly efficient in its use, readily installed with respect to the covering with which it is to be used, and comparatively inexpensive to manufacture.

With the foregoing and other objects in view, the invention consists of the novel construction, combination and arrangement of parts as hereinafter more specifically described, and illustrated in the accompanying drawing wherein is shown one embodiment of the invention, but it is to be understood that changes, variations and modifications may be resorted to which fall within the scope of the invention as claimed.

In the drawing which illustrates, by way of example, a form of the invention used in connection with stair treads:

Figure 1 is an inverted plan view of the cushion.

Figure 2 is a view looking toward the outer side edge of the cushion when inverted.

Figure 3 is a section of the cushion on line 2--3 Figure 1 and further showing the adaptation of the cushion with respect to a stair tread.

Figure 4 is an end view of the cushion.

With respect to the figures of the drawing, like reference characters indicate corresponding parts throughout the several views.

The cushion is formed from a body of any suitable resilient material, that is to say, a material possessing compressible and extendible characteristics. Preferably the material will be sponge rubber.

Referring to the drawing, 1 and 2 indicate the risers of a stairway, 3 a step, 4 the nose of the latter and 5 the tread of step 3. The latter is positioned against the lower portion of the front face of riser 1, disposed at right angles to the latter and is seated upon and extends outwardly from the upper edge of riser 2. A runner for the stairway is designated 6 and which is arranged to have an upper upstanding stretch 7 thereof opposite riser 1, a horizontal stretch 8 above tread 5, the bend 9 between the stretches 7 and 8 positioned at the corner formed between riser 1 and step 3, an upstanding lower stretch 10 opposing riser 2, and the bend 11 between stretches 8 and 10 opposing the nose 4.

When the cushion, in accordance with this invention, is employed in connection with the runner 6, it is interposed between stretch 8 and bend 11, mounted on tread 5 and overlaps nose 4.

The cushion is of pad-like form and comprises a body part 12 preferably of rectangular contour and which merges at its outer side in a vertically disposed holder part 13 of segmental contour in vertical section. The length, width and thickness of body part 12 may be as desired. The length of part 13 will be the same as part 12. The height and thickness of part 13 will be as desired. The body part 12 has the upper face of its rear portion sloping as at 14. The end portions of the upper face of body part 12 also are sloped as at 15, 16. The slopes 14, 15 and 16 start from the dotted lines 17, 18 and 19 respectively. The slopes 16 and 16 merge into the slope 14 as at the dotted lines 20, 21 respectively. The dotted line 22 indicates the thickness of part 13. The dotted line 23 indicates the lower face of part 12. The lower face of body part 12 in proximity to its inner side edge is formed with a row of spaced circular pockets 24 disposed lengthwise of such face. The lower face of body part 12 adjacent each end thereof is formed with a row of spaced
circular pockets disposed transversely of such face. One row of transverse pockets is designated 25 and the other row 26. The transverse rows terminate adjacent to the outer side of body part 12. The lower face of body part 12 at the transverse median of the latter is provided with a transverse row of spaced circular pockets 27. The pockets 24, 25, 26 and 27 constitute means to provide an air cushioning effect when pressure is applied to body part 12.

The lower face of body part 12 is provided with two independent spaced groups of intersecting air channels disposed lengthwise and transversely of such face. One group indicated at 28 is arranged between and spaced from the pockets 25, 27 and between several of the pockets 24 and the outer side of the body part 12. The group 28 is spaced from pockets 24 and the outer side of the body part. The channels of the group 28 are designated 29, 30 and coact to provide a group of spaced lugs 31. The other group, indicated at 22 is arranged between and spaced from the openings 26, 27 and between several of the pockets 24 and the outer side of body part 12. The group 32 is spaced from the pockets 24 and the outer side of body part 12. The channels of the group 32 are designated 33, 34 and coact to provide a group of spaced lugs 35.

The channels may be of any suitable contour and are shown by way of example of inverted V-form whereby the lugs are tapered.

The channels 29, 33 are of like length and of greater length than channels 30, 34. The channels 23, 33 are disposed lengthwise and the channels 33, 34 transversely of the lower face of body part 12. The channels 28 are arranged in parallel spaced relation and a like arrangement is had with respect to channels 30, 33 and 34.

When the cushion is used in connection with a tread of a stairway, the body part 12 thereof is of less width than such tread and which will provide for the stretch 8 of the runner being extended beyond the slope 14 and the bend 9 being positioned at and secured against the corner between riser 1 and step 3. The holder part 13 is to be arranged in overlapped engagement with nose 4 which will arrest the downward slipping of the cushion with respect to tread 5. The runner 6, when the cushion is mounted on step 3 will have the stretch 8 supported upon body part 12 and the bend 11 against holder part 13. The major portion of stretch 8 will be held elevated and away from tread 5 and bend 11 will be maintained clear of nose 4.

The shape of the pockets 24, 25, 26 and 27 may be as desired.

The pockets and air channels function when pressure is applied to body part to cause an air cushioning effect.

Each group of channels is surrounded by a border channel 36 provided by a pair of lengthwise and a pair of transverse channels merging into each other. By this division the air is confined in a smaller space and not allowed to pass from one side to the other when the cushion is depressed by a footstep of a person.

The pad may be molded with a gummy surface on the under side (giving more gripping power) and a smooth surface on the upper side, which may be covered with muslin or other fabric allowing the carpet to be laid and stretched into place more freely.

What I claim is:
1. An expandible and contractible air cushioned structure for the tread runners of stair steps comprising an imperforate one-piece resilient element of like material throughout for disposition below the runner and formed of a rectangular body part for seating upon the stair step and a complete part depending from the front side of the body part for overlapping the nose or outer edge of the stair step, said body part having the upper face smooth throughout and the rear and end marginal portions of said face sloping downwardly towards the rear and end edges of said body part, the said sloping end marginal portions merging at the rear thereof into the said sloping rear marginal portion, said body part having a flat lower face provided adjacent its rear side edge with a row of spaced air pockets extending lengthwise thereof and a pair of spaced opposed endless air channels between said row and said front side, said body part having disposed transversely of its lower face a series of spaced parallel rows of spaced air pockets, one of the rows of said series being located between said channels and the other being located in proximity to the ends of said face, and said body part having its lower face formed with a pair of spaced groups of crossing intersecting air channels defining between them a plurality of lugs to contact the stair step, each group of crossing channels being completely encompassed by and opening into an endless air channel.

2. An expandible and contractible air cushioned structure for the tread runners of stair steps comprising an imperforate one-piece resilient element of like material throughout for disposition below the runner and formed of a rectangular body part for seating upon the stair step and a complete part depending from the front side of the body part for overlapping the nose or outer edge of the stair step, said body part having the upper face smooth throughout and the rear and end marginal portions of said face sloping downwardly towards the rear and end edges of said body part, the said sloping end marginal portions merging at the rear thereof into the said sloping rear marginal portion, said body part having a flat lower face provided adjacent its rear side edge with a row of spaced air pockets extending lengthwise thereof and a pair of spaced opposed endless air channels between said row and said front side, said body part having disposed transversely of its lower face a series of spaced parallel rows of spaced air pockets, one of the rows of said series being located between said channels and the other being located in proximity to the ends of said face, and said body part having its lower face formed with a pair of spaced groups of crossing intersecting air channels defining between them a plurality of lugs to contact the stair step, each group of crossing channels being completely encompassed by and opening into an endless air channel, and the transverse cross sectional length of said body part being less than the transverse cross sectional length of the stair step.

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