Jan. 26, 1971 R. H. GRAF 3,557,504

PLASTIC NOSING FOR STAIRWAYS

Filed Nov. 30, 1967 3 Sheets-Sheet 1

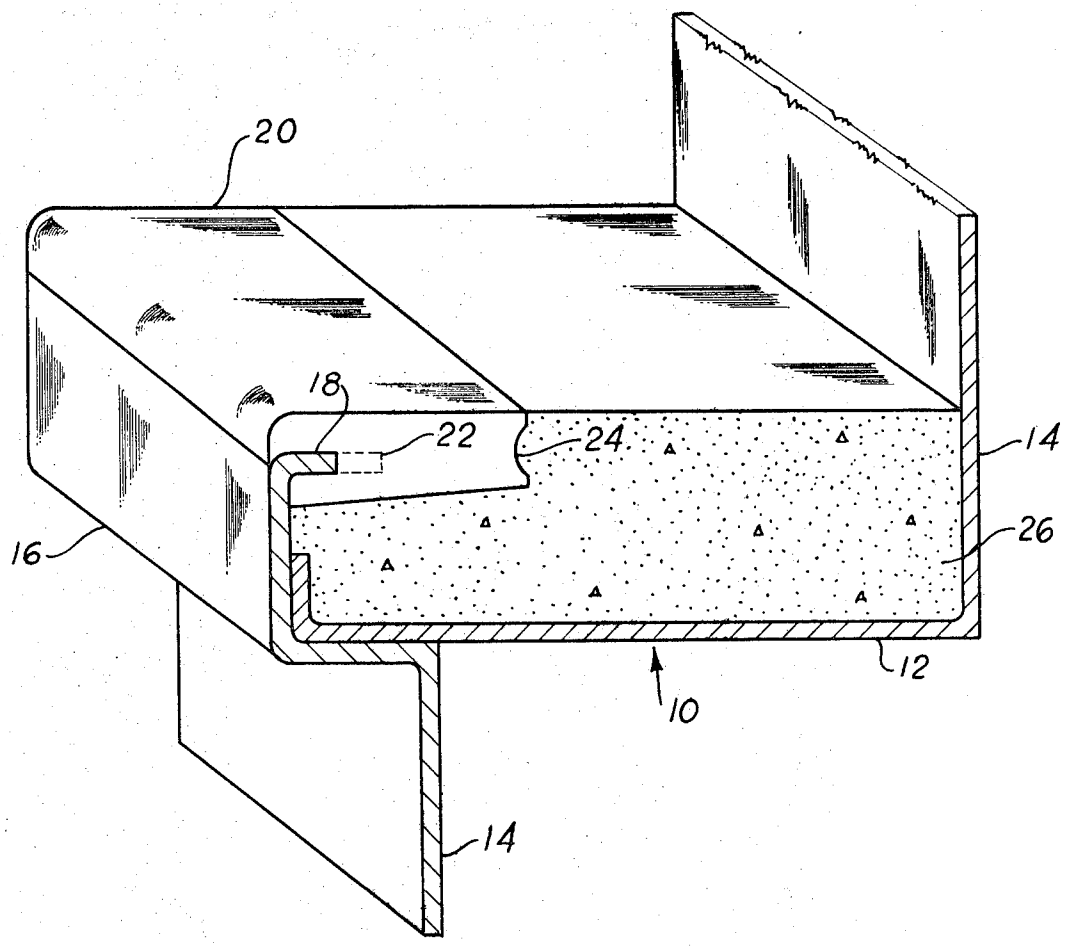

Fig. 1

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Filed Nov. 30, 1967 3 Sheets-Sheet 2

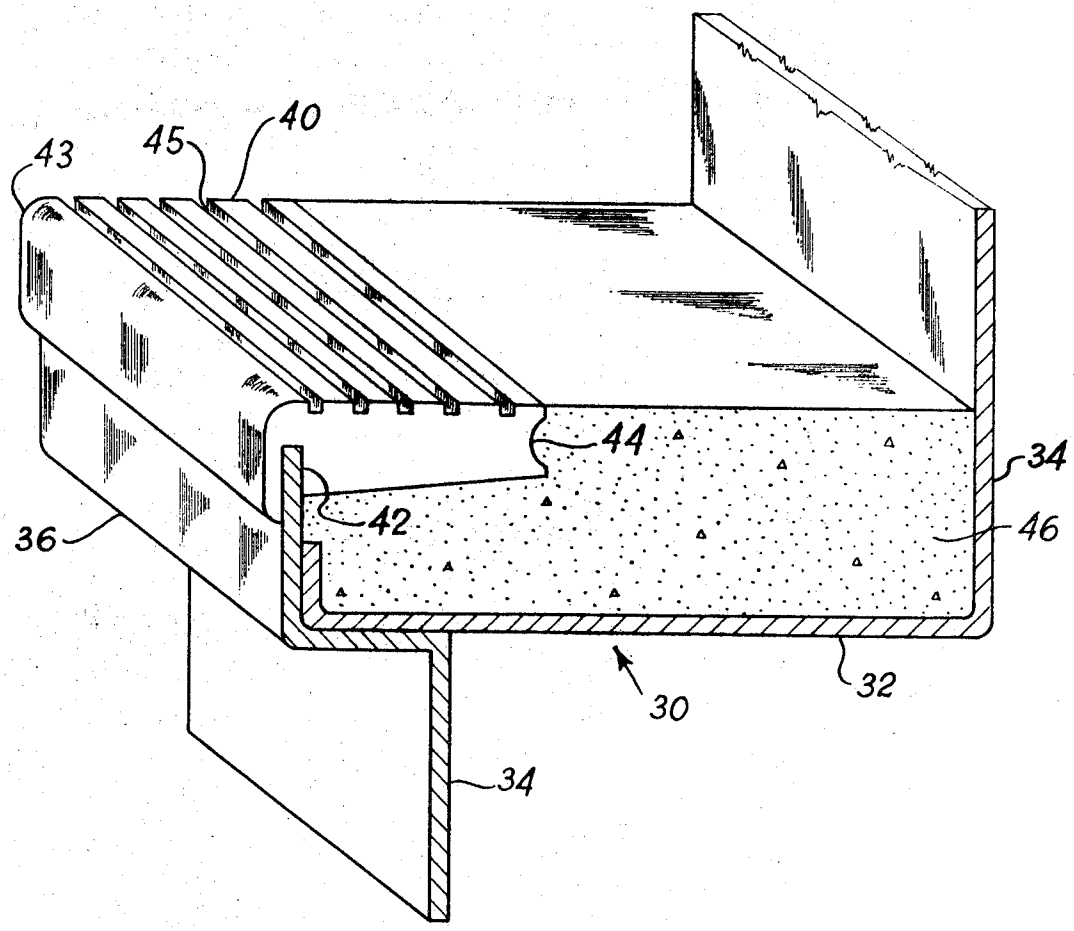

Fig. 2

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PLASTIC NOSING FOR STAIRWAYS

Filed Nov. 30, 1967 3 Sheets-Sheet 3

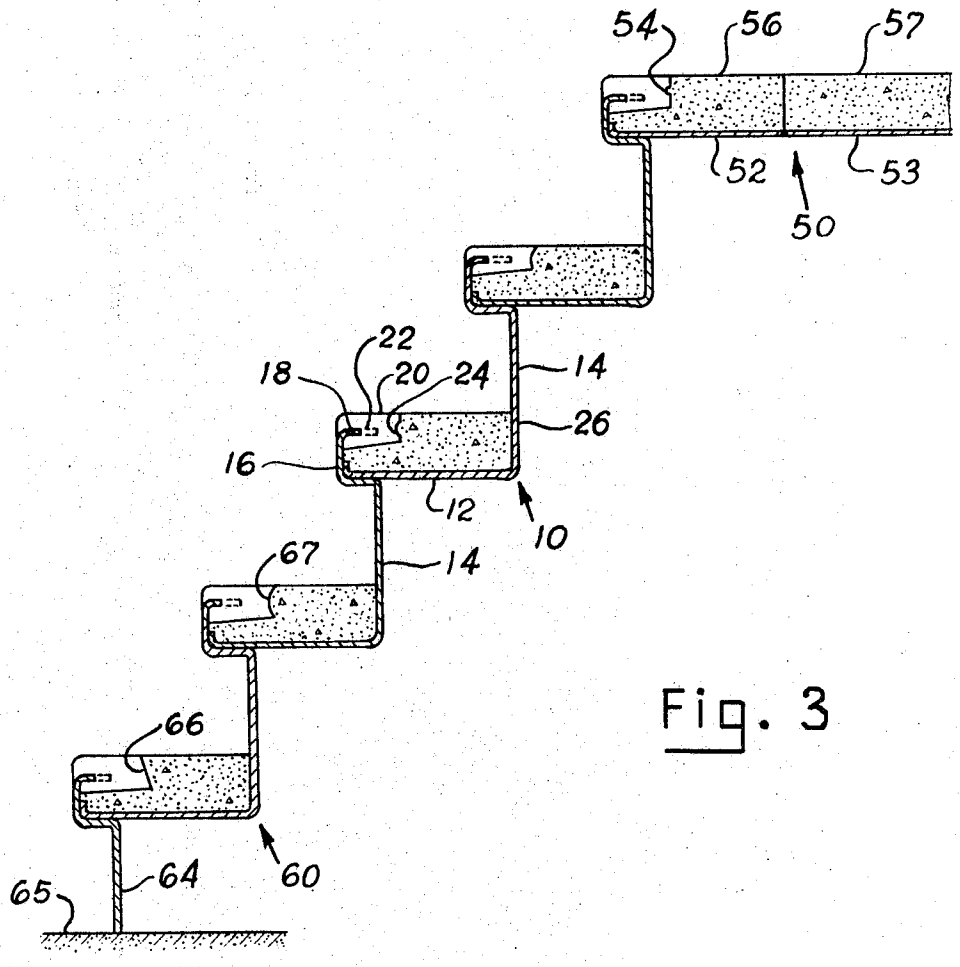

Fig. 3

United States Patent Office 3,557,504 Patented Jan. 26, 1971

3,557,504

PLASTIC NOSING FOR STAIRWAYS

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Filed Nov. 30, 1967, Ser. No. 686,934
Int. Cl. E04d 11/16
U.S. Cl. 52—179 6 Claims

ABSTRACT OF THE DISCLOSURE

A plastic stair nosing comprises an elongated plastic body having a narrow slot in one edge which extends substantially the full length of the plastic body, so that it is adapted to fit onto the forward lipped edge of a metal pan stair. The remainder of the tread portion of the metal pan stair comprises concrete or other filler material.

The plastic nosing is safer than the conventional metal nosings and need not be painted. No screws, anchors or welding are required to hold the nosing in position; it is self-positioning, self-leveling and self-supporting.

BACKGROUND OF THE INVENTION

Metal pan stairs are conventionally constructed by providing a metal frame that is comprised of a series of treads and risers. Normally the metal tread has a forward turned-up lip which is the height of the total thickness of the tread-portion of the finished step. In constructing the stairway, after the metal frame is installed, the "pan" formed by the primary tread and forward turned-up lip is filled in with cement or other filler media, such as terrazzo, to provide secondary treads. The forward lipped edge serves to support the filler medium during the hardening process and also to form a stronger forward edge to the finished step. Moreover, the forward lipped edge can be bent inwardly, toward the secondary tread, to form a leading edge on the finished step. However, it is difficult to retain paint or other surface coatings on such metal nosings. Moreover, the metal nosings readily wear smooth and become a safety hazard to persons ascending and descending the finished stairs.

Accordingly, it is an object of this invention to provide a plastic nosing for stairways, especially metal pan stairs provided with concrete secondary treads.

Another object of the invention is to provide an improved plastic stair nosing adapted to be readily installed on metal pan stairs.

A further object of the invention is to provide an improved stair construction which includes use of the plastic nosing of the invention.

These and other objects will become apparent upon reference to the following detailed description.

DESCRIPTION OF THE EMBODIMENT

The invention will be further described with respect to the accompanying drawings of which FIGS. 1 and 2 are cross-sectional views of a single unit of stair with the plastic stair nosing of the invention in place. FIG. 3 hows a series of stair units as they would appear in a stair construction in cross-sectional view.

FIG. 1 shows a single unit **10** of a finished stair. The metal stair frame is formed by a primary metal pan tread **12** and riser portions **14** extending above and below tread **12**. The tread **12** has a forward lipped edge comprised of a forward turned-up lip **16** of a lesser height than the total thickness of the completed step and provided at its upper extremity with an essentially horizontal extension **18**. As shown in the figure, a given tread **12** and the vertical riser extending above the tread can be formed from one piece of metal and the forward lipped edge of this

tread can be formed by a separate metal portion that comprises the riser **14** extending from the step beneath and running continuously to form the turned up lip **16** and extension **18** as depicted. However, this construction detail is optional and the tread **12**, riser **14** turned up edge **16** and extension **18** could be formed from one piece of metal. Stair nosing **20** comprises a slab of polyvinyl chloride or other suitable plastic. Nosing **20** has a narrow slot **22** in the edge of the plastic slab which extends substantially the full length thereof. Generally the plastic nosing is horizontally disposed as shown, with the width of the upper surface being at least about twice the vertical depth of the solid body of plastic. The narrow slot is horizontally disposed in the vertical face of the nosing that serves as the front or leading edge of the stair on which it is installed. This verticle face preferably joins the upper surface in a smooth curved surface, as shown. The vertical rear face **24** can be curved, as shown. In its installed position as shown in FIG. 1, nosing **20** is attached via slot **22** to the metal extension member **18**. Forming the remainder of the step and forming the secondary tread thereof is concrete portion **26**. In constructing the step, nosing **20** is slipped or snapped into place on extension member **18**, which serves to hold nosing **20** in a level position without further support. Thus, no screws, anchors or welding are required to hold the nosing in position. Then, cement is filled in to the side of, and beneath, nosing **20** and leveled off to form a horizontal secondary tread that forms a level surface adjoining the upper surface of the plastic nosing **20**.

FIG. 2 shows another single unit **30** of a finished stair. The metal stair frame is formed by a primary metal pan tread **32** and riser portions **34** extending above and below tread **32**. The tread **32** has a forward lipped edge comprised of a forward turned-up lip **36** of a lesser height than the total thickness of the completed step. Stair nosing **40** comprises a slab of polyvinyl chloride or other suitable plasitc. In this embodiment, nosing **40** has a narrow slot **42** in the forward portion of the lower edge of the plastic slab, which slot extends substantially the full length of the slab. The narrow slot is vertically disposed in the lower face of the nosing, and is positioned somewhat back of the front face **43** of the nosing, so that the front face extends over, and at least partially covers the forward turned-up lip **36**. The front face **43** can extend below the lower face of the nosing, as shown. The front face preferably joins the upper face in a smooth curved surface, as shown. The vertical rear face can be curved, as shown. The upper face can have a series of grooves **45** to improve the non-slipping quality of the nosing. In its installed position as shown in FIG. 2, nosing **40** is attached via slot **42** to the forward turned-up lip **36**. The remainder of the step, and forming the secondary tread thereof, is concrete portion **46**.

FIG. 3 shows a series of stair units in place, with step or stair unit **10** being substantially as described with respect to FIG. 1. Stair unit **50** is a typical unit adapted to serve as the top step of a stair construction so that it properly adjoins the floor or roof at the top of the stairs. Thus, primary metal pan tread **52** can be suitably connected such as by welding or otherwise to a metal subfloor **53**. The concrete secondary tread **56** can be made to be level with a concrete floor portion **57**. Stair unit **60** represents a typical unit adjoining the floor at the bottom of a stair construction. Riser **64** extends downwardly from stair section **60** and is affixed by any suitable means to the supporting floor **65**.

The preferred type of plastic for use as the stair nosing of the invention is polyvinyl chloride. However, other normally solid, thermoplastic materials can be used. Other suitable thermoplastics include the polyolefins, such as polyethylene, polypropylene, copolymers of ethylene with higher olefins polystyrene, thermoplastic butadiene polymers and copolymers, such as butadiene-styrene block

copolymers, and other polythenic compositions such as polyvinyl chloride-acetate copolymer, polyvinylidene chloride, acrylic polymers and the like.

The plastic nosing of the invention can be produced in conventional extruder in which the plastic material is softened or melted and extruded through an orifice having the shape of the desired cross-section of the plastic nosing. In this regard, the cross-sectional shapes shown in FIGS. 1 and 2 are intended to be illustrative, but not to limit the invention. Thus, for example, the vertical edge at the opposite side of the nosing from the narrow slot **22** can have various shapes. As shown in FIG. 3, this face can have a diagonal flat face **66** that is slanted downward toward the rear of the stair or a square groove in a vertical face **54** or a curved face **67**, as well as curved face **24** and a variety of other curved shapes. Moreover, the lower, horizontally disposed face of the nosing can be exactly parallel to the uppermost face or can be diagonally disposed as shown in FIGS. 1, 2 and 3. The edge of the nosing that forms the leading edge of the entire stair is preferably curved to form a smooth transition from the horizontal upper face to the vertical edge that fits atop the forward lipped edge **16** and extension member **18** or forward lipped edge **36**. Other variations of the invention are possible without departing from the underlying principals of the invention. It is understood that the foregoing embodiments are intended to be illustrative of the invention but not to limit it.

I claim:

1. A stair construction comprised of one or more stair units comprising a metal riser portion and a step portion, said step portion comprising a metal primary pan tread having a forward turned-up lip of less height than the total thickness of the step, a plastic nosing comprising an elongated plastic body having a width of at least about twice the thickness thereof and having a narrow slot in one face of said plastic body and extending substantially the full length thereof, which slot is engaged onto said turned-up lip so as to maintain the upper surface of said plastic body in a substantially horizontal position; and a secondary tread which fills the cavity formed by the primary metal pan tread and said plastic nosing.

2. In a metal pan stair construction, the improvement which comprises a plastic nosing comprising an elongated plastic body having a width of at least twice the thickness thereof and having a narrow slot in one face of said plastic body and extending substantially the full length thereof, said narrow slot engaged onto the forward lipped edge of the metal pan tread of said metal pan stairs so as to maintain said plastic nosing in substantially horizontal position.

3. A stair construction comprised of one or more stair units comprising a metal riser portion and a step portion; said step portion comprising a metal primary pan tread having a forward turned-up lip of less height than the total thickness of the step wherein said lip has a metal extension member protruding from its upper extremity; a plastic nosing comprising an elongated plastic body having a width of at least about twice the thickness thereof and having a narrow slot horizontally disposed in a vertically disposed face of said plastic nosing and extending substantially the full length thereof, which slot is engaged onto said extension member so as to maintain the upper surface of said plastic body in a substantially horizontal position, and wherein said vertically disposed face joins the horizontally disposed uppermost face of said plastic nosing in a curved surface; and a secondary tread which fills the cavity formed by said primary metal pan tread and said plastic nosing.

4. The stair construction of claim **3** wherein the plastic is polyvinyl chloride.

5. A stair construction comprised of one or more stair units comprising a metal riser portion and a step portion; said step portion comprising a metal primary pan tread having a forward turned-up lip of less height than the total thickness of the step; a plastic nosing comprising an elongated plastic body having a width of at least about twice the thickness thereof and having a narrow slot vertically disposed in the lower face of the said plastic nosing, which slot extends substantially the full length thereof and which slot is engaged onto said turned-up lip so as to maintain the upper surface of said plastic body in a substantially horizontal position, and wherein the vertically disposed face adjacent said narrow slot joins the horizontally disposed uppermost face of said plastic nosing in a curved surface; and a secondary tread which fills the cavity formed by said primary metal pan tread and said plastic nosing.

6. The stair construction of claim **5** wherein the plastic is polyvinyl chloride.

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U.S. Cl. X.R.

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