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O. KOLL ET AL
TREAD SURFACE ELEMENT
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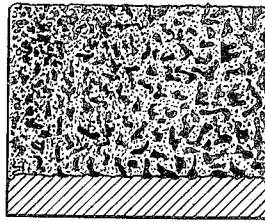


FIG. 1

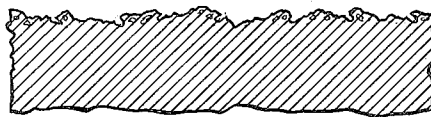


FIG. 2

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UNITED STATES PATENT OFFICE

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TREAD SURFACE ELEMENT

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5 Claims. (Cl. 94—5)

This invention relates as indicated to a metallic sill and the like and the method of making the same and has more specific reference to the method of securing a rough anti-slip surface in a casting without the employment of embedded abrasive or non-slip material which has been the method employed in the past for accomplishing this result.

It is among the objects of our invention to provide a casting applicable to be used as a wear-plate in entrances and the like, which can be made by a simple casting operation and which retains an attractive appearance, as well as certain anti-slip characteristics during the life of its use. Other objects of our invention will appear as the description proceeds.

To the accomplishment of the foregoing and related ends, said invention, then, consists of the means hereinafter fully described and particularly pointed out in the claims.

The annexed drawing and the following description set forth in detail one method and one product exemplifying our invention, such disclosed procedure and product constituting, however, but one of various applications of the principles of our invention.

In said annexed drawing:

Fig. 1 is a perspective view of a portion of a casting formed in accordance with the principles of our invention; and Fig. 2 is a fragmentary transverse sectional view of a portion of such casting as the same would appear in a micro-photograph.

The method of producing a casting of the character above indicated and presently to be described in greater detail comprises providing a suitable mold and applying to a surface or surfaces of such mold a coating which will produce the porous, pitted, rough surface illustrated most clearly in Fig. 2. Such coating consists of finely divided material preferably carbonaceous in form and of a gas supplying character, i. e., the material may volatilize to produce the gas or may be of a character so that occluded gas is supplied under the influence of the heat of the metal forming the casting. For this material we have found that finely divided coke and the like is best adapted for the results to be attained. It is to be noted, however, that this material may be such that will supply gas under the influence of the heat of the molten metal without actually volatilizing or being consumed by the heat. Some adhesive material such as molasses water and the like may be applied to the mold surface before

the above identified materials are added in order to secure the same in an even coating.

After this coating is applied, a refractory binder coating in the form of fine clay may be dusted on the mold surface and then sprayed with water or the like to secure the material to the mold surface and prevent the same from being washed as the metal is poured into the mold cavity.

When the metal is cast against a surface prepared in the above defined manner, the surface of the casting will be hardened as well as provided with a myriad of evenly distributed pits and under-cuts. The hardening effect on the surface may be due to the chilling effect produced by the coating and when ferrous metals are cast, there may be some combination of the carbon with the metal to produce such hard surface.

The rough surface of the casting is produced, we believe, by the metal flowing over the granules of material in the coating, such granules leaving their impressions on the metal as it solidifies. The granules, however, due to the heat of the metal, are consumed or volatilized thereby so that by the time the casting is removed from the mold, the pits and under-cuts in the surface thereof will be free from all such material. The volatilization or consumption of the granules by the molten metal, as above indicated, produces a gas which assists in the even distribution of the pits and under-cuts and also it is believed assists in producing certain pits and pores in the surface of the metal.

When finely divided coke is employed, it is believed that the molten metal burns out all of the particles of such material as the metal sets, so that while the surface of the casting is very rough, as above defined, nevertheless, the same is clean when removed from the mold and requires no further treatment before use.

A casting prepared in the above defined manner has a surface characterized by the presence of numerous pits and under-cuts which could not possibly be formed by casting the metal against a roughened surface. Likewise, the porous nature of the surface enables the casting to be worn down without losing its desirable rough finish. The casting formed in this manner has a very attractive appearance for the reason that there are no particles of foreign material such as abrasive granules present in the casting, which has rendered castings of the type previously made objectionable from an aesthetic standpoint. The appearance of the casting surface may perhaps

be best characterized as being of a sponge-like nature.

Other modes of applying the principle of our invention may be employed instead of the one explained, change being made as regards the product and method herein disclosed, provided the step or steps stated by any of the following claims or the equivalent of such stated step or steps be employed.

10 We therefore particularly point out and distinctly claim as our invention:—

1. A tread surface element comprising a metal casting having a porous, pitted surface layer formed during the casting of said element.

15 2. A tread surface element comprising a metal casting having a porous, pitted surface layer formed by the addition of a gas forming material

to the casting mold in which said element is cast.

3. A tread surface element comprising a metal casting having a surface layer containing numerous pits and bubbles formed during the casting of said element.

4. A tread surface element comprising a metal casting having a surface layer of a sponge-like appearance formed by the production of numerous pits and bubbles in the surface of said element during the casting thereof.

5. A tread surface element comprising a metal casting having a surface layer of a sponge-like appearance formed by the addition of a gas forming material to the casting mold in which said element is cast.

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