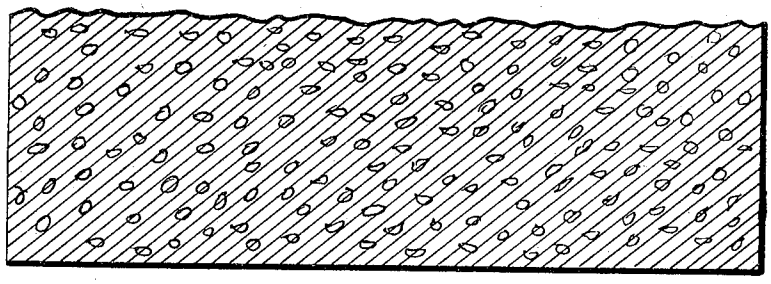
G. C. WEBB AND T. T. POTTENGER.

CONCRETE FLOOR.

APPLICATION FILED MAR. 2, 1917.

1,348,610.

Patented Aug. 3, 1920.



WITNESS

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UNITED STATES PATENT OFFICE.

GEORGE C. WEBB AND THOMAS T. POTTENGER, OF PITTSBURGH, PENNSYLVANIA.

CONCRETE FLOOR.

1,348,610. Specification of Letters Patent. Patented Aug. 3, 1920.

Application filed March 2, 1917. Serial No. 151,879.

To all whom it may concern:

Be it known that we, GEORGE C. WEBB and THOMAS T. POTTENGER, citizens of the United States, and residing in the city of Pittsburgh, in the county of Allegheny and State of Pennsylvania, have invented or discovered new and useful Improvements in Concrete Floors, of which the following is a specification.

Our invention relates to the method of forming a smooth, wear-resisting surface on a concrete slab or floor which is composed of coarse aggregate, without the application of a top coat of finer aggregate than that which composes the mass of the slab. Our method may be practised when floors are laid directly on the ground, or when the floors are laid above the ground, such as of reinforced concrete construction or combination hollow tile and concrete.

The figure is a view showing a floor slab as laid in accordance with our present method and which it is designed to treat as hereinafter described.

The purpose of our present invention is to overcome the objections incident to the usual practice of forming what is known as a two course floor, and the same is as follows.

The rough concrete slab is poured and brought to substantially the final grade by what is known in the art as "screeding and rodding." As soon as it has set sufficiently, the slab is wood floated to a substantially uniform level. This operation pushes the coarse gravel down and brings the finer particles of the aggregate to the surface, thus giving a relatively smooth top surface.

The slab is then allowed to set and the work of erecting the forms of the succeeding floor or floors may be proceeded with.

Each floor slab is prepared in a similar manner, and, after the forms have been removed and the dirt and debris cleared from the floor, the surface of the slab is ground with stones or grinding mechanism, using an abrasive material, such as sand, to substantially as smooth a surface as that contemplated for a hard troweled top coat. This produces a floor without expansion joints, which is a great advantage, as in many instances disintegration starts at such joints. We then prefer to continue the grinding but substitute for the abrasive material a cream like grout of cement and water to build up the surface and to fill uneven spots or depressions. After the grout has been well ground into the surface of the slab, the excess grout is removed and the floor permitted to dry. After the floor is dry, we prefer, as an additional step, to treat the surface with what is known as a "hardener," the composition of which varies, but which consists, generally speaking, of a water solution of silicates, fluor silicates or sulfates. The generally accepted theory is that this hardener forms, with the free calcium contained in the concrete, hard and insoluble calcium salts which fill the pores of the surface of the floor, thus making the same more resistant to abrasion and "dusting," and rendering it more impermeable to liquids. For the grinding operations we prefer to use a rotary grinding machine.

The figure illustrates diagrammatically a slab poured according to the present invention and before it is wood floated. That is, said figure illustrates the floor slab as consisting of a more or less homogeneous mass without the relatively loosely attached topping which has formed the upper surface of floors as heretofore constructed. The variation from the present method of pouring a slab is that in our method the screeds are placed and the floors are rodded off to the proper grade and wood floated, as described. This is not a complicated or time consuming operation, and its cost is so slight as to be practically negligible.

Among the advantages of our improved method may be mentioned the following. It does away with the top coat, thus removing from the floor an element which is particularly subject to disintegration and separation from the slab, and also eliminates an element which is figured as a dead load at approximately twelve pounds per square foot while adding no structural value to the slab. Aside from the feature just mentioned, the absence of the topping is advantageous, as it is thus possible to start the grinding of the floors while the shoring is still under the beams, and in most instances the surfacing may be completed by the time when it would be proper to start the pouring of the top coat or topping under the old practice.

Another advantage in building operation is that after the forms are taken down and the surfacing is in progress, other mechanics or workmen can continue their work with-

out hindrance, as only a relatively small part of the floors are occupied while the surfacing is being done. Under the old method, the floor could not be used for at least four or five days after the topping has been put down, and no heavy work should be done over it for at least twice that length of time. Other advantages, so far as the floor structure itself is concerned, are the elimination of the expansion joints and the production of a floor which is permanently wear resisting and dust proof.

What we desire to claim is—

The method of forming a wearing surface for concrete floors which consists in grinding the surface of the floor first in the presence of abrasive materials and second in the presence of a grout of cement and water, for the purpose described.

Signed at Pittsburgh, Pa., this 28th day of February, 1917.

GEORGE C. WEBB.
THOMAS T. POTTENGER.