April 4, 1939. C. SCHENCK 2,153,347

PAVING PLATE

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Fig. 1.

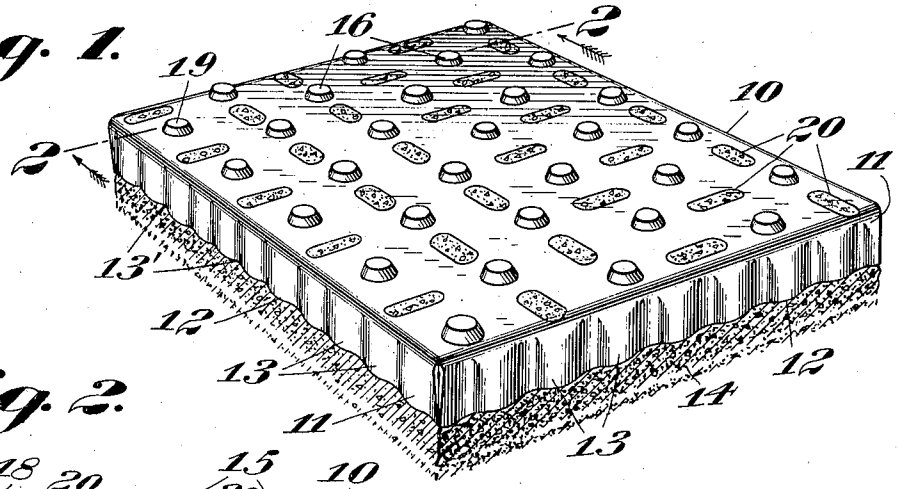


Fig. 2.

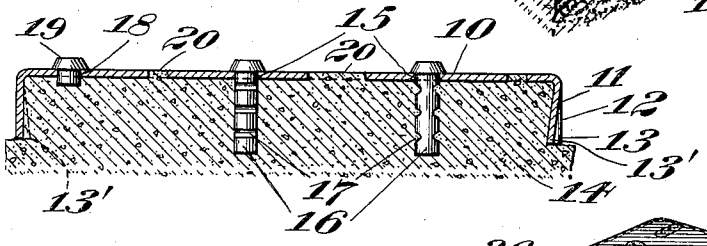


Fig. 3.

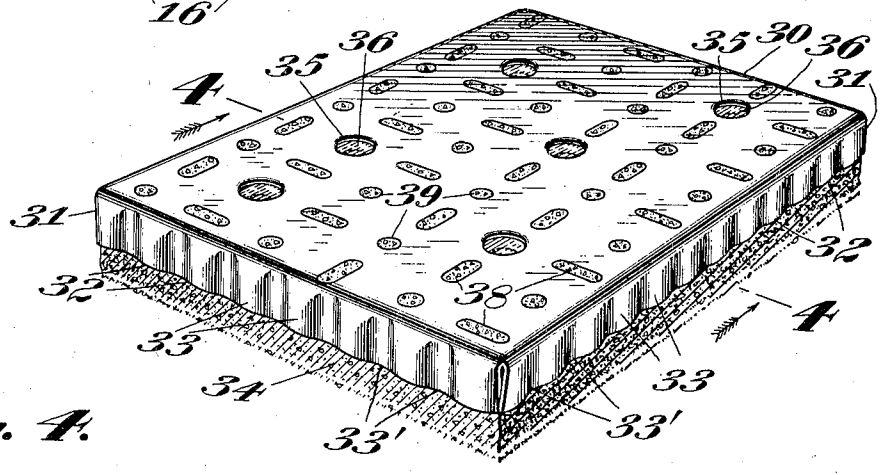
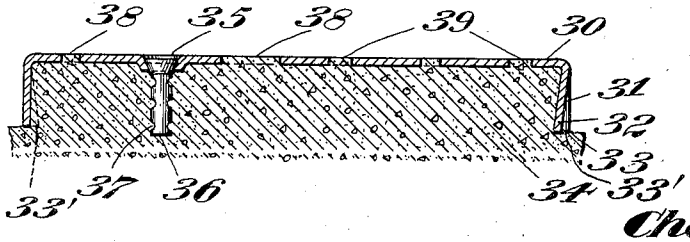


Fig. 4.



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Fig. 5.

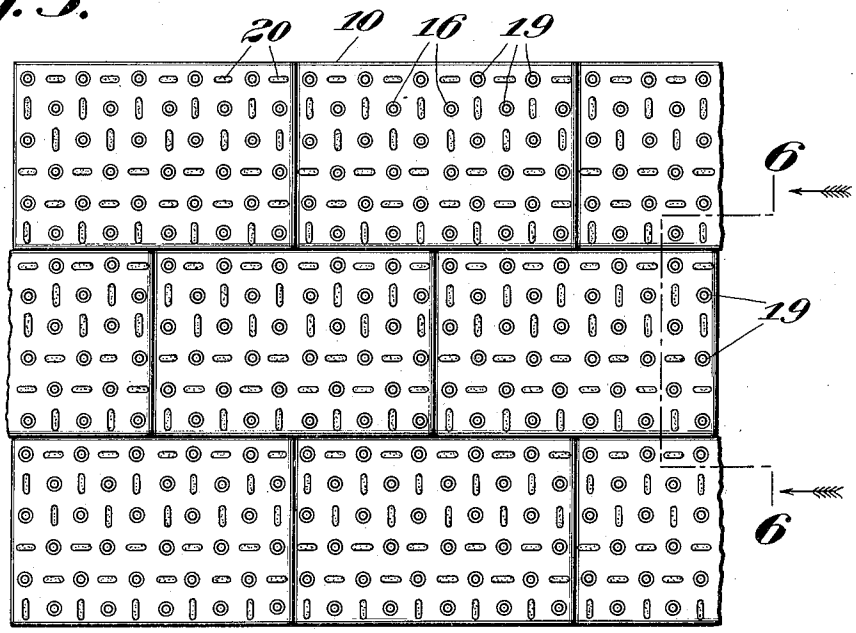
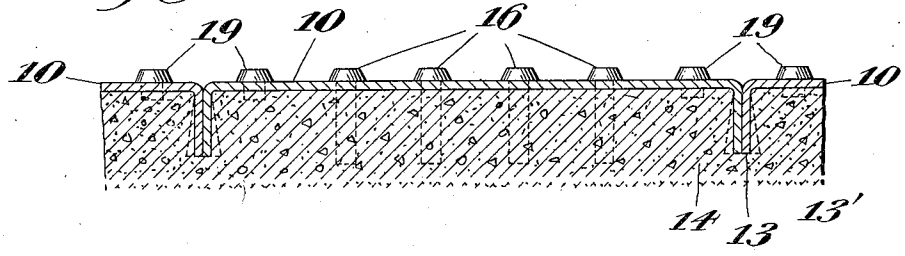


Fig. 6.



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2,153,347

PAVING PLATE

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Application October 9, 1936, Serial No. 104,747

2 Claims. (Cl. 94—15)

This invention relates to improvements in metallic paving plates for bridges, tunnels and roadways and to metallic floor plates for factories, storage plants and the like.

Although concrete is recognized as a strong and durable material for roadways and floors, there are many environments in which a concrete surface is incapable of withstanding the destructive forces imposed upon it. A surface which is under constant and unusually severe traffic, or which is subjected continuously to the impact of sharp and heavy bodies, must be protected by a material which is much tougher than concrete in order to prevent its disintegration.

In the floors of narrow highway bridges and vehicular tunnels, the steady stream of traffic, confined to definite lanes of travel, slowly wears down concrete. Stoppage of traffic for road repairs results in a tremendous inconvenience to the public. Also, there are many places along heavily travelled main highways, such as sharp curves at the foot of steep inclines, where not only does the road surface need protection, but also additional traction should be provided.

Again, in breweries for instance, the constant rolling on edge of heavy, steel-hooped barrels, cuts deeply into an ordinary cement finish. Hand and electric trucks with small, narrow steel wheels, such as are used to transfer heavy loads along docks and platforms, in freight stations and warehouses, break through a cement surface and soon develop cracks, holes and cuts. In manufacturing and storage plants, the damage to unprotected concrete floors resulting from the continual moving about of large heavy pieces of machinery and the like is well known.

It is an object of this invention to provide a metal paving or floor plate adapted to resist and to endure under the wear imposed upon it by continuous and hard usage.

It is a further object of this invention to provide a metal paving plate that will afford considerable traction to the tires of wheels passing over its surface, thus reducing the tendency of such vehicles to skid on a metal surface.

It is a still further object of this invention to provide a metal paving plate which will form a permanently strong bond with the underlying concrete bed, so as to resist forces tending to dislodge the plate from the position in which it is originally laid.

The novel features of my invention will be more fully understood from the following description and claims taken with the drawings, in which

Fig. 1 is a view in perspective of my paving plate shown embedded in concrete.

Fig. 2 is a view in section along the line 2—2 of Fig. 1.

Fig. 3 is a view in perspective of my floor plate, also shown embedded in concrete.

Fig. 4 is a view in section along the line 4—4 of Fig. 3.

Fig. 5 is a plan view of a section of a pavement structure embodying one form of my novel paving plate.

Fig. 6 is a view in section along the line 6—6 of Fig. 5.

Referring now to Figs. 1 and 2, plate 10 has depending flanges 11 which are crimped to form corrugations 12. The outwardly arched portions 13 are at right angles to the tread surface of plate 10 and the innermost portions 13' are at an acute angle to the tread surface and the corrugations terminate short of the edge of the tread surface so that the plates may be assembled with the edges of the plates adjacent the tread portion in engagement with each other as plainly shown in Fig. 6. Plate 10 is shown set in a base of concrete 14. Welded in holes 15 in the surface of plate 10 and embedded in concrete 14 are button-head anchor bolts 16, which may be rough threaded or notched as shown at 17 in Fig. 2. Also welded in holes 18 in the surface of plate 10 are button-head rivets 19 which extend only a very short distance into the concrete base. The heads of anchor bolts 16 and rivets 19 serve to afford traction to the wheels of vehicles passing over the plate, and to prevent their skidding thereon. The surface of plate 10 is also provided with a plurality of slots 20 through which concrete 14 exudes.

Referring now to Figs. 3 and 4, there is shown therein floor plate 30 intended for use on interior flooring surfaces. Plate 30 also has depending flanges 31 which are crimped to form corrugations 32. The outwardly arched portions 33 are at right angles to the surface of plate 30, and the innermost portions 33' are at an acute angle to the tread surface and the corrugations terminate short of the edge of the tread surface so that the plates may be assembled with the edges of the plates adjacent the tread portion in engagement with each other, in a manner similar to that shown in Fig. 6. Plate 30 is shown set in a base of concrete 34. The surface of plate 30 is provided with a plurality of countersunk holes 35. Welded therein and embedded in concrete 34 are flat head anchor bolts 36, which may be rough threaded or notched as shown at 37 in Fig. 4.

The heads of bolts 36 are substantially flush with the surface of plate 30. The surface of plate 30 is also provided with a plurality of slots 38 through which concrete 34 exudes as it also does through bolt holes 39 which, in this modification, are not required to be used.

It will be noted that plates 10 and 30 are in all respects identical except for the countersinking of holes 35 in plate 30. Plates 10 and 30 are preferably formed from ordinary low carbon rolled steel plates, while anchor bolts 16 and rivets 19 are preferably made of high carbon, wear resisting steel. Anchor bolts 16 and rivets 19 are so located in plate 10 that they tend to grip the tires of vehicles passing over the plate, thus reducing the possibility of skidding and at the same time providing additional traction. The number of anchor bolts 16 used may vary according to conditions, but it is believed advisable to use a minimum of from nine to twelve such anchor bolts in a plate having a surface dimension of twelve by eighteen inches. As has been stated before, these anchor bolts being embedded in the concrete serve to hold the plate firmly in position. Additional bond is provided by the corrugated flanges 11, the corrugations 12 gripping the concrete securely and preventing displacement of the plate upwardly or laterally. Furthermore, the concrete 14 which exudes through slots 20 and hardens therein also serves to hold plate 10 more securely in place and at the same time increases the ability of the surface of the plate to prevent skidding.

Floor plate 30, as has been said, is substantially identical with paving plate 10, and is intended for use inside of buildings. There are no projections on its surface, the heads of anchor bolts 36 being sunk in holes 35 so as to be substantially flush with the surface of the plate. In this modification also, the concrete 34 exuding through slots 38 and holes 39 serves to hold the plate more securely in place and at the same time imparts to the surface of the plate an antiskid quality.

Although I have described and illustrated my invention in considerable detail, I do not wish to be limited to the exact and specific details thereof, as shown and described, as it will be obvious that numerous variations thereof might be constructed without departing from the scope and spirit of my invention.

Having thus described my invention what I claim and desire to secure by Letters Patent is:

1. A metallic surface plate having a depending corrugated flange on each side thereof the outermost portions of the corrugations lying within a plane substantially at a right angle to said tread portion and the innermost portions of the corrugations being at an acute angle to the tread portion, and having a plurality of grooved anchor bolts extending downwardly through said plate and welded thereinto.

2. A metallic paving plate comprising a tread portion and downwardly corrugated flanged portions, the outermost portions of the corrugations lying within a plane substantially at a right angle to said tread portion and the innermost portions of the corrugations being at an acute angle to the tread portion.

CHARLES SCHENCK.