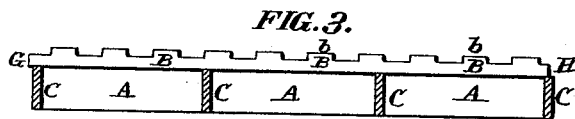
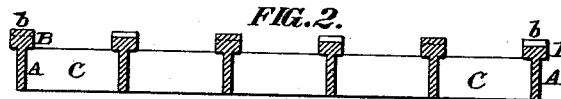
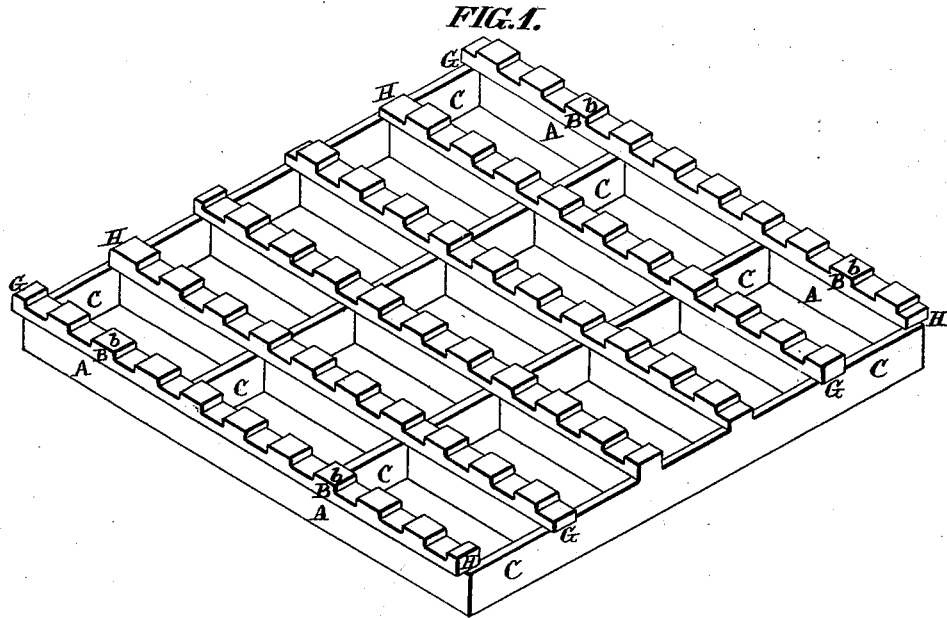


C. R. ANDERSON.

PAVEMENT.

No. 184,817.

Patented Nov. 28, 1876.



ATTEST:

*Robert Burns.*  
*Henry Tanner*

INVENTOR:

*Charles R. Anderson*  
*By Knight*  
*Atty.*

# UNITED STATES PATENT OFFICE.

CHARLES R. ANDERSON, OF ST. LOUIS, MISSOURI.

## IMPROVEMENT IN PAVEMENTS.

Specification forming part of Letters Patent No. 184,817, dated November 28, 1876; application filed January 26, 1875.

*To all whom it may concern:*

Be it known that I, CHARLES R. ANDERSON, of St. Louis, St. Louis county, State of Missouri, have invented a certain new and useful Improvement in Pavements, of which the following is a specification:

The invention relates to an iron frame having open chambers of considerable size adapted to receive "macadam" or its equivalent, and consists in a subsurface grate, the transverse bars of which are constructed with roughened or indented heads or top flanges, flush with the surface of the street. The filling of macadam forms the main part of the pavement, and the frame acts as a lateral support to the filling. The heads or top flanges prevent the street from being cut into ruts, while the longitudinal bars, being covered by the filling material, do not cause the slipping of the feet of animals longitudinally, as the feet either straddle the transverse bars or rest on the filling.

In the drawings, Figure 1 is an isometric perspective view of the pavement. Fig. 2 is a longitudinal section. Fig. 3 is a transverse section.

A A are the transverse bars of the frame—that is to say, the bars running crosswise of the street—and C C are the longitudinal bars. The transverse bars have caps B B, of sufficient strength to sustain the jarring of the wheels without injury, and these caps have projections or knobs *b*, to prevent the transverse slip of the wheels or the horses' hoofs thereon. The frame A C is intended only as a lateral support to the macadam or gravel with which the cavities are filled, and the macadam itself forms the main portion of the pavement proper, and projects above the frame A C.

The caps B may be even with the surface of the macadam, and serve to give partial support to the wheels; but the cavities between the bars are so large that the horses' feet would at all times rest partly or wholly on the macadam. The main purpose of the caps or bars B is to overcome the tendency of the wheels to cut the street into ruts. When ruts are formed in the street the water collects therein, and by soaking down softens

the pavement and the foundation or subpavement, and so the evil action is accelerated.

The frame-sections may be made two and a half feet, more or less, in width.

My preferred manner of laying down this pavement is, to first make a solid foundation, if it is not already present, and lay a transverse course of the sections from side to side of the street. In this course the sections are placed in close contact with the projections G, entering the cavities H, so as to hold them firmly in their proper relative positions. When the frame-sections are in position, the cavities between the bars A and C are rammed with macadam or gravel. The next transverse course is laid with the joints between sections opposite the middle of the sections in the course adjoining, so as to "break joints."

It is not necessary that the transverse courses should be close together, but they may be separated the distance of the caps B apart, and this space filled in with gravel or macadam, the same as the other spaces or cavities.

I propose, generally, to lay my pavement upon streets which have been already macadamized, and in such case it is only necessary to even off the surface and lower it, if required. Thus no additional expense would be incurred in making a special foundation, but that already there and consolidated by travel would be brought into requisition.

I am aware that iron pavements, consisting of cross or trellised bars placed so near together as to give sole support to the foot of the horse, have been before used, and I do not claim, broadly, a pavement composed of iron frames or sections. These pavements have been found dangerous, or expensive, or both. They are dangerous, because the surface wears smooth, and horses and pedestrians slip thereon. They are expensive, because of the weight of iron required to give the necessary strength and close surface-bearing; and, consequently, these pavements have been very generally or wholly discarded.

My pavement is not dangerous, because the surface is mostly of macadam or gravel, and the caps B are notched on the upper surface. Considering its durability, it forms a very

cheap pavement, and its cost is not so great as to interfere materially with its adoption, because the bars of metal are so far apart that the weight of metal required is not a matter of reasonable objection.

Having thus described my invention, the following is what I claim as new and desire to secure by Letters Patent:

The subsurface grate A O, the transverse bars A of which are constructed with roughened or indented heads or top flanges B, flush with the surface of the street.

CHARLES R. ANDERSON.

Witnesses:

SAML. KNIGHT,  
ROBERT BURNS.