J. J. SCHILLINGER.

CONCRETE PAVEMENT.

No. 111,879. Patented Feb. 14, 1871.

Fig. 1.

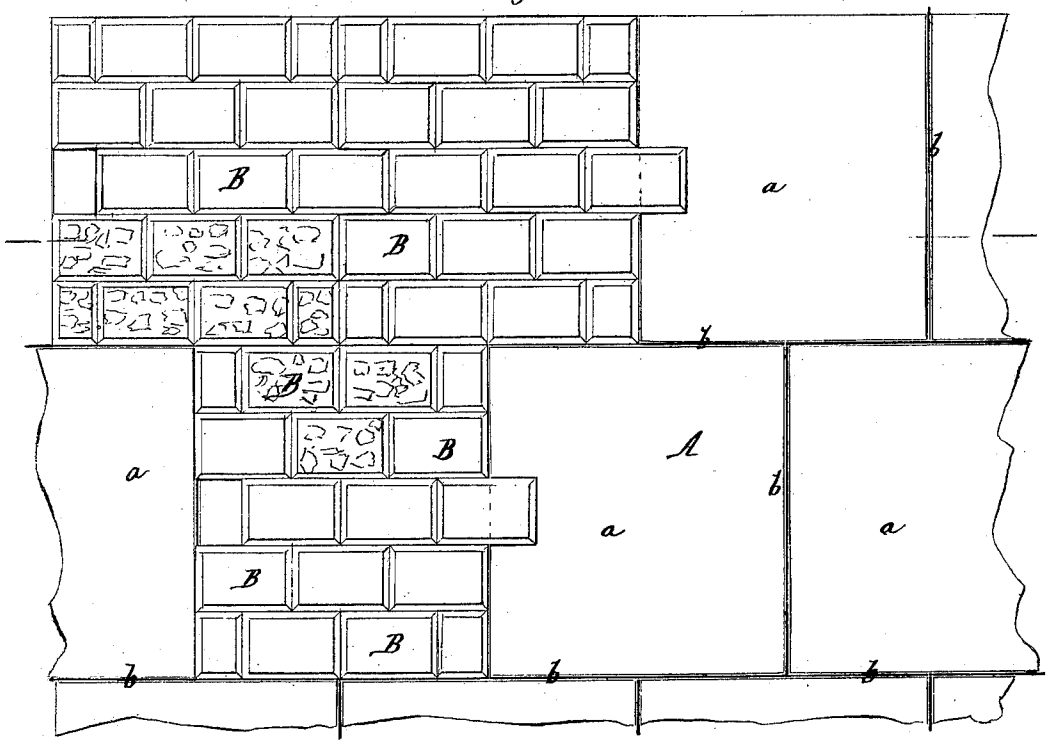
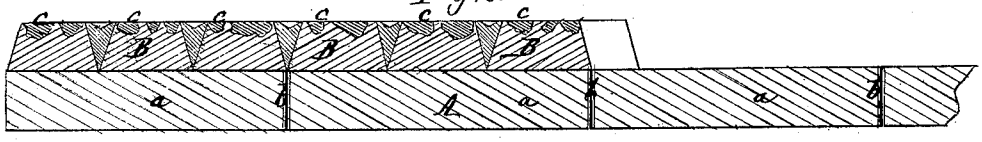


Fig. 2.



Witnesses.

E. F. Kastenhuber

C. Wahlers.

Inventor.

John J. Schillinger

per

Van Santvoord & Hauff

Attys

United States Patent Office.

JOHN J. SCHILLINGER, OF NEW YORK, N. Y.

Letters Patent No. 111,879, dated February 14, 1871.

IMPROVEMENT IN CONCRETE PAVEMENTS.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, JOHN J. SCHILLINGER, of the city, county, and State of New York, have invented a new and improved Concrete Pavement; and I do hereby declare the following to be a full, clear, and exact description thereof, which will enable those skilled in the art to make and use the same, reference being had to the accompanying drawing forming part of this specification, in which drawing—

Figure 1 represents a plan or top view of this invention.

Figure 2 is a vertical section of the same.

Similar letters indicate corresponding parts.

This invention relates to a pavement which consists of a concrete sub-bed and concrete blocks. The sub-bed is made in sections separated from each other by strips of paper interposed between the adjoining edges, and the pavement-blocks are molded of cement, by placing broken stones in the mold and pouring the cement over them so that, when the block is turned out of the mold, its upper surface is formed by the broken stones intermixed with cement. These pavement-blocks are united with the sub-bed either by placing them thereon before the sub-bed has set or by putting a fresh layer of cement on the sub-bed and setting the blocks thereon. The crevices existing between the blocks are filled up with cement, and by these means a pavement is produced which presents a good foothold for draft animals, which is firm and durable, and which, being laid in sections, can readily be taken up and relaid as circumstances may demand.

In the drawing—

The letter A designates the sub-bed of my pavement, which is made of cement, and laid in sections *a*, which are separated from each other by strips *b* of paper or other suitable material, so that each section is free to move up or down independent of the adjoining sections, and the bed is prevented from cracking by the changes of the temperature, and, furthermore, each section can be easily taken up without disturbing the adjoining sections.

On this sub-bed are placed the pavement-blocks B, which are made of cement, with pieces *c* of broken stones imbedded in their upper surfaces, so that, when the blocks are laid down, their surfaces will soon become rough, the cement filling the interstices between the broken stones being worked out by the feet of draft animals passing over them, and a pavement is obtained which offers a good foothold to draft animals, and which at the same time is smooth and level. Said blocks may be made in the form of truncated pyramids, as shown in fig. 2, and, after they have been put down, the interstices between them are filled up with cement, or said blocks may be made in the form of parallelopipeds and laid close together, so that no cement is required to fill up the interspaces.

The blocks B are formed in suitable molds and allowed to harden before they are used, and they are united with the sub-bed by putting them down thereon before the cement forming the sub-bed has set; or, if desired, the sub-bed may be allowed to harden and a fresh layer of cement spread thereon to receive the blocks and form the connection between them and the sub-bed.

In laying down the blocks care is to be taken to put them down so as to break joints, and, if desired, one or more blocks may be made to extend across each of the joints between two adjoining sections, so as to bind these sections together.

In taking up the pavement or a portion thereof these binding-blocks have to be removed, and then each section can be readily raised and afterward relaid without difficulty.

I do not wish to claim, in this present application for a patent, the construction of a cement-bed in sections, with paper or other suitable material interposed between the joints, this construction being fully described in Letters Patent granted to me July 19, 1870; but

What I claim as new, and desire to secure by Letters Patent, is—

A pavement composed of a concrete sub-bed laid in sections separated from each other by strips of paper or other suitable material interposed between them, and of pavement-blocks formed of cement, with pieces of broken stones imbedded in their surfaces and united to the sub-bed by means of cement, substantially in the manner shown and described.

JOHN J. SCHILLINGER.

Witnesses:

W. HAUFF,

E. F. KASTENHUBER.

(No Model.)

J. J. SCHILLINGER.

CONCRETE PAVEMENT.

No. 247,421. Patented Sept. 20, 1881.

Fig. 1.

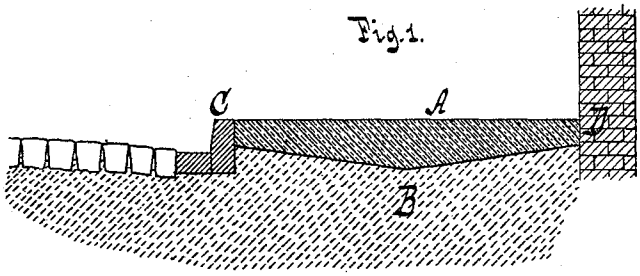
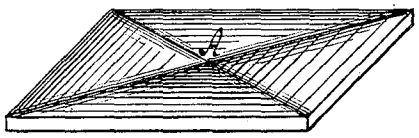


Fig. 2.

Fig. 3.



Witnesses
Otto Hufeland
William Miller.

Inventor
John J. Schillinger
by Van Santvoord & Hauff
his att'ys

UNITED STATES PATENT OFFICE.

JOHN J. SCHILLINGER, OF NEW YORK, N. Y.

CONCRETE PAVEMENT.

SPECIFICATION forming part of Letters Patent No. 247,421, dated September 20, 1881.

Application filed May 11, 1881. (No model.)

To all whom it may concern:

Be it known that I, JOHN J. SCHILLINGER, a citizen of the United States, residing at New York, in the county of New York and State of New York, have invented new and useful Improvements in Concrete Pavements, of which the following is a specification.

This invention relates to an improvement on the invention described in my Patent No. 105,599, reissued May 2, 1871, No. 4,364.

My present invention consists in a concrete pavement composed of roof-shaped or pyramidal sections formed on the ground.

This invention is illustrated in the accompanying drawings, in which—

Figure 1 represents a transverse section of my pavement. Fig. 2 is a perspective view of one of the roof-shaped blocks. Fig. 3 is a similar view of one of the pyramidal blocks.

Similar letters indicate corresponding parts.

The concrete pavement described in my Reissue Patent No. 4,364 consists of sections which are formed successively by spreading the concrete mass, while in a plastic state, on the foundation or bed of the pavement, either in molds or between movable joists of the proper thickness, the formation of the second section or block being commenced after the first section or block has set, so that the edges of the several blocks do not adhere to those of the adjoining blocks, and that when the pavement is complete each block or section is allowed to heave separately from the effect of frost or to be raised or removed separately whenever occasion may arise, without injury to the adjacent blocks.

Heretofore the blocks or sections formed in the manner above stated have been of uniform thickness throughout, and I have found that such blocks, particularly if made of large size, have been liable to crack. For instance, if in laying a sidewalk according to the method described in my reissued patent above named the blocks are made of sufficient length to extend from the curb to the building on the inner side of the sidewalk, they are liable to crack in such a manner that they have to be relaid very frequently. This defect I have sought to overcome by my present invention by forming roof-shaped blocks A instead of blocks of uniform thickness throughout.

In forming a sidewalk according to this invention, I prepare the bed B in the manner shown in Fig. 1, and then I place two joists from the curbstone C to the building D at a suitable distance apart upon the bed, and the space between these joists is then filled up with the plastic mass. After the first block has been completed and set the joist situated on one of its edges is removed a sufficient distance to form the second block, and so on.

A roof-shaped block formed in this manner can be made with safety ten feet long and four feet wide, and it is not liable to crack by the influence of frost or otherwise.

Instead of making the block roof-shaped, as shown in Figs. 1 and 2, they can be made pyramidal, as shown in Fig. 3. The concrete which I use by preference in forming my blocks consists of cement, sand, and gravel, which are mixed together with water in suitable proportion to form a plastic mass.

My blocks have also the great advantage that the same, when placed on an incline, are not liable to become displaced by the action of gravity.

What I claim as new, and desire to secure by Letters Patent, is—

A concrete pavement laid in detached sections directly upon the ground or bed, and each section formed of plastic material into a roof-shape or pyramidal outline, which rests throughout its breadth on the ground or bed, substantially as shown and described.

In testimony whereof I have hereunto set my hand and seal in the presence of two subscribing witnesses.

JOHN J. SCHILLINGER. [L. S.]

Witnesses:
W. HAUFF,
E. F. KASTENHUBER.

(No Model.)

J. J. SCHILLINGER.

CONCRETE PAVEMENT.

No. 256,383. Patented Apr. 11, 1882.

Fig. 1.

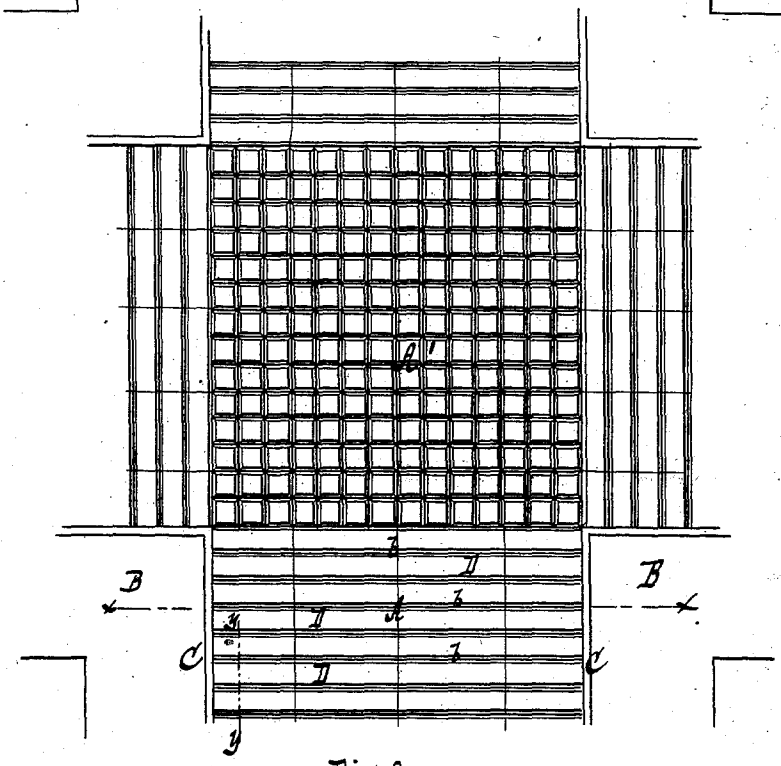
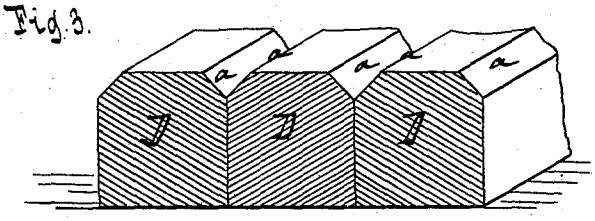


Fig. 2.

Fig. 3.



WITNESSES:

Otto Hufeland

J. A. Rutherford

INVENTOR

John J. Schillinger

BY Van Santvoord & Hauff

ATTORNEYS

UNITED STATES PATENT OFFICE.

JOHN J. SCHILLINGER, OF NEW YORK, N. Y.

CONCRETE PAVEMENT.

SPECIFICATION forming part of Letters Patent No. 256,383, dated April 11, 1882.

Application filed March 1, 1882. (No specimens.)

To all whom it may concern:

Be it known that I, JOHN J. SCHILLINGER, a citizen of the United States, residing at New York, in the county and State of New York, have invented new and useful Improvements in Concrete Pavements, of which the following is a specification.

This invention relates to a concrete pavement which is an improvement on the concrete pavement described in Letters Patent Reissue No. 4,364, granted to me May 2, 1871, the object of my present improvement being to render such pavement practicable for streets. For this purpose I construct my new pavement with grooves running transversely across the street from curb to curb, so as to afford a good foothold for horses and other draft-animals. I also form my pavement on a convex bed, so that when the cement has set and a portion of the bed should be washed away the pavement, which forms an arch, will still retain its position against a considerable pressure.

In the accompanying drawings, Figure 1 represents a plan or top view of a street-crossing provided with my pavement. Fig. 2 is a transverse vertical section in the plane *x x*, Fig. 1. Fig. 3 is a longitudinal vertical section in the plane *y y*, Fig. 1, on a larger scale than the previous figures.

Similar letters indicate corresponding parts.

In the drawings, the letter A designates the roadway of a street. B B are the sidewalks, and C C the curbs. The space between the curbs contains my new pavement, which is laid in sections D, as described in my Patent Reissue No. 4,364, above named, each section being provided with chamfered edges *a a*, as shown in Fig. 3, so that when the pavement is complete V-shaped channels *b* extend transversely across the street from curb to curb. At the street-crossing A′ the V-shaped channels of my pavement cross each other, as shown in Fig. 1. Of course the groove can be made of any other form; but I prefer the V shape, because the dust does not settle therein as firmly as it would in rectangular grooves.

In laying my pavement I prepare the bed E so as to present a convex surface, and on this bed I spread the cement, either in molds or between movable joists of the proper thickness, and before the blocks have set I chamfer their edges, so as to produce the V-shaped channels. By making the bed convex my pavement, when ready, forms an arch, which abuts against the curbs, and if the bed should be partially washed away from under the pavement, my pavement is still able to sustain a considerable weight without giving way. For this reason I am enabled to build my pavement on a removable center or foundation when such is desirable.

The pavement described in my Patent Reissue No. 4,364 was intended particularly for sidewalks or walks used solely by pedestrians, and on account of its smooth surface I could not apply the same to the roadways of streets. By my present improvement the pavement is rendered eminently fit for roadways.

I distinctly disclaim in my present application everything shown and described in my Patent Reissue No. 4,364.

What I claim as new, and desire to secure by Letters Patent, is—

1. A concrete pavement for roadways, laid in sections and provided with grooves extending transversely across the roadway from curb to curb, substantially as shown and described.

2. A concrete pavement for roadways, laid in sections on a convex bed or foundation and extending from curb to curb, substantially as set forth.

In testimony whereof I have hereunto set my hand and seal in the presence of two subscribing witnesses.

JOHN J. SCHILLINGER. [L. S.]

Witnesses:
W. HAUFF,
WILLIAM MILLER.

John J. Schillinger's Imp.d Pavement.

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REISSUED MAY 2 1871

Fig: 1.

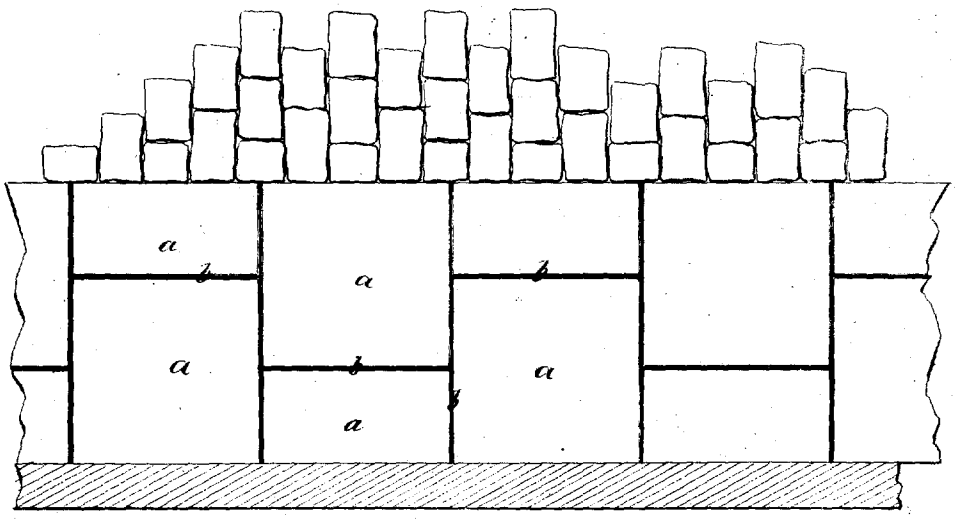
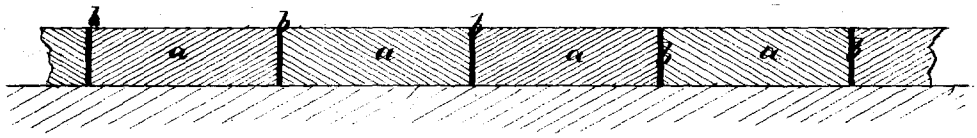


Fig: 2.



Witnesses:
E. F. Kastenhuber
C. Wahlers.

Inventor:
John J. Schillinger

UNITED STATES PATENT OFFICE.

JOHN J. SCHILLINGER, OF NEW YORK, N. Y.

IMPROVEMENT IN CONCRETE PAVEMENTS.

Specification forming part of Letters Patent No. 105,599, dated July 19, 1870; Reissue No. 4,364, dated May 2, 1871.

To all whom it may concern:

Be it known that I, JOHN J. SCHILLINGER, of the city, county, and State of New York, have invented a new and useful Improvement in Concrete Pavements; and I do hereby declare the following to be a full, clear, and exact description thereof, which will enable those skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which drawing—

Figure 1 represents a plan of my pavement. Fig. 2 is a vertical section of the same.

Similar letters indicate corresponding parts.

This invention relates to a concrete pavement which is laid in sections, so that each section can be taken up and relaid without disturbing the adjoining sections. With the joints of this sectional concrete pavement are combined strips of tar paper, or equivalent material, arranged between the several blocks or sections in such a manner as to produce a suitable tight joint and yet allow the blocks to be raised separately without affecting the blocks adjacent thereto.

In carrying out my invention, I form the concrete by mixing cement with sand and gravel or other suitable materials to form a plastic compound, using about the following proportions: one part, by measure, of cement, one part, by measure, of sand, and from three to six parts, by measure, of gravel, with sufficient water to render the mixture plastic; but I do not confine myself to any definite proportions or materials for making the concrete composition.

While the mass is plastic I lay or spread the same on the foundation or bed of the pavement, either in molds or between movable joists of the proper thickness, so as to form the edges of the concrete blocks *a a*, one block being formed after the other. When the first block has set, I remove the joists or partitions between it and the block next to be formed, and then I form the second block, and so on, each succeeding block being formed after the adjacent blocks have set, and, since the concrete in setting shrinks, the second block when set does not adhere to the first, and so on, and when the pavement is completed each block can be taken up independent of the adjoining blocks. Between the joints of the adjacent blocks are placed strips *b* of tar paper or other suitable material in the following manner: After completing one block, *a*, I place the tar paper *b* along the edge where the next block is to be formed; and I put the plastic composition for such next block up against the tar-paper joint, and proceed with the formation of the new block until it is completed. In this manner I proceed until the pavement is completed, interposing tar paper between the several joints as described. The paper constitutes a tight water-proof joint, but it allows the several blocks to heave separately from the effects of frost or to be raised or removed separately whenever occasion may arise, without injury to the adjacent blocks.

The paper when placed against the block first formed does not adhere thereto, and therefore the joints are always free between the several blocks, although the paper may adhere to the edges of the block or blocks formed after the same has been set up in its place between the joints.

In such cases, however, where cheapness is an object, the tar paper may be omitted and the blocks formed without interposing anything between their joints, as previously described. In this latter case the joints soon fill up with sand or dust, and the pavement is rendered sufficiently tight for many purposes, while the blocks are detached from each other and can be taken up and relaid, each independent of the adjoining blocks.

What I claim as new, and desire to secure by Letters Patent, is—

1. A concrete pavement laid in detached blocks or sections, substantially in the manner shown and described.

2. The arrangement of tar paper, or its equivalent, between adjoining blocks of concrete, substantially as and for the purpose set forth.

JOHN J. SCHILLINGER.

Witnesses:
W. HAUFF,
E. F. KASTENHUBER.