

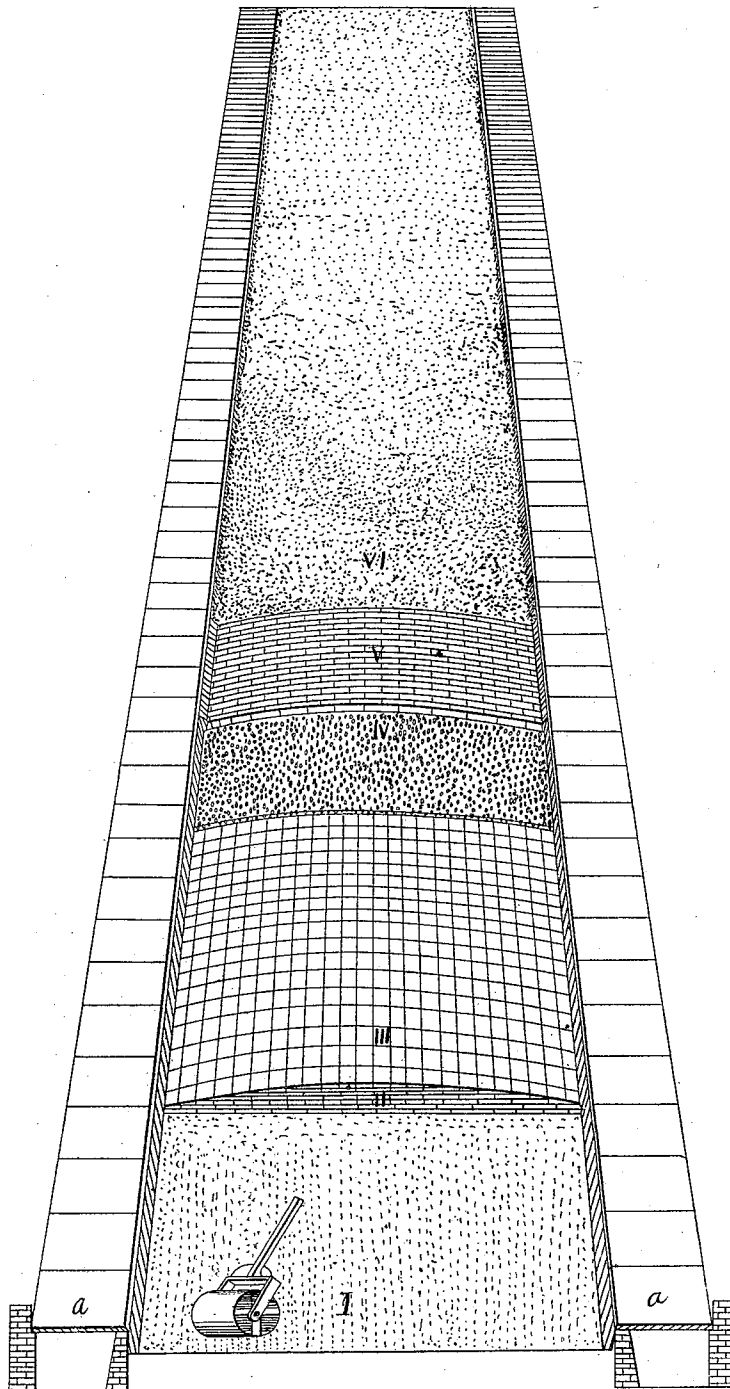
A. Dilger.

Sheet 1-2, Sheets.

Concrete Pavement.

N^o 104,941.

Patented Jul. 5, 1870.



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J. M. Smith*

*Inventor,
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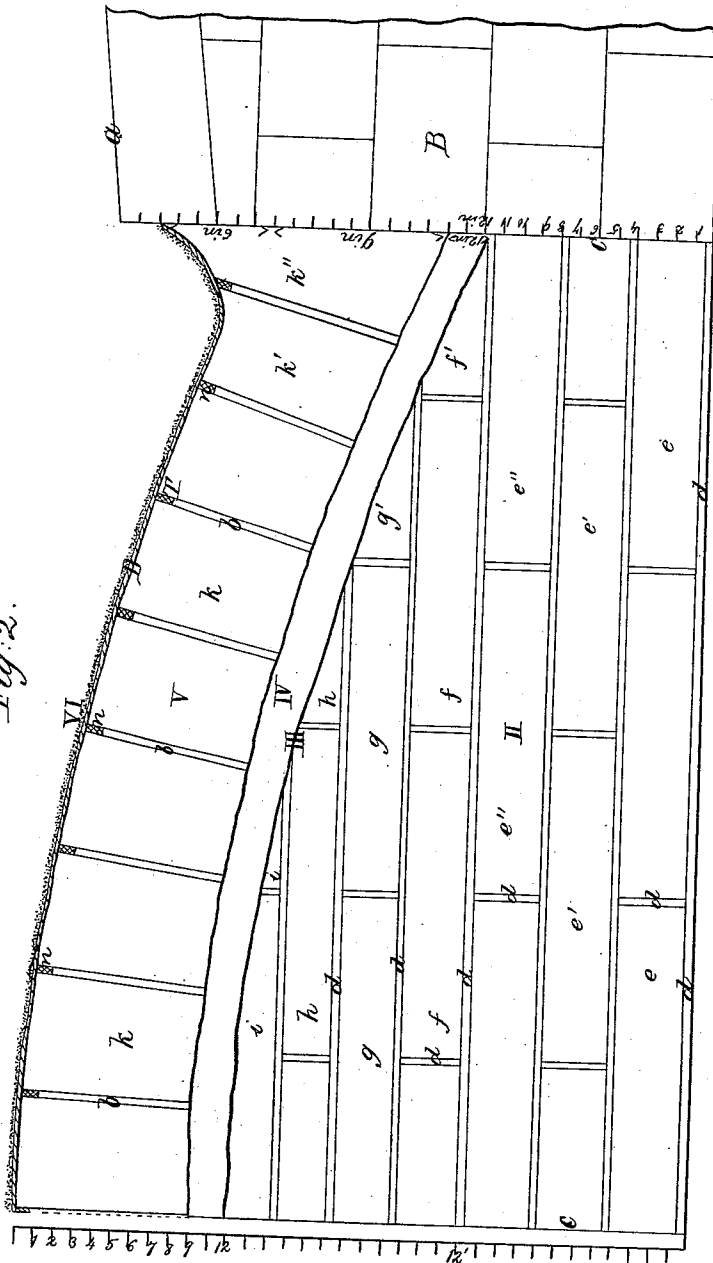
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Fig. 2.



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ANDREW DILGER, OF ST. LOUIS, MISSOURI.

Letters Patent No. 104,941, dated July 5, 1870.

IMPROVEMENT IN PAVEMENTS.

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

I, ANDREW DILGER, of St. Louis, in the county of St. Louis and State of Missouri, have invented a certain new and useful Street-Pavement, of which the following is a specification.

Nature and Object of the Invention.

My invention relates, first, to the construction of a firm and unyielding foundation applicable to nearly every form of pavement, and, secondly, to the combination with this foundation of a surface-paving of a very durable character, neither of which improvements can be properly described in few words.

Description of the Invention with Reference to the Drawing.

Figure 1 is a perspective view, showing the various strata of which my pavement is composed.

Figure 2 is a vertical transverse section of a portion of the same, on a larger scale.

A is the sidewalk, and B the foundation of the curb or outer edge of the same.

C is the face of the foundation B, which forms side abutments to the roadway.

The roadway is first dug out about two feet six inches in depth from the desired level of the outer edge or curb of the sidewalk, the excavation being made horizontal transversely. The excavation may be then made for the foundation wall B of the sidewalk, and the said wall built, if this has not been already done.

I next take a heavy roller requiring the strength of three or four horses, and roll the sub-foundation I thoroughly, so as to consolidate it, taking care to fill up any depressions that may occur in rolling.

I then spread upon the rolled surface I an even layer of mortar, *d*, or cement, one-half inch thick.

Upon this mortar I place a layer of flat stones, *e e*, each of which is about twelve by twenty-four inches square, and from three to four inches thick.

These stones are laid upon their broadsides, and the joints being filled with cement or mortar *d*, a layer of the same one-half inch thick is spread, upon which is placed another layer of stones, *e' e'*, similar in dimensions to those *e e*, and, like them, laid flat and with mortar, and each stone so placed as to break the joints in the layer beneath.

If the foundation I is not of a solid and reliable character above the second layer of stone *e' e'*, I place another, *e'' e''*, similar and similarly laid to those *e e* and *e' e'*.

These two or three layers of stones (as the case may be) extend from side to side of the roadway, and are marked I I in the drawing.

Over the upper layer, *e'' e''*, is spread one-half inch of mortar *d*, and upon this coat are laid stones *f*, similar to those before used, except that those *f* in the

courses nearest to the sidewalks are beveled on their upper outer edges, so as to give a rise toward the center of the roadway.

Each of the courses *g g'*, *h h'*, and *i i'*, above the course or layer *f f'*, are similarly beveled at their outer edges, *g' h' i'*, so as to give the transversely-arched form to the roadway.

The center of a street or roadway fifty feet wide might be made ten inches higher than the gutters.

The arched portion of the foundation is marked III, and gives the proper contour to the superincumbent layers.

Upon the upper surface of III is then spread a layer, IV, of mortar or cement two inches thick, and when the said cement has sufficient consistency to sustain a horse's tread without poaching, I spread thereon a coat of gravel one inch thick, and roll down the said gravel into the cement with the heavy roller before mentioned. If, during this rolling, any irregularities or depressions occur, I fill them with a mixture of gravel and cement or mortar, and by means of the roller, and any filling found necessary, give the proper conformation and extreme density to the coat IV.

The described foundation I II III IV will make a water-tight, indestructible, and unyielding bottom on which to lay any pavement, whether stone, metal, wood, or composition.

The pavement preferred by me is made as follows:

I take hewn or dressed stones, *k*, measuring nine inches from top to bottom, five to eight inches across, and from three to six inches thick, and these stones are placed so that their thickness is in the direction of the length of the street.

The stones are set with mortar or cement, *l*, filling the interstices of half an inch between them, except that the upper portions of the joints or interstices are left open for an inch in depth, which space is filled with pitch, *m*, the pitch in pouring being allowed to extend somewhat above the surface of the stone.

The stones *k' k'*, next the curb on each side, have their upper surfaces so fashioned as to form a gutter, whose bottom is across the second stone, *k'*, from the curb.

After the joints have been filled with pitch, *m*, I spread over the whole surface a coat of fine gravel, VI, which, by means of the roller is forced into the interstices and incorporated with the pitch.

I have thus fully detailed my preferred mode of construction, but do not confine myself to the measurement given. It is not my purpose to employ worked or hewn stone in any part of the foundation, and the beveled or inclined portions, *f' g' h' i'*, would mostly be made up of stones of more or less irregular shapes and thicknesses.

In some cases, as where hewn stones are difficult to

obtain, the upper portion or layer, V, consisting of the stones *k*, may be superceded by bricks made of the proper material, and burned so hard as to resist the destructive action of wheels or the feet of horses. These bricks would be preferably made in molds nine inches long, six inches wide, and three inches deep.

The foundation II, III, consisting of broad stones laid flat upon their sides, and the stones of each layer breaking the joints of the layers beneath and above them, would, on the "setting" of the mortar with which they are laid, form a solid, unyielding foundation, unaffected by any weight which could be brought upon it, and giving vertical support to the upper stratum of pavement, in such manner as to prevent the usual outer pressure of the latter against the curb when sustaining a heavy load. This springing of the arch of the pavement causes the derangement of the curb of the sidewalk which is not set with sufficient firmness to resist this strain, and, if so set, would communicate a disagreeable vibration to the buildings along the street. These difficulties are obviated by my foundation, which will stand firmly and immovably on any soil which is properly leveled, even if it is clear sand, and, being unyielding, will not allow any portion, great or small, of the upper pavement to subside and fail,

thereby to give support to the parts in juxtaposition thereto.

In situations where gravel is not easily procurable, broken stones may be used in its stead in the foundation.

I claim as my invention—

1. The foundation II III of a street-pavement, said foundation being formed in horizontal strata, as described, and whose vertical transverse section is horizontal upon its lower side and convex upon its upper side, so as to rest upon a transversely horizontal subfoundation, and to give the proper arched form to the superincumbent layer or layers, substantially as described.

2. In combination with the foundation II III IV, the upper stratum of pavement, V, formed and constructed substantially as described.

3. The pavement I II III IV V VI, constructed substantially as described.

In testimony of which invention I hereunto set my hand.

ANDREW DILGER.

Witnesses:

SAML. KNIGHT,
S. M. SMITH.