(No Model.)

F. W. BARTLETT.

STONE PAVEMENT.

No. 283,369. Patented Aug. 21, 1883.

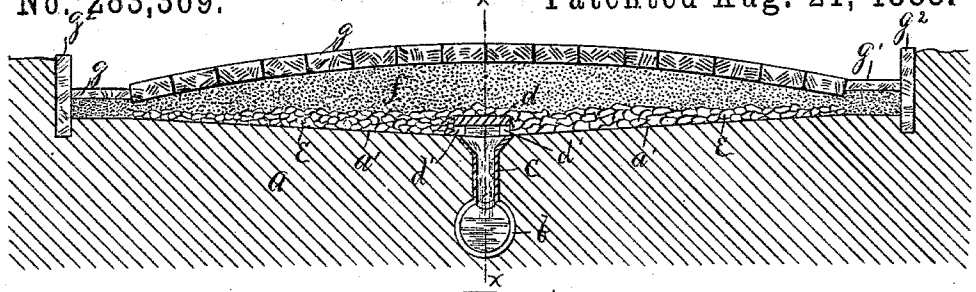

Fig 1

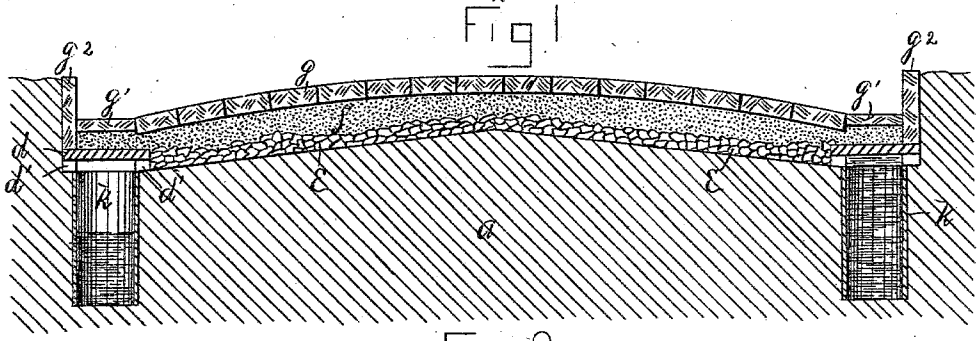

Fig 2

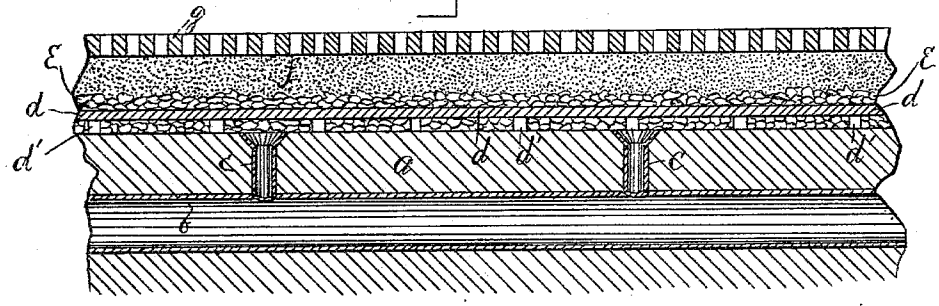

Fig 3

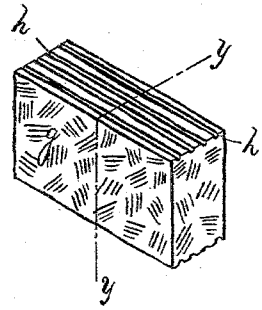

Fig 4

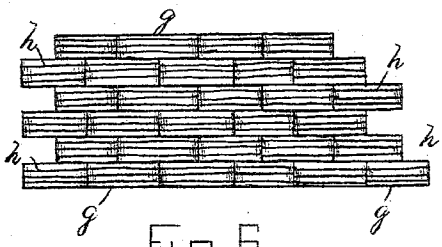

Fig 6

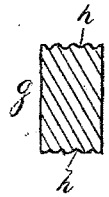

Fig 5

Witnesses:
Otto Hoddick
Wm. W. Kent

Inventor
Frederick W Bartlett
By,
W T Miller
Atty.

N. PETERS, Photo-Lithographer, Washington, D. C.

UNITED STATES PATENT OFFICE.

FREDERICK W. BARTLETT, OF BUFFALO, NEW YORK.

STONE PAVEMENT.

SPECIFICATION forming part of Letters Patent No. 283,369, dated August 21, 1883.

Application filed September 18, 1882. (No model.)

To all whom it may concern:

Be it known that I, FREDERICK W. BARTLETT, a citizen of the United States, residing at Buffalo, in the county of Erie and State of New York, have invented certain new and useful Improvements in Stone Pavements; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters or figures of reference marked thereon, which form a part of this specification.

My invention relates particularly to pavements of natural stone, and its object is to remedy certain common and serious defects which now exist in pavements of this class. It is a well-known fact that in these pavements as now laid the surface-drainage fails to carry all the water to the side gutters, and from thence to the sewer. The water not carried off passes down between and under the stones, and as its escape is not properly provided for it causes the stones to sink in places, and in the event of freezing it raises the stones above the level proper of the street, soon causing a broken and uneven surface. I propose by my invention to overcome these difficulties; and to this end it consists in so constructing the bed upon which the paving stones or blocks are laid that ready and efficient means are provided for the rapid drainage of the water which passes down between and under the stones.

My invention further consists in providing a paving-block of natural stone having both its upper and lower wearing-surfaces roughened or provided with corrugations to afford a firmer hold for horses' hoofs.

The manner in which I have carried out my invention will be more particularly described in the specification and pointed out in the claims, it being understood that it is susceptible of considerable variation without departing from the spirit of my invention.

In the drawings, Figure 1 is a vertical cross-section of my improved pavement. Fig. 2 is a vertical cross-section of a modified form thereof. Fig. 3 is a section of Fig. 1, taken in the line *x x*. Fig. 4 is a perspective view of my improved paving-block. Fig. 5 is a section of the same, taken in the line *y y;* and Fig. 6 is a top view of a section of the pavement, showing its corrugated surface.

Referring to the drawings, *a* is the hard earth foundation upon which the bed of the pavement is laid. This is usually of an argillaceous character, which will not permit of a rapid absorption of water.

b is the sewer, laid under the center of the street, and *c c* are vertical drain-tiles, connecting the surface of the portion *a* with the sewer. These tiles *c c* are placed at suitable intervals (say two hundred or more feet apart) and at the junction of the sloping sides *a' a'* of the portion *a*, which in this instance is at the center line of the pavement. A small open stone culvert or passage is constructed along the line of the connecting-tiles *c c*, which consists, substantially as shown in Figs. 1 and 3, of the stone top or cover *d* and the side supports, *d'*. Above and on both sides of this culvert *d d'* is placed a layer, E, of broken stone of suitable size. This layer may preferably extend nearly the entire width of the pavement. Above this layer E of broken stone is next laid a sufficient quantity of comminuted or percolating material, *f*, to complete the bed of the pavement. This material *f* may consist of coarse sand or gravel, and with this sand or gravel may be mixed a quantity of broken stone, if desired. In short, the entire bed for the pavement is so constructed that the water which passes down between the stones will quickly and readily find an outlet into the sewer or other reservoir provided for its reception, so that the action of frost will have little or no chance to disturb the smoothness of surface of the pavement, and there will be no settling of the water in places under the stones.

Upon the bed just described are laid the paving-blocks *g* and gutter-stones *g'*, and *g²* are the curb-stones. These stones *g* are of substantially uniform size, and are laid in regular courses, as shown in Fig. 6. The stone which I preferably use is laminiferous sandstone, and I am enabled to quickly and cheaply break this stone into regular-shaped blocks by peculiar mechanism, which will form the subject-matter for another application for Letters Patent. This mechanism will also enable me to provide the block *g* with the grooves or cor-

rugations *h* which I have shown in Figs. 4, 5, and 6. In Figs. 4 and 5 I have shown the block with the grooves or corrugations on the upper and lower surfaces of the stones, which has the effect of making the stones reversible when worn smooth on one side.

In Fig. 2 I have shown a modified form of bed for the pavement. In this instance there is no sewer in the street. I have therefore sloped the surface of the portion *a* from the center line down to each side of the pavement, and have there constructed a number of wells, *k*, at suitable distances apart for the reception of the drained water. These wells are connected by an open culvert, *d d'*, in the same manner as the connecting-tiles *c c* in Figs. 1 and 3. The operation of this form of pavement is substantially the same as in the form shown in Fig. 1.

The wells may be lined on the sides only with tiling, as shown in the drawings, or they may be constructed of stone-courses, and the water which percolates through to these wells is allowed to pass into the ground in the natural course of absorption.

It will be seen from the foregoing description that the bed of the pavement is at all times kept entirely free from the presence of water in quantities sufficient to effect the rising or sinking of the pavement, and the consequent destruction of the integrity of its smooth surface, and that by grooving or corrugating the surface of the paving-blocks of natural stone a surface is produced upon which there is no possibility of slipping, and by grooving or corrugating the upper and lower surfaces of the paving-block the stone can be reversed when the grooves on one side have been effaced by wear.

An important advantage in my improved construction is that I am enabled to prepare a suitable bed for the pavement with much less material than is now employed, and the necessary amount of excavation is correspondingly diminished. For instance, in ordinary pavements of this class an excavation of eighteen inches or over is deemed necessary to effect satisfactory results, while I am enabled by my improved construction to obtain perfectly satisfactory results with fully one-half the depth of excavation, and consequently the same reduction in the amount of filling required.

I am aware of the Patent No. 242,689, granted June 7, 1881, in which are shown paving-blocks of concrete, having their top and bottom edges beveled, and I do not therefore lay claim to such construction.

I claim—

1. A pavement composed of stone blocks of substantially uniform size laid in regular courses, a bed composed of percolating material, a system of drain-passages below such bed for conveying the drained water to the sewer or into the ground, and a culvert or open passage-way connecting the drain-passages with each other, substantially as shown and described.

2. A pavement and its bed composed substantially of the paving-blocks, the layer of coarse sand and gravel immediately under such blocks, the layer of broken stone under the sand and gravel and upon the hard argillaceous foundation, suitably graded to carry the water in the desired direction, the vertical drain-tiles to convey the drained water to the sewer or into the ground, and the culvert or open passage-way connecting the vertical drain-tiles, all arranged and operating substantially as shown and described.

3. A paving-block of natural stone, having each side thereof substantially at right angles to its contiguous sides, and having both its upper and lower wearing-surfaces provided with a series of longitudinal grooves, *h*, in the direction of its greatest length, substantially as and for the purpose stated.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

FREDERICK W. BARTLETT.

Witnesses:

OTTO HODDICK,

W. T. MILLER.