

H. AKERHIELM.  
Wood Pavement.

No. 204,414.

Patented June 4, 1878.

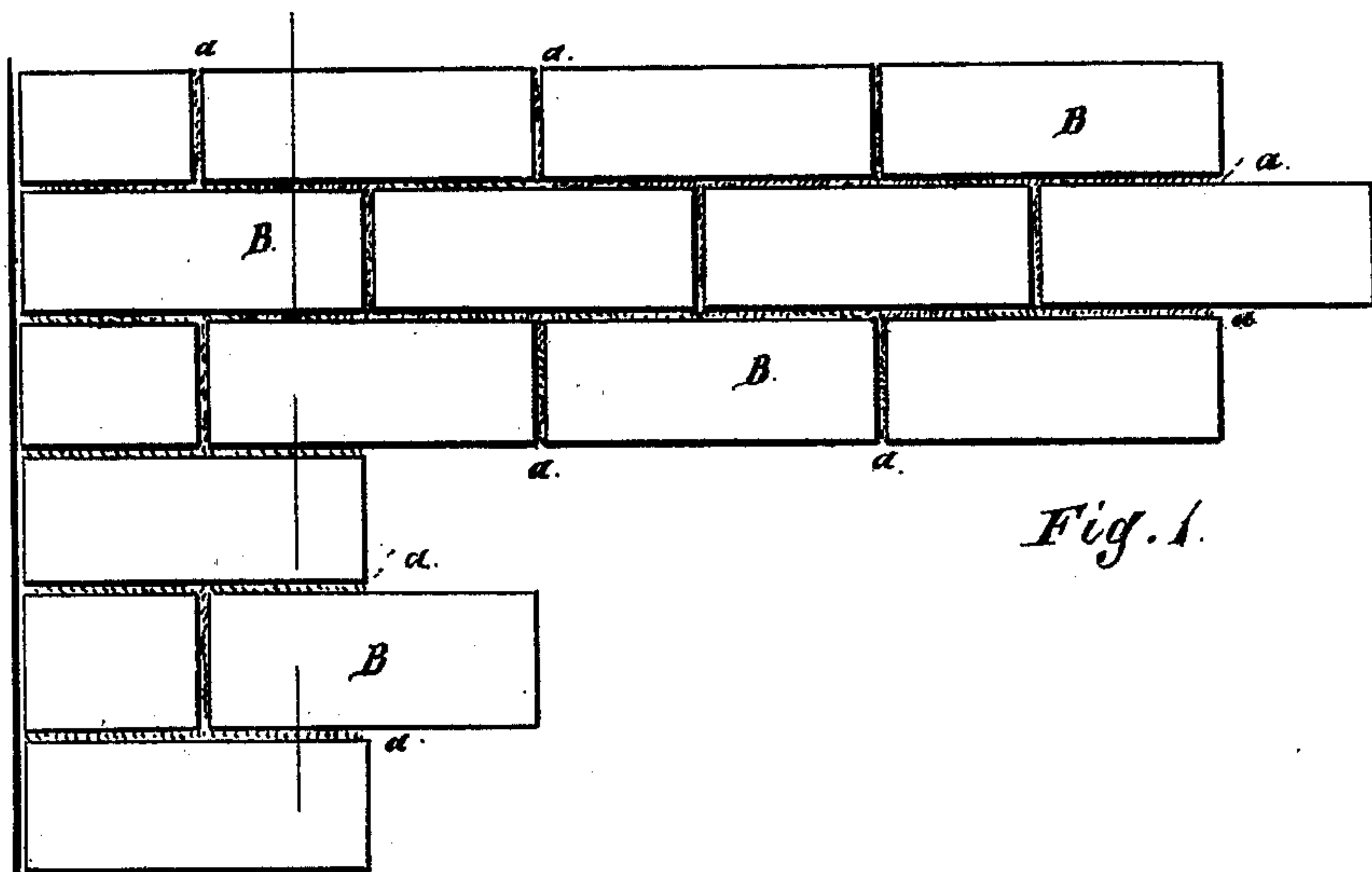


Fig. 1.

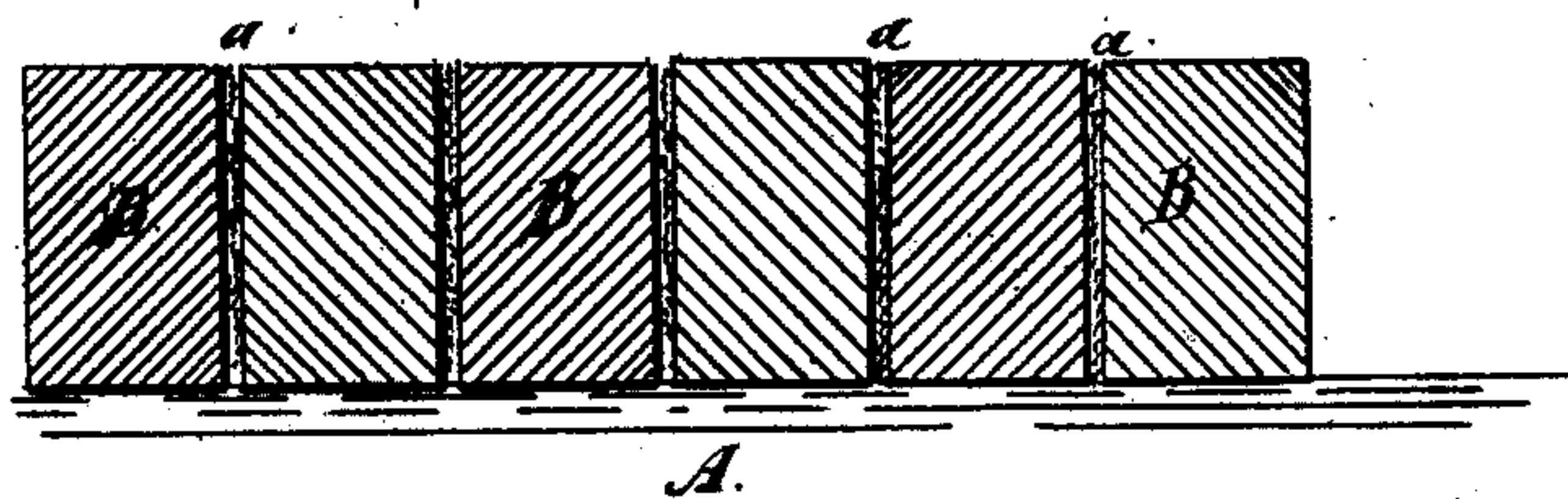


Fig. 2.

*Witnesses:*  
*A. W. Bond*  
*H. F. Bruns*

*Inventor:*  
*Hugo Akerhielm*  
*By West & Bond Atty*

# UNITED STATES PATENT OFFICE.

HUGO AKERHIELM, OF CHICAGO, ILLINOIS, ASSIGNOR OF ONE-HALF HIS  
RIGHT TO MICHAEL B. BAILEY, OF SAME PLACE.

## IMPROVEMENT IN WOOD PAVEMENTS.

Specification forming part of Letters Patent No. **204,414**, dated June 4, 1878; application filed  
July 14, 1877.

*To all whom it may concern:*

Be it known that I, HUGO AKERHIELM, of the city of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Wood Pavements; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to which it pertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

Figure 1 is a top or plan view, showing a section of the pavement; Fig. 2, a cross-section.

An objection to wood pavements as now constructed arises from the fact that the blocks, after being laid, swell and shrink and crack more or less, which swelling and shrinking break the filling between the blocks, so that the blocks become loose, which in time destroys the pavement. This breaking of the filling and cracking of the blocks also allows water and moisture to collect beneath the blocks, which causes them to decay and become useless, necessitating the frequent repairing of the pavement.

The object of my invention is to overcome these objections, which I accomplish by treating the blocks of wood with a solution which fills the pores thereof and retards decay, and also prevents the shrinking and swelling to a great extent, laying the wood blocks so treated on a foundation which will not yield to any great extent, and filling the spaces between the blocks with sand, and then pouring in a thin solution of Portland or other suitable cement, as hereinafter more fully described.

In the drawings, A represents the foundation; B, the wooden paving-blocks; *a*, the sand and cement filling between the blocks.

The foundation-bed A is to be composed of broken stone, concrete, boards, sand, or other suitable material that will be sufficiently firm and unyielding to form a foundation that will not be affected to any great extent by the action of frost and the moisture in the earth, so that it will retain its proper shape and lessen the danger of any sinking of the wooden blocks from travel or otherwise. This foundation

may be arched or crowned, or otherwise formed as desired, the form corresponding to the desired form of the completed pavement.

The blocks B may be of any of the well-known forms, and before being laid are to be treated as follows:

A solution is formed of the following ingredients, the proportions given being those from which best results are obtained; but beneficial results will be obtained if the proportions are varied somewhat. Take one and one-half part of protosulphate of iron or commercial copperas, one and one-half part of chloride of sodium or salt, and dissolve in ninety-seven parts of water. The copperas and salt may be dissolved directly in the water, or these ingredients may be dissolved in a less quantity of water and turned into a bath containing the requisite amount of water.

The blocks of wood to be treated are placed in a tank or vat of a sufficient capacity, into which tank the solution is poured until the blocks are entirely covered. The solution may be used either hot or cold, according as the process is desired to be rapid or slow, suitable means being provided in the tank or vat to keep the solution hot.

The blocks of wood are to remain in the tank a sufficient length of time to allow them to be thoroughly impregnated by the mixture, when they are to be taken out and dried by any suitable means, and are ready for use.

The blocks, when prepared as described, are to be laid on top of the foundation-bed, with a space of from one-quarter to half an inch between each block and between the rows, which spaces are to be filled with a composition that will firmly embed the blocks in position.

The filling *a*, which is a good one for the purpose, is formed as follows: The space around the blocks is filled with sand, and a thin solution of Portland cement, reduced to the consistency of milk, is poured in as a liquid until the entire space is filled, the liquid cement not only filling the space occupied by the sand between the blocks, but penetrating through the sand and beneath the blocks, forming a mortar beneath the bottom and around the sides of the blocks, in which the blocks will



be firmly embedded as the mortar or cement becomes hardened.

Any cement or mortar that will harden and embed the blocks will answer this purpose as well as the filling *a*.

By treating the blocks with the solution described before laying, the pores of the wood will be filled, preventing the absorption of oxygen or moisture and rendering the block not liable to decay, thereby increasing its life; and such treatment of the blocks also hardens them, so that they will stand a great amount of travel without wearing away rapidly. This treatment also prevents the shrinking and swelling of the blocks to a great extent, so that when once embedded in the cement or mortar they will not become loosened, and thereby destroy the filling between the blocks.

By constructing a pavement by laying blocks treated as described on a foundation-bed that is firm and unyielding, and filling the space between the blocks with a cement or mortar that firmly embeds them, a pavement is formed which is strong and durable, and which will

last a long time by reason of its non-swelling and non-shrinking properties, and which the ordinary travel will not injure for a great length of time.

As shown, a space is left between the ends of each block; but the blocks may be laid in contact at their ends, if desired, leaving only the space between the rows of blocks, which is to be filled with a concrete or mortar, as before described.

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

The blocks *A*, treated with copperas and salt, as described, laid on a firm foundation, and embedded in a cement or mortar, substantially as specified.

In testimony that I claim the foregoing as my own I hereto affix my signature in presence of two witnesses.

HUGO AKERHIELM.

Witnesses:

O. W. BOND,  
E. A. WEST.