W. H. & H. M. STOW.

Street-Pavement.

No. 200,105. Patented Feb. 5, 1878.

Fig. 1.

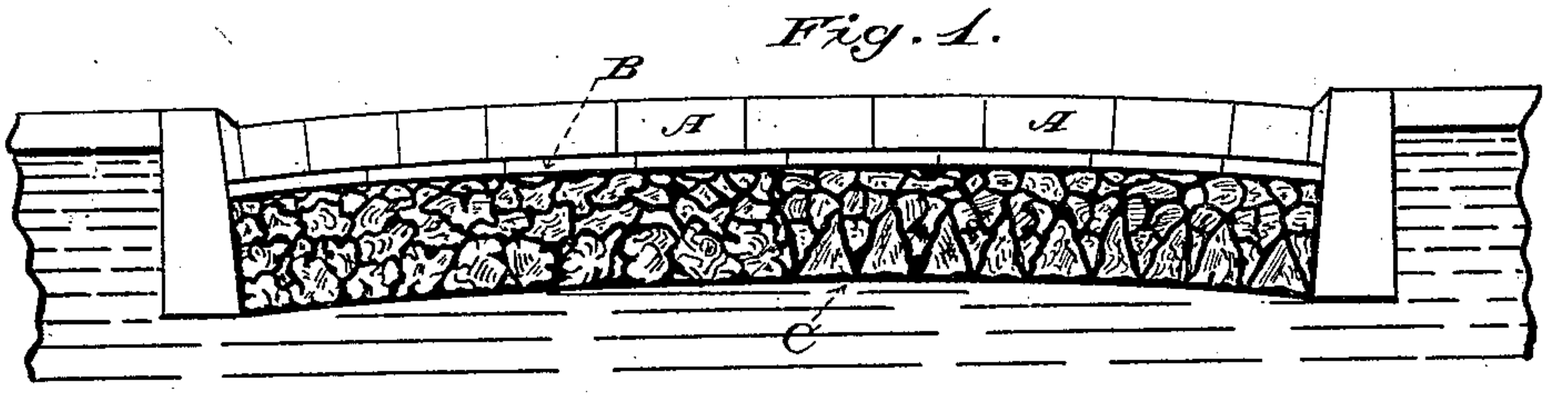


Fig. 2.

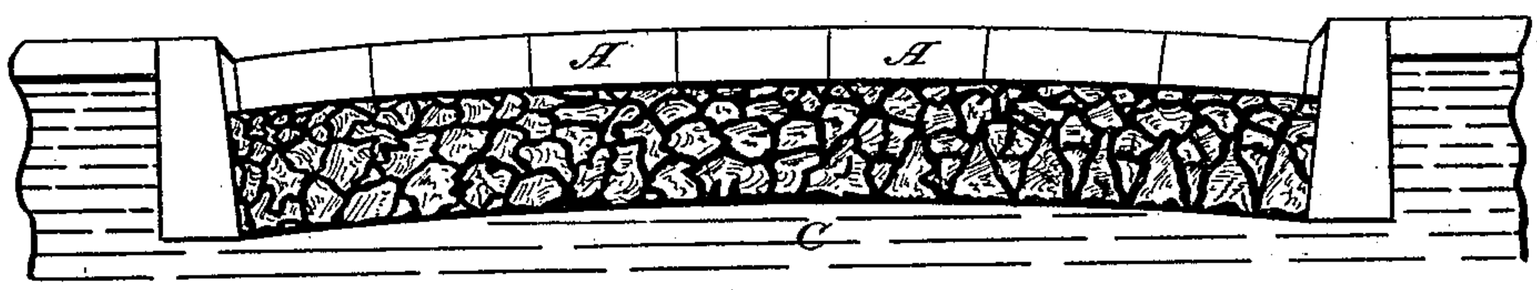


Fig. 3.

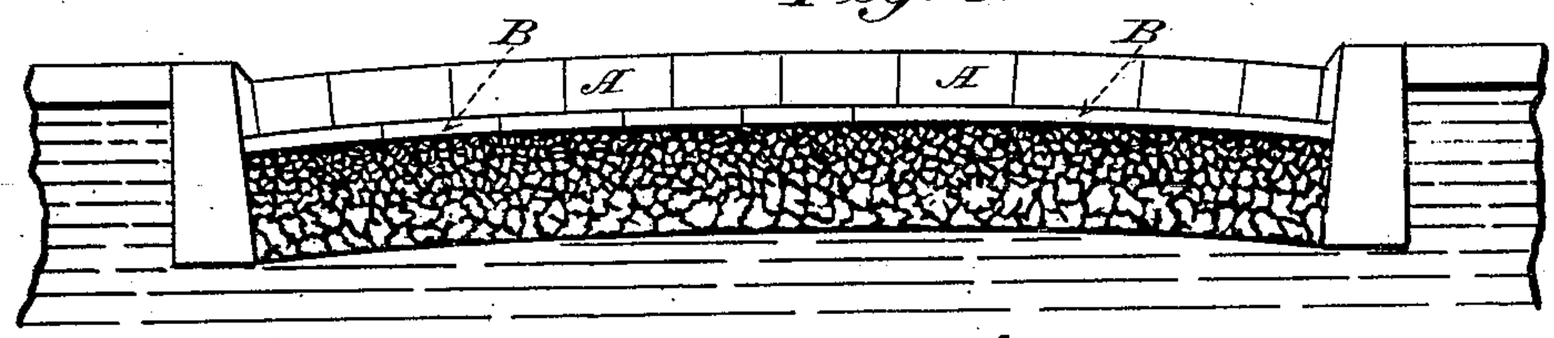


Fig. 4.

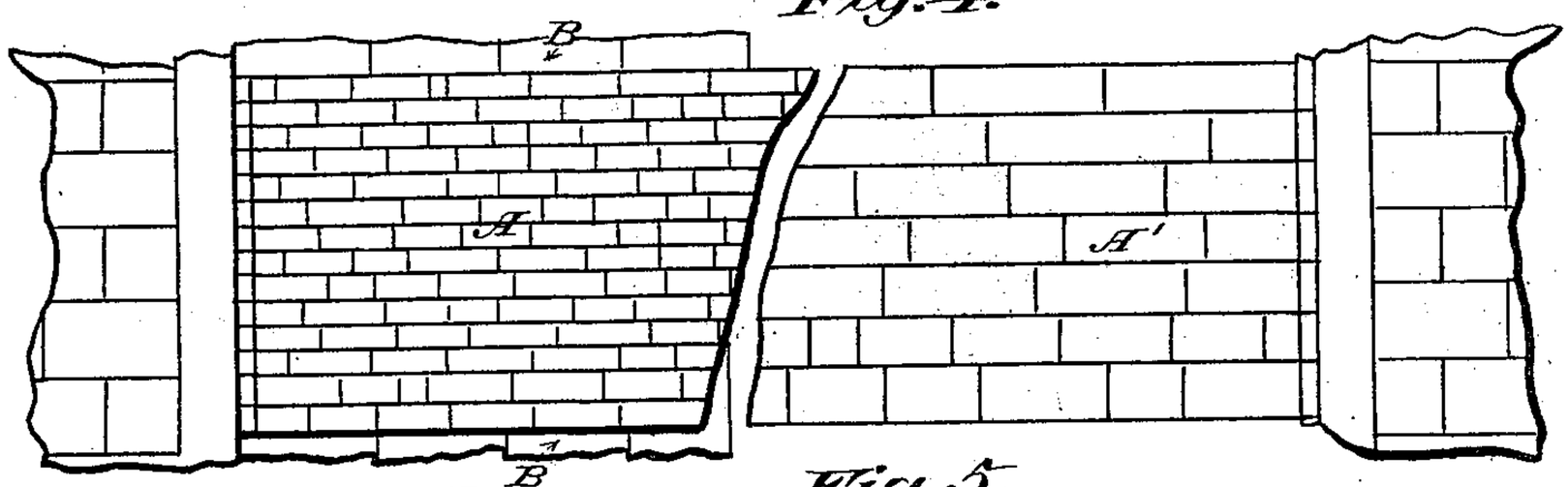
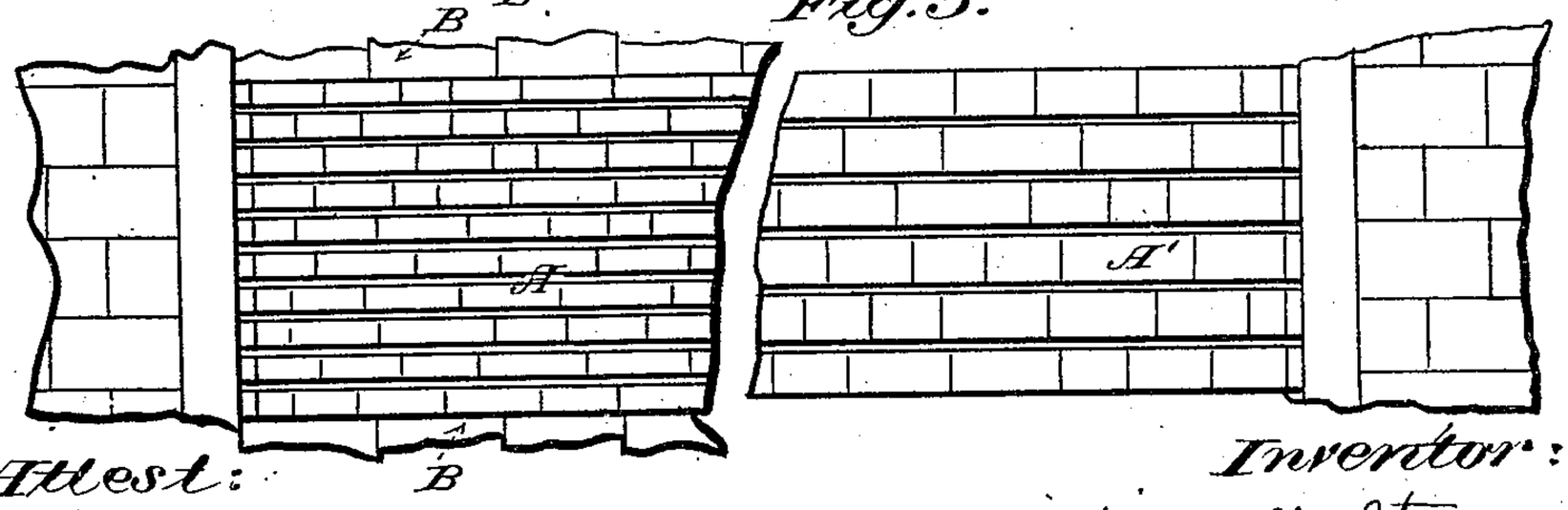


Fig. 5.



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UNITED STATES PATENT OFFICE.

WILLIAM H. STOW, OF CHICAGO, ILLINOIS, AND HENRY M. STOW, OF SAN FRANCISCO, CALIFORNIA.

IMPROVEMENT IN STREET-PAVEMENTS.

Specification forming part of Letters Patent No. **200,105,** dated February 5, 1878; application filed August 22, 1877.

To all whom it may concern:

Be it known that we, WILLIAM H. STOW, of Chicago, in the county of Cook and State of Illinois, and HENRY M. STOW, of San Francisco, in the county of San Francisco and State of California, have invented a new and useful Improvement in Street-Pavements; and we do hereby declare that the following is a full and exact description of the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

It has been proved by large use in many parts of the country that there are serious objections to the various sorts of street-pavements which are best known and most commonly employed. The cobble-stone pavement is too rough and noisy in use, slippery in wet or frosty weather, and soon loses its plane uniformity of surface, and, although apparently cheap in first cost, is expensive in the end, requiring frequent repairs and renewals. The Belgian and other block pavements of stone are very expensive of first cost, noisy and slippery like the cobble-stone pavement, and, after a little use, lose their plane uniformity of surface. The McAdam, the Telford, and other like pavements of irregular stones soon wear into ruts and holes, and furnish by disintegration a dust which is very annoying. The various concrete and asphalt pavements cannot be taken up for repairs of water or gas mains, or sewers, without very serious, and frequently irreparable, injury to the pavement at such points, and, from their absolute dependence on uniform surfaces and tight joints, wear into ruts by the side of railroad-rails and curbs. In addition to these disadvantages their absolutely air-tight condition affects injuriously the growth of trees near to them, or surrounded by them, and, besides, the dust which arises from their wear is very destructive to clothing, carpets, curtains, or other textile fabrics.

The wood pavement seems to have all the good qualities of the other pavements named, but is inclined to decay and rot—sometimes within the blocks of wood, sometimes upon their surfaces. We have discovered by long observation that this decay or rot arises mainly from moisture in the wood when laid, or from moisture upon the surface after it is laid; and we have also discovered that this decay may be largely prevented by making the blocks of smaller size than heretofore used, and by placing them upon firm and dry foundations, and covering them at the top more thoroughly and perfectly than heretofore; and we have also discovered that the preferable method or use of wood for pavement is to put it in a comparatively thin course over other pavements, by which all the advantages which properly belong to wood pavement may be maintained.

Our invention therein consists, first, in a street-pavement composed essentially of a hard inflexible base, a top course of short and thin wood blocks, placed with the fiber in a vertical position, and an intermediate board flooring; second, in the combination, with the wood course of said pavement, of crushed or broken slag or cinders, upon which the wood course is laid, the said slag or cinders either forming the inflexible base or being laid upon a hard base already existing; third, in the combination, with the wood course of the pavement, of a covering composition composed of coal-tar or its products, sulphur, and lime; and, further, in the combination of the hard base covered by crushed or broken slag or cinders, a board flooring, and an upper course of wood blocks placed with the fiber in a vertical position.

In order that those skilled in the construction of pavements may know how to make and lay our wood pavement, we proceed to describe the same, having reference to the drawings, in which—

Figure 1 is a side elevation of our pavement as laid upon McAdam or Telford base with a flooring; Fig. 2, the same without a flooring; Fig. 3, the same upon a concrete base with a flooring; Fig. 4, a top view of the same without the covering of sand, and laid close; Fig. 5, a similar view with the pavement laid loosely.

Like letters denote like parts or portions in each figure.

In the pavement now described we make use of thin rectangular blocks of wood, A, preferably of sound, well-seasoned pine, which, when a flooring is used, as hereinafter described, are preferably one inch in thickness and three or four inches long. When, however, no flooring is used, it will often be found desirable to use

blocks A′, which may be two inches thick, or in some instances even a little thicker, and of the same length or a little longer than the blocks A. These blocks may be conveniently sawed from boards or planks, and from lumber which, by reason of short length, would be otherwise quite unsalable. In some instances, when the travel on the street is of a very heavy character, the blocks may be cut a little larger than the dimensions named. The flooring B is preferably of sound, well-seasoned pine boards an inch thick.

In order to lay our pavement, the foundation C, in this instance supposed to be McAdam, Telford, concrete, or asphalt pavement well worn and needing heavy repairs, is brought up to the desired grade by filling in the holes, ruts, and low places with clean sand, gravel, broken stone, furnace-slag, or other suitable indestructible material, and upon this base thus prepared the flooring B is laid, the boards being laid lengthwise along the street or diagonally side by side. Upon this flooring the blocks A are laid, edge to edge, from curb to curb, with the fiber of the wood in a vertical position. The next row is then laid in the same way, close to the other, but breaking joints, there being no space between the rows of the blocks but such as is produced by the roughness of the wood or the differing thicknesses of the blocks. These blocks A A′ may be made as well of split wood, when the same can be procured more conveniently or cheaply.

When we have laid in this way a few feet along the street of this pavement, if it is upon streets where there is but little travel, we cover the surface of it with sharp sand or fine gravel or stone-dust, and by suitable appliances force or drive this material as much as possible down into the spaces between the blocks, and then pour over the whole surface hot coal-tar pitch, and upon this again place a thin covering of sharp sand or fine gravel; or the coal-tar may be omitted.

If, however, the pavement is laid where it will be subjected to heavy travel, and where a firmer foot-hold for animals is needed, we lay the courses of block a little distance apart—say, from one-fourth to one-half of an inch, or more, if preferred; and instead of sharp sand, fine gravel, or stone-dust we prefer to use furnace-slag or blacksmiths' cinders, suitably crushed, and this material is forced down into the space between the blocks, as before described; and instead of pouring hot coal-tar pitch over the surface, we prefer to use the following composition, viz: sixty parts coal-tar, twenty-five parts coal-tar pitch, three parts sulphur, and twelve parts lime, all the material to be well mixed and poured on hot, and then the surface covered with a thin coating of sharp sand or fine gravel.

When our wood pavement is intended to be placed over cobble-stones, Belgian-block or other stone-block pavement, the ruts and inequalities in the same should be filled up, as before described; but for this purpose broken stones, if conveniently obtained, will be found preferable, and it may be desirable to pour over such newly-filled places hot coal-tar pitch, as indeed may be done in respect to the material used in filling up the ruts and low places in the McAdam, Telford, or concrete bases before described. Upon these cobble stones or Belgian-block bases the flooring and blocks are placed, and the same steps used in laying and completing the pavement as before described. It will be found, however, that the pavement proposed may be used to advantage where there is no previous hard base but the ordinary graveled street or road, by using the flooring and laying the pavement as before described. In some instances, particularly where there is a firm, hard base, the flooring may be omitted altogether. Whenever the base is badly worn or rutted, and, indeed, upon hard gravel bases, it will be found very advantageous to use furnace-slag or blacksmith-cinders sufficient to cover such base entirely, and this course is recommended where no flooring is used.

When our pavement is intended to be used in connection with street-railways it will be laid in the manner before described; but ordinarily that portion between the tracks should be laid in the manner described for streets where there is not much travel.

In some instances it may be found desirable to cover the surface of the pavement with tarred sheathing-paper, and upon that put a coating of hot coal-tar pitch, or of our composition, before described, and then cover the same lightly with sharp sand or fine gravel.

Whenever it may be desirable to lay our pavement where a new street is opened, or there is already a common earth street, it will be found best to make a foundation wholly of furnace-slag or of blacksmiths' cinders, which should be placed to the depth of from two to six inches on the road-bed, and properly leveled, the street being previously excavated to a sufficient depth; and upon such foundation our pavement is laid, as before described.

It will be found that this pavement, thus described, by reason of the thinness and small length of the blocks, will not be subject to decay or rot from within or from the surface; that the thin blocks give an elastic coating upon a firm base, and will not pound or "anvil," and thus wear into ruts and be destroyed; that therefore it will be very durable. For the same reason it will wear smoothly and uniformly, and give an agreeable roadway until it is worn out. It will be found very cheap to lay, requiring no expensive machinery, costing, indeed, less than the resurfacing of asphalt or concrete pavements, and capable of wearing as long or longer, and can be easily repaired, or taken up and replaced, without permanent injury to the roadway.

By using board flooring intermediate between the upper course of vertical blocks and the hard base, and above the covering of

crushed slag or cinders to the base, the vertical blocks are not cemented to the base by the pitch used, and can therefore be easily removed for replacement without impairing in the least the smoothness of the base.

The boards also make a level and uniform surface upon which to lay the blocks of wood, and, in a pavement of this kind, increase materially the flexibility of the upper course without adding to the liability of decay.

Having thus described our invention, and explained some of its advantages, what we believe to be new therein, and claim as our invention, is—

1. In a street-pavement, the combination of a hard, inflexible base, a top course of short and thin wood blocks, and an intermediate board flooring, substantially as described.

2. In a street-pavement, the upper course of wood laid upon crushed or broken slag or cinders, substantially as described.

3. In a street-pavement, the wooden upper course covered by a composition composed of coal-tar or its products, sulphur, and lime, substantially as described.

4. In a street-pavement, the combination of a hard base, a covering of crushed slag or cinders, a board flooring, and an upper course of vertical wood blocks, substantially as described.

This specification signed and witnessed this 14th day of August, 1877.

WILLIAM H. STOW.
HENRY M. STOW.

Witnesses:
A. D. STURTEVANT,
FRED. SMITH.