

## WOOD PAVEMENT: PERRING'S PATENT.

## [SECOND NOTICE.]

Our second illustration of wood pavements embraces that of Mr. Perring, patented in July, 1842, which, although among the latest in the arena of competition, appears destined to run a very successful course. Both in principle and detail it differs essentially from the mode described in our last number.

In the manufacture of Mr. Perring's wood-paving, the best Scotch fir is chosen, of a growth (about thirty-five years) which will admit of its being squared into convenient lengths of six inches in thickness, the heart of the tree occupying the centre, as near as may be. These lengths are then cut off at a mitre or angle of 45 degrees, so that when placed upon the ground, with the fibres of the wood inclining at that angle, the block may be six inches deep, six inches square, measured at right angles, and with a surface of six inches by about eight inches and a half; the elongation of the surface in the direction of the slope being occasioned by the angle at which it is cut. The reason assigned for this particular form of block is, that in all cases the younger and weaker fibres of the wood will be assisted in supporting any superincumbent weight, and in resisting abrasion, by the older and stronger fibres; whilst, as block leans upon block in one direction, and is connected with the blocks on each side in the other, pressure or percussion must be diffused over a large surface. Thus formed, the blocks are pierced on their vertical sides for the reception of pins or pegs of oak, with which subsequent cohesion is to be obtained.

It will be obvious that in squaring the blocks from the round tree, four slabs will be cut off, containing a considerable quantity of material, which, under common circumstances, is comparatively worthless. These slabs, however, are turned to excellent account by Mr. Perring, for he procures from them slips one inch thick and four inches deep; which slips, having holes drilled through them to admit the connecting pins or pegs, are affixed between each course of blocks as interstitial pieces, and, whilst thus reducing the cost of the general structure, form transverse grooves of sufficient depth to carry off the soil and water from the surface, and at the same time provide a certain and secure foot-hold for horses and other animals, to assist their progression and prevent them from slipping either forward or backward. We should here observe that these transverse grooves, one inch deep and of the same width at the bottom, open out to one inch and a half at the surface, by chamfering off a corresponding portion of the obtuse angles of the blocks; and that the acute angles of each block, chamfered off seven-eighths of an inch,

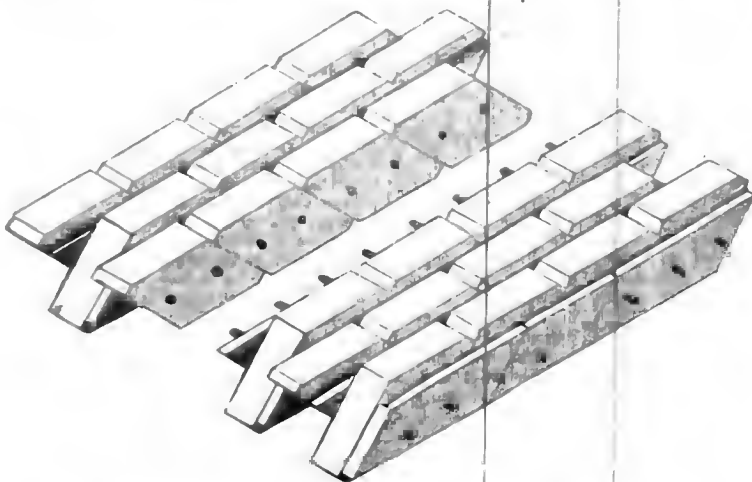
form, with the inclined part of the adjoining blocks, longitudinal grooves to aid in discharging the soil and water into the deeper and more capacious transverse grooves, and prevent horses from slipping towards either side of the street.

The blocks and slips thus prepared are connected together in slabs, in which the courses of blocks lean alternately in opposite directions across the street; but to avoid the necessity of reducing the thickness of the slips on both sides of the slab, so that when one course of slabs should be placed alongside another, the interstices between their outer courses of blocks should not be disproportionately wide, an interstitial slip of the regular thickness is placed on one side only, and the blocks on the other side are held together by iron cramps. It will be observed that the interstitial pieces are cut at such lengths as provide for their holding the blocks together, transversely, by the same pegs that keep them in connection longitudinally.

A number of slabs or panels being prepared in the manner described, for the superstratum of any given piece of work, the ground is prepared by laying a concrete foundation of six inches in depth, at a curve sufficient to carry off the soil and water from the crown of the carriage-way to the side channels; and one of these panels being cut off to abut against the channel blocks, which are one inch shallower than the others, a second detail, as it were, with the first, and so on one after the other to the opposite side, where another abutment is formed. In this way, the whole work is completed.

Now it will be seen that if the blocks and their accessories were formed with the nicest mathematical accuracy—which is practically impossible—and if the materials were non-elastic, the slabs would only lie with their surfaces perfectly horizontal; but the interstices which must occur between the blocks, however minute, and the elastic property of the wood; together admit of the wood-paving taking the required curve, and throw all strain upon the pins, &c. in an upward direction, so that however great the superincumbent pressure, it can only tend to relieve the fastenings from the upward strain, and in no case fracture or injure them. Our professional readers will have been previously aware of this, but those of less practical pursuits may not be so cognizant of the fact.

In the accompanying drawing, the blocks in the direction of the line of traffic are of half the size of those we have described; and the slab is divided in the centre to shew the mode of fastening the courses of blocks to each other. This is the modification we prefer; and between it and the other extreme, any proportions can be used, suitable to the size of the wood from which the blocks have to be cut.



N.B.—The Engraving exhibits the panel separated, or cut in two, to give a clearer exposition of the construction.

Having thus described the mode of manufacturing and laying down Mr. Perring's wood-paving, we shall now let the inventor speak for himself, by quoting his comparison of this system with that adopted by the Metropolitan Company, in which will be found other very important advantages of construction and application, beyond those we have mentioned; of which, we will merely premise,

that we consider that of being able to turn the under surface to the traffic, after the other has been partially worn, as the most prominent.

The conditions which have been assigned by the best authorities on the subject as essential to the formation and application of a good system of wood-paving, consisting of an efficient substratum of concrete—a cohesive superstratum of wood—a simple mode of construction, inclusive of facility

of removal and replacement—an elastic position of the fibre of the wood—and a means of using any necessary grooving,—are all comprised in Perring's Patent Wood Paving; and to at least an equal extent with that of the Count de Lisle, whose system has hitherto received the most extensive patronage.

But Perring's system of wood-paving comprises more. It supplies every deficiency in the Count de Lisle's—

“First—By forming a surface which presents so secure a foot-hold for horses and other animals, as to be unaffected by rain, and, at the same time, afford a safe and efficient means of laying down wood-paving in the carriage-ways of the steepest streets in London.

“Secondly—By breaking or bonding the joints at the surface, so that the softer or harder portions of the blocks do not run in continuous lines, but intersect each other throughout; and, therefore, prevent the formation of ruts—add very considerably to the strength and solidity of the whole structure—and insure greater uniformity of surface. These very material advantages apply to both surfaces of blocks; so that when one surface is partially worn, the other may be used. The general result is a great reduction in the cost of repairs.

“Thirdly—By opposing, in blocks of similar size, at least 80 per cent. more of solid material to the wear and tear of traffic passing over the carriage-way; Perring's system, in a block of six inches deep, affords two inches and a half of solid material between the connecting points and both the upper and lower surfaces—the other, only one inch and a half. The former, therefore, admits of the use of blocks of five inches deep, as more than equivalent to those of the latter of six inches deep.

“And to these self-evident mechanical and practical advantages may be added one of not less consequence in a financial or commercial point of view. From the economical construction of Perring's wood-paving, due allowance being made for an excellent substratum of concrete, a positive saving may be effected of about one shilling per yard.”

## TO THE EDITOR OF THE BUILDER.

SIR,—In THE BUILDER of last week you expressed a desire to have the opinions of your readers on the subject of wood-paving, especially with reference to the various modes to be described in your columns; and I will assume your permission to be one of the number.

I agree with you, that sufficient examination has not been generally extended by professional men to this important improvement; and I have always courted the opinion that public discussion, courteously and honestly conducted, will best elucidate the hidden facts of any new system, in whatever science it may be classed. And it is with these views that I propose to enter the excellent arena you have provided, in friendly controversy with those whose premises or conclusions I may consider to be incorrect.

To begin, let me have a slight “passage of pens” with your good self. In your notice of Mr. Stead's wood-paving you say, “We believe a hearing is about to be had before the Privy Council on his petition, setting forth that he is the first inventor, and holds the ground to the exclusion of all subsequent comers.” This involves every variety of legal difference to which contrary opinions can give rise, and is not a subject to be even mooted in a journal devoted to mechanical demonstrations. Mr. Stead believes that he can establish an exclusive monopoly of the use of the material, as well as of certain forms of wooden blocks. I believe that it is just as possible for him to pass “the milky way,” and these opinions are doubtless entertained with equal sincerity by each. But as the extent of his claims, as well as the conflicting claims of many others, can only be disposed of by legal process, I think you will admit that we may as well wait for their solution by law or equity, and not waste time or space in speculating upon their uncertainties; a course scarcely to be avoided when they are mentioned at all. And here I must beg permission to repeat, what I have taken occasion to say, whenever I have lectured or written on the introduction of wood-paving, that, apart from any consideration of the merits or demerits of the modes to which that gentleman has given preference, the public owe a debt of endless gratitude to Mr. Stead for his surprising zeal and perseverance. Without his untiring efforts, the practicability of substituting wood for granite, in the formation of our carriage-ways, might have remained classed with the idle theories of the age for half a century to come.

Let me now turn to matter more germane to the purpose—to certain premises which we should test by reason and facts, and either accept or reject as