

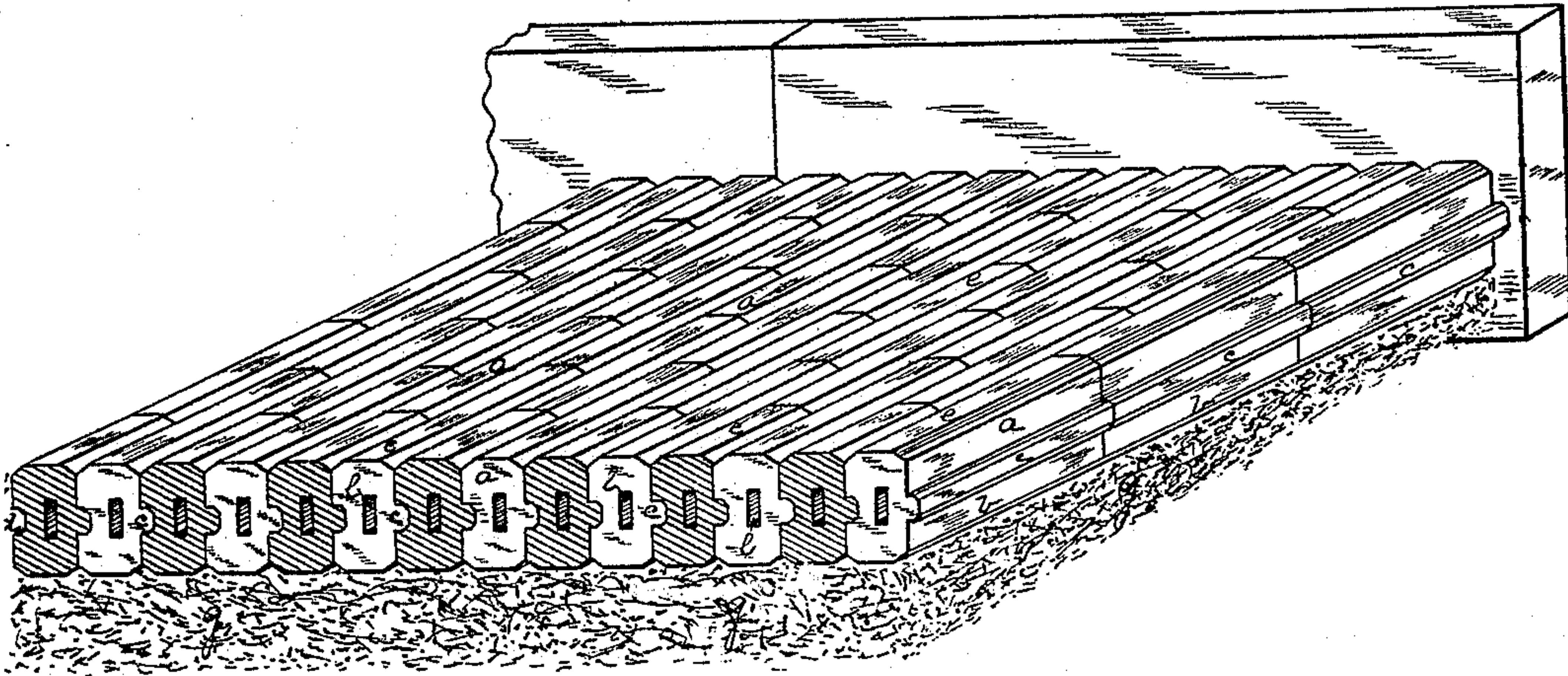
(No Model.)

J. M. FREEMAN.  
TERRA COTTA PAVEMENT

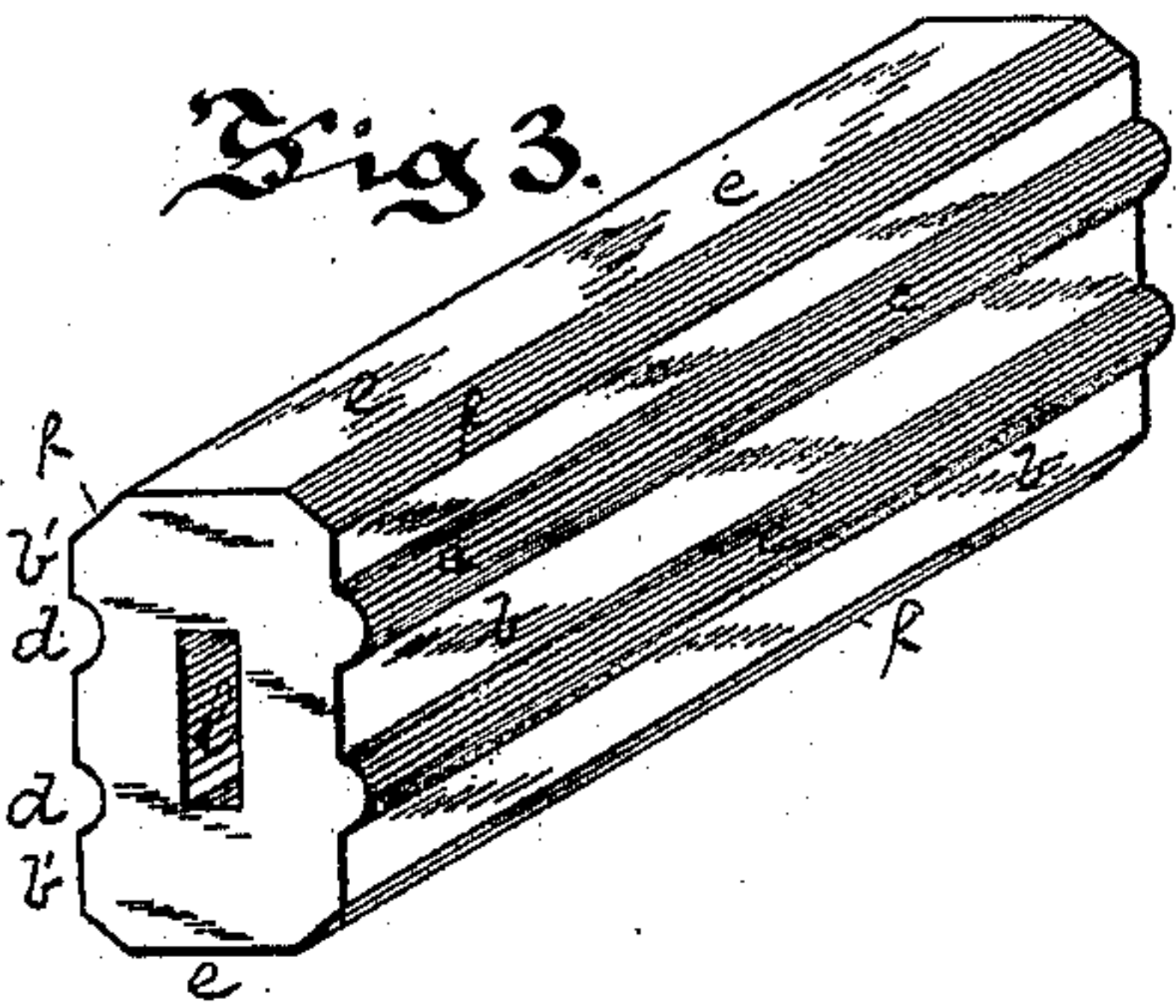
No. 310,662.

Patented Jan. 13, 1885.

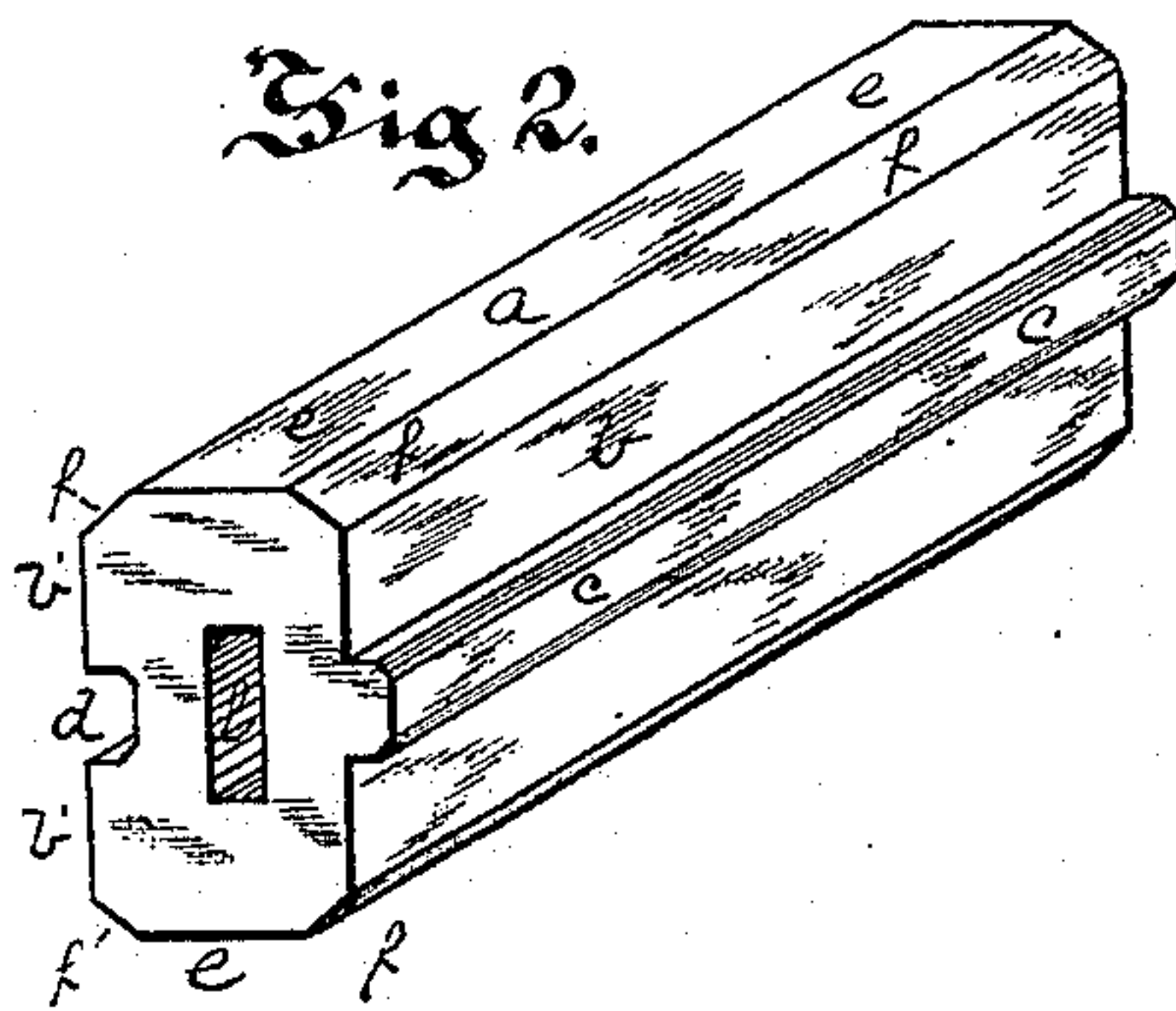
*Fig 1.*



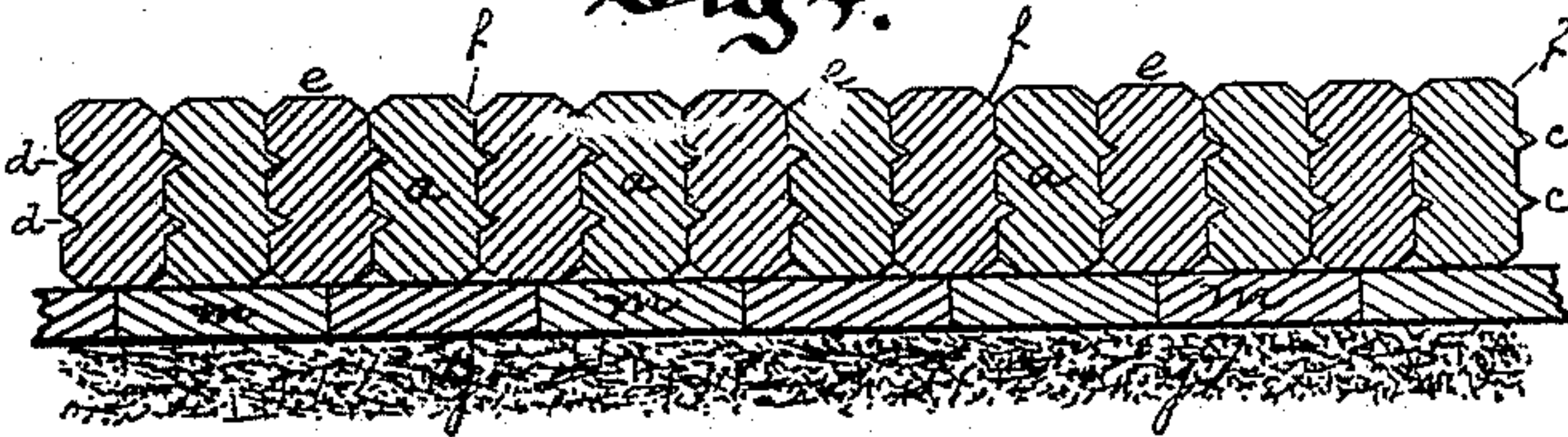
*Fig 3.*



*Fig 2.*



*Fig 4.*



Witnesses.

*J. M. Freeman*

*A. S. Brown*

Inventor.

*John M. Freeman*  
by *James I. Ray*  
Attorney



# UNITED STATES PATENT OFFICE.

JOHN M. FREEMAN, OF STEUBENVILLE, OHIO.

## TERRA-COTTA PAVEMENT.

SPECIFICATION forming part of Letters Patent No. 310,662, dated January 13, 1885.

Application filed May 28, 1884. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN M. FREEMAN, of Steubenville, in the county of Jefferson and State of Ohio, have invented a new and useful Improvement in Terra-Cotta Pavements; and I do hereby declare the following to be a full, clear, and exact description thereof.

My invention relates to terra-cotta blocks employed for street-pavements. These blocks have been brought to special notice within the last few years in connection with the paving of roadways, and it is found that they are well adapted to stand the wear of heavy hauling, and that they can be made and laid at a cost much less than the cost of Belgian blocks and other like stone employed for the purpose. The terra-cotta pavements heretofore laid have been formed of the ordinary rectangular fire-clay or similar brick laid in rows across the road-bed upon planking laid on a gravel or sand bed or on an under course of fire-brick laid on their flat faces on a gravel or sand bed, and the employment of this planking or under course of brick has added much to the cost of the pavement, as well as rendered the pavement harder to lift and arrange for making connections from gas and water pipes passing under the roadway in streets. It is also found that the surface of the bricks or terra-cotta blocks was not sufficiently rough to give a good foothold to horses, and that there was liability of the horses slipping on the pavement or their feet slipping in hauling heavy loads.

The object of my invention is to form a pavement of terra-cotta blocks by which all these objections are overcome, and which can be made and laid at much less cost than where the blocks are built on planking or an under course of bricks, while at the same time each block fits in with and forms a support for the adjoining blocks, and the surface of the finished pavement is suitably roughened to give a hold to the horses' feet.

My invention consists, essentially, in a pavement formed of a gravel or other suitable foundation or bed and a roadway or surface composed of a series of terra-cotta blocks having tongue-and-groove connection at or near the center thereof adapted to fit within each other, and thus give a support to the adjoining blocks and form a compact bed in which the

weight of any passing vehicle is supported, not only by the blocks on which it rests, but by the adjacent blocks, and consequently the pavement is adapted to stand heavy wear without displacement.

It also consists in providing the blocks with beveled or chamfered edges to form creases for the reception of the calks on the horses' shoes, and also in forming the blocks reversible, so that when worn on one side the pavement can be relaid and the other side or face of the blocks exposed, and practically a new pavement obtained.

To enable others skilled in the art to make and use my invention, I will describe the same more fully, referring to the accompanying drawings, in which—

Figure 1 is a sectional perspective of a portion of the pavement illustrating my invention. Fig. 2 is a like view of the block employed. Fig. 3 is a like view of another form of the block, and Fig. 4 is a cross-section of a portion of the pavement, illustrating the modified form of paving-blocks.

Like letters of reference indicate like parts in each.

The paving-blocks *a* are formed of fire or other clay, and are molded to any shape by any suitable means, and subsequently baked and vitrified, so as to form an exceedingly hard block. On the center of one side, *b*, of the blocks is the tongue *c*, this tongue being formed midway between the edges of the block, so that the block can be used with either face or edge up. This tongue *c* extends the entire length of the block, and on the opposite face *b'* of the block is a corresponding groove, *d*, for the reception of the tongue of the adjoining block, the groove *d* corresponding to the tongue *c*, so that they fit neatly. These tongues and grooves may be made oval, square, or angular in cross-section, as desired, and, instead of the one in the center, two or more may be employed, as shown in Figs. 3 and 4. When the pavement is built of a series of these blocks laid closely together, as shown in Fig. 1, the engaging tongues and grooves form a connection between the several blocks and rows of blocks, so as to give a firm support to the road-bed or pavement. Along the faces *e*, between them and the sides *b b'*, the edges of the blocks are slightly beveled or chamfered, as at *f*, and



when laid as shown in Fig. 1 these two beveled faces form the groove or crease in the pavement in which the calks of the horses' shoes catch, and thus give it a firm support.

5 Where large terra-cotta blocks are employed, in order to lighten them, and to give better access of the heat and cause them to be burned harder, I form the blocks hollow, as at *l*, a small opening extending through the blocks.

10 In laying the pavement as a sand or gravel bed, *g*, is first suitably laid and packed, and when properly leveled the first course of bricks are laid, extending across the road-bed, care being taken to impart to them the proper slope for  
15 suitable water-shed, and the pavement is laid, the tongues of one row of blocks fitting within the grooves of the next row of blocks, and the sides of the blocks fitting closely against each other, and thus forming a compact sur-  
20 face and doing away entirely with any sand, gravel, pitch, or like substance on the surface of the road-bed. After the rows of brick have been thus laid they can be packed down solidly into the sand bed *g*, the only care nec-  
25 essary being that the blows do not strike directly on the pavement, but are suitably cushioned, so as to spread the force over a small section thereof.

If desired, the improved blocks may be laid  
30 on an under course of fire or other brick laid on their flat faces, as before referred to, and as shown at *m*, Fig. 4; but as the courses of brick lock or engage with each other a sufficiently firm road-bed is obtained with only the  
35 sand or gravel bed; and where the weight of passing vehicles comes on any portion of the pavement, on account of the tongue-and-groove connections between the blocks and because they fit closely against each other, the weight  
40 is distributed over a large portion of the pavement, and consequently it forms a firm road-bed without the subjacent planking or similar under course heretofore considered necessary.

In case it is desired to remove a portion of  
45 the pavement to form a connection with any under-lying pipes, all that is necessary is to remove a couple of blocks near the curb, when all the other blocks may be drawn out in the direction of the width of the pavement, and  
50 after the work is accomplished may be in the same manner slipped into place again, and the pavement maintained at its true level and in proper condition.

In case one surface of the blocks becomes too much worn after many years of use, all  
55 that is necessary is to repave the street, using the opposite or unworn face of the blocks, so that double wear is obtained from my improved blocks.

As no planking or other wood is employed  
60 with the pavement, it is evident that there is no fear for the support of the blocks rotting away, as often occurs in wood pavements or in those supported on planking.

In case a portion of the gravel or sand bed  
65 under the paving-blocks should sink from any cause, the blocks can be removed, as before referred to, and the bed filled up without injuring the surface of the pavement.

The blocks shown in Figs. 3 and 4 are also  
70 well adapted for the purpose above described, embodying my invention in another form, as the oval or wedge grooves and tongues give substantially the same support, the only ad-  
75 vantage of these blocks being that in case the upper surface of the block wears off for more than half its length the lower rows of engaging tongues and grooves will hold the blocks in place.

What I claim as my invention, and desire to  
80 secure by Letters Patent, is—

1. A street-pavement having the upper road-bed or wearing-surface thereof formed of a series of terra-cotta blocks having tongue-and-groove connections extending centrally along  
85 the sides thereof and fitting within each other, substantially as and for the purposes set forth.

2. A street-pavement having the road-bed or wearing-surface thereof formed of a series of terra-cotta blocks provided with tongue-  
90 and-groove connections extending centrally along the side thereof, and with beveled edges or corners to form creases, substantially as and for the purposes set forth.

3. A street-pavement having the upper road-bed or wearing-surface thereof formed of hol-  
95 low terra-cotta blocks, substantially as and for the purposes set forth.

In testimony whereof I, the said JOHN M. FREEMAN, have hereunto set my hand.

JOHN M. FREEMAN.

Witnesses:

J. N. COOKE,  
F. G. KAY.