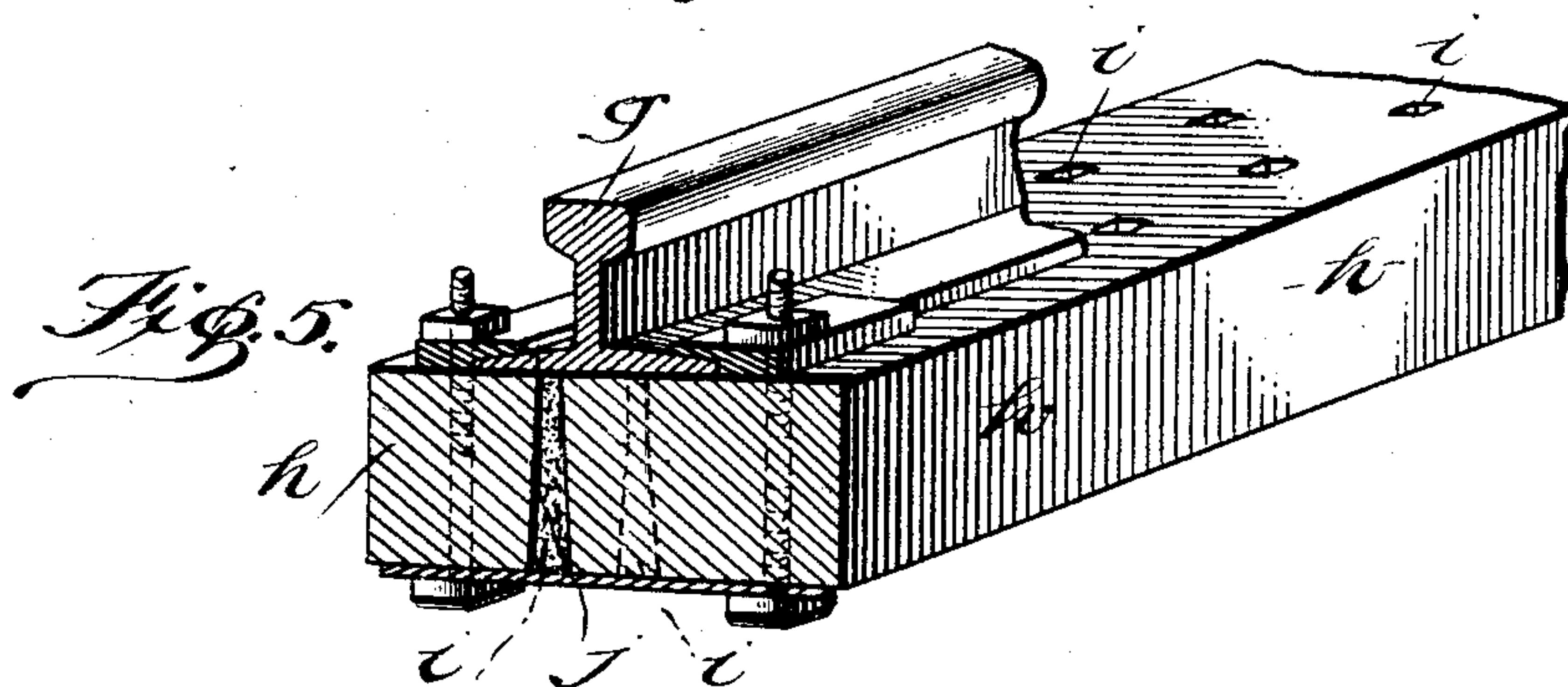
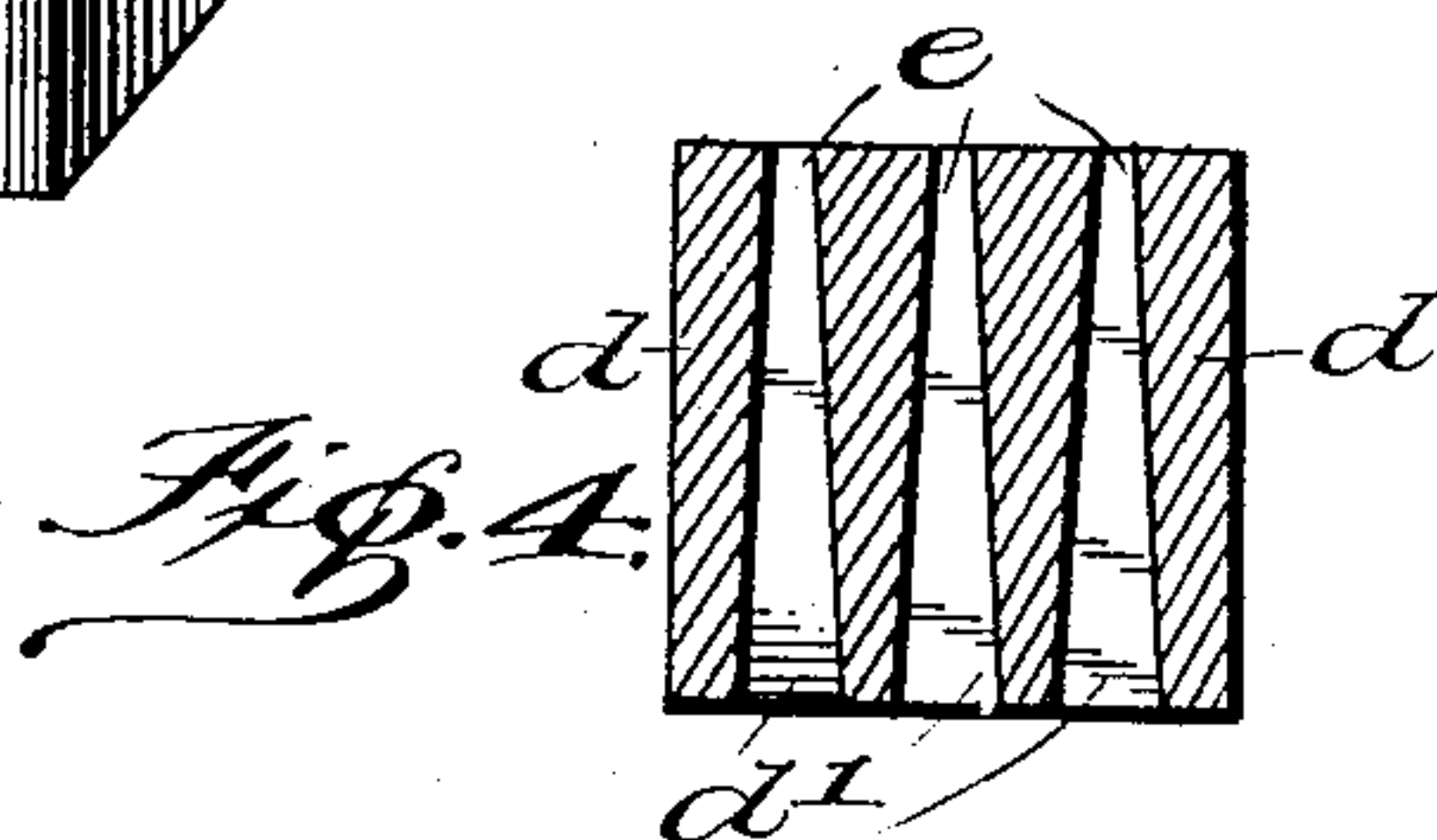
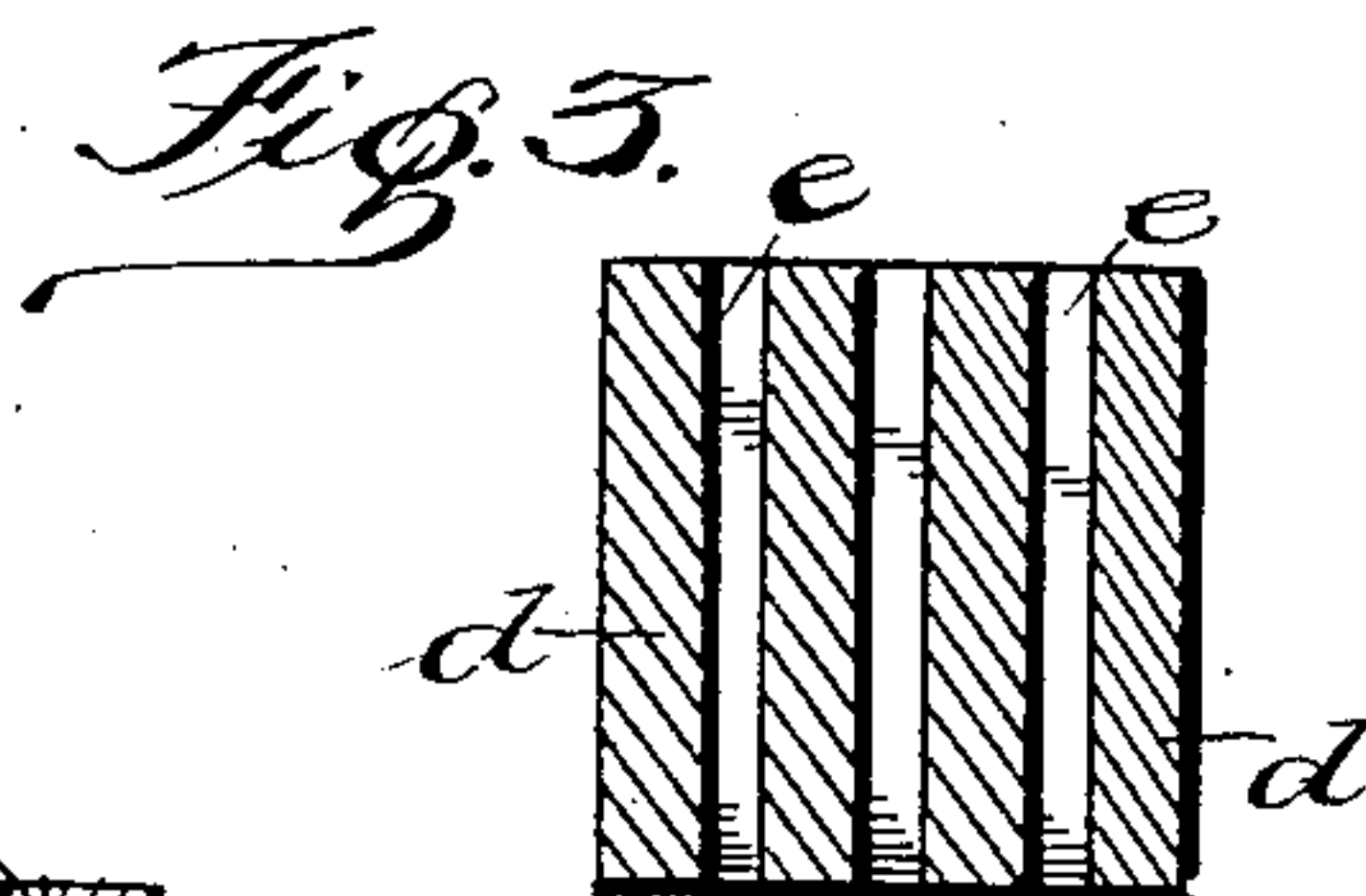
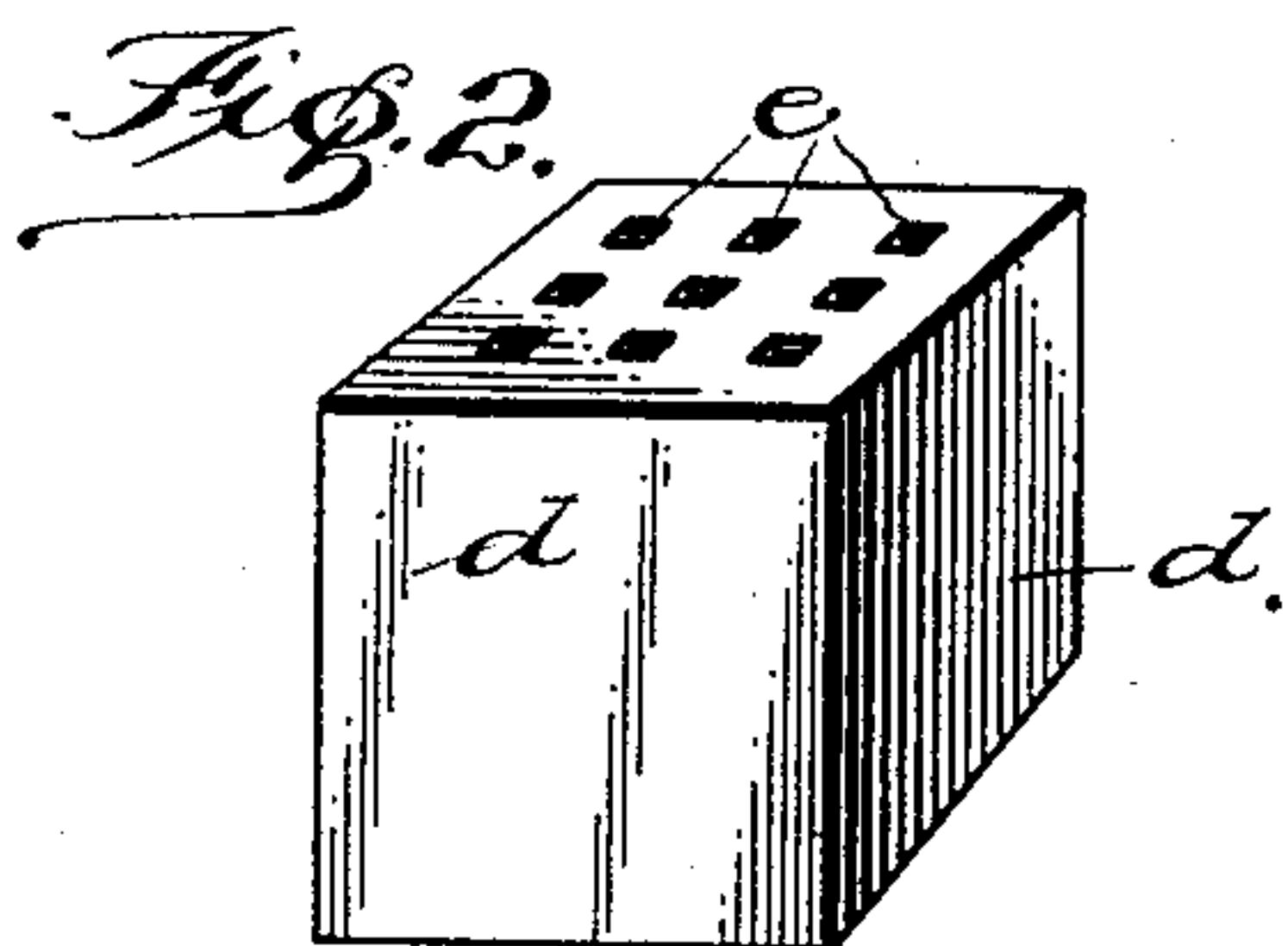
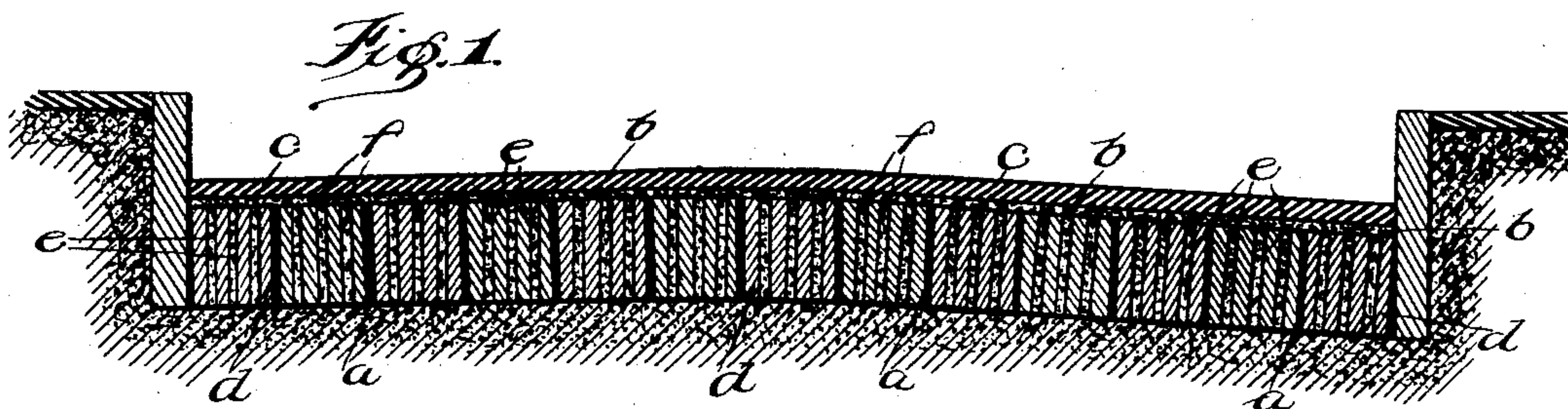


No. 777,861.

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F. J. NASH.  
ROAD OR PAVEMENT.  
APPLICATION FILED NOV. 25, 1903.

NO MODEL.



Witnesses  
*W. C. Ashby.*  
*A. L. O'Brien*

*Frederic J. Nash*  
Inventor  
By *Dickerson, Brown, Gaeger & Barry*  
his Attys.



# UNITED STATES PATENT OFFICE.

FREDERIC J. NASH, OF NEW YORK, N. Y.

## ROAD OR PAVEMENT.

SPECIFICATION forming part of Letters Patent No. 777,861, dated December 20, 1904.

Application filed November 25, 1903. Serial No. 182,585.

*To all whom it may concern:*

Be it known that I, FREDERIC J. NASH, a citizen of the United States, and a resident of the city of New York, borough of Brooklyn, and State of New York, have invented certain new and useful Improvements in Roads or Pavements, of which the following is a specification.

The object of this invention is to provide a road or pavement which is economical and durable and which possesses more or less elasticity, so that there is not the wear on the surface layer, as is the case of roads which are less or practically non yielding to traffic.

With these ends mainly in view my invention consists of certain features of construction to be hereinafter described and then particularly claimed.

In the accompanying drawings, Figure 1 is a cross-section of a road or pavement embodying the present invention. Fig. 2 is a perspective view of a block of cubic form, such as is used in the foundation of the road or pavement for ordinary traffic. Fig. 3 is a vertical section through the said block. Fig. 4 is a modification of the block, and Fig. 5 is a view in perspective showing a block adapted for use as a sleeper for railway-rails.

The present invention makes use of three layers—namely, a lower foundation layer *a*, an intermediate layer *b*, and a top layer *c*, which furnishes the wear-surface for the traffic, although it will hereinafter be seen that in one form of the invention only the construction of the foundation-blocks is taken advantage of.

In the foundation layer for an ordinary road or pavement blocks *d* of cubic form are used, which blocks are composed of any suitable material—as sand-lime brick, hard-burned brick, or non-vitreous or devitrified brick. These blocks are desirably in the form of cubes approximately a foot square. Extending from one face of each block *d* to the directly-opposite face is a hole or passage *e*, and there may be any suitable number of these holes or passages, there being shown in Fig. 2 nine of them. When the block is in use, these holes or passages *e* extend vertically through the block. It may sometimes be desirable that the holes or passages *e* flare at their lower

ends, so that the lower portions *d'* of the block between the holes will be of less thickness than those portions at the upper part of the block between the holes. These lower portions thus provide for the block less resisting-surface than the upper part of the block, so that pressure imposed on the upper part of the block will cause the lower part of the block to act in the nature of a wedge, the bottom portions *d'* being substantially of wedge shape. As the lower surface of the block (of less superficial area than the upper surface of the block) rests upon the ground, it will be seen that there will be a tendency of the ground to enter the lower ends of the holes or passages when pressure is imposed upon the upper part of the block. This is even the case, only in a less degree, when the holes or passages are of practically the same cross-section from end to end. In substance the connected walls of the block surrounding the holes or passages are tubes standing on end. These holes or passages are further made use of, as will presently appear.

In constructing a road or pavement for ordinary traffic, as for horses and vehicles of various classes or for pedestrians, the trench is first dug and suitable provision made for the side drains. The bottom of the trench is then rolled down hard and the blocks laid closely together with the holes or passages extending vertically therethrough, the spaces between the blocks being filled with suitable concrete—as, for instance, a mixture of half sand and half cement. Sand is then spread over the foundation layer *a* of blocks *d*, filling the holes or passages *e*, enough sand being spread on the blocks to form an intermediate layer *b* of sand about one inch in depth. Over the layer of sand is then placed the surface layer *c*, of any suitable material which will stand wear imposed upon it by the traffic. It will be seen that when the weight of traffic is imposed upon the blocks the sand layer and the sand columns *f* will give more or less, depending upon the force with which the blocks tend to enter the ground on which they rest. Not only is the road or pavement which is shown more or less elastic and, in fact, more so than where foundation-blocks and a surface



or wear layer without the sand is used, but the sand layer and the sand columns provide means for deadening the sound.

This invention may be made use of in the construction of railways, and in Fig. 5 is shown a railway-rail *g*, which rests upon a sleeper *h*, which is composed of any suitable material and which is practically the same as the cubic blocks before described, for the reason that it contains vertical holes or passages *i*, which preferably flare at their lower ends and are filled with sand *j*. The passages *i* are arranged in preferably zigzag series, so as to be located under the base of the rail *g*, resting on the sleeper. It will be seen that not only are the parts of the block upon which the rail rests more elastic than usual, but that the noise is deadened more or less.

It must be clearly understood that in no form of my invention are the grains of sand used in the sand mass, whether in the intermediate layer or in the sand columns, cemented together.

The top layer of the road and the rails of the railroad may be and are alluded to in a claim or claims as a "wear portion," and it will be understood that in both cases the sand columns are not acted on by direct impact of the tractive load or rolling-stock.

Having thus described my invention and without limiting myself to details, what I claim as new, and desire to secure by Letters Patent, is—

1. A structure for roads or pavements, comprising a lower or foundation layer of blocks provided with holes or passages extending from top to bottom through them, granular columns in the holes or passages composed of non-cemented material, exemplified by sand, and a superposed wear portion imposing its weight or pressure upon the said foundation, substantially for the purpose set forth.

2. A structure for roads or pavements, comprising a lower or foundation layer of blocks provided with holes or passages extending from top to bottom through them, sand columns in the holes or passages composed of

non-cemented grains of sand, a wear or surface layer, and an intermediate layer of sand, upon the said blocks, substantially for the purpose set forth.

3. A structure for roads or pavements, comprising a lower or foundation layer of blocks provided with holes or passages extending from top to bottom through them, a wear or surface layer, and an intermediate layer of sand, upon the said blocks, substantially for the purpose set forth.

4. A structure for roads or pavements, comprising a lower or foundation layer of blocks provided with holes or passages extending from top to bottom through them, said holes or passages flaring at their lower ends, sand columns in the holes or passages composed of non-cemented grains of sand, and a superposed wear portion imposing its weight or pressure upon the said foundation, substantially for the purpose set forth.

5. A structure for roads or pavements, comprising a lower or foundation layer of blocks provided with holes or passages extending from top to bottom through them, said holes or passages flaring at their lower ends, sand columns in the holes or passages composed of non-cemented grains of sand, a wear or surface layer, and an intermediate layer of sand, upon the said blocks, substantially for the purpose set forth.

6. A structure for roads or pavements, comprising a lower or foundation layer of blocks provided with holes or passages extending from top to bottom through them, said holes or passages flaring at their lower ends, a wear or surface layer, and an intermediate layer of sand, upon the said blocks, substantially for the purpose set forth.

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

FREDERIC J. NASH.

Witnesses:

GEO. L. WHEELLOCK,  
EUGENE N. ROBINSON.