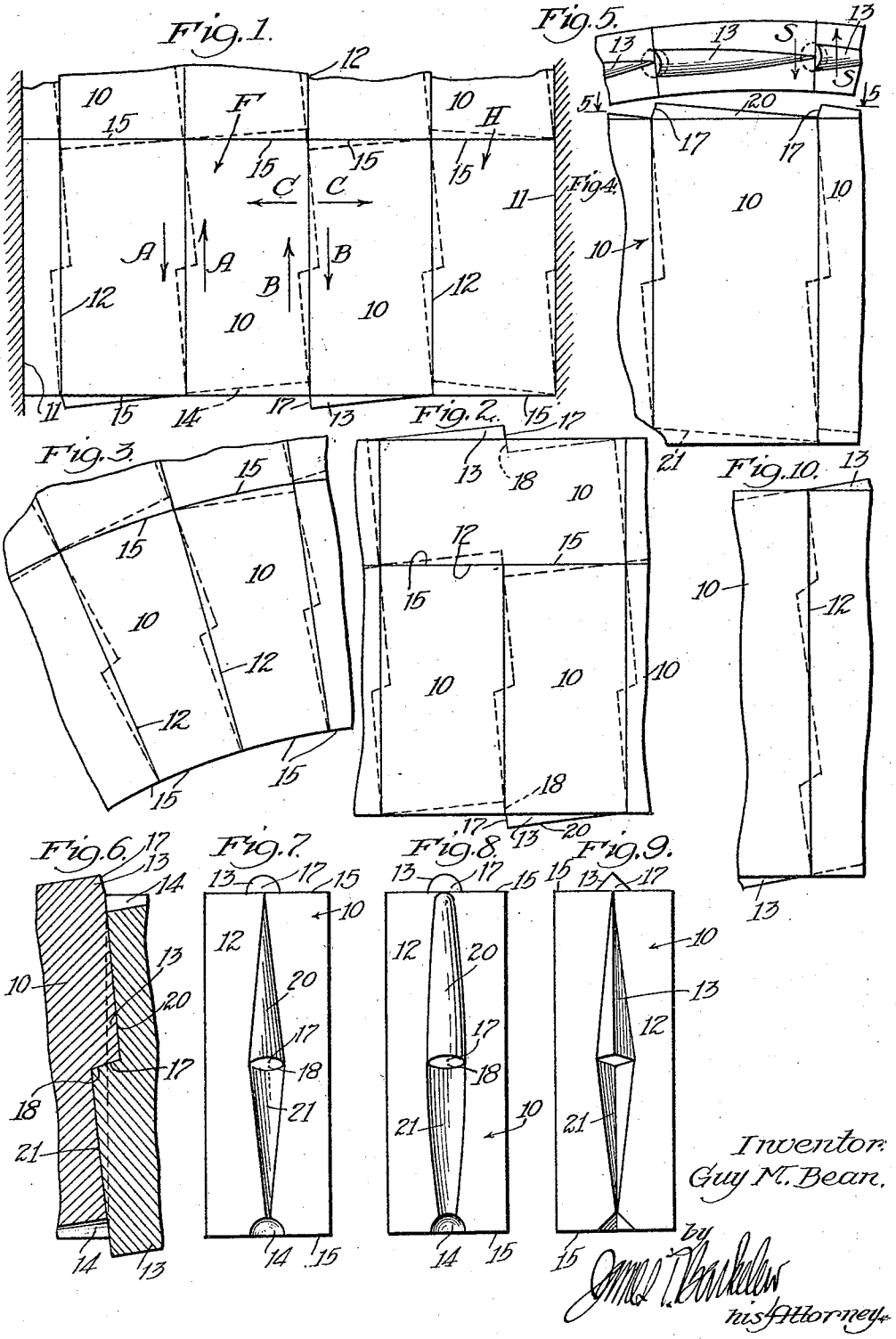
G. M. BEAN.

INTERLOCKING BRICK AND THE LIKE.

APPLICATION FILED MAY 18, 1920.

1,420,810. **Patented June 27, 1922.**



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INTERLOCKING BRICK AND THE LIKE.

1,420,810. Specification of Letters Patent. Patented June 27, 1922.

Application filed May 18, 1920. Serial No. 382,295.

To all whom it may concern:

Be it known that I, GUY M. BEAN, a citizen of the United States, residing at Los Angeles, in the county of Los Angeles, State of California, have invented new and useful Improvements in Interlocking Bricks and the like, of which the following is a specification.

This invention relates to bricks, and the like, and an object of the invention is to provide simple, inexpensive, and effective interlocking bricks.

The bricks provided by the invention are particularly adapted for use in locomotive fire boxes, etc., and in places where the structure is subject to vibration and jarring, but it will be understood that the invention is not in any way limited to such specific application as it may be advantageously used in practically any situation where bricks can be used.

The present invention provides bricks which when laid interlock so that they are held against movement in all directions. This makes them particularly advantageous for structures such as locomotive fire boxes, and the like, as it prevents them from becoming displaced by vibration, jarring, etc.

The bricks made in accordance with the present invention have wedged shaped projections or keys extending from them at some parts and wedged shaped recesses or sockets formed in them at other parts. The keys and sockets are made to co-operate or fit together and are so arranged that the bricks can be laid edge to edge, end to end, edge to end, or in fact in any manner so long as a face having a key is arranged to engage a face having a socket, and yet have them securely interlocked. Further, the keys and sockets are of such character that they can be formed or provided easily and inexpensively on any or all of the faces of the bricks.

A particular feature of the invention is its adaptability to various shaped bricks. For instance, the invention is applicable to arch bricks, key bricks, skew bricks, etc., as well as to straight or ordinary rectangular bricks.

Other objects and features of the invention will be best understood from the following specification wherein I set forth preferred embodiments of the invention and throughout which reference is had to the accompanying drawings in which—

Fig. 1 is a side elevation of a plurality of bricks arranged between two walls or abutments; Fig. 2 is a side elevation of a plurality of bricks arranged so that an edge of one abuts or faces the ends of two others; Fig. 3 is a side elevation of a plurality of arch bricks embodying the present invention; Fig. 4 is a side elevation of a plurality of circle bricks embodying the present invention; Fig. 5 is an end elevation of the bricks shown in Fig. 4 being a view taken as indicated by line 5—5 on Fig. 4; Fig. 6 is a detailed sectional view showing the manner in which the keys and sockets co-operate; Fig. 7 is a view showing one form of key and socket that may be employed in carrying out the invention; Fig. 8 is a view similar to Fig. 7 showing another form of key and socket; Fig. 9 is a view similar to Figs. 7 and 8 showing still another form of key and socket, and Fig. 10 is a side elevation of two bricks illustrating the manner in which a plurality of keys and sockets may be provided on a single face.

Referring particularly to Fig. 1 of the drawings numeral 10 designates bricks arranged between two parallel walls or abutments 11. In the particular arrangement shown in this figure of the drawings, which arrangement it will be understood is merely typical and for the purpose of illustration, the bricks 10 are arranged so that they are edge to edge and end to end. The bricks 10 are formed with tapered or wedge shaped projections or keys 13 and similarly shaped recesses or sockets 14 at their edge faces 12 and also at their end faces 15. In the preferred form of brick there is one key 13 at one end face 15 and one socket 14 at the other end face 15 and there is both a key 13 and socket 14 at each edge face 12, as clearly shown in the drawings. It will be noted that the keys 13 at the edge faces 12 are not opposite or directly across from each other but that each key is opposite the sockets in the opposite faces of the brick. With this arrangement of keys and sockets the bricks may be laid together, in the manner clearly shown in Fig. 1, so that the sockets receive the keys to allow the edge faces 12 of adjacent bricks to come together and to allow the end faces of adjacent bricks to come together. Fig. 6 of the drawings clearly illustrates the manner in which the keys and sockets at the edge faces of the bricks co-operate or fit together to allow the edge faces to come together.

When the bricks are laid so that the keys and sockets co-operate, as shown in Fig. 1 of the drawings, it will be readily understood how they are locked against movement away from each other, or as indicated by arrows A in Fig. 1, by the ends 17 of the keys 13 engaging or butting against the ends 18 of the sockets 14. In practice it is preferred that the keys and sockets, at the edge walls 12, be so arranged that their ends 17 and 18 form a continuous wall. This causes the abutting surfaces, which prevent relative movement between the bricks as indicated by the arrows A, to be twice as large as a single key end 17 or single socket end 18.

It will be readily understood how the keys 13, by extending into the sockets 14, positively lock the bricks together against movement in either of the directions indicated by the arrows S in Fig. 5 and that in order to move the brick relatively in either of these directions it would be necessary to completely shear off two of the keys 13. This is practically impossible due to the configuration of the keys as will be hereinafter set forth.

It will be particularly noted in the drawings that the keys and the sockets are tapered or wedge shaped the same amount, or to the same degree, so that the outermost or top portions 20 of the keys seat on or engage the lowermost or, bottom portions 21 of the sockets. The keys and sockets being wedge shaped positively lock the bricks against relative movement, as indicated by the arrows B in Fig. 1, as it is impossible to move the brick as indicated by these arrows without spreading or separating them as indicated by the arrows C in Fig. 1. The arrangement of the bricks between two abutments or walls 11, as shown in Fig. 1, positively prevents spreading or movement of the bricks, as indicated by the arrows C, and thereby makes it impossible for them to be moved as indicated by the arrows B. In practice it is not absolutely necessary that the bricks be arranged between two abutments 11 as it is possible to lay them so that the keys and sockets at their end faces 15 co-operate to prevent them from spreading as indicated by arrows C. This arrangement of brick is shown in Fig. 1 where the key at the upper end face 15 of brick F positively prevents movement of that brick to the right while the key at the upper end face 15 of brick H positively prevents movement of the brick H to the left. Various arrangements of this character may be had by suitably arranging the keys and sockets and by properly laying or arranging the bricks.

In Fig. 2 of the drawings is shown an arrangement of bricks wherein one brick is arranged so that its edge face 12 engages the end faces 15 of two other bricks. In this arrangement one of the two last mentioned bricks is arranged so that it has a key 13 in engagement with the socket in edge wall 12 of the first mentioned brick while the other of the two last mentioned bricks is arranged to have a socket engaged by the key at the edge face of the first mentioned brick. This figure of the drawings is merely to illustrate a possible arrangement of bricks other than that shown in Fig. 1 and is to illustrate that the keys and sockets will co-operate or fit together to interlock the bricks when the bricks are arranged in manners other than that shown in Fig. 1.

In Figs. 4 and 5 of the drawings the invention is shown embodied in circle bricks; these figures being for the purpose of illustrating the manner in which the invention may be applied to bricks other than ordinary straight or rectangular bricks such as are shown in Figs. 1 and 2.

Fig. 3 shows the invention embodied in arch bricks and is for the purpose of illustrating its application to that type of brick.

In Fig. 10 of the drawings is shown a form of the invention wherein there are two keys and two sockets at a single face. This figure is for the purpose of illustrating the manner in which a plurality of keys and sockets may be provided at any of the faces of the bricks.

Herein so far I have described the keys and sockets as being wedge shaped but I have not referred to them as being of any particular cross sectional configuration. As far as the interlocking feature of the invention is concerned it is not material as to what configuration the keys and sockets are, but from the standpoint of strength, of making the bricks, of laying the bricks, etc., the cross sectional configuration of the keys and sockets becomes important. In Figs. 7, 8 and 9 of the drawings I have illustrated three possible forms of keys and sockets which clearly illustrate that the keys and sockets may be made in various shapes, and the same being wedge shaped.

The keys shown in Fig. 7 are in shape, sections of cones taken through their centers and the one arranged on the edge face 12 of the brick is positioned so that the point is at the end of the brick while the base, or large portion, is at or toward the middle of the brick.

In Fig. 8 the keys are, in plan elliptical and in cross section circular, and the one arranged on the edge face of the brick is positioned so that its small or flat end is at the end of the brick while its large or thick end is at or toward the middle portion of the brick.

In Fig. 9 the keys are in shape, sections of pyramids and they are arranged in the same manner as are the keys in the other cases. It will be noted when considering these three forms of keys that the walls or

faces of the keys in the forms shown in Figs. 7 and 8 are circular or curved while those shown in the Fig. 9 are flat.

Of the three forms of keys shown in Figs. 7, 8 and 9 the one shown in Fig. 8 is the strongest in resisting relative movement of the bricks as indicated by the arrows S as it occupies a greater area of the face of the brick than do the other forms. It will be understood that the sockets which are formed in the bricks to co-operate with the keys conform to or are made to accurately receive the keys so that there will be no appreciable play or looseness between the bricks, and so that the bricks will be effectively interlocked when they are arranged together.

To facilitate laying the bricks it is preferred that the ends of the keys and sockets be at an angle and not truly perpendicular to the surfaces of the brick, as clearly shown throughout the drawings. Further, it will be understood that bricks can be made of various thicknesses, sizes, and shapes and still be formed with keys and sockets which will interlock when the bricks are laid together. Further, it will be understood that when the bricks are being laid in a place or position where the keys do not engage sockets, or where the keys are in the way, that they may be easily trimmed off without interfering with, or damaging, the balance of the brick or any other keys that there may be on the brick.

Having set forth only preferred embodiments of my invention I do not wish to limit or restrict myself to the specific details hereinabove set forth but wish to reserve to myself any changes or variations that may appear to those skilled in the art or that may fall within the scope of the following claims.

Having described a preferred form of my invention, I claim:

1. A brick having a tapered projection and a correspondingly shaped socket at one face and arranged end to end and located inwardly of the edges of said face of the brick.

2. A brick having a tapered projection and a correspondingly shaped socket at one face and arranged end to end with their end walls forming a continuous surface, the projection and socket being located inwardly of the edges of said face of the brick.

In witness that I claim the foregoing I have hereunto subscribed my name this 8th day of May, 1920.

GUY M. BEAN.

Witness:
E. I. CAVENDER.