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PATENT SPECIFICATION

DRAWINGS ATTACHED

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COMPLETE SPECIFICATION

Building Brick of Synthetic Plastics Material

I, ARTUR FISCHER, a German citizen, of Tumlingen, Kreis Freudenstadt, Germany, do hereby declare the invention, for which I pray that a patent may be granted to me, and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention relates to a building brick of synthetic plastics material, comprising a body portion of prismatic shape provided on at least one side with a projecting under-cut connecting tenon for interlocking engagement with appropriately shaped under-cut grooves of other bricks, each of the remaining sides of the brick being provided with such a groove extending fully across the surface thereof. Preferably the tenon is integral with an insert positively anchored in a recess in the brick and consisting of a synthetic plastics material different from that of the brick, and preferably more ductile.

The cross-section of the tenon in a plane perpendicular to the axis of the projection may either be square or circular. The axial section of the tenon may have the shape of a truncated cone or of part of a sphere, according to whether or not the projection is to be rotatable in the groove of a brick to which it is connected.

It has been found that when two similar bricks as referred to above are interlocked, or when two such interlocked bricks are displaced relatively to one another, a certain roughness is apparent in the sliding motion owing to the fact that the surface of the brick in which the groove is provided bears on the surface of the other brick provided with the tenon, i.e. that two surfaces consisting of an identical synthetic plastics material slide on one another while subjected to the pressure under which the tenon holds the two bricks together. In order to achieve smooth, unimpeded relative movement of the two bricks the present invention provides a brick of the type referred to above, the or each side of the brick provided with

a tenon also having, arranged around the tenon, one or more projections extending beyond the surface of the brick for pressure contact with the external surface of a brick with which the tenon can make interlocking engagement. This prevents direct contact between the facing surfaces of the two bricks. If, as is usually the case, the tenon forms part of an insert consisting of a synthetic material different from that of the brick, then preferably the projection or projections is or are provided on this insert.

Advantageously, the said insert has arms or fins extending radially from a central portion supporting the said tenon, the said arms or fins engaging in correspondingly shaped recesses in the body of the brick to prevent relative rotation of the tenon and the brick, and the end faces of the said arms or fins at the surface of the brick defining projections as referred to.

Alternatively, the said insert may include an annular or square bearing collar surrounding the said tenon and defining a projection as referred to.

The said insert, which may consist for example of a synthetic material more resilient than that of the brick, should preferably not be a force fit in the recess provided therefor in the brick because this would make the height of the above-mentioned projection or projections from the surrounding surface of the brick rather uncertain. Therefore, preferably the dimensions of that part of the insert below the above-mentioned projections are somewhat smaller than the size of the corresponding recess in the brick, and the brick and insert are connected to one another by means of a metal pin whose upper end remains below the level of the projections provided on the insert. The pin is preferably provided with serrations or barbs which facilitate the driving in of the pin and, on the other hand, prevent inadvertent withdrawal of the connecting tenon from the brick.

[Price 4s. 6d.]

The invention is illustrated by way of example in the accompanying drawing, in which:

Fig. 1 is a side elevation partly in section of one embodiment of building brick according to the invention;

Fig. 2 is a plan view of the brick shown in Fig. 1;

Fig. 3 is a view similar to Fig. 2 of a modification of the building brick.

Figs. 4 and 5 are respectively a plan view and a sectional elevation of a further embodiment of building brick, and

Fig. 6 is a side elevation of two bricks as shown in Figs. 1 and 2, when interconnected end to end.

Referring to the drawings, Figs. 1 and 2 show an elongated brick 1 of prismatic shape, having longitudinal grooves 2 in the side walls, and a transverse groove 3 at one end. A cruciform insert 6 incorporating a connecting tenon 7 has been inserted in the direction of the arrow A into a corresponding recess in the body of the brick 1 at the other end thereof, and is held in place by means of a serrated or barbed pin 5 engaging in the insert 6 and in a bore 4 of the brick 1. The under-cut tenon 7 of the insert 6 projects beyond the end face of the brick 1 and serves for coupling the brick 1 to another brick provided with a matching groove. The arms or fins 8 of the cruciform insert 6 prevent it from rotating in the brick. On the outer surfaces of the arms 8, adjacent the tenon 7, the arms 8 are provided with bearing surfaces 9 which project beyond the level of the end face 10 of the brick by a few hundredths of a millimetre. This dimension is easily obtained during manufacture if, when inserting the insert 6 in the brick 1, the die of a press used for the purpose is applied to the four bearing surfaces 9 and to the end face of the brick, rather than to the upper surface of the tenon 7. The brick 1 consists of a comparatively hard synthetic plastics material, whereas the insert 6 including the tenon 7 consists of a more ductile and resilient synthetic plastics material.

Fig. 3 shows a bearing collar 20 of square shape associated with the insert 6. A connecting tenon 21 is in this case of square cross-section. In order to achieve increased resilience of the brick, the bearing surface 20 which serves as counterabutment and projects beyond the brick face, may be interrupted as shown.

Fig. 4 shows a brick with cruciform insert similar to that shown in Figs. 1 and 2, but with a connecting tenon 7a of circular cross-section. As shown in Fig. 5 the brick 1b is substantially cube shaped and is provided at both ends with inserts 6 having connecting tenons 7. The bearing surfaces 9 on the arms 8 of the insert 6 are preferably of rounded cross-section, so that the coupled bricks slide easily during interlocking thereof. The dimension of the brick is twice the length of an insert

6, a common serrated or barbed pin 5 holding the two connecting tenons together.

Fig. 6 shows how two bricks 1, 1a of the type illustrated in Fig. 1 can be connected to one another by means of a tenon 7 of one brick 1 and a groove 3 in the other brick 1a. The bearing surfaces 9 projecting from the brick 1 are part of the insert with which the tenon 7 is associated. The air gap between the two bricks 1, 1a which is bridged by the bearing surface 9 has been exaggerated in the drawing; its dimension need only be a few hundredths of a millimetre.

The construction of the above described bricks guarantees a very accurate sliding fit between the coupled bricks during the process of interlocking them together.

The fixing of the insert into the brick may, according to a modification not illustrated, be accomplished by forcing a pin corresponding to the pin 5 illustrated in the above-described examples into the insert and providing the pin with a thread at the end adjacent the brick, instead of with barbs or serrations. If this thread engages with sufficient friction — and this can easily be achieved in synthetic plastics material — any desired angular position of the brick relative to the insert may be chosen. In that case the insert must not be provided with arms or fins to prevent rotation and should be of axially symmetrical shape.

The thickness of the neck of the under-cut tenon may be a little less than the clear space between the lips of the grooves of the brick. This will not impair the resistance of two coupled bricks to relative rotation.

According to a further modification, not illustrated, the pin used for joining the insert and the brick may be dispensed with and the connecting tenon itself provided with an integral peg with transverse serrations or barbs for engagement with the bore of a brick.

WHAT I CLAIM IS:—

1. A building brick of synthetic plastics material, comprising a body portion of prismatic shape provided on at least one side with a projecting under-cut connecting tenon for interlocking engagement with appropriately shaped under-cut grooves of other bricks, each of the remaining sides of the brick being provided with such a groove extending fully across the surface thereof, and the or each side of the brick provided with a tenon also having, arranged around the tenon, one or more projections extending beyond the surface of the brick for pressure contact with the external surface of a brick with which the tenon can make interlocking engagement.

2. A building brick as claimed in claim 1, in which the said connecting tenon is integral with an insert fitted into the body of the brick, the said projection or projections also forming part of the insert, and the insert and the body



The invention is illustrated by way of example in the accompanying drawing, in which:

Fig. 1 is a side elevation partly in section of one embodiment of building brick according to the invention;

Fig. 2 is a plan view of the brick shown in Fig. 1;

Fig. 3 is a view similar to Fig. 2 of a modification of the building brick.

Figs. 4 and 5 are respectively a plan view and a sectional elevation of a further embodiment of building brick, and

Fig. 6 is a side elevation of two bricks as shown in Figs. 1 and 2, when interconnected end to end.

Referring to the drawings, Figs. 1 and 2 show an elongated brick 1 of prismatic shape, having longitudinal grooves 2 in the side walls, and a transverse groove 3 at one end. A cruciform insert 6 incorporating a connecting tenon 7 has been inserted in the direction of the arrow A into a corresponding recess in the body of the brick 1 at the other end thereof, and is held in place by means of a serrated or barbed pin 5 engaging in the insert 6 and in a bore 4 of the brick 1. The under-cut tenon 7 of the insert 6 projects beyond the end face of the brick 1 and serves for coupling the brick 1 to another brick provided with a matching groove. The arms or fins 8 of the cruciform insert 6 prevent it from rotating in the brick. On the outer surfaces of the arms 8, adjacent the tenon 7, the arms 8 are provided with bearing surfaces 9 which project beyond the level of the end face 10 of the brick by a few hundredths of a millimetre. This dimension is easily obtained during manufacture if, when inserting the insert 6 in the brick 1, the die of a press used for the purpose is applied to the four bearing surfaces 9 and to the end face of the brick, rather than to the upper surface of the tenon 7. The brick 1 consists of a comparatively hard synthetic plastics material, whereas the insert 6 including the tenon 7 consists of a more ductile and resilient synthetic plastics material.

Fig. 3 shows a bearing collar 20 of square shape associated with the insert 6. A connecting tenon 21 is in this case of square cross-section. In order to achieve increased resilience of the brick, the bearing surface 20 which serves as counterabutment and projects beyond the brick face, may be interrupted as shown.

Fig. 4 shows a brick with cruciform insert similar to that shown in Figs. 1 and 2, but with a connecting tenon 7a of circular cross-section. As shown in Fig. 5 the brick 1b is substantially cube shaped and is provided at both ends with inserts 6 having connecting tenons 7. The bearing surfaces 9 on the arms 8 of the insert 6 are preferably of rounded cross-section, so that the coupled bricks slide easily during interlocking thereof. The dimension of the brick is twice the length of an insert

6, a common serrated or barbed pin 5 holding the two connecting tenons together.

Fig. 6 shows how two bricks 1, 1a of the type illustrated in Fig. 1 can be connected to one another by means of a tenon 7 of one brick 1 and a groove 3 in the other brick 1a. The bearing surfaces 9 projecting from the brick 1 are part of the insert with which the tenon 7 is associated. The air gap between the two bricks 1, 1a which is bridged by the bearing surface 9 has been exaggerated in the drawing; its dimension need only be a few hundredths of a millimetre.

The construction of the above described bricks guarantees a very accurate sliding fit between the coupled bricks during the process of interlocking them together.

The fixing of the insert into the brick may, according to a modification not illustrated, be accomplished by forcing a pin corresponding to the pin 5 illustrated in the above-described examples into the insert and providing the pin with a thread at the end adjacent the brick, instead of with barbs or serrations. If this thread engages with sufficient friction — and this can easily be achieved in synthetic plastics material — any desired angular position of the brick relative to the insert may be chosen. In that case the insert must not be provided with arms or fins to prevent rotation and should be of axially symmetrical shape.

The thickness of the neck of the under-cut tenon may be a little less than the clear space between the lips of the grooves of the brick. This will not impair the resistance of two coupled bricks to relative rotation.

According to a further modification, not illustrated, the pin used for joining the insert and the brick may be dispensed with and the connecting tenon itself provided with an integral peg with transverse serrations or barbs for engagement with the bore of a brick.

WHAT I CLAIM IS:—

1. A building brick of synthetic plastics material, comprising a body portion of prismatic shape provided on at least one side with a projecting under-cut connecting tenon for interlocking engagement with appropriately shaped under-cut grooves of other bricks, each of the remaining sides of the brick being provided with such a groove extending fully across the surface thereof, and the or each side of the brick provided with a tenon also having, arranged around the tenon, one or more projections extending beyond the surface of the brick for pressure contact with the external surface of a brick with which the tenon can make interlocking engagement.

2. A building brick as claimed in claim 1, in which the said connecting tenon is integral with an insert fitted into the body of the brick, the said projection or projections also forming part of the insert, and the insert and the body



of the brick being formed of different synthetic plastics materials.

3. A building brick as claimed in claim 2, in which the said insert has arms or fins extending radially from a central portion supporting the said tenon, the said arms or fins engaging in correspondingly shaped recesses in the body of the brick to prevent relative rotation of the tenon and the brick, and the end faces of the said arms or fins at the surface of the brick defining projections as referred to.

4. A building brick as claimed in claim 3, in which the projecting edges of the said projections are rounded.

5. A building brick as claimed in claim 2, in which the said insert includes an annular or square bearing collar surrounding the said tenon and defining a projection as referred to.

6. A building brick as claimed in any one of claims 2—5, in which the said insert has on its underside an aperture engaged by a connecting pin of a different material, more especially metal, for holding the insert in the brick.

7. A building brick as claimed in claim 6, in which the said pin is a force fit in the said aperture and in a registering bore in the brick.

8. A building brick as claimed in claim 7, in which the said pin has longitudinal and/or transverse serrations.

9. A building brick as claimed in claim 6 as appended to claim 2, in which the said pin is a force fit in the said aperture, and engages the brick by means of a screw thread.

10. A building brick as claimed in any of claims 1—9, in which the height of the said projection or projections above the surface of the brick is of the order of a few hundredths of a millimetre.

11. A building brick as claimed in any one of claims 1—10, in which the width of the neck portion of the under-cut tenon is slightly less than the width of the mouth of the under-cut grooves.

12. A building brick substantially as described herein with reference to Figs. 1, 2 and 6, of the drawing or Figs. 1, 2 and 6 as modified by any one of Figs. 3—5.

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