

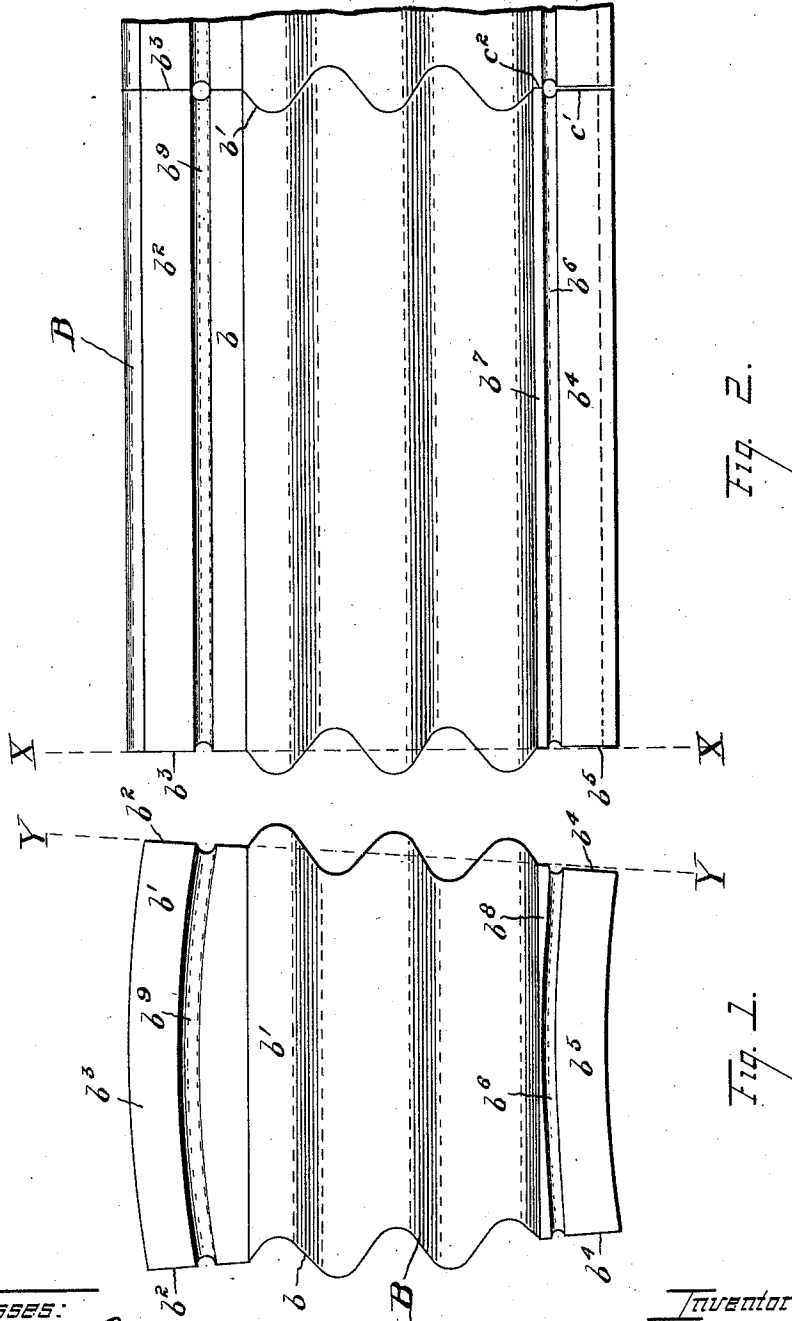
W. E. PEASE.
BUILDING BLOCK.

APPLICATION FILED AUG. 12, 1912.

1,055,074.

Patented Mar. 4, 1913.

2 SHEETS—SHEET 1.



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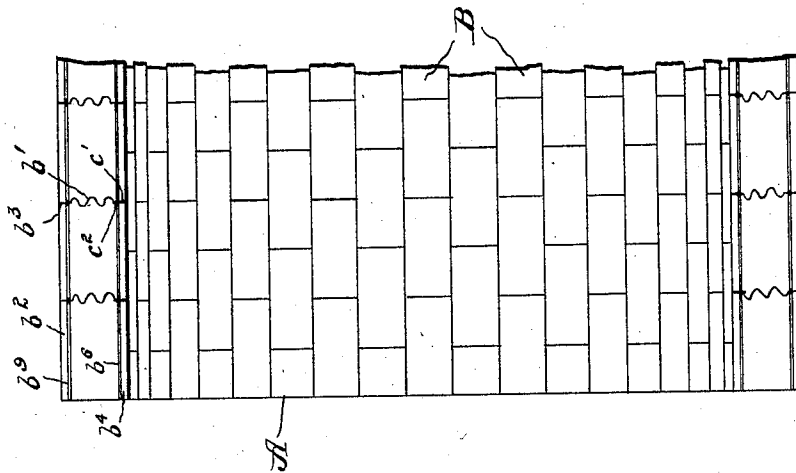


Fig. 4.

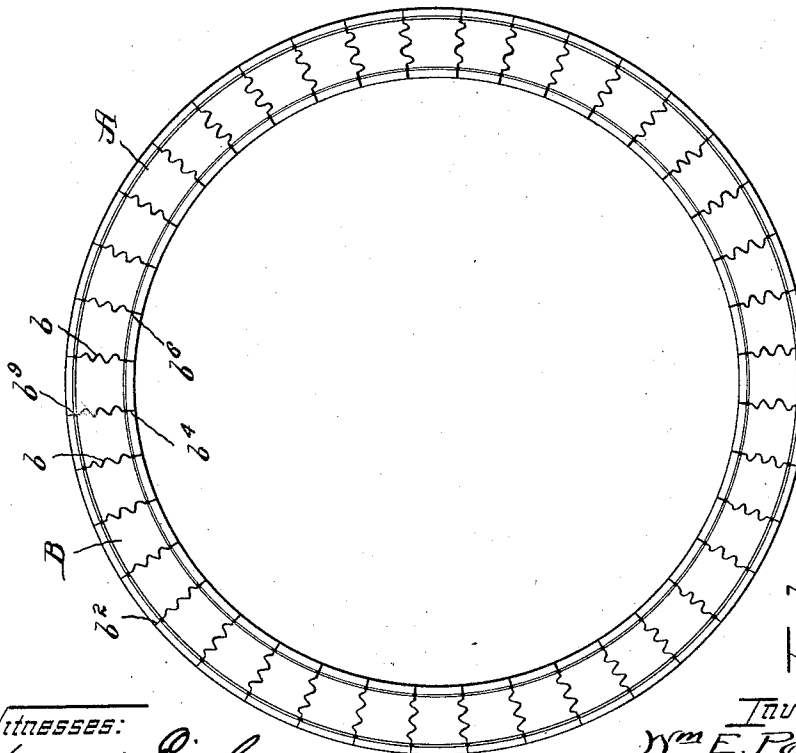


Fig. 3.

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BUILDING-BLOCK.

1,055,074.

Specification of Letters Patent.

Patented Mar. 4, 1913.

Application filed August 12, 1912. Serial No. 714,682.

To all whom it may concern:

Be it known that I, WILLIAM E. PEASE, a citizen of the United States, resident of Cleveland, county of Cuyahoga, and State of Ohio, have invented a new and useful Improvement in Building-Blocks, of which the following is a specification, the principle of the invention being herein explained and the best mode in which I have contemplated applying that principle, so as to distinguish it from other inventions.

My invention relates to building blocks, and particularly to blocks used in the construction of the walls of tunnels or subways. Heretofore, in the construction of such tunnels or subways it has been customary and necessary to utilize a temporary wooden backing for holding the soil back, against which the brick or concrete wall was built, which backing also prevented such wall from being subjected to strains during the period in which the mortar or concrete was setting. This backing was also necessary for the purpose of providing a fixed structure which could be used as a rest or base for driving the shield in advance of the masonry, as will be understood by those skilled in the art. Inasmuch as such backing was entirely covered by the masonry, it could not be removed and the material entering into its construction became a dead loss. Such material and the labor involved in the erection of the backing thus became a large element in the cost of construction. In addition to such backing it was also necessary to provide a temporary inner structure, for holding the upper or overhanging portion of the wall in place while setting, the labor and material involved in the construction of which also formed a large element in the cost of construction.

The object of my invention is to reduce the cost of tunnel or subway construction by eliminating completely the necessity for the use of such above described backing and which will permit the walls to be built with the use of very little, if any, temporary support, while at the same time the walls will have the necessary strength and water-tight character.

The said invention consists of means hereinafter fully described and particularly set forth in the claims.

The annexed drawings and the following description set forth in detail certain means embodying my invention, the disclosed

means, however, constituting but one of various mechanical forms in which the principle of my invention may be employed.

In said annexed drawings:—Figure 1 is an end, and Fig. 2 a side elevation of a building block embodying my invention. Fig. 3 represents a transverse section and Fig. 4 a fragmentary longitudinal section of a tunnel wall embodying my invention.

In the illustrated embodiment of my said invention, the wall A is constructed of tapered blocks B laid end to end and side to side, and having a thickness equal to the thickness of the wall, as shown in Figs. 3 and 4. Each block has its two opposite side faces b , b , and end faces b' b' each formed with an outer plane portion, b^2 b^2 and b^3 b^3 respectively, and an inner plane portion, b^4 b^4 and b^5 b^5 respectively.

The plane-portions b^3 and b^5 instead of lying in the same plane are so situated that the portions b^5 fall inside of the plane of portions b^3 , as shown in Fig. 2 in which the dotted line X—X indicates said plane. Likewise portions b^4 fall inside the plane of portions b^2 as shown in Fig. 1 in which the dotted line Y—Y indicates such plane. In other words the plane of portions b^4 and b^5 intersect, when produced, the other end of the block.

As a result of the above-described construction, portions b^2 of adjacent blocks are in contact, as are also portions b^3 , as shown at c in Fig. 2; while portions b^4 and b^5 are out of contact, as shown at c' in said figure.

Each plane portion b^4 and b^5 is formed with a groove b^6 , whose ends are in communication as shown and inwardly adjacent to said grooves are further plane portions b^7 and b^8 which lie in the planes of portions b^2 and b^3 respectively. These portions b^7 and b^8 are hence in contact as shown at c^2 , Fig. 2.

By means of the described construction, narrow grooves intersect the interior surface of the wall and lie between the sides and ends of adjacent blocks, by means of which oakum may be introduced into the passages formed by the grooves b^6 and the inside joints of the blocks can thus be calked and made water-tight after the structure is completed and has been in use for a time, if such calking be found necessary or desirable.

The outer plane portions b^2 and b^3 are

formed with grooves b^9 , which communicate as their ends, and which when contiguous form communicating passages of a diameter sufficient to allow, during the course of construction, grouting to be poured therein and to set. The outer joints are thus rendered water-tight.

That portion of the ends and side faces of the blocks intermediate of the plane-portions above described is formed with grooves forming projections, so arranged that contiguous sides and contiguous ends of the blocks interlock, as will be understood and as shown in Fig. 2. By means of this interlocking feature the blocks support each other, and no mortar or cement binder is therefore required. As soon as a course is laid it is complete and may hence be used as a base for forcing the shield forward. The necessity of much if any temporary structure for supporting overhanging blocks, is hence also obviously eliminated. In addition it will also be seen that the peculiar shape of joint between the blocks, adds materially in strengthening the walls and also in making same water-tight.

In practice I find it desirable to make the grooves b^6 about one-half inch and grooves b^9 one inch in diameter. In the event that the previously-described calking with oakum or the like be found, in after years, to be necessary and is resorted to, the passages formed by grooves b^6 prevent the calking material from being blown out by water-pressure from the exterior. Such necessity for calking may arise by reason of settlement of the wall after completion of the tunnel, as will be readily understood by those skilled in the art.

I also prefer, in order to add to the water-tight feature of the joints, to apply a coating of pitch or the like to the grooved intermediate surfaces of the blocks.

Having fully described my invention what I claim and desire to secure by Letters Patent is:—

1. As a new article of manufacture, a building block having grooved end and side face-portions and a plane portion adjacent to each of said grooved face-portions; each of said plane portions being provided with a groove; such last-named grooves communicating with each other at their ends.

2. As a new article of manufacture, a building block having grooved end and side face-portions and a plane portion adjacent to both the inner and outer ends of said grooved face-portions.

3. As a new article of manufacture, a building block having grooved end and side face-portions and a plane portion adjacent to both the inner and outer ends of said grooved face-portions; each of said plane portions being provided with a groove; the grooves of the outer plane-portion communicating with each other at their ends, and the grooves of the inner plane portions communicating with each other in a similar manner.

4. As a new article of manufacture, a building block having plane face-portions at opposite ends of opposite faces; the planes of those face portions at one end of said faces, intersecting the other end portion of such block.

5. As a new article of manufacture, a building block having plane face-portions adjacent to one end of each face and in different parallel planes, together with a groove separating such portions.

6. A tunnel-wall consisting of contiguous blocks having interlocking side and end face-portions; outer plane face-portions in contact and inner plane face-portions out of contact; said inner plane face-portions being provided with grooves having their ends in communication with each other.

7. A tunnel-wall consisting of contiguous blocks having interlocking side and end face-portions; an outer plane face-portion on each side and end of each of said blocks, adjacent outer plane-portions of contiguous blocks being in contact; an inner plane face-portion on each side and end of each of such blocks, adjacent inner plane-portions of contiguous blocks being out of contact; the inner plane face-portions of each block being provided with grooves having their ends in communication with each other.

Signed by me this 8th day of August 1912.

W. E. PEASE.

Attested by—

WM. ROTHENBERG,
A. E. MERKEL.