J. W. Reid.

Iron Structure.

No. 37,519. Patented Jan. 27, 1863.

Fig. 1.

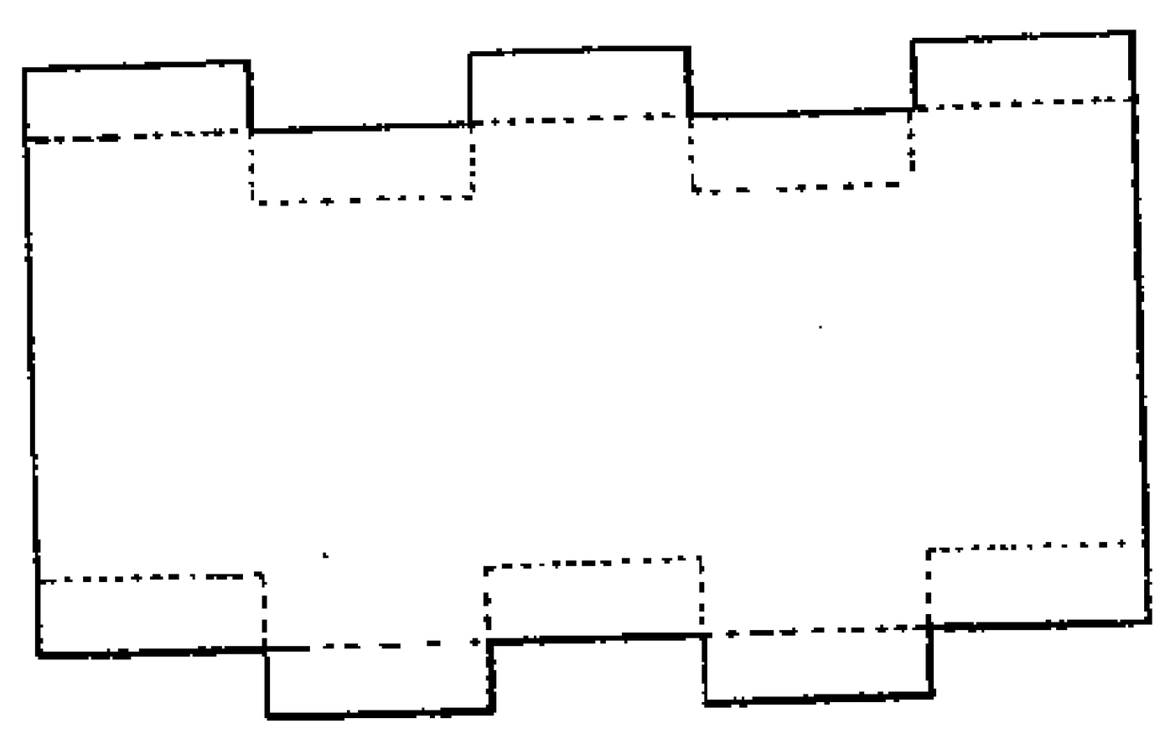


Fig. 2.

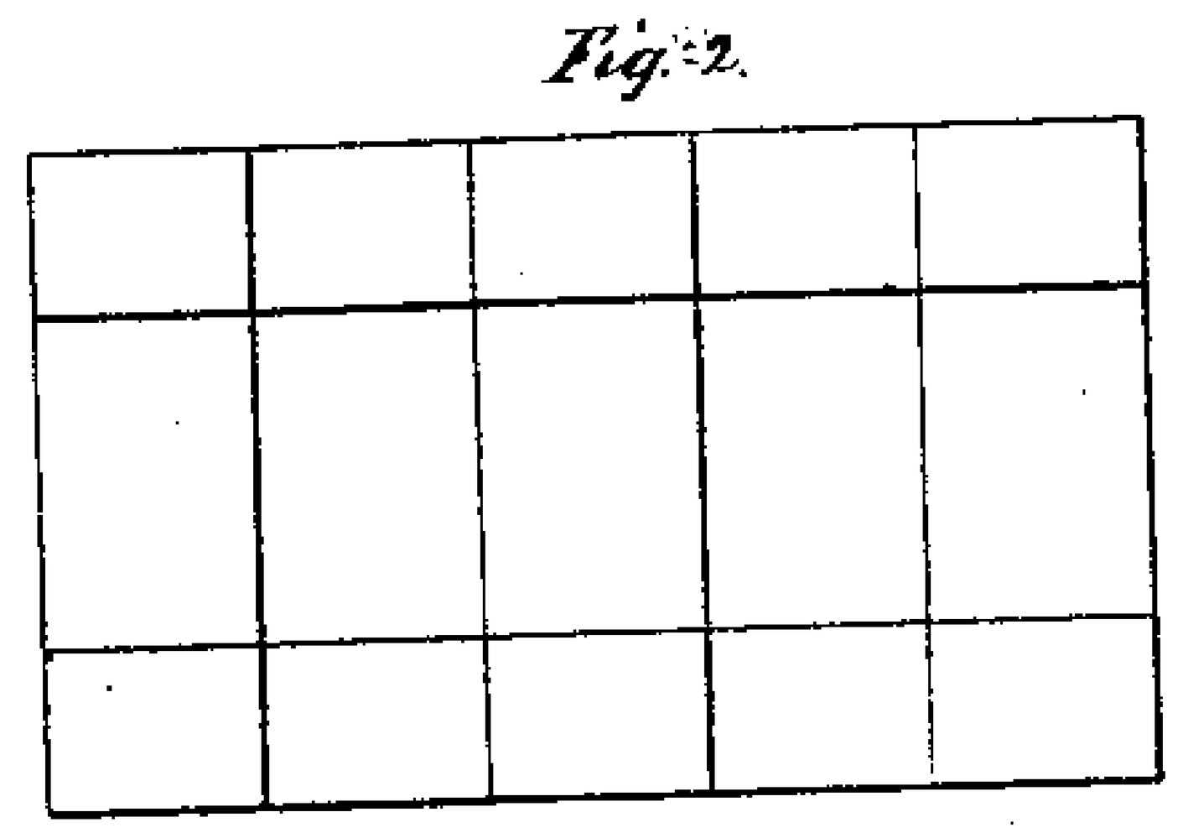


Fig. 3.

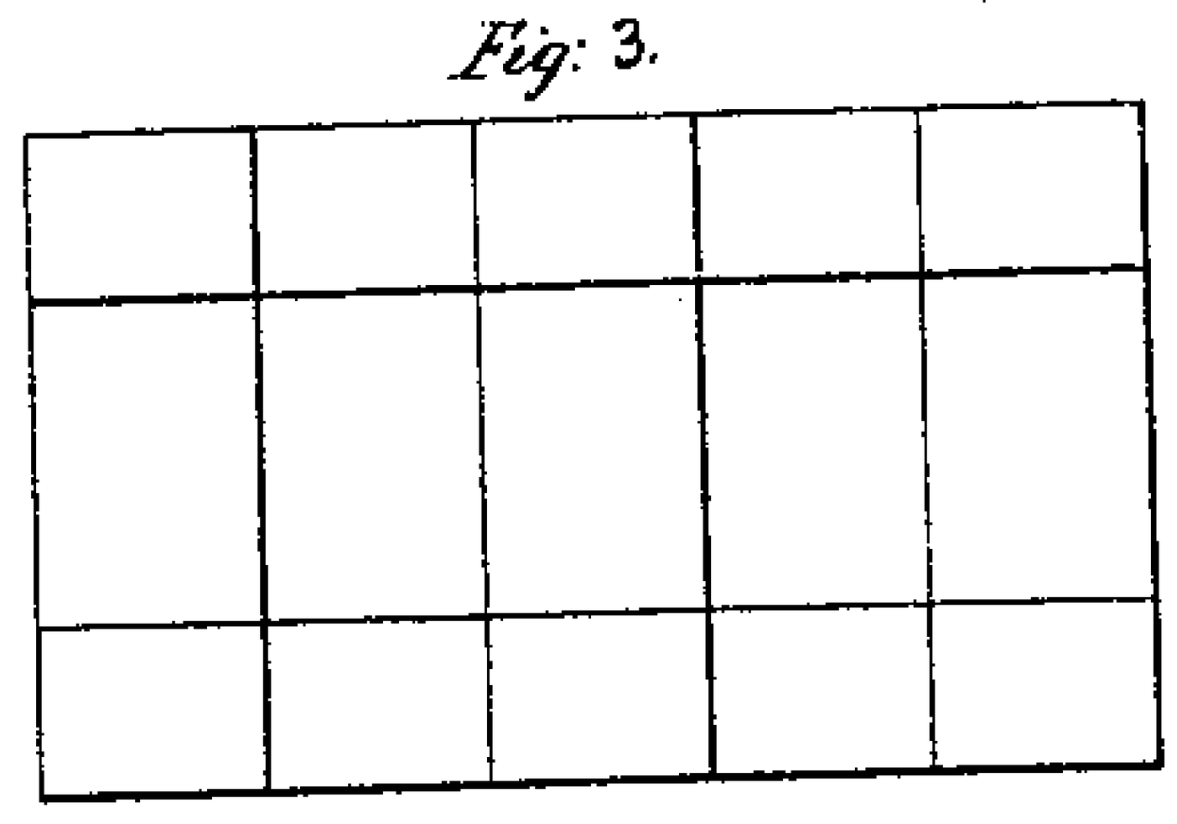


Fig. 4.

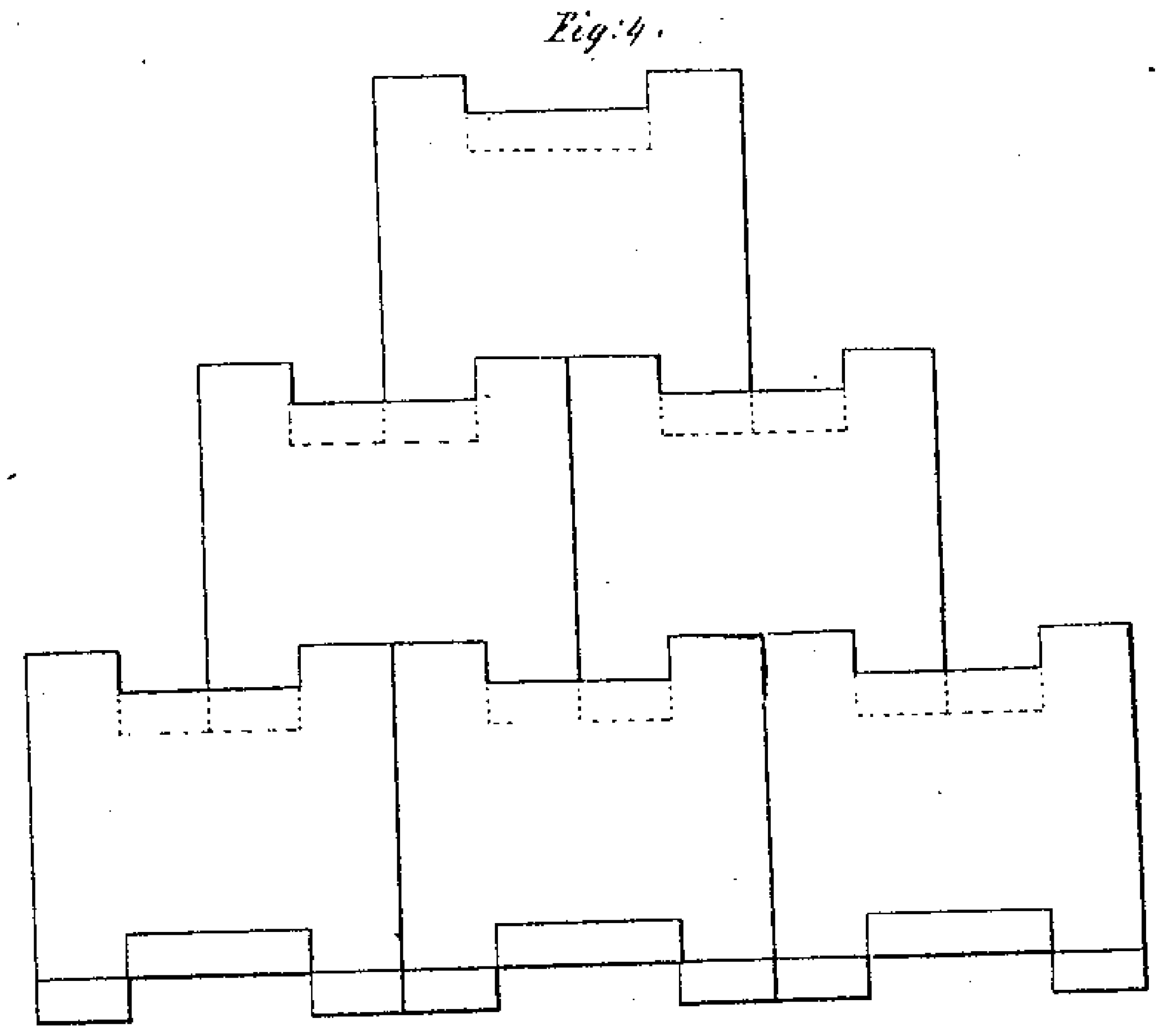


Fig. 5.

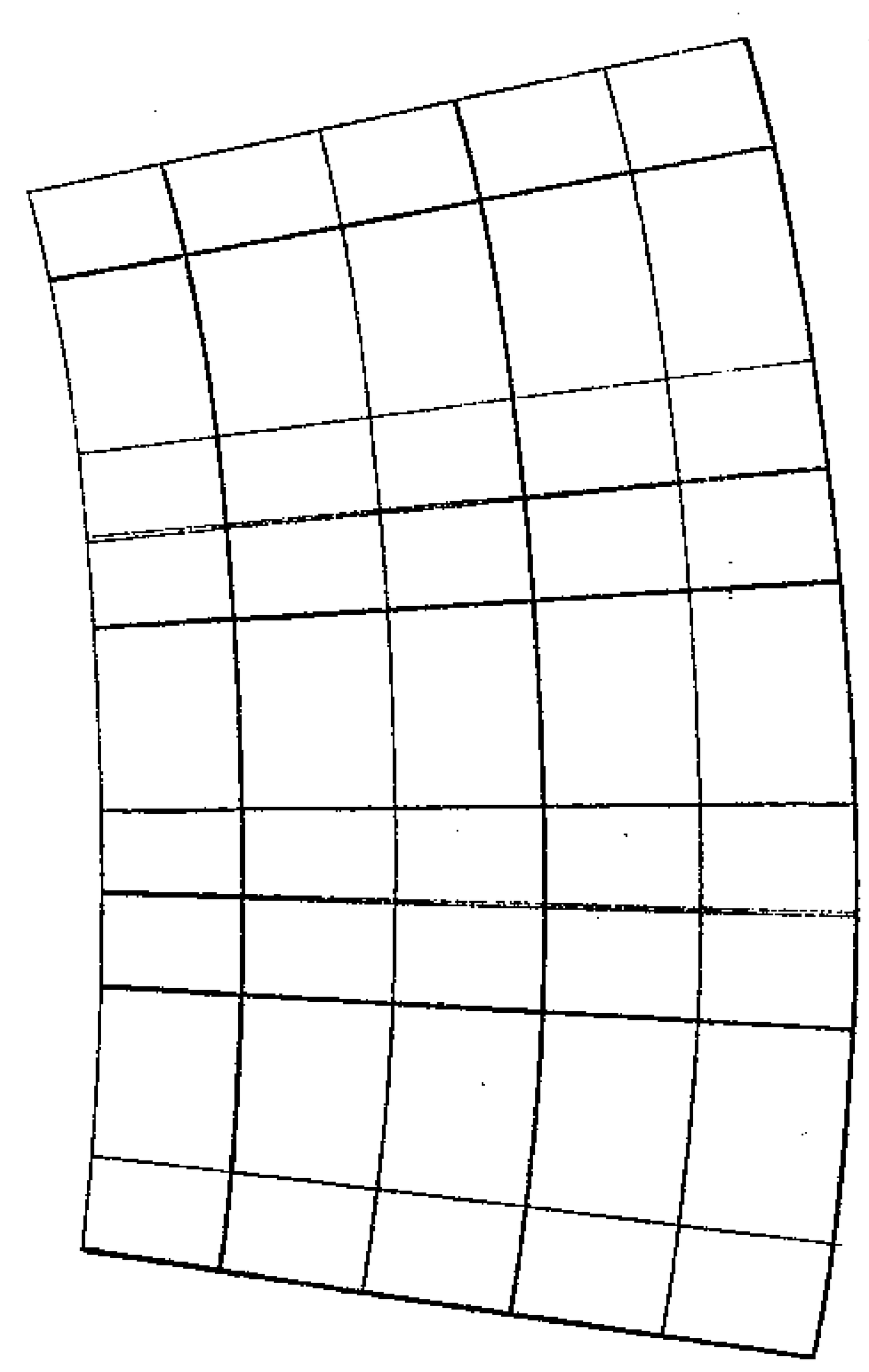


Fig. 6.

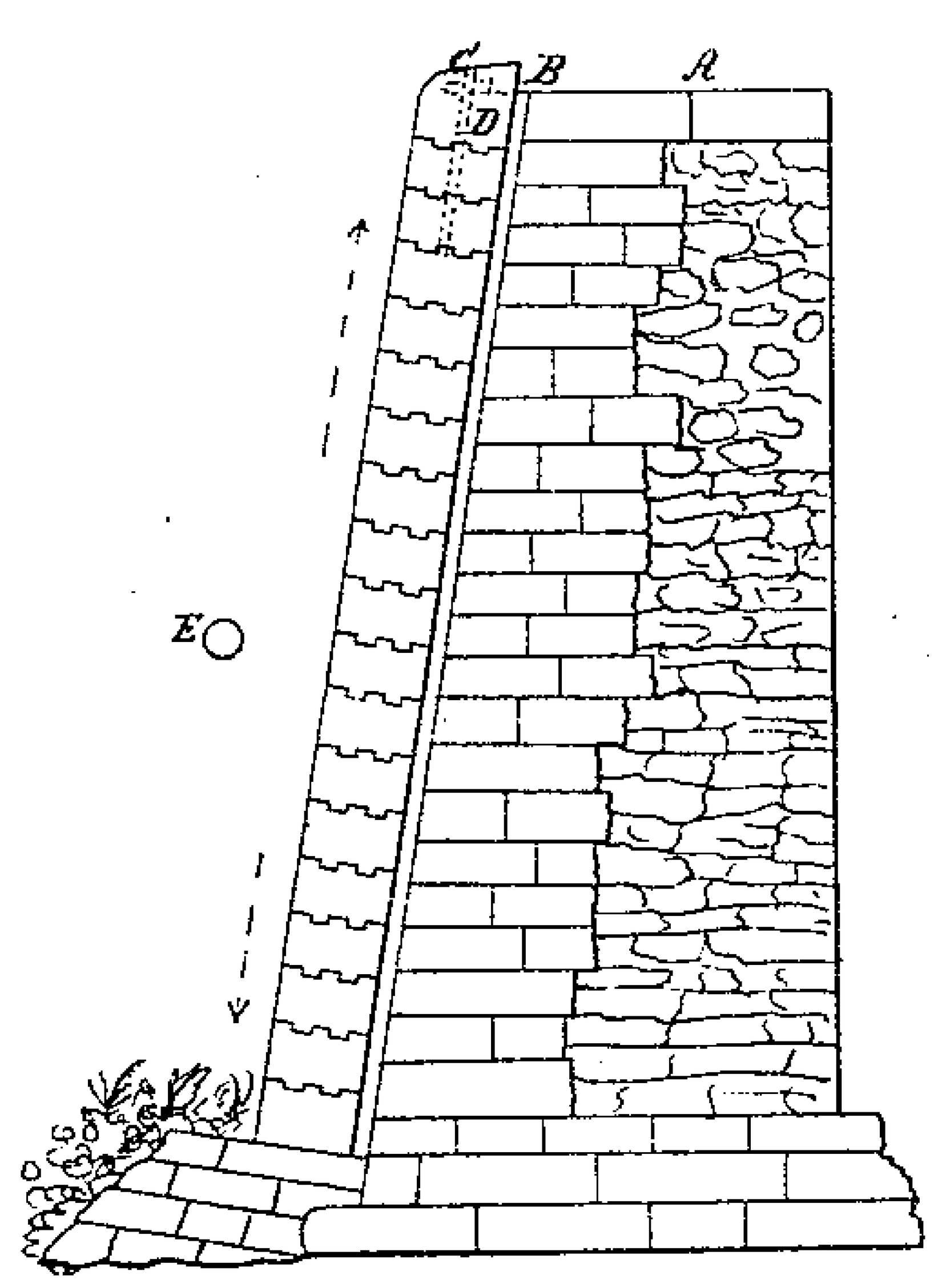
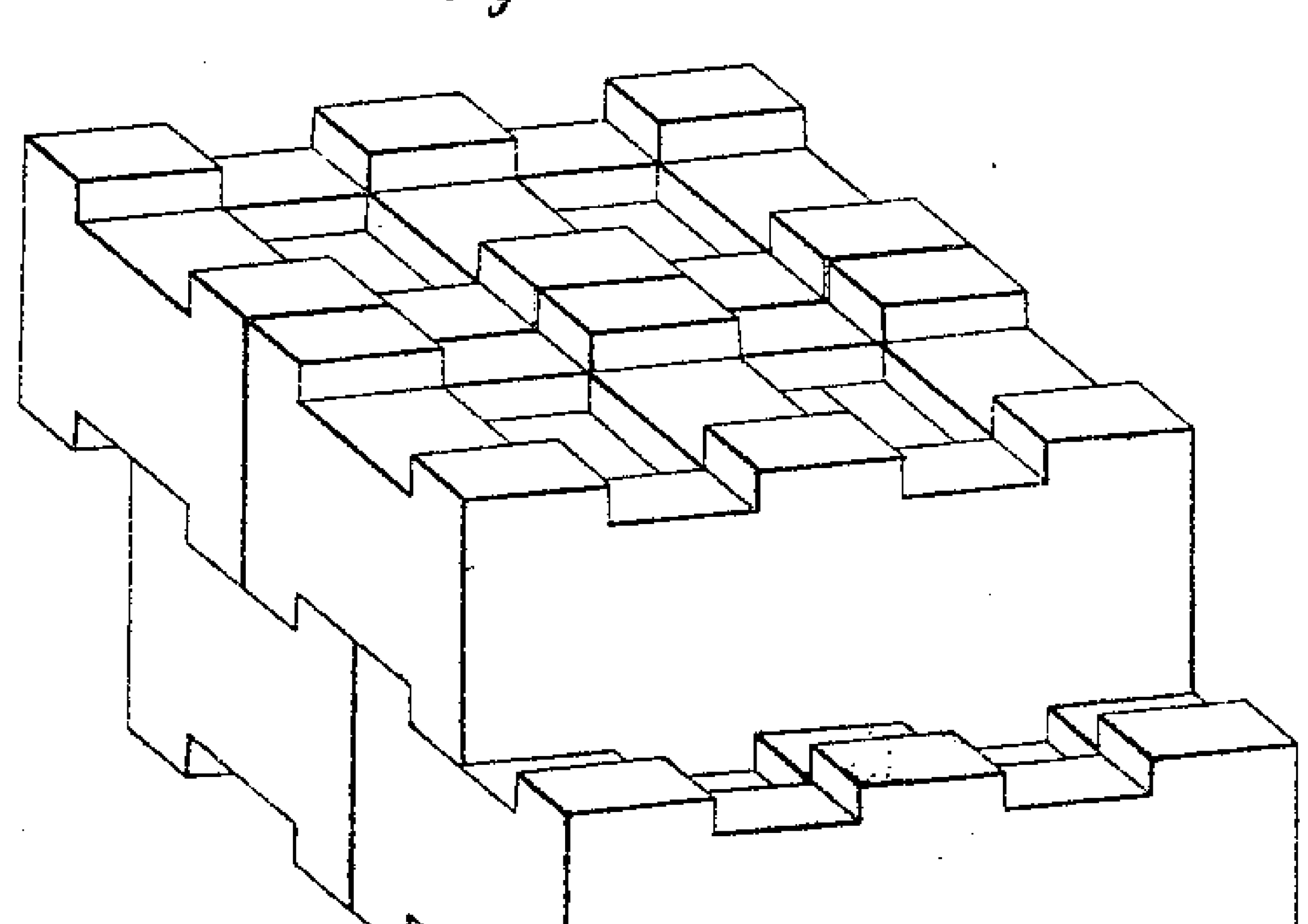


Fig. 7.



Witnesses;
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UNITED STATES PATENT OFFICE.

JOHN WYATT REID, OF NEW YORK, N. Y.

IMPROVEMENT IN FORTIFICATIONS.

Specification forming part of Letters Patent No. **37,519**, dated January 27, 1863.

To all whom it may concern:

Be it known that I, JOHN WYATT REID, of the city, county, and State of New York, have invented a new and improved mode of building new fortifications, which system may also be applied to the re-enforcing or strengthening of those already existing; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

The nature of my invention consists in building the outer walls of fortifications either wholly or in part of heavy blocks of cast-iron, or of some other tough cheap metal or alloy.

It also consists in a peculiar manner of locking the blocks together, which will be hereinafter fully explained.

I am aware that cast-iron in the form of plates, on account of its cheapness, has been used at and about the embrasures of forts in place of wrought-iron. My invention has no reference to cast-iron used in fortification in the form of sheets when the effect desired from it does not depend as much upon the weight or inertia of the mass as upon the impenetrability of the substance. To obtain this effect requires heavy blocks of cast-iron, which have never been used heretofore for such purposes. The form of these blocks may be either square or hexagonal, but the form of block which I prefer is that represented in the attached drawings. Each of these blocks on its upper and lower sides, respectively, is furnished with corresponding projections and depressions, which, when the blocks are superposed in the construction of the wall, will fit into each other, and thereby form a firm, secure, and reliable fastening, each single block locking four others throughout the entire superstructure, as clearly illustrated in Figs. 4 and 7 of the drawings.

In the annexed drawings, Figure 1 represents an elevation of one of the blocks. Fig. 2 is a vertical plan showing the projections and sockets of the upper side, while Fig. 3 represents the lower side. Fig. 4 is a front view of a part of a wall built of blocks of this form, and shows the peculiar lock of the pieces, owing to which the wall becomes bound together in all directions, so that none of the blocks can be moved in any direction except vertically without taking the whole wall along with it. The projections on one side of each block being opposite to the depressions on the other side, make the block of equal or nearly equal thickness and strength throughout. If required, the angles both of the sockets and projections may be rounded off, and the larger the blocks are cast the better. Fig. 5 represents this form of block applied to the formation of a cupola or tower, and proves that it is perfectly applicable to form circles of only twenty feet diameter, the drawing being made to a scale. It is thus applicable to cupola ships as well as forts.

When old forts are to be re-enforced on this system, the mode of applying the shell or outer casing of cast-iron is shown at Fig. 6, in which A represents a section of the wall of a stone fort; B, a lining of sand between the face of the wall and the cast-iron blocks. C represents the blocks built up from a subsidiary foundation, each block being carefully smeared with coal-tar before being dropped into its place. D represents an iron rod passing through several of the upper layers of blocks, serving to fasten by a key or nut the topmost tier or coping.

When the walls of a fort which requires to be cased or re-enforced slope backward, as is usually the case, there will be no necessity to fasten the casing to the wall by clamps or otherwise. This may be necessary with perpendicular walls, but I think not. (See Fig. 6.)

Fig. 7 represents by a perspective view a portion of a wall built upon my improved plan, and showing particularly the peculiar manner of locking the blocks together.

What I claim as new, and of my invention, is—

1. Locking together solid blocks of metal to form fortification-walls by means of corresponding projections and cavities on the opposite sides of the blocks when the said projections and cavities are formed and arranged in the manner herein shown and described, to avoid injurious weakening of the blocks and prevent their displacement horizontally in any direction.

2. The application of heavy masses of cast-iron in lieu of stones to form the battery-fronts of forts and to the re-enforcing of existing forts, in the manner substantially as set forth.

I do not claim the application of cast-iron in the form of plates or sheets, but only in the form of masses or blocks, and where the purpose is to destroy the effect of the shot by the superior weight of the opposing masses composing the wall or casing.

JOHN WYATT REID.

Witnesses:

HENRY L. COTHEAL,

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