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Patented Nov. 25, 1902.

H. KOPPERS.

WALL CONSTRUCTION FOR COKE OVENS, &c.

(Application filed Dec. 28, 1901.)

(No Model.)

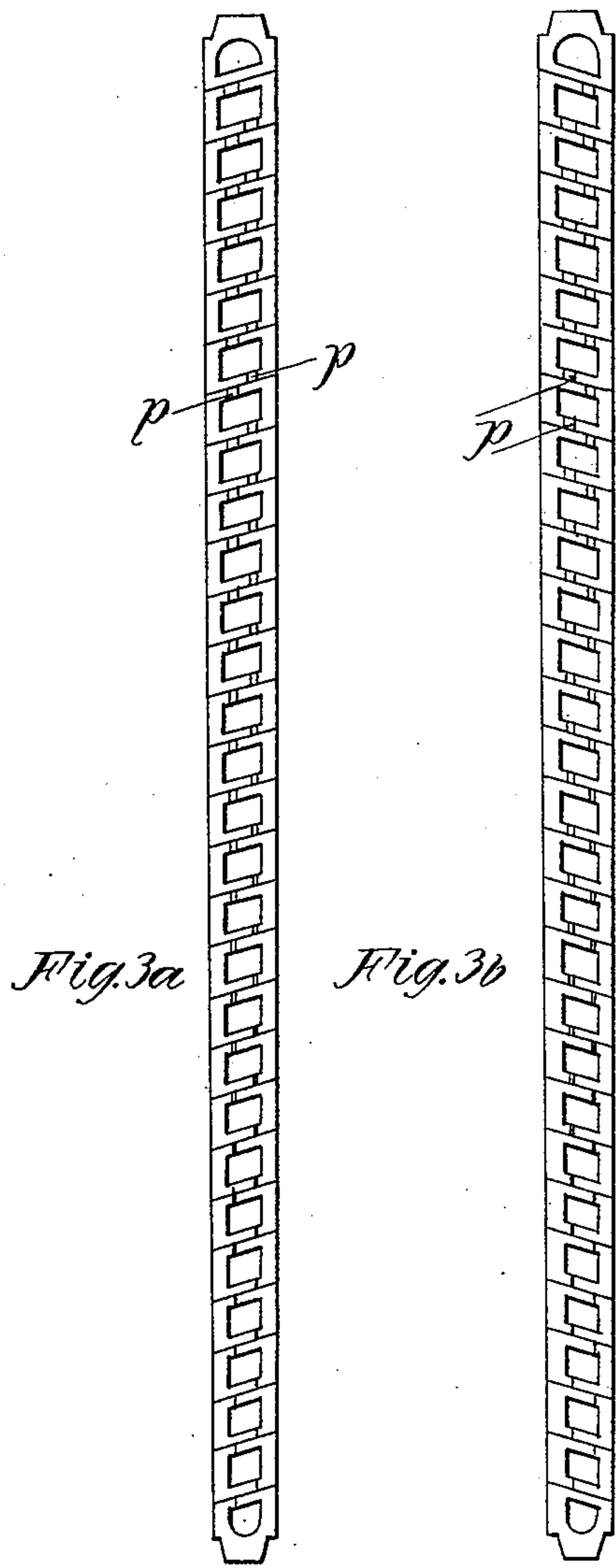


Fig. 2

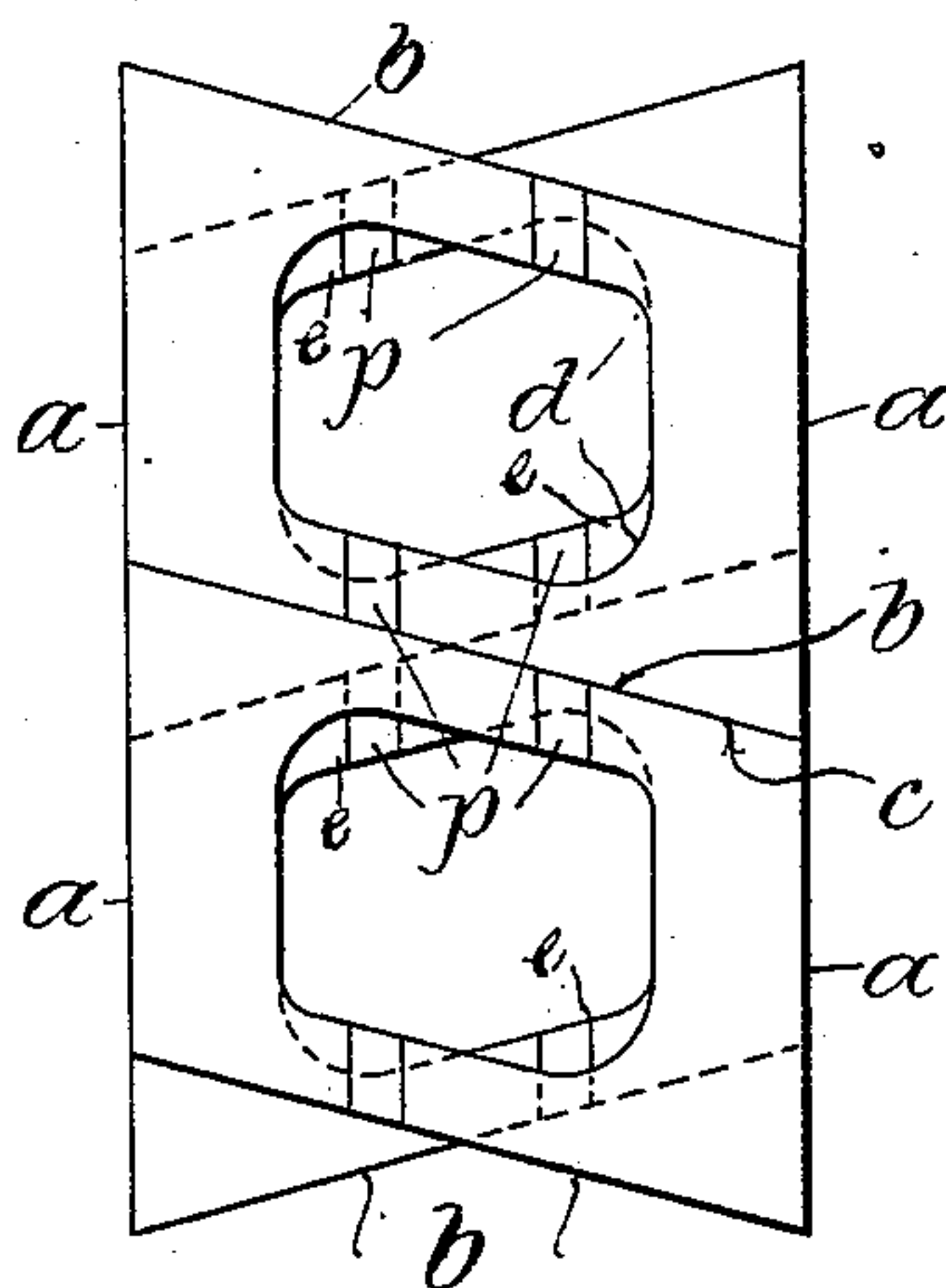


Fig. 3a

Fig. 3b

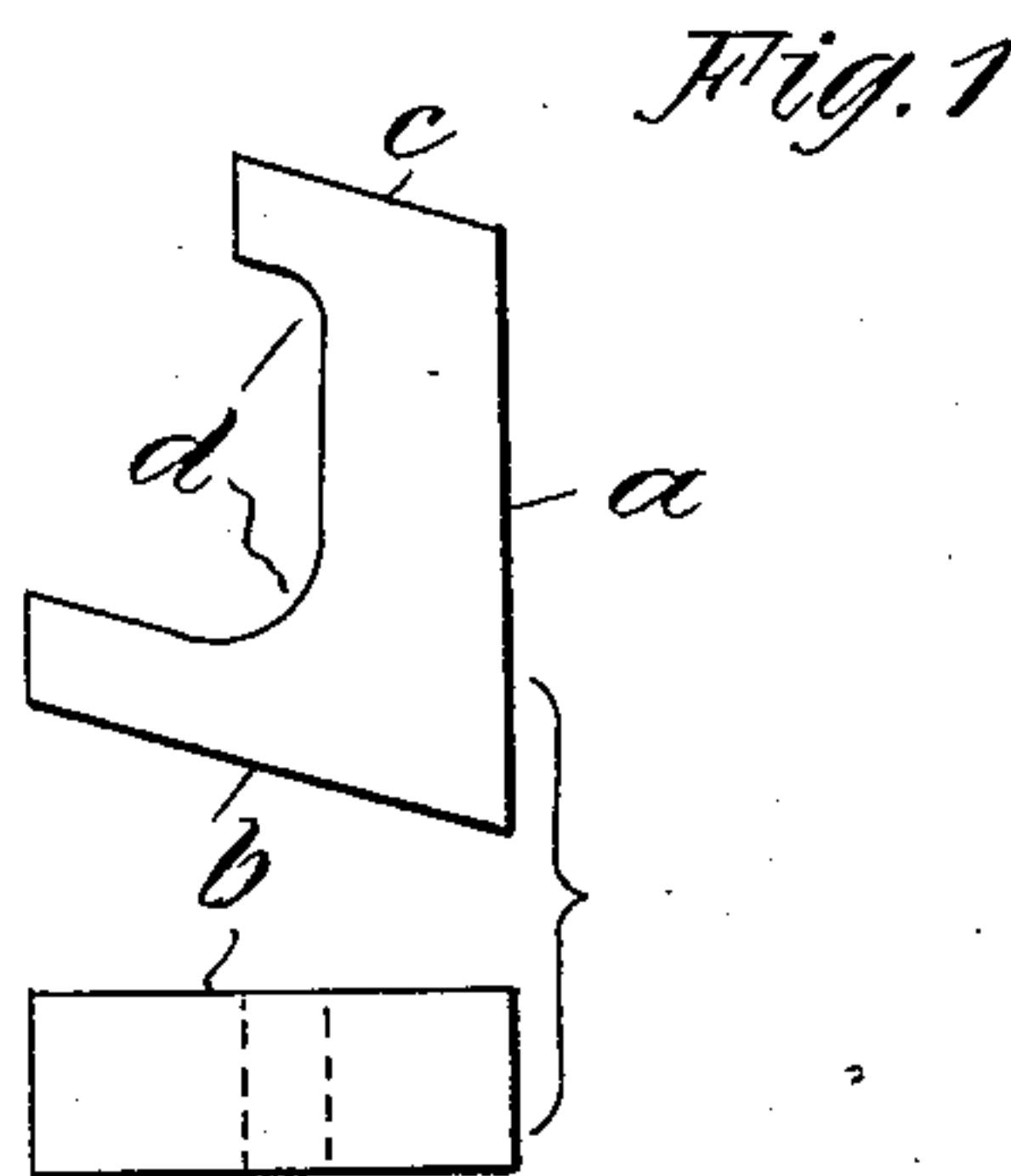


Fig. 1

Witnesses:

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# UNITED STATES PATENT OFFICE.

HEINRICH KOPPERS, OF CARNAP, NEAR ESSEN, GERMANY.

## WALL CONSTRUCTION FOR COKE-OVENS, &c.

SPECIFICATION forming part of Letters Patent No. 714,195, dated November 25, 1902.

Application filed December 28, 1901. Serial No. 87,642. (No model.)

*To all whom it may concern:*

Be it known that I, HEINRICH KOPPERS, coking engineer, a subject of the German Emperor, residing at Carnap, near Essen, in the German Empire, have invented new and useful Improvements in Wall Constructions for Coke-Ovens by Means of a Particularly-Shaped Stone, of which the following is a specification.

This invention relates to an improved wall construction for coke-ovens, and more particularly of walls of single-walled coke-ovens with vertical flues.

This improved construction offers the important advantage in comparison with the wall construction in use at present that the vertical joints of the wall do not communicate with the flues.

The vertical surfaces of a wall of a coke-oven are not absolutely parallel to each other, but diverge horizontally, according to the coal to be coked, on a wall ten meters long, for example, by about six to eight centimeters. It has therefore hitherto been impossible to use the same stones throughout for the construction of the wall. According to this invention a particularly-shaped stone is used to build the wall.

In the accompanying drawings, Figure 1 shows the stone used for the construction of the walls in a plan view and in a side view. Fig. 2 shows how the stones are placed together; and Figs. 3<sup>a</sup> and 3<sup>b</sup> are ground plans of a wall constructed according to this invention, showing each one of the layers of stones.

The stones are of square section and have one smooth outer surface *a*, two slanting sides *b c*, parallel to each other, the one, *b*, of which is of nearly double the length of the other, *c*, and a cavity *d* on the inner surface. Two stones placed together form a rhomboid and inclose the flue, and the superimposed layers of stones are, as shown in Figs. 2, 3<sup>a</sup>, and 3<sup>b</sup>, crossing each other, so that within the flues projecting corners *e*, Fig. 2, are formed between each two layers of stone, which favor-

ably influence the efficiency of the heating-gases. The inner surface of the stones is glazed, and the surface in contact with the coke is smoothed.

As shown in Figs. 3<sup>a</sup> and 3<sup>b</sup>, the same stones are used throughout the wall, and to get the divergent form of the wall separating-plates *p* are placed between the joints, which plates increase in thickness from one end of the wall to the other.

A single stone in a wall constructed as just described can be easily replaced in case of necessity for repair.

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

1. An improved stone for the building of coke-oven walls with vertical flues comprising a smooth outer surface, two slanting sides parallel to each other, the one of which is of nearly double the length of the other and a cavity on the inner side, substantially as described and for the purpose set forth.

2. An improved wall construction for coke-ovens with vertical flues constructed of stones which have a smooth outer surface, two slanting sides parallel to each other, the one of which is nearly double the length of the other and a cavity on the inner side and which are placed together in such a manner that each flue is formed by two stones whereby the divergent form of the wall is obtained by means of separating-plates of increasing thickness being placed in the joints of the stones, the stones of the superimposed layers running crosswise to each other so as to make each upper layer cover the joints in the lower layer, substantially as described and for the purpose set forth.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

HEINRICH KOPPERS.

Witnesses:

WM. ESSENWEIN,  
V. R. BATERDEN.