

No. 724,717.

PATENTED APR. 7, 1903.

J. KULHANEK.

CONSTRUCTION OF CEILINGS, ROOFS, OR THE LIKE.

APPLICATION FILED AUG. 25, 1902.

NO MODEL.

Fig. 1

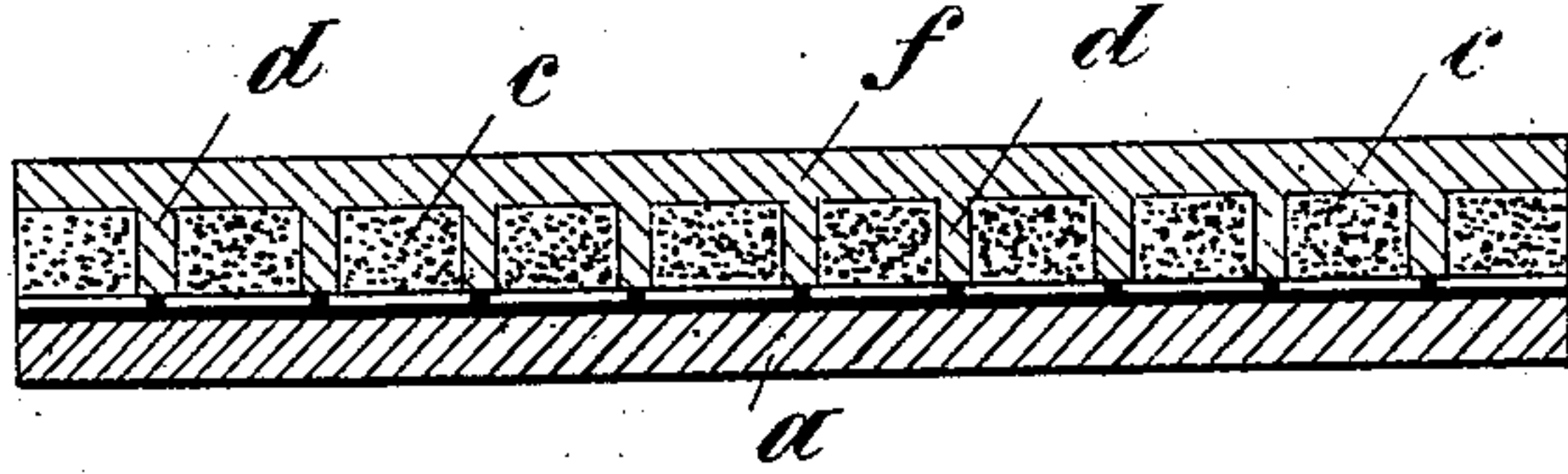


Fig. 2

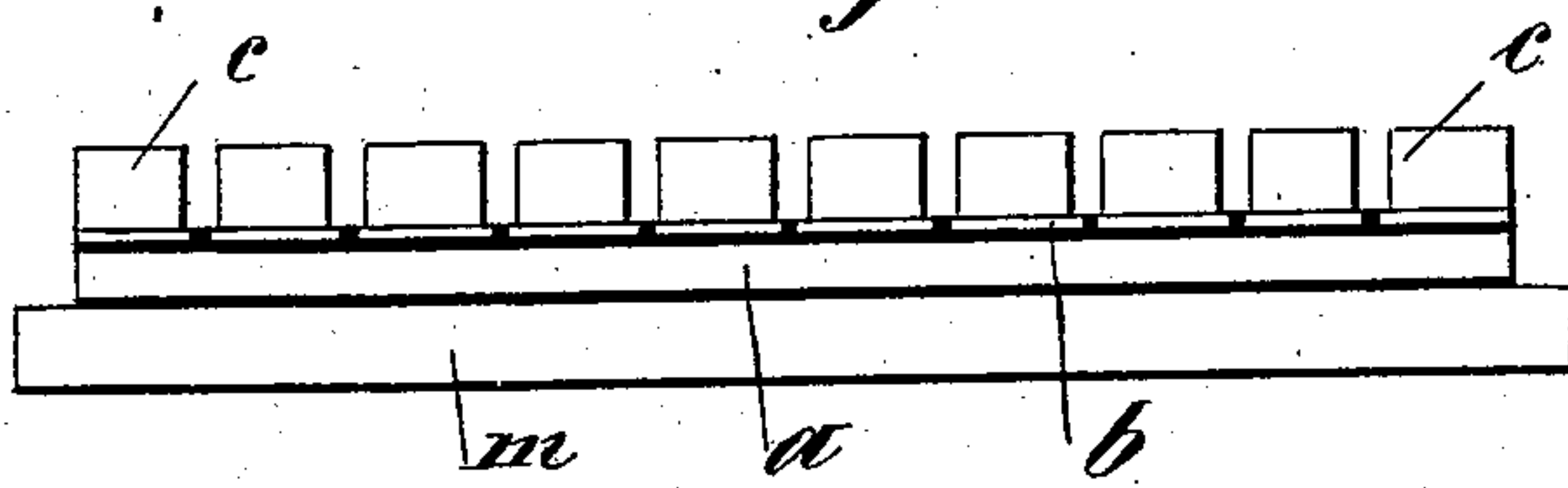


Fig. 3

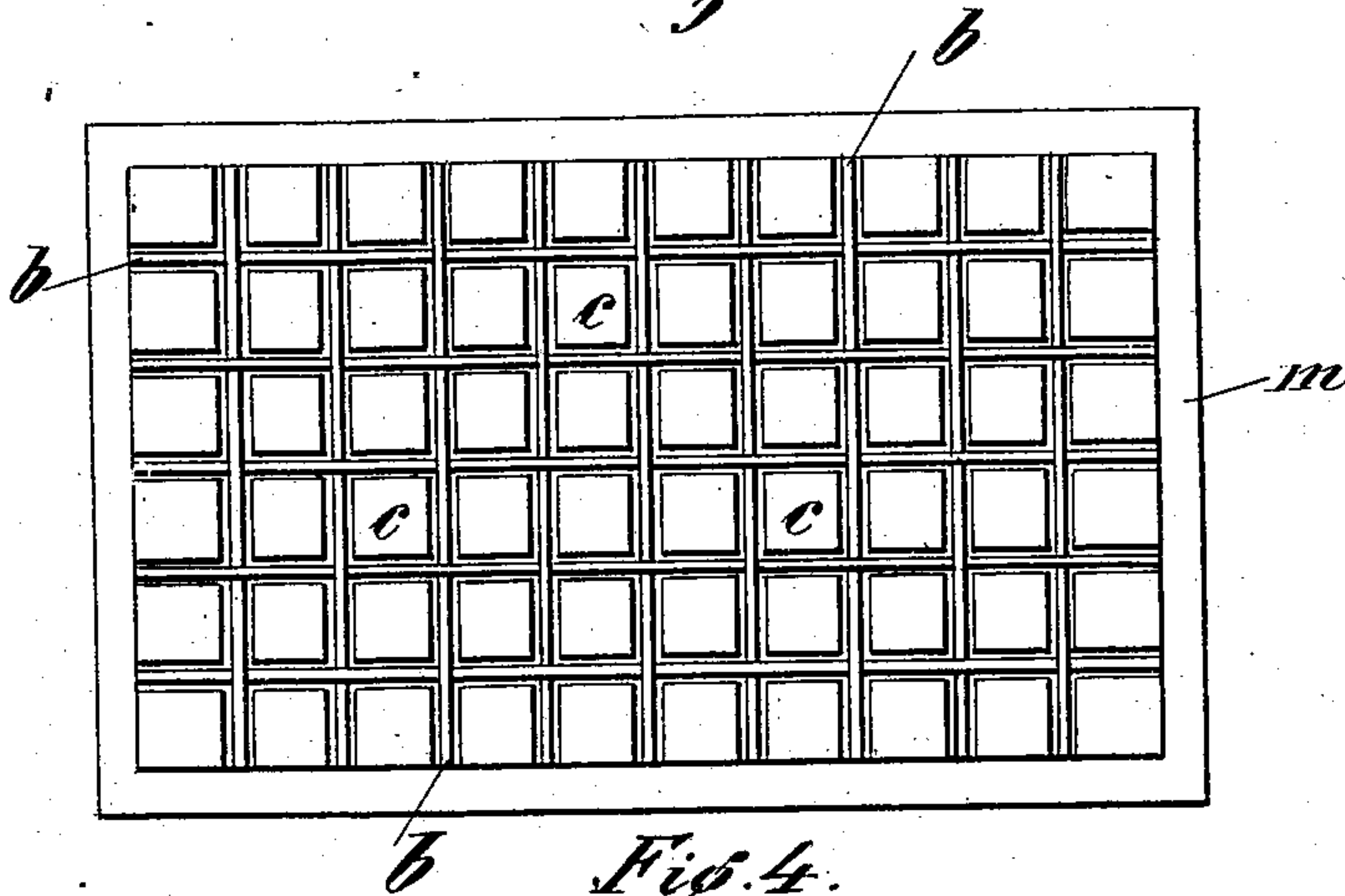
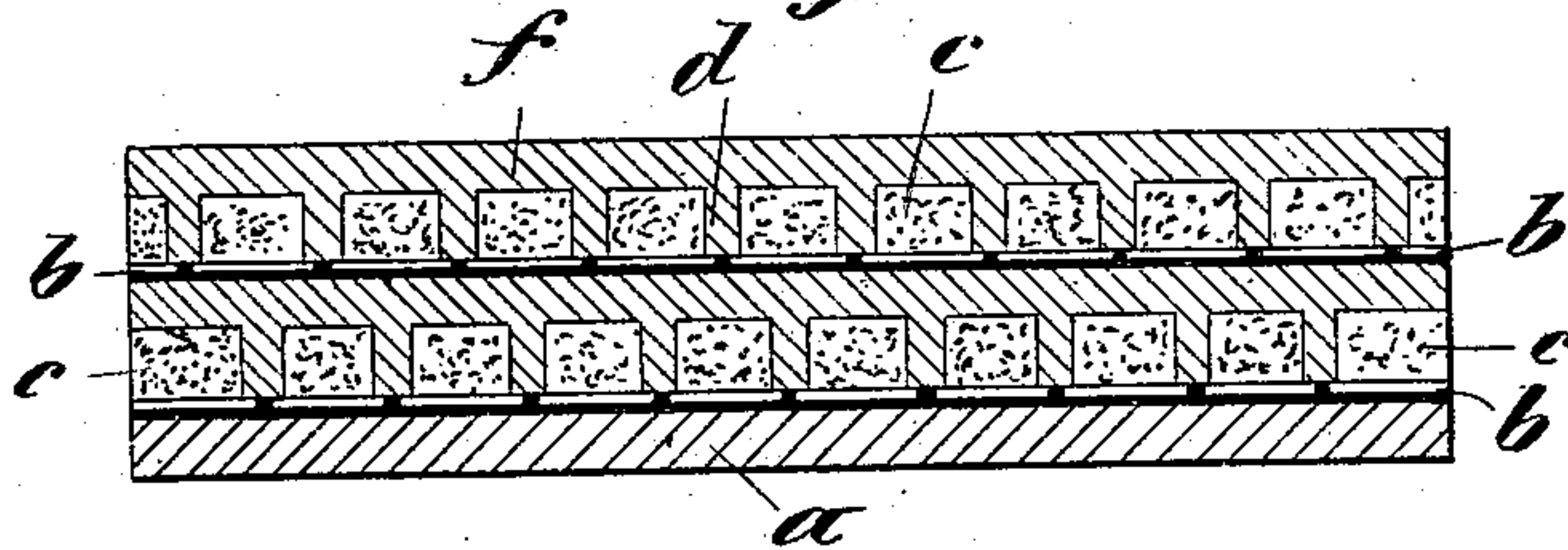


Fig. 4



Witnesses.

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# UNITED STATES PATENT OFFICE.

JAN KULHANEK, OF PRAGUE, AUSTRIA-HUNGARY.

## CONSTRUCTION OF CEILINGS, ROOFS, OR THE LIKE.

SPECIFICATION forming part of Letters Patent No. 724,717, dated April 7, 1903.

Application filed August 25, 1902. Serial No. 120,964. (No model.)

*To all whom it may concern:*

Be it known that I, JAN KULHANEK, a citizen of the Empire of Austria-Hungary, residing at Prague, in the Kingdom of Bohemia, Austria-Hungary, have invented certain new and useful Improvements Relating to the Construction of Roof and Ceiling Plates; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to a novel construction for ceilings and roof-plates or roofs, which consists of two layers of mortar arranged at a certain interval one from the other and provided with a wire insertion, these plates being connected one with the other by means of vertical stays or webs of concrete or the like running in two intersecting directions, the spaces remaining between the stays and plates being filled either permanently or merely until the hardening of the stay or web portion with a filling material of any suitable kind—such, for example, as cork-stone.

In the accompanying drawings, Figure 1 illustrates in cross-section a plate formed in accordance with this invention. Fig. 2 is a side elevation of an unfinished plate, illustrating a phase in the manufacture before the artificial stone is embedded in the mortar. Fig. 3 is a plan view thereof. Fig. 4 represents a plate intended for large spans and provided with two superposed rows of stays.

According to this invention the improved plate illustrated in Fig. 1 is manufactured by forming a layer *a* of from two to six centimeters in thickness and consisting of xylolith, cement, or concrete upon a surface *m*, Fig. 2, corresponding in size to the dimensions of the plate to be manufactured and laying thereon two rows running at right angles one to the other of iron bars *b* from three to fifteen millimeters thick at intervals of from about ten to thirty millimeters. In the panels formed by the intersecting bars are inserted blocks of artificial stone *c* of paral-

lelepiped (preferably cubical) form, which should be of small specific weight—such as scoria-stone, cork-stone, or the like—the base of these blocks being of such a size that there remains between each two adjacent stones *c* an interval of from two to four millimeters, Figs. 2 and 3. When these blocks *c* have been placed in position, the intervals between them are filled with concrete or other suitable mortar, the upper face of the blocks being also covered with a layer of mortar some three to six centimeters in thickness, in which, if desired, iron bars or wires *b* may be inserted in the same manner as in the lower layer *a*.

The plate shown in Fig. 4 is constructed in a similar manner to that shown in Figs. 1, 2, and 3; but after the upper layer *f* of mortar has been formed with wire insertion, if desired, a further layer of parallelepiped or cubical blocks *c* is formed with intervals between them, the joints filled with mortar, and the blocks covered with a layer *f* of mortar.

The operation of placing the stones in position should be carried out as rapidly as possible, so that the mortar poured into the intervals between them and covering them may form a good connection with that of the lower plate or layer.

Plates formed in this manner and intended more especially as roof or ceiling plates for temporary buildings are bad conductors of heat, are absolutely sound-proof, and present great rigidity owing to the intersecting series of stays *d* formed by the mass of mortar between the stones *c*. The finished plates, Fig. 1, are arranged in such a manner that the iron bars or wires *b*, which are especially intended for the reception of the tension strains of the roof, are situated below, while the compression strains are taken by the upper layer *f* and the system of stays.

Obviously the thickness of the plates and particularly the height of the blocks *c* to be employed depend upon the width of span or size of the plate, and the various dimensions are governed by this consideration. It may be taken as a general rule that the total



thickness of the plate must equal approximately a twentieth or thirtieth of the span.

I claim—

5 A plate for roofs or ceilings consisting of a layer of mortar, wire stays laid thereon crossing each other, blocks of stone set upon the mortar layer between the wires leaving spaces between them, a mortar filling in said spaces

and a covering layer of mortar, substantially as described.

In testimony whereof I affix my signature. 10

JAN KULHANEK.

In presence of—

VICTOR SUMMERT,  
ARTHUR SCHURTZ.