

(No Model.)

C. A. BALPH & E. P. S. WRIGHT.
FIREPROOF CONSTRUCTION.

No. 573,127.

Patented Dec. 15, 1896.

Fig. 1.

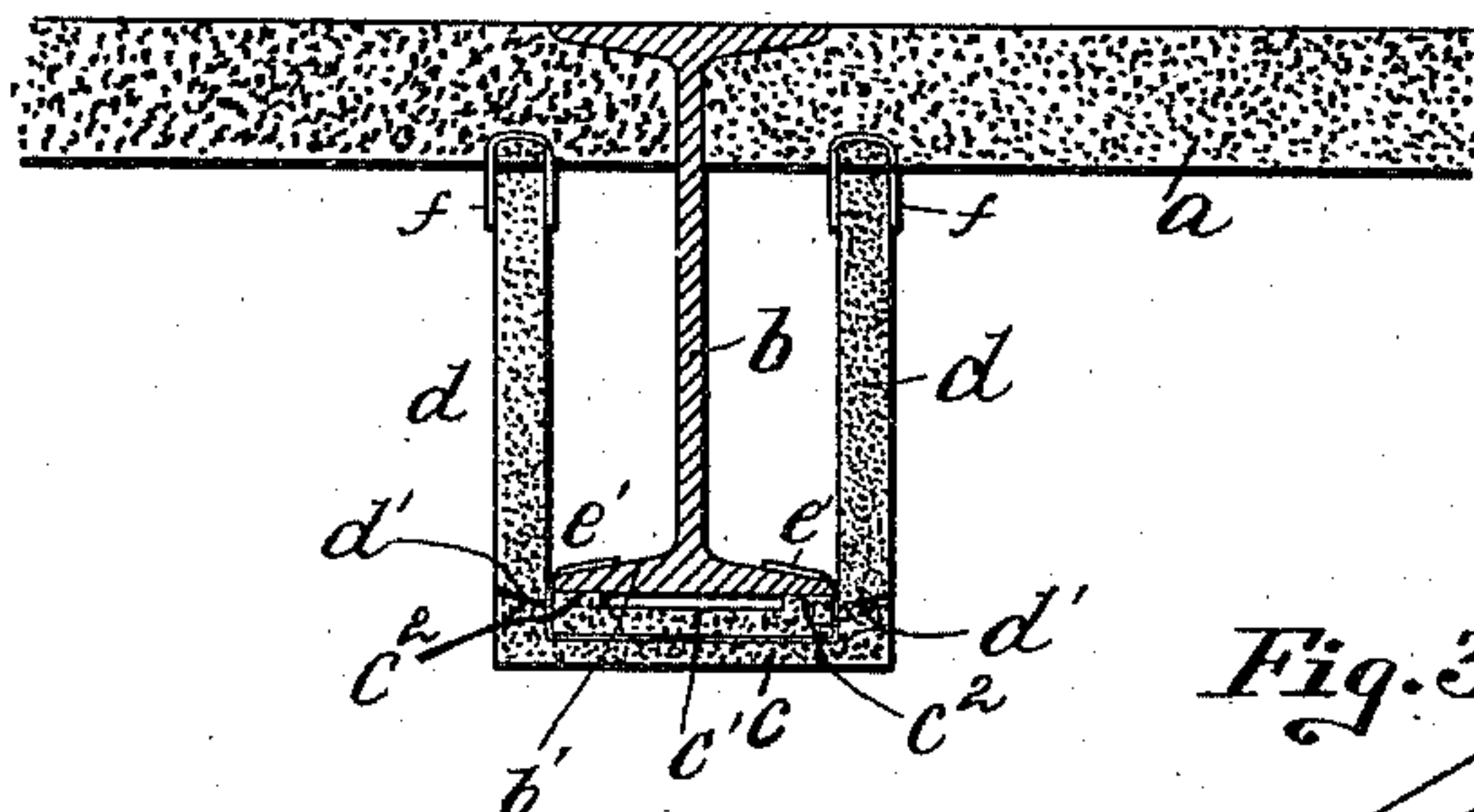


Fig. 3.

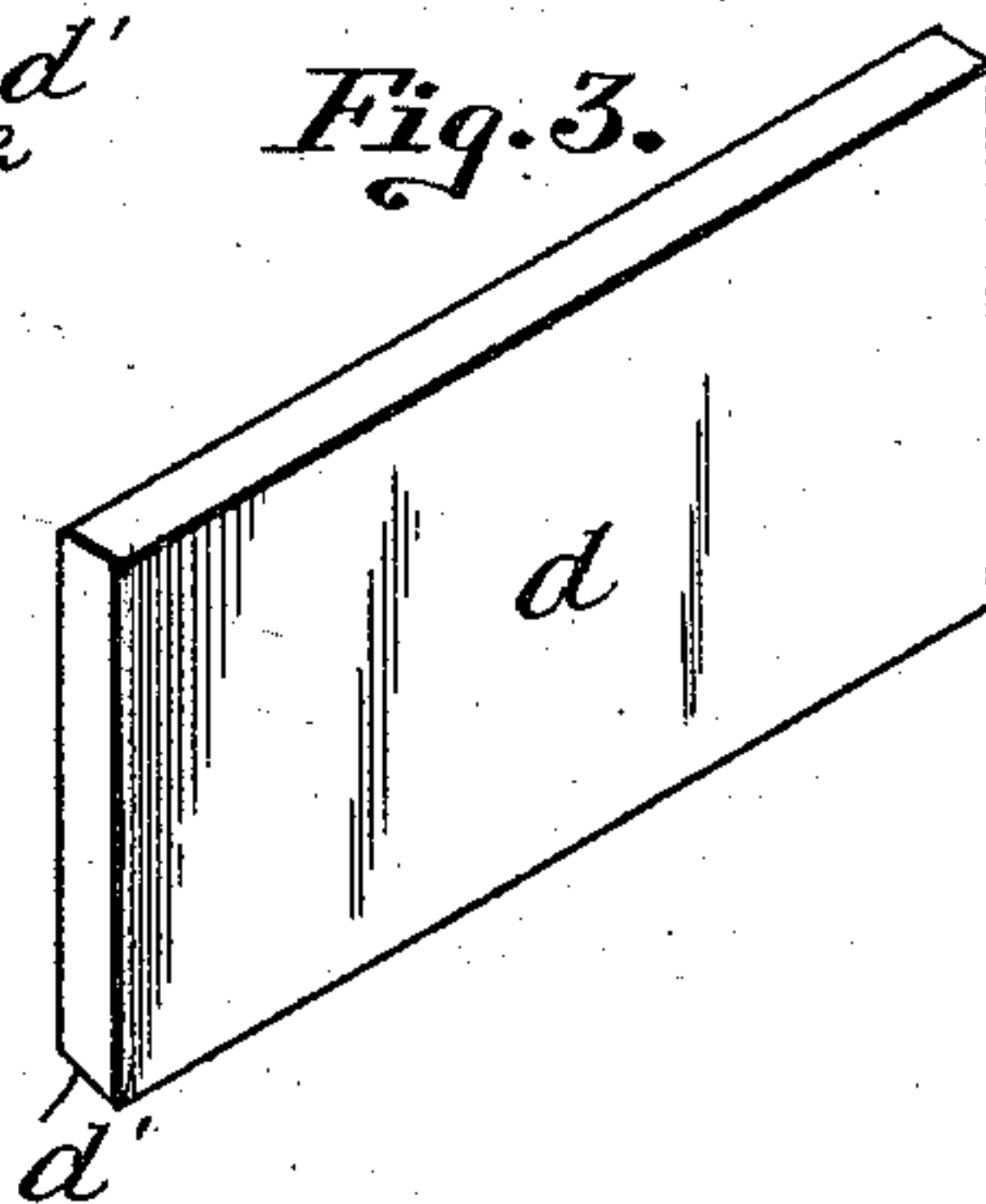


Fig. 2.

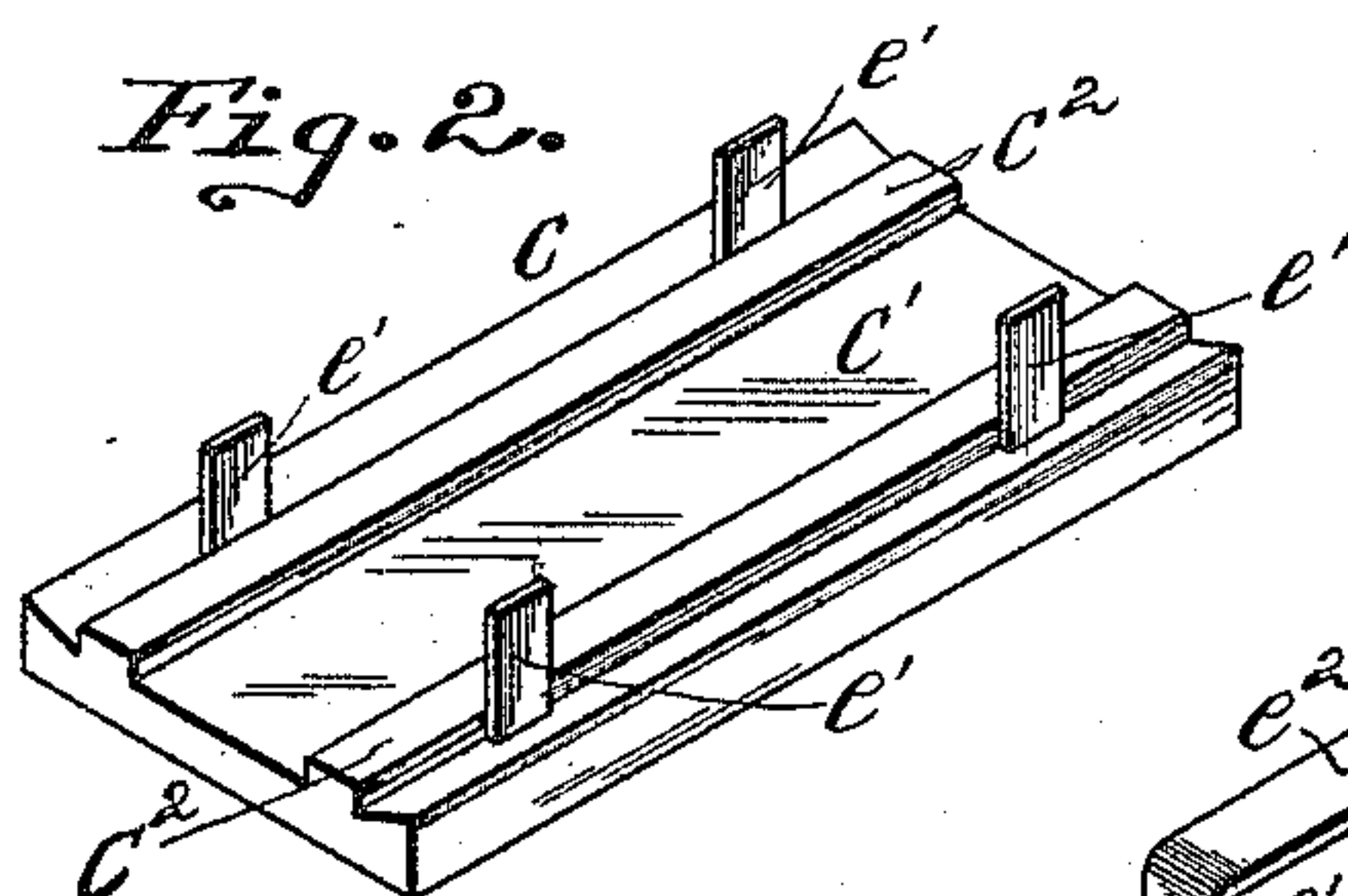


Fig. 9.

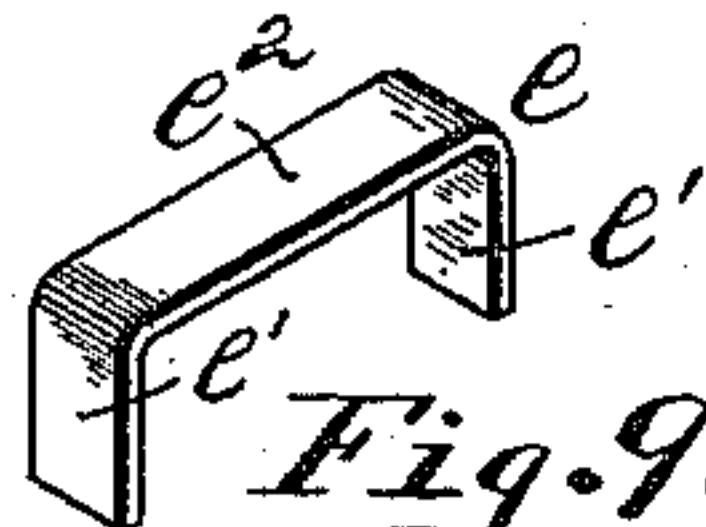


Fig. 4.

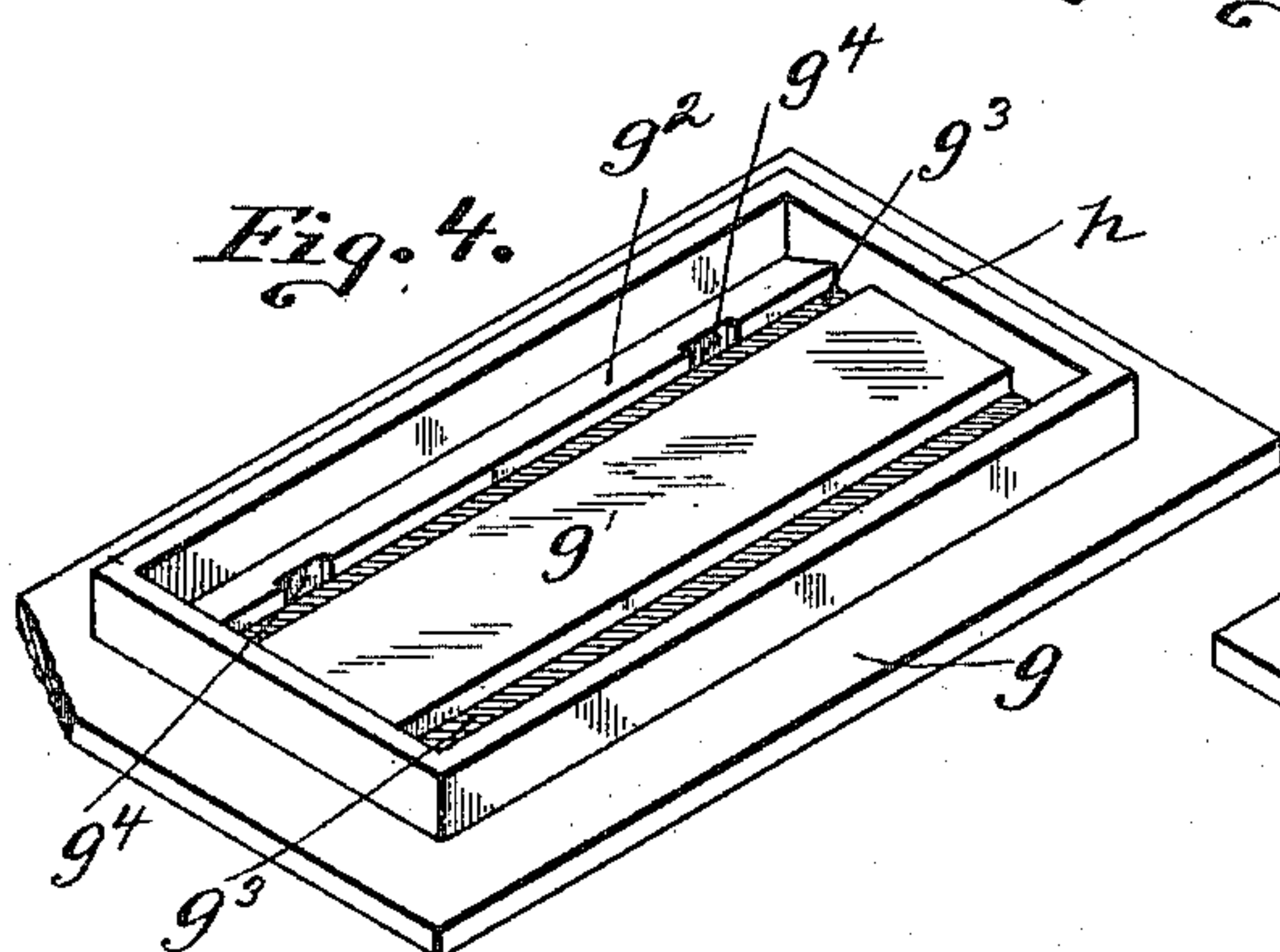


Fig. 5.

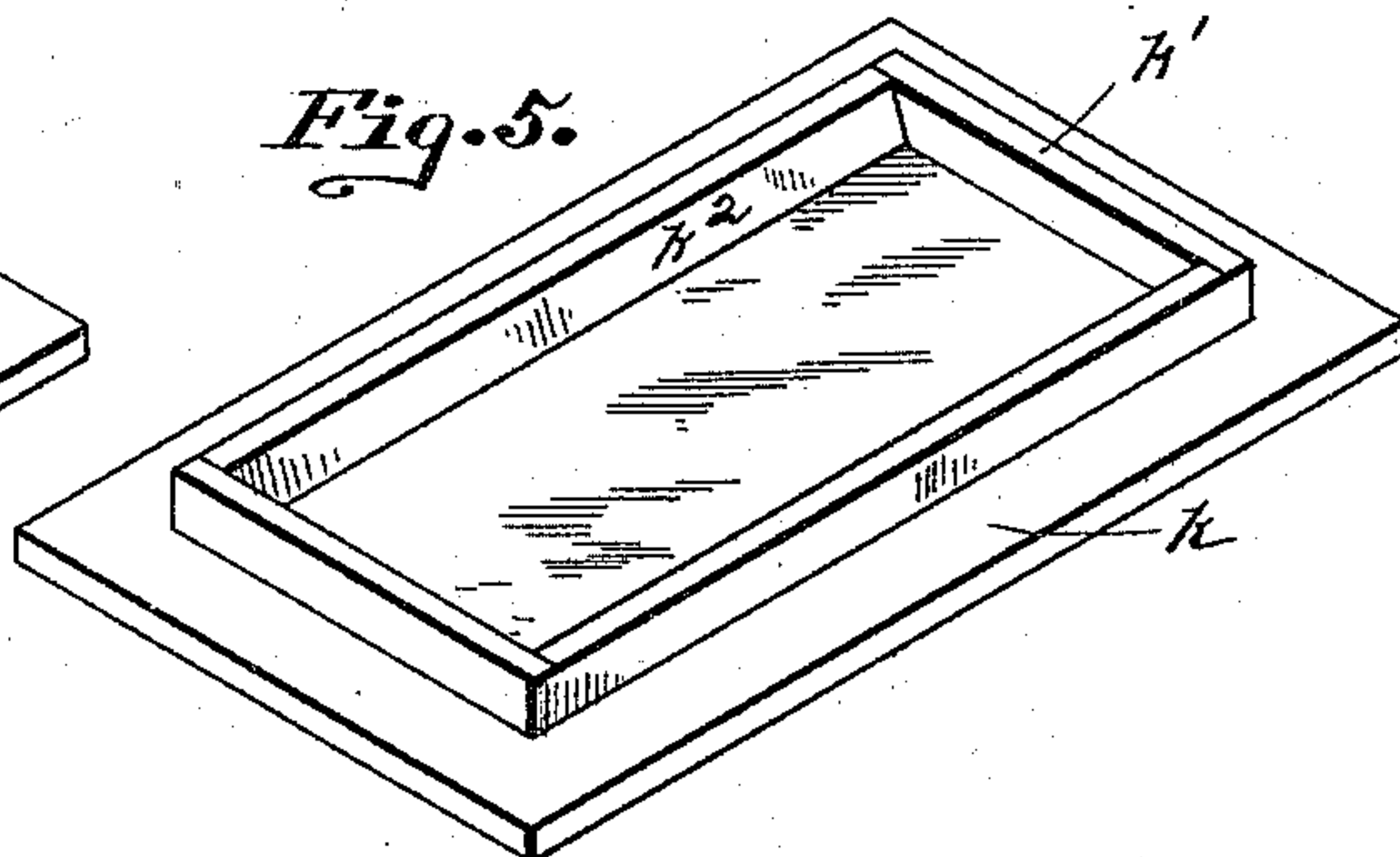


Fig. 6.

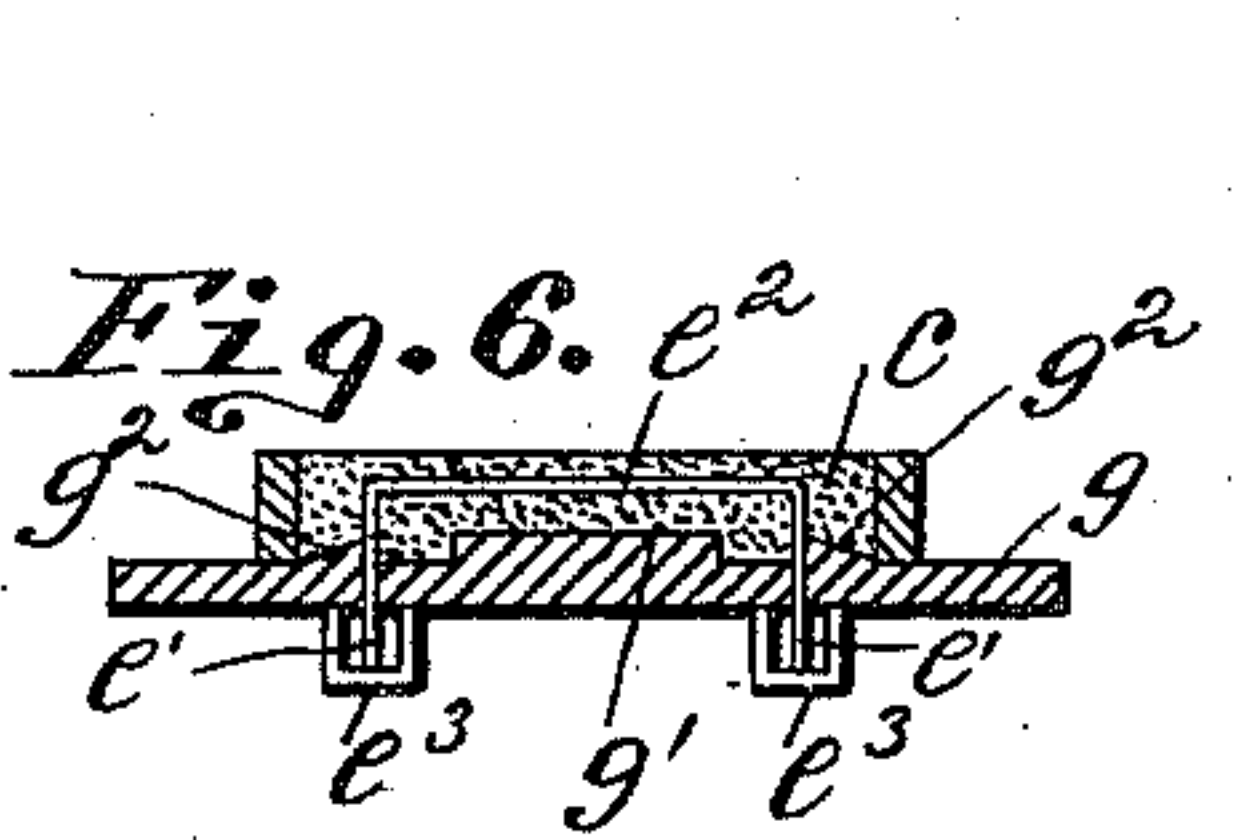


Fig. 10.

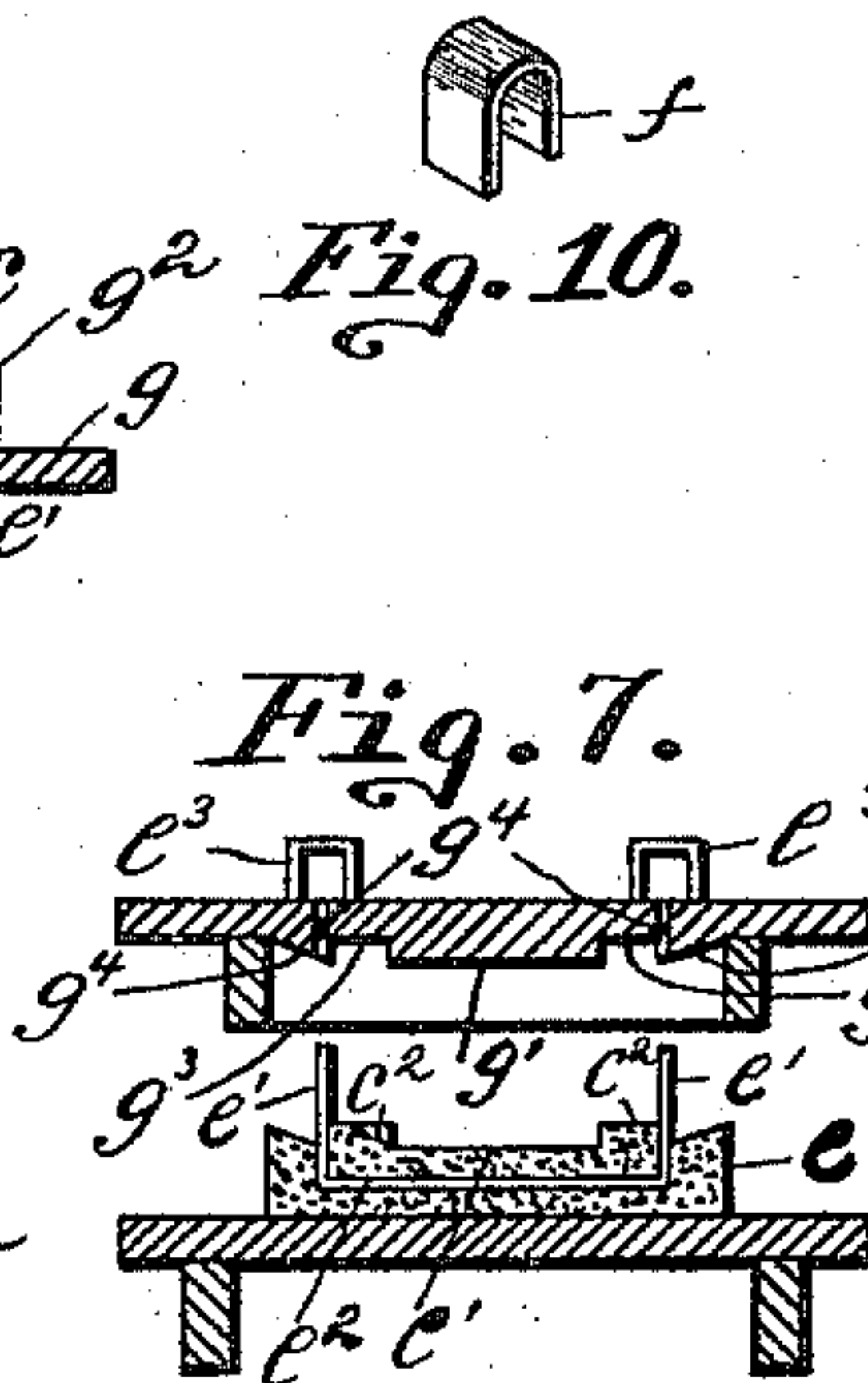
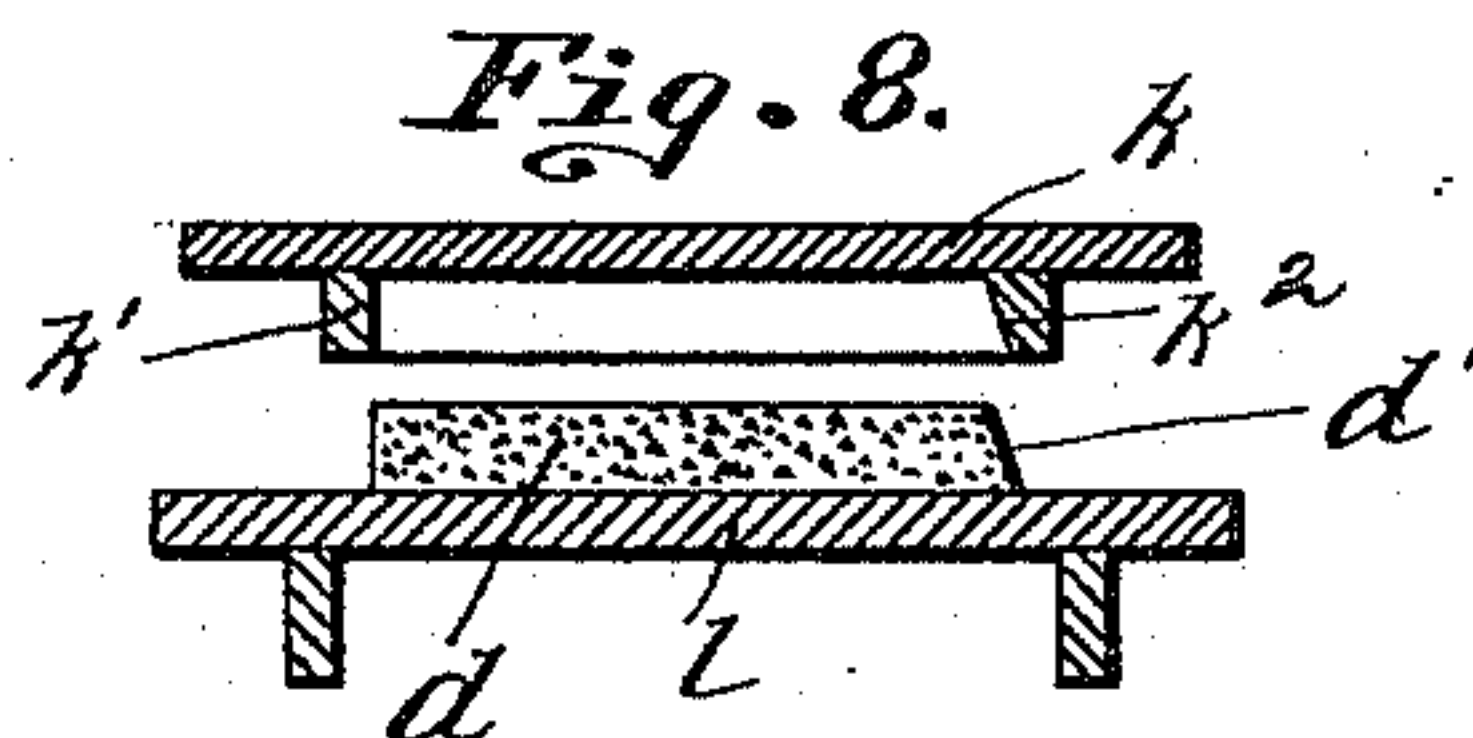


Fig. 8.



Witnesses:

Walter Jamariss
Robert C. Zotten

Inventor:

4 Charles A. Balph
and Elisha P. S. Wright
By Kay & Yarnall
Attorneys.

UNITED STATES PATENT OFFICE.

CHARLES A. BALPH, OF PITTSBURG, AND ELISHA P. S. WRIGHT, OF
AVALON, PENNSYLVANIA.

FIREPROOF CONSTRUCTION.

SPECIFICATION forming part of Letters Patent No. 573,127, dated December 15, 1896.

Application filed January 21, 1896. Serial No. 576,290. (No model.)

To all whom it may concern:

Be it known that we, CHARLES A. BALPH, a resident of Pittsburg, and ELISHA P. S. WRIGHT, a resident of Avalon, in the county of Allegheny, State of Pennsylvania, have invented a new and useful Improvement in Fireproof Construction; and we do hereby declare the following to be a full, clear, and exact description thereof.

Our invention relates to fireproof construction, and more particularly to the protection of beams or girders employed in the construction of buildings.

To enable those skilled in the art to make and use our invention, we will describe the same more fully, referring to the accompanying drawings, in which—

Figure 1 is a cross-section of a beam or girder with our invention applied thereto. Fig. 2 is a perspective view of the bottom tile. Fig. 3 is a like view of one of the side tiles. Fig. 4 is a view of the mold in which said bottom tile is formed. Fig. 5 is a view of the mold in which the side tiles are formed. Fig. 6 is a cross-section of the mold with the bottom tile therein. Fig. 7 is a view of mold inverted to expel the tile therefrom. Fig. 8 is a cross-section of the mold for forming side tile, showing tile expelled therefrom. Fig. 9 is a view of the clip to be embedded in the bottom tile, and Fig. 10 is a view of clip to be embedded in the floor.

Like letters indicate like parts in each of the figures.

In Fig. 1 of the drawings, *a* represents a floor of concrete or other suitable material, and said floor may be constructed in accordance with Letters Patent of the United States granted to us on the 9th day of October, 1895, No. 527,042. The beam or girder *b* is protected and inclosed by a fireproof box composed of the bottom tiles *c* and the side tiles *d*. The bottom tiles *c* have the clips *e* embedded therein, and the exposed ends *e'* of said clips are bent over the lower flange *b'* of the beam or girder *b* in such a manner as to support said bottom tiles in close contact with the lower face of the flange *b'*. The bottom tiles, however, have channels or grooves *c'* formed therein, which leave an

air-space between said tiles and the flange for the greater part of the width thereof. The strips *c²* on the upper faces of said bottom tiles *c* bear against the lower face of the flange *b*. At the outer edges of the tiles *c* are the dovetailed seats within which fit the beveled edges *d'* of the side tiles *d*. The upper edges of these side tiles *d* fit within the depending clips *f* embedded in the floor *a*.

If desired, the upper edges of said tiles may rest in recesses formed in the floor itself. By this construction the side tiles *d* are held securely in place and with the bottom tiles *c* form a complete casing of fireproof material around the exposed part of the beam. By the employment of the bottom tile fitting and supported against the base of the beam and the two side tiles supported between the bottom tile and ceiling and leaving a confined air-space between the side tiles and web of the beam the beam is perfectly protected against the heat of any fire within the apartment because of this dead-air space, and, further, because the side tiles not being in contact with the web will not conduct the heat thereto. The longitudinal groove or channel *c'* in the bottom tile also forms a dead-air space between the tile and base-flange of the beam, protecting it from the heat in like manner, while the pliable tongues are so embedded in the tile as to be protected from contact with any surrounding flame or heat striking against the tile.

We will now describe the manner in which we form the bottom tiles *c*. The mold in which said tiles are formed consists of the bottom board *g* and the frame *h*. The board *g* has the raised face *g'* thereon and the inclined faces *g²* with the grooves *g³* between. The board *g* has also the openings *g⁴*.

The frame *h* rests upon the pattern or former *g*, and within it is deposited the concrete which is to form the tile. Before introducing the concrete, however, we insert the clips *e* with their ends *e'* passing through the openings *g⁴* of the pattern *g*. The ends *e'* are allowed to rest on suitable supports *e³*, so that the cross-piece *e²* of said clip shall be supported above the bottom of the pattern *g*. We then apply to the inner faces of the mold

any suitable lubricating material, such as linseed-oil, soft soap, &c. The concrete is then introduced into the mold formed by the frame and pattern and rammed compactly therein and leveled off. When the concrete is packed, the pattern *g* and frame *h* are inverted onto any suitable flat support and the pattern and frame may then be removed without any difficulty, the lubricating material preventing the concrete from adhering to the mold. This leaves the clips embedded in the concrete tile. Heretofore it was necessary to allow the tiles to remain in their molds until thoroughly dried before they could be removed. This was due to the adhesion of the concrete to the walls of the mold. Such a manner of forming the tiles involved the use of a great many molds. By the use of the lubricant, however, such a multitude of molds is dispensed with, as the tiles can be freely dumped from the molds as soon as formed.

The side tiles are formed in the same manner as the bottom tiles. The mold consists of the bottom plate *k* and the frame *k'*, having the beveled face *k*². The mold is first coated with the lubricant, whereupon the concrete is rammed therein. The mold is then inverted and the tile is deposited in a plastic condition on the drying-board *l*.

What we claim as our invention, and desire to secure by Letters Patent, is—

1. A fireproof tile having a clip embedded therein, said clip having a horizontal portion

and a vertical pliable tongue projecting therefrom, substantially as set forth.

2. The combination of a beam or girder, a fireproof tile having pliable tongues projecting therefrom adapted to engage the flange of said beam, said tile having dovetailed seats, and side tiles having beveled edges adapted to engage said seats, substantially as set forth.

3. A fireproof tile having a U-shaped pliable clip embedded therein, substantially as set forth.

4. The combination of a beam or girder, supporting a concrete floor, a fireproof tile supported against the base thereof, side tiles resting on said tile, and clips embedded in said floor adapted to engage the upper edges of said side tiles, substantially as set forth.

5. In a mold for forming concrete tiles, the combination of a pattern-board having openings therein, supports in line with said openings beneath said pattern-board adapted to support the ends of a U-shaped clip, and a frame inclosing the space for the concrete, substantially as set forth.

In testimony whereof we, the said CHARLES A. BALPH and ELISHA P. S. WRIGHT, have hereunto set our hands.

CHARLES A. BALPH.
ELISHA P. S. WRIGHT.

Witnesses:

ROBT. D. TOTTEN,
ROBERT C. TOTTEN.