

(No Model.)

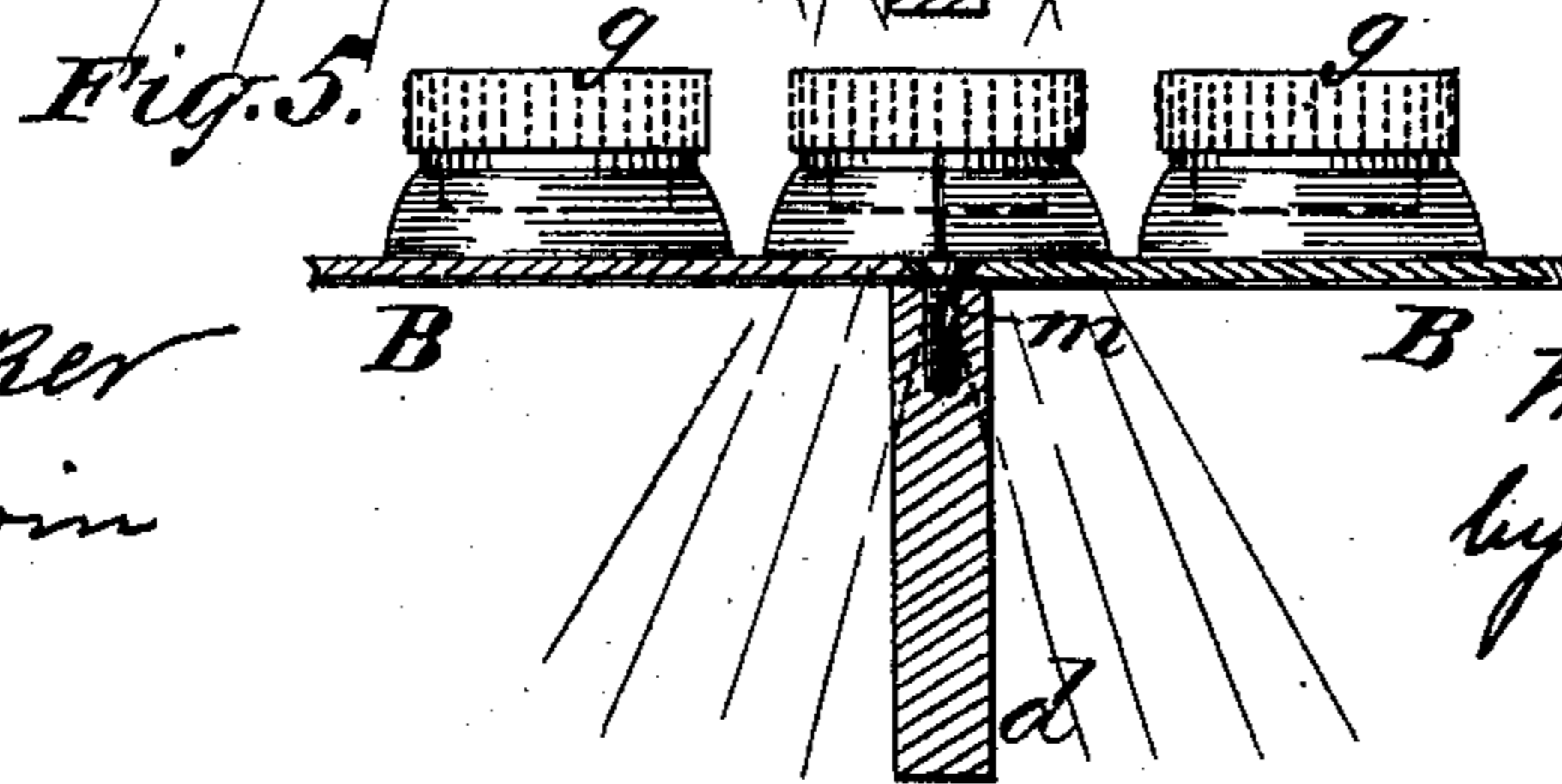
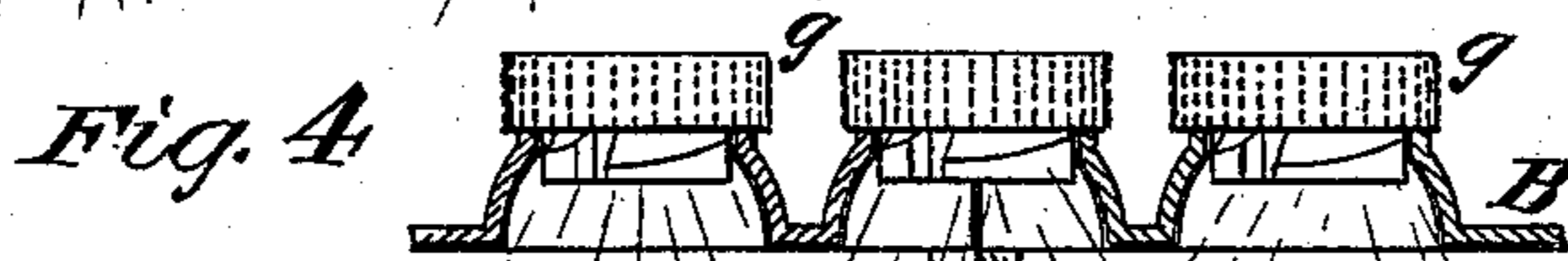
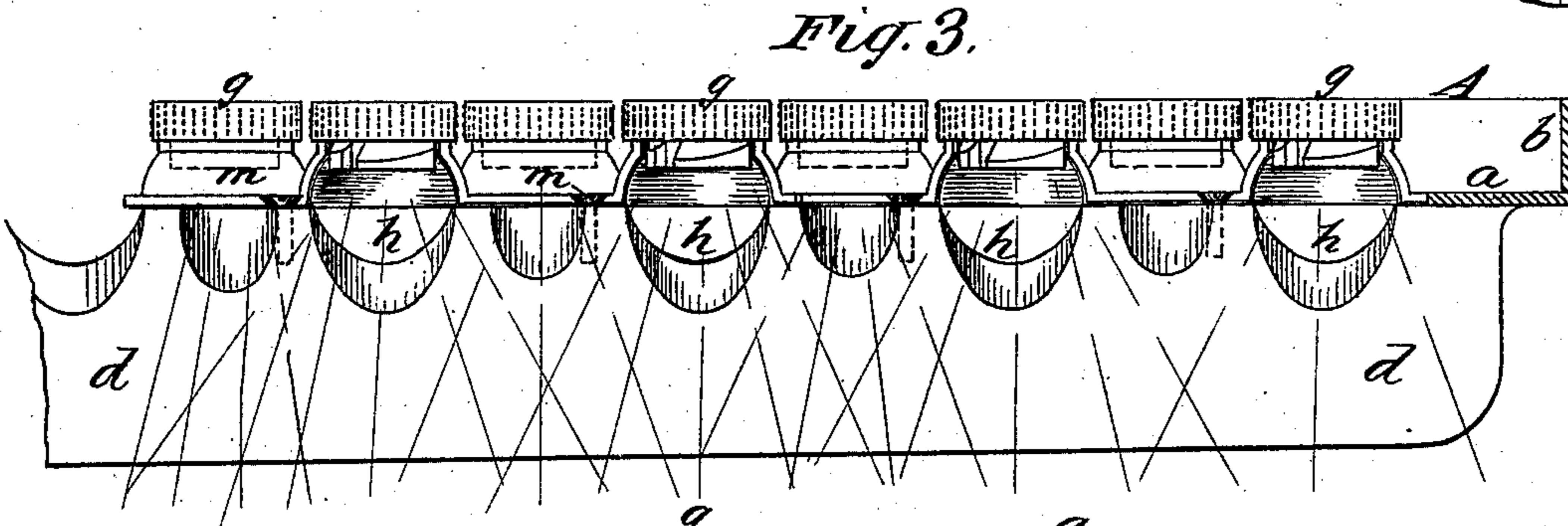
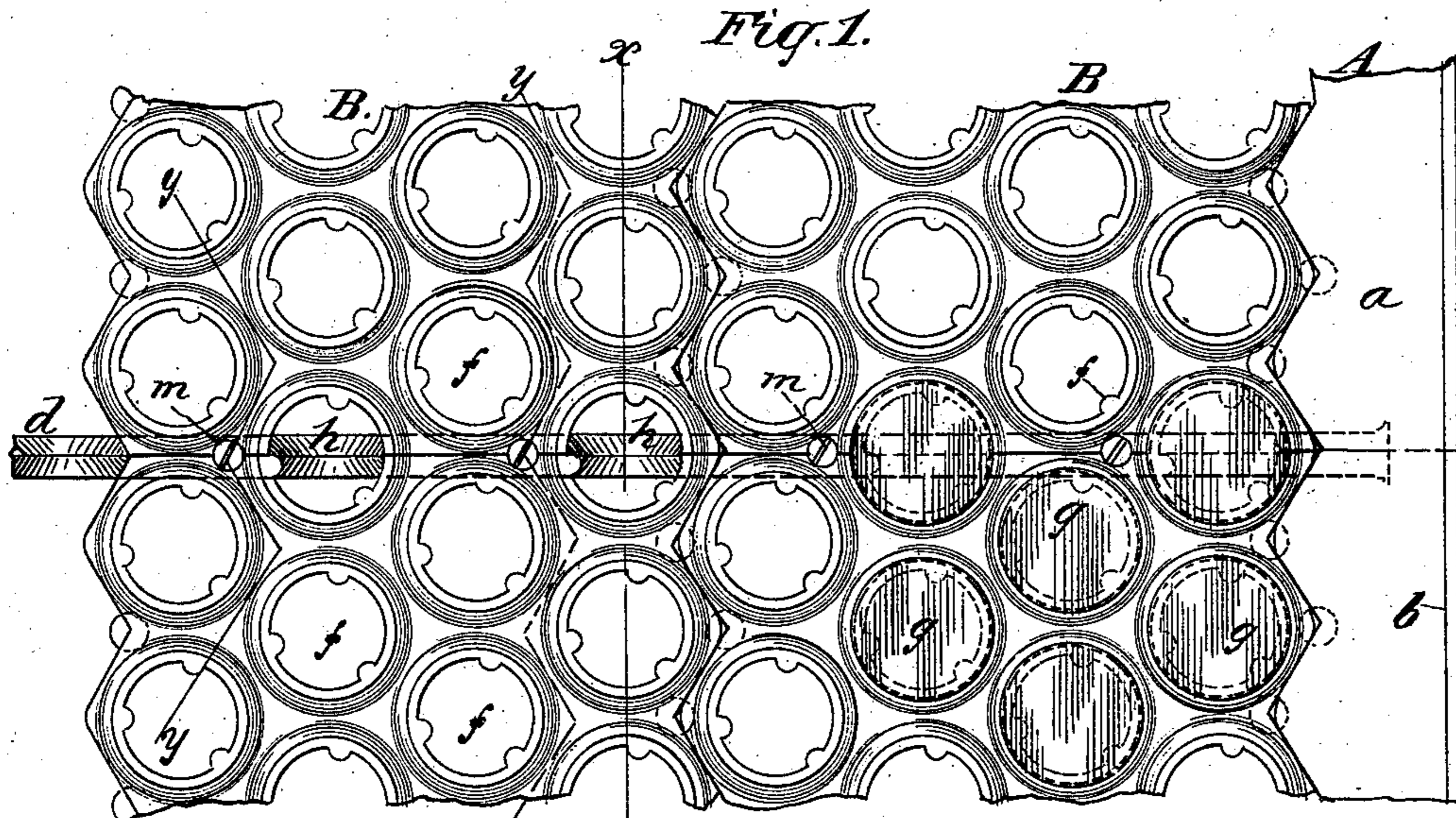
2 Sheets—Sheet 1.

T. HYATT.

VAULT COVERING, ILLUMINATING TILING, &c.

No. 365,306.

Patented June 21, 1887.



WITNESSES

John Becker  
Geo. E. Gavin

INVENTOR

Thaddeus Hyatt  
by Chas. M. Higgins,  
Attorney.

(No Model.)

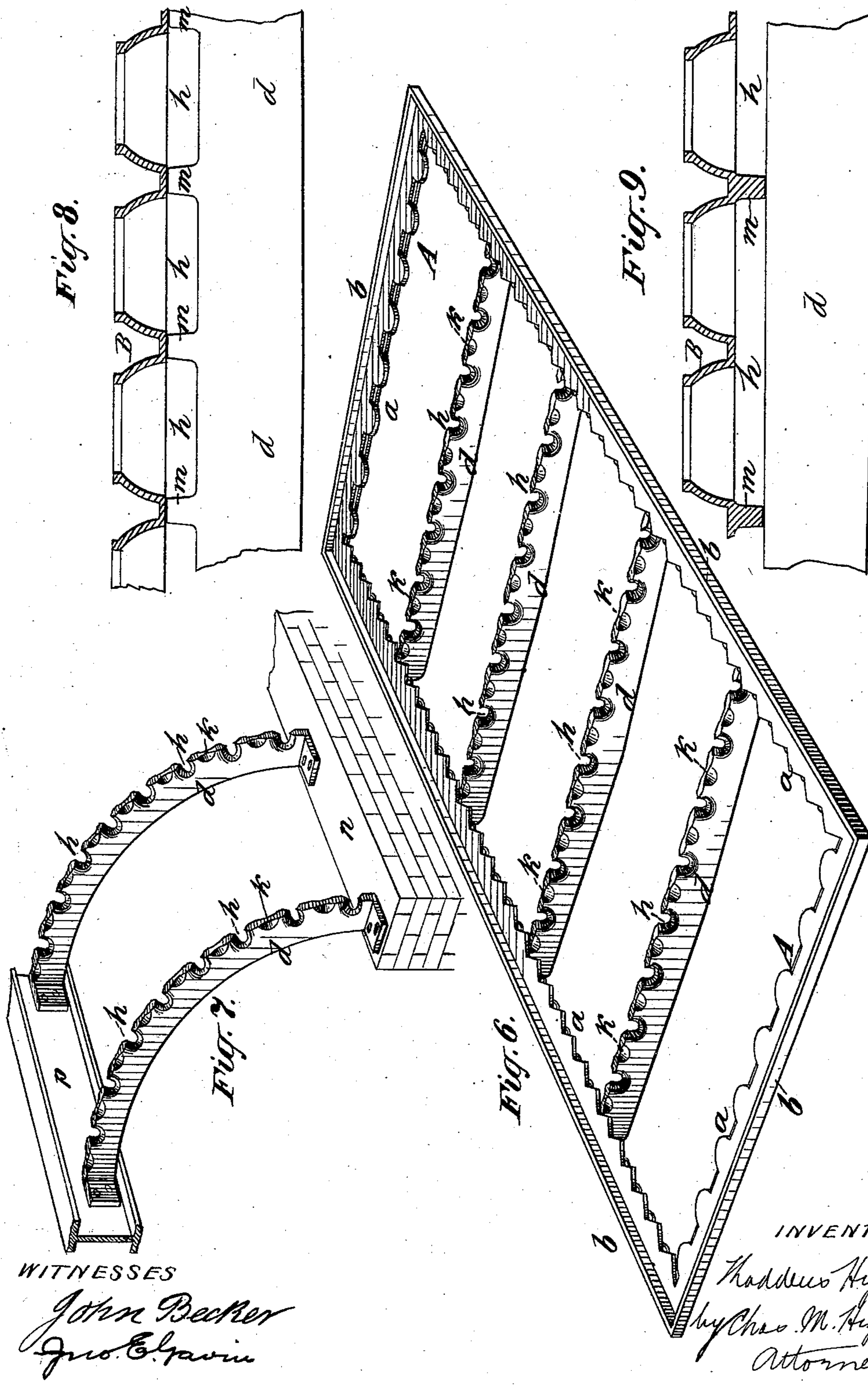
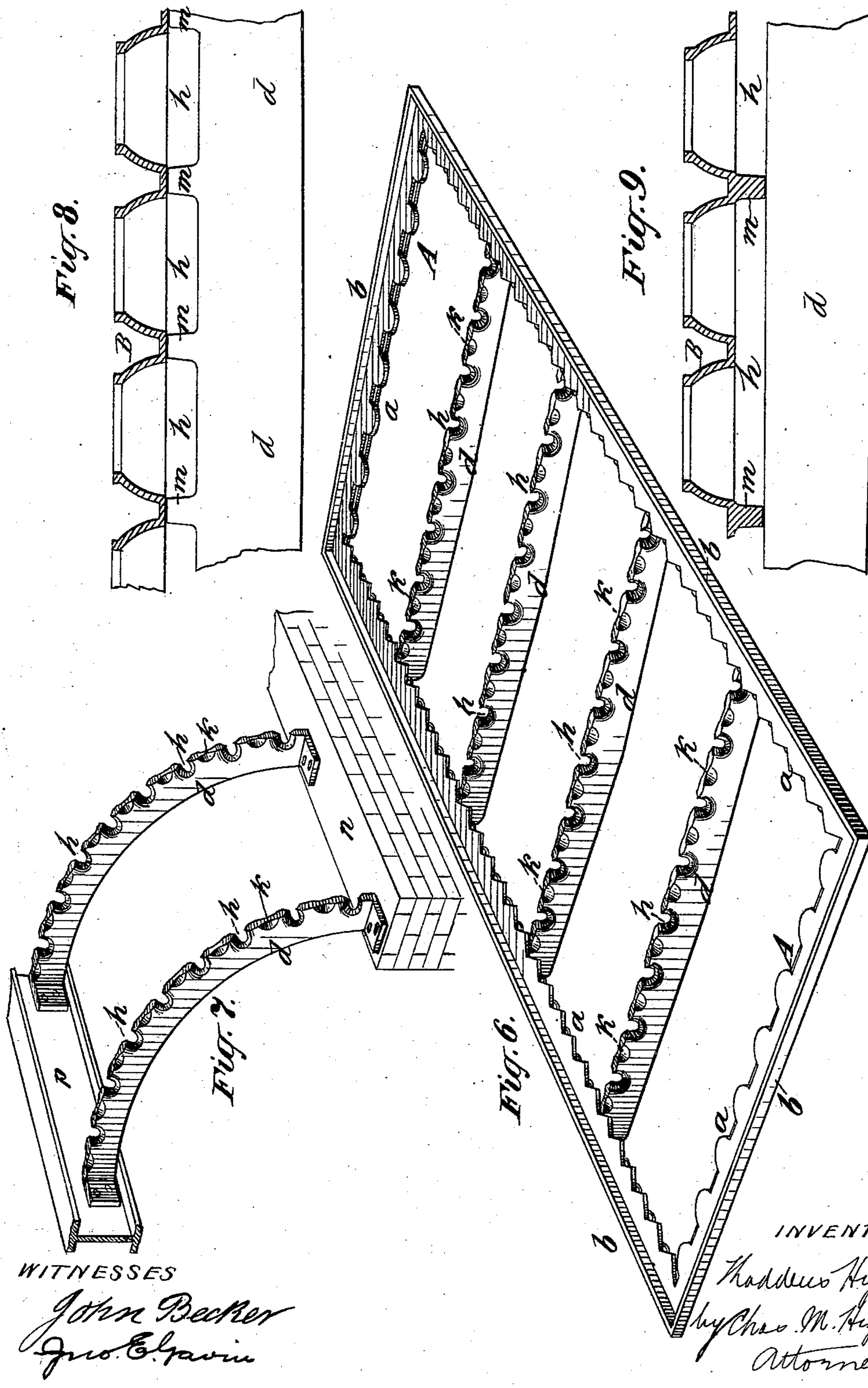
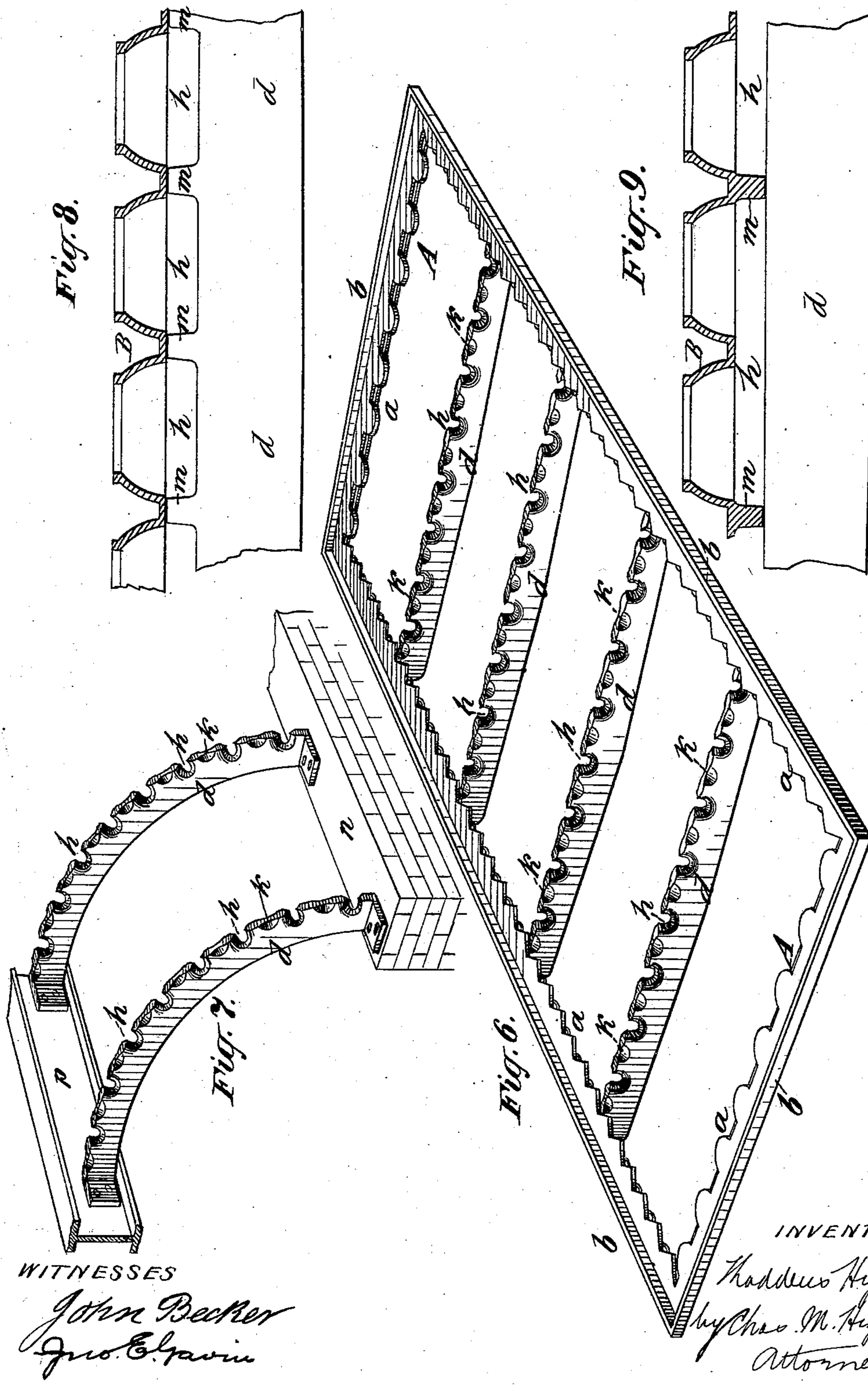
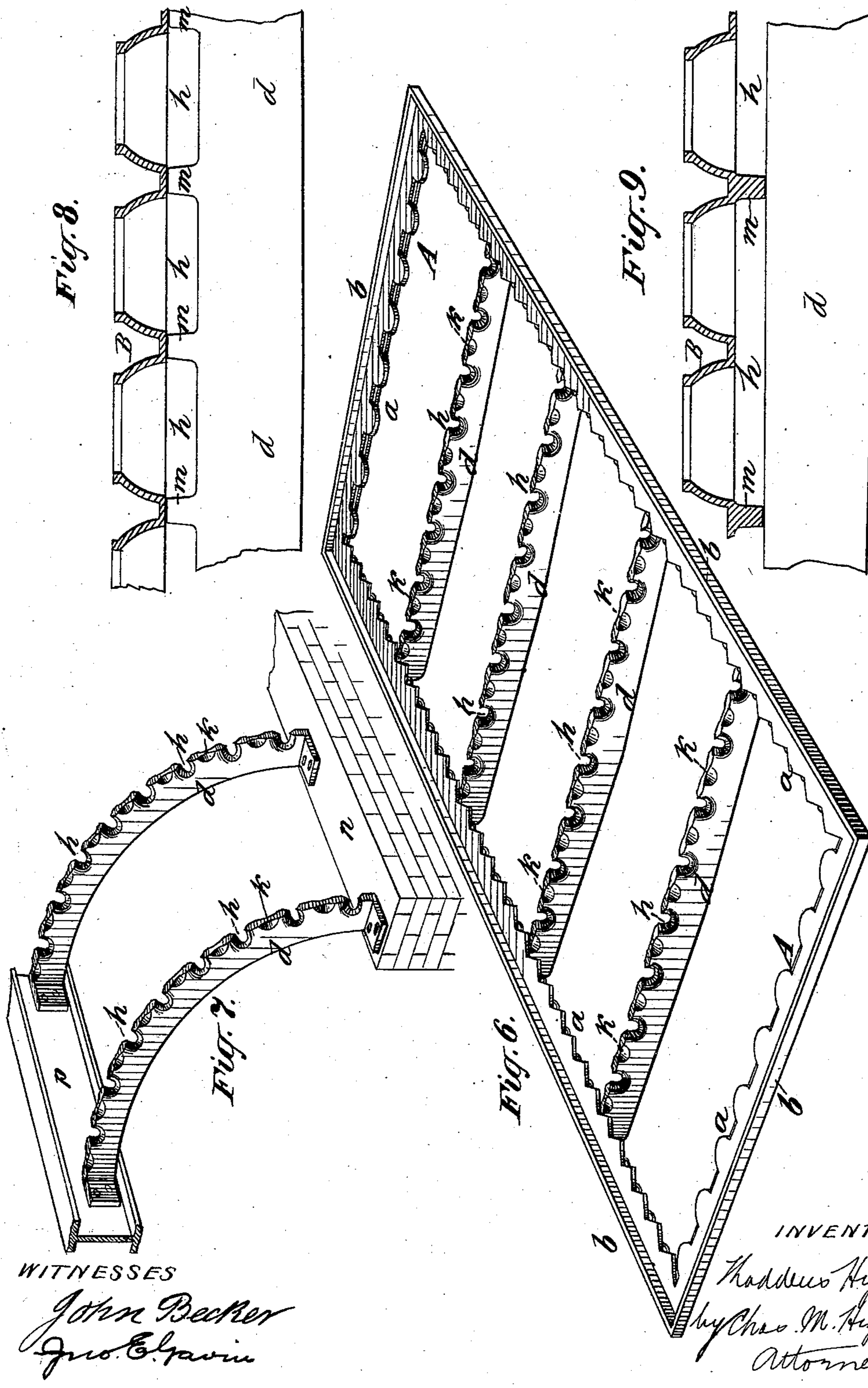
2 Sheets—Sheet 2.

T. HYATT.

VAULT COVERING, ILLUMINATING TILING, &c.

No. 365,306.

Patented June 21, 1887.



*WITNESSES*

John Becker  
Geo. Elvaine

Geo. E. Gavin

*INVENTOR*

Thaddeus Hyatt

by Chas. M. Higgins  
Attorney.

Attorney

# UNITED STATES PATENT OFFICE.

THADDEUS HYATT, OF BROOKLYN, NEW YORK, ASSIGNOR TO THE THAD-  
DEUS HYATT IMPROVED ILLUMINATING TILE COMPANY.

## VAULT-COVERING, ILLUMINATING-TILING, &c.

SPECIFICATION forming part of Letters Patent No. 365,306, dated June 21, 1887.

Application filed September 21, 1886. Serial No. 214,199. (No model.)

*To all whom it may concern:*

Be it known that I, THADDEUS HYATT, of Brooklyn, Kings county, New York, have in-  
vented certain new and useful Improvements  
5 in Vault-Coverings, Illuminating-Gratings,  
&c., of which the following is a specification.

My present improvement applies more es-  
pecially to portions of the supporting frame-  
work which upholds the illuminating-gratings,  
10 and more particularly to the cross-bars or  
rafters which underlie the gratings, and which  
cross or span the spaces covered by the grat-  
ings. These cross-bars or rafters are gener-  
ally made solid and either of uniform width  
15 throughout their length or "fish-bellied," and  
where they underlie and support the gratings  
the gratings are either made imperforate with  
a dead or solid strip or border which admits  
no light, or, if a row of light-holes occurs on  
20 the line of the bar, they are obscured by the  
bar and become useless as light-inlets, and are  
hence filled up with dead glasses or cement to  
cover and conceal the useless holes.

Now, the object of my invention is to make  
25 the light-holes continuous over the whole grat-  
ing, both over the bar as well as at the clear  
spaces or panels between the bars, and to obvi-  
ate dead lines or borders over the bars and  
enable lines of light-holes directly over the  
30 bars to act as effective light-inlets.

To these ends my invention consists, briefly,  
in forming the bars with gaps, notches, or  
openings directly under the light-holes, so as  
to admit the light through or across the edge  
35 of the bars without any serious obstruction,  
as hereinafter fully set forth.

In the drawings annexed, Figure 1 gives a  
fragmentary plan view of illuminating-grat-  
ings or tile-work supported on one of my re-  
cessed or notched cross-bars. Fig. 2 is a plan  
40 view of the cross-bar itself, and Fig. 3 is a lon-  
gitudinal section of Fig. 1. Fig. 4 is a cross-  
section on line *x x* of Fig. 1, and Fig. 5 is a  
cross-section on line *y y*. Fig. 6 is a perspec-  
45 tive view of a complete supporting-frame  
formed with the improved cross-bars. Fig.  
7 is a perspective view showing beams or  
rafters of curved form for supporting a curved  
rear extension-roof made according to my in-  
50 vention. Figs. 8 and 9 show modifications.

Referring first to Fig. 6, A indicates the  
supporting-frame for the grating or tile-work,  
which is usually made with the horizontal  
rim *a* and vertical lip or flange *b* to retain the  
layer of cement with which the grating is over-  
laid when the work is complete. This frame  
55 is divided, as usual with a number of panels, by  
the cross-bars *d d*, and the panels are filled by  
the gratings B B, as shown in Figs. 1, 3, and  
5, having openings *f*, in which glasses *g* are  
60 set, according to any of the usual systems in  
use.

In the drawings I show a novel form of grat-  
ings and glasses, which form the subjects of a  
separate application; but my present improve-  
65 ment is not, of course, confined to such special  
forms. I also contemplate that the gratings  
shall be concreted or overlaid with cement  
flush with the top of the glasses and the top of  
the lip *b* on the frame, in the form shown in  
70 the drawings; but my present invention is not  
confined to concreted gratings, and may be  
applied to any class of gratings set with glasses  
and having underlying supporting bars or  
rafters.

As shown in Figs. 1, 4, and 5, the gratings  
B, which fill and cover the panels in the frame,  
will meet and abut endwise on the cross-bars  
*d*, and the half light-holes in the abutting ends  
will meet together and form complete holes  
80 over the bars, as fully shown in Figs. 1 and 4.

It will be seen that the order and arrange-  
ment of the light-holes in the gratings is such  
that they have a regular succession or conti-  
nuity, both longitudinally of the bar and trans-  
85 versely of it, so that they are not spaced dif-  
ferently or omitted at the cross-bars, and  
hence the gratings have no dead-work lines or  
borders to overlie the bars, as has been com-  
mon heretofore. The light-holes having, there-  
90 fore, the regular and unbroken continuity  
shown, a line of light-holes will thus centrally  
overlie the line of the cross-bar, said holes be-  
ing that line of holes which are bisected by  
the line of junction of the plates or gratings  
95 on the cross-bars. Now, in order to make this  
line of light-holes effective as light-inlets, I  
form the cross-bar with deep curved gaps or  
notches *h h*, on its top edge, coincident with the  
overlying light-holes, said notches being pref-  
100

erably deeply beveled on each side of the bars, as seen in Figs. 3, 4, and 6, so that the rays of light are thus readily admitted from the glass over said bar in slanting lines on either side thereof, as indicated by the rays in Figs. 3, 4, and 5. This construction thus renders the line of light-holes over the cross-bars almost equally as efficient as any other line of holes, and at the same time preserves a uniform appearance all through the tile-work at the top or exterior of the same, and gives the effect of one continuous uniform panel or grating, which are very important advantages in illuminating tile-work. In addition to these advantages, it follows that, since my improved cross-bars do not materially obstruct the light, a greater number of cross-bars can be used than heretofore, thus imparting much greater strength and rigidity to the structure, and which is particularly desirable where concrete is used as an overlayer, whereas heretofore the bars have been as few as possible and placed as far apart as practicable, in order not to obstruct the light-holes, thus tending to weaken the structure.

By reference to Figs. 2, 3, and 6 it will be noted that the cross-bars are formed with a secondary series of smaller notches, or rather recesses,  $k$ , between the main notches  $h$ , which correspond to the lines of light-holes which are next adjacent to those which overlie the bars, as seen in Fig. 1, and which are formed where the circle of the light-hole cuts or runs tangent or secant to the bars, thus removing the metal of the bar slightly on each side, so as to give the adjacent lines of light-holes their full light-admitting value, as will be understood.

It will be seen on reference to Figs. 1 and 5 that the gratings which abut or junction on the cross bars are fastened thereto by countersunk-headed screws  $m$ , which are screwed into the cross-bar and the heads of which bear jointly on the abutting sections, which are formed with bisected screw-holes to receive said heads, as will be understood from Figs. 1 and 5, thus fastening both gratings to the bar by one line of screws. This feature I have, however, claimed in a separate application filed the same date as this.

It will be understood that the underlying notched bars  $d$  may be formed separately from any frame and may be suitably secured to the walls, girders, or other parts for supporting the gratings; but I generally prefer to form a continuous cast-iron frame having a series of the notched cross-bars formed integral therewith, as seen in Fig. 6.

The cross-bars may be formed separately in wrought or cast iron for rear extension-roofs, as shown in Fig. 7, in curved, arched, or other suitable forms, in which case one end will generally be supported on the back wall,  $n$ , while the other end is bolted to a girder,  $p$ , which rests at each end on the side walls of the building, as will be understood from Fig. 7.

Many other obvious forms and arrangements

of the improved cross-bars will readily suggest themselves, as they may be used in any situations where the common bars are now used, and in many other places where such bars would not be admissible, and I do not of course limit myself to any particular shape or situation of the bars.

It will be seen that the essential principle of my invention is to isolate the top edge of the supporting-bars from the under side of the gratings at points coincident with the overlying light-holes, so as to allow free inflow of the light slantingly over the edge of the bars, with points of support extending between the isolating spaces from the bars to the gratings, or vice versa; hence the bars may be made, as shown in Fig. 8, with small posts or feet  $m$  rising therefrom to support the gratings at points between the light-holes, and the isolating spaces or gaps  $h$  between the posts  $m$  will admit the light with the same effect as the notched bars shown in the other figures. To reverse this, the gratings may be formed with the feet or posts  $m$ , as shown in Fig. 9, extending from the under side at points between the light-holes, which feet will rest on the straight top edge of the bar, and be secured thereto, thus leaving isolating spaces  $h$  between the points of support under the light-holes with the same effect as in the other constructions.

What I claim is—

1. In illuminating tile-work, the combination, with an overlying metallic grating and glasses set in the openings thereof, of underlying supporting-bars, isolated at the top edge from the gratings at points beneath the light-holes and glasses, with points of support extending between the bar and gratings, and arranged between the isolating spaces, substantially as and for the purpose set forth.

2. In illuminating tile-work, supporting-bars underlying the gratings beneath lines of light-holes having gaps, notches, or openings coincident with said light-holes to admit the light from said holes without material obstruction, substantially as shown and described.

3. In illuminating tile-work, supporting-bars underlying the gratings beneath lines of light-holes having gaps or notches in its upper edge coincident with said light-holes, and beveled on the sides whereby the light is admitted freely in slanting lines across the edge of the bar and down its sides from said light-holes, substantially as shown and described.

4. In illuminating tile-work, the combination, with gratings having series of light-holes arranged in regular succession and uniform continuity, of a supporting bar or bars underlying the grating beneath one line of holes, having its edge formed with light-admitting gaps, openings, or notches coincident with said holes, substantially as set forth.

5. In illuminating tile-work, the combination, with sectional gratings adapted to junction end to end, and having half light-holes on said end which are completed when the sections are junctioned, of supporting-bars un-

derlying the junction-line of said sections, and secured thereto, and having its edge formed with light-admitting gaps, openings, or notches coincident with said bisected light-holes in the  
5 junctioned sections, substantially as herein shown and described.

6. In illuminating tile-work, the supporting cross - bars *d*, having the vertical gaps or notches *h*, and the intervening lateral recesses  
10 *k*, substantially as and for the purpose set forth.

7. In illuminating tile-work, a grating-supporting frame formed with cross-bars *d*, having light-admitting gaps, openings, or notches on their supporting edges, substantially as and 15 for the purpose set forth.

THADDEUS HYATT.

Witnesses:

JNO. E. GAVIN,

CHAS. M. HIGGINS.