(No Model.) 6 Sheets—Sheet 1.

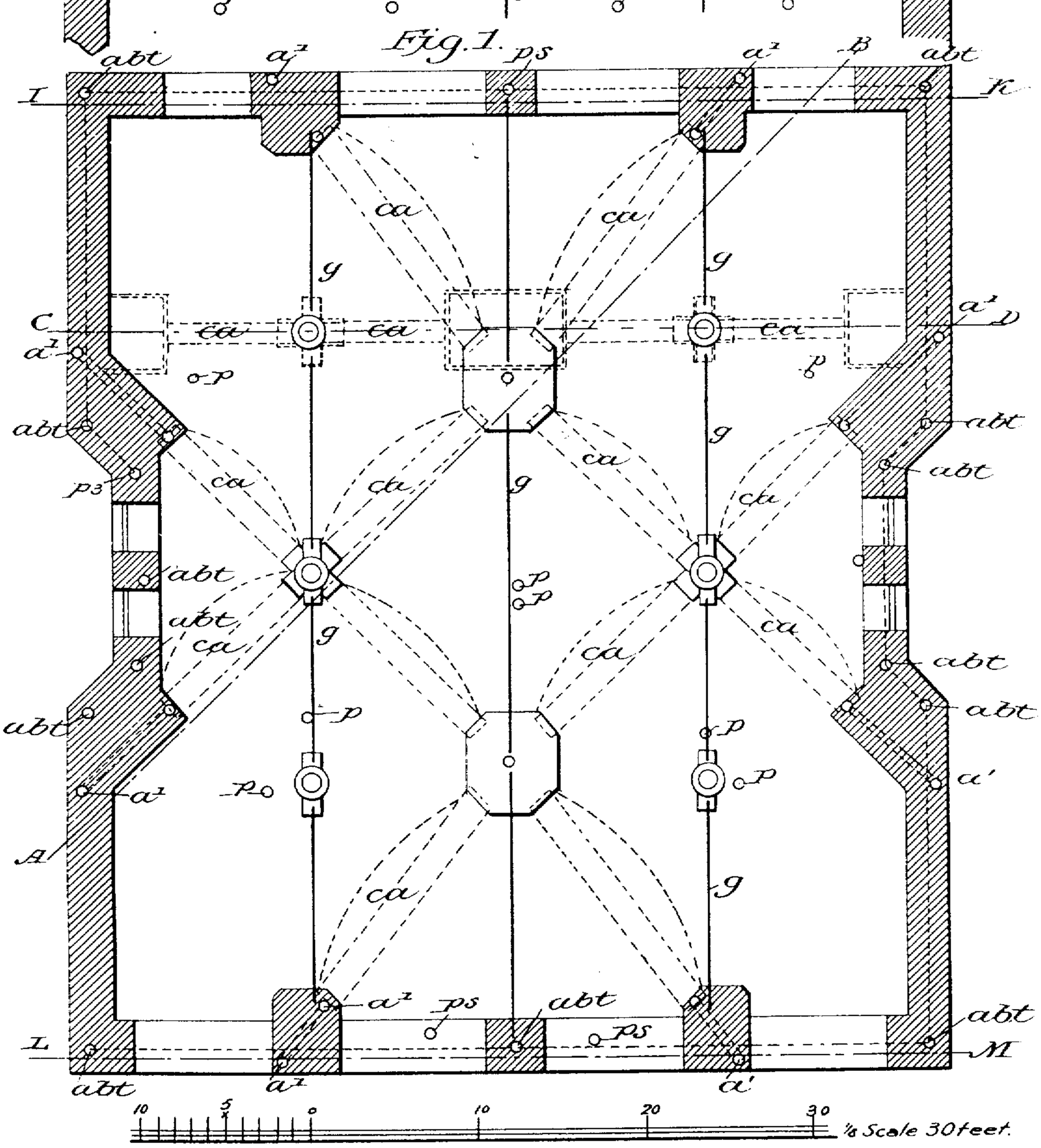
H. ZOGMANN.

BUILDING.

No. 475,842. Patented May 31, 1892.

Fig. 1a

Fig. 1.



Witnesses.
Maurice Pratt
Chas Winkelmann

Inventor.
Henry Zogmann

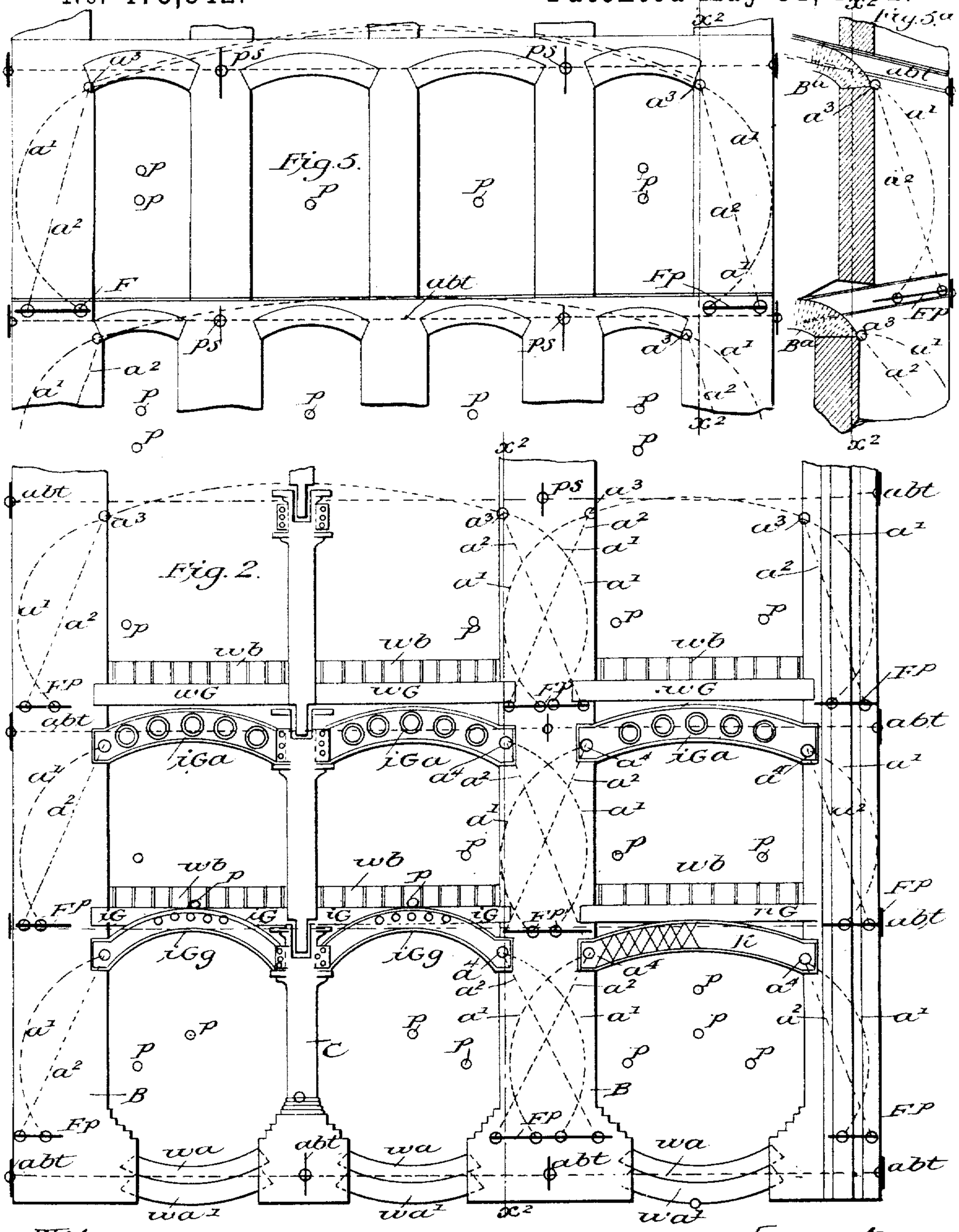
(No Model.)

6 Sheets—Sheet 2.

H. ZOGMANN.

BUILDING.

No. 475,842. Patented May 31, 1892.



Witnesses.

Moritz Natt

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6 Sheets—Sheet 3.

H. ZOGMANN.

BUILDING.

No. 475,842.

Patented May 31, 1892.

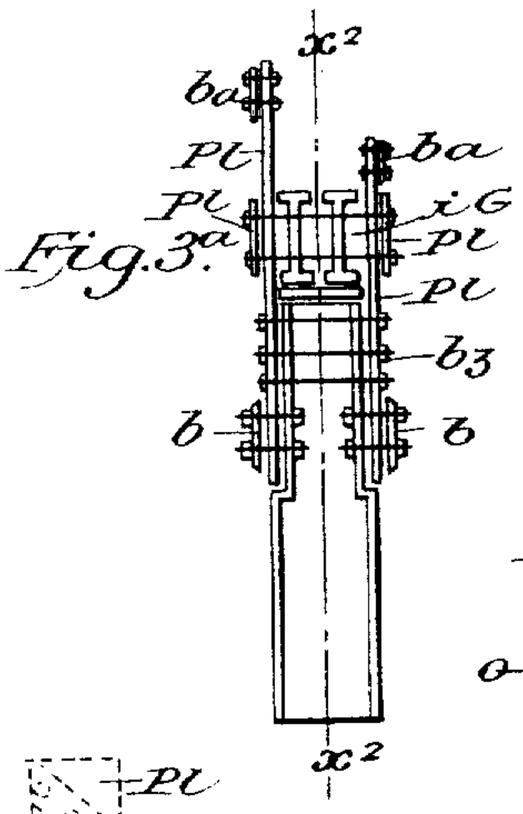

Fig. 3ª.

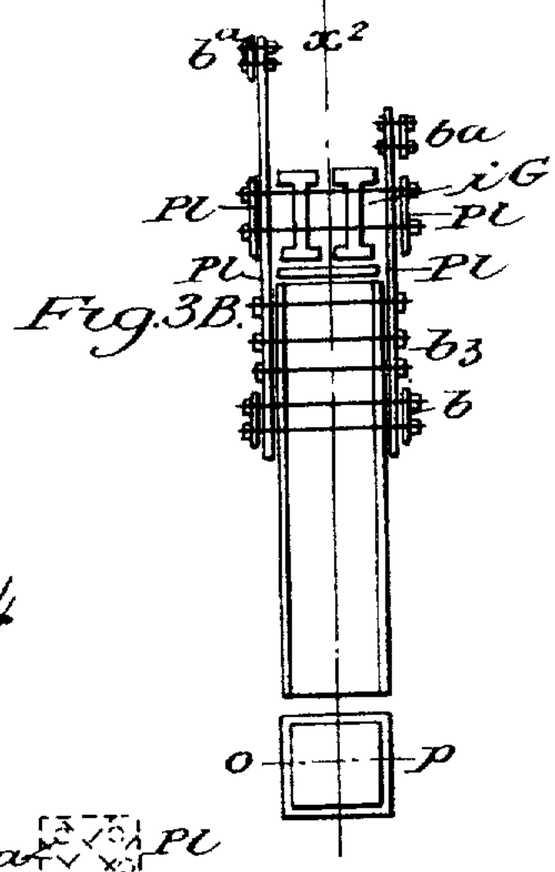

Fig. 3B.

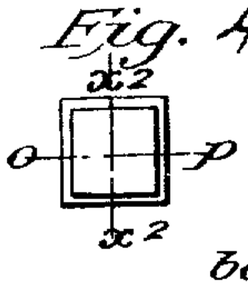

Fig. 4

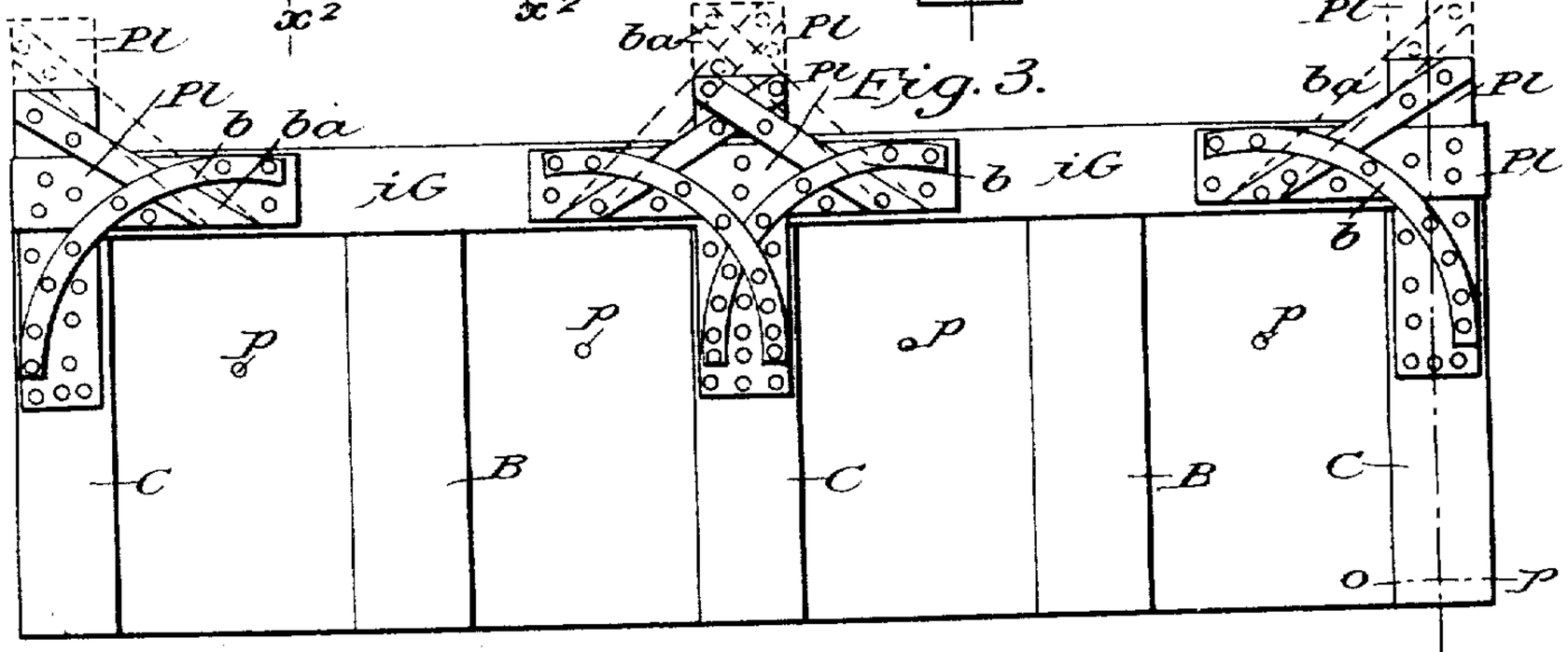

Fig. 3.

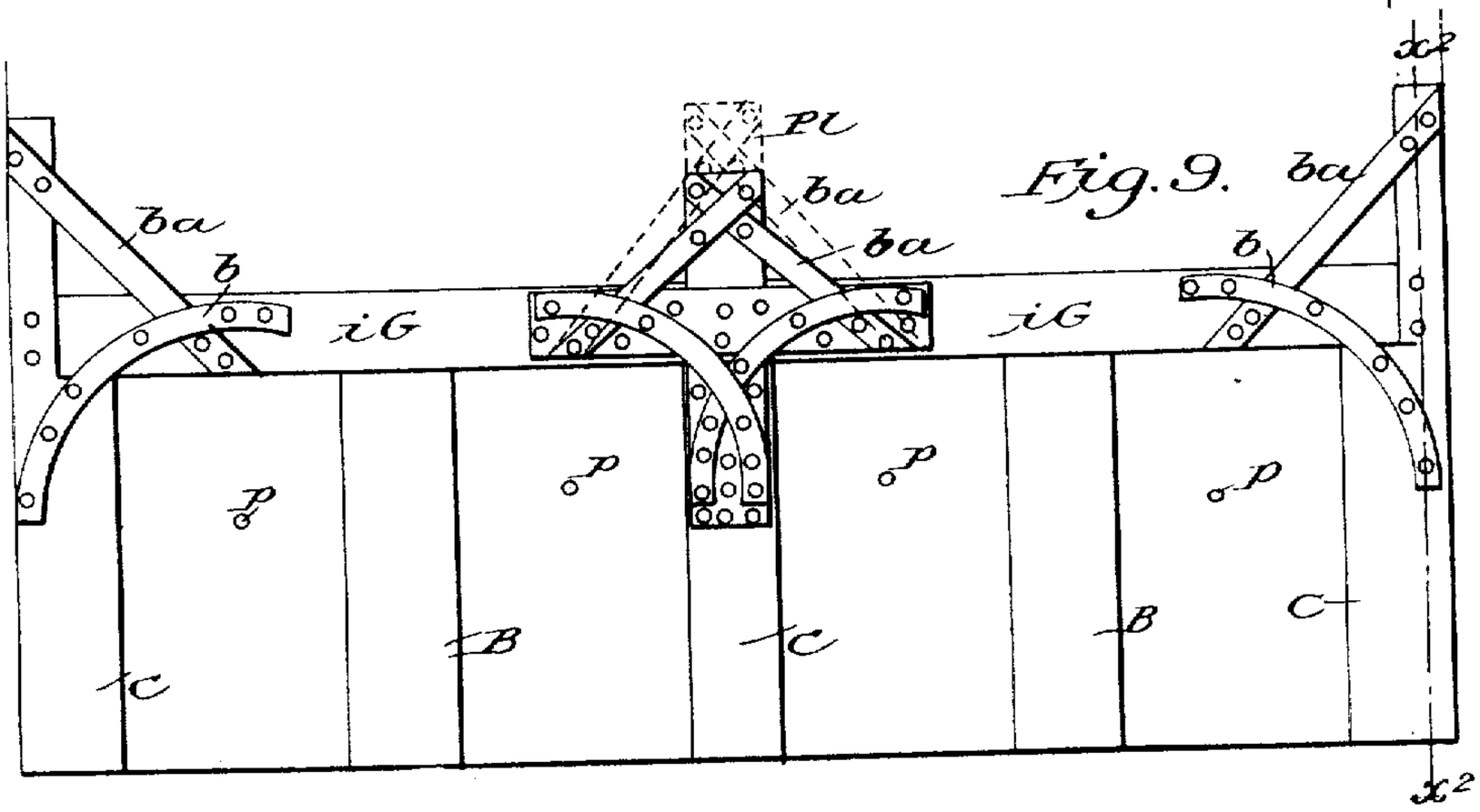

Fig. 9.

Witnesses:
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6 Sheets—Sheet 4.

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No. 475,842. Patented May 31, 1892.

Fig. 8.

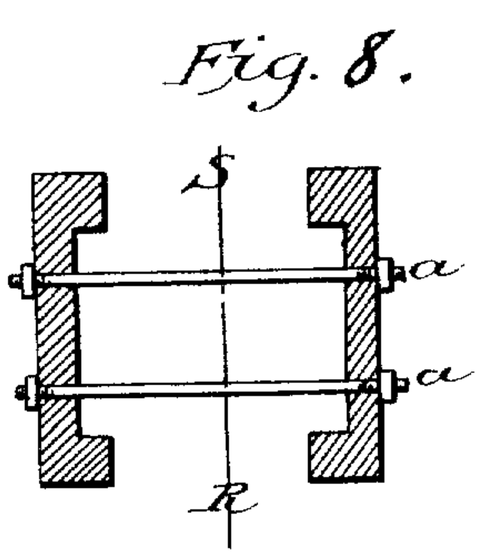


Fig. 7.

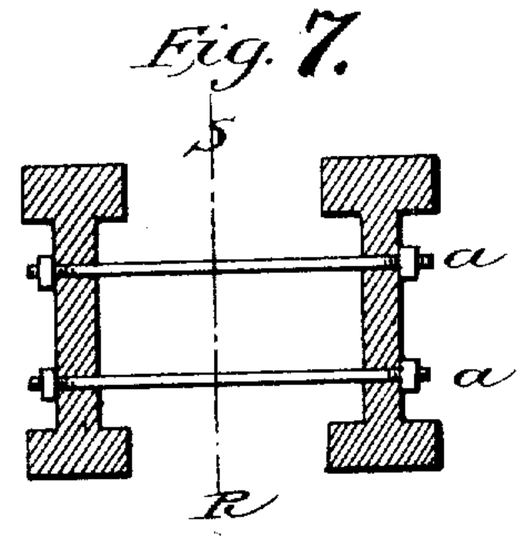


Fig. 2A

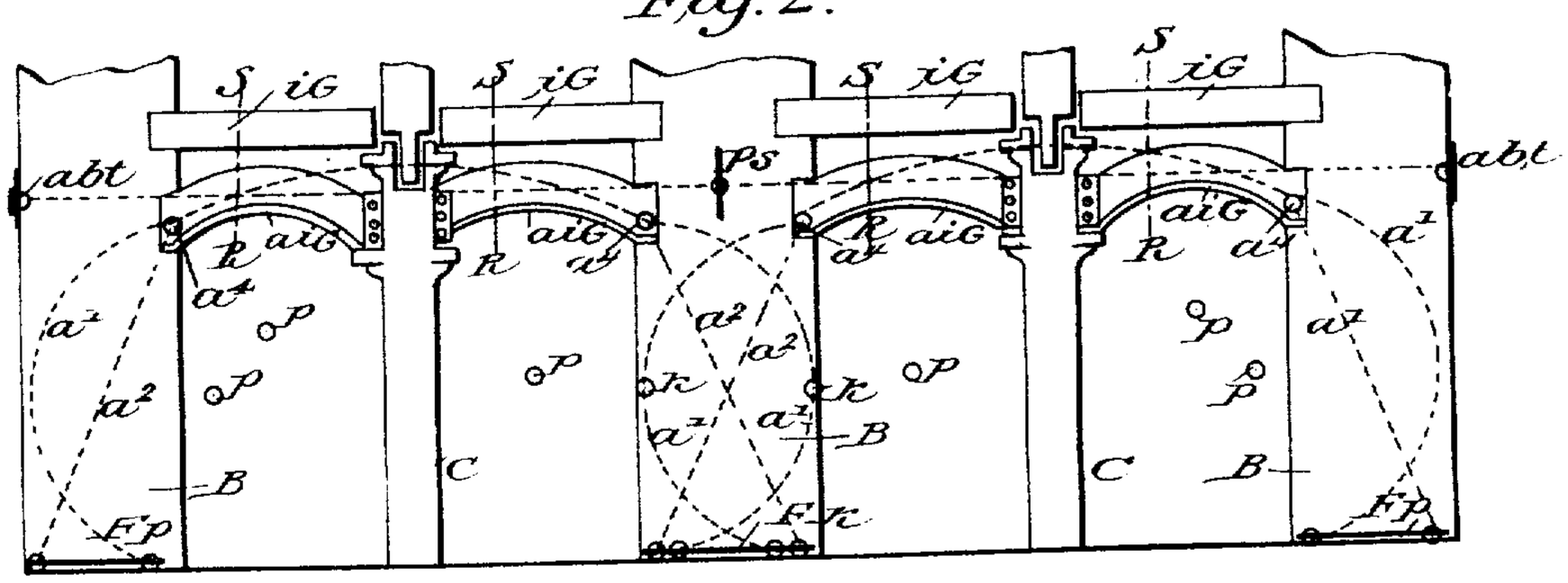
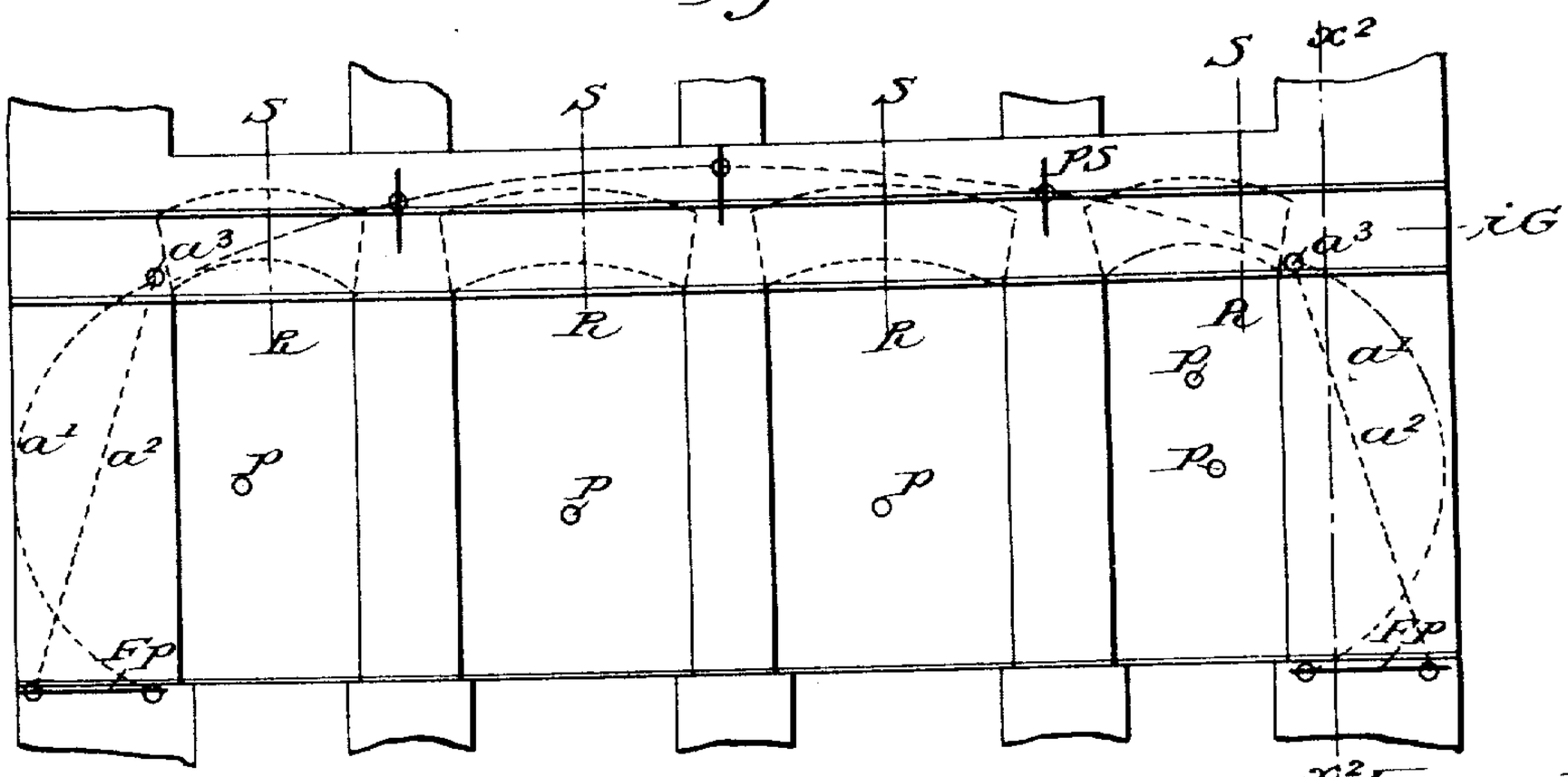


Fig. 6.



Witnesses:
Thurston Hutt
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Henry Zogmann

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6 Sheets—Sheet 5.

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BUILDING.

No. 475,842.

Patented May 31, 1892.

Fig. 12.

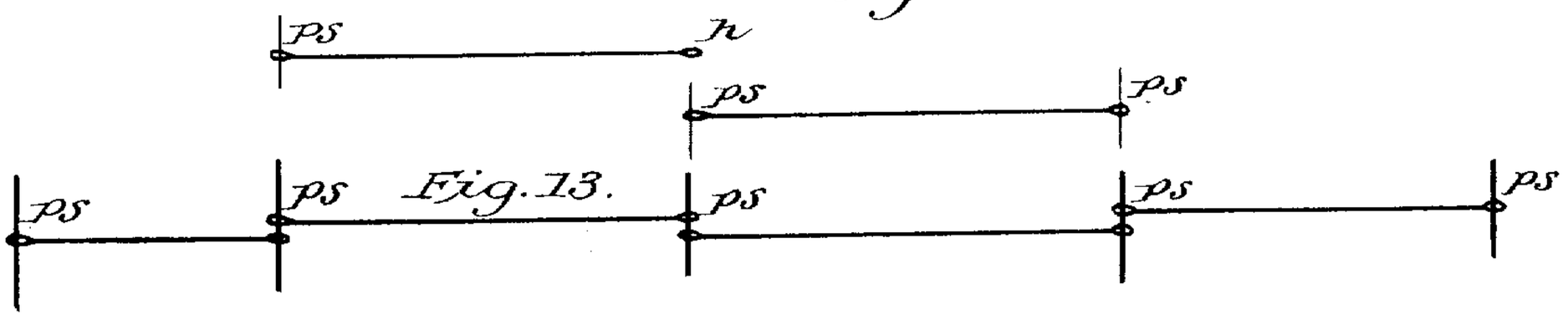

Fig. 13.

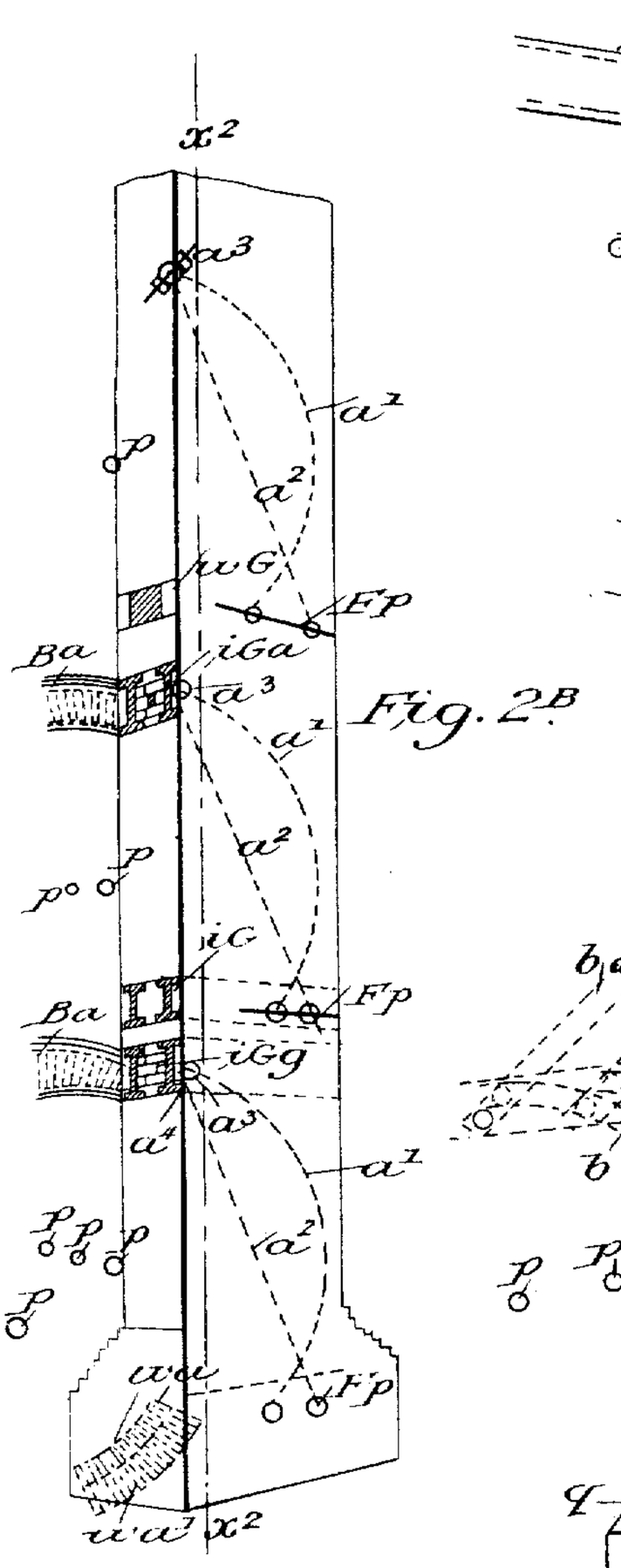

Fig. 2B.

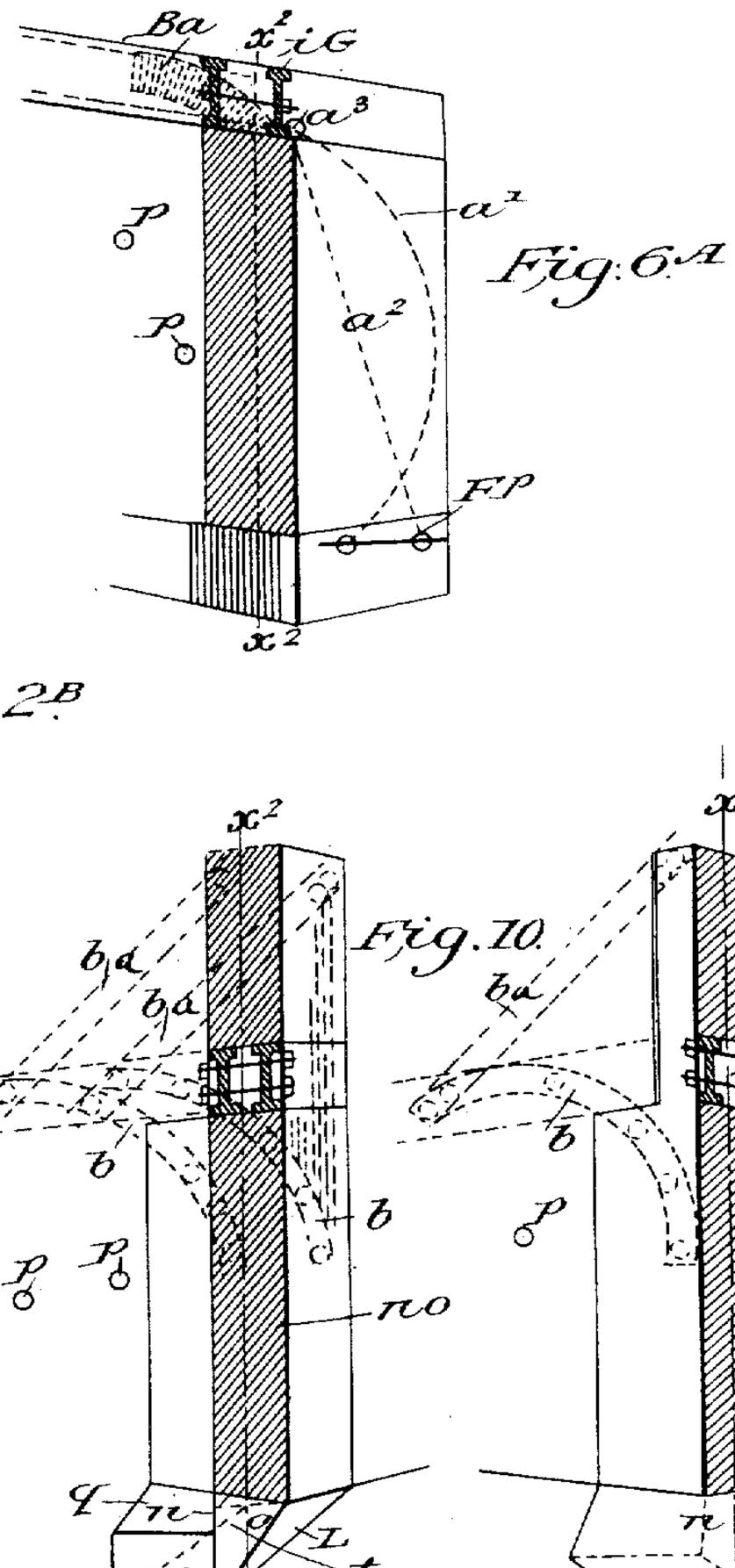

Fig. 6A.

Fig. 10.

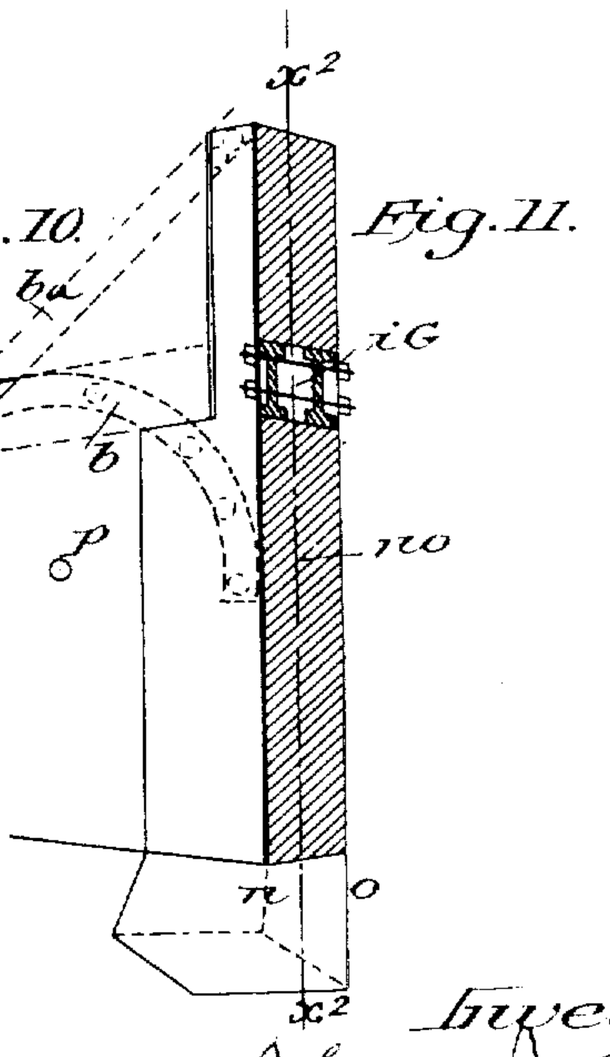

Fig. 11.

Witnesses.

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Inventor.

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6 Sheets—Sheet 6.

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BUILDING.

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Fig. 16.

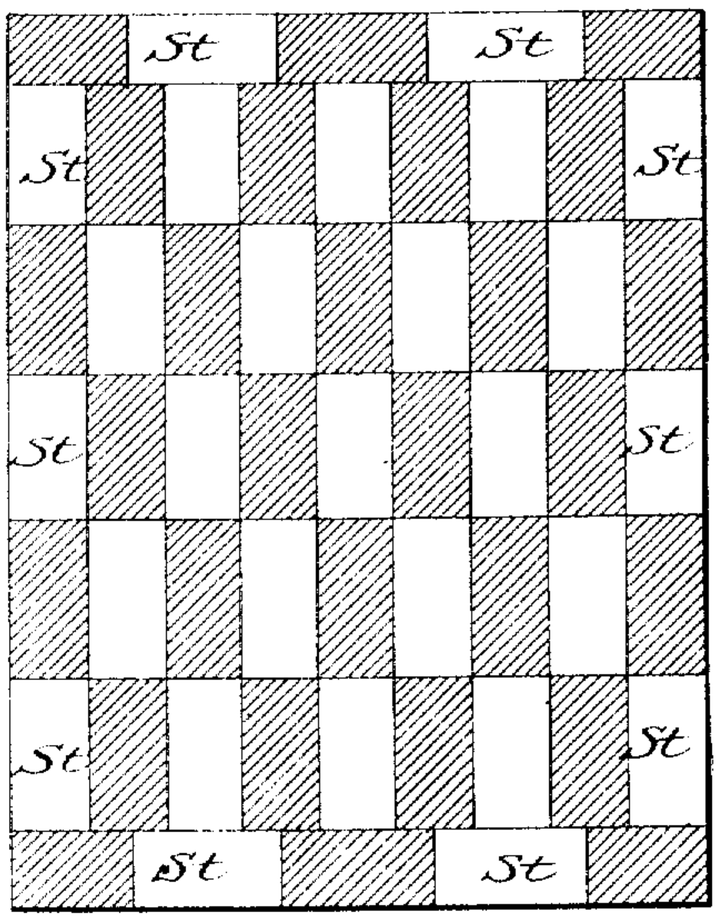


Fig. 15.

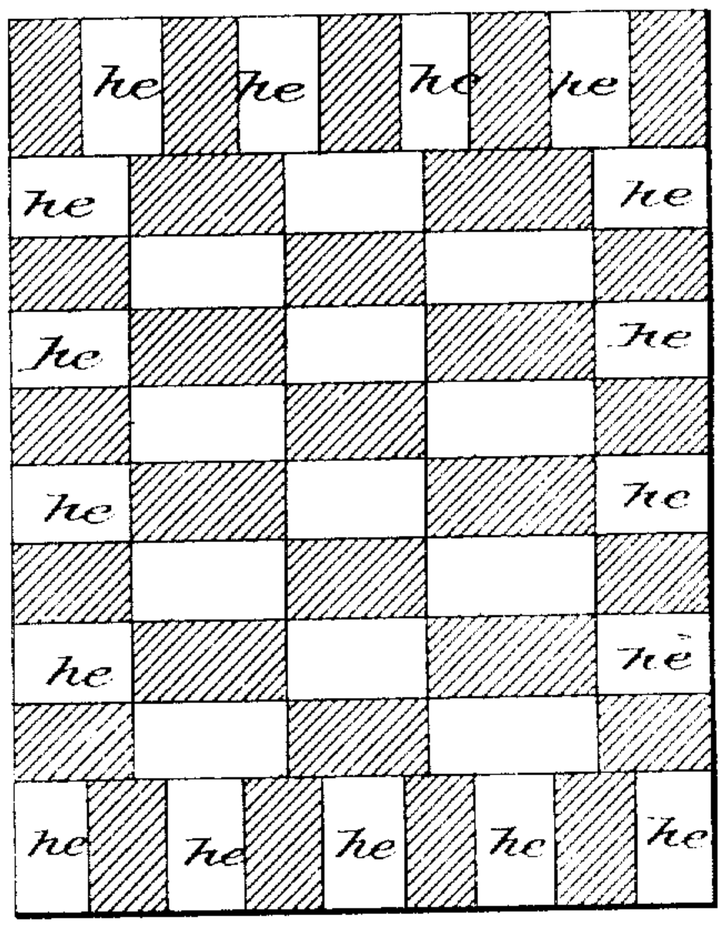
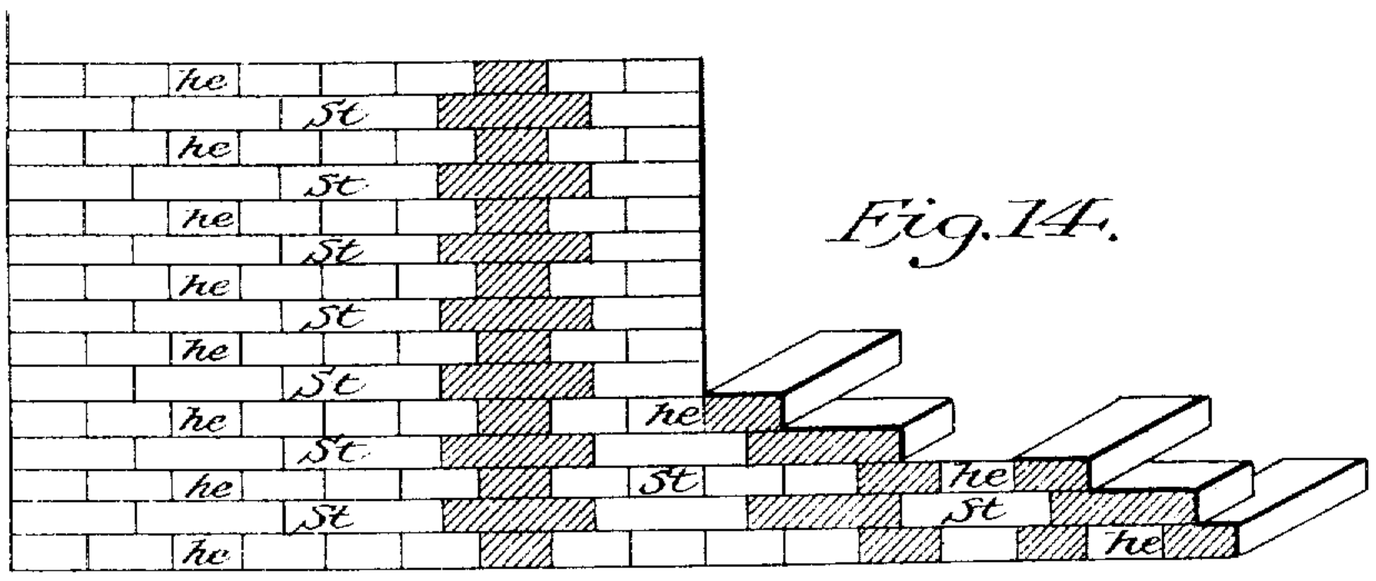


Fig. 14.



Witnesses:
Theodore L. Nutt
Chas. Winkelmann

Inventor:
Henry Zogmann

UNITED STATES PATENT OFFICE.

HENRY ZOGMANN, OF NEW YORK, N. Y.

BUILDING.

SPECIFICATION forming part of Letters Patent No. 475,842, dated May 31, 1892.

Application filed August 28, 1890. Serial No. 363,376. (No model.)

To all whom it may concern:

Be it known that I, HENRY ZOGMANN, a citizen of the United States, residing at New York, in the county and state of New York, have invented Improvements in Foundation and Masonry Wall Constructions, of which the following is a specification.

My invention relates to improvements in foundation and masonry wall construction in which there are improved foundations, columns, brick piers, girders, anchors, arches, and brackets.

The object of my improvements is to provide safety for the public. This object I attain by the construction illustrated in the accompanying drawings, in which—

Figure 1 is a ground plan of a building in which are shown anchors *a'*. *Ca* is to show and represent the place where arches, hereinafter to be described, lie, the broken curved lines adjacent thereto, taken in connection with the small circles *p* as centers, signifying, approximately, the spring of such arches. Letters *g* represent the place where girders are to run and lie. Fig. 1ª is a horizontal sectional view of parts adjacent to line C D on Fig. 1 in a modified construction. Fig. 2 is a diagonal vertical section taken from line A B on Fig. 1. Fig. 2ª is an elevation of a construction which can be erected on line C D, Fig. 1, providing that shown in Fig. 2, which is erected on line A B, is not used. Fig. 2ᴮ is a perspective view with parts sectioned, taken from lines x^2 x^2 on Fig. 2. Fig. 3 is a vertical sectional view of a portion of a front of a building, taken from line L M on Fig. 1, showing the improved plates and brackets. Fig. 3ª is a vertical section taken from line x^2 x^2 on Fig. 3, showing a single iron column; Fig. 3ᴮ, also an iron column taken from dotted lines x^2 x^2 on Fig. 3, but is somewhat different from Fig. 3ª. Fig. 4 is a view of the base of the columns 3ª and 3ᴮ. This figure is taken from dotted lines O P on Fig. 3. Fig. 5 is a vertical section of a rear part of a building, taken from line I K on ground plan, Fig. 1, same figure showing anchors and arches. Fig. 5ª is a perspective view, same being to show a brick pier in which can be seen the anchors and arches, and how laid. This figure is taken from the dotted lines x^2 x^2 on Fig. 5. Fig. 6 is a vertical view, which is to show a portion of a brick wall of the rear of a building, same figure showing anchors, arches, and iron girders, letters *iG*; same figure taken from Fig. 1 on line I K. Fig. 6ª is a perspective view of a brick pier, taken from dotted lines x^2 x^2 on Fig. 6. Fig. 7 is a vertical sectional view of iron girders connected by bolts. Fig. 8 is also a vertical view of iron girders formed in different style. Fig. 9 is a vertical section of a front of a building, which is taken from line L M on Fig. 1, same figure being to show improved iron columns, plates, and brackets. Fig. 10 is a perspective view of an iron column taken from dotted line x^2 x^2 on Fig. 9, same being to show how the iron girders are attached to the columns with plates and brackets. Fig. 11 is also a perspective view of a column, taken from same dotted lines x^2 x^2 on Fig. 9, showing how the iron girders are attached with single brackets. Fig. 12 is a view of a set of anchors which show how they are before being attached to one another. Fig. 13 is a set of anchors attached together by the pins *ps*. Fig. 14 is a vertical view of a part of the improved brick pier. Fig. 15 is a view of a single row of headers in the faces of a pier, and Fig. 16 is a view of a single row of stretchers in a similar location.

Similar letters refer to similar parts throughout the different views.

In building the foundation of a building spiles are to be driven into the ground first where necessary, then about a foot of sand mixed with water, so as to make it somewhat sticky, and then a solid concrete is to be laid. This foundation will uphold any building, be it of any weight whatsoever, from sinking.

In the ground plan, Fig. 1, letters *a'* signify anchors which are either round or flat and the thickness of same to be according to the weight of the building. These anchors are to run through the entire building, connecting one portion to the other. Where these anchors connect piers and lie in the same, double anchors should be used.

Letters *Ca* are to show the way the different arches lie between the piers and between the piers and walls, the broken curved lines adjacent thereto, taken with letters *p* as centers, signifying, approximately, the spring of such arches.

Letters *abl* signify belt-ties which entirely surround a building.

Letter *g* represents the place where girders are to run and lie.

The small circles lettered *ps* are the places where the belt-ties are connected by iron pins.

Fig. 1ª is a horizontal sectional view of a modified construction which can be substituted for that shown along line, C D on Fig. 1, and shows plainly how the piers are connected by arches. The letters C *a* show where these arches are and lie.

If one does not desire the piers to run diagonally in a building, then the construction shown at C D on Fig. 1 may be used instead of that shown at line A B, whereby the piers will run horizontally and not diagonally; but either of the two can be used, so that all piers throughout the building will lie directly on top of each other.

Fig. 2 is a vertical diagonal section erected on line A B on Fig. 1 and shows iron columns, (the second column from the left-hand side of figure,) brick piers, (the left-hand and the two right-hand columns of figure,) iron arches, letters *iGa*, *iGg*, and K, and underground arches *wa* and *wa'*, anchors *a'* and *a²*, girders *ig* and *wg*, and wooden beams *wb*. The brick piers herein shown are to be built with alternate rows of header and stretcher, as shown in Figs. 14, 15, and 16. These piers are connected to iron columns at their bases by underground arches *wa* and *wa'*. These arches run from one column to the other column, from pier to pier, and from wall to wall. Where one pier is connected to another pier, the two underground arches *wa* and *wa'* are to be used by all means, to prevent sinking of the piers. Where said arches do not connect piers, single or double arches can be used, either arch *wa'* alone or arches *wa* and *wa'* together.

The letter *a'* shows circular anchors, and the letter *a²* straight anchors. These said anchors are so set that they will prevent the caving or falling of any portion of any building. They are fastened as follows: In brick piers they are fastened on solid pins or plates which are built in the piers, as shown by letters F*p*. At other places where anchors curve they are fastened with screw-bolts, as shown by letters *a³*. Where the straight anchors terminate at the iron arches *iGg*, *iGa*, and K, they are fastened by bolts, as shown by letters *a⁴*. The iron arches *iGg* are fastened to the iron girder (letters *i*G) by bolts, and also fastened to the brick pier and iron columns, as shown. The arch K is also an iron arch constructed with braces *br*, which are fastened to the brick pier. The arches *iGa* are different kinds of arches, which are fastened to the brick piers and iron columns.

The letters WG are to show wooden girders, but can be iron girders instead of wooden. The letters W*b* show how the wooden beams lie.

The letters *abl* signify belt-ties fastened together by pins or plates *ps*. The letter *p* signifies the center from which the arches are sprung.

Fig. 2ª is a vertical section erected on line C D, Fig. 1, and shows brick piers B, iron columns *c*, anchors A' and A², attached by the pins or plates F*p* and the bolts *ab*, letters *p* signifying the center from which the arches are sprung, *a*iG signifying arched iron girders, *abl* signifying belt-ties.

Fig. 2ᴮ is a perspective view, partly in section, of a single brick pier, taken from line *x²* *x²* on Fig. 2 and shows how the girders lie in the brick piers, also how the brick arches B*a* lie in between the two iron girders, and how the underground arches *wa* and *wa'* are connected to one another. Letters *a'* and *a²* represent anchors; F*p*, the fastening-point of same. *i*G signify iron girders. *p* is the center point from which the arches are sprung.

Figs. 7 and 8 are both vertical sections taken from lines R S on Figs. 2ª and 6, representing two different sets of iron girders, of which either can be used. These girders are to be from twelve to sixteen inches apart, the space being filled with a brick arch, as shown in Fig. 2ᴮ, letters B*a*. These girders are held firmly together by strong anchors fastened by bolts, as shown by letters *a*.

Fig. 3 is a vertical section of a front of a building, taken from line L M on Fig. 1, the same figure showing how the iron girders are connected and fastened to the iron columns C by steel or wrought-iron plates and brackets. The dotted lines lettered P*l* above the plates show the rear plates, which are somewhat higher than the front plates. This same rear plate P*l* is sufficiently strong to hold the girders to the columns; but it is better to have the front plate also.

Fig. 3ª is a vertical section of a column, taken from lines *x²* *x²* in Fig. 3, same showing how the bracket *b* in Fig. 3 is fastened by bolts in Fig. 3ª. *bz* on Fig. 3ª shows the bolts that fasten the plates P*l* in Fig. 3. *i*G shows the iron girder. *ba* on Fig. 3ª signifies the place where the diagonal brackets *ba* on Fig. 3 is fastened with bolts.

Fig. 3ᴮ represents a different column, being perfectly unbroken, whereas that in Fig. 3ª is more of a fancy column. The letters of reference have in every particular the same meaning as in Fig. 3ª.

Fig. 4 is taken from the line O P on Fig. 3ᴮ. It is to show the base of a column.

Fig. 9 is a vertical section of a front of a building having the same plates and brackets to fasten the girder to the column as in Fig. 3, with the exception of the outer two columns, which are so formed to allow the girder to lie on them and be fastened by brackets to the upper portion of the columns, as shown more clearly in Figs. 10 and 11. Letters *b* and *b*ª show the brackets; *i*G, the iron girders; C, the iron columns; B, the brick piers; P*l*, the steel or wrought-iron plate; *p*, the center point, from which the brackets are sprung.

Fig. 10 is a perspective view, partly in section, of a column, taken from line x^2 x^2 on Fig. 9, the same figure serving to show more clearly how the girder lies on the column, as in Fig. 9. The left-hand side of the figure and letters V and T of the base show the back view of the column. The shaded section and letters N and O show the side of the column, the right-hand side, and letters M and L show the front of the column. Letter *b* shows the brackets; *i*G, the iron girders, and letter *p* shows the center points from which the brackets are sprung.

Fig. 11 is the same as Fig. 10, only showing the back and the side of a column. The letters have the same meaning as in Fig. 10.

Fig. 5 is a vertical section of a rear wall, taken on line I K on Fig. 1, same being constructed of brick piers attached together by arches, anchors, and belt-ties. *a'* and a^2 show the anchors; *abt*, the belt-ties; F*p*, the pin on which the anchors are fastened; *p*, the center point, from which the arches are sprung; *ps*, the pin on which the belt-ties are fastened.

Fig. 5ª is a perspective view, partly in section, taken from line x^2 x^2 on Fig. 5, showing how the brick arches are sprung and also shows the anchors *a'* a^2. Letter B*a* signifies the brick arches. Other letters mean the same as similar letters in foregoing views.

Fig. 6 is a vertical section of a rear portion of a building, taken from line I K on Fig. 1, same showing the iron girders lettered *i*G, the brick arches, which lie between the two girders, and the anchors lettered *a'* a^2. Other letters similar to those in former views have the same meaning.

Fig. 6ª is a perspective view, partly in vertical section, of Fig. 6, taken from line x^2 x^2 of Fig. 6 and shows clearly the brick arch lying between the two girders. This brick arch is lettered B*a*. *i*G signifies the girders. These arches between the two iron girders throughout the different views, together with the anchors, firmly hold the building together from caving or falling.

Fig. 13 is a view of the anchors used in the building, same view showing how they are fastened together by pins *ps*. These anchors can be of any length whatsoever from one foot to twelve feet; but in about the center of the larger piers the anchors should be of such length as to have them united in the center of the piers by a pin about two feet long, which, when encircled by the brick of the pier, will hold the anchors more firmly together.

Fig. 12 is a view of anchors, showing how they are before being united by pins *ps*.

Fig. 14 is a vertical section of a brick pier, serving to show the face view of a pier built with alternate rows of headers and stretchers. *he* signifies header, and *st* stretcher.

Fig. 15 is a plan view of a single course of headers, and Fig. 16 a single course of stretchers. All piers of a building are to be built on this plan: first a row of header and then a row of stretcher and then another row of header, &c., according to Figs. 15 and 16, which are to lie on top of each other exactly, as hereby shown in these figures, thus forming Fig. 20.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The combination of the walls or piers and the iron girders *i*G of the anchors *a'* and a^2 secured thereto, substantially as described.

2. The combination, with the walls and piers, of the parallel arched iron girders and the brick arches arranged between and fitted to them and having a like curvature, as set forth.

3. The combination, with the walls of the building and the floors thereof, of the belt-ties *abt*, surrounding the building at the levels of the girders supporting the floors and embedded in the interior of the walls and at intervals anchored thereto, as set forth.

4. The combination, with the walls and the piers constructed in courses of headers and stretchers, as set forth, of the inverted arches *wa* and *wa'*, arches *i*G*g*, *i*G*a*, and N, and the wrought-metal plates and brackets P*l*, *b*, *ba*, as and for the purposes set forth.

HENRY ZOGMANN.

Witnesses:
MARTIN NUTT,
CHAS. WINKELMANN.