

No. 785,268.

PATENTED MAR. 21, 1905.

G. H. NILES.
GAS FURNACE RETORT SETTING.

APPLICATION FILED APR. 4, 1904.

2 SHEETS—SHEET 1.

Fig. 2.

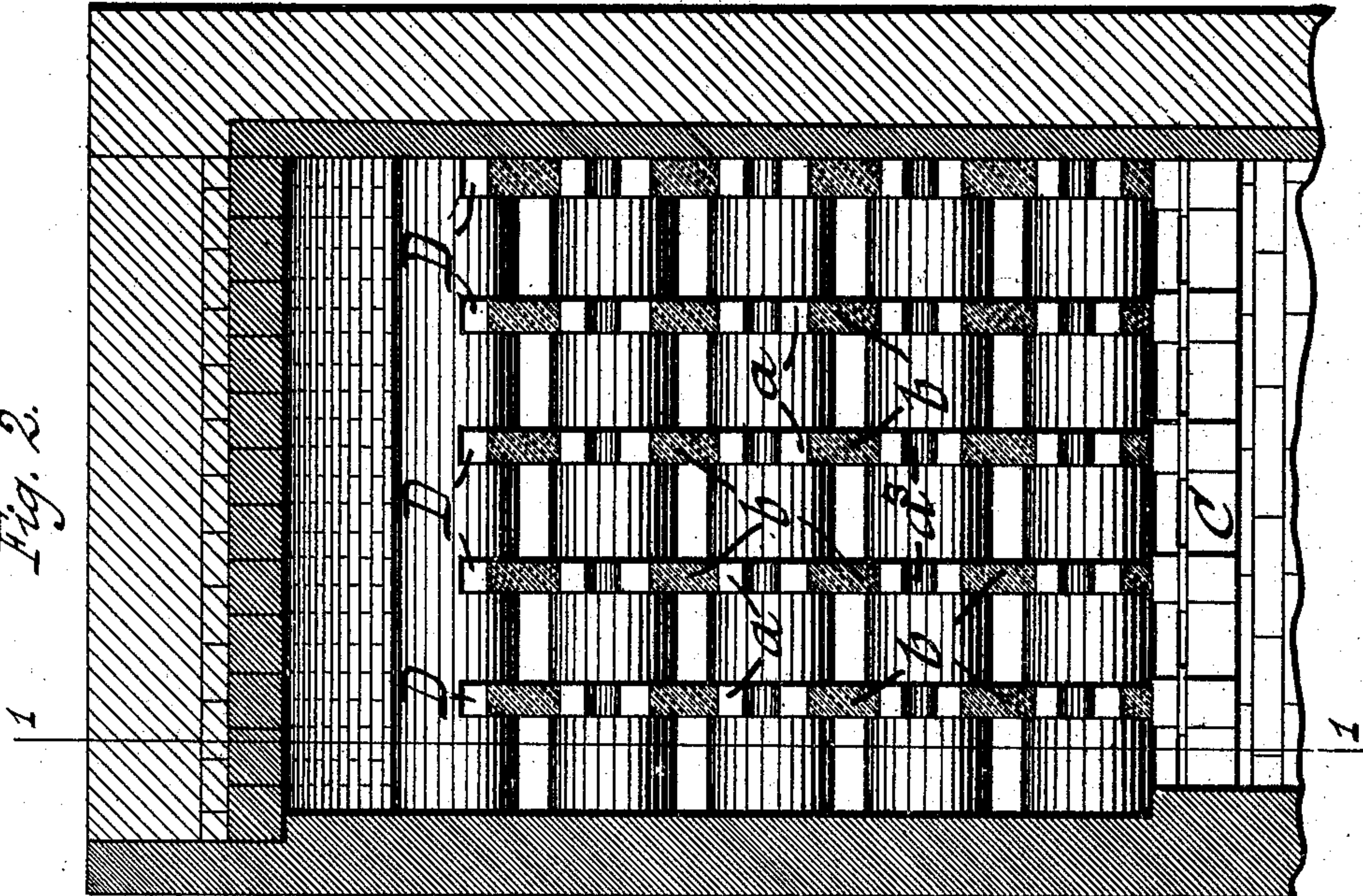
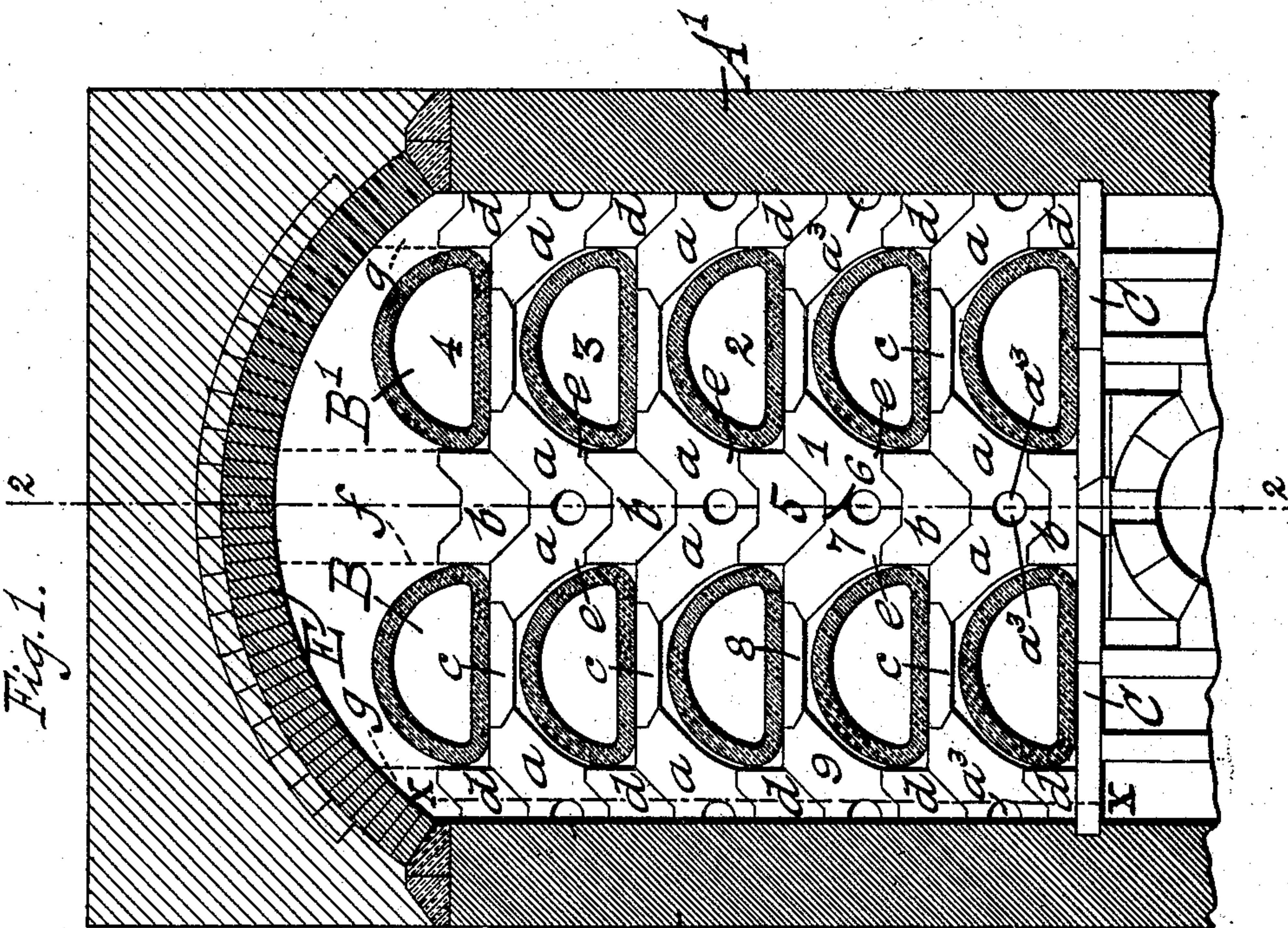


Fig. 1.



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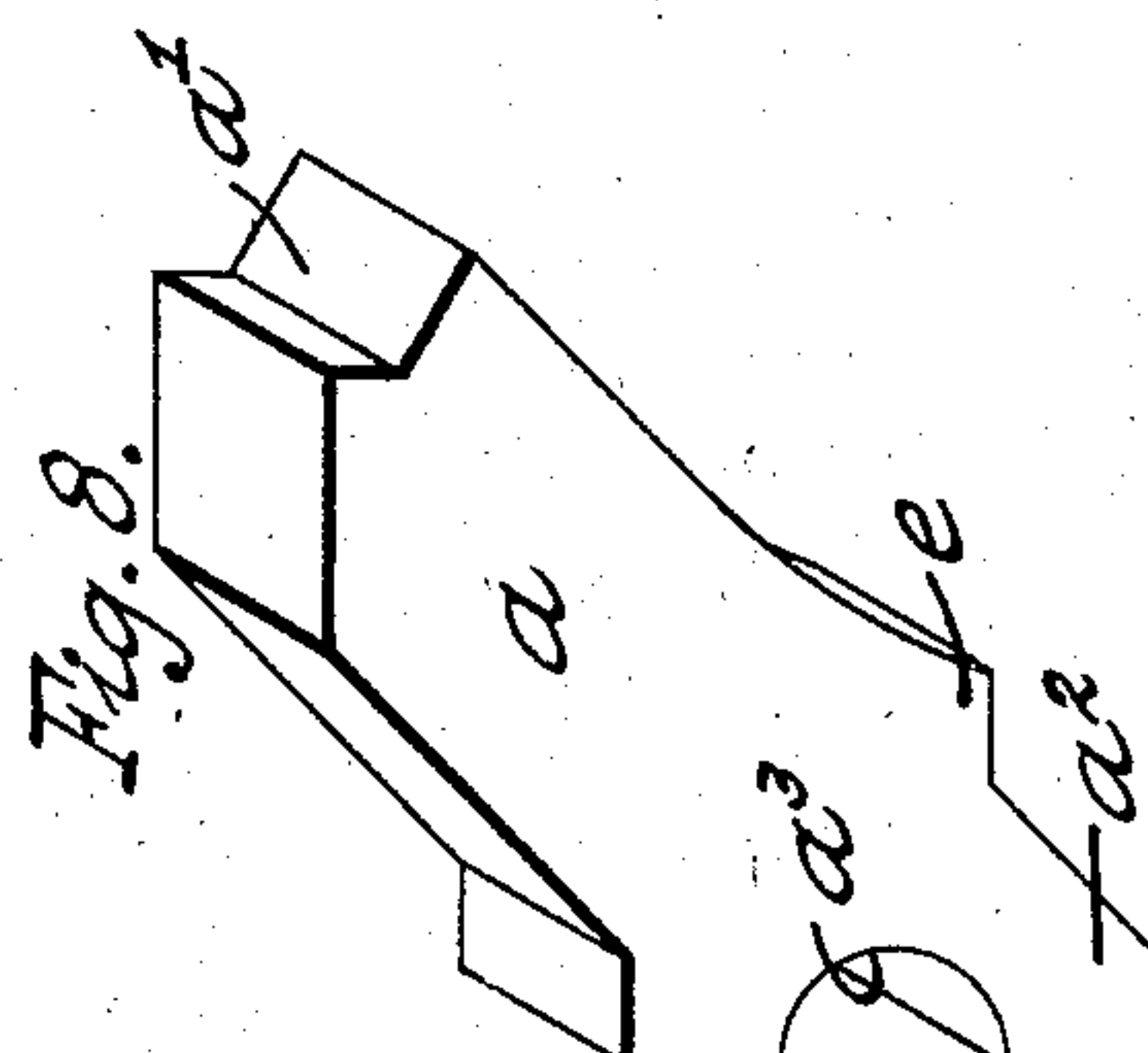
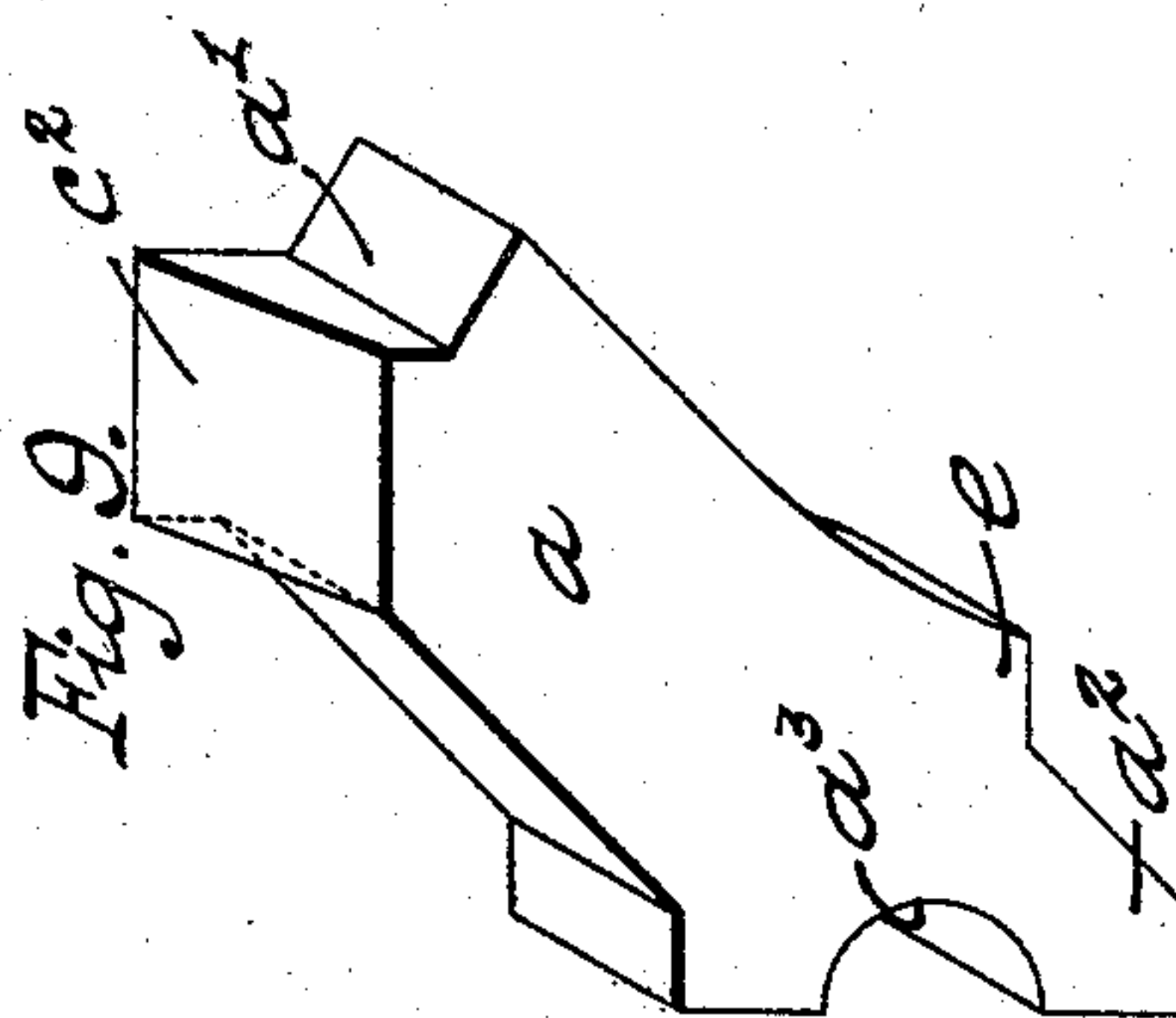
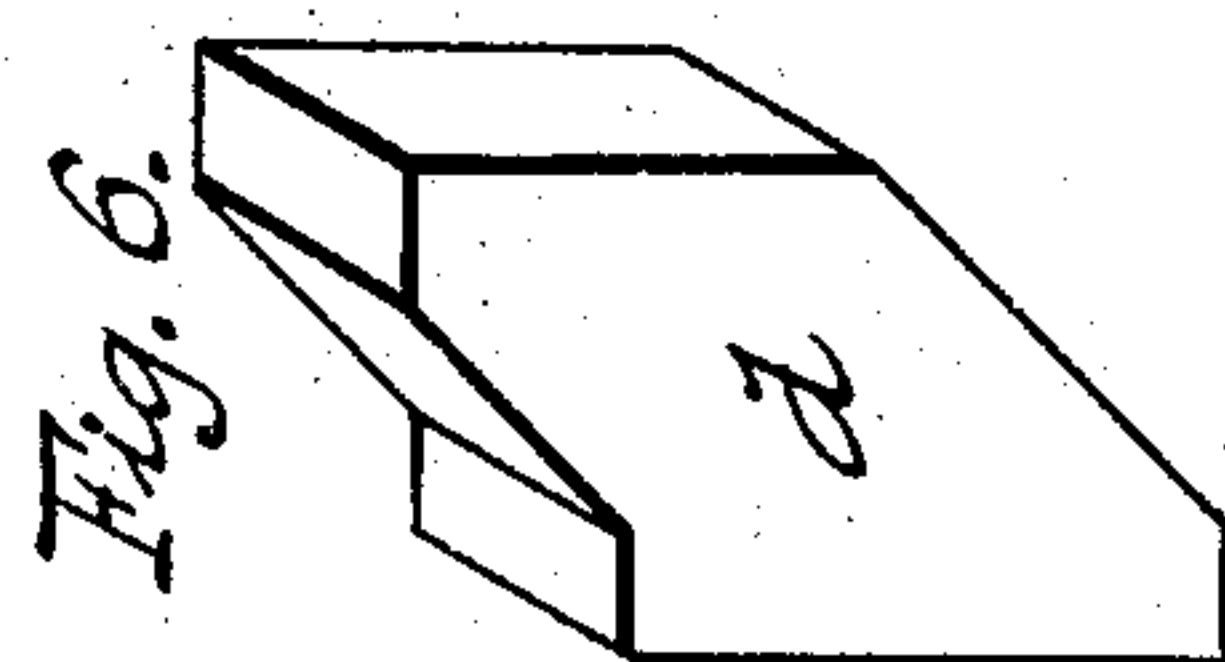
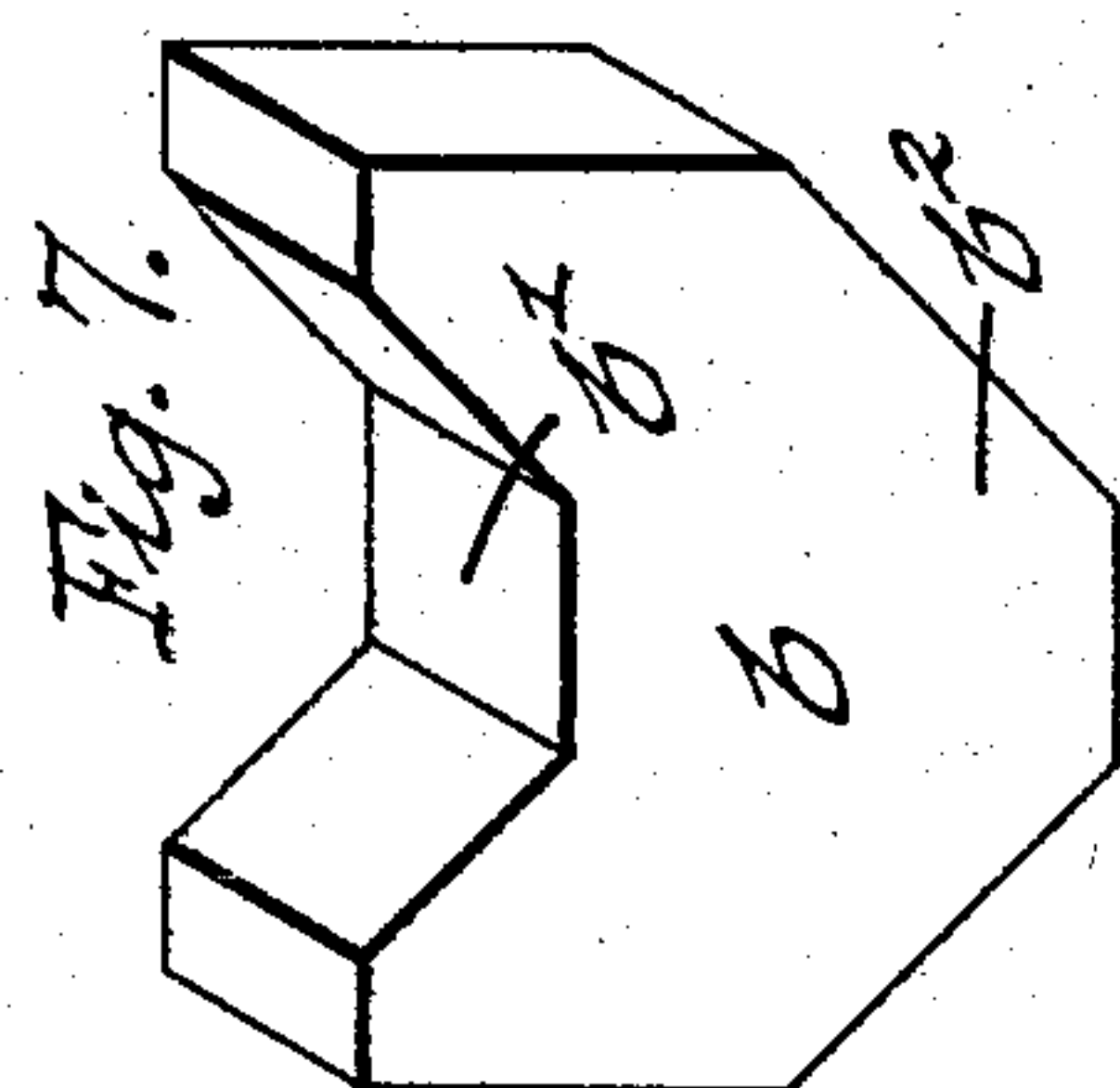
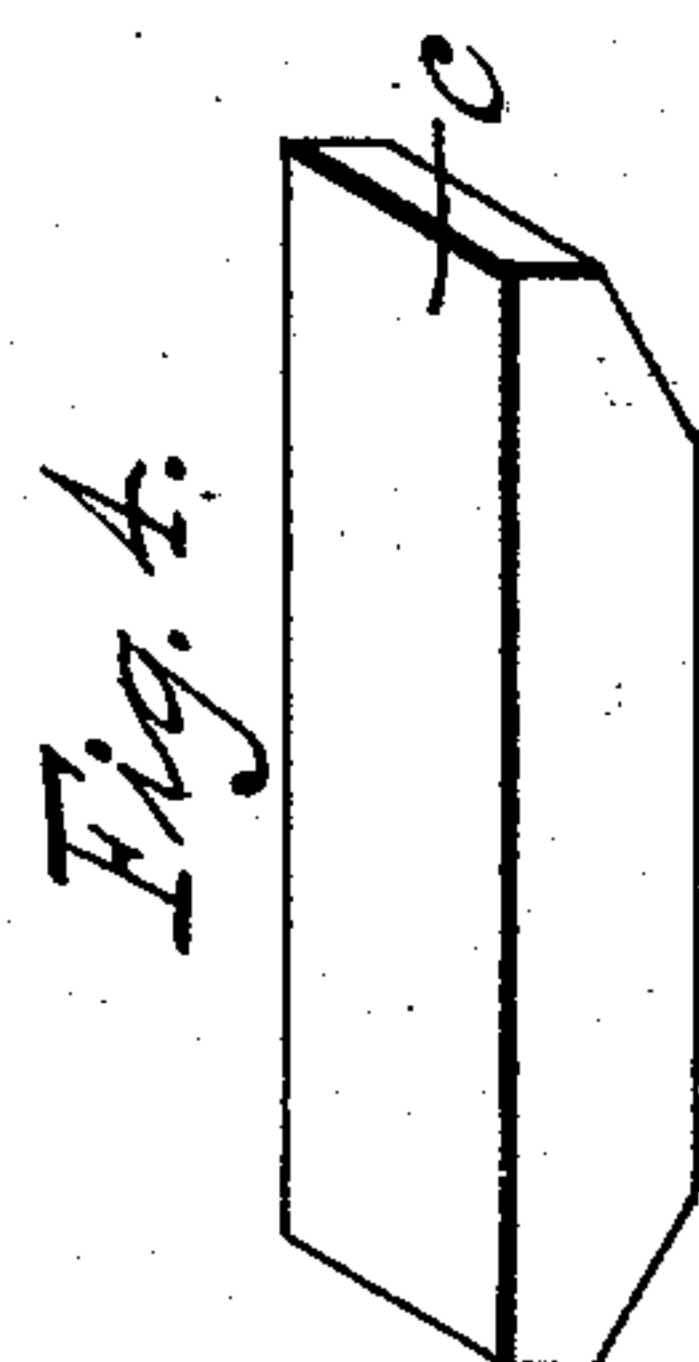
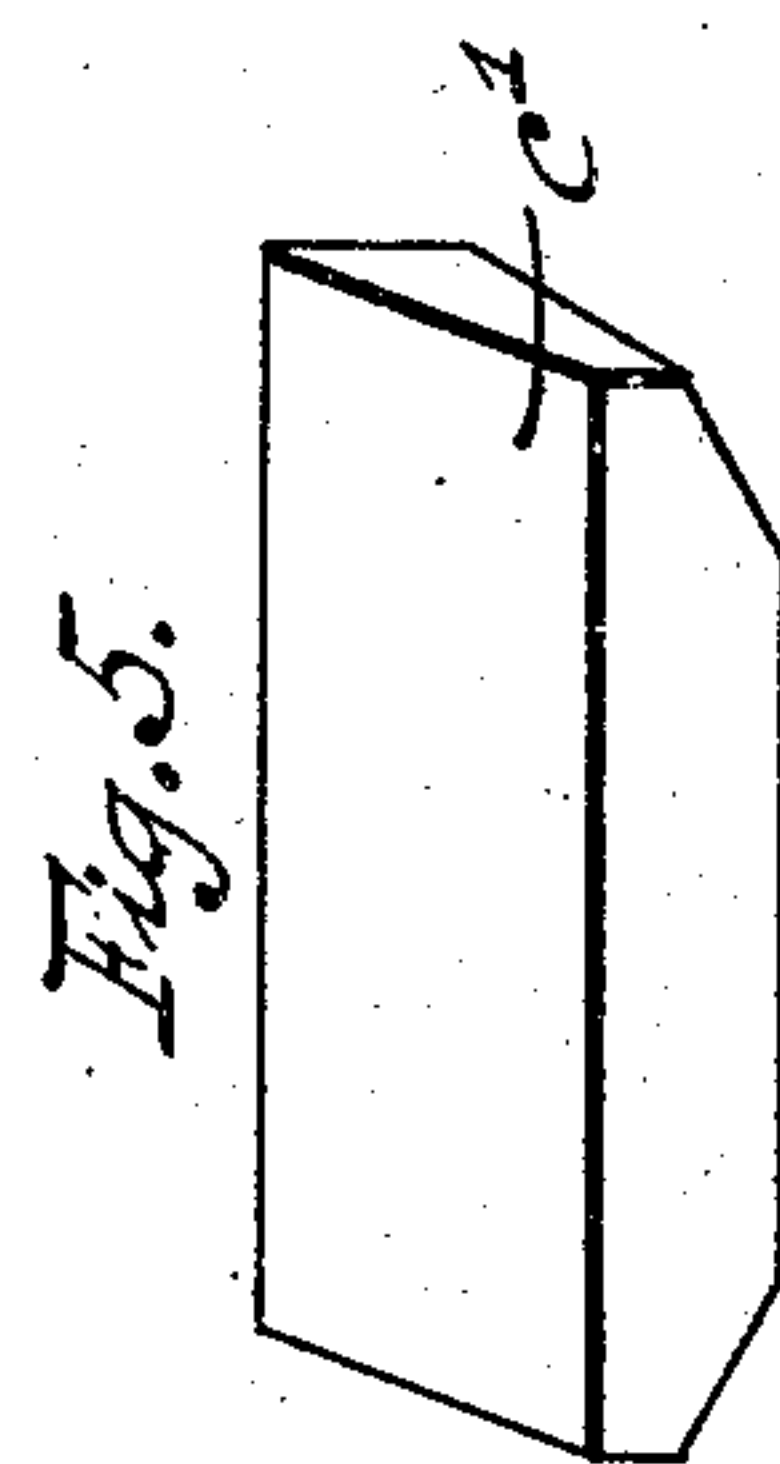
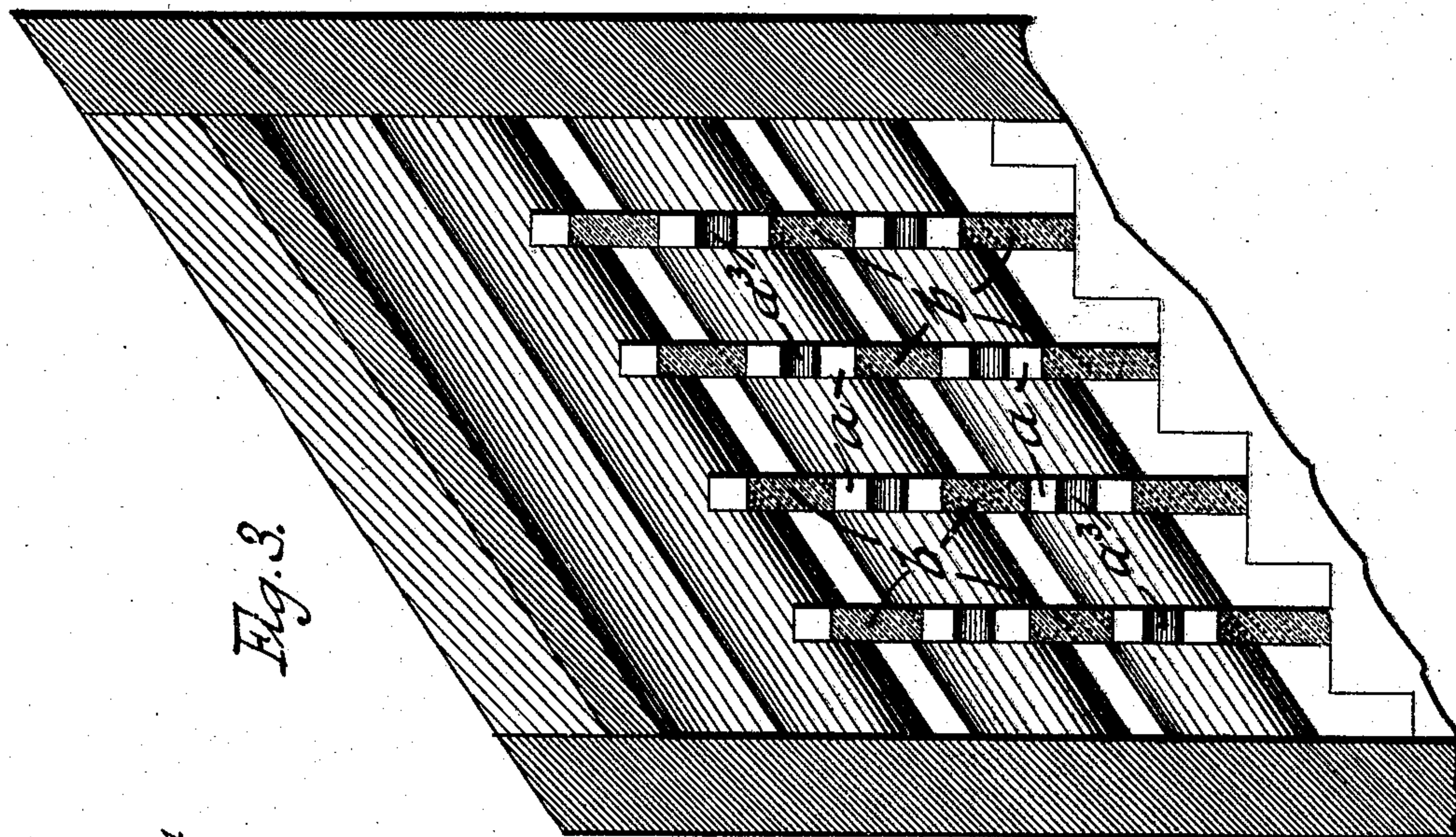
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2 SHEETS—SHEET 2.



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UNITED STATES PATENT OFFICE.

GLENN H. NILES, OF NEW YORK, N. Y.

GAS-FURNACE-RETORT SETTING.

SPECIFICATION forming part of Letters Patent No. 785,268, dated March 21, 1905.

Application filed April 4, 1904. Serial No. 201,491.

To all whom it may concern:

Be it known that I, GLENN H. NILES, a citizen of the United States, residing in New York, borough of Brooklyn, in the State of New York, have invented certain new and useful Improvements in Gas-Furnace-Retort Settings, of which the following is a specification.

The object of this invention is to provide a setting for the retorts of gas-furnaces by which each retort is independently supported, so that the removal and insertion of any retort of the bench, also the removal of certain portions of the setting for repair of the setting, may be effected without disturbance of the other retorts and without destroying the stability of the setting. These results I accomplish by means of blocks of certain types arranged in a certain relation; and the invention consists in these blocks and in their combination, as will be fully described hereinafter and finally pointed out in the claims.

In the accompanying drawings, Figure 1 represents a vertical transverse section on line 1 1, Fig. 2, through the retort-chamber of a gas-furnace in which is employed my improved setting. Fig. 2 is a vertical longitudinal section on line 2 2, Fig. 1. Fig. 3 is a vertical longitudinal section centrally through the retort-chamber of a gas-furnace having inclined retorts supported by my new setting, and Figs. 4, 5, 6, 7, 8, and 9 are perspective views of the various blocks employed.

Similar characters of reference indicate corresponding parts.

Referring to the drawings, A A' indicate the side walls of the retort-chamber, and B B' two tiers of five retorts each within said chamber.

C represents the lower furnace-work upon which the setting and retorts are supported.

The setting is composed of a series of laterally-projecting or wing blocks *a*, binder-blocks *b*, vertically between the wing-blocks, and key plates or blocks *c* between the upper ends of opposed wing-blocks. The wing-blocks *a* are provided at their upper ends with angular recesses *a'*, so formed that lateral pressure exerted through the wing-block upon the key seated in said recesses will not operate to remove the key, so that the key remains seated

in the recesses of two wing-blocks. The wing-blocks supporting the retorts of each tier abut at their lower portions and are provided each with projections *a''*, which take into recesses *b'* in the binder-block. They are also provided each with a shoulder *e*, adapted to engage the binder-block. The latter is provided at its lower portion with a projection *b''*, which takes into the seat formed between the faces of the two wing-blocks below. At the sides of the retort-chamber the wing-blocks abut against the side walls A A', respectively, and a semi binder-block *d*, which has the shape of one-half of a full binder-block, is employed between each wing-block. It is obvious that if desired the blocks for the outer sides of the setting instead of being as shown may be somewhat shorter, the same terminating, for example, at the line *xx*, Fig. 1, at which line the wall in such case would be located. Economy of material is thereby effected. At their lower portions the wing-blocks are preferably provided with recesses *a'''* for permitting the free passage of the gases of combustion through the setting.

It will be perceived that the retorts are supported by this new setting each independently of the others and independently of the setting itself except in so far as it is supported by the setting. The retort forms no part of the setting, receives no pressure or strain whatsoever from it, and the stability of the setting is not dependent upon the presence of the retorts. Any one or all of them might be removed and in any order of succession without collapse of the setting. Worn or imperfect parts of the setting may be removed for replacing with new parts without causing strains in the retort above. This will be perceived upon inspection of Fig. 1. If, for example, the wing-block (marked 1) be removed from one of the transverse rows D of the setting, support is removed thereby only from the retort 2. The retorts 3 and 4 above remain supported as before, owing to the presence of the binder-block 5, which by its bearing at 6 on the lower end of the wing 7, which was opposite to wing 1, transmits the strain to the wing 7, whence it passes through said wing to the binder-block below, a part of the strain also

proceeding laterally through the wing 7, key 8, and wing 9 to the wall A. Each wing-block thus at its inner portion forms normally a sustaining part of the supporting-column extending vertically between the retorts, while it is also constructed and arranged to be removed from said column without destroying the integrity of the latter and without removing support from any individual retort except that retort of which it forms in part the direct support. The lower binder-block of the series of binder and wing blocks between the retorts rests upon the lower furnace-work C and is not necessarily provided with any projection b^2 . The corresponding semi binder-blocks at the side may be also without lower projections.

The keys c are not essential. In case they were omitted on removal of block 1, as before described, the block 7 would still retain its place, the strain formerly passing to key 8 passing to binder-block b below 7. The keys add to the stability of the setting, however, and are therefore preferably employed. In case keys are omitted the upper wing-blocks will upon the removal of either of the uppermost retorts have a tendency to swing at the shoulder e upon the binder-block as a fulcrum under the influence of the weight of the upper retort. To resist such tendency, stay-blocks $f g$ are inserted between the upper ends of the setting and the arch E of the retort-chamber. These stays prevent the rise of the lower portions of the wing-blocks, and by thus holding them down hold the upper ends up in place, whereby the retort is supported.

The binder-blocks serve in addition to binding and affording a footing for the wing-blocks to restrain the retorts in case they have a tendency to bulge or bend laterally, due to any cause. Such contact, however, affords no substantial aid in the vertical support of the retorts and is not intended for that purpose. Under ordinary conditions there is no pressure between the retort and binder-block, nor, in fact, under such conditions are these parts necessarily in contact.

In case it is desired to employ but a single tier of retorts within the retort-chamber the setting may be constructed in the manner as seen at one side only of the line 2 2, Fig. 1. In such case no full binder-blocks are employed, semi binder-blocks d being used between the struts at both sides of the setting. In case of such arrangement of the retorts the semi binder-blocks may be formed integral with the wing-blocks. When the retorts are arranged in two or more tiers, full binder-blocks are preferably employed, as described, between the successive tiers.

The new setting is applicable to any number of tiers and to tiers having in each any number of retorts. It is applicable to either horizontal or inclined retorts. In the case of inclined retorts the key-blocks c are provided, as indicated in Fig. 5, with an inclined top

surface, and the upper part of each wing-block, which, as shown in Fig. 1, contacts with the retort, is inclined at its top to conform to the inclination of the retorts.

It is obvious that many modifications may be made in the forms of the various blocks employed from the special forms shown without departing from the spirit of the invention.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. A setting for retorts, comprising column-sustaining and individual-retort-supporting wing-blocks constructed and adapted to be individually removed without destroying the integrity of the column and coöperating binder-blocks.

2. A setting for retorts, comprising column-sustaining and individual-retort-supporting wing-blocks constructed and adapted to be individually removed without destroying the integrity of the column, keys, and coöperating binder-blocks.

3. A setting for retorts, comprising column-sustaining and individual-retort-supporting wing-blocks constructed and adapted to be individually removed without destroying the integrity of the column, provided at their lower portions with projections, and binder-blocks receiving said projections.

4. A setting for retorts, comprising column-sustaining and individual-retort-supporting wing-blocks constructed and adapted to be individually removed without destroying the integrity of the column, provided at their lower portions with projections, keys between the upper ends of said wing-blocks, and binder-blocks receiving the projections of the wing-blocks.

5. A setting for retorts, comprising column-sustaining and individual-retort-supporting wing-blocks constructed and adapted to be individually removed without destroying the integrity of the column, provided at their upper ends with recesses, keys seated at their ends in said recesses, and binder-blocks at the lower ends of the wing-blocks.

6. A setting for retorts, comprising column-sustaining and individual-retort-supporting wing-blocks constructed and adapted to be individually removed without destroying the integrity of the column, binder-blocks, and shoulders on said wing-blocks engaging said binder-blocks.

7. A setting for retorts, comprising column-sustaining and individual-retort-supporting wing-blocks constructed and adapted to be individually removed without destroying the integrity of the column, keys between the upper ends of said wing-blocks, projections at the lower portions of said wing-blocks, binder-blocks receiving said projections of the wing-blocks, and shoulders on the wing-blocks engaging said binder-blocks.

8. A setting for retorts, comprising column-sustaining and individual-retort-supporting

wing-blocks constructed and adapted to be individually removed without destroying the integrity of the column, provided at their lower portions with projections, and binder-blocks receiving said projections and provided each with a projection engaging the wing-blocks below the same.

9. A setting for retorts, comprising column-sustaining and individual-retort-supporting wing-blocks constructed and adapted to be individually removed without destroying the integrity of the column, keys between the upper ends of said wing-blocks, projections at the lower portions of said wing-blocks, binder-blocks receiving said projections of the wing-blocks, shoulders on the wing-blocks engaging said binder-blocks, and projections on each binder-block engaging the wing-blocks below the same.

10. In a retort-setting, column-sustaining and individual-retort-supporting wing-blocks constructed and adapted to be individually removed without destroying the integrity of the column.

11. The combination of retorts arranged in tiers, means for supporting said retorts at their outer sides, and a supporting-column extending vertically between the tiers and comprising column-sustaining and individual-retort-supporting wing-blocks constructed and adapted to be individually removed without destroying the integrity of the column.

12. The combination of retorts arranged in tiers, means for supporting said retorts at their outer sides, and a supporting-column extending vertically between the tiers and comprising binder-blocks and column-sustaining and individual-retort-supporting wing-blocks constructed and adapted to be individually removed without destroying the integrity of the column.

In testimony that I claim the foregoing as my invention I have signed my name in presence of two subscribing witnesses.

GLENN H. NILES.

Witnesses:

JOSEPH H. NILES,
HENRY J. SUHRBIER.