

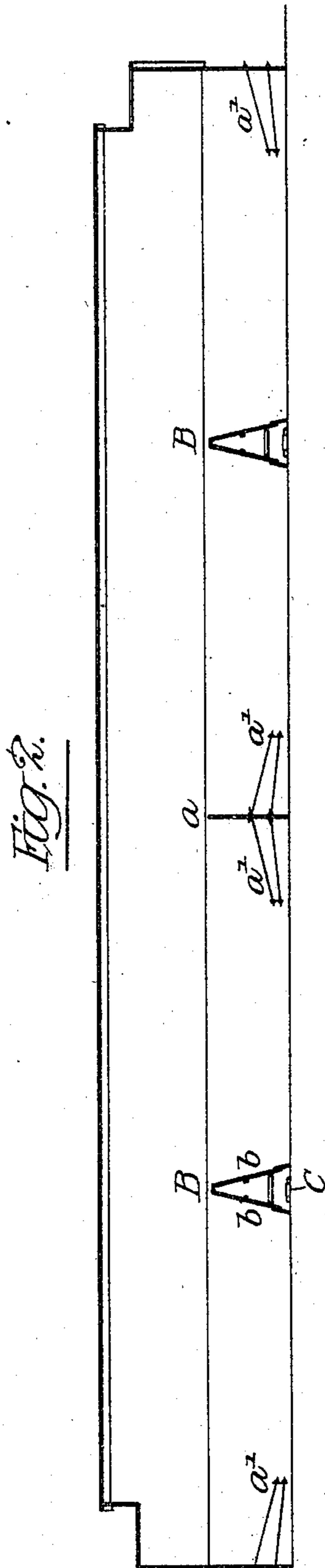
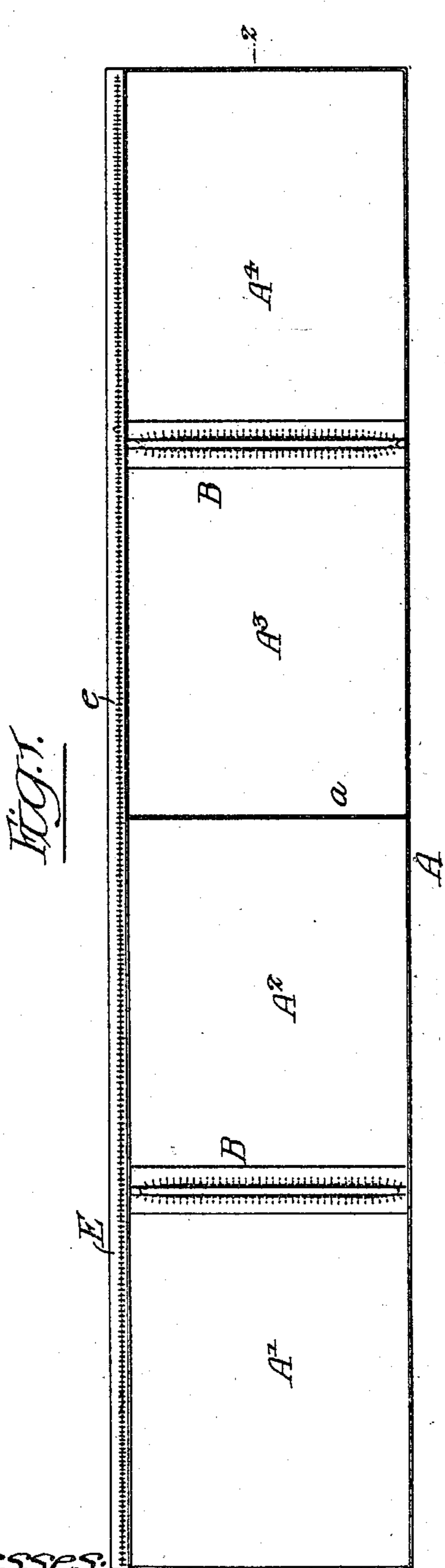
No. 719,366.

PATENTED JAN. 27, 1903.

C. PIEZ.
STORAGE STRUCTURE.
APPLICATION FILED SEPT. 11, 1901.

NO MODEL.

5 SHEETS—SHEET 1.



Witnesses:

Frank T. Johnson
Herman E. Metcalf

Inventor:

Charles Piez,
by His Attorneys; Horn & Horn

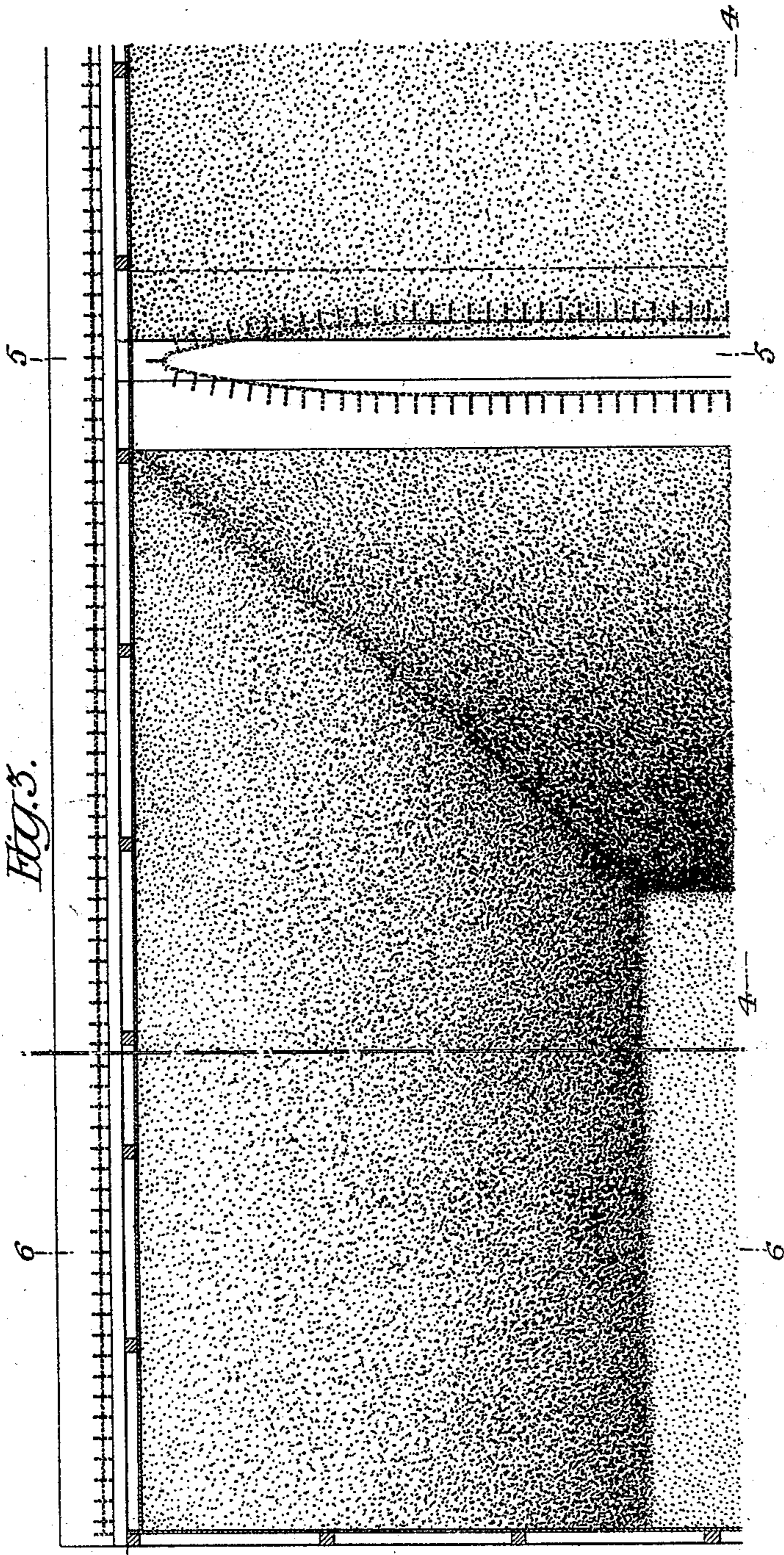
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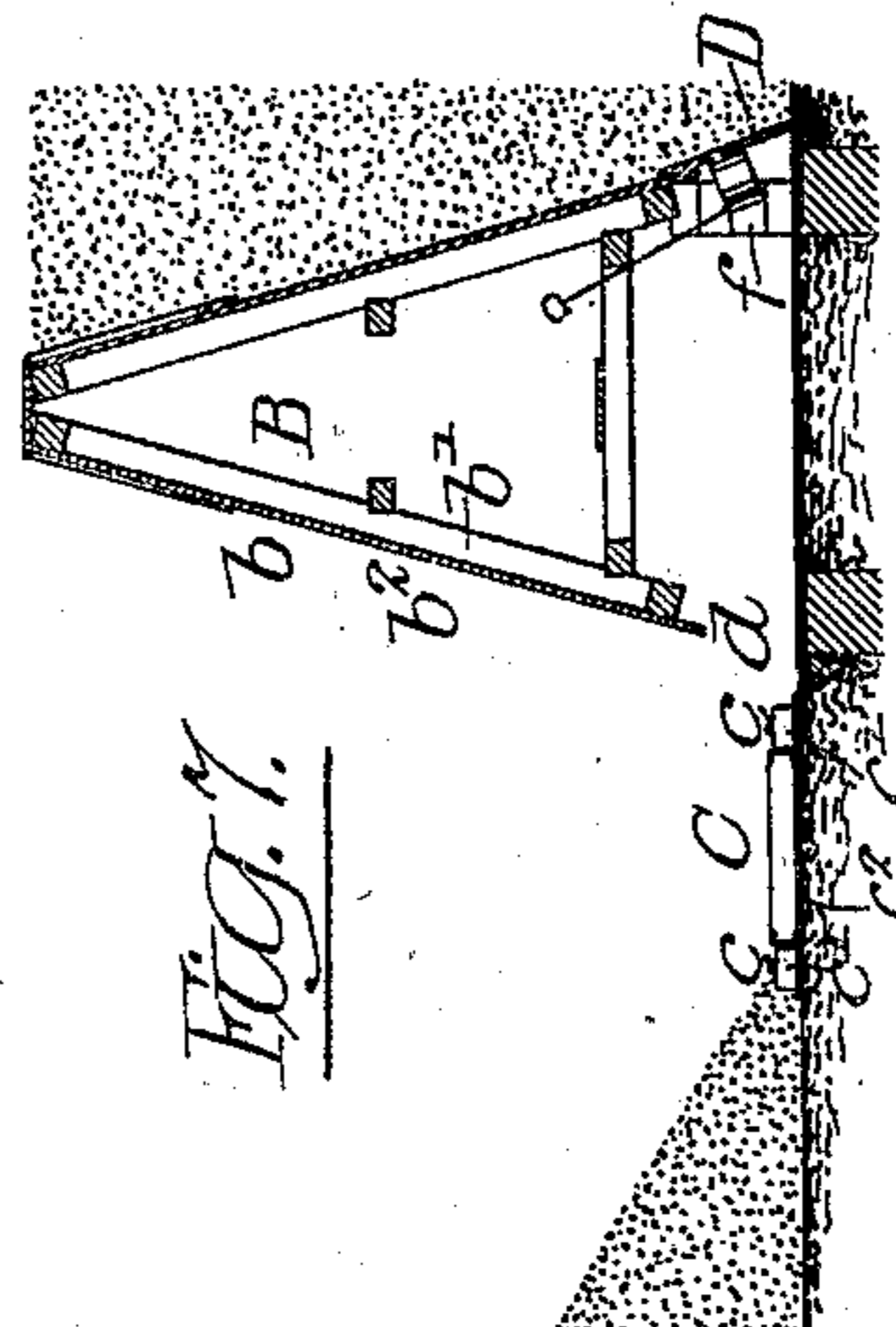
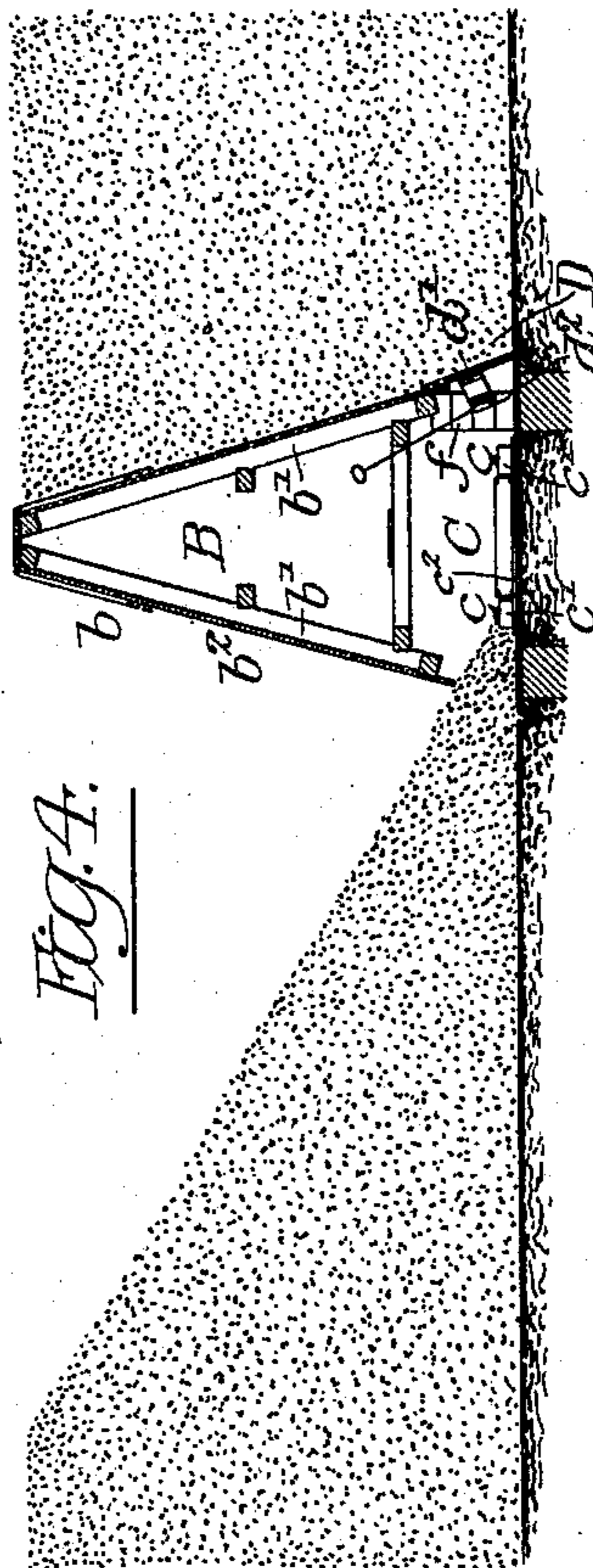
NO MODEL.

5 SHEETS—SHEET 2.



Witnesses:-

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Herman E. Metcalf.



Inventor:-

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Howson & Howson

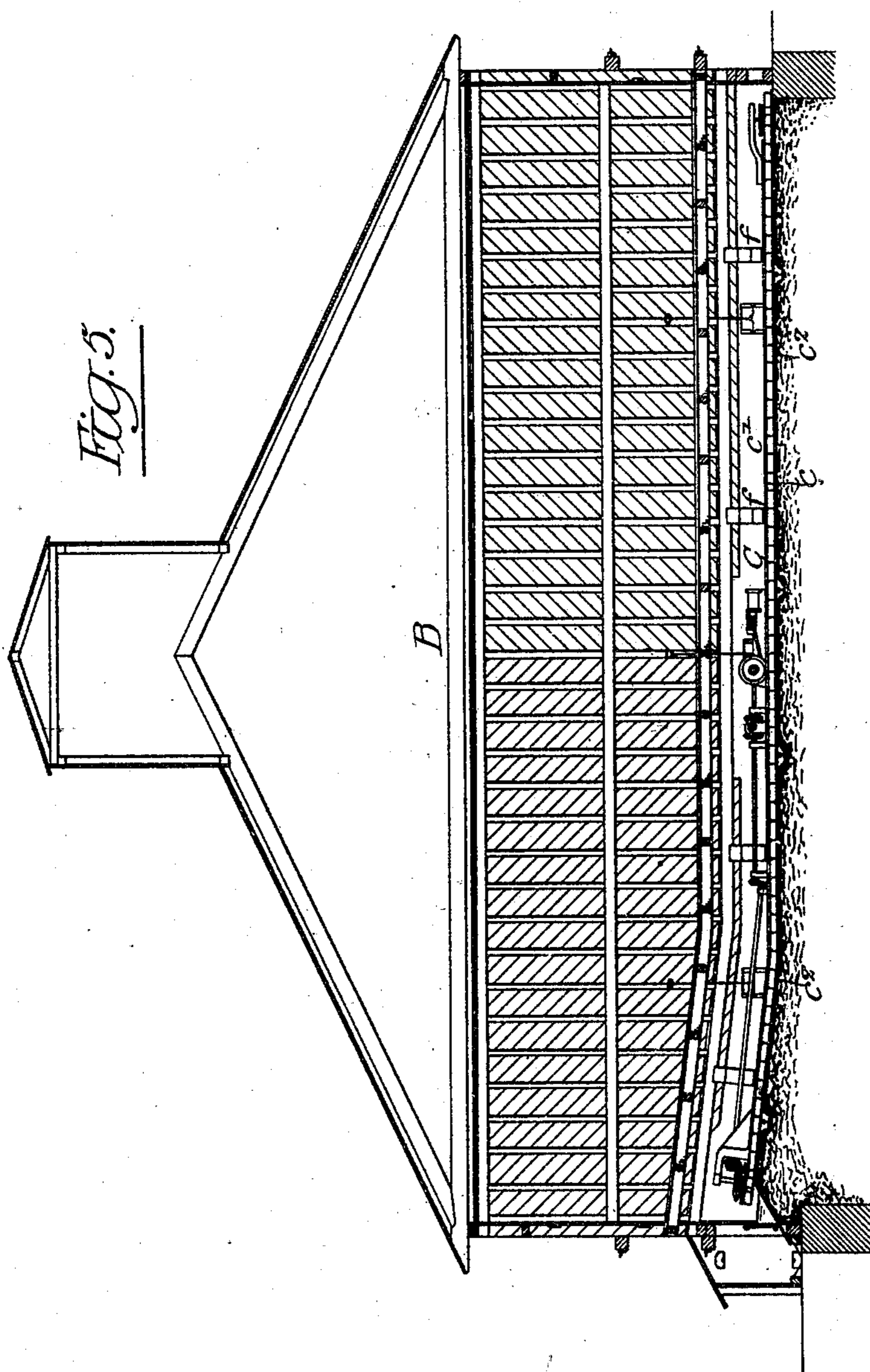
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APPLICATION FILED SEPT. 11, 1901.

NO MODEL.

5 SHEETS—SHEET 3.



Witnesses:-
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No. 719,366.

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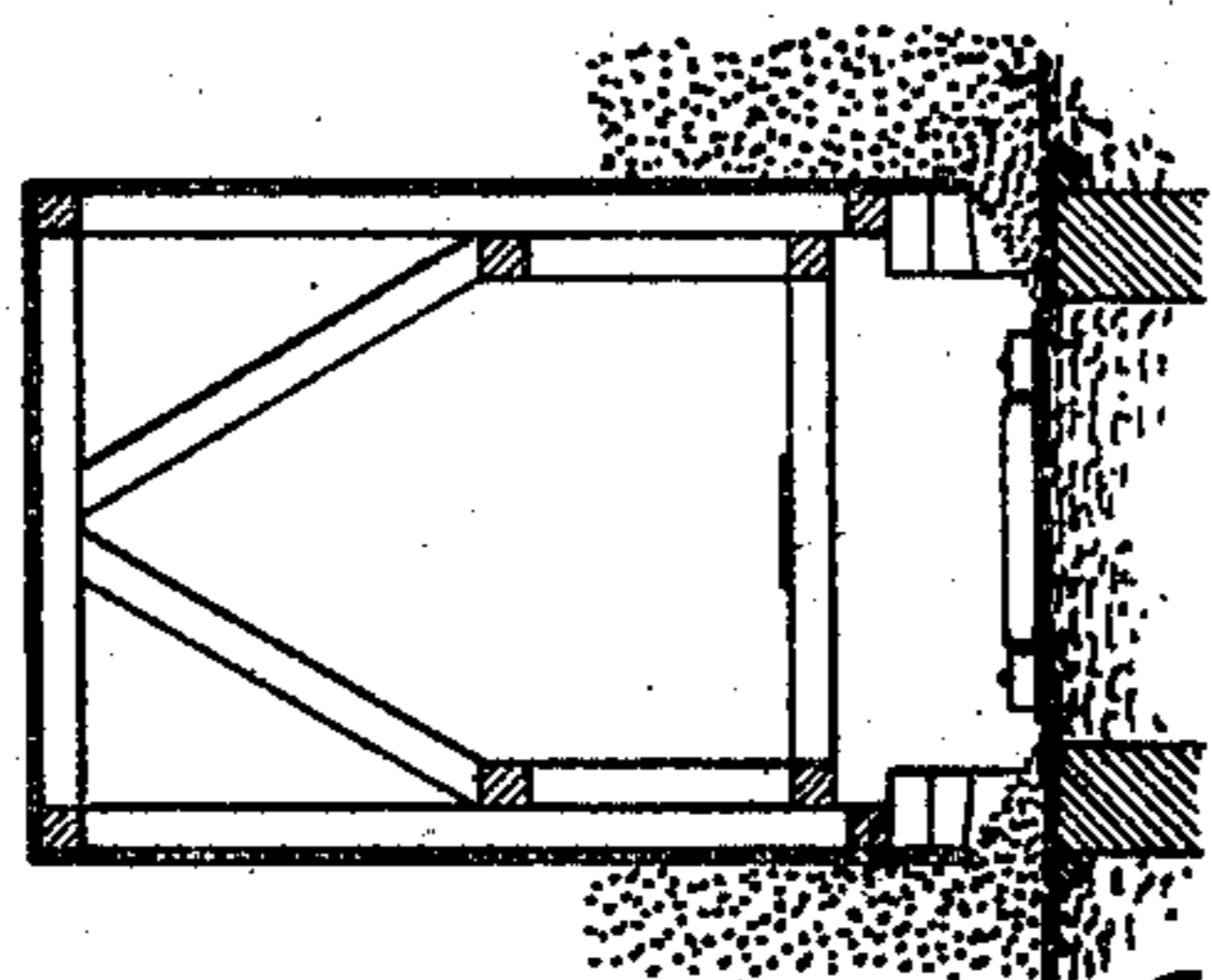
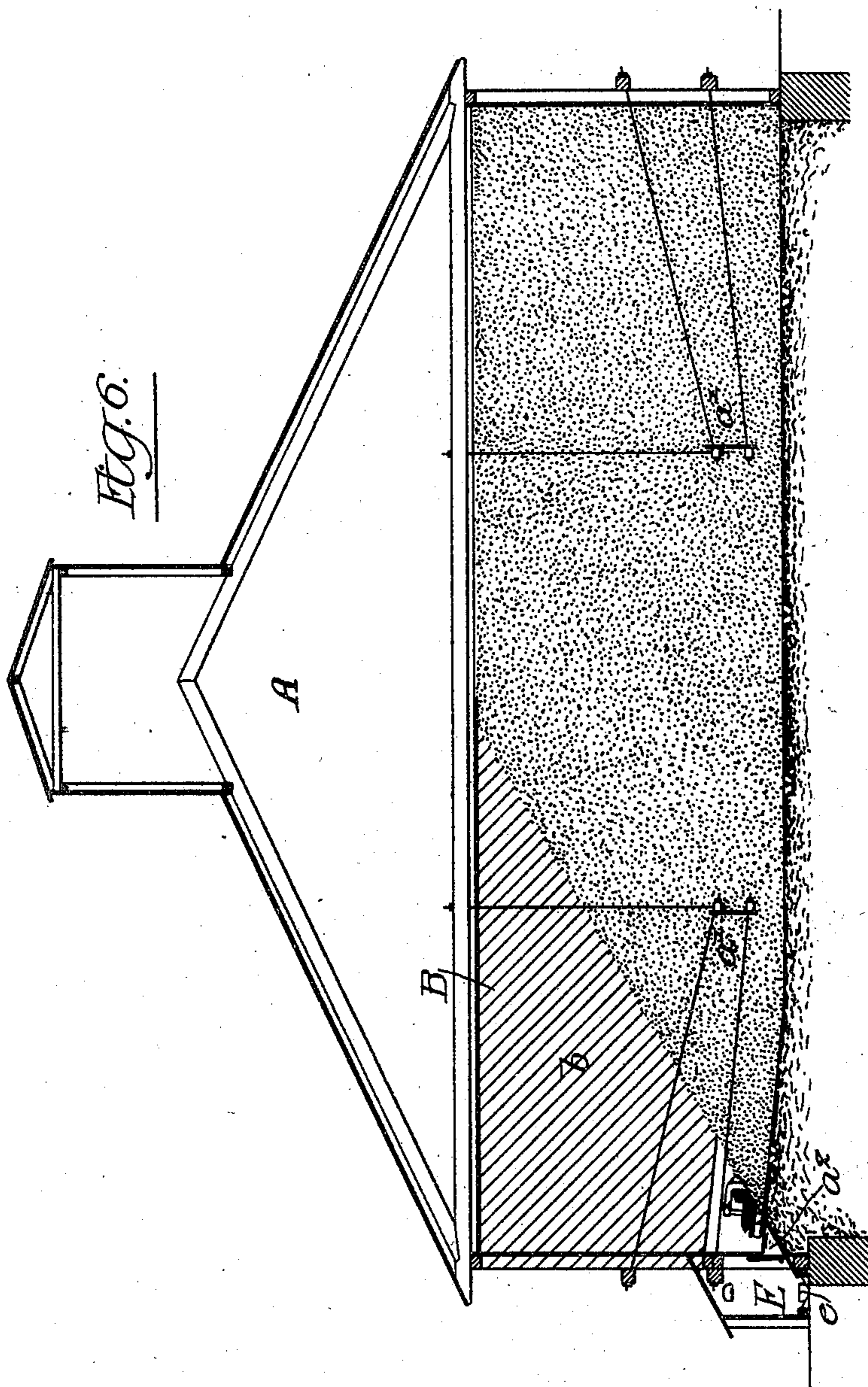
C. PIEZ.

STORAGE STRUCTURE.

APPLICATION FILED SEPT. 11, 1901.

NO MODEL.

5 SHEETS—SHEET 4.



Witnesses:-

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No. 719,366.

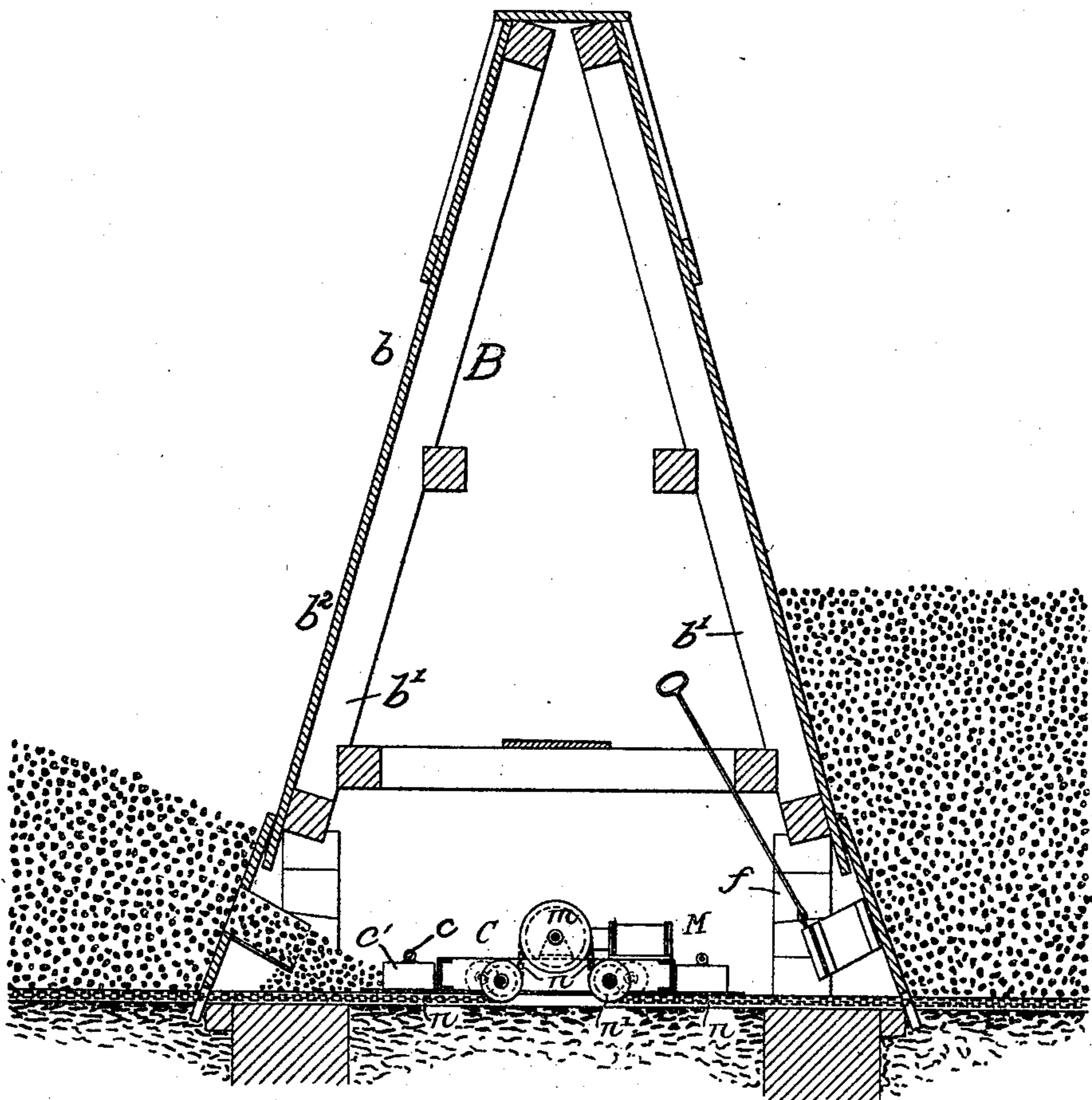
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STORAGE STRUCTURE.
APPLICATION FILED SEPT. 11, 1901.

NO MODEL.

6 SHEETS—SHEET 5.

Fig. 8.



Witnesses:-
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Inventor:
Charles Piez,
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UNITED STATES PATENT OFFICE.

CHARLES PIEZ, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO THE
DODGE COAL STORAGE COMPANY, OF NAUGATUCK, CONNECTICUT,
A CORPORATION OF CONNECTICUT.

STORAGE STRUCTURE.

SPECIFICATION forming part of Letters Patent No. 719,366, dated January 27, 1903.

Application filed September 11, 1901. Serial No. 75,039. (No model.)

To all whom it may concern:

Be it known that I, CHARLES PIEZ, a citizen of the United States, residing in Philadelphia, Pennsylvania, have invented certain Improvements in Storage Structures, of which the following is a specification.

My invention relates to certain improvements in buildings for the storage of large quantities of granular material—such, for instance, as coal.

The object of my invention is to provide a partition for the building, so as to divide the structure into two or more bins, and to utilize this partition as a cover or protector for the conveyer for removing the material of the pile stored in the bins. This type of conveyer is what is known as a "reloader;" and my invention is an improvement on the patent granted to James M. Dodge, No. 576,977, dated February 9, 1897.

In the accompanying drawings, Figure 1 is a plan view in diagram of a storage structure illustrating my invention with the anchor-plates removed. Fig. 2 is a longitudinal sectional view on the line 2 2, Fig. 1. Fig. 3 is a plan view of part of the bin drawn to a larger scale than illustrated in Figs. 1 and 2 and showing the material in one of the bins partly removed. Fig. 4 is a longitudinal sectional view on the line 4 4, Fig. 3. Fig. 5 is a transverse section on the line 5 5, Fig. 3. Fig. 6 is a transverse section on the line 6 6, Fig. 3. Fig. 7 is a view similar to Fig. 4, showing the conveyer for removing the material advanced from under the partition and in the act of removing material from the bin. Fig. 8 is an enlarged sectional view of the A-frame partition. Fig. 9 is a view of a modification.

The structure shown in Fig. 1 of the drawings consists of a quadrangular building A, divided by a solid transverse partition a and A-shaped partitions B B into bins A^1 , A^2 , A^3 , and A^4 by partitions in the present instance. The sides $b b$ of the partitions B are such a distance apart as to allow the removing-conveyer C to rest between the walls of the partition free of the material stored in the bins. The walls of the structure have anchor-plates

a' , which are embedded in the material in the bin. These anchor-plates are claimed in patent granted to James M. Dodge, No. 539,250, of May 14, 1895. At the side of the structure A is a longitudinal conveyer E, having flights e , into which material from the bins can be discharged through gated openings a^2 .

The reloading-conveyer C is of the type illustrated in Patent No. 576,977, cited above, and consists of a frame mounted on wheels at each side and having an endless chain c , provided with flights c' , each traveling over a carrying-surface c^2 . This conveyer can be traversed longitudinally within the structure across the floor of the bins on either side of the A-shaped partitions B by any suitable motor. In the present instance, Fig. 8, I have shown a motor M on the frame of the reloading-conveyer C, which drives a wheel m . A chain or cable n passes under guide-wheels n' and over the wheel m . Each end of this chain is anchored at the edge of the floor of the reloader, so that when the wheel m is turned the conveyer-frame is traversed in either direction over the floor. The detailed construction of the conveyer forms no part of my present invention.

The partition B, as mentioned above, is preferably A-shaped in cross-section, having heavy beams b' at each side $b b$, forming girders which are stiffened by the sheathing b^2 , forming one of the side walls of the bin. This construction enables me to provide a partition stiff enough to be supported only at each side of the structure when one or other of the bins is empty, so as to allow a sufficient opening d , Fig. 7, under the partition for the passage of the conveyer C when it is in motion. This passage is preferably closed by sheathing or doors D, which rest against the A structure and extend slightly below the floor of the building. In this sheathing D may be arranged a series of openings d' , provided with gates d^2 , so that when it is wished to remove material from the pile stored within the bin the gates can be opened and the material will flow under the partition B and into the path of the flights of the conveyer C, so that when the flights of the

conveyer are moved they will carry away the material as it accumulates, as clearly shown in Fig. 4.

Instead of the A-frame partition shown a partition B' may be used, as shown in Fig. 9, with vertical sides, although the A construction is preferable.

In some instances I may dispense with the removable doors or sheathing D and make the frame of the partition wide enough so that the material when stored in the bin will not encroach upon the conveyer—for instance, as shown in said Fig. 9.

The method of storing and removing is as follows: Before the material is stored the removing-conveyers C C are run under the A-shaped partitions B B, as shown in Fig. 2, and the doors D placed in position. Material—such, for instance, as coal—is then carried up by any suitable conveying mechanism (not shown) and discharged into any one or all of the bins A' A² A³ A⁴, Fig. 1. When it is desired to remove the material from one of these bins, the first operation is to open gates in the sides of the storage structure, so as to allow material—say in the bin A'—to escape through the opening a^2 into the endless-belt conveyer E in the present instance, which is situated at one side of the storage structure, so that the material can be continuously drawn from this side of the bin until the flow of material stops, which is when the angle of—say for coal—twenty-eight and one-half degrees is reached. Then the gates d^2 in the doors D are opened, commencing at one end, allowing the material to flow through the openings d' into the space under the partition B and into the path of the flights of the conveyer C. These flights will then remove the material as it flows until the pile has assumed the natural angle of repose, so that the pile will then be of the form shown clearly in Figs. 3 and 4, having two sides vertical and the other two sides inclined at the angle of repose of the material. The doors D, if the doors are used, are then removed, so as to allow a free opening from side to side of the storage structure for the longitudinal movement bodily of the conveyer C, so that when this conveyer moves bodily it will force itself against the side of the pile of material in the bin, and its flight will remove material from the pile and discharge it into the longitudinal conveyer E at the side of the structure, as set forth in the patent granted to James M. Dodge, No. 576,977, alluded to above. As the material is discharged the conveyer is kept up to the side of the pile, so that in time the entire mass of material in the bin is removed. Then the conveyer can be returned to its normal position under the partition B, and the doors D can be replaced, if doors are used, in the structure and the bin can be again filled with material. The same operation can be carried out with the bin A', or the other conveyer can be used to remove material from the bins A³ and A⁴.

In order to prevent the partition B from sagging when the material is piled in the bins, I preferably use blocks and wedges f , placed at intervals under the lower truss of the side frames b of the partition B, although it will be understood that in some cases the partition may be so designed and braced as to dispense with these removable blocks and wedges. Any substitute for the blocks and wedges may be used, if desired.

I claim as my invention—

1. The combination in a storage structure of a partition having a space thereunder, a conveyer arranged to normally rest in this space, and having means for removing material from the bin, said partition having an opening in one side for the passage of the conveyer from under the partition, substantially as described.

2. The combination in a storage structure of a partition having a space thereunder, a conveyer arranged to normally rest in this space, said conveyer having means for removing material from the bin, and means for traversing the conveyer over the floor of the bin, substantially as described.

3. The combination in a storage structure having two or more bins, a partition between the bins, said partition having a space thereunder, a conveyer normally seated in this space and protected by the partition, a longitudinal conveyer at one side of the structure and arranged to receive material from the bin within the structure and from the movable conveyer within the structure, substantially as described.

4. The combination in a storage structure, of an A-frame partition between the two bins, a longitudinally-moving conveyer arranged to travel over the floor of either bin, and having an endless-belt conveyer thereon, a longitudinally-arranged conveyer situated at one side of the structure and arranged to receive the material from either one of the bins, or from the movable conveyer within the structure, substantially as described.

5. The combination in a storage structure of an A-frame partition dividing the structure into two bins, a space under the A-frame partition, a conveyer normally at rest in the said space and protected from the material in either bin, means for moving the conveyer longitudinally over the floor of either bin so that the conveying mechanism of the conveyer will remove material from the pile and carry it to one side of the structure, substantially as described.

6. The combination in a storage structure of an A-frame partition dividing the structure into two bins, a space under the partition, a conveyer normally at rest in the said space and protected from the material in either bin, means for moving the conveyer longitudinally over the floor of either bin so that the conveying mechanism of the conveyer will remove material from the pile and carry it to one side of the structure, with

doors or sheathing forming a continuation of the sides of the partition and inclosing the space under the partition, substantially as described.

5 7. The combination in a storage structure of an A-frame partition dividing the structure into two bins, a space under the partition, a conveyer normally at rest in the said space and protected from the material in
10 either bin, means for moving the conveyer longitudinally over the floor of either bin so that the conveying mechanism of the conveyer will remove material from the pile and carry it to one side of the structure, with
15 doors or sheathing forming a continuation of the sides of the partition and inclosing the space under the partition, said doors or sheathing having openings and gates so as to allow material to pass through the openings
20 into the path of the conveyer, substantially as described.

8. The combination in a storage structure of a partition dividing the storage structure into two bins for the storage of material, a
25 conveyer normally situated under the partition and protected by it, said partition being in the form of a truss and resting only at each side of the structure so that there will be an unobstructed opening for the passage
30 of the conveyer from under the partition, substantially as described.

9. The combination in a storage structure

of a partition dividing the storage structure into two bins for the storage of material, a conveyer normally situated under the partition and protected by it, the side walls of the said partition being in the form of trusses and secured at each side of the structure so that there will be an opening under one or both side walls for the passage of the conveyer from under the partition, and with removable blocks and wedges arranged at intervals under the side walls of the partition, and supporting the partition when the bins are filled, substantially as described. 35 40 45

10. The combination in a storage structure, of an A-frame partition dividing said structure into two bins, a movable conveyer mounted normally between the side walls of the said partition so as to be protected from the material piled in the bins, the side frames of the said partition being in the form of trusses supported at each side so as to allow a free passage under each side for the movable conveyer to pass from under the partition, substantially as described. 50 55

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

CHARLES PIEZ.

Witnesses:

WILL. A. BARR,
JOS. H. KLEIN.