

No. 696,266.

Patented Mar. 25, 1902.

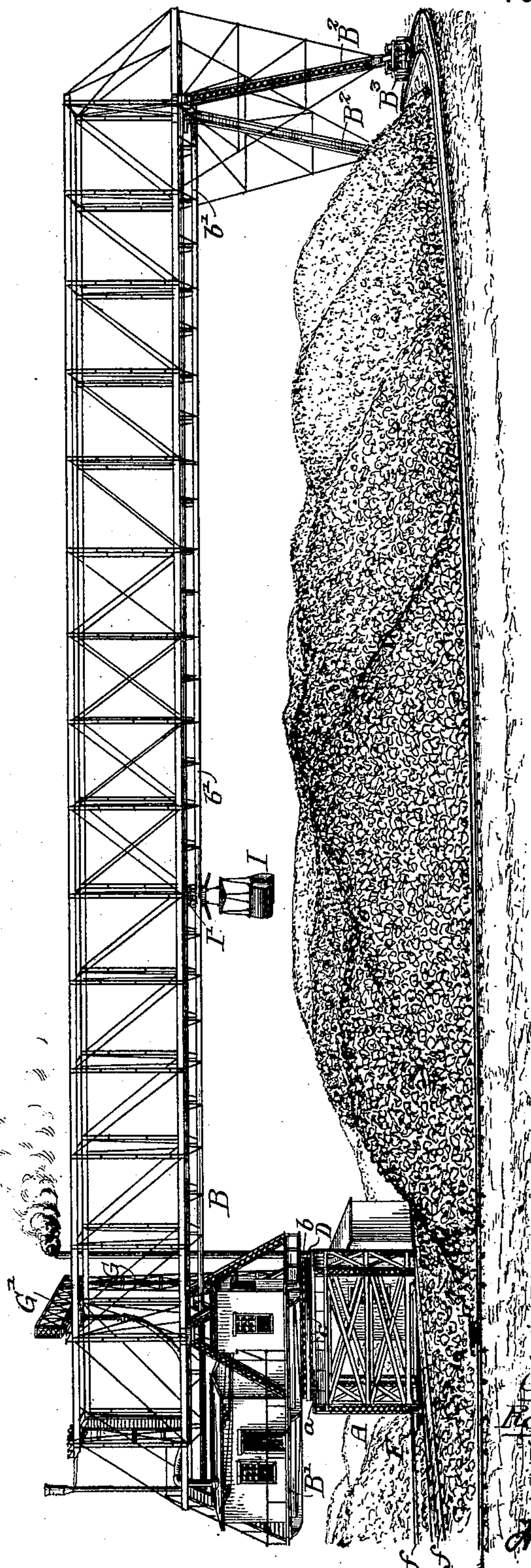
C. PIEZ & R. H. BEAUMONT.
STORAGE APPARATUS.

(Application filed Dec. 31, 1900.)

(No Model.)

4 Sheets—Sheet 1.

Fig. 1.



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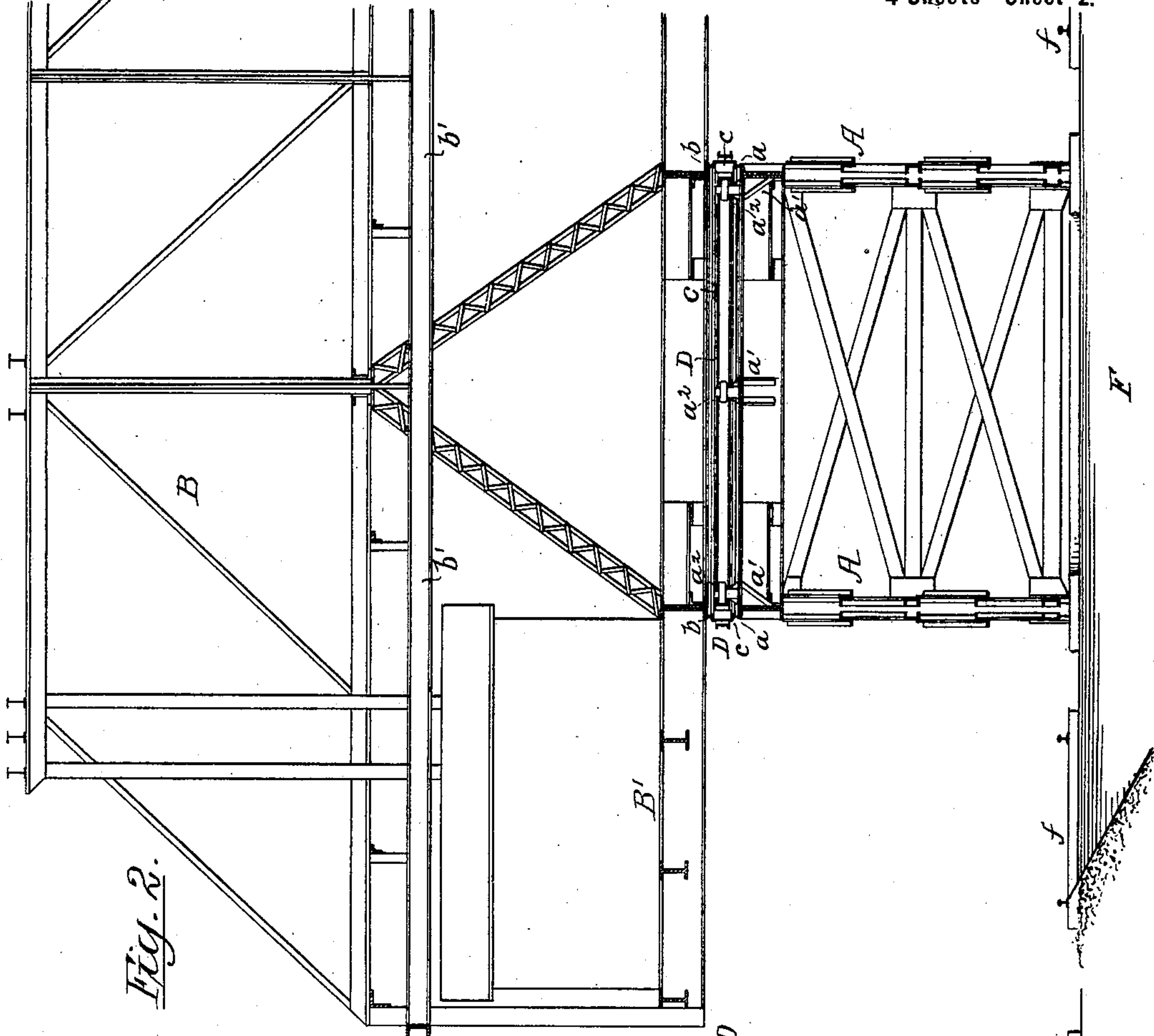


Fig. 2.

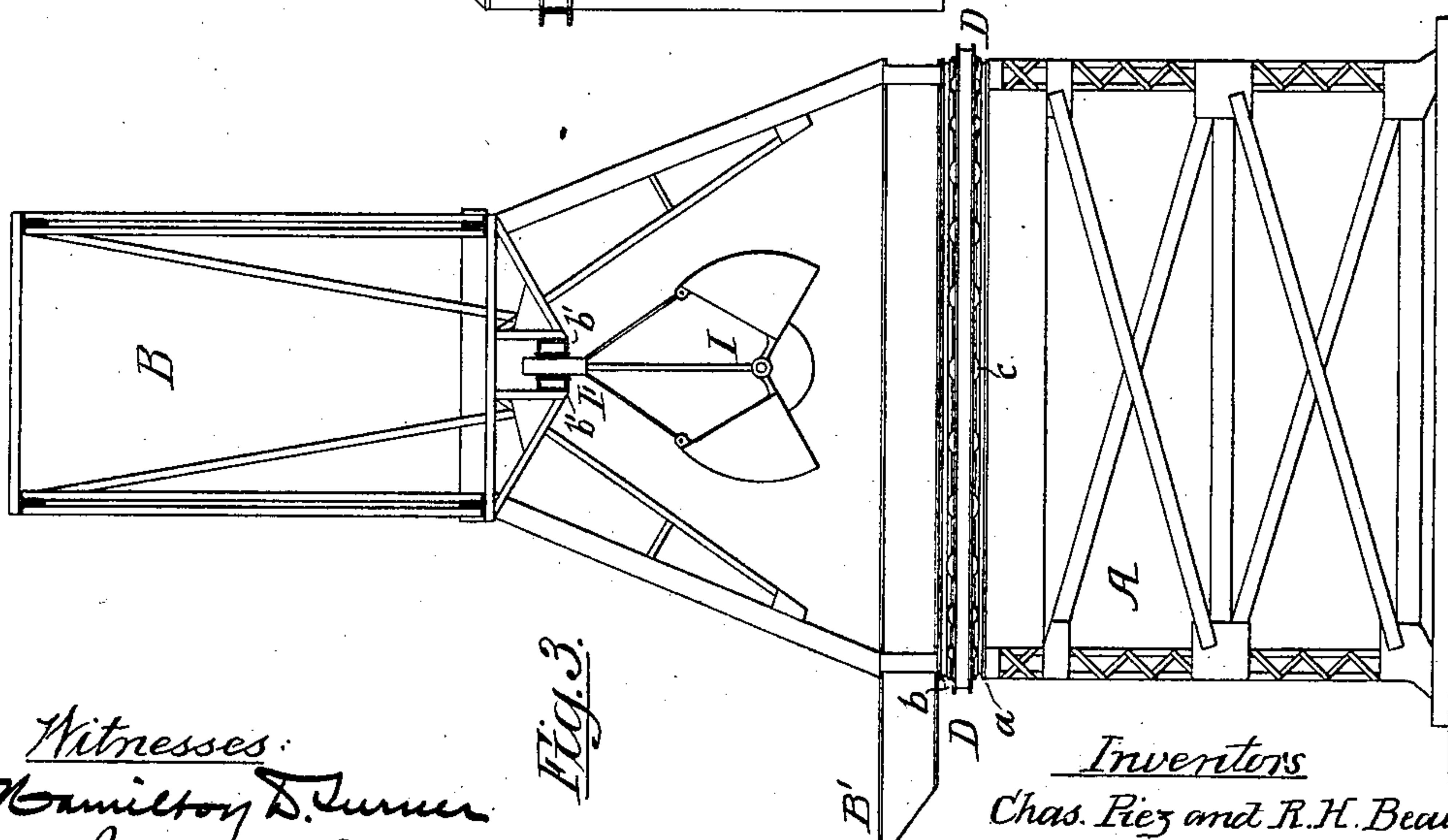


Fig. 3.

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Fig. 4.

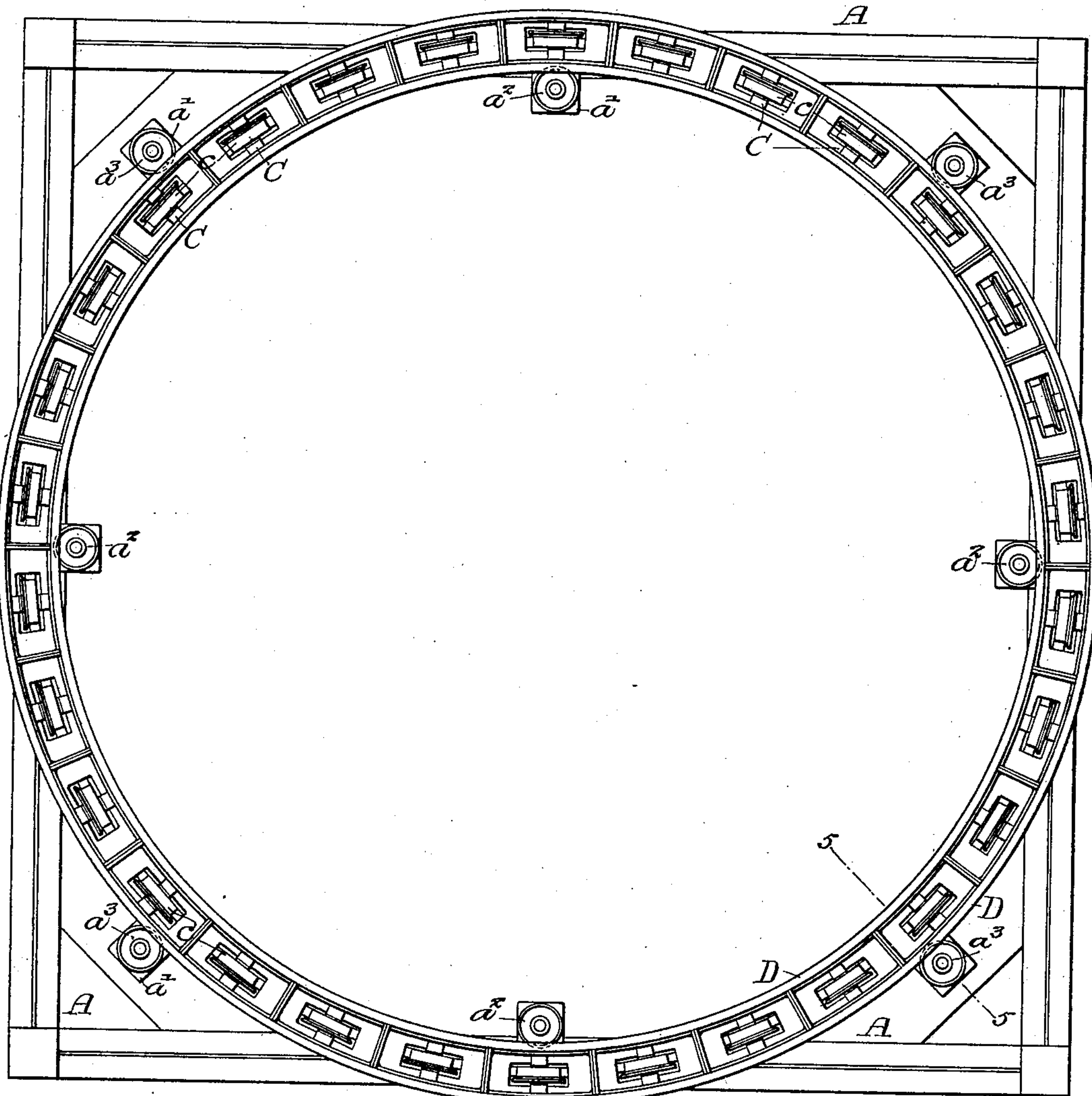
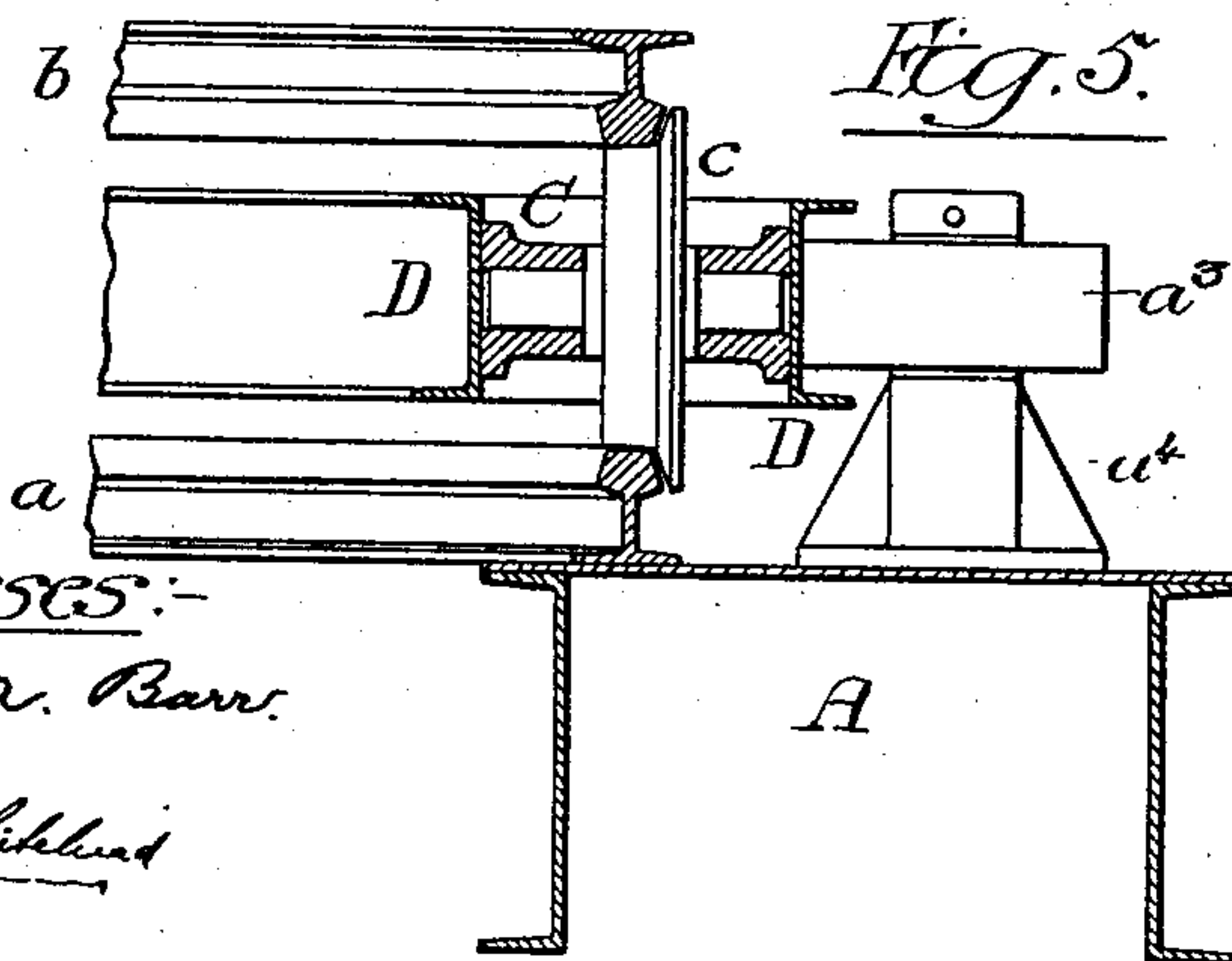


Fig. 5.



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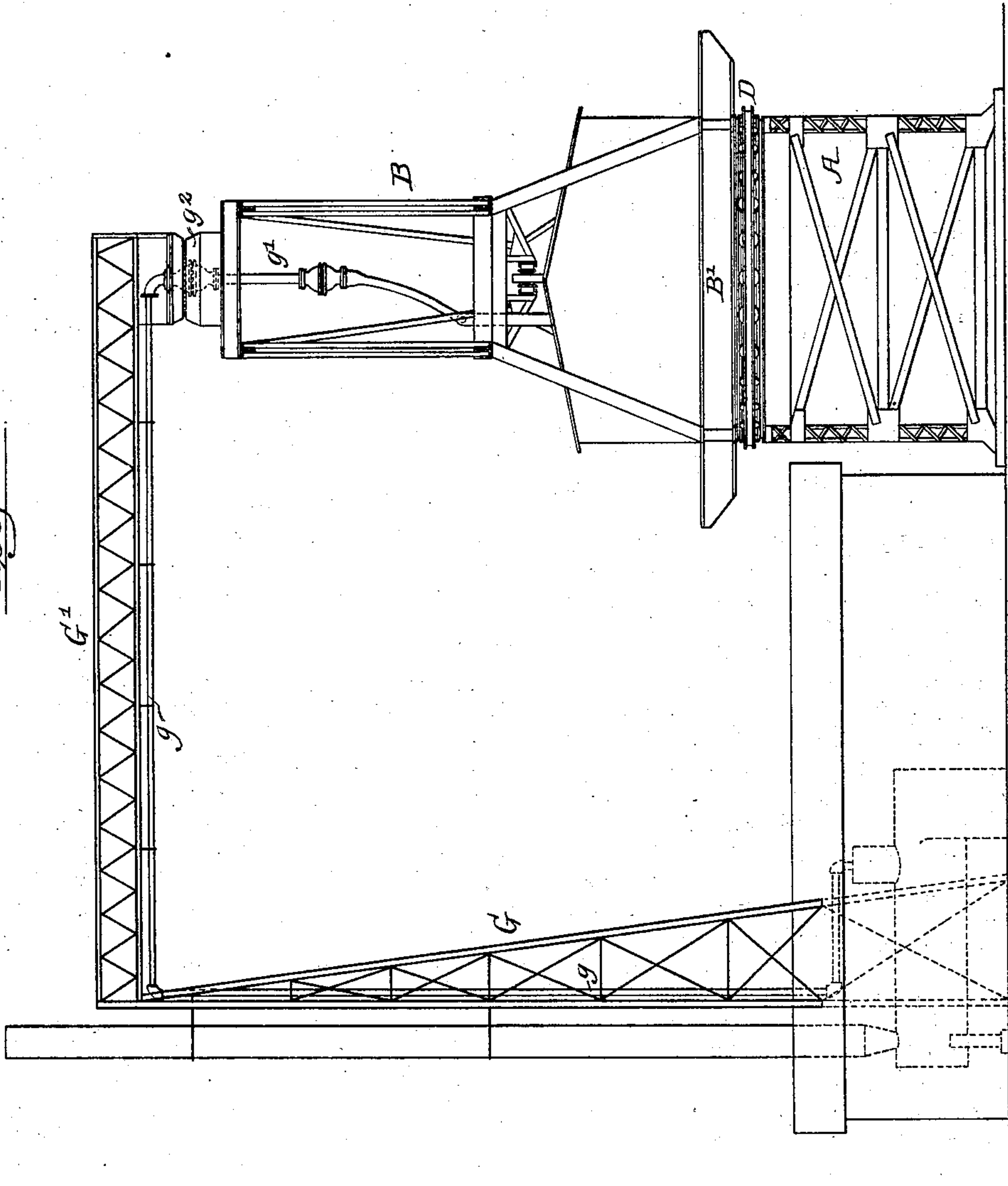
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(Application filed Dec. 31, 1900.)

(No Model.)

4 Sheets—Sheet 4.

Fig. 6.



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UNITED STATES PATENT OFFICE.

CHARLES PIEZ AND ROBERT H. BEAUMONT, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNORS TO THE DODGE COAL STORAGE COMPANY, OF NAUGATUCK, CONNECTICUT, A CORPORATION OF CONNECTICUT.

STORAGE APPARATUS.

SPECIFICATION forming part of Letters Patent No. 696,266, dated March 25, 1902.

Application filed December 31, 1900. Serial No. 41,640. (No model.)

To all whom it may concern:

Be it known that we, CHARLES PIEZ and ROBERT H. BEAUMONT, citizens of the United States, and residents of Philadelphia, Pennsylvania, have invented certain Improvements in Storage Apparatus, of which the following is a specification.

Our invention relates to certain details in the construction of apparatus for storing granular material, for which application for Letters Patent was filed by us on the 18th day of October, 1899, Serial No. 733,993.

The object of our present invention is to improve the details of construction of the apparatus shown in the above-mentioned application.

In the accompanying drawings, Figure 1 is a perspective view of the complete apparatus. Fig. 2 is a longitudinal sectional view. Fig. 3 is a transverse sectional view. Fig. 4 is a plan view showing the pivot; and Fig. 5 is a section on the line 5 5, Fig. 4. Fig. 6 is an end view showing the steam connection.

A is the fixed structure of the apparatus, which in the present instance is made of structural metal-work supported on a suitable foundation. This structure carries the lower rail *a* of the turn-table or open pivot.

B is the swinging structure, which is made in truss form of structural metal-work and carries the upper rail *b* of the open turn-table or pivot.

The wheels *c* of the pivot have their trunnions in suitable castings C, secured to two annular girder-beams D D. These annular girder-beams, with the casting C, form a carrying-ring for the wheels, and this carrying-ring is mounted between the fixed structure A and the swinging structure B, the wheels being supported on the rails *a* and in turn supporting the rail *b* of the swinging structure B.

The frame of the fixed structure A and the frame of the swinging structure B at the pivot-point are quadrangular in shape and are formed of beams, and short diagonal beams are mounted at each corner, so as to not only form a support for the rails, but also to add stiffness to the structure.

Carried by brackets *a'* on the fixed structure A are side-bearing wheels *a''*, which rest

against the interior circular beam D of the ring. Bearing-wheels *a''*, mounted on bearings *a'''* on the diagonal members of the frame, bear against the external beam of the ring, so that these wheels keep the ring central, thus dispensing with all braces and center pivots, leaving the center of the fixed structure, the ring, and that portion of the swinging structure directly above the center free for the travel of the elevating and conveying mechanism of the apparatus.

Directly under the fixed structure is a hopper F. This hopper may be of any shape desired and is preferably arranged to extend under the two tracks *ff* at each side of the structure, so that material can be discharged from the cars into the hopper from either track.

Carried by the swinging structure is a stage B', upon which is mounted the power-house and the house for the operator controlling the movement of the conveying mechanism and the position of the swinging structure.

In the present instance steam is used as the motive power, and this is conveyed through a pipe *g*, supported by a structure G at the power-house and by an overhanging truss structure or bridge G', to a centrally-arranged pipe *g'*, mounted on the swinging structure, Fig. 6, and this pipe is connected to the steam-supply pipe of the engine, carried by the swinging structure. A suitable swivel-coupling *g''* is used between the pipe *g* on the bridge and the pipe *g'* on the swinging structure. This method of conveying steam to the engine on the swinging structure may be modified without departing from the main feature of our invention; but in practice it is not essential to have the swinging structure make an entire circular sweep, as room must be left to allow for the passage of the cars to and from the point of discharge at the hopper.

It will be noticed that the truss structure proper is mounted sufficiently above the pivot-point to allow for the travel of the bucket from the center of the pivot through the supporting-frame to the overhanging portion of the structure.

By the construction shown a very large bucket may be used, as there is sufficient

space between the pivot-point and the under side of the truss structure to allow for the passage of such bucket.

The bucket I in the present instance is of the clam-shell type and is carried by a trolley I', having wheels mounted on tracks b', secured to the under side of the truss structure, as clearly shown.

The ropes for moving the trolley along the rails are supported by the truss structure and are mounted on suitable drums of the engine, and the ropes for operating the bucket itself are also carried by suitable guides and are mounted on suitable drums at the engine.

The engine we prefer to use is of the three-drum type, having one drum for the trolley-rope, one drum for the ropes for raising and lowering the bucket, and the other drum for opening and closing the bucket.

The outer end of the swinging structure is supported on two legs B² in the present instance, carried by trucks B³. The wheels of these trucks are mounted on circular or semi-circular tracks surrounding the piling-floor.

The swinging structure may be moved by power either from the power-house on the swinging structure or an independent engine carried by the outer supporting-legs for the truss structure or by an independent engine, if desired.

It will be seen by the above description that we are enabled to build at a comparatively low cost for structures of this type a piling apparatus which will take material from a fixed point and pile it at any point on the piling-floor within the radius of the swinging structure and the structure is so arranged that it can remove material from the pile and deliver it either to a hopper or directly to cars at the side of the structure, as desired.

This apparatus is especially applicable for piling bituminous coal, which must not be piled in high heaps and which must be handled carefully and economically. Furthermore, the swinging structure can be readily swung on its pivot, so that different grades of material can be piled at different points on the piling-floor, and the structure may be designed to pile a semicircular pile on one side of a line of track only or may be arranged to pile on both sides of the track.

We claim as our invention—

1. The combination with a fixed structure,

of a swinging structure pivoted to the fixed structure, both the fixed structure and the swinging structure at the pivot-point being open at the center, elevating and conveying mechanism mounted on the swinging structure and arranged to pass through the open center of the pivoted structure and the open center of the fixed structure, and a platform at one side of the swinging structure directly above the plane of the pivot, said platform carrying the hoisting-engine by which the elevating and conveying mechanism is driven, substantially as described.

2. The combination of a fixed structure, an annular rail, a swinging structure having an annular rail at the pivot-point, both structures being open at the center of the pivot, an annular carriage consisting of two rings, with a sectional casting mounted between them, and wheels carried by the casting and mounted between the fixed and the swinging structure, substantially as described.

3. The combination of a fixed structure, an annular rail, a swinging structure having an annular rail at the pivot-point, both structures being open at the center of the pivot, an annular carriage consisting of two rings, with a sectional casting mounted between them, wheels carried by the casting and mounted between the fixed and the swinging structures, with side-bearing guide-rolls for keeping the ring central, substantially as described.

4. The combination of a fixed structure, a swinging structure pivoted thereto, both having an open center, elevating and conveying mechanism mounted on the moving structure and arranged to pass through the center of the fixed structure, a tower at one side of the fixed structure, a bridge carried by the tower, a pipe supported by the tower and by the bridge, and a pipe on the movable structure leading to the hoisting-engine, on the movable structure, said pipe being coupled to the pipe on the bridge at the center of rotation of the movable structure, substantially as described.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

CHARLES PIEZ.

ROBERT H. BEAUMONT.

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RICHARD W. YERKES.