

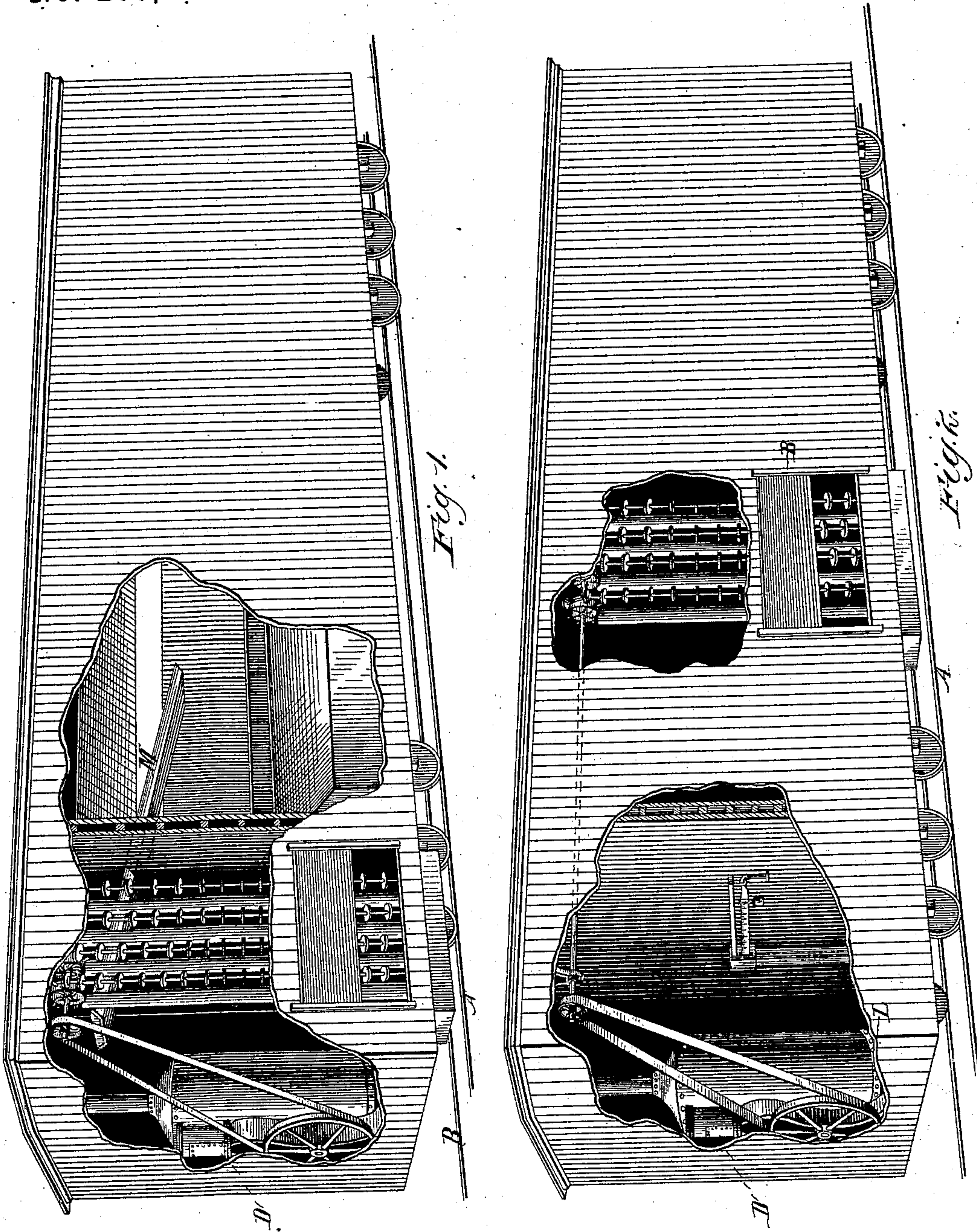
(No Model.)

5 Sheets—Sheet 1.

F. BIERCE.
GRAIN CONVEYER.

No. 286,764.

Patented Oct. 16, 1883.



Witnesses.

Will R. Quinhardt.
Ira Brammell.

Inventor.

Frank Bierce.

O. E. Duff
Atty

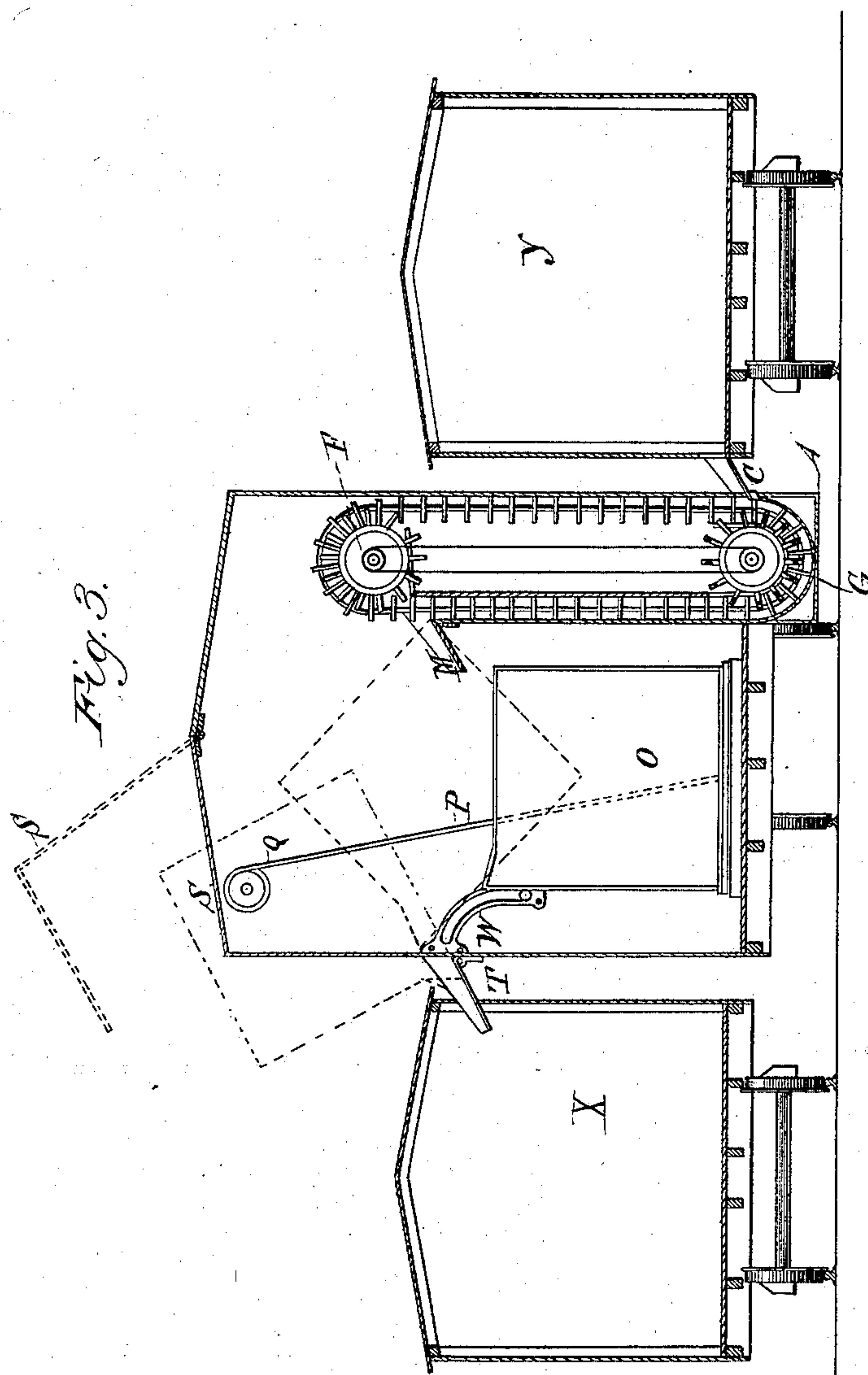
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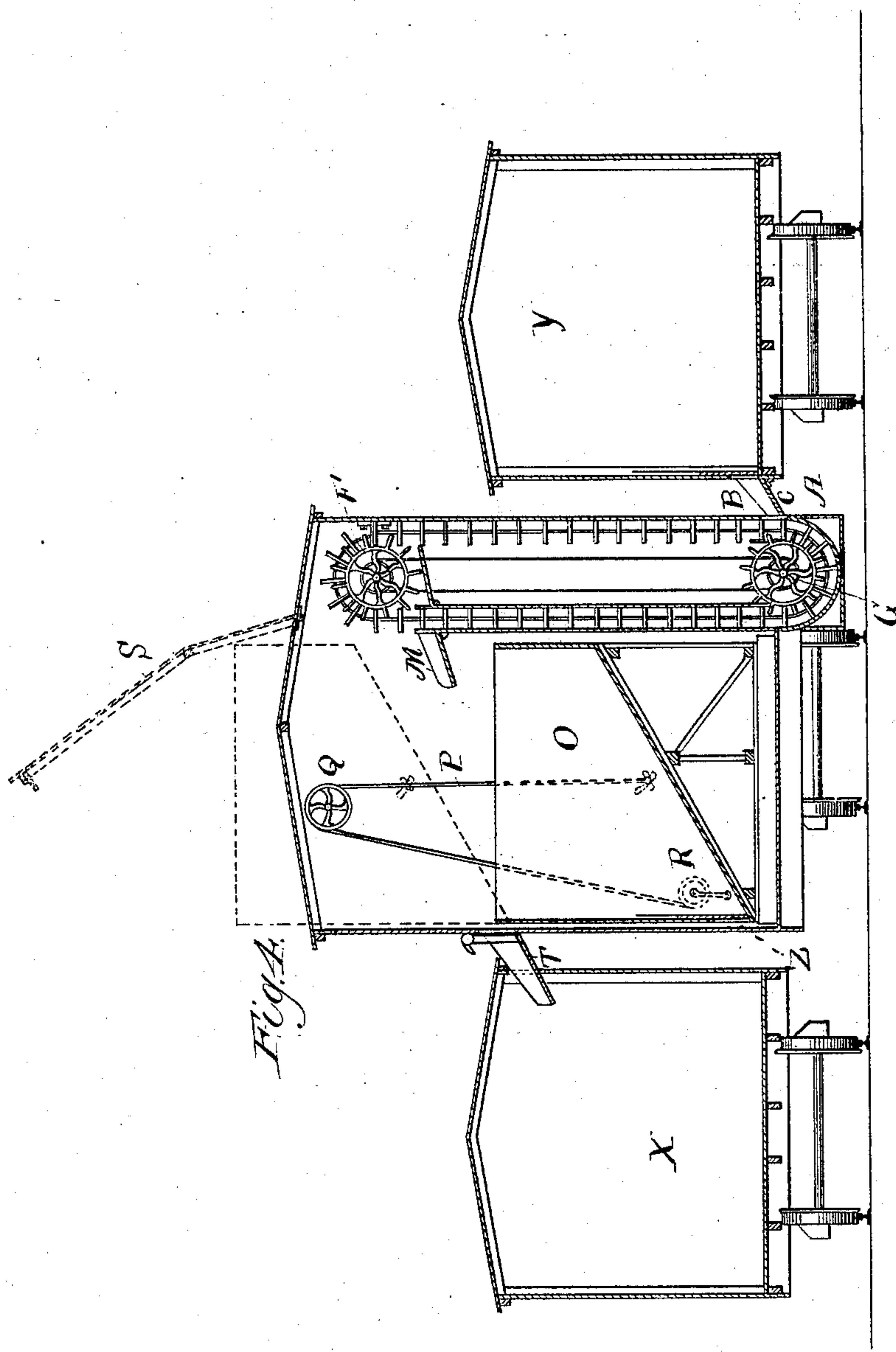
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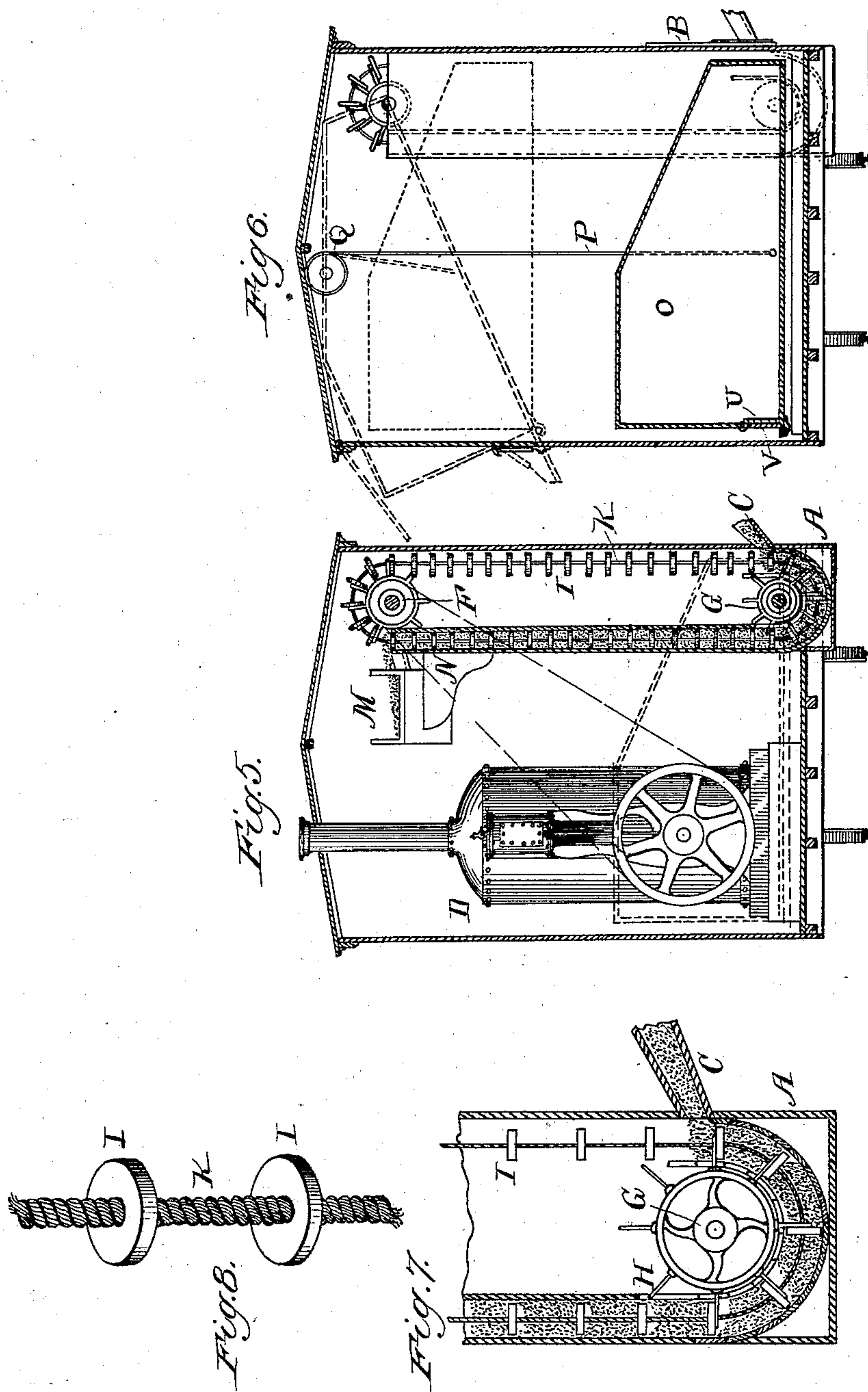
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(No Model.)

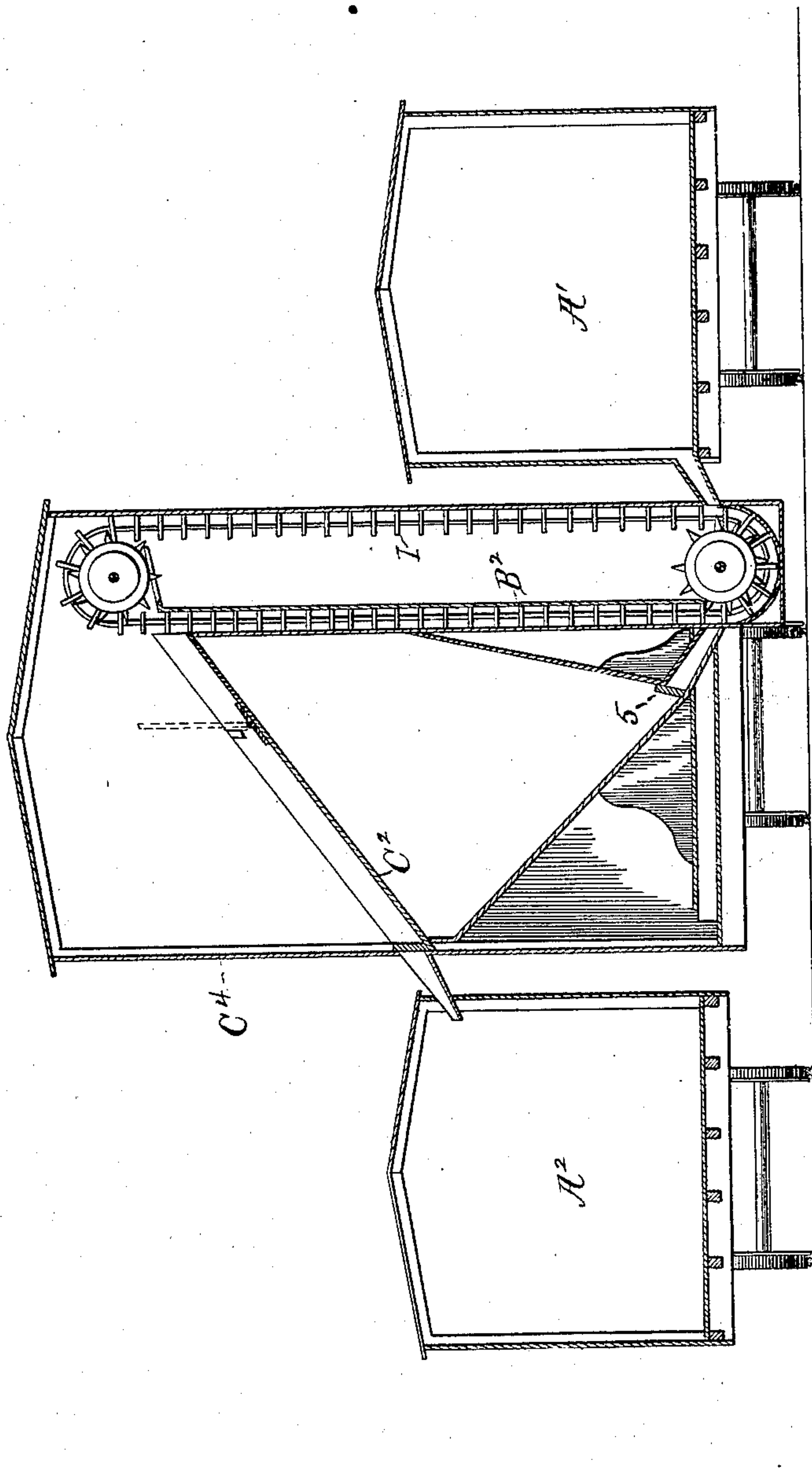
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Fig. 9.



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UNITED STATES PATENT OFFICE.

FRANK BIERCE, OF CHICAGO, ILLINOIS.

GRAIN-CONVEYER.

SPECIFICATION forming part of Letters Patent No. 286,764, dated October 16, 1883.

Application filed August 28, 1883. (No model.)

To all whom it may concern:

Be it known that I, FRANK BIERCE, of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Grain Conveyers or Trans-
5 ferrers; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make
10 and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form part of this specification.

In the prior state of the art to which my invention appertains it has been a well-known expedient, in the transfer of grain from one
15 box freight-car to another upon a neighboring track, to employ an intermediate transfer and weighing car provided with elevating devices, whereby the grain, after its reception from the
20 car to be unloaded has been weighed, is raised to a bin or chute in the upper part of the transfer-car, and thence discharged into the car to be loaded.

My present invention relates to a novel construction of the transfer-car employed in this
25 operation, whereby a more speedy action is insured, space and material economized, and a more satisfactory and efficacious result realized.

The advantages of my invention are hereinafter set forth in detail, and the particular features of novelty pointed out in the claims.

In the drawings, Figure 1, Sheet 1, represents a perspective view of my improved car,
35 a portion being broken away to show the internal disposition of parts. Fig. 2, Sheet 1, represents a similar view of a modified form of the same, and shows the position of the
40 weighing device. Fig. 3, Sheet 2, is a cross-sectional view of the two box-cars on separate tracks with an intermediate transfer-car containing my improvements. Fig. 4, Sheet 3, is
45 a like view, showing modifications in the construction of the transfer-car. Fig. 5 is an end view of the transfer-car, and Fig. 6 a cross-section showing a modification. Figs. 7 and
8 are detail views of the grain-elevator. Fig. 9 shows another means of transferring grain,
50 in which the grain is first elevated from the car to be emptied into a bin or receptacle, then

weighed, and again elevated to be emptied into a removable spout or trough, from which it is conveyed to the car or vessel to be loaded.

The body of the transfer-car is constructed
55 in the main like that of the ordinary box freight-car, which it exceeds in height to a greater or less extent, dependent upon the size and arrangement of the elevating devices within. Preferably near the end of the car is situ-
60 ated a subjacent box, A, extending as near the track as safety will permit. This box contains the elevator-housing, and directly above it the car is provided with a gate, B, for the admission of the delivery-chute C from the car to
65 be unloaded. The gate, box, and elevator may, if desired, be situated at some other point in the length of the transfer-car, as illustrated in Fig. 2. The steam-motor D, for operating
70 the elevator, is situated at the end of the car, as shown. A belt from the fly-wheel of the motor drives the upper line of shafting, which imparts motion to elevator, to which the wheel
F is attached. At the lower end of the elevator is placed the idler G, supported in suitable
75 bearings. Both wheels are provided with projecting blades or sprockets H, which are so spaced as to bear successively during their revolution upon the upper surface of the
80 disks or blocks I, fixed upon the rope or chain K. A series of these wheels and idlers is mounted upon the upper and lower shafts, respectively, each being furnished with a separate rope and elevating disks or blocks, and
85 having a common feed. Notable advantages accrue from the use of this series. The strain upon the working parts is more evenly distributed, the breakage of one of the ropes does
90 not interfere with the continued operation of the others, and the upper receiving-spout, M, need not be made so capacious, inasmuch as
95 it receives its supply all along its length, instead of at a single place, as with the ordinary bucket-elevators. The spout M is supported at an inclination upon the bracket N, fixed to
100 the side of the elevator-housing. It projects over the bin O, various modifications of which are shown in Figs. 3, 4, and 6. In Fig. 3 the movable elevating-bin is substantially rectangular in shape, with the exception of the upper left-hand side, which is extended upward in the form of a chute.

To the bottom of the bin is attached a rope, P, depending from an overhead pulley, Q, and operated by a winch, R, as shown in Fig. 4, or by other suitable means.

5 To the side of the car is attached the runway W, by which the bin O is guided upon being elevated, assuming at different points the positions shown in dotted lines in the drawings. The hinged roof-section S is drawn
10 up out of the way of the bin in its last position, where it discharges its contents by means of chute T into the car X. The weighing device L, preferably a Fairbanks scale, may be placed beneath the bin, as illustrated in Fig. 2.

15 In Fig. 4 the bin O is provided with an inclined bottom, resting upon strong frame-work for support. The lower left-hand side of the bin is provided with a gate, Z, which is opened to discharge the contents when the bin is ele-
20 vated. The roof-piece S is pivoted, as before remarked, so as to swing out of the track of the rising bin. In the form shown in Fig. 6 the bin is of such a form as to accommodate itself very nearly to the shape of the roof when
25 discharging its contents.

The discharge-valve is provided with a spring-catch, V, which is automatically tripped by a projecting pin when the bin has reached its upper position. The three modifications shown,
30 while differing in detail, have these generic features in common: first, they are vertically adjustable in the car, so that after being completely filled they may be raised and discharged at once; secondly, they rest, while being filled,
35 upon the bottom of the car, from which circumstance the height of the elevator, and consequently of the car itself, is materially lessened; thirdly, the walls or roof of the car are hinged, so as to permit the upwardly-moving
40 and adjustable bin to assume the best possible position for discharging its contents.

A' represents the car from which (in Fig. 9) the grain or material is to be taken, and A² the car which it is desired to load.

45 C¹ is the transfer apparatus, provided at one side, within, with elevator B².

C² is a chute extending from the top of the elevator out to or through the side of the apparatus. A part of this chute adjacent to the
50 elevator acts as a trap or valve, and is adapted to be raised, thus forming a passage through

to the bin below, its position when up being shown in dotted lines. A valve, 5, is located in the spout, through which the grain passes to be elevated after having been directed to
55 the bin and weighed. This operation is as follows: The grain is first elevated from the car, and, by opening the trap or valve in chute C², the said grain or material is directed to the bin below, where it is weighed and again elevated,
60 the said valve being closed. It is thus directed by the chute to the receiving car or vessel.

Having thus described my invention, what I claim is—

1. In a car for the transfer of grain, weighing
65 mechanism, in combination with a vertically-adjustable bin, substantially as described.

2. In a car for the transfer of grain, weighing mechanism, in combination with a bin and means for raising and tilting it, substantially
70 as described.

3. In a car for the transfer, or transfer and weighing, of grain, the combination of the bin with the hinged car-sections S, for permitting it to assume the proper position for discharge.
75

4. The combination of the bin O, rope P, and pulley Q with the guideway W and chute T, substantially as described.

5. In a car for the transfer, or transfer and weighing, of grain, the combination of the ele-
80 vating device, the chute M, the adjustable bin O, and the discharge-chute T, substantially as described.

6. In a transfer, or transfer and weighing, car, the combination of the upper chute, M, a
85 series of elevating devices feeding along its length, with an elevating-bin, substantially as described.

7. The combination, in a transfer-car, of the elevating device with a transfer-bin pro-
90 vided with a valved spout at its lower end, and a valved or movable trough or chute for conveying the grain from the hopper or elevating device to the car to be loaded, or to other vessel, substantially as herein described.
95

In testimony that I claim the foregoing as my own I affix my signature in presence of two witnesses.

FRANK BIERCE.

Witnesses:

CHAS. B. REYNOLDS,
ROBT. L. BENSON.