

(No Model.)

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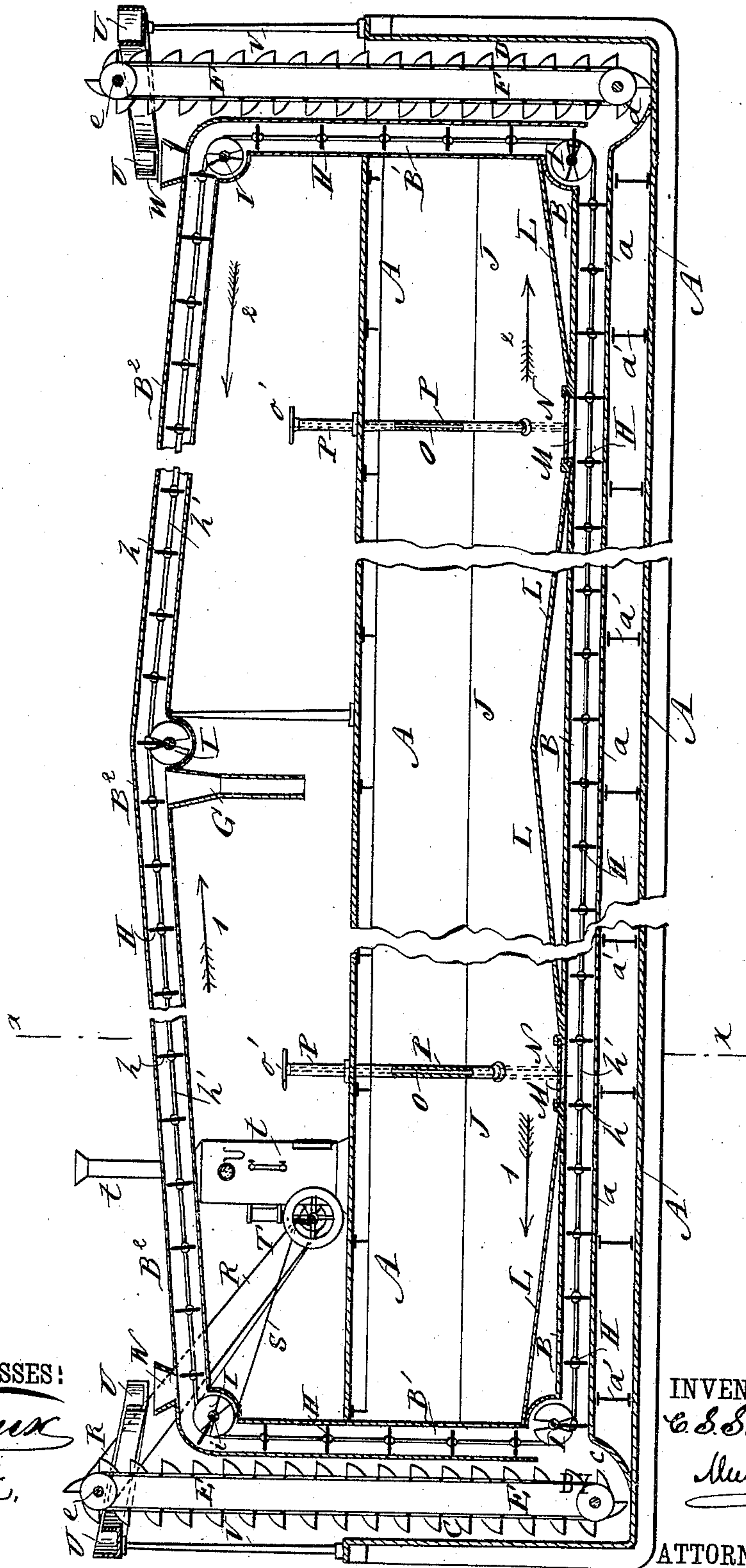
C. S. SCHENCK.

APPARATUS FOR DISCHARGING AND CONVEYING COAL.

No. 409,872.

Patented Aug. 27, 1889.

Fig. 1



WITNESSES:

C. Schenck
C. Schenck

INVENTOR:

C. S. Schenck
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ATTORNEYS.

(No Model.)

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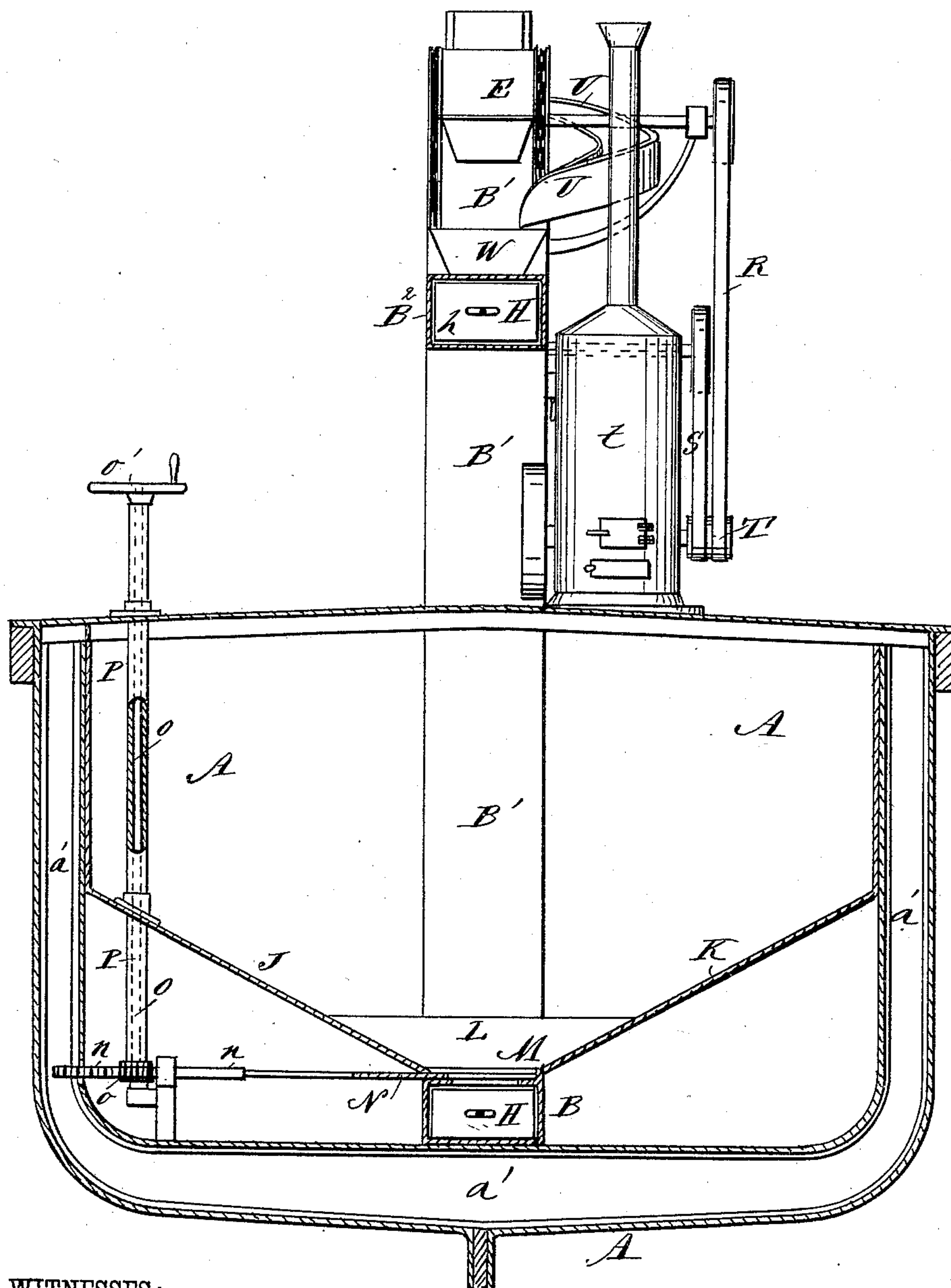
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Fig. 2



WITNESSES:

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(No Model.)

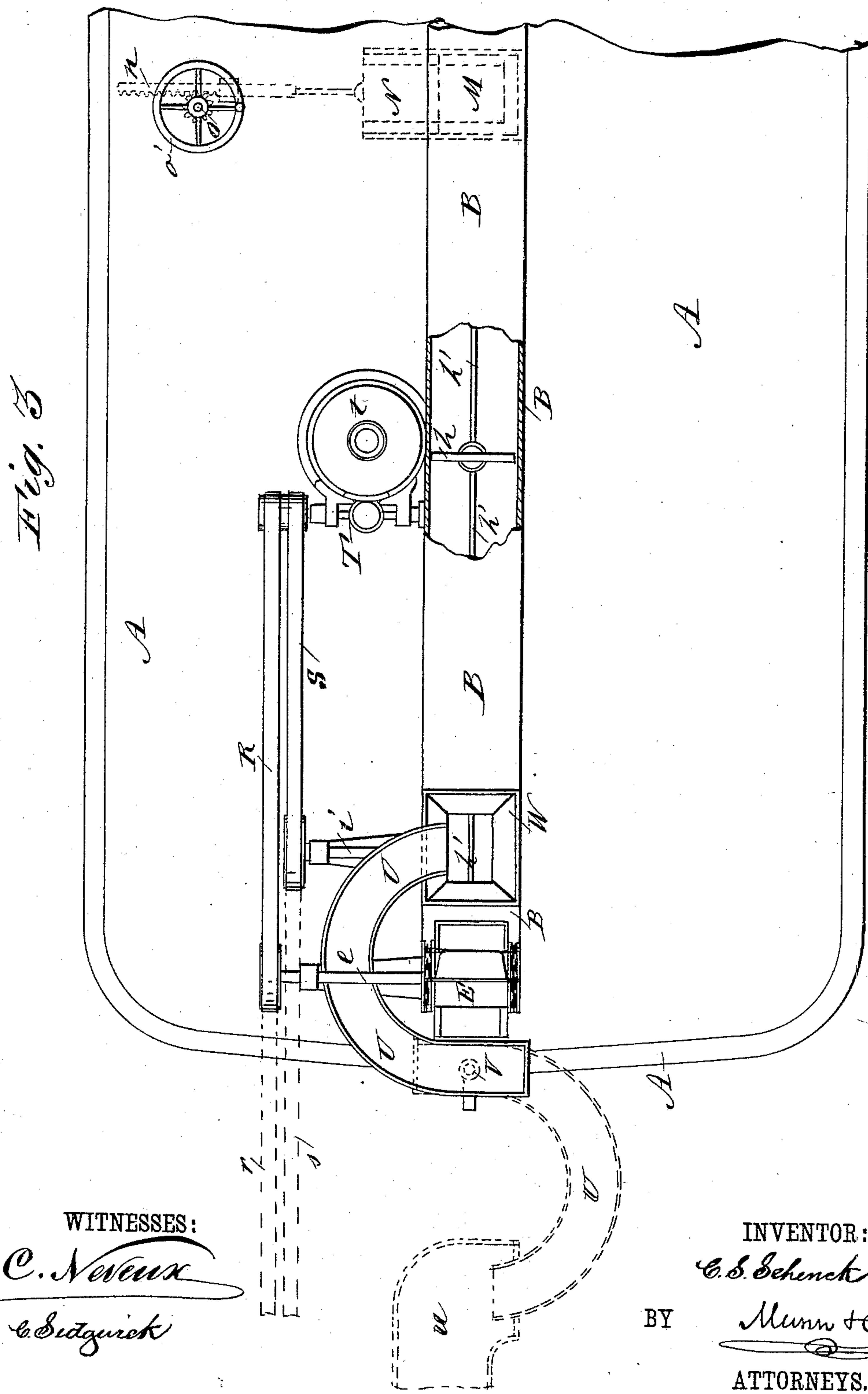
3 Sheets—Sheet 3.

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Patented Aug. 27, 1889.



UNITED STATES PATENT OFFICE.

CHARLES STEWART SCHENCK, OF NEW YORK, N. Y.

APPARATUS FOR DISCHARGING AND CONVEYING COAL.

SPECIFICATION forming part of Letters Patent No. 409,872, dated August 27, 1889.

Application filed June 3, 1887. Serial No. 240,138. (No model.)

To all whom it may concern:

Be it known that I, CHARLES STEWART SCHENCK, of the city, county, and State of New York, have invented a new and Improved
5 Apparatus for Discharging and Conveying Coal or other Material, of which the following is a full, clear, and exact description.

My invention relates to an apparatus for delivering coal, grain, sand, or other material
10 from vessels more particularly, and has for its object to provide a simple and comparatively inexpensive apparatus by which cargoes may be discharged at various points of delivery, or material may be transferred in
15 factories or other structures, and whereby substances may be handled with economy of time and labor.

The invention consists in certain novel features of construction and combinations of
20 parts of the apparatus, comprising the system of conveyance and discharge, all as hereinafter described and claimed.

Reference is to be had to the accompanying drawings, forming a part of this specification,
25 in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a central vertical longitudinal sectional elevation of a coal-barge to which my improved apparatus for discharging and
30 conveying material is applied, and with parts broken away. Fig. 2 is a transverse vertical sectional elevation taken on the line $x x$, Fig. 1, and drawn to a larger scale; and Fig. 3 is a plan view of one end of the coal-barge
35 and apparatus thereon, drawn to the same scale as in Fig. 2.

Although I herein show and describe my invention as applied to use in discharging coal from a barge or boat, the system may be
40 practiced to advantage in unloading grain, sand, or other substances from vessels, and also for conveying material in storage-warehouses and other places.

The hull of the coal-barge A may have any
45 ordinary form and suitable tonnage capacity. At the longitudinal center of the hull and above the inner planking or sheathing a , which covers the transversely-ranging hull-timbers a' , a chute or trough B is built preferably for quite the full length of the barge,
50 and opens at each end into wells or depressions $c d$, which communicate with upright

shafts C D, in which bucket-elevators E F are adapted to operate. These elevators are preferably arranged at opposite ends of the
55 barge, and may have any approved construction. The trough B is continued upward at B' B' from opposite ends of its bottom portion B, and thence extends to the center of the barge by portions B² B², which range
60 along over the deck of the barge. About where the trough portions B² B² meet, or near the fore-and-aft center of the barge, a discharge spout or chute G is attached to the
65 trough, and is preferably made as a swivel-spout, which may be swung around to discharge coal from the trough at any desired place, either directly or through intermediately-arranged pipes or conduits.

Within the trough B B' B² a conveyer H,
70 consisting of flights or plates h , attached to chain-links h' , is arranged to travel over suitable sprocket-wheels I, journaled at the angles of the trough. With this construction the conveyer H may be operated in the trough
75 to carry coal or other material along the trough to either of the elevator-wells $c d$, or to the overhead discharge-spout G, as hereinafter more fully explained.

The barge-hull is preferably provided with
80 oppositely-inclined sides J K and a series of oppositely-inclined fore-and-aft floors L, which divide the hull at the bottom into a series of hopper-like compartments, each converging to openings M, made in the trough B, thus
85 causing the entire load to gravitate toward these openings, which are closed by gates N, each of which has a stem n , provided with a rack which is engaged by a pinion o , fixed to a shaft O, which extends upward through the
90 barge-deck, and has a hand-wheel o' or equivalent device by which the shaft may be turned to open or close the gate. It is obvious that the gate or gates N anywhere along the vessel may be opened to discharge the cargo into the
95 trough B from any particular part of the barge or from all parts of it at once, as may be most desirable or necessary. The gate-operating shafts O will preferably pass through pipe-casings P, to protect the shafts and connected
100 gearing from clogging up with coal or other material with which the barge is loaded.

The elevator E and the conveyer H will preferably be operated by bolts R S, respect-

ively, which run from pulleys on the shaft *e* of the upper bucket-belt and a pulley *i* on the shaft of the adjacent conveyer-wheel *I* to pulleys on the driving-shaft of an engine *T*, which may, with its boiler *t*, be a self-contained motor carried on the barge; or, if preferred, belts *r s*, leading to the elevator and conveyer driving pulleys may extend outward and, as will be understood from the dotted lines in Fig. 3 of the drawings, to pass over driving-pulleys of an engine on a float or wharf. When the elevator-buckets rise at the outer side of the leg *B'* of the trough, one of the belts—preferably the conveyer-belt *S*—will be crossed, as shown most clearly in Fig. 1 of the drawings, to give upward motion of the conveyer *H* through the part or leg *B'* of the trough. The drawings show a motor *T* at one end of the barge; but a like motor may be provided at each end of the vessel for working the conveyer in either direction, or the same motor *T* may be shifted from one end of the vessel to the other, as may be desired.

Next each of the elevators a discharge-spout *U* is supported pivotally at the top of a post *V*, fixed to the barge, and in a manner to receive the coal or other material from the elevator-buckets and automatically discharge it into a hopper *W*, opening at its bottom into the upper part *B²* of the conveyer-trough when the spout is adjusted as shown in full lines in the drawings; but when the spout is swung around to the position indicated in dotted lines in Fig. 3 of the drawings it will discharge the material it receives from the elevator directly into another spout or chute *u* on the wharf or elsewhere, or, it may be, directly into wagons standing below the spout *u*. It will be understood that the use of an elevator at each end of the barge is not essential, as the cargo may be fully discharged through the spout *G* by the use of a single elevator, but providing the two elevators promotes convenience in discharging the cargo; hence their use is at present preferred. We will suppose, for example, that the conveyer *H* is being moved along the trough in the direction indicated by the arrows 1 in Fig. 1 of the drawings. Any one or more of the gates *N* will be opened, and the coal or other cargo will pass into the trough and will be carried forward by the conveyer *H*, and will fall into the elevator well or pocket *c*, and will be immediately raised by the buckets of the elevator *E* and discharged therefrom into the spout *U*.

Should it be desired to carry the coal to the discharge-spout *G*, the spout *U* will be adjusted to discharge the elevated coal into the adjacent hopper *W* and upper portion *B²* of the trough, and the conveyer *H* will again act on the coal to carry it forward to discharge at the spout *G*, as will readily be understood. To discharge the coal directly from the spout *U*, it will be adjusted as shown in dotted lines, and as hereinbefore described.

Should the conveyer *H* be moving along the trough in the direction of the arrows 2 in Fig. 1 of the drawings, when the gates *N* are opened the coal will be carried by the conveyer *H* along the trough *B* to the well *d*, and will be raised by the elevator *F* and discharged therefrom into the adjacent spout *U*, to be passed from it either to the upper part *B²* of the trough for discharge at the spout *G*, or directly outboard to the spout *u*, or into a wagon below the spout.

Experience has proved that a conveyer made of flights or plates connected to operating links or chains and running in a trough or chute is quite liable to clog when it is attempted to lift coal, grain, sand, or other loose, lumpy, or granular material vertically or up a steeply-inclined trough; but bucket-elevators are especially adapted for this vertical or steep-grade lifting; hence by combining the flight conveyer and bucket-elevator substantially in the manner above described I am able to quickly and economically discharge cargoes of vessels or lift and convey coal or other loose granular material without waste of it and with economy of time and labor.

It is immaterial whether the elevator be placed outside of or beyond the vertical or steeply-inclined leg *B'* of the conveyer-trough, as shown in the drawings, or at the other side of the leg and off a little laterally from the leg, the bottom or well of which would then be inclined to lead the material to the elevator-buckets, as will readily be understood.

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

1. In an apparatus for discharging and conveying coal or other material, the combination, with an endless-belt conveyer discharging into a well or pocket, of a bucket-elevator lifting the material from the well, and a chute receiving the material from the elevator and delivering it to the upper trough in which the conveyer-belt works for carriage by the conveyer to a distant point of discharge, substantially as herein set forth.

2. In an apparatus for discharging and conveying coal or other material, the combination, with an endless-belt conveyer discharging into a well or pocket, of a bucket-elevator lifting the material from the well, and a chute pivoted to turn sidewise and receiving the material from the elevator, and adapted to discharge the elevated material either to the upper trough in which the conveyer-belt works for carriage to a distant point of discharge, or to discharge said material directly, substantially as described, for the purposes set forth.

3. In an apparatus for discharging and conveying coal or other material from vessels, the following elements in combination: a trough *B B' B²*, having gated openings *M N* and opening into wells or pockets *c d* at each

end of the trough portion B, an endless conveyer H, working in the trough and adapted to deliver material to either well *c d*, and two bucket-elevators E F, either of which is
5 adapted to lift the material from said wells and deliver it to points of discharge, substantially as herein set forth.

4. In an apparatus for discharging and conveying coal or other material from vessels,
10 the following elements in combination: a trough B B' B², having gated openings M N and opening into wells or pockets *c d* at each end of the trough portion B, an endless

conveyer H, working in said trough and adapted to deliver material to either well *c d*, 15 two bucket-elevators E F, either of which is adapted to lift the material from said wells, and pivoted discharge-spouts U, receiving the material from the elevators and adapted to deliver it either to the upper section B² of the
20 conveyer-trough or outboard for direct discharge, substantially as shown and described.

CHARLES STEWART SCHENCK.

Witnesses:

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EDGAR TATE.