(No Model.) 3 Sheets—Sheet 1.

F. J. WEBER.

GRAIN TRANSFER APPARATUS.

No. 589,106. Patented Aug. 31, 1897.

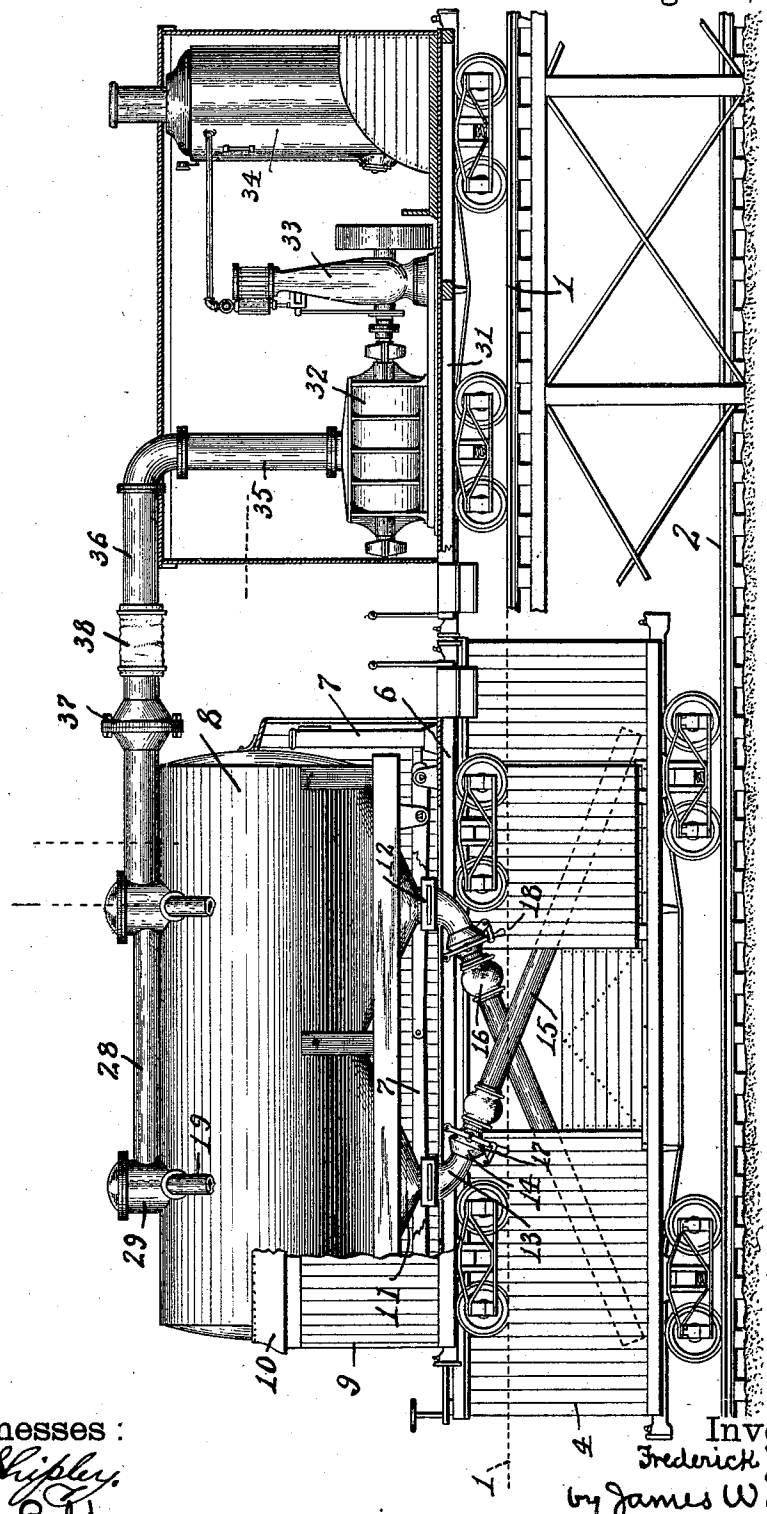


FIG. 1.

Witnesses:
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M. S. Belden.

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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

(No Model.) 3 Sheets—Sheet 2.

F. J. WEBER.

GRAIN TRANSFER APPARATUS.

No. 589,106. Patented Aug. 31, 1897.

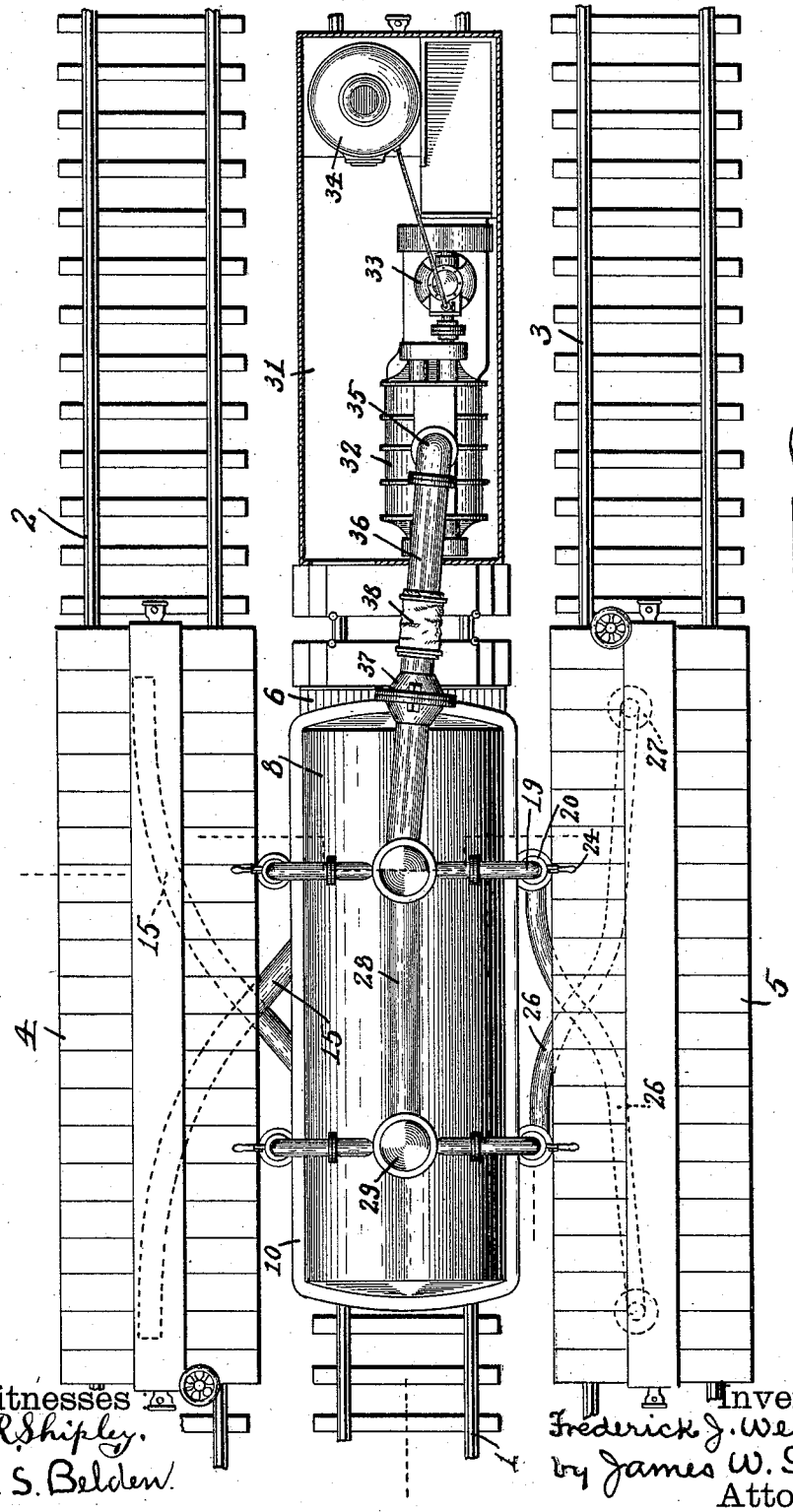


FIG. 2.

Witnesses
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(No Model.) 3 Sheets—Sheet 3.

F. J. WEBER.

GRAIN TRANSFER APPARATUS.

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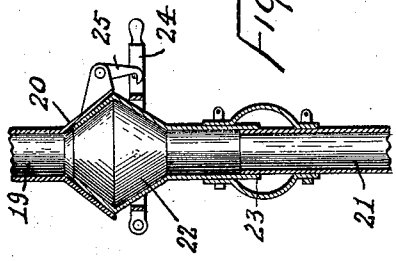


Fig. 5.

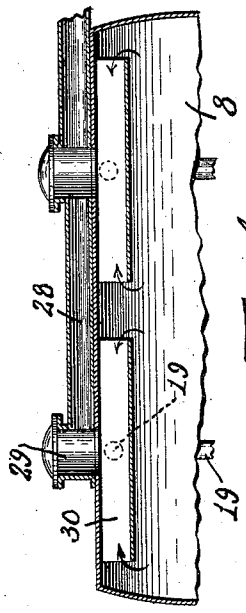


Fig. 4.

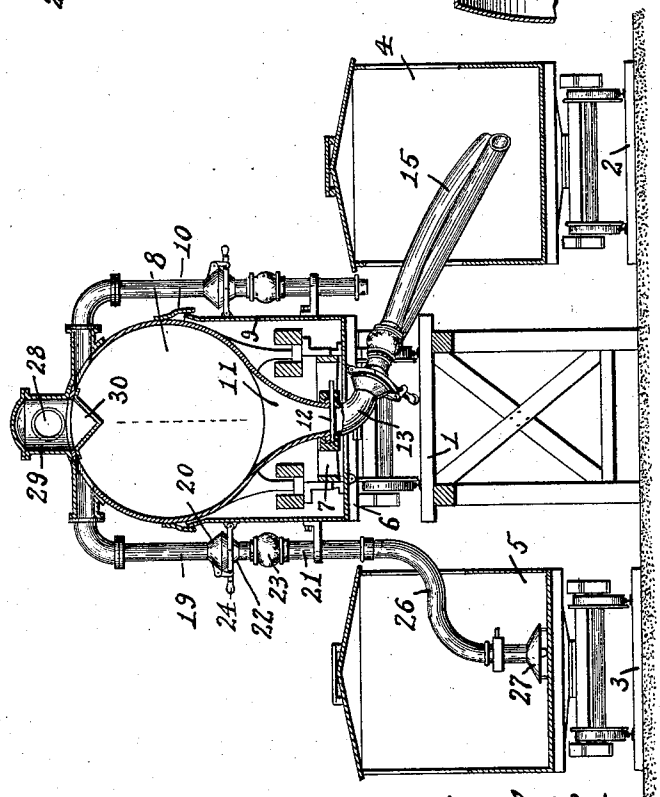


Fig. 3.

Witnesses:
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UNITED STATES PATENT OFFICE.

FREDERICK J. WEBER, OF CONNERSVILLE, INDIANA, ASSIGNOR TO THE STEEL STORAGE AND ELEVATOR CONSTRUCTION COMPANY, OF SAME PLACE.

GRAIN-TRANSFER APPARATUS.

SPECIFICATION forming part of Letters Patent No. 589,106, dated August 31, 1897.

Application filed March 1, 1897. Serial No. 625,614. (No model.)

To all whom it may concern:

Be it known that I, FREDERICK J. WEBER, of Connersville, Fayette county, Indiana, have invented certain new and useful Improvements in Grain-Transfer Apparatus, of which the following is a specification.

This invention pertains to improvements in apparatus for transferring grain from one receptacle to another, as from one bin, railway-car, or boat to another bin, railway-car, or boat, and for, if desired, weighing the grain while in process of transfer.

In illustrating my invention I choose railway-cars as exemplifying receptacles between which the transfer is to be made.

My improvements will be readily understood from the following description taken in connection with the accompanying drawings, in which—

Figure 1 is a side elevation, part vertical longitudinal section, of apparatus embodying my invention; Fig. 2, a plan thereof, part horizontal section; Fig. 3, a vertical transverse section of the same; Fig. 4, a vertical longitudinal section at the top of the transfer-tank, and Fig. 5 a vertical section at the coupling of one of the section-pipes.

In the drawings, 1 indicates a railway on which the transfer devices may move, this railway being an elevated structure; 2, a track alongside thereof and parallel with but on a much lower level; 3, another track alongside of the first track and on the side thereof opposite the second track and on the low level of the second track; 4, a car on track 2, illustrating a car into which grain is to be transferred; 5, a car on track 3, illustrating a car from which the grain is to be transferred; 6, a transfer-car on the elevated track 1; 7, weighing-scales carried by the car 6; 8, a tank supported by said scales on the car 6; 9, a housing supported by car 6 and projecting upward therefrom and inclosing and protecting the scale-work and the lower portion of the tank; 10, a skirting carried by the tank at the top of housing 9 and closing the top of that housing without interfering with the freedom of movement of the tank with reference to car 6, so as to interfere with the proper action of the scales; 11, hopper depressions in the floor of the tank, one to each side of the longitudinal center of the tank; 12, a valve at the base of each of the hoppers 11; 13, an elbow at each valve, the upper ends of these elbows being preferably swiveled at the valves, so that the lower end of the elbows may be turned; 14, flaring mouths at the lower ends of the elbows; 15, flexible discharge-pipes coupled to the elbows, their lower ends being adapted for disposition at any desired point within a car upon one of the lower tracks; 16, slip-joints, preferably inserted at the upper ends of pipes 15; 17, conical couplings carried at the upper ends of pipes 15 and adapted to seat within the flaring mouths 14; 18, swinging yokes carried by car 6 and supporting the conical couplings 17 and serving for the support of the upper ends of pipes 15; 19, inlet-pipes communicating with the interior of tank 8 near the top of the tank, there being preferably a pair of these pipes at each side of the tank; 20, a flaring mouth at the lower end of each of pipes 19; 21, downward continuations, in effect, of pipes 19, pipes 21 being supported by the body of car 6; 22, conical couplings carried at the upper ends of pipes 21 and adapted to engage within the conical mouths 20; 23, slip-joints in the pipes 21 below the conical couplings 22 and permitting the conical couplings to move downward out of engagement with the mouths 20; 24, a yoke pivoted to the body of car 6 and to the conical couplings 22; 25, detents carried by conical mouths 20 and engaging the yokes 24 and adapted to hold the conical couplings into tight engagement with mouths 20; 26, a flexible suction-pipe connected to the lower end of pipe 21 and adapted for use within a car on track 3, it being understood, however, that there is provision for using these pipes on either side of the transfer-car; 27, a mouthpiece on the lower end of pipe 26, the duplicate arrangement of pipes 19 on each side of the transfer-car permitting the use of two of these mouthpieces in a car on either of the low tracks; 28, a suction-pipe along the top of the tank; 29, outlet dome connections from the interior of the tank to the suction-pipe 28, these domes being disposed near the ends of the tank; 30, open-ended conduits at the upper portion of the inside of the tank lead-

ing to the dome connections 29, these conduits 30 being in the form of angular deflectors below the domes and opposite the inlet ends of pipes 19; 31, a machinery-car on the elevated track and coupled to car 6; 32, an exhauster mounted in the machinery-car; 33, an engine for running the exhauster; 34, the steam-boiler; 35, a suction-pipe for the exhauster; 36, a horizontal extension of pipe 35 toward the tank; 37, a detachable cone and flare coupling in the suction-pipe between the tank and the machinery-car, and 38 a slip-joint between pipe 36 and the coupling just referred to.

Assume that grain in car 5 is to be transferred into car 4 and weighed during the transfer, the various pipes being connected as indicated in the drawings. Valves 12 are to be closed and a partial vacuum is to be produced in the tank by means of the exhauster, whereupon the grain passes from car 5 into the tank, the mouthpieces 27 being moved around in the car as occasion demands. When the tank has been charged, then couplings 22 and 17 are to be disconnected, the same being done with coupling 37, if found desirable. The conical couplings leave the flaring mouthpieces, being permitted to do so by the slip-joint, thus leaving the tank supported on the scales entirely free from rigid connection with other objects. The grain is then weighed, after which couplings 17 are again connected and valves 12 opened and the grain allowed to pass out into car 4.

The transfer devices on the elevated track may be moved to a given position to have the suction-pipes reach into a given car, and after the contents of that car have been charged into the tank the load may be moved on the elevated structure into position to deliver the charge after weighing into another given car upon the same low track as the one from which the grain was received or on the opposite track, it being obvious that both the receiving and discharge pipes are adapted for use on either side of the transfer devices.

The conduits 30 within the tank are advantageous specific constructions for preventing direct flow from pipes 19 into suction-pipe 28, the conduits acting as deflectors to direct the incoming grain downwardly into the tank while the suction or currents enter at the ends of the conduits.

I claim as my invention—

1. A transfer apparatus comprising, substantially as set forth, an elevated structure, a tank thereon and connected with air-exhausting mechanism, ways on a low level alongside said elevated structure at each side thereof, receptacles adapted for travel on said ways, and suction and discharge pipes connected with said tank and having flexible extensions adapted for disposition within the receptacles on either of said low-level ways.

2. A transfer apparatus comprising, substantially as set forth, an elevated structure, weighing-scales supported thereon, a tank supported on said weighing-scales and connected with air-exhausting devices, ways on a low level alongside said elevated structure and at each side thereof, receptacles adapted for travel on said ways, and suction and discharge pipes connected with said tank and having flexible extensions adapted for disposition within the receptacles on either of said low-level ways.

3. In a transfer apparatus, the combination, substantially as set forth, of a supported pipe having a flaring mouth, a second pipe having a conical coupling-piece removably engaging said flaring mouth, a support for said conical coupling-piece independent of the support of the first-mentioned pipe, and a slip-joint upon the end of the second pipe.

4. In a transfer apparatus, the combination, substantially as set forth, of a cylindrical tank having a suction-opening in the top thereof, an angular conduit along under the roof of the tank and open at its center to said suction connection and open at its ends to the interior of the tank, and inlet connections to said tank in the roof thereof at the sides of and between the ends of said angular conduit.

5. In a transfer apparatus, the combination, substantially as set forth, of an elevated horizontally-disposed tank having a pair of hopper-discharge openings at the base thereof near the ends, flexible discharge-pipes connected with said openings and adapted for projection and use at either side of said tank, a suction-pipe surmounting said tank and having connections with the interior of the tank, a pair of inlet-pipes connected at each side of said tank near the ends of the top thereof, and flexible extensions adapted for connection and use on said inlet-pipes.

6. A grain-transfer apparatus, comprising an elevated structure, a tank thereon, a plurality of discharge-pipes connected therewith at the bottom of the tank, a suction-pipe having a plurality of connections with the top of the tank, suction-pipes leading into each of said connections upon opposite sides, and ways on a low level upon each side of the elevated structure.

7. A grain-transfer apparatus, comprising an elevated structure, a tank thereon and connected with air-exhausting mechanism, ways on a low level alongside said elevated structure and at each side thereof, receptacles adapted to travel on said ways, a pair of discharge-pipes connected with the base of said tank and having flexible extensions adapted for disposition in said receptacles on either of said low-level ways, and a pair of suction-pipes having flexible extensions and adapted for connection on either side of said tank and for disposition within a receptacle on either of said low-level ways.

FREDERICK J. WEBER.

Witnesses:
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L. E. LOWE.