

W. PAINTER.

Apparatus for Transferring Night-Soil from  
Transit-Tanks to Cars, Boats, &c.

No. 162,945.

Patented May 4, 1875.

Fig. 1.

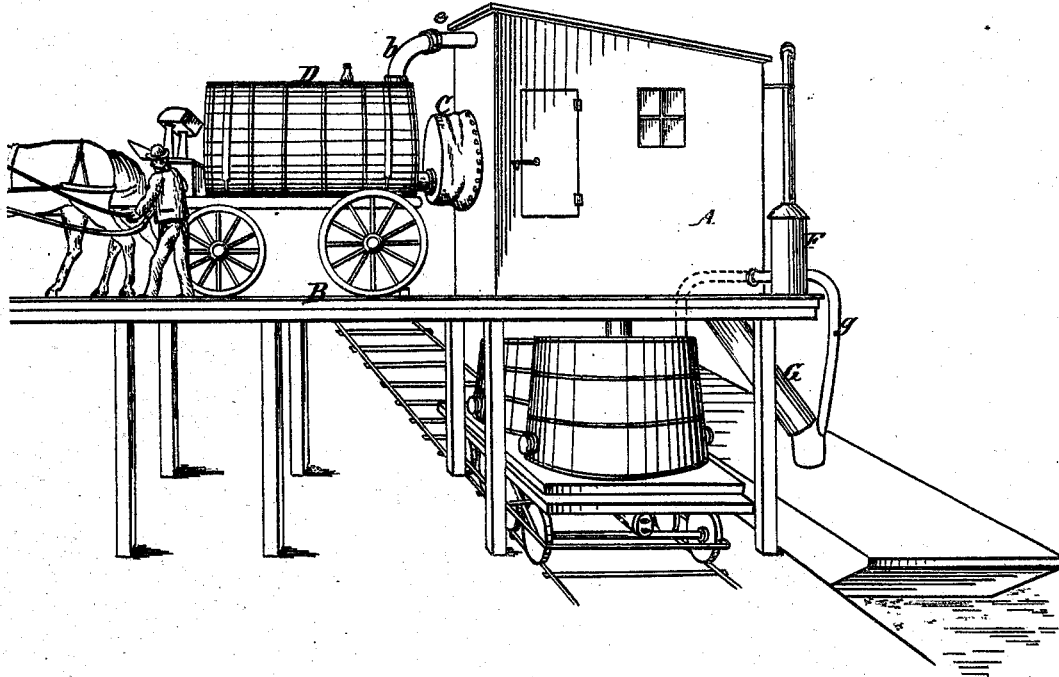
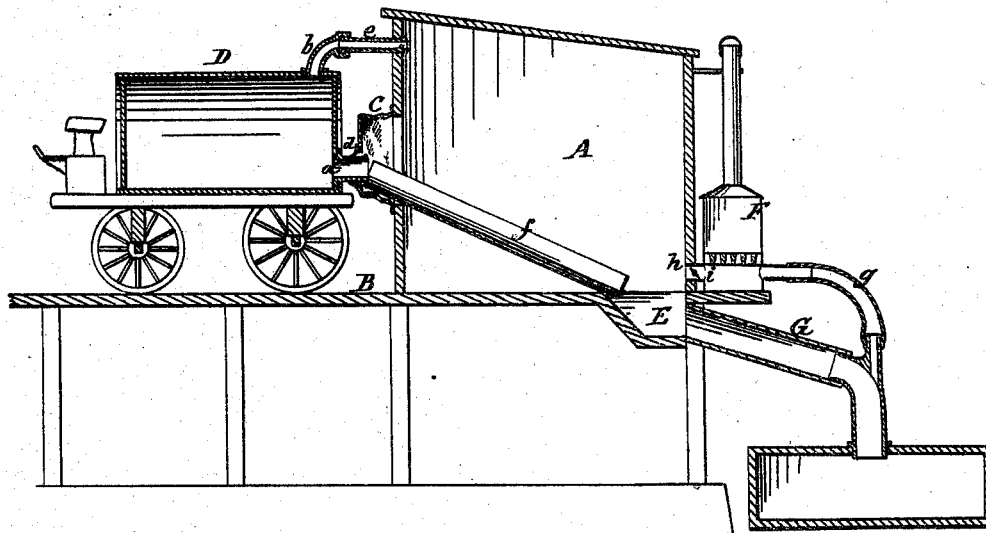


Fig. 2.



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# UNITED STATES PATENT OFFICE

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IMPROVEMENT IN APPARATUS FOR TRANSFERRING NIGHT-SOIL FROM TRANSIT-TANKS TO CARS, BOATS, &c.

Specification forming part of Letters Patent No. **162,945**, dated May 4, 1875; application filed March 6, 1875.

*To all whom it may concern:*

Be it known that I, WILLIAM PAINTER, of the city and county of Baltimore, in the State of Maryland, have invented a certain new and useful Apparatus for Transferring Night-Soil and other Offensive Matter from Transit-Tanks to Railroad-Cars, Boats, Barges, &c.; and I do hereby declare that the following specification, taken in connection with the drawings furnished and forming part of the same, is a true, clear, and complete description of my invention.

It has long been conceded to be of great importance that night-soil and other offensive matter accumulating in large cities should be conveyed into the agricultural districts to be utilized in fertilizing. The offensive character of this matter is such that if ordinary means are employed for transferring it from transit-tanks to railroad-cars, boats, or barges, serious nuisances would be created.

The object of my invention is to transfer this offensive matter from the transit-tanks in which it is collected to air-tight car-tanks or barges without rendering the operation offensive other than to those immediately employed therein.

It is well known that in night-soil operations a greater or less quantity of the material is of such a character that it will not flow with the more fluid portions from the transit-tank, and that it is necessary to employ hoes or scrapers for removing it. It is therefore essential that means be provided for the removal not only of the fluid matters, but also of the more solid portions, without liability of creating a nuisance.

My invention consists in part of an air-tight structure, which I denominate a transfer-chamber, provided with suitable means whereby an air-tight connection may be made with the exit-aperture of a transit-tank, and also provided with an interior funnel-shaped receptacle, to which is connected an air-tight chute, provided at its outer end with suitable coupling devices, whereby it may be attached to an air-tight car-tank or barge.

For the purpose of availing myself of the

gravitation of the matter between the transit-tank and the car or barge, I locate said transfer-chamber at such a height above a railroad-track or water-line of a wharf that the matter will readily descend; and to effect an easy transfer from the transit-tank to the chamber, I provide an elevated platform or roadway for placing the transit-tank in proper position.

My invention further consists in connecting a suitable deodorizer with the air-tight car-tank or barge, whereby the gases displaced while the same is being filled may pass through the deodorizer, and be rendered inoffensive. For this purpose any of the practically valuable varieties of deodorizer may be employed; but I prefer a furnace with charcoal fire for that purpose.

Two methods of attaching the deodorizer to the car-tank or barge may be adopted. Said deodorizer may be connected directly with a suitable air-vent in the car-tank or barge, or it may be placed at the rear of the transfer-chamber, and a flexible tube or pipe arranged to connect it with the car-tank or barge. In either case the result will be the same, the displaced gases passing through the deodorizer before escaping into the air.

When the deodorizer is placed at the rear of the transfer-chamber, as described, the air-space beneath the grate of the furnace may, in addition to its connection with the car-tank or barge, communicate with the transfer-chamber by a pipe, in which a damper is placed. The transfer-chamber is then connected with the transfer-tank by a pipe leading to its induction-aperture. When thus connected, and the damper open, the gases displaced from car-tank or barge during the operation of filling, instead of escaping through the deodorizer, will pass into the transfer-chamber, and thence through the air-pipe into the transfer-tank. In this case the volume of night-soil discharged from transit-tank and the volume of gas displaced from the car-tank or barge are equal, and were it not for the fact that large quantities of noxious gases are liberated by the agitation incident to the operation the

deodorizer might be dispensed with; but it will be found necessary to employ it to deodorize the excess of gases which escape through it, and are rendered innocuous.

By extending a pipe to a considerable height from any convenient point in the connecting-tubes the displaced gases, or the excess of the same, may be allowed to escape into the atmosphere at an elevation that will not cause serious offense.

In order to more particularly describe my invention, I will refer to the accompanying drawings, in which Figure 1 represents, in perspective, a complete apparatus, said apparatus being adapted to operate in connection with either railroad-cars or barges. Fig. 2 represents the same in longitudinal vertical section.

Referring to the drawings, A denotes the transfer-chamber. It may be constructed of wood or iron, with an opening sufficient to admit of access, and it should be provided with a window or skylight to admit light for the convenience of the operative. This chamber is elevated upon a platform, B, at sufficient height to admit of a railroad-car tank being located beneath it; also, with an inclined roadway. (Not shown in the drawing.) D denotes a transit-tank, provided with a discharge-gate, *a*, and induction-elbow *b*. *c* is an air-tight flexible cylindrical connection, permanently attached to the transfer-chamber, and provided with an elastic ring, *d*, made to fit tightly over the discharge-gate of tank. The object of making it flexible is in order that it may adapt itself to any slight movement of the team which may occur, and also to admit of its connection with the discharge-gate, whether the tank be precisely located or not. It is made large, in order that the operative within the transfer-chamber may readily open the discharge-gate, and also to afford convenience for using the hoe or scraper in removing solid matter from the tank. *e* denotes a flexible tube, permanently attached to the chamber, for engaging with the induction-elbow of the tank. E denotes a funnel-shaped receptacle, which may be either mounted upon the platform or extended below it. The night-soil is conducted from the discharge-gate into the funnel E by means of a chute, *f*. F is a charcoal-furnace deodorizer. *g* is an air-pipe, leading from the air-space beneath the furnace-grate to the air-space of the car-tank or barge. *h* is another air-pipe, connecting the furnace with the transfer-chamber. *i* is a damper in said pipe. From the bottom of the funnel a flexible air-tight conducting-chute, G, extends to the car-tank or barge.

The conducting-chute G and air-pipe *g* are shown as connecting, respectively, with an induction-pipe and a vent-tube or passage attached to the car-tank or barge. Said induction-pipe and vent-tube constitute no part of

my present invention, but are embraced within and claimed in a separate application filed by me.

The deodorizer F is shown as connecting not only with the car-tank or barge, but also by means of the tube *h* with the transfer-chamber.

In operation it is advisable that the least possible quantity of noxious gases be allowed to escape through the deodorizer, so as to involve the least expenditure of fuel. By having the induction-elbow of the transit-tank connected with the interior of the transfer-chamber by the pipe, the air requisite to admit an easy flow of matter from the tank is all drawn from the transfer-chamber; and when damper *i* is open the supply to the chamber is in turn drawn through air-tube *g* from the car-tank or barge. On some occasions it may be possible that the capacity of the deodorizer will be none too great for disposing of the noxious gases that escape from the car-tank or barge. Under these circumstances the damper *i* may be partially or entirely closed.

It is sometimes desirable to convey the car-tanks or barges through populous districts, and to avoid the escape of noxious gases during such transit they may be provided with permanent deodorizers for operating not only upon the gases displaced at the time of loading, but also upon those arising from the night-soil during transit.

When the material has sufficient fluidity to obviate the use of a hoe or scraper, the exit-aperture of the transit-tank may be directly connected, by means of an air-tight chute or discharge-pipe, to the car-tank or barge, in which case the deodorizer may be directly attached thereto, or connected by means of a tube, as may be most convenient.

If the discharge-chute G be made sufficiently large the gases displaced from the car-tank or barge while filling will pass through said chute into the transfer-chamber, and thence either to the transfer-tank or through the deodorizer, as desired. In this case the separate air-tube may be dispensed with.

Having thus described my invention, I claim as new, to be secured by Letters Patent—

1. An air-tight transfer-chamber, provided with means for connection with the exit-aperture of the transit-tank, and also with an air-tight discharge-chute, and located above a roadway or water-line, substantially as described, whereby night-soil or other offensive matter may be transferred from a transit-tank to a car-tank or barge without creating offense, as set forth.

2. The combination, with the transfer-chamber, of a deodorizing apparatus, substantially as described.

3. The combination, with the transfer-cham-

ber, of an air-tight conducting pipe or chute, a stench-pipe, and a deodorizer, the latter communicating with the transfer-chamber and with the car-tank or barge, substantially as described.

4. An apparatus, substantially as described, for transferring night-soil and other offensive matters from transit-tanks to car-tanks or barges, consisting essentially of an air-tight chute or conducting-pipe, a stench-conduct-

ing tube, and a deodorizer, whereby the night-soil and other offensive matters may be transferred by gravitation directly from the transit-tanks into the car-tanks or barges, substantially as described.

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