No. 634,119. Patented Oct. 3, 1899.

R. S. MOORE.

BASE CHAMBER OR SEAT FOR HYDRAULIC ELEVATORS.

(Application filed Oct. 5, 1898.)

(No Model.) 2 Sheets—Sheet 1.

Fig. 1.

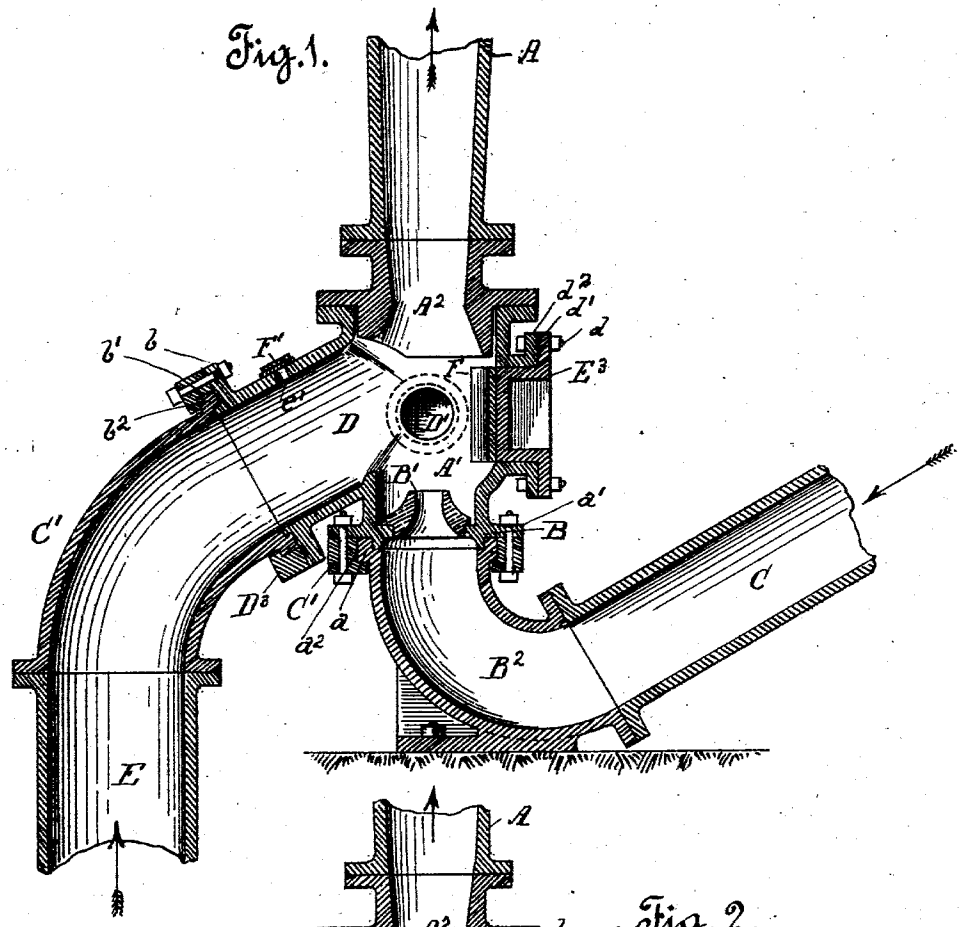
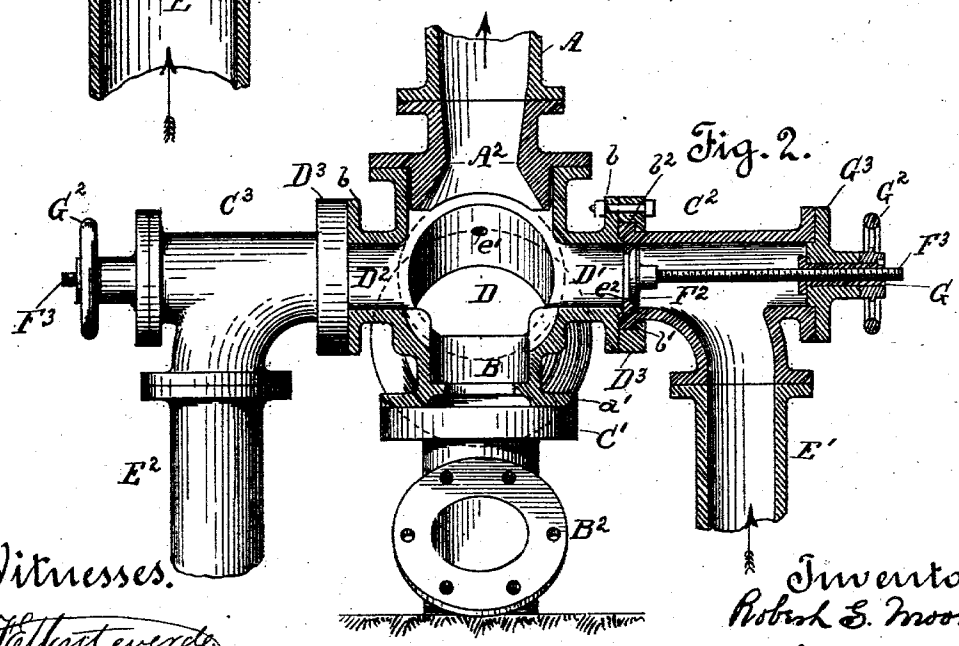


Fig. 2.



Witnesses.

F. Hollaenderle

Leas Gray

Inventor

Robert S. Moore

by Macrae

his atty

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

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Fig. 3.

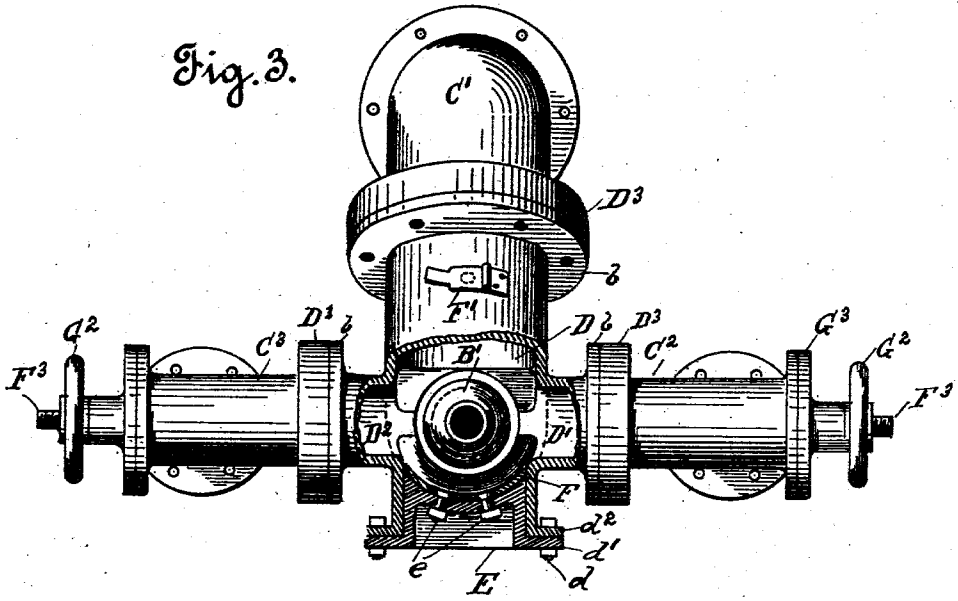


Fig. 4.

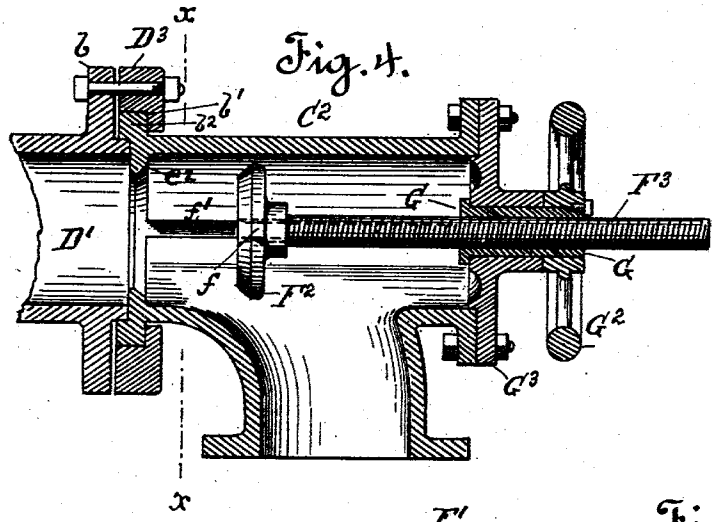


Fig. 5.

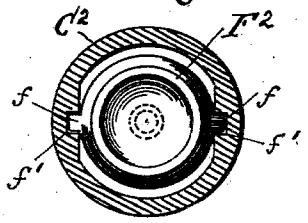
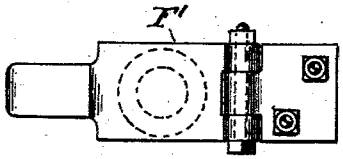


Fig. 6.



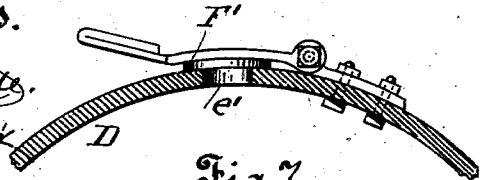


Fig. 7.

Witnesses.

H. Montgomery.

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

UNITED STATES PATENT OFFICE.

ROBERT S. MOORE, OF OAKLAND, CALIFORNIA, ASSIGNOR TO THE RISDON IRON AND LOCOMOTIVE WORKS, OF SAN FRANCISCO, CALIFORNIA.

BASE CHAMBER OR SEAT FOR HYDRAULIC ELEVATORS.

SPECIFICATION forming part of Letters Patent No. 634,119, dated October 3, 1899.

Application filed October 5, 1898. Serial No. 692,713. (No model.)

To all whom it may concern:

Be it known that I, ROBERT S. MOORE, a citizen of the United States, residing at Oakland, in the county of Alameda and State of California, have invented certain new and useful Improvements in Base Chambers or Seats for Hydraulic Elevators; and I do hereby declare that the following is a full, clear, and exact description thereof.

The present invention relates to certain new and useful improvements for use in connection with the base chamber or seat for hydraulic elevators fully set forth and described in Reissue Letters Patent of the United States No. 11,582, granted unto George H. Evans the 5th day of January, 1897; and the same consist in the arrangement of parts and details of construction, as will be hereinafter fully shown in the drawings and described and pointed out in the specification.

Practical working of hydraulic elevators employing that style of base chamber or seat known as the "Evans" base-chamber, covered by the aforesaid Reissue Letters Patent, has demonstrated the fact that at times the suction-pipes have a tendency to clog and that for good work it is essential that provision be made to destroy the vacuum in order that the load of the suction-pipes may be released; also, that it is ofttimes required that access be had to the interior of the base chamber or seat in order to replace worn-out parts—as, for instance, the nozzle of the ejector-pipe—which in order to prevent delay of work should be secured without having to take apart the pipe connections; also, under certain conditions quick adjustment as to the elbows of the suction-pipes becomes necessary, so as to vary the position of either or all of the said suction-pipes, which as the Evans device is at present constructed can only be secured by stopping the working of the elevator, disconnecting the suction-pipe elbow from the base-chamber, and changing or shifting the same until the desired position of the suction-pipe is secured, and also that inasmuch as at all times the lateral or auxiliary suction-pipes are not required during working of the elevator it becomes necessary either to cap or close the auxiliary side suction-openings or end of the suction-pipes connected thereto. Consequently when it is desired to make use of these side auxiliary suction-openings it is required that the same be uncapped or uncovered. This not only takes time, but work may be delayed by the caps or covers being lost during handling.

While preserving the advantages of the Evans device covered by the aforesaid reissued patent, the object of my invention is to provide a base chamber or seat whereby the vacuum may be destroyed or broken at will in order to release the load, so as to provide against clogging; one which will permit of ready access being had to the interior thereof without requiring the connections being disturbed to permit the elbows of the suction-openings to be adjusted to any desired position without causing delay in the working of the elevator, and in providing means whereby the auxiliary side openings may be readily opened or closed.

In order to fully comprehend the invention, reference must be had to the accompanying sheet of drawings, forming a part of this application.

Figure 1 is a vertical sectional view in side elevation, taken through the center of the base chamber or seat, showing the water-supply, main suction, and elevator-pipes connected thereto. Fig. 2 is a part sectional front view in elevation of the base chamber or seat and its connections. Fig. 3 is a top plan view, the base chamber or seat being partly broken away. Fig. 4 is a longitudinal sectional view in elevation of one of the elbows or joints for the side auxiliary suction-openings. Fig. 5 is a cross-sectional view in elevation, taken on line xx, Fig. 4. Fig. 6 is a top plan detail view of the air inlet or vent valve, and Fig. 7 is an enlarged detail sectional view fully disclosing the connection of the air inlet or vent valve with the wall of the main suction-opening.

In the drawings the letter A is used to indicate the elevator-pipe, and A′ the base seat or chamber, there being interposed between the said shaft or chamber and the elevator-pipe the throat A^2. Within the lower end or mouth portion B of the base chamber or seat is screwed or otherwise secured the nozzle B′ of the ejector-pipe elbow B^2, to the lower end of which is attached in any suitable manner, preferably bolted, the water-supply pipe C. The upper end of the elbow B^2 is provided

with the circular flange a, and connection is made between the base chamber or seat and the said elbow by means of the clamp-ring C', which ring is bolted or otherwise secured to the flange a' of the said seat or chamber, the flange a of the elbow B^2 fitting and being free to turn within the circular seatway a^2, formed by uniting the clamp-ring to the base chamber or seat.

The present base chamber or seat A' is provided with the main suction-opening D and the auxiliary side openings D' D^2, each arranged to discharge material or spoil within the interior of the base chamber or seat transversely to and above the ejector-nozzle B'. Each suction-opening is surrounded by a flange b, to which is bolted or otherwise secured a clamp-ring D^3, by means of which the elbows or joints C' C^2 C^3 are connected to the base chamber or seat. Within the circular seatway b', formed by the clamp-ring, fits and works the flange b^2 of the said elbows or joints. These elbows have secured thereto and carry, respectively, the main and side or lateral suction-pipes E E' E^2 when such pipes are made use of, and by thus connecting the elbows or joints to the base or seat the same are free to turn or be swung up or down, as desired, in order that their position may be varied. This makes each elbow or joint adjustably connected to the base seat or chamber.

The rear wall of the base seat or chamber, or that portion opposite the main suction-opening, is cut away, so as to provide a hand-opening in order that access may be had to the interior of the seat or chamber, which hand-opening is closed by a removable cover E^3, which cover is preferably secured and held in place by means of bolts d, passing through flange d' thereof and flange d^2, surrounding the hand-opening. By simply removing this cover the operator may obtain access to the interior of the base chamber or seat in order to repair or replace any part thereof which may have become worn out or damaged. This is an essential feature, for if a removable cover or back plate be not provided it is necessary in order to replace, say, a worn-out ejector-nozzle that the base seat or chamber be entirely disconnected in order to obtain access thereto, thus not only consuming considerable time and causing unnecessary trouble, but greatly delaying the work of the elevator.

The cover E^3 is provided on its inner face with a wearing-plate F, which is removably secured to the cover by means of bolts e. This plate receives the wear which would otherwise fall upon the inner face of the cover E^3, due to the spoil passing through the base chamber or seat, and thus protects the said cover from becoming worn away. As the wearing-plate F becomes worn out the same may be easily removed and replaced by a new one, it only being necessary to release the cover E^3 for this purpose and remove securing-bolts e. The main wear as to the interior of the base chamber or seat falls upon the rear wall thereof. Consequently protecting the same by the removable wearing-plate considerably prolongs the life and usefulness thereof.

An air opening or vent e' is preferably formed in the top of the main suction-opening, which is closed by the gate or valve F', hinged to the said elbow or joint, so as to cover same when held down. This gate or valve is normally held closed by the suction created by the material flowing through the base chamber or seat. Should either of the "suction-pipes" (which term includes the elbows or joints for pipes which are not at all times connected thereto) have a tendency to clog with the material drawn therein, it is only necessary to raise the hinged gate or valve, so as to uncover the opening or vent e', in order to destroy the vacuum within the base chamber or seat. When the vacuum is thus destroyed or broken, the weight of the material within the suction pipe or pipes will cause the same to fall downward, and thus release the suction-pipes. After the pipe or pipes have been freed the hinged gate or valve is lowered so as to close the opening or vent e', when the material will be drawn into the base chamber or seat.

The wall surrounding the outlet-opening of each swiveled elbow or joint C^2 C^3 for the side auxiliary suction-openings D' D^2 is chamfered, so as to provide a valve-seat e^2, which receives the valve F^2 when moved inward its full distance. Each valve is provided with the lugs f, which work within the longitudinal guideways f', cut in the inner wall of the said elbows or joints, and each valve is connected to the inner end of a screw-threaded stem F^3, which stem works through a screw-threaded bushing G, loosely fitted within an opening formed in the end wall G' of each joint or elbow. To the screw-threaded end of the bushing projecting beyond the end wall G' is rigidly secured the hand-wheel G^2. As this wheel is turned to the right or left it imparts a corresponding motion to the screw-threaded bushing, which, working upon the screw-threaded valve-stem, forces the same outward or inward in order to seat or unseat the valve F^2, so as to open or close the side auxiliary suction-openings. It will thus be observed that each side auxiliary suction-opening is under the control of the operator of the elevator and may be quickly closed or opened without delaying the work of the elevator. Suppose the elevator is working from a sump and it is desired to employ the side suctions. The suction-pipes or extensions of the side auxiliary suction elbows or joints may be connected to the lower end of the swiveled elbows or joint of the side suction-openings prior to the opening of the valves, or after use the same may be disconnected therefrom after the valves have been closed, thus not interfering with the work of the elevator in any manner whatever, as is the case where

the open end of the side elbows or joints are closed by a cap which has to be removed when desired to use the side auxiliary suction-openings and replaced when said openings are not to be used.

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

1. As a new article of manufacture a base chamber or seat for hydraulic elevators provided with an outlet-opening for the spoil, an inlet-opening for the water-ejector pipe, two or more independent suction-openings through which the spoil enters the base chamber or seat above the ejector-pipe, and of a valved air inlet or vent opening by means of which the vacuum may be destroyed in order to provide against clogging.

2. The combination with a base chamber or seat, for hydraulic elevators, of an air inlet or vent opening formed therein above the suction-opening for the spoil, and of a valve or cover for said air inlet or vent opening.

3. The combination with a base chamber or seat for hydraulic elevators, having a side suction-opening and a hand-opening formed therein in line with the suction-opening by means of which access may be had to the interior thereof, a cover for said opening removably connected to the base chamber or seat, and of a wearing-plate removably attached to the inner face of said cover.

4. The combination with a base chamber or seat for hydraulic elevators provided with an outlet-opening for the spoil, an inlet-opening for the water-ejector pipe, and one or more suction-openings through which the spoil enters, of a hand-opening formed therein opposite a suction-opening by means of which access may be had to the interior thereof, a cover for said opening removably attached to the base seat or chamber, and of a valved air inlet or vent opening by means of which the vacuum in said seat or chamber may be destroyed in order to provide against clogging.

5. A base chamber or seat for hydraulic elevators having a main suction-opening, a side auxiliary suction-opening, an elbow for said auxiliary opening movably connected to the casing, a va ve located within said elbow and which controls the auxiliary suction-opening, and means for opening and closing said valve comprising a screw-stem connected with the valve extending out horizontally through the elbow and a hand-nut on the stem, substantially as described.

6. In a base chamber or seat for hydraulic elevators, the combination of a main suction-opening, an auxiliary suction-pipe movably connected to said chamber and having therein an elbow, a valve within said elbow for controlling said auxiliary suction-pipe and means extending beyond said elbow for operating said valve to move the same toward and from the suction-chamber, substantially as described.

7. The combination of a base chamber or seat for hydraulic elevators having a main suction-opening, and a side auxiliary opening, an elbow for said auxiliary opening, swiveled to the base chamber or seat, a valve located in said elbow and which controls the auxiliary suction-opening, and means for operating said valve, comprising a threaded stem extending longitudinally through the elbow and projecting beyond the same and means on the stem for actuating the same and in line with the auxiliary opening, substantially as described.

8. In a base chamber or seat for hydraulic elevators, having a main suction-opening, one or more side auxiliary suction-openings, a hand-opening, a removable cover for said opening, a valve controlling the side auxiliary suction-opening, means for operating said valve, and of a valved air inlet or vent opening in the chamber or seat.

In testimony whereof I affix my signature, in presence of two witnesses, this 16th day of September, 1898.

ROBERT S. MOORE.

Witnesses:
N. A. ACKER,
LEE D. CRAIG.