

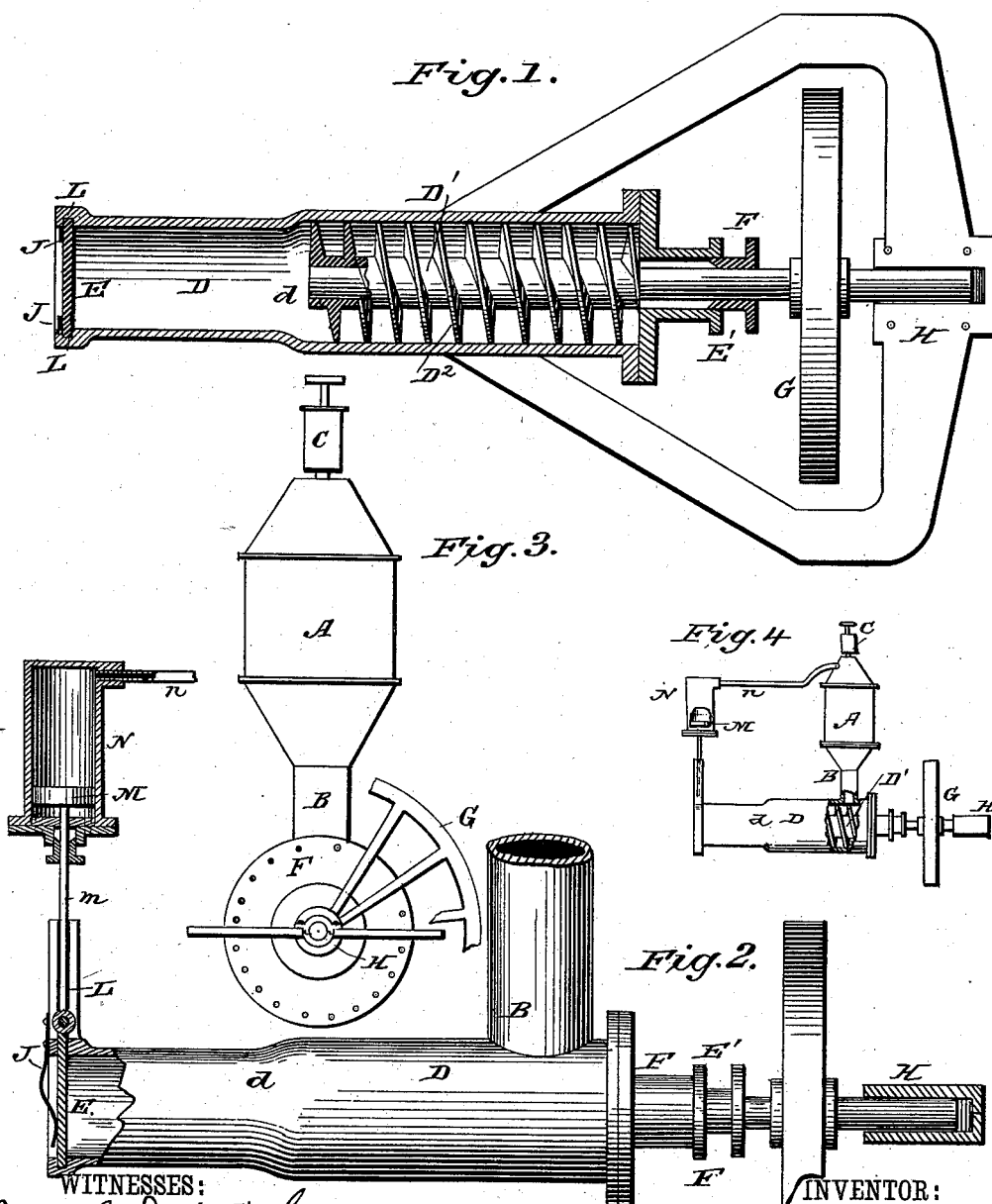
(No Model.)

R. G. PETERS.

DISCHARGE MECHANISM FOR VACUUM PANS.

No. 384,070.

Patented June 5, 1888.



WITNESSES:
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RICHARD G. PETERS, OF MANISTEE, MICHIGAN.

DISCHARGE MECHANISM FOR VACUUM-PANS.

SPECIFICATION forming part of Letters Patent No. 384,070, dated June 5, 1888.

Application filed September 24, 1887. Serial No. 250,782. (No model.)

To all whom it may concern:

Be it known that I, RICHARD G. PETERS, of Manistee, in the county of Manistee and State of Michigan, have invented a new and useful Improvement in Discharge Mechanism for Vacuum-Pans, of which the following is a specification.

My invention is an improvement in apparatus for use in the manufacture of salt; and it consists in certain novel constructions and combinations of parts, as will be hereinafter described and claimed.

In the drawings, Figure 1 is a bottom plan view, partly in section, of my improved apparatus. Fig. 2 is a side elevation thereof, partly in section. Fig. 3 is a partial end elevation, parts being broken away; and Fig. 4 is a side elevation of the apparatus, a portion being broken away.

In the manufacture of salt by some processes the salt solution or brine is held by means of vacuum in suspension within a vacuum-pan, and a leg or pipe extended therefrom, so that the salt will precipitate in said pipe and fall thereout.

In the accompanying drawings, A designates a typical vacuum-pan, B the leg or pipe thereof, and C the air-pump for maintaining the vacuum. This pump forms the means of maintaining the vacuum, and may be replaced by any other vacuum-producing device, and to such extent any other device for producing a vacuum may be regarded as an equivalent of said pump. At its lower end the leg or pipe B opens into a discharge chamber or casing, D, which, preferably, is contracted at one end, *d*, as shown, and such end is closed by a valve, E, while the opposite end is provided with a stuffing-box, E', and gland F.

The valve E is a slide movable in guide L across the discharge of pipe D and pressed against its seat by a spring or springs, J. This slide-valve is connected by rod *m* with the piston M in the cylinder N, which cylinder is connected by a pipe, *n*, with the vacuum-pan, so that when a vacuum is formed in said pan a vacuum will also be produced in the cylinder N, sucking up or causing the piston M to rise and open the valve, so the salt may be discharged. In case the vacuum is lost in the pan it will also be lost in the cylinder N, and

the valve will close by gravity, to be opened whenever the vacuum is re-established in the pan. While I prefer to use this form of valve with the piston and cylinder connected with the vacuum-pan, it is manifest other forms of valve may be substituted therefor without departing from some of the broad principles of my invention.

When the valve is open, the precipitate is permitted to pass outward and downward onto the conveyer or into a suitable receptacle; but the valve serves automatically to close the discharge-chamber in case the vacuum is lost during operation from any cause, as well as in first producing said vacuum, as will be understood.

A shaft, D', extends into the discharge-chamber through the stuffing-box and gland E' F to make the passage of said shaft air and water tight. This shaft also journals in a thrust-bearing box, H, to receive any endwise pressure on the shaft resulting from the pressure brought to bear on the salt in its passage through the contracted portion or neck of the chamber. On the shaft D' within the discharge-chamber I form or secure a screw-conveyer, commonly known as the "Archimede-
dean" screw. This screw D' is arranged under and extends in front of the discharge-opening of the leg-pipe into the discharge-chamber, and as it is turned it operates to convey the precipitated salt toward and force it out of the open end of the chamber.

A particular advantage results in the use of this screw-conveyer in connection with the vacuum-pan, as the operation of said conveyer is smooth, uniform, and easy, producing no jars, currents, or commotions in the solution from which the salt is precipitated, and consequently reduces the liability of loss of vacuum during the operation. A suitable power may be geared with a gear, G, on the shaft D' to drive the said shaft and its screw-conveyer.

In use the valve E should be closed until the vacuum has been properly secured, when the valve will be automatically opened, and by operating the screw-conveyer the salt can be discharged as it is precipitated.

Having thus described my invention, what I claim as new is—

1. The combination of a vacuum-pan, a valve for controlling the discharge of the precipitate, a cylinder, a connection between said cylinder and vacuum-pan forming communication between such parts, and a piston in said cylinder connected with the valve, substantially as and for the purposes specified.
2. The combination of the vacuum-pan, the discharge-chamber thereof having guides L, the valves E, movable in said guides, the cylinder N, connected by pipe *n* with the vacuum-pan, and the piston connected with the valve E, all substantially as set forth.

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Witnesses:

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