

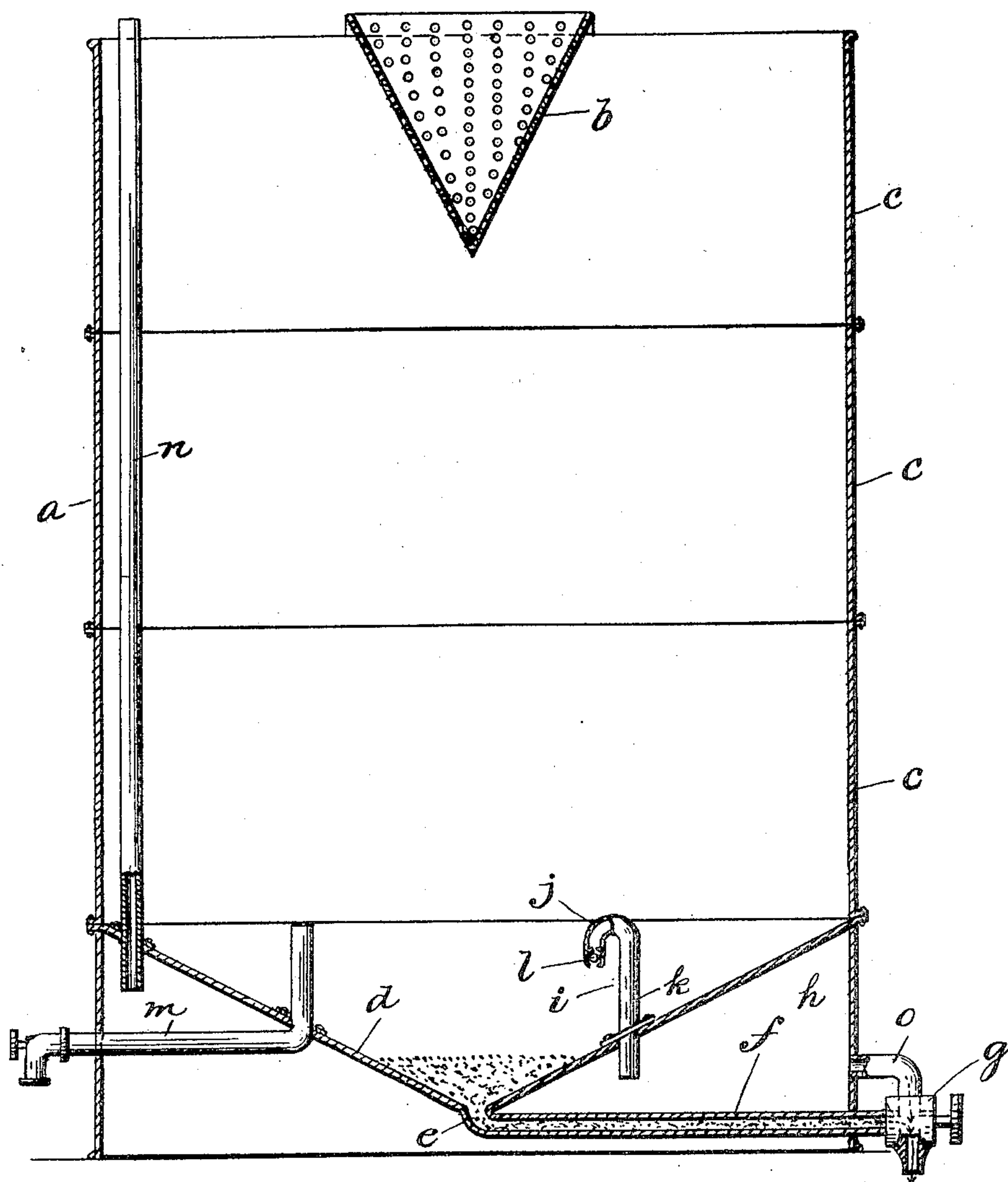
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CISTERN.

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Witnesses

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ERNEST LAENGER AND CHARLES LAENGER, OF SHREVEPORT,
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CISTERN.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that we, ERNEST LAENGER and CHARLES LAENGER, citizens of the United States, residing at Shreveport, in the parish of Caddo and State of Louisiana, have invented new and useful Improvements in Cisterns, of which the following is a specification.

Our invention relates to cisterns; and its objects are to provide means to enable the sediment deposited by the water to be collected at one point and readily drawn off from the cistern, and in so doing to provide a settling-basin of such arrangement that the water itself of the cistern may act as a support for the basin, and thereby avoid the necessity for a strong and expensive construction of basin.

To these ends our invention is preferably embodied in the construction hereinafter described, and illustrated in the accompanying drawing.

In the drawing the view shown is a vertical central section of a cistern containing our improvements.

Referring to the drawing, *a* designates the ordinary cistern-body, which is ordinarily made of cast-iron, but may be of other suitable material. In the upper part of the cistern, at the entrance-opening thereof, is a strainer *b*, adapted to prevent foreign articles from entering the water. The cistern is preferably and according to the usual construction made up of horizontal sections *c*, secured together suitably. To the bottom section *c* is secured a concave settling-basin *d*, formed, preferably, of sheet-iron plates. The upper edge of the settling-basin fits closely to the inner surface of the cistern, so as to form a closed continuation of the upper part of the cistern, and thereby prevent any of the water from passing down behind the edge of the basin, but carrying it all into the basin, where any sediment contained in the water will be deposited. The open lower end *e* of the basin terminates some distance above the bottom of the tank and communicates with a flushing-pipe *f*, provided with a two-way cock *g*, which also controls pipe *o*, leading from the water-chamber, by which arrangement all the sediment will be collected at a single point and is readily drawn off by the flushing-pipe, and also when the basin is flushed the inward pressure in the water-chamber will be relieved.

Between the interior of the basin *d* and the chamber *h*, formed between the exterior thereof and the wall of the cistern, are provided

means of automatic communication consisting of a bent pipe *i*, secured to and passing through the wall of the casing. This pipe has two vertical arms *j* *k*, and in a seat at the mouth of arm *j* is placed a suitable valve *l*, which may be either a ball-valve, as shown, or a flap check-valve.

Communicating with the interior of the settling-basin, a short distance above the settling-point, so as to extend into the clearest water, is an outlet service-pipe *m*.

Leading from the upper part of the water-chamber *h* is a vertical vent-pipe *n*, open at both ends.

In use the water enters the cistern at the upper open part through the strainer *b* and passes into the settling-basin *d*. The close contact between the basin-wall and cistern-wall insures that all the water must enter the settling-basin. When the water in the basin rises to the pipe *i* or to a certain height above it, according to the weight of the valve *l*, it will enter the pipe and flow into the water-chamber *h*. The water will continue to flow into the water-chamber until the pressure of the water therein equals the pressure within the cistern-body and basin, and when the water-chamber is filled the water therein will then form a support for the comparatively thin wall of the settling-basin. When the water is withdrawn from above the bottom of the settling-basin through the service-pipe, the valve *l* of pipe *i* will close and prevent the water from entering the settling-basin from the outside water-chamber.

In the ordinary construction of cisterns having a flat bottom it is very difficult to clean the cistern of sediment and impracticable to do so by flushing, as the sediment will collect in the edge between wall and bottom. The use of a concave bottom or settling-basin communicating at its central point with a flushing-pipe independently of the cistern causes the sediment to collect at one point and permits it to be readily drawn off therefrom.

With our arrangement, whereby the water is admitted behind the wall of the basin, a thin sheet-iron basin wall may be employed, and the water will form the support for the water above in the cistern. The water-support also enables this conical basin to be applied to the ordinary cistern without the necessity of supplying extra means of support, such as braces or masonry. In view of the water-support the lower open end of the basin may termi-

nate, as shown, directly in the discharge-pipe, without support upon the flat bottom. The special form of device or its equivalent shown for establishing communication between the
 5 basin and the water-chamber—namely, the pipe *i*—also renders it possible to have a closed continuous cistern-body, and thereby introduce all the water into the settling-basin and collect the sediment from all the water that is
 10 to be utilized. The vent-pipe *n* permits the water in the chamber to flow to the level of the top of the cistern should the cistern be full.

It is clear that various changes may be made in the details of embodiment without departing from the scope of our invention.

Having thus described our invention, what we claim is—

1. In combination with a cistern-body, a conical settling-basin at the lower end of the cistern, said basin having at its upper end a close contact with the cistern-body, and forming a chamber between the basin and cistern-body, a drain-pipe, said basin at its lower end communicating with said drain-pipe, and means
 20 of water communication between the said basin and chamber whereby a supporting water-pressure is established in said chamber, substantially as described.

2. A cistern having a settling-basin, formed
 30 by a conical wall, the cistern-wall, said conical wall and cistern-wall having a close con-

tact at the upper end of the former, said walls forming an auxiliary chamber between them, a drain-pipe for leading off sediment from the lower end of said basin, means of water communication between the basin and said chamber, whereby a supporting water-pressure may be established in the latter, and a cistern outlet-pipe leading outside the cistern from a point at a considerable height above the lower
 35 end of the basin, whereby the water will be drawn off from above the settling-point of the sediment, substantially as described.

3. A cistern having a conical settling-basin, said basin having a lower open end, a sediment drain-pipe and supporting and communicating with said basin at the said lower end, a cistern-wall and a closed chamber formed between said basin and wall, means of communication from the inner side of the basin
 45 with the chamber, whereby a water-support for the basin is provided, and a vent-pipe leading upwardly from said chamber, substantially as described.

In testimony whereof we have signed our
 55 names to this specification in the presence of two subscribing witnesses.

ERNEST LAENGER.
 CHAS. LAENGER.

Witnesses:

A. H. BERNSTEIN,
 GEO. K. PHILLIPS.