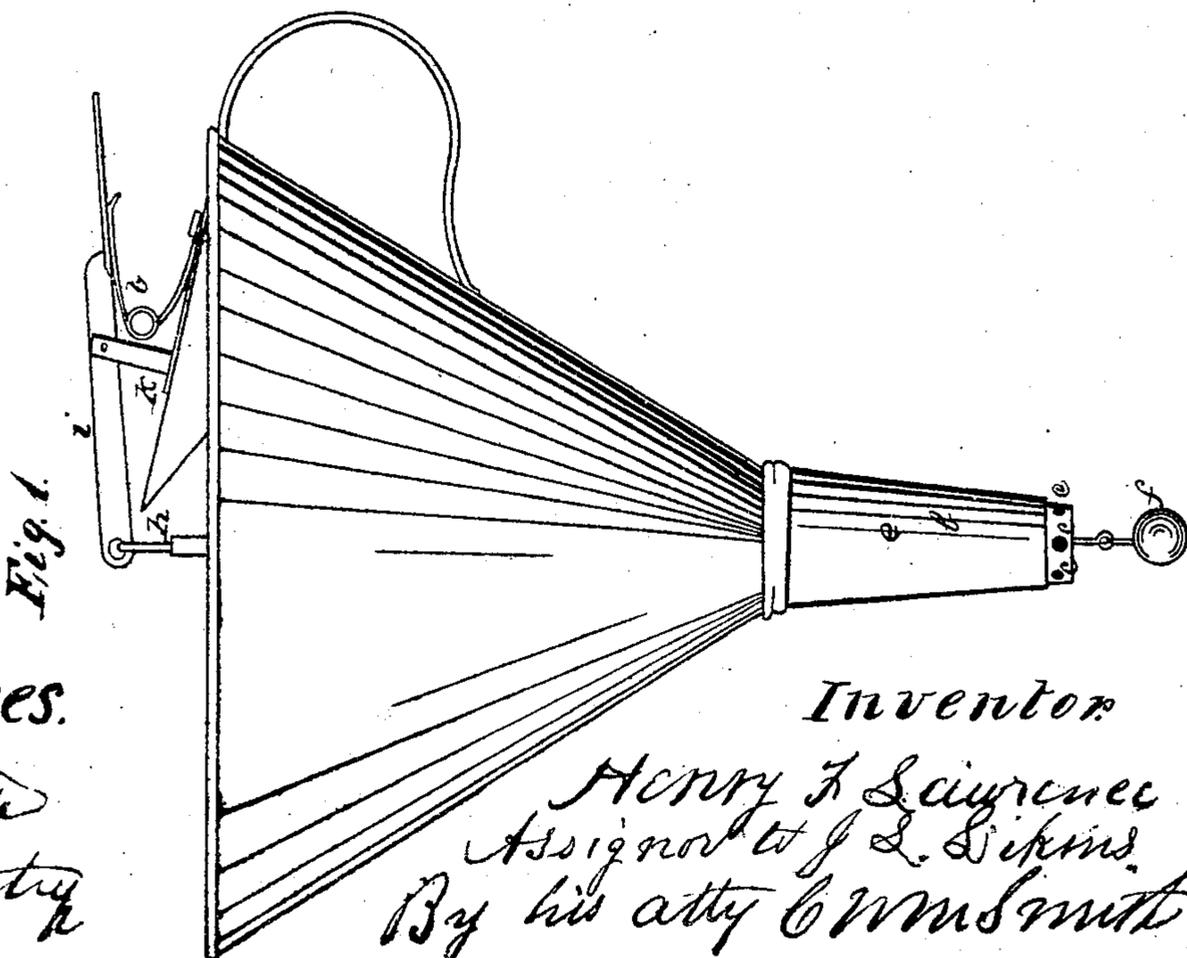
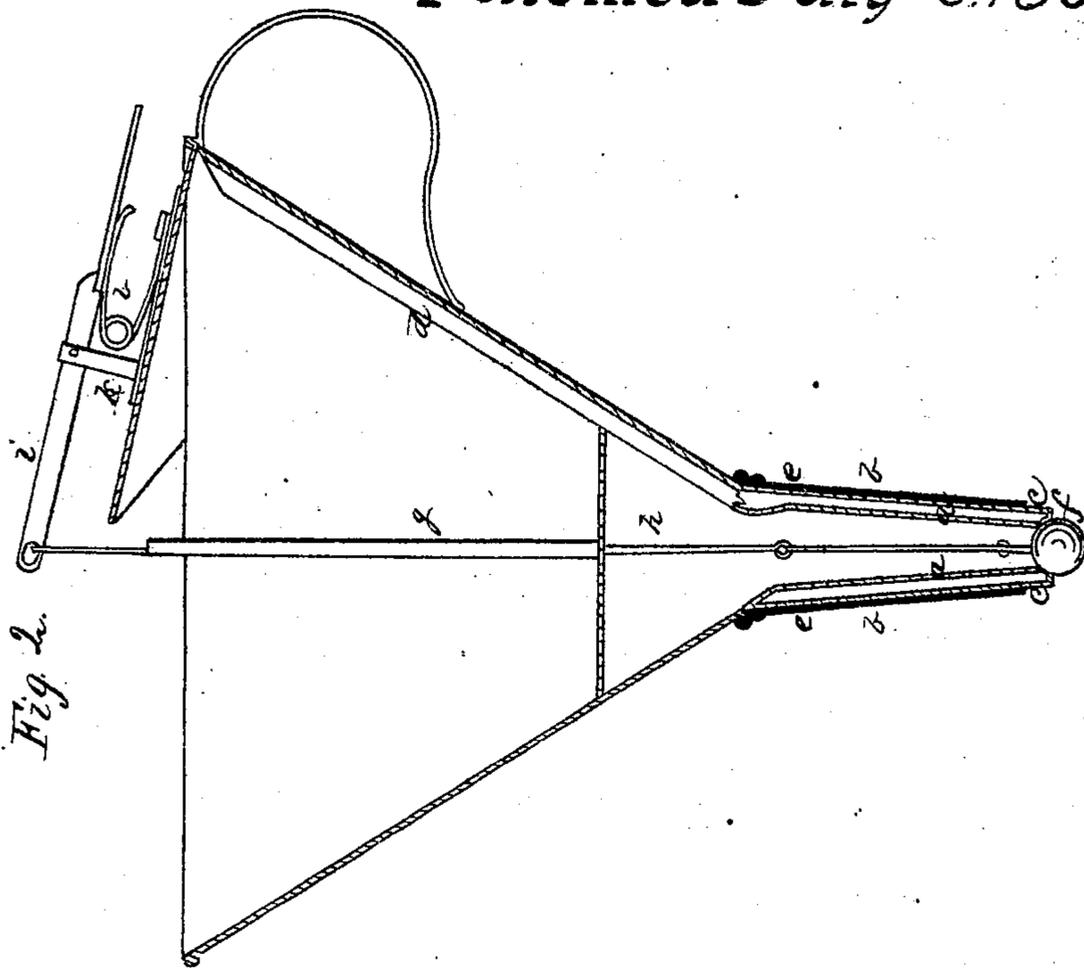


H. F. Lawrence.

Funnel.

N^o 92,321.

Patented July 6, 1869.



Witnesses.

W. H. Lawrence
L. M. Hirst

Inventor

Henry F. Lawrence
Assignor to J. L. Hirst
By his atty C. W. Smith

United States Patent Office.

HENRY F. LAWRENCE, OF VALLEJO, CALIFORNIA.

Letters Patent No. 92,321, dated July 6, 1869.

IMPROVEMENT IN FUNNELS.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, HENRY F. LAWRENCE, of Vallejo, in the county of Solano, and State of California, have invented certain new and useful Improvements in Funnels for Liquids and Fluids; and I do hereby declare that the following is a full and exact description of the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

This invention relates to funnels; and consists, mainly, in the employment of a ball-valve, which is located at the lower opening of the funnel, and attached to a jointed rod.

By the movement of the rod, through the medium of suitable devices, which will be fully described hereinafter, the valve is opened and closed at pleasure. The form of the valve is such as to permit the liquid to pass over it when open, without affording it any opportunity for lodgement, and the jointed rod permits it to be swung aside readily when desired.

By this construction and arrangement, the contents of the funnel will be much more rapidly discharged than when the ordinary flat valve is used.

The outer plate is perforated near the base, through which the air escapes into the chamber.

A vertical pipe or well extends from the top to a point just below where the nozzle is joined to the main portion of the body. In this well operates a plunger-rod, and to the lower end of which is attached a ball-valve.

To the upper end of the plunger is attached, by a hook and eye, a small lever, which has its fulcrum on a plate connected to the rim, and which is operated by a small spring.

A strainer is placed above the nozzle, and an air-tube extends down the interior of the funnel, in the same manner as that described in my former specification, which connects with the air-chamber above described.

The outside of the nozzle is provided with a cover or jacket, of India rubber, also described in my former application.

Referring to the drawings—

Figure 1 is an elevation, showing the ball-valve lowered.

Figure 2 is a vertical section, showing the ball-valve closed or drawn up in the end of the nozzle.

The nozzle of my funnel I construct with double walls, so as to form an air-chamber, *a*, which has no connection with the interior of the funnel.

The outer plate or jacket *b* is pierced near the base with holes *c c c*, so that the air, when the bottle is being filled, will escape into the chamber and pass off through the air-tube *d*, and thus relieve the bottle of atmospheric pressure.

The India-rubber jacket *e* should not extend to the end of the nozzle, so as to cover the air-holes, as in that case the air would pass up around the ball-valve, and have a tendency to check the flow through the nozzle.

The valve *f* may be spherical or oval, so that when it is drawn up into the end of the nozzle it will be water-tight; and I am confident, after repeated experiments, that no other shape will answer, as, for instance, where a button-valve is used, the fluid, when running down, will strike the flat surface, and spread out against the neck of the bottle, and partially stop the flow, the only medium for the escape of the air being the vertical pipe *g*.

My valve is linked by a rod or plunger, *h*, which passes up through the vertical pipe above described, and is hooked to a thumb-lever, *i*, which has its fulcrum on the half plate *k*.

Back of the fulcrum is a spring, *b*, and when the pressure of the thumb is removed from the end of the lever, the spring carries the plunger down the pipe, and the ball-valve drops, to admit of the escape of the fluid into the bottle.

A gauge for measuring the quantity to be drawn may be placed in the funnel, but this device I do not lay any special claim to.

Having thus described my invention,

What I claim, and desire to secure by Letters Patent, is—

A funnel, in which are combined and arranged the jointed rod *h*, operated as described, the guide-pipe *g*, the ball-valve *f*, the tube *d*, and the jacket *e*, all as and for the purpose described.

In witness whereof, I have hereunto set my hand and seal.

H. F. LAWRENCE. [L. S.]

Witnesses:

C. W. M. SMITH,
PLINY F. GARDNER.