

No. 855,397.

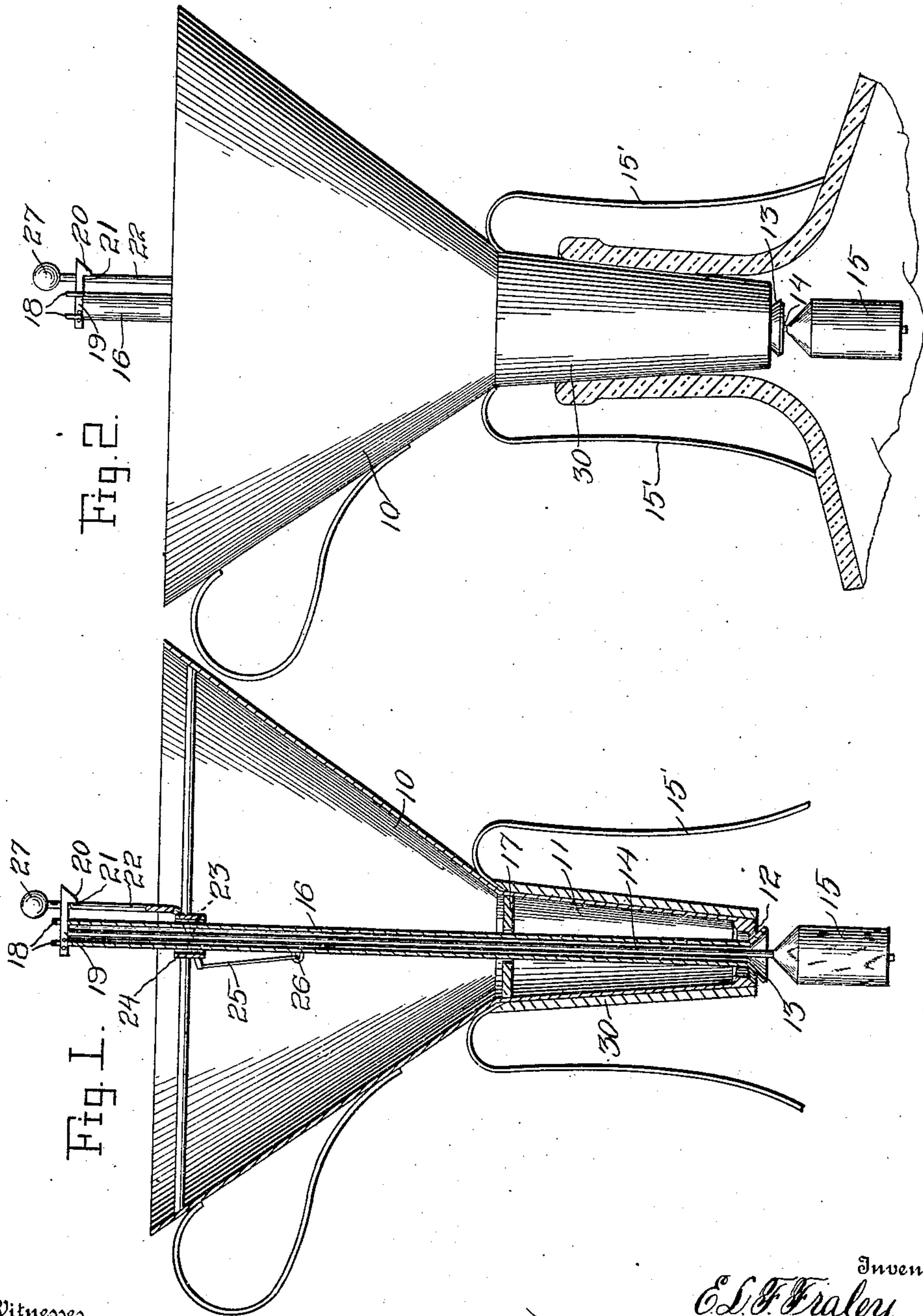
PATENTED MAY 28, 1907.

E. L. F. FRALEY.

FUNNEL.

APPLICATION FILED JUNE 7, 1906.

2 SHEETS—SHEET 1.



Witnesses
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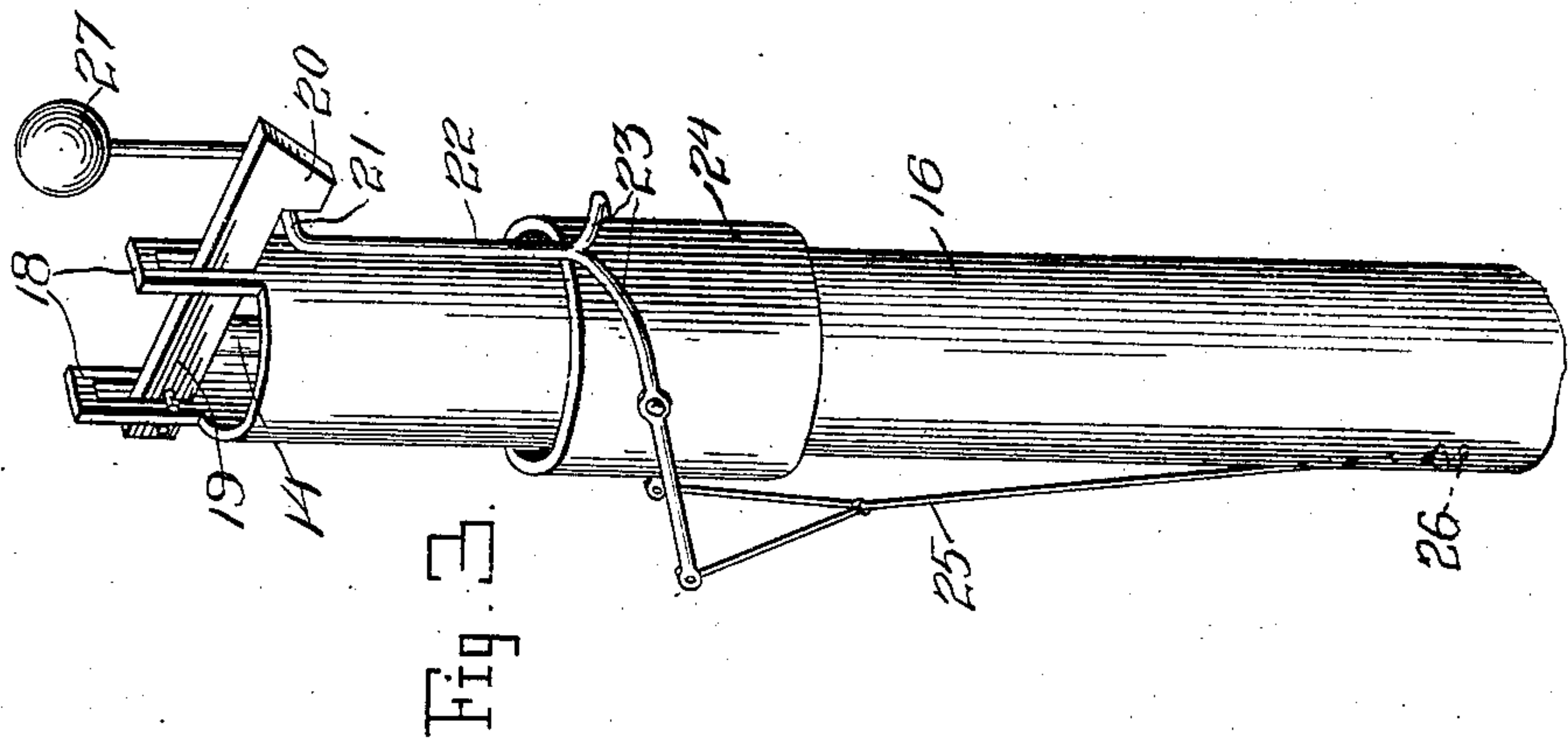
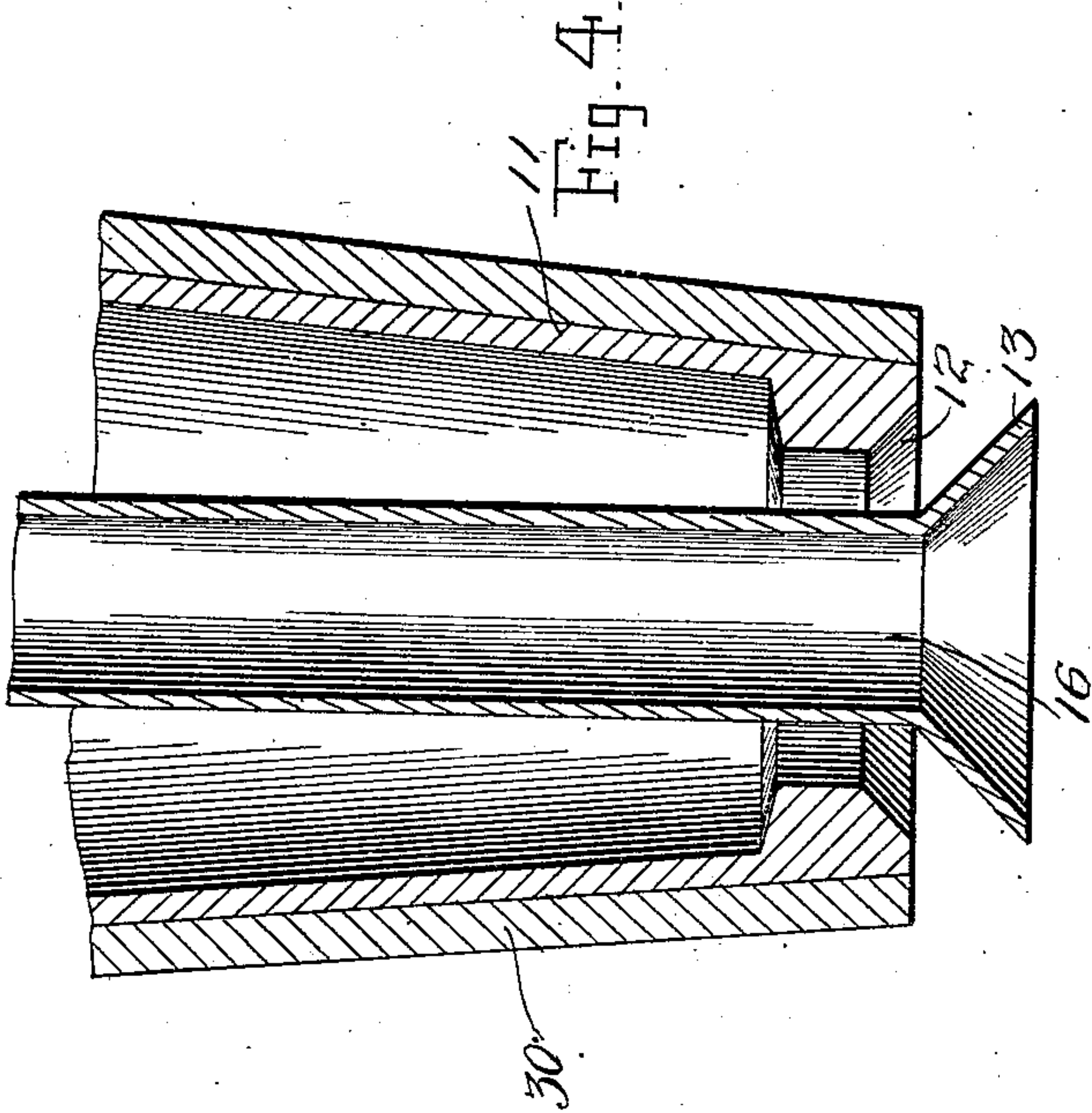
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Witnesses
G. H. Reichenbach
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UNITED STATES PATENT OFFICE.

ERNEST L. F. FRALEY, OF ROCKVILLE, MARYLAND.

FUNNEL.

No. 855,397.

Specification of Letters Patent.

Patented May 28, 1907.

Application filed June 7, 1906. Serial No. 320,653.

To all whom it may concern:

Be it known that I, ERNEST L. F. FRALEY, a citizen of the United States, residing at Rockville, in the county of Montgomery, State of Maryland, have invented certain new and useful Improvements in Funnels; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention has relation to self-closing funnels; or, stated in other words, to funnels that will close automatically when the liquid in the bottle or other receptacle into which the spout of the funnel is inserted rises to a certain predetermined height.

It is the object of the invention to provide such improvements in this class of funnels as will enhance their efficiency, simplify their construction, and render their operation certain.

The nature of the invention has been so far indicated in the foregoing statement as to make it unnecessary to further set forth the details of construction at this point and time.

I will proceed to first disclose the invention generally, in view of the annexed drawings, forming a part of this specification, and then point out the part or improvement comprising the invention with distinctness and particularity in the subjoined claims.

Of the said drawings:—Figure 1 is a central sectional view of a funnel equipped with my improvements. Fig. 2 is a side elevation, showing it in position on a bottle, which it is supposed to be filling. Fig. 3 is an enlarged detail view of the mechanism in the upper part of the funnel. Fig. 4 is a like view of the valve and its seat.

Similar figures of reference designate similar parts or features, as the case may be, wherever they occur.

In the drawings, 10 designates the funnel having the usual spout 11, at the lower end of which there is formed and supported an inclined valve-seat 12, for the reception of the valve 13, supported on a tube 16 that is temporarily supported at the top of the funnel, all as will be presently explained, and through which tube, and the funnel as well, there extends a wire 14 that passes through a float 15, composed of cork or other light substance. The wire 14 passes quite loosely through the valve, so that it may be moved longitudinally without displacing the latter,

but it has frictional connection with the float to a degree that will permit of the latter being adjusted up and down on it, and have it keep the place to which it may be moved, for a purpose to be presently explained.

15' designates curved arms secured to the bottom of the funnel, and adapted to rest on the shoulders of the bottle, or other vessel that it may at any time be used to fill.

The light protecting tube 16, that is connected at its lower end with the valve 13, extends through an opening in the cross-piece 17 arranged in the spout of the funnel. The said tube, at its upper end, is provided with two integrally connected and slotted extensions 18, through which slots the bar 19 of a latch extends, which latch is provided with a catch 20, that takes over an angular bend 21 in a wire arm 22, connected at its lower end with a yoke 23, that is pivotally supported on a collar 24 surrounding the tube 16, which collar is supported by wires, or other suitable means connected with the upper rim of the funnel. A wire 25 is connected at one end with the said yoke, and at its other end with a small ring 26, connected with the tube 16. The wire 14 extends through the upper end of the tube 16, and is connected with the latch 19. The arm 22, above the angular bend therein, is provided with a weighted ball 27, and the bar 19 of the latch is supported in the slots of the extensions 18, so that it will not turn axially therein. Under this construction, when the funnel is in use filling a bottle, or other vessel, and the liquid rises so as to raise the float 15 to an extent that will release the catch 20 from the angular bend 21 in the wire arm 22, the weighted ball 27 will drop, carrying its supporting wire arm 22 with it, raising the outer arms of the yoke and pulling up on the wire 25 and tube 16, and drawing up the valve 13 to its valve-seat 12, closing the funnel against further passage through its spout of any liquid contained therein. By adjusting the float up or down on the wire, the latter may be operated to close the funnel sooner or later.

It will be understood that the weight 27 on the arm 22 will be sufficient to overcome the weight of the tube 16 and the liquid in the funnel that may bear on the valve. Inasmuch as the weighted arm 22 is normally vertical, or nearly so, the weight that can be carried thereby, without operating it so as to tilt the yoke, may be considerably more than will be required at any time.

It is obvious that changes may be made in the form and arrangement of parts, within the scope of mechanical skill, without departing from the nature or spirit of the invention.

The spout of the funnel is provided with a rubber cover 30 which is continued upwardly over the lower portion of the body of the funnel. The object of this is in order that the funnel may fit air-tight in the mouth of a bottle to insure escape of all air up through the tube 16. Otherwise, the air escaping from between the funnel and the edge of the bottle would tend to blow liquid to a greater or less degree out over the edge of the bottle.

What is claimed as the invention, is:—

1. The combination, with a funnel and its spout, of a valve-seat in the spout, a guiding cross-piece in the spout having an opening therethrough, a valve below the valve-seat, a tube connected with the said valve and extended through an opening in the cross-arm to the top of the funnel, a weighted arm, a fixed collar, a yoke with which the weighted arm is connected pivoted on the collar, a wire connecting the yoke with the tube, a latch engaging the weighted arm to hold it against

action by its weight, a wire connected with the latch and extended through the tube and valve, and a float adjustably connected with the lower end of the wire.

2. The combination, with a funnel and its spout, of a valve-seat in the spout, a guiding cross-piece in the spout having an opening therethrough, recurvate arms connected with the spout, a valve below the valve-seat, a tube connected with the said valve and extended through the opening in the cross-arm to the top of the funnel, a weighted arm, a fixed collar, a yoke with which the weighted arm is connected pivoted on the collar, a wire connecting the yoke with the tube, a latch engaging the weighted arm to hold it against action by its weight, a wire connected with the latch and extended through the tube and valve, and a float adjustably connected with the lower end of the wire.

In testimony whereof, I affix my signature, in presence of two witnesses.

ERNEST L. F. FRALEY.

Witnesses:

J. G. DARBY,

G. P. HENDERSON.