

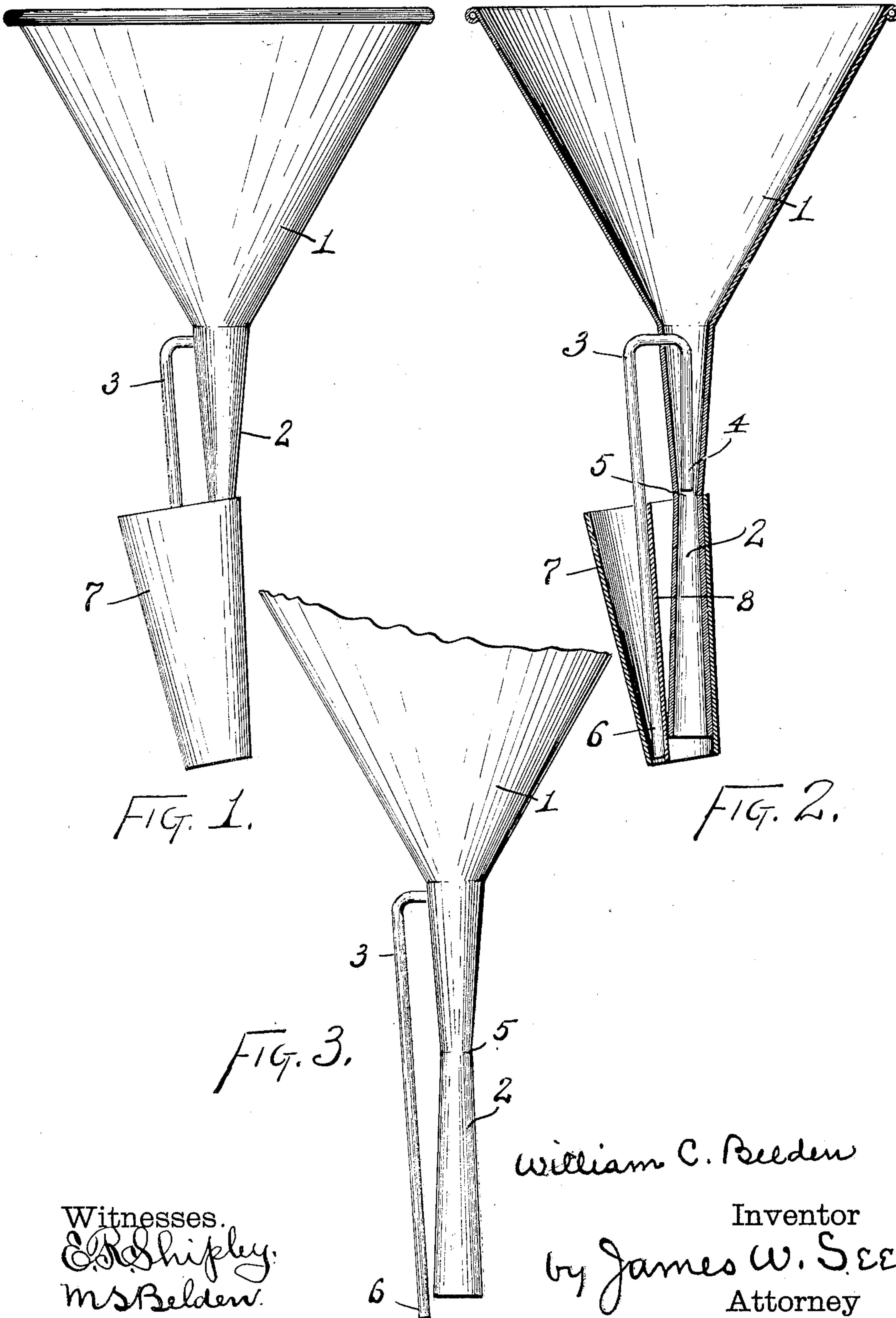
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Patented Sept. 4, 1900.

W. C. BELDEN.
TELLTALE FUNNEL.

(Application filed June 21, 1900.)

(No Model.)



UNITED STATES PATENT OFFICE.

WILLIAM C. BELDEN, OF IOAMOSA, CALIFORNIA.

TELLTALE-FUNNEL.

SPECIFICATION forming part of Letters Patent No. 657,080, dated September 4, 1900.

Application filed June 21, 1900. Serial No. 21,043. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM C. BELDEN, a citizen of the United States, residing in Ioamosa, San Bernardino county, California, (post-office address Ioamosa, California,) have invented certain new and useful Improvements in Telltale-Funnels, of which the following is a specification.

In filling vessels by means of a funnel it is often extremely difficult to determine when to stop pouring in order to secure proper fullness without overflow. This is particularly the case where the vessels have opaque walls—as, for instance, in metal lamps. It has been proposed to provide a funnel with a telltale-whistle operated by the compression of air over the liquid in the vessel being filled, the whistle ceasing to sound as soon as the level of the liquid reached and closed the end of the whistle-pipe; but this scheme involved the compression of air within the vessel by the rising of the liquid therein and as a consequence involved a practical air-tightness of the vessel while being filled, a condition quite out of the question in connection with vessels possessing several outlets for such air—as, for instance, in lamps having air-outlets at the burner or at other points. Again, in connection with such compressed-air system it will be found hardly practicable to avoid escape of air around the funnel. My invention, like a whistling-funnel, is designed to produce an audible alarm while the vessel is being filled, the alarm ceasing when the proper level has been reached and the production of the alarm being quite independent of the compression of air in the vessel. My funnel, instead of being a whistling-funnel, is a singling or croaking funnel.

My invention will be readily understood from the following description, taken in connection with the accompanying drawings, in which—

Figure 1 is a side elevation of an alarm-funnel exemplifying my invention; Fig. 2, a vertical section of the same, and Fig. 3 a side elevation of the same with the neck-collar removed.

In the drawings, 1 indicates the hopper part of the funnel; 2, the nose-tube; 3, an air-tube; 4, the outlet end of the air-tube, the same being disposed within the nose-tube and dis-

charging downwardly therein, preferably centrally with reference to the nose-tube; 5, a stricture in the nose-tube in the near neighborhood of the discharge end of the air-tube; 6, the inlet end of the air-tube, this end being located at such point as will represent a proper filling-level in a given vessel; 7, a neck-collar surrounding the nose-tube and serving merely as a means for enlarging the nose-tube to make it fill the neck of a vessel and form a stop for the support of the funnel in the neck of the vessel, with the lower end of the air-tube at the proper level of fullness, and 8 a vertical partition in neck-collar 7 to separate the lower end of the air-tube from the stream discharging from the nose-tube of the funnel.

In arriving at an understanding of the working of this affair it would be well for the present to ignore entirely the presence of neck-collar 7 and partition 8, the funnel then appearing as in Fig. 3. If this funnel, as in Fig. 3, be held in the air quite independent of any vessel to be filled and liquid be poured into its hopper, that liquid will discharge downwardly through the nose-tube the same as in any ordinary funnel; but at the stricture 5 the velocity of flow is somewhat throttled and the pressure of liquid increased, the nose-tube expanding below the stricture, so as to make more room for the liquid and permit of an accelerated flow. At this stricture the outlet end 4 of the air-tube is located, and the result is that the device acts injector-wise to draw air into the lower end of the air-tube add discharge it into the body of water rushing down the nose-tube of the funnel. This action of the air produces, presumably, bursting or expanding bubbles of somewhat-compressed air soon after the air leaves the discharge end 4 of the air-tube. At any rate there is some sort of a commotion produced, resulting in a singing or croaking note, intensified by the general structure acting as a resonator. This note of alarm is maintained continuously so long as the liquid is flowing through the nose-tube under the conditions thus far mentioned. If now while the funnel is thus singing the lower end 6 of the air-tube be closed, the singing will stop. In using the device it should be projected into the vessel such distance that the lower end 6

of the air-tube will become closed by the rising liquid at the proper time to indicate that the proper level of liquid has about been reached. When the note of alarm ceases, then the operator should cease to pour into the funnel.

Neck-collar 7 or any equivalent stop may be provided to rest upon the neck of the vessel to support the funnel and bring the lower end of the air-tube to the proper filling-level.

It is to be understood, referring to Fig. 3, for instance, that it is quite immaterial to the production of the alarm-note that air-tube 3 project its inlet end downwardly, for the funnel will sound its note regardless of the direction of projection of the inlet end of this tube. The downward projection of the tube is merely incident to getting it down to position to be closed by the rising liquid in a vessel being filled.

The action of the downwardly-flowing body of liquid upon the outlet end 4 of the air-tube is, as before intimated, an injector-like action. At the foot of the nose-tube of the funnel the stream of liquid flows down in close proximity to the inlet end 6 of the air-tube, the closeness of the proximity being incident to the desire to get the structure into compact form to enter small vessel-necks. The result of this close proximity of the flowing stream and the lower end of the air-tube may be to cause the stream of liquid to act injector-like at the lower end of the air-tube, in which case the forces tending to move the air through the air-tube would be *nil*. It is for this reason that I in practice introduce the partition 8 between the lower ends of the nose-tube and air-tube to separate the down-flowing stream of liquid from the air, which it is desired shall move upward into the air-tube instead of being coaxed downwardly by the contiguous stream of liquid.

The principle of my invention distinguishing it from other inventions may be most readily explained as causing a descending

stream of liquid to act injector-like upon air drawn through a tube having its inlet end normally open to the atmosphere, and it is obvious that the invention will lend itself to many structural modifications.

I claim as my invention—

1. In an alarm-funnel, the combination, substantially as set forth, of a funnel having a nose-tube, and an air-tube having its discharge end located within said nose-tube and having its inlet end normally open to the atmosphere.

2. In an alarm-funnel, the combination, substantially as set forth, of a funnel having a nose-tube provided with a stricture, and an air-tube having its outlet end located within said nose-tube in the neighborhood of said stricture and having its inlet end normally open to the atmosphere.

3. In an alarm-funnel, the combination, substantially as set forth, of a funnel having a nose-tube, and an air-tube having its outlet end disposed within said nose-tube and having its inlet end exterior to said nose-tube and at a point below the outlet end of the air-tube.

4. In an alarm-funnel, the combination, substantially as set forth, of a funnel having a nose-tube, an air-tube having its outlet end disposed within said nose-tube and having its inlet end disposed exterior to the nose-tube and below the outlet end of the air-tube, and a neck-collar adapted to engage a vessel-neck and support the funnel therein.

5. In an alarm-funnel, the combination, substantially as set forth, of a funnel having a nose-tube, an air-tube having its outlet end disposed within said nose-tube and having its inlet end disposed exterior to said nose-tube and below the outlet end of the air-tube, and a vertical partition disposed between the lower ends of the nose-tube and air-tube.

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Witnesses:

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