No. 615,337. Patented Dec. 6, 1898.

H. ALTSHUL.

FUNNEL.

(Application filed Jan. 12, 1898.)

(No Model.)

Fig. 1.

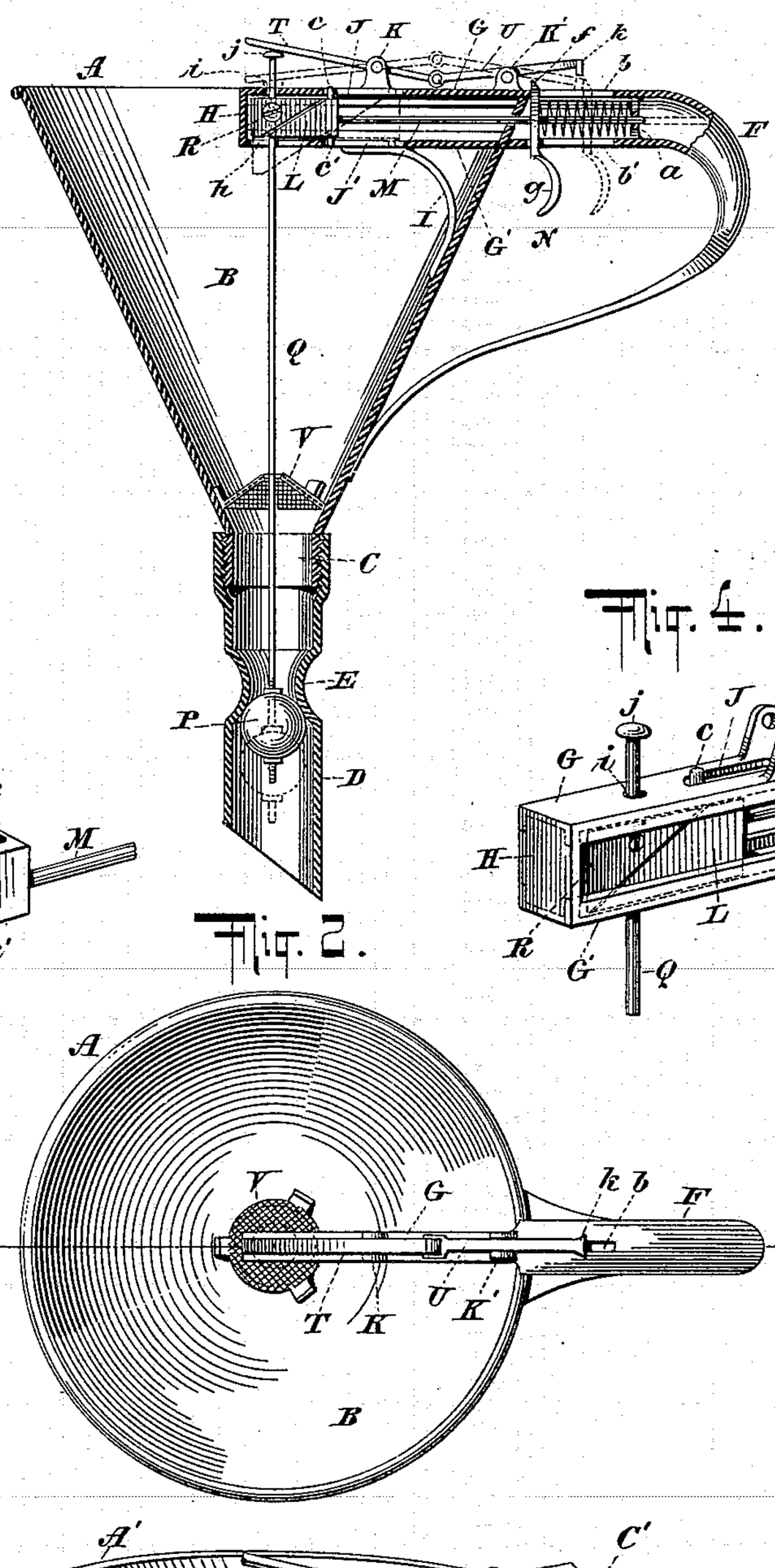


Fig. 3.

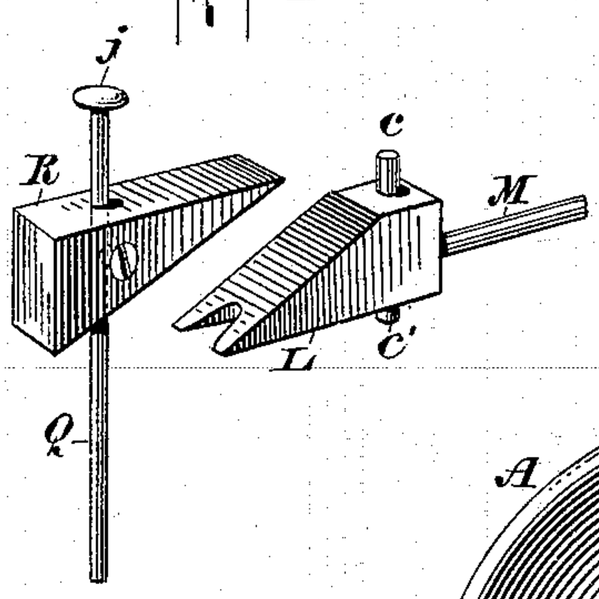
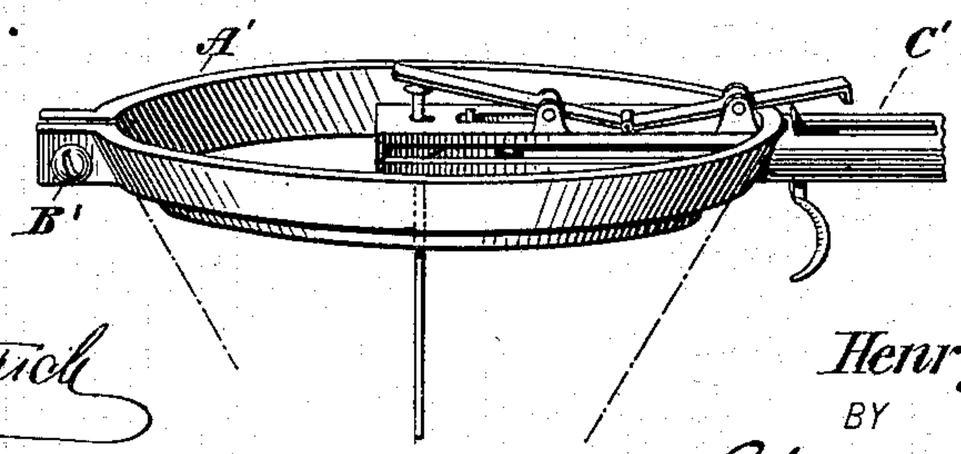


Fig. 4.

Fig. 2.

Fig. 5.



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FUNNEL.

SPECIFICATION forming part of Letters Patent No. 615,337, dated December 6, 1898.

Application filed January 12, 1898. Serial No. 666,406. (No model.)

To all whom it may concern:

Be it known that I, HENRY ALTSHUL, a citizen of the United States, residing at the city of New York, in the county and State of New York, have invented certain new and useful Improvements in Funnels, of which the following is a full, clear, and exact specification.

My invention relates to funnels, and has for its object to provide a simple, durable, and efficient apparatus whereby the outlet in the funnel may be sealed either by the operator or automatically by the liquid when the same has filled its container; and a further object of the said invention is to provide an apparatus which may be readily applied to a funnel and when so applied shall not obstruct the interior thereof to any appreciable extent.

The objects above set forth I am enabled to accomplish by means of my invention, which consists in the novel details of construction and in the combination, connection, and arrangement of parts, as hereinafter more fully described and then pointed out in the claims.

In the accompanying drawings, forming part of this specification, wherein like letters of reference indicate like parts, Figure 1 is a sectional view of a funnel constructed according to and embodying my invention, said section being taken on the line 1 1 of Fig. 2. Fig. 2 is a top view thereof. Figs. 3 and 4 are enlarged detail perspective views of the seal-operating mechanism, and Fig. 5 is a perspective view illustrating a modification.

In said drawings, A denotes a funnel comprising the body B, provided at its base with a screw-threaded section C, and D denotes a spout provided at its top with internal screw-threads and adapted for securement to the section C of the body B.

E denotes a contracted portion of the spout D, forming a valve-seat upon the inner surface of said spout D, and F denotes a hollow handle secured to the body B and provided with an interior partition *a* and slots *b b'*.

Upon the inner side of the body B, near the top or rim thereof, are secured the ends of guides G G', the other ends of which project inwardly beyond the center of the funnel and are united by a connecting-section H, and I denotes a supporting-bracket secured at one end to the inner side of the funnel and at its other end to the under side of the guide G' to support the same and the guide G in position within the body B of the funnel.

J J' denote slots in the guides G G', respectively, and K K' denote bearings arranged upon the upper side of the guide G.

Within the guides G G' is arranged a wedge L, having its inclined surface uppermost, and provided upon its upper and lower surfaces with studs *c c'*, extending into the slots J J', respectively, in the guides G G', and M denotes a rod having one end secured to the wedge L and its other end extending into the hollow handle F and supported by the partition *a* therein.

N denotes a trigger secured to the rod M and provided with a toe *f*, extending through the slot *b* in the handle F, and a finger portion *g*, extending through the slot *b'* in the handle F, and O denotes a spring disposed upon the rod M intermediate the trigger N and partition *a* of the handle F.

P denotes a valve which may be of spherical, cylindrical, or any other suitable form detachably secured to one end of the rod Q, the upper end of which rod extends through a slot *h* in the guide G' and an aperture *i* in the guide G and provided at its upper projecting end with a knob *j*, and R denotes a wedge arranged within the guides G G' in front of the wedge L and adjustably secured to the rod Q, with its inclined surface lowermost.

Upon the upper side of the guide G within the bearings K is pivotally supported a lever T, having one end disposed above the knob *j* of the rod Q and its other end pivotally connected with a detent U, pivotally supported within the bearings K' and provided with a catch *k*, adapted to engage with the toe *f* of the trigger N to hold the wedge L to its drawn-back position.

V denotes a conical screen or sifter secured to the body of the funnel upon its inner side adjacent to the outlet therein and provided with a central aperture to permit of the passage of the rod Q therethrough.

In the modification illustrated at Fig. 5 I have shown a structure adapted for use in connection with funnels made of glass and analogous materials. In this structure the mechanism for supporting and operating the valve is supported by a split ring or collar A',

made substantially U shape, inverted, in cross-section and adapted to be secured in position upon the rim or top of a funnel by means of a screw B′ or other suitable device which will clamp the opposing ends of the ring A′ securely together. Upon the outer surface of said ring A′ adjacent to the place where the guides for the wedges are secured upon the inner side is attached a hollow handle C′, the lower end of which is free and adapted to bear against the outer surface of a funnel, and within the upper portion of said hollow handle is provided mechanism like that shown in the structure heretofore described for operating the valve.

The operation is as follows: If we assume the spout of the funnel to be in position within the mouth of a container, the valve P thereof to be in the position indicated by dotted lines at Fig. 1, and the wedge L to have been drawn back by means of the trigger N and locked to said position by the detent U, as also indicated by dotted line in said figure, the liquid will, as soon as it fills the container, cause the valve P to float and rise slightly and in so doing cause the upper end of the rod Q to depress the pivoted end of the lever T and the detent U, connected thereto, to be released from its engagement with the toe *f* of the trigger N, thereby causing the wedge L to be projected into the path of the wedge R, raise the same and the rod Q, supported thereby, and draw the valve P firmly against its seat in the spout of the funnel and arrest further flow of the liquid from the funnel to the container. To set the apparatus to its initial position, it simply becomes necessary to draw the trigger back until the detent U falls into position and locks the same to the position indicated by dotted lines at Fig. 1.

It is to be observed that the apparatus, in addition to the many purposes for which it may be employed, is especially adapted for use in connection with apparatus delivering their contents slowly in small quantities—such, for example, as filters, percolators, &c.

Without limiting myself to the details of construction, which may be varied within the scope of the invention, what I claim, and desire to secure by Letters Patent, is—

1. In a funnel comprising a body and a spout, guides arranged within said body extending inward, a rod supported within said guides, a valve secured to said rod adapted to seal the spout, and a cam secured to said rod within the guides combined with means adapted to engage said cam to raise the rod and seat the valve, substantially as specified.

2. In a funnel comprising the body and spout, guides arranged within said body extending inward, a rod supported within the inner ends of said guides, a valve secured to said rod adapted to seal the spout, a cam secured to said rod within the guides combined with a device movably supported within said guides adapted to engage said cam, and means for projecting said device into engagement with the cam to raise the rod and seat the valve, substantially as specified.

3. In a funnel comprising the body and spout, guides arranged within said body extending inward from the top thereof, a rod supported within the inner ends of said guides, a valve secured to said rod adapted to seal the spout, a cam secured to said rod adapted to move vertically within the guides combined with a cam adapted to move horizontally within the guides to engage the vertically-movable cam, and means for projecting said horizontally-movable cam into the path of the vertically-movable cam to raise the same, the rod attached thereto and seat the valve carried by said rod, substantially as specified.

4. In a funnel comprising the body and spout having a valve-seat arranged therein, guides arranged within the body of said funnel extending inward from the top thereof, a hollow handle arranged without the funnel-body adjacent to the rear ends of the guides, and projecting outward, a rod supported within the inner ends of the guides having a valve secured thereto disposed within the spout, a cam secured to said rod near its upper end adapted to move vertically within the guides combined with a cam adapted to move horizontally within the guides having a rod attached to its rear end provided with a trigger and toe, and a spring for projecting said cam into the path of the vertically-movable cam, a detent adapted to engage said toe, and a lever arranged intermediate the rear end of the detent and the top of the valve-rod whereby to release the toe when the valve-rod rises, substantially as specified.

5. In a funnel comprising a body and a spout provided with a valve-seat, guides arranged within said body near the top thereof and extending inward, a hollow slotted handle provided with an interior partition, arranged without the body adjacent to the rear ends of the guides, a rod supported within the inner ends of said guides, having a valve secured thereto near its lower end and within the spout, and a cam adjustably secured to said rod near its upper end within the guides combined with a cam adapted to move horizontally within the guides having a rod secured to its rear end extending into the hollow handle and the partition therein, a trigger and toe secured to said rod and extending through the slots in said hollow handle, a spring disposed upon said rod intermediate the trigger and partition aforesaid, a detent pivotally supported upon the top of the guides adapted to engage with the toe to hold the horizontally-movable cam drawn back, a lever likewise supported having one end pivotally secured to the rear end of the detent, and its other end free and in contact with the upper end of the valve-rod, substantially as specified.

6. The combination of a funnel comprising a body and spout provided with a valve-seat

with a split ring adapted for securement to the rim or top of said funnel-body, means for securing said split ring in position upon said funnel-body, guides secured to said split ring upon its inner side and projecting inward, a hollow, slotted handle provided with an internal partition secured to said split ring upon its outer side, adjacent to the rear ends of the guides, and projecting outward, a rod supported within the inner ends of said guides having a valve secured thereto adapted to be seated in the spout, a cam secured to said rod near its upper end within the guides adapted to move vertically therein, a cam supported within said guides adapted to move horizontally therein, a rod secured to the rear end of said cam extending through the split ring and into the hollow handle, a trigger and toe secured to said rod extending through the slots in said hollow handle, a spring disposed upon said rod intermediate the trigger and partition, aforesaid, a detent pivotally supported upon the top of the guides adapted to engage the toe to hold the horizontally-movable cam drawn back, a lever likewise supported upon the top of the guides having one end pivotally secured to the rear end of the detent, and its other end free and in contact with the upper end of the valve-rod, substantially as specified.

Signed at the city of New York, in the county and State of New York, this 4th day of December, 1897.

HENRY ALTSHUL.

Witnesses:
MILTON SCHNAIER,
JACOB RECHT.