July 6, 1926. 1,591,491

M. JUDGE

FUNNEL

Filed May 12, 1921

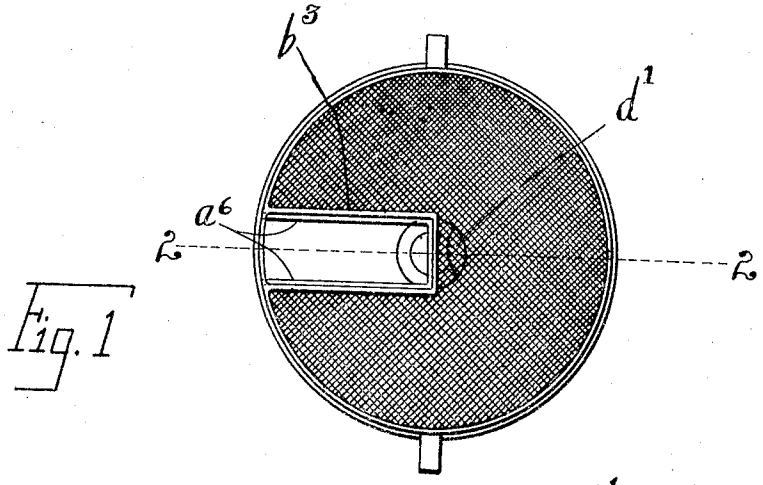


Fig. 1

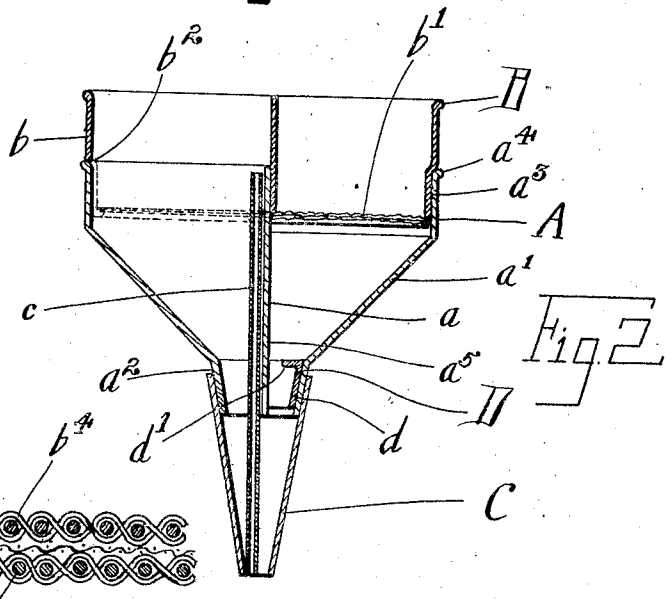


Fig. 2

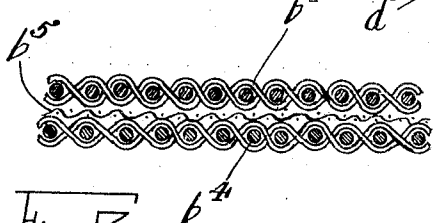


Fig. 3

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UNITED STATES PATENT OFFICE.

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FUNNEL.

Application filed May 12, 1921. Serial No. 468,859.

An object of my invention is to provide a funnel adapted to eliminate the rotatory motion of a fluid passing therethrough, thereby accelerating the filling of the container into which the funnel discharges.

Another object is to provide a funnel for the purpose stated in which the operator can readily observe the approach of the fluid toward the top of the container.

Another object is to provide a funnel for the purposes stated which may readily be modified to function simultaneously as a strainer.

Another object is to provide a combined funnel and strainer that can be easily, thoroughly and expeditiously cleaned.

Another object is to provide means whereby a funnel may be readily modified to permit filling of containers having large or small filling ports.

These and other objects are attained by the means described herein and disclosed in the accompanying drawings, in which—

Fig. 1 is a plan view of a funnel embodying my invention.

Fig. 2 is a sectional view on line 2—2 of Fig. 1.

Fig. 3 is an enlarged fragmental view taken on part of line 2—2 of Fig. 1 showing the strainer construction forming a detail of my invention.

My invention comprises a funnel A having a strainer B and a reducing nozzle C removably mounted thereupon. A partition a is provided in the funnel by means of which it is possible for an operator to observe the approach of the fluid towards the top of the container being filled.

The funnel A has a tapered body a' terminating in a tapered discharge nozzle a^2 as is common in the art. The discharge nozzle is truncated at a short distance from the body a' of the funnel so that it is readily possible for an observer to look through the body and discharge nozzle of the funnel from the top thereof. An upwardly extending flange a^3 is formed on the upper end of the body a, the upper end of which is formed into an outwardly projecting shoulder a^4. A partition is mounted in the funnel and comprises a center strip a^5 extending through the discharge nozzle substantially bisecting same and extending upwardly through the body a' and the flange a^3 thereof, and wings a^6, which extend from the center strip toward the wall of the body and flange of the funnel, in substantial parallelism. The partition is secured upon the funnel in any suitable manner such as by being soldered thereto. The partition extends in a substantially straight line between the top and bottom of the funnel, and the center strip and wings thereof are preferably integral.

The strainer B comprises a casing b of a shape similar to that of the flange a^3 and having mounted upon its lower end suitable screening b'. The lower end of the casing b is of a size substantially equal to that of the interior of the flange a^3 whereby the lower end of the strainer may be inserted in the flange. The upper or the unobstructed end of the casing is of a size substantially equal to that of the flange a^3 and a shoulder b^2 is formed intermediate the upper and lower ends of the strainer. The shoulder b^2 is adapted to engage upon the shoulder a^4 formed on the flange a^3 when the strainer is mounted upon the funnel, and to thereby position the strainer upon the funnel. A partition b^3 is mounted in the strainer and is given a form substantially similar to that of the partition mounted in the funnel and of such size that the partition in the strainer will extend about the partition in the funnel. The screening b' extends between the lower end of the partition b^3 in the strainer and the lower end of the casing of the strainer, thereby leaving an open space within the partition b^3 adapted to accommodate the upper end of the partition mounted in the funnel. The strainer b' comprises a heavy upper and lower projecting mesh b^4, between which is disposed a fine straining mesh b^5. The protecting mesh b^4 protects the straining mesh b^5 from rough and hard usage.

The reducing nozzle C is given the form of a truncated cone, tapering in substantially the same degree as does the discharge nozzle a^2 on the funnel. The larger end of the reducing nozzle is adapted to engage slidably upon the discharge nozzle a^2. An air vent in the form of a tube c is secured to the reducing nozzle C and is adapted to extend upwardly through the funnel and to assume a position intermediate the center strip, the wings and the funnel wall. The

tube is of such length that its ends terminate adjacent the bottom of the reducing nozzle and the top of the funnel when the reducing nozzle is mounted on the funnel. A flow reducer D is adapted to be mounted within the discharge nozzle a^2 of the funnel and is adapted to partly close the channel through the discharge nozzle a^2 and is employed when the reducing nozzle is used, so that when the reducing nozzle C is mounted upon the funnel, the flow from the body a' of the funnel will be substantially equal to the flow from the reducing nozzle C. The flow reducer may be given any form, but preferably comprises a body portion d substantially semi-circular in form and having a taper substantially equal to that of the discharge nozzle a^2, so that it may be removably mounted in the discharge nozzle a^2 and be readily inserted in and removed from the discharge nozzle. A lug d' extends from the upper end of the body d and serves to close off to some extent the channel through the discharge nozzle a^2.

The operation of my device is as follows:

We will assume that the funnel A is being employed to fill a container having a port of a size sufficiently large to permit the discharge nozzle a^2 to be inserted therethrough and that the substance to be run into the container need not be strained. Under these circumstances the reducing nozzle C and the strainer B are dispensed with, and the substance is poured into the funnel while the operator observes the filling of the container through the opening provided by the partition a. The opening provided by the partition a provides a ready path for the escape of the air within the container, wherefore the fluid will run into the container faster than it otherwise would. The partition serves to prevent the swirling motion developed by a fluid when running through a funnel, which swirling motion tends to retard the filling of the container. The operator can readily observe when the container is substantially full and can discontinue the flow of substance into the funnel, thereby preventing an overflow from the container. When the substance to be run into a container is to be strained, the strainer B is inserted in and mounted upon the flange a^3 formed on the strainer as shown in the accompanying drawings. The partition in the strainer registers with the partition in the funnel, wherefore the operator can readily observe the filling of the container as heretofore explained, and the substance is strained as it passes through the mesh b^5. By making the strainer removable, it is readily possible to thoroughly cleanse both the strainer and the funnel, wherefore the same funnel may be used for different substances after being cleansed.

When a container to be filled has a filling port of such size that the reducing nozzle C must be used, the flow reducer D is inserted in the funnel so as to obstruct and reduce the passage through which the fluid must pass in order to run through the discharge nozzle a^2. The reducing nozzle C is mounted upon the discharge nozzle a^2 as heretofore explained, and the tube c provides a passage way for the escape of the air from the container.

What I claim is:

1. The combination of a funnel, a partition extending lengthwise through the funnel providing an air exhaust passage and means for observation of the filling of a container, and a passage for running a fluid into such container, and a strainer removably mounted upon the funnel and extending over the second mentioned passage through the funnel.

2. The combination of a funnel, comprising a discharge nozzle, a partition extending lengthwise through the funnel and comprising a center strip substantially bisecting the funnel discharge nozzle and wings extending between the center strip and the funnel and providing a passage through the funnel for the escape of air from a container and for the observation of the filling of such container.

3. The combination of a funnel, comprising a discharge nozzle, a partition comprising a center strip extending lengthwise through the funnel and substantially bisecting the funnel discharge nozzle, and wings extending in substantial parallelism between the side edges of the center strip and the funnel, and a strainer adapted to be detachably mounted on the funnel comprising a casing adapted to extend partly into the funnel, a partition mounted within the casing adapted to accommodate the partition in the funnel and a straining mesh mounted on that part of the casing adapted to extend into the funnel and extending between the second mentioned partition and the casing.

4. The combination with a funnel comprising a body, a discharge nozzle on one end of the body and a flange on the other end of the body, of a partition extending lengthwise through the body, the flange and the discharge nozzle, whereby an air discharge passage and a fluid discharge passage are formed through the funnel, and a strainer comprising a casing having a reduced lower portion adapted to be projected into the flange, a partition in the casing adapted to extend around the partition in the funnel, and a strainer mounted on the reduced portion of the casing and extending transversely over the second mentioned discharge passage in the funnel.

5. The combination of a funnel comprising a body and discharge nozzle, a partition

extending lengthwise thru the body and nozzle, whereby to provide an air escapement passage on one side of the partition and a passage on the other side of the partition for a fluid, a flow reducer removably mounted on the funnel restricting the second mentioned passage, and a reducing nozzle removably mounted on the funnel nozzle having a capacity substantially equal to the restricted passage.

In testimony whereof, I have hereunto subscribed my name this 7th day of May, 1921.

MICHAEL JUDGE.