Dec. 7, 1954 W. P. VAN DRUNEN 2,696,336

APPARATUS FOR FILLING CONTAINERS

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Fig. 1

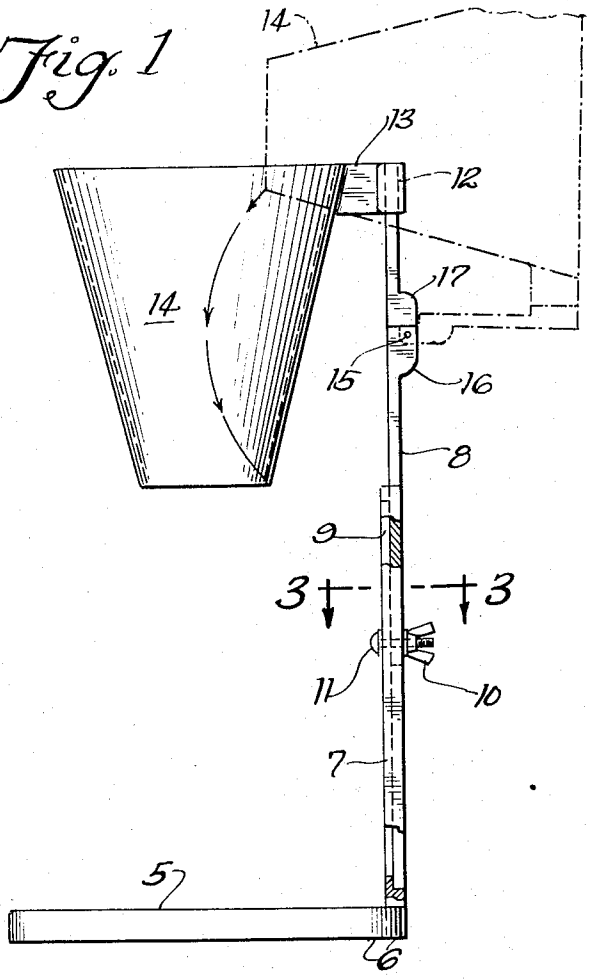


Fig. 2

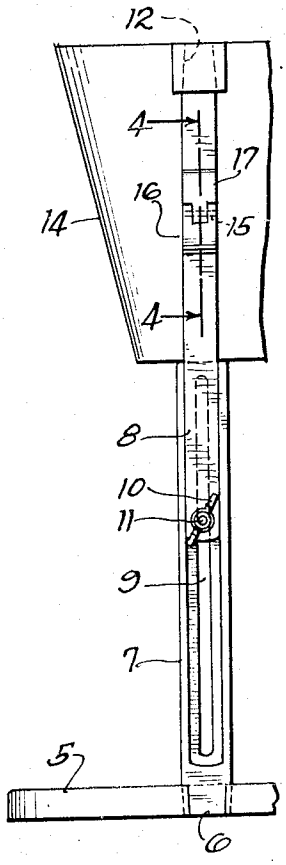


Fig. 4

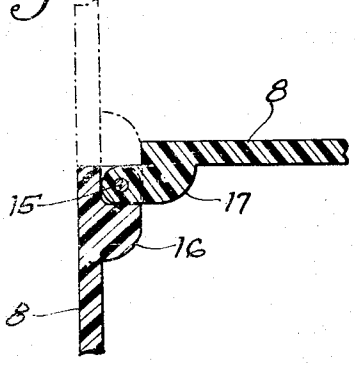
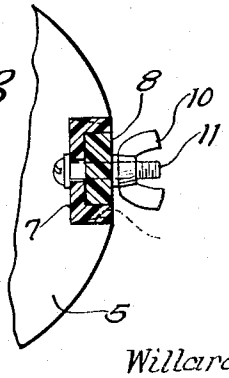


Fig. 3



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APPARATUS FOR FILLING CONTAINERS

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5 Claims. (Cl. 226—31)

This invention relates to apparatus for filling all kinds of receptacles such as bags, cartons, boxes, jars, glasses, bottles and cans.

In filling different types of containers it is customary to experience difficulty in transferring materials into the containers and during the process maintaining the entrances to the containers open and in position ready to receive the materials.

Considerable difficulty is also experienced in maintaining a clean work-place when replacing a filled receptacle with an empty one, and for the time required to do so, stopping the filling operation.

It is the object of this invention to provide a package filling device which is simple in construction, light in weight, easy to operate, and not costly to make.

It is also an object of this invention to provide apparatus for filling containers at home with fruits and vegetables for storage, which apparatus features a funnel that may be rotated in an arc of a circle when lowered into the opening of the container and when lifted out of the container.

Another object of the invention is to provide apparatus for filling all types of receptacles of various heights and sizes, which is possible because of an adjustable standard that permits raising and lowering the funnel within the limits of the adjustable standard.

Still another object of the invention is to provide apparatus of simple construction with the features described which can be dis-assembled for packaging and sale, or for storage at home when not in use, but most important for washing and cleaning the funnel particularly before and after use, as well as the other parts of the device if necessary.

A complete understanding of the construction and features of the device of this invention can be had from the following specification in conjunction with the accompanying drawings in which—

Fig. 1 is a side elevation view with the funnel in position for use and the dotted outline indicates the funnel swung up and out of any container when the device is not in immediate use.

Fig. 2 is a rear elevation view with the funnel lowered in position for use.

Fig. 3 is a sectional view through the standard looking down along line 3—3 of Fig. 1.

Fig. 4 is an enlarged sectional view of the hinge mechanism viewed along line 4—4 of Fig. 2.

Referring to Fig. 1, the apparatus includes an oval shaped base **5** that has a tapered and beveled socket **6** at the center of one of the more curved ends of the oval base to receive the upright frame **7**. A narrower extension **8** slidable in a groove of said upright frame is adjustable within the limits of slot **9** in frame **7** by fastening thumb screw **10** on bolt **11**.

The upper end of extension **8** is tapered as shown in Fig. 2 to slidably fit into a socket **12** located at one end of arm **13** while the other end is fastened to the funnel **14**. Also shown in Fig. 2 is a clearer view of extension **8** slidable within limits of slot **9** in upright frame **7**, and the tapered and beveled socket **6** in the end of base **5** which receives the lower tapered end of upright frame **7** and actually supports the filling device upright over base **5**.

The narrow extension **8** is not continuously straight and rigid but is broken and hinged together by pin **15** which passes through a U-shaped shoulder piece **16**

serving as one part of the hinge and through a tongue shaped shoulder piece **17** serving as the other part of the hinge. Both shoulders **16** and **17** are molded on the same side of extension **8** but are on different sides of the break in extension **8**. The construction of the shoulders **16** and **17** and the location of the pin **15** provide a hinge that limits the translation of the upper end of extension **8** through 90° of a circle. This is clearly understood from the enlarged sectional view of the hinged sections of extension **8** in Fig. 4 which shows the upper section of extension **8** in a horizontal position, whereas in Fig. 1 the same is shown vertical as when the apparatus is in use. The dotted outline figures in Fig. 1 show the funnel and upper extension **8** rotated 90° out of any container being filled as when not in use.

Fig. 3 is included to show some of the detail of the adjustable extension **8** in the grooves of frame **7** by means of the thumb screw arrangement.

The above described apparatus may be manufactured out of very light weight metals, wood or plastic materials. Experience has already proven the advisablity of constructing the device of this invention by assembling the individually molded plastic parts using perhaps only a metal pin for the hinge and a metal bolt and wing screw for the fastening means. It is possible also to make those pieces of the assembly out of plastic and costs would undoubtedly determine the materials to be used in quantity production.

The novel construction of the hinge enables the rotating of the upper end of the upright extension piece, the extending arm and the funnel attached thereto, as a unit through an arc of ninety degrees. This is an important feature of the invention because it enables the operator to easily lower the funnel into the upper section of any receptacle or container when filling or getting ready to fill them with liquid or dry materials. Then when the container is filled the operator tips the funnel up and back while setting the next container into position for filling. If the device is placed close enough to the supply of liquid or dry material being packaged and to the opposite side of the upright standard, then any light, non-viscous, liquid or dry material will drip back into the holder of the larger supply, thereby keeping the working place of the operator clean and dry.

It is to be understood that although only a practical embodiment of the invention has been described and illustrated the inventor believes there may be other modifications thereof which fall within the spirit and scope of his invention.

What I claim as my invention is:

1. Apparatus for filling containers comprising a flat base, an upright frame slidably fitted to one end of said base, said upright frame having a vertical groove, an upright extension slidable in said groove in said frame, means for securing said extension firmly at any desired height in said groove in said frame, said upright extension having a hinged section near the upper end and its very end tapered slightly, a funnel molded integral with a short arm near its upper lip, said short arm terminating in an encircling band tapering slightly to its top edge, and said short arm slidably fitted to said upright extension by sliding said tapered encircling band over said tapered end of said extension.

2. Apparatus for filling containers comprising a flat base, an upright frame detachably fastened to one end of said base and having a groove that extends from a level above said base to the upper end of said frame, a narrow upright extension slidable in a vertical direction in said groove in said upright frame, means for fastening said upright extension to said upright frame consisting of a threaded bolt extending through a long narrow slot in said upright frame and through a hole in said upright extension with a wing-nut for tightening said bolt so as to clamp said upright frame and said upright extension together, said upright extension having a hinged section near the upper end and the end of said hinged section being tapered slightly, a short member terminating at one end in an encircling band for slidably engaging the tapered end of said hinged section and at the opposite end attached to the larger end of a conical shaped funnel and said hinged section of said upright extenson be-

ing rotatable from a vertical position to a horizontal position through 90° only.

3. Apparatus of the class described consisting of a conical means for filling containers with an arm extending from the larger circular edge of said conical means at right angle to the center line through said conical means, said arm terminating in a band forming a socket to cap the tapered end of an extension element of rectangular cross section, said extension element being shorter than said conical means and held parallel to said center line thereof by aforesaid arm, said extension element being hingedly joined at its lower end to the upper end of a longer extension element of identical cross section as said first mentioned extension element, said longer extension element slidably fitting into a rectangular groove in one side of an upright member, said upright member having its lower end tapered to slidably fit into a tapered socket in one end of a base plate that extends out horizontally under aforesaid conical means, and mechanical means for fastening said longer extension element at any height in said groove in said upright member.

4. Apparatus of the class described comprising a conical means for filling receptacles with an arm extending from the upper and larger circular edge of said conical means at right angle to the center line through same, said arm terminating in a band forming a tapered socket, an extension element that has its upper end tapered so as to slidably fit into said tapered socket, said extension element having a rectangular cross section and being shorter than said conical means, said extension element being hingedly joined at its lower end to the upper end of a second much longer extension element, said longer extension element having the same rectangular cross section as said first mentioned extension element, an upright frame member having a rectangular groove in the side opposite from said depending conical means, said longer extension element being slidably fitted into said rectangular groove, said upright frame member having its lower end tapered, a base plate that extends at right angle to said upright frame member on the side that said conical means hangs down and directly under same

said base plate having a tapered socket in one end, said tapered lower end of said upright frame member being slidably fitted into said socket in said base plate, and screw means for fastening said longer extension element at any height in said rectangular groove in said upright frame member.

5. Apparatus for filling containers comprising a flat base having a tapered socket at one end, an upright frame having its lower end tapered so as to slidably fit into said tapered socket, said upright frame having a rectangular groove on the side facing away from said flat base, a vertical slot through said upright frame substantially the full length of said groove, an upright extension of rectangular cross section slidably fitted in said groove in said upright frame, said upright extension having a bolt hole through its lower end in alignment with said vertical slot in said upright frame, bolt and wing-nut means for fastening said upright extension at any height in said groove in said upright frame within the limits of said vertical slot, said upright extension having a hinged section near the upper end and its very end being tapered slightly, a conical funnel attached at its upper edge to a short arm, said short arm terminating in an inverted tapered socket, said inverted tapered socket slidably fitting down on said tapered end of said upright extension thereby holding said conical funnel directly over said flat base, and said hinged section of said upright extension element together with said conical funnel being rotatable in an arc of 90° away from said flat base.

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