This invention relates to beverage dispensing apparatus, and particularly to apparatus of the type wherein a paper cup is automatically dropped beneath a dispensing nozzle where it is in a position to be readily formed by the customer after it has been automatically filled.

In automatic beverage dispensing mechanism of this character, it is important that the cup always be supported beneath the nozzle in its intended beverage receiving position. Any deviation from the normal position results in the loss of a portion or all of the beverage, and a dissatisfied customer.

An object of the invention, therefore, is to provide a means for always ensuring the proper positioning of an automatically dropped paper cup beneath a dispensing nozzle.

A further object is to provide such a means which is easily constructed, reliable in operation, easily replaced or repaired, and which does not interfere with the ready removal of the filled cup from its position beneath the dispensing nozzle.

These and other objects are effected by my invention as will be apparent from the following description and claims taken in connection with the accompanying drawings, forming a part of this application, in which:

Fig. 1 is a front perspective view of a cup station embodying the invention.

Fig. 2 is a section taken on line II—II of Fig. 1, and

Fig. 3 is a section taken on line III—III of Fig. 2, and

Fig. 4 is a fragmentary perspective view of a modification of the invention.

In the drawings, 10 denotes a portion of the front wall of a beverage dispensing apparatus. Within this wall, at a height suitable for ready access by the customer, is a cup station 11 comprising a generally rectangular box-like member having a bottom drain platform or wall 12 provided with suitable perforations 13. A beverage dispensing nozzle 14 projects to some degree through the top wall 15 of the cup station.

A chute 16 guides paper cups 17 from a suitable automatic cup dispensing mechanism (not shown) to a platform 18 disposed beneath nozzle 14. The platform 18 may be suitably attached to a side wall of the cup station 11 as by a strap 19. A cup guide 20 comprises a strip portion 21 attached to a side wall of the cup station and having at its outer end one or more curved portions 22 which serve as stops against which the cup strikes when it falls from the chute 16. If two curved portions 22 are provided, as shown, they should be so spaced that one or more fingers of the customer's hand may grasp the cup between the stop members. As will be apparent from an inspection of the drawings, the curved portions 22 encircle the cup only enough to steady it and not so much as to interfere with ready removal of the cup. Under some conditions the platform 18 may be omitted and the cup may rest directly on the drain platform 12.

The structure heretofore described is more or less conventional and often works satisfactorily. However, in automatic beverage vending equipment, it is important that the cup-positioning device work, not most of the time, but every time. Otherwise, customer dissatisfaction and resentment against the machine are created. Paper cups, in dropping the distance between the dispensing mechanism and the platform beneath the nozzle, are erratic in their performance because of their light weight and friction with the chute. Often they tend to tilt toward the front of the machine after striking the platform or the circular guide members. Any deflector or guide placed in front of the cup must be such that it will not interfere with the ready removal of the filled cup by the customer. Such guides have heretofore often comprised rigid members attached to a door or window in front of the cup station which door or window has had to be opened or raised by the customer before the cup could be removed. The provision of such a door or window has not proved wholly satisfactory in practice because of the time consumed in their operation by the consumer at times of peak demand.

I have discovered that the addition of a horizontally disposed resilient finger in front of the cup, properly located and spaced, and attached to the cup station, provides a simple, reliable and operable device for preventing forward tilting of a cup when it strikes the platform and guide members.

Such a finger is indicated at 23. It is here shown as a rather long and narrow, resilient and flexible member attached by bolts or rivets 24 to a bracket 25 which in turn is attached to a side wall of the cup station 11 adjacent the discharge end of chute 16. Preferably, the unattached end of the flexible finger extends just beyond the vertical center axis of the cup as is clearly shown in Figs. 2 and 3. Also the outer end of the finger is so spaced that when the cup is properly positioned beneath the nozzle, the finger just touches the cup's outer surface. Also
the finger is preferably so located that it contacts the upper portion of the cup, that is, above its horizontal center line.

The finger 23, being resilient, acts as a bumper which prevents the cup from tilting forward. Also, because of its flexible construction, it permits ready removal of the filled cup by the consumer using only one hand.

Materials which may be used for the flexible finger include thin sponge rubber, or plain rubber, or plastic rubber-like materials such as the vinyl compounds. Also, spring steel or other resiliant flexible metal may be used. In the embodiment of Fig. 4 the finger 23a comprises a member which may or may not be flexible but is so mounted as to be resilient and is movably mounted with respect to its support. Specifically, the finger 23a is resiliently mounted on a bracket 25a through the intermediary of a spring pressed hinge comprising a pin 30 and a light spring 31 encircling the pin and pressing the member 23a against a stop 32 formed on the outer end of the bracket 25a. The stop so positions the member 23a that it is very close to or in light contact with the cup when it is in beverage-receiving position. The spring 31 is light enough so that the filled cup can be readily removed past the member 23a.

It will be seen from the foregoing that the invention provides a simple and reliable construction for aiding in the proper positioning of a paper cup beneath a dispensing nozzle. It will be further seen that the construction is such that there is no interference with the ready removal of the filled cup from the station by the customer. It will also be seen that the construction is such that it may be used with a dispensing station having no door or window, but that such a door or window may be provided if conditions so require, without in any way affecting the operation of the cup stabilizing construction.

While I have shown my invention in several forms, it will be obvious to those skilled in the art that it is not so limited, but is susceptible of various other changes and modifications without departing from the spirit thereof.

What I claim is:

1. In a beverage dispensing apparatus, means for positioning a single paper cup beneath a dispensing nozzle when it is dropped from a stack of cups through a chute to a position below the nozzle, said means comprising a platform on which the cup is received, guide means partially encircling the cup, and yieldable means disposed in front of the cup in its dropped position and against which the cup may strike to assume a normal beverage receiving position, said yieldable means comprising a horizontal disposed relatively narrow member having an inner end fixedly attached to a surface adjacent the discharge end of the chute and an outer unattached end disposed just beyond the vertical center line of the cup when the cup is in its normal beverage-receiving position.

2. In a beverage dispensing apparatus, means for positioning a single paper cup beneath a dispensing nozzle when it is dropped from a stack of cups through a chute to a position below the nozzle, said means comprising a platform on which the cup is received, guide means partially encircling the cup and yieldable means disposed in front of the cup in its dropped position and against which the cup may strike to assume a normal beverage receiving position, said yieldable means comprising a horizontal disposed relatively narrow finger-like member having an inner end fixedly attached to a surface adjacent the discharge end of the chute and an outer unattached end disposed just beyond the vertical center line of the cup when the cup is in its normal beverage-receiving position.

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