
Problem Statement

People have a hard time when opening soap dispensing bottles, as they are designed to be hard when opening, to prevent spillage before usage. Furthermore, the majority of the product will successfully be used, but around 10% will be unused as the dispenser fails to pick up all of the product.

This results in the loss of money that has been spent on that product. The remaining product stays in the bottle and is unreachable when the person needs it. The weight you can feel on the bottle makes you think there is some left, so people don't buy more. But then you can't access it and most likely can't wash your hands without it.



Conclusion

Our project idea consists of creating a new and efficient design for a soap dispenser that enables the user to utilize all of the product, while creating an easier way to open the bottle.



Soap Dispensers are hard to open and don't get all the soap out

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Importance

This topic is worthy of our capstone project because we are not only re-designing the dispensing mechanism, but the bottle itself. Our goal is to make it sustainable and get rid of problems one may encounter with the traditional soap dispenser. Soap dispensers are too wasteful in their traditional form. As they contain plastics and metals that are later thrown away. However, more sustainable forms of it, like cork caps, do not provide safety from spills, and only work with glass bottles, which are easily broken. Problems with the spring, tube or even the dispenser's positioning can stop soap from coming up.



History and Background Information

Soap dispensers were used in the early 1800s used in hospitals and other facilities; however, were notorious for being clogged by the thick soap. Liquid soap was first patented in 1865 but got introduced into the home market a century later by the Minnetoka Corporation. To monopolize on liquid soap the Minnetoka Corporation purchased all of the stock of pump mechanisms for soap dispensers that they could, forcing their competitors to wait a whole year before they could launch a competing product.

Statistics and Background Info

Common Problems with soap dispensers are:

Spring Breaking, Tube breaking/ positioning being off, solidifying soap, and Soap not being dispensed.

These problems manifest in most dispensers, especially old ones, as these problems show with time, as the product deteriorates.

Basic Function

The soap dispensing pump relies on both the components of the bottle and air suction to draw the fluid upwards and fight against the law of gravity. When you release the actuator, the piston and spring return to their resting position, sealing off the housing chamber to stop liquid from flowing back up into the bottle.



