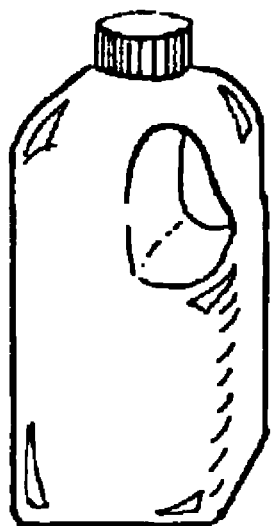


Tippy Taps

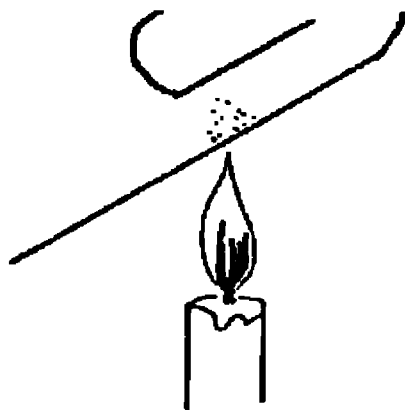
A design for simple, economical, and effective hand-washing stations

Studies have shown that proper hand-washing techniques can reduce the incidence of diarrheal disease by 42-47 percent¹. However, lack of access to both piped water supply and soap, especially in schools, is a barrier to hand-washing in the developing world. "Tippy Taps" are simple and economical hand-washing stations, made with commonly available materials and not dependent on a piped water supply. This publication describes how to construct and maintain a Tippy Tap and was adapted from the *Uso y Calidad del Agua en la Escuela* pamphlet published in September 1995 by the Centro de Investigación, Desarrollo, Evaluación y Promoción de Tecnología Apropiada (CIDEPTA) and the Pan American Health Organization (PAHO).

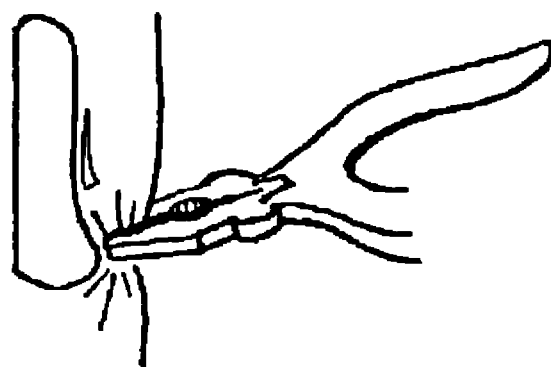
Tippy Tap Construction



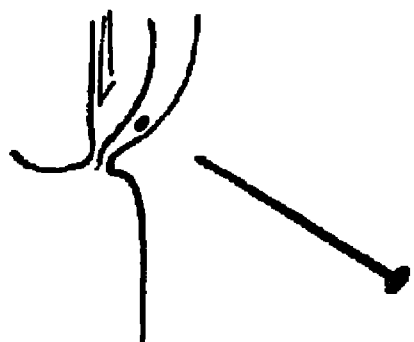
1. First, select a plastic container of approximately 5 liters, or 1.5 gallons, with a handle.



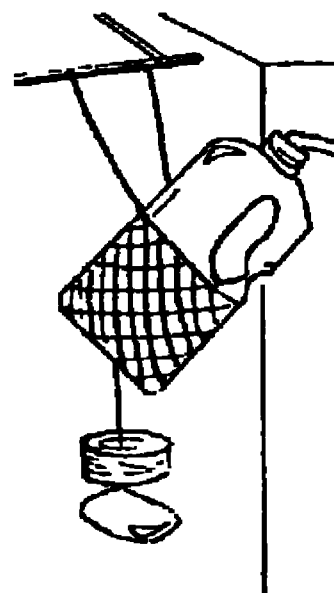
2. Then, warm the base of the handle with a candle until the plastic is soft.



3. When the base is soft, pinch the base closed with a pair of pliers and then let it cool. Make sure that no water can flow through the pinch-closed base.

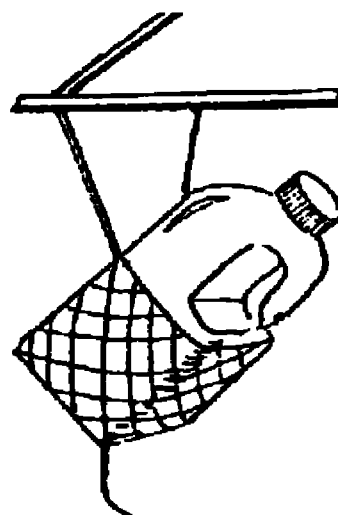


4. With a hot nail, make a 2 millimeter hole just above the pinch-closed base of the handle.



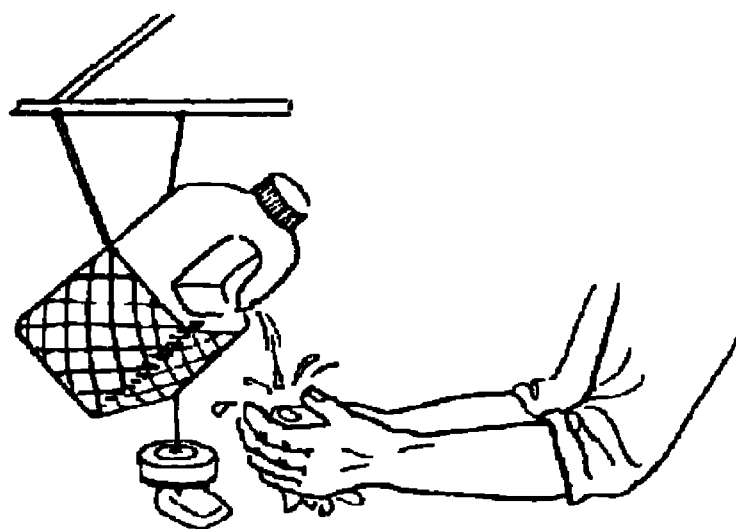
6. Make a hole in the center of a bar of soap. From the hanging piece of plastic, suspend the soap and a plastic or metal cover (such as a tin can) to protect it from sun and rain.

5. With a plastic net, suspend the bottle from a metal support. Let one piece of plastic hang down to suspend the soap from. *



* If a net is not available, two holes can be made in the back of the bottle, and the Tippy Tap can be suspended by connecting a string through those holes to the support.

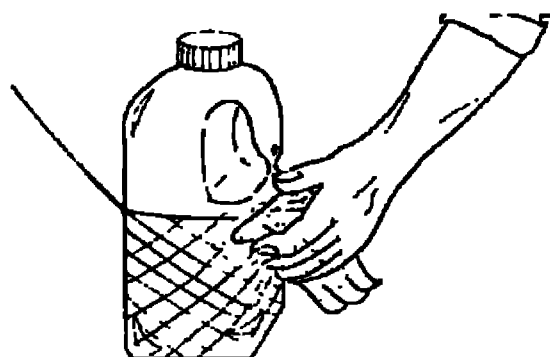
To Install and Use a Tippy Tap



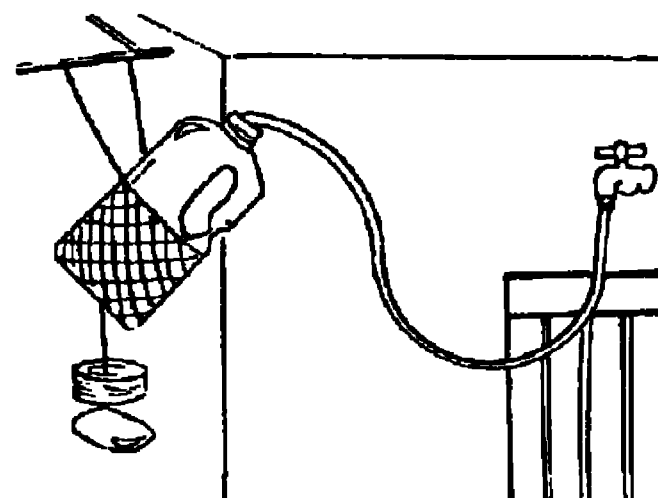
- Hang the Tippy Tap near a latrine, kitchen, or school.
- Use the handle to tip the container and allow water to flow out of the hole onto your hands. Use soap every time you wash your hands!

Recommendations for Tippy Tap Maintenance

- If there is a water tap present, a hose can be used to fill the Tippy Tap.



- Clean the outside of the Tippy Tap with a brush and soap daily, and clean the inside of the Tippy Tap once per week with clean water and disinfectant.



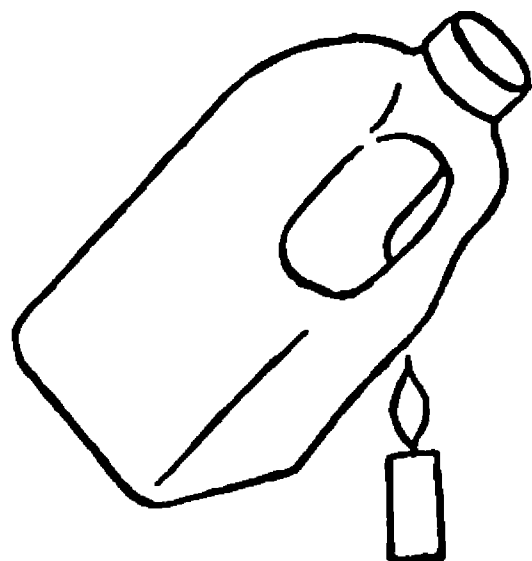
If you have any questions on Tippy Taps, or about safe water and sanitation in the developing world, please contact the Centers for Disease Control and Prevention, Foodborne and Diarrheal Disease Branch, at safewater@cdc.gov or visit <http://www.cdc.gov/safewater>. We would like to thank CIDEPTA and PAHO for the figures and source material.

1. Curtis, Val and Sandy Cairncross (2003). "Effect of washing hands with soap on diarrhoea risk in the community, a systemic review." The Lancet: Infectious Diseases, Volume 3, May 2003.

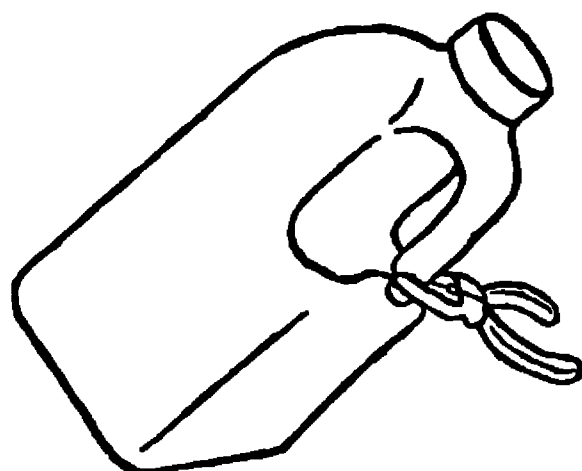
How to make a 'tippy tap'

You will need

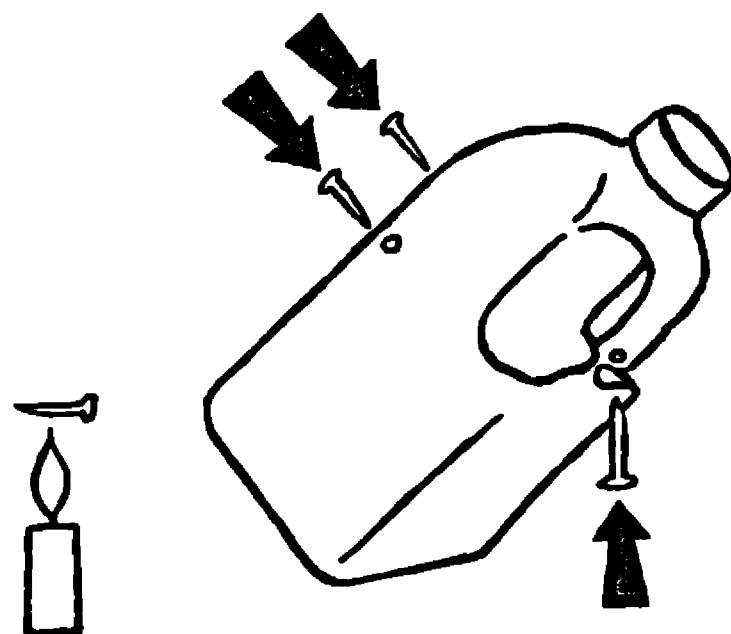
■ a plastic bottle ■ a nail ■ a small empty tin can ■ string ■ a stick ■ a pair of pliers ■ a candle ■ matches ■ a bar of soap



1 Take a plastic container with a hollow handle. Gently warm the base of the handle over a candle, turning the handle around until the base of the handle is shiny and soft all the way around.

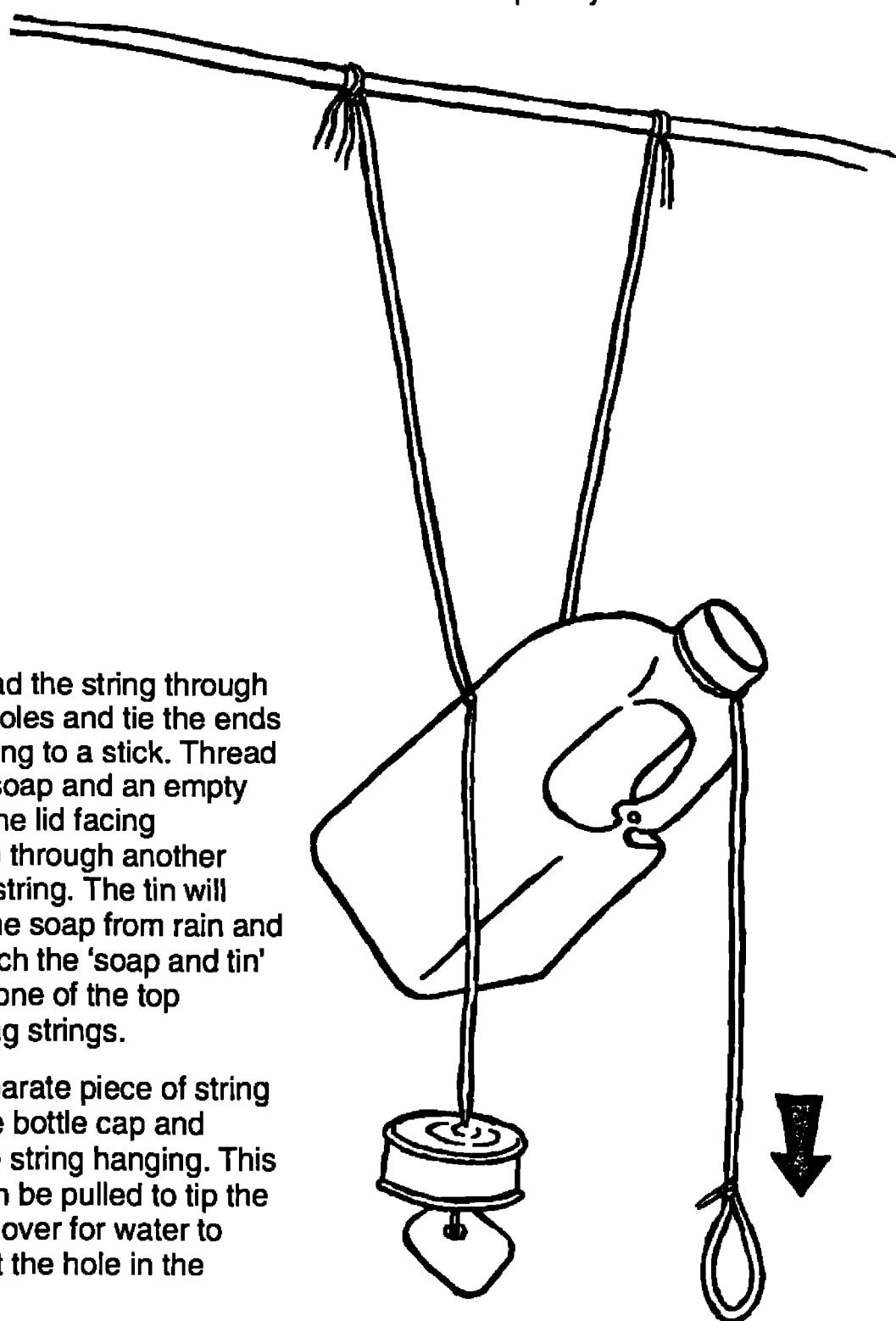


2 Remove the candle and quickly 'pinch' the soft base of the handle with pliers so that the base is sealed tight to prevent water flowing through it. Hold the pliers there until the plastic cools, ensuring that the seal is completely closed.



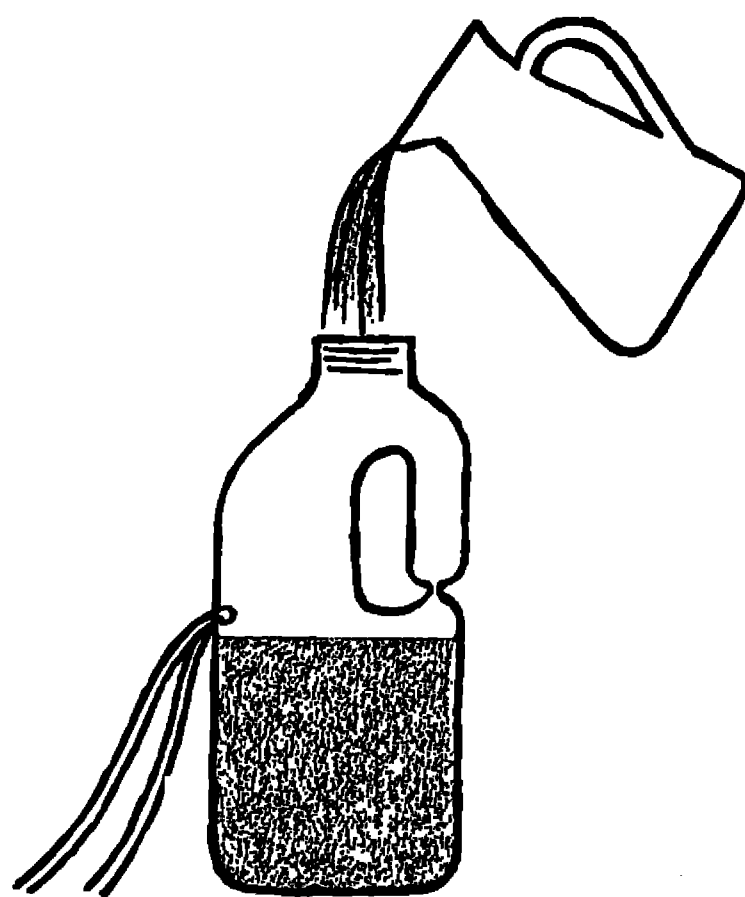
3 Heat the point of a small nail over a candle. Use the hot nail to make a small hole on the outside edge of the handle, just above the sealed area.

Heat the nail again and make two larger holes on the back of the bottle. The holes should be about half way up the bottle and about a thumb-width apart. These holes will be used to thread string to hang the tippy tap. The holes need to be wide enough apart to hold the string and to be positioned so that the 'full' bottle hangs at a 45° angle.



4 Thread the string through the two holes and tie the ends of the string to a stick. Thread a bar of soap and an empty tin can (the lid facing upwards) through another piece of string. The tin will protect the soap from rain and sun. Attach the 'soap and tin' string to one of the top supporting strings.

Tie a separate piece of string to the bottle cap and leave the string hanging. This string can be pulled to tip the tippy tap over for water to come out the hole in the handle.



5 Pour water into the tippy tap until the water is almost level with the holes in the back of the bottle. Use the stick to hang the tippy tap in the bathroom or outside in a tree. The tippy tap is now ready for use.

The original gourd tippy tap was designed by Dr Jim Watt and Jackson Masawi at the University of Zimbabwe's rural centre. The plastic tippy tap was designed by Ralph Garnet and Dr Jim Watt in Canada.

'Tippy tap' saves water

It is possible to promote handwashing even in areas where water is scarce. **Elena Hurtado** describes a project that used a simple water-saving device called the tippy tap.

Studies of behaviour and beliefs in a highland village in Guatemala found that water shortage was a major reason why handwashing was not commonly practised.

An intervention was designed based on the use of the tippy tap – a water-saving device made from a plastic bottle. (See picture below.) Originally designed in Zimbabwe based on the use of a gourd, the tippy tap was adapted in Canada to use a plastic bottle. It requires about a tenth of the water normally used to wash hands*.

In a trial project, selected mothers were given tippy taps and encouraged to install

them in 'pretty corners' of their homes, together with hanging soap and clean cloths for hand drying. Mothers were given messages about using the tippy tap for handwashing.

A week later, these mothers were interviewed about handwashing. The trial showed that families were enthusiastic about using the tippy tap. They believed it used less water, and also less soap because the hanging soap did not become soggy.

A number of potential problems were highlighted. Older children were tempted to play with the tippy tap, wasting water or breaking it. The tippy tap required extra time and work to use and maintain it, and it was not easy to wash young children's hands using it. As a result of users' suggestions, the tippy tap was redesigned so that it had a hanging string to be pulled to tip out water when required. Also, the plastic bottle was hung from a stick so it could be moved to other places in the house if necessary.

The co-operation of fathers was recognised as vital to the whole family's use, so men were trained in making and installing the tippy tap. One child from each family was taught how to maintain the tippy tap. Their duties included filling it with water, letting their parents know when the soap ran out or the cloth needed changing, stopping other children from playing with it, and helping to wash young children's hands. All members of the family were encouraged to congratulate each other on using the tippy tap.

Communication support materials such as a flip chart and radio messages were designed and tested. Home visits to supervise tippy tap installation and encourage correct handwashing were carried out. Stories, songs, drawings and contests were used to put across messages to schoolchildren.

Results of intervention

Ten months after the start of the intervention, more than half the intervention mothers (54 per cent) were still using the tippy tap to wash their hands.

To evaluate handwashing behaviour four 'correct' steps were scored:

1. running water over hands
2. using soap
3. rinsing with clean water run over hand
4. drying with a clean cloth.

When asked to demonstrate how they washed their hands, 89 per cent of tippy tap users performed at least three out of four correct actions, and 61 per cent performed all the correct actions. When mothers not trained in tippy tap use were asked to show how they washed their hands, less than 2 per cent could demonstrate three out of four steps, and none could demonstrate all four steps.

Ten months after the intervention, the average incidence of diarrhoea among children in families belonging to the intervention group was lower than in a control group. But this difference was not statistically significant.

A possible explanation for this is that during the intervention period (1991) a cholera outbreak occurred in Guatemala. The Ministry of Health (MOH) initiated community clean-up campaigns and distributed hygiene information pamphlets house-to-house. There were 19 cases of cholera in a population of 10,000, compared with an MOH prediction of 250 cases. There were no cholera cases in households using tippy taps.

By reducing the total incidence of diarrhoea, the cholera information campaign may have obscured the impact of the tippy tap intervention.

Elena Hurtado, c/o INCAP, Apartado Postal 1188, Guatemala City, Guatemala.

When working on this research the author was working at the Institute of Nutrition of Central America and Panama. The study was supported by WHO. Dr Alfred Barlett and Ms Elizabeth Mills Booth also worked on the project.

* An individual uses 40–50ml of water for handwashing using the tippy tap, compared with at least 500–600ml in other forms of handwashing.

