WEDC

MOBILE NOTE 3

The Captap handwashing device

Introduction

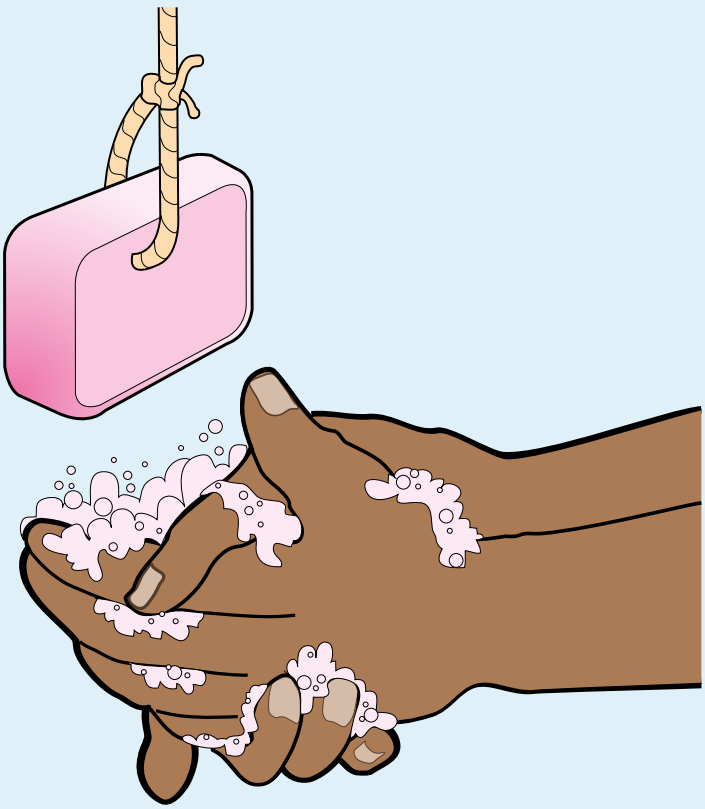
The Captap is a spring-loaded device that fits into the cap of a jerrycan to dispense water. In the closed position, the Captap stems the flow of water by using a rubber seal that is pulled against the inside of the cap under the tension of a spring. The seal is made out of a bicycle tyre tube or car tyre tube.

This note provides details of the components and describes the method for making a Captap in five easy steps.

Contents

Important:

Handwashing promotion is also necessary if the practice is to be sustained.



Components

The Captap is made of components which are likely to be found in a medium-sized market place within a low-income community. There is scope within the design to allow different sized pieces to be used.

For example if a 70 x 8mm bolt cannot be found a 4 x 5/16" will work just as well.

The most difficult component to find will be the spring. An exact size is not necessary however, because the tension of the spring can be easily adjusted by tightening the nut.

The water dispensed from the Captap flows into a handwash reservoir that is suspended by string or wire from the jerrycan handle.

The reservoir has two 3mm holes drilled into the bottom, which allows the water

to flow out at a rate of approximately 10ml/second. It also allows the user to avoid touching the reservoir and potentially contaminating his or her clean hands by touching the device a second time.

Figure 1. The fitted Captap

Figure 2 shows the components required to make the Captap. Figure 4 shows the handwash reservoir and the two steps required for handwashing. The Captap uses between 200 and 300ml of water to complete one handwashing procedure.

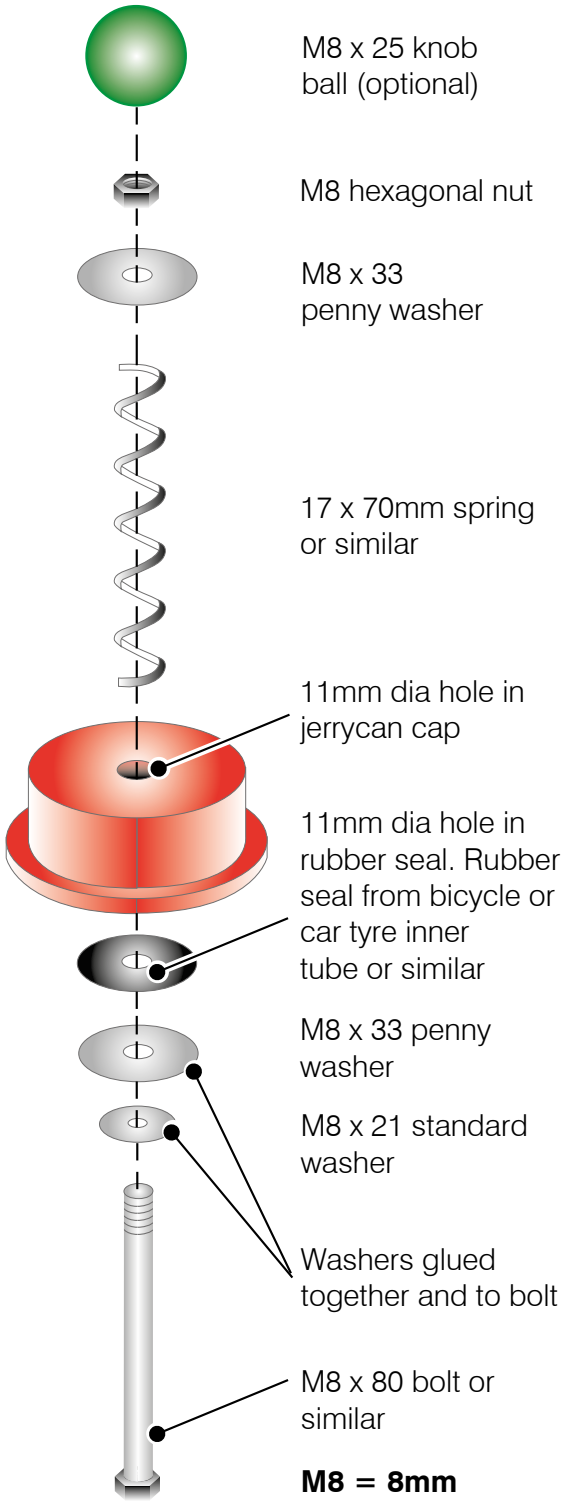


Figure 2. Components required to make a Captap

Figure 3. Detail views of the device

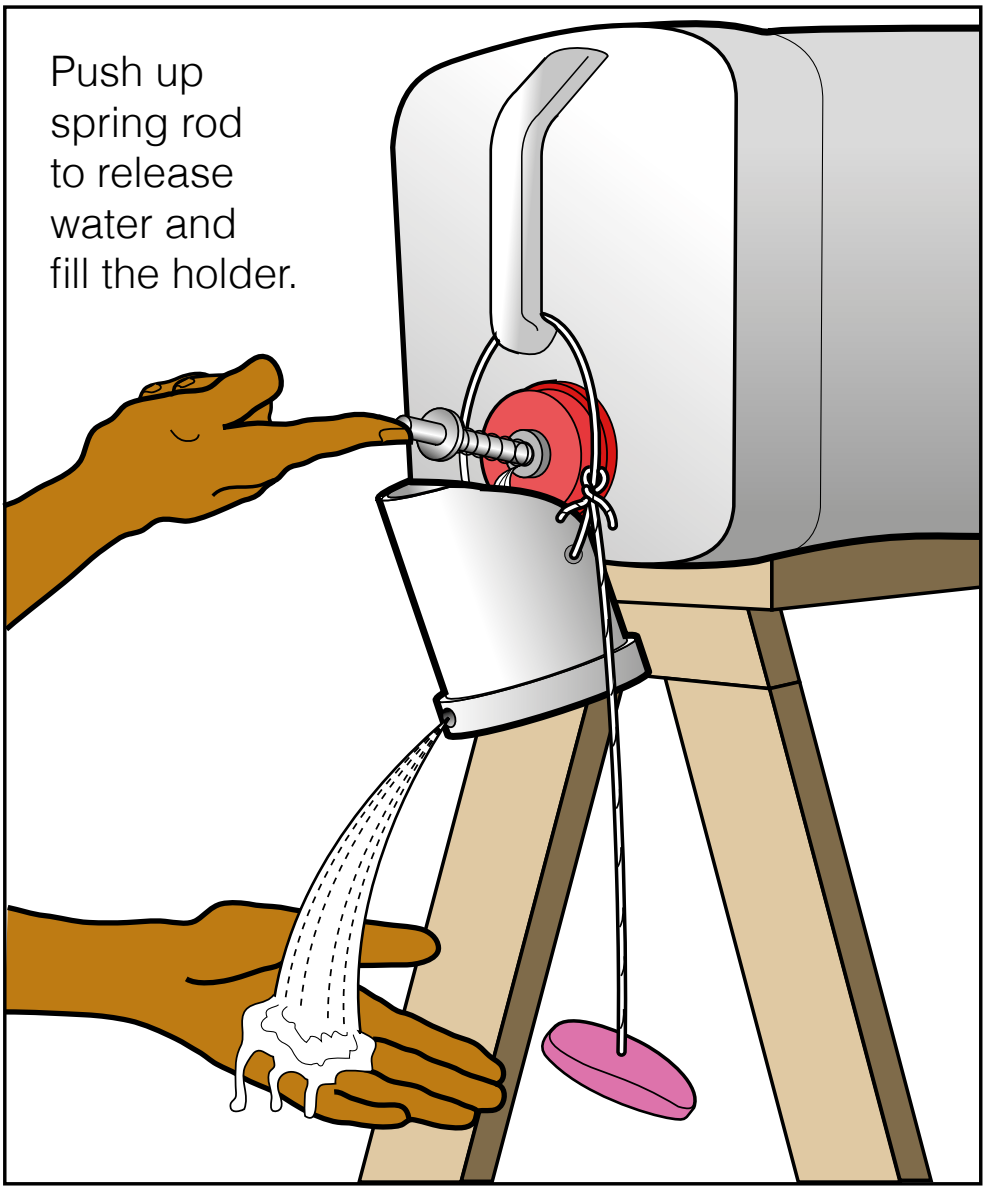


Figure 4. Stage 1 of operation

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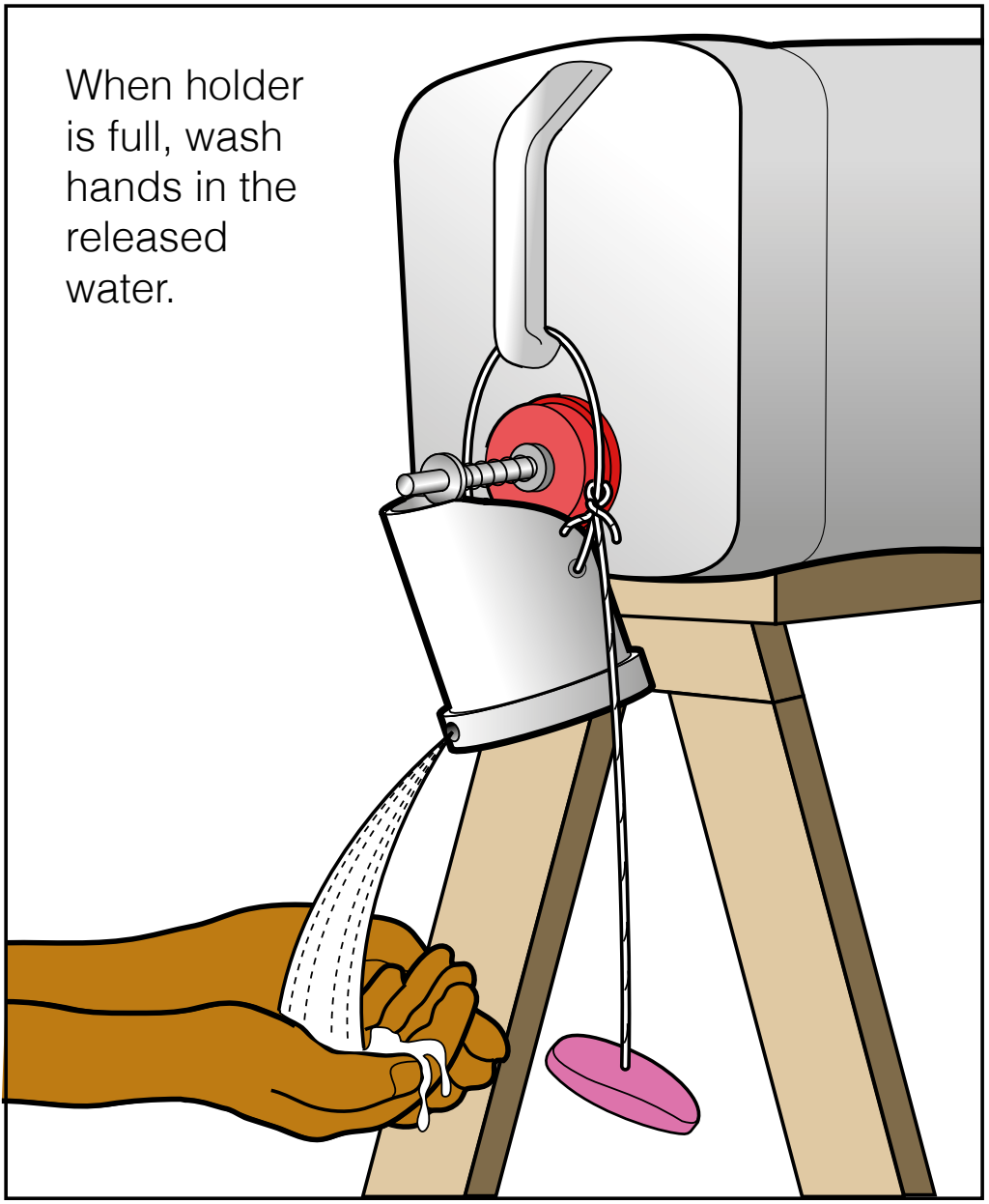

Figure 5. Stage 2 of operation

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How to make a Captap

The Captap is made in 5 easy steps.

1. **Source all the necessary components**

2. **Drill a 11mm hole in the centre of the cap**

   A small diameter pilot hole may need to be drilled to guide the larger drill bit through the plastic. If a hand or power drill and drill bits are not available; pierce the centre of the cap using a sharp knife and carefully enlarge the hole to approximately 11mm.

3. **Cut out the rubber seal**

   Take a 50mm wide section of car or bicycle tyre tube, lay it on a flat surface and place one of the penny washers on top. Draw around it and draw around the inside of the washer too. Then cut the shape out with a

pair of scissors making sure that the seal is 1 to 2mm bigger than the washer all the way around. The inside circle must also be cut out 1 to 2mm bigger than the central hole of the washer to allow the water to flow through.

4. **Assemble and fix the bolt and the nuts**

   The washers require cementing or welding to the bolt. This is so that when the bolt is moved in operation, the washer that holds tension on the seal moves responsively.

   The washers can be cemented to each other and to the bolt using a two-pot glue such as araldite epoxy resin. Or alternatively they can be welded or brazed. If welding, the weld and surrounding area will require thorough cleaning and painting to prevent corrosion.

5. Assembly

Assemble the components as shown in Figure 1. Only a small amount of spring tension is required to force a watertight seal. Remember that children must be able to use the device. So do not over-tighten the spring. Conversely, if the Captap leaks, then apply more tension by tightening the nut.

To help prevent theft, an opening can be cut into the top of the jerrycan making it easier to fill but rendering it unsuitable for use as a water carrying or storage vessel.

Note:

The Captap is a relatively new invention so there is no evidence as yet to indicate whether or not it will prove to be sustainable device. Rust could be a potential problem.

Reference

HARRIES, S. 2005. 'Handwashing hardware implementation imperatives'. In: KAYAGA, S. *Maximizing the Benefits of Water and Environmental Sanitation, 31st WEDC International Conference, Kampala, Uganda.* Loughborough, UK. WEDC: Loughborough University.

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