

Thief-Proof Milk Container

Lorna Griffiths and Jonathon Powell are both fifth form pupils at Cynffig Comprehensive School in Kenfig Hill, Mid Glamorgan. Kenfig Hill is a busy small town situated between industry at Port Talbot, mining communities in the nearby valleys, and tourism in the seaside town of Porthcawl.

Both Lorna and Jonathon's fathers are police sergeants. Lorna's family live at Kenfig Hill Police Station, where the main door to the attached house opens directly onto the pavement. This is where the story started when one morning last winter Lorna discovered that their milk had been stolen from outside the door. When Sergeant Griffiths eventually calmed down he explained that milk theft was very prevalent, but that the police could do very little to stop it. The theft of a 20p bottle of milk occasionally seems very trivial to the individual. Lorna's father said that very many of these 'trivial' cases are reported and obviously many were unreported. The problem seemed serious even in a small area like Kenfig Hill.

Conveniently at about this time we received at the school the advance publicity for the 1983 School's Design Prize. I explained to my Craft Design and Technology students that the most difficult part of the competition would be to find an original idea. Within a few days the pupils returned with the usual crop of weird and

wonderful ideas: – either completely impracticable or obviously existing already. Lorna thought a device to prevent milk from being stolen from outside people's premises would be a good idea. We all laughed! Who would spend pounds on something to stop the theft of a 20p bottle of milk?

We gave everybody's proposals considerable thought. The more we thought about Lorna's idea, the more we liked it. There are a great many houses locally which have little or no front gardens. Think of all those terraced houses that have front doors opening onto the pavement. Imagine all those milk bottles lined up every morning. It must be very tempting for some people. If a device to prevent milk theft was manufactured there would be a very large market indeed if only a fraction of the people affected bought one. But how many people are affected by milk theft?

As you can see there were already many questions to be answered. Lorna and Jonathon decided to team up and I submitted a provisional entry entitled 'Anti-Theft Milk Bottle Holder'.

The decision was made to research the subject first before attempting any solutions to the problem. They contacted local dairies, newspapers and discussed a possible survey of houses near the school and perhaps Porthcawl. This town contains an extremely large caravan site with a great influx of visitors in the summer. There are also very many terraced houses. The object of the survey was to ascertain: how many pints people received daily, had they ever had milk stolen; if there was a device on the market would they buy one; how much would they be prepared to pay?

The results: most people had one or two pints. About 60% of all houses we called on had milk stolen at some time. This surprised us as the survey was not limited to potentially easy targets. Most of the 60% would be willing to buy a device at an average price of £6. A local dairy provided the figure of 300 pints stolen every week in Porthcawl during the summer. The problem seemed much bigger than we had at first thought.



The two now set about designing the device – aiming to keep it as simple and as cheap as possible. The final solution is a length of PVC drain pipe with a locking cap at the top and a perforated floor to allow the drainage of rainwater. A mild steel bracket is rivetted onto the back to fasten the device to a wall. The locking cap is made from a socket which normally is used to join two lengths of pipe together. There are matching lugs on this and the body, through which a padlock can be fastened. The essence of this invention is the one way 'valve' in the cap. The milkman can push a bottle through this valve without opening any doors or operating any locks. The cap contains triangular shaped polypropylene barbs which project inwards and downwards. When the bottle is inserted these barbs move aside but revert to a position over the bottle when the latter rests on the base. To try to extract the bottle up through the aperture is extremely difficult and painful if not impossible.

This prevents the thief from lifting the bottle but allows the recipient to retrieve it easily by unlocking the cap.

Lorna and Jonathon realised that the aesthetics of this prototype left a lot to be desired and their intention was to make a 'mark 2' to illustrate how it could look if it was manufactured.

However time was against them so they filed a patent application on the prototype, entered it for the competition and won!

Since then they have made a model in plywood of a double unit as it might look if it was injection moulded in plastic. This is a box-like structure which could be made as single, double or treble units. A door is incorporated into the front with an integral lock rivetted to it. Therefore for two or even three bottles only one door and one lock would be needed. Fixing holes are drilled in the back which are only accessible from inside. The interior can be insulated to keep milk cool in summer and prevent freezing in winter. The cap will prevent birds pecking the tops off bottles and the container will help stop accidents with children smashing bottles.

A lot of interest has been shown in this invention from all over Britain since the competition and the two designers are hoping to put the device – now called a 'Milk Safe' – into production with the help of the Welsh Development Agency who can possibly provide a factory and grants as well as invaluable assistance. The National Association of Dairymen are currently conducting a survey nationwide to try to ascertain the number of people who have milk stolen in order to predict potential sales in the first year.

This has been a very enjoyable and worthwhile exercise which has benefitted Lorna and Jonathon immensely, as well as giving Craft Design and Technology a boost within the school.

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