



## Inventors' inbox: Helping kludgers

Inventors Mark Sheahan and Patrick Andrews bandy ideas about the latest thing to tickle their fancy - DIYing.

Patrick Now that the dayrate for a plumber exceeds that of many chartered engineers (and is overtaking racing drivers' pay), many people are heading to their local DIY store in search of alternatives. The DIY store doesn't sell skills yet, so there is pressure to make tools easier to use and more effective.

Mark The general public are understandably scared of water and electrics, because of the danger and risk of damage. This makes them vulnerable to the 'teeth sucking' and head shaking brigade. You cannot, however, accuse all plumbers and electricians of this – most do a good job at a fair price.

The market for labour-saving tools and devices is big and growing in these tight times, where many people want to save money by DIYing. It is a good industry to invent for.

Patrick Time for some ideas for a new generation of toolshed toys...

Whoever decided that liquid silicone rubber was an effective way to stop water escaping down the back face of a sink, shower or bath? If it must be used, we need a better way to dispense the stuff than by using an overgrown cake icer. One solution is to sell tubes of coloured, cured-rubber in, say, 6m lengths. A coat of adhesive applied to ceramic and wall surface would allow the tube to be squeezed into place and held there. If the tubes were solid, but made of flexible silicone, a special tool could be made to chop out a wedge for each of the corners (thus ensuring a continuous barrier to water and a seamless, smooth finish).

Mark I do not think your coloured tube idea is a better solution to what we have already, because it adds a costly element to the process and would be difficult, in my opinion, to fit uniformly. As I have mentioned before, it should be either better or cheaper, or ideally both, than the alternative for success.

Patrick I tend to agree, but I'd still pay more for something that ended up looking less like a badly-iced cake. On the subject of skill, I read recently that a survey by Black&Decker found that the average lifetime usage of powertools was measured in minutes. Apparently, many are bought as gifts but most end up in the hands of weekend kludgers who either break them or find them too hard to use.

All such tools should come with information and online videos showing their correct use. A buyer might even have to register and watch several of these before obtaining a code to the tool in question by, for example, squeezing the trigger in a sequence.

Mark There is nothing wrong with educating people on how best to use things, but I do not like the idea of making it compulsory. It strikes me as a little condescending and controlling. Booklets showing how to use the tool is a much better option. Remember, not everyone has access to a computer. And hey! Who are you calling a weekend kludge!?

Patrick Well, if the safety headgear fits... I'm guessing you won't enjoy this one much either, Mark – an instructional movie which takes the form of a helical tape of individual, stamp-sized images stuck on the outside of a cement mixer. As the mixer rotates, a zoetrope-like silent movie, illustrating, for instance, some of the finer points of cementing, is played. There would be a range of such movies in support of different aspects of self-build projects.

Mind you, builders don't seem to mind how much noise and dust they create. DIYers, on the other hand, usually have a family and neighbours whose feelings are important – so cutting those skirting boards to length after dinner is the kind of activity that needs to be performed circumspectly.

I'd therefore propose a transparent tunnel, something like a portable laboratory incubator. This would have dense brushes providing some kind of seal on each end as well as the usual inward-facing gloves incorporated. A piece of work and tools could be inserted and worked on with good visibility while also retaining the debris and dampening the noise.

Mark All I can say to that is 'balls'... that is, Chinese ivory puzzle balls (these are balls cleverly carved inside other balls via small holes). The lack of access and freedom of movement makes them very difficult and time-consuming to make. Your 'Quitehood' has some similar characteristics making it 'holily impractical'.

Patrick Ok, moving on... I'd like to see a specially ruggedised bluetooth radio base station and earpieces, so that a gang of weekend workers could benefit from the music of their choice without distracting everybody within a 100m blast radius.

Mark I would be surprised if there was not something like this on the market already (need to do a proper search). It has actually got me thinking though, can you, using your mobile phone, dial up a radio station and listen in? I think this would be cool, as it irritates me that I cannot hear my favourite radio station when driving/travelling outside their wavelength. Maybe a good iPhone App?

Patrick I guess it's a lot less hassle to 'adopt' an old ghetto blaster and dump it in the back of one's transit. I have found a bluetooth building site phone, but without an onboard radio, it seems.

Anyway, sharp and finely engineered tools are essential to a professional job, but they pose a threat to everyone if improperly used and can themselves be easily damaged... How to make them safer and protect them from misuse?

What about handtools which each contain a set of small electronic accelerometers (like, for instance, the Wii games console). If the

screwdriver, or chisel, or spanner in question begins to experience unexpected movements, characteristic of frustrated bodging, it may well emit an alarm, forcing the user to lock it in a toolbox and go for a calming cup of tea until the warning shuts off.

Mark I often use tools or adapt them to do things outside their normal general purpose. Even, on occasion, to get a job done, sacrificing them by welding two parts together or bending them out of shape etc. It may not make me the perfect engineer, and more of a weekend kludge, but they are my property, so I can do what I want with them and would not welcome any restrictions.

Patrick Wow, ok, I'm not about to argue with anyone who can plasticly deform chrome-vanadium!

Meanwhile, I'm sick of buying cans of paint so old that their contents resemble a Jurassic tarpit. My suggestion here is a rack of paintcans, each of them stored on their side lying on slightly inclined shelves. When a customer extracts a can, all the others gently roll along the shelf, thus occasionally stirring their contents and making it less likely that stratification will render the contents useless.

Mark Your system may have some value for wine racks (turning bottles), but would have little effect on the paint in cans. It would also irritate shoppers, at point-of-sale, not being able to read the can's details without removing it first, and then finding it a bit 'fiddly' to put back.

What makes me sicker, and is much more common, is when paint leftovers (to use for touch-ups later on) dry out. Most households have four or five half-empty paint cans under the stairs, in the garage or garden shed, but by the time they need them the paint inside would make an excellent Frisbee. I shudder to think what the consequences are on waste management – recycling and landfill sites – when paint is left in the cans.

My idea is to design a container with a number of varying sized internal lidded compartments. Less oxidising air is available to the paint, so the paint's shelf-life would be prolonged. That would also mean savings on storage space and being able to dispose of completely empty paint cans.

Here's how it would work:

A one-piece transparent plastic injection-moulded container base (gallon) with four separate sized compartments, for example, big, large, medium and small.

A container having a main transparent clip-over, rather than screw-threaded, lid. This lid serves as a means for stacking upside down, protecting surfaces from paint around the internal lids, catching possible leaks, and as a bowl to pour paint into for use when painting.

Each compartment would have its own individual white lid, which, when combined, make a full oval shape.

Use white internal lids so they can be written on to indicate where the paint was applied.

The bottom of the base should be slightly conical-shaped so it cannot be stored upright as it is best to store the container upside down, on its lid, so the paint will create a better internal seal.

The base and internal lids should be thick enough, so a key or screwdriver can pry the internal lids from the base without damaging their seal integrity.

For the internal lid removal operation, have four sloped key/screwdriver locators positioned on the circular side of each lid where it meets the base.

The container and lids, because of their contact with white spirit, would be made from polyethylene terephthalate.

For easy carrying, incorporate a handle into the design.

This idea maybe better protected by a registered design and trademark than a patent. It will be interesting to see what a British Library patent search picks up.

Patrick I reckon you may have something there, Mark, but I'd really need a diagram. On this theme, how about a local paintbank? Many people and local organisations have a need for utility paint – without a strong preference as to colour. If people just donated their spare cans via a skip at recycling centres (before they solidified), these could be mixed to give a large volume of cheap, khaki-coloured weather protection (one tank of gloss, one emulsion)...

Mark I quite like the paint bank idea, but it is seriously flawed. People need to keep the paint themselves for re-touching. Consequently, the paint bank would be full of cans of dried paint only, last year's papers and a neighbour's soiled mattresses (it's a law).

Patrick While on the theme of décor, why is wallpaper as wide as it is? Strips of wallpaper could be made much narrower (perhaps, for instance, 12cm wide). Although requiring more trips up the ladder, these would have the enormous advantage of being much easier to paste and hang around tricky surface features than the usual strips. Once the first strip was hung correctly using a plumbline, the others could be easily butted up against each other. This would obviously work best for paper with a bold, vertical or striped pattern; hiding the joints and making pasting and pattern correspondence between adjacent strips comparatively easy.

Mark Professional painters and decorators would never wear it. Better to have wallpaper twice as wide and invent a gadget to help apply it. Remember, time is money.

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A search carried out by the British Library Research Service ([www.bl.uk/research](http://www.bl.uk/research)) on 'multi paint storage container' revealed many, but patent US 7090072 was the closest, which can be viewed on Espacenet. Readers can send their own thoughts to [engtechmag@theiet.org](mailto:engtechmag@theiet.org)