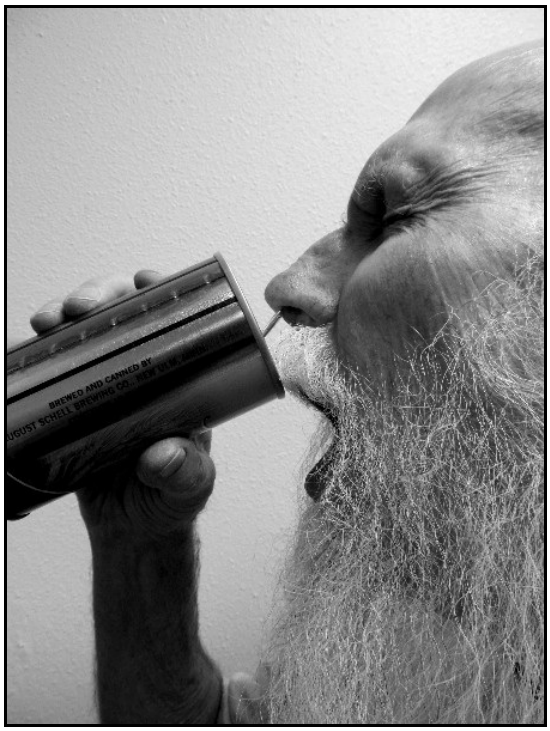
Breweries
and
Beer Bottles
at
El Paso, Texas



Bill Lockhart
2012

Appendix A
Ouch! A Study of "Pop-Top Thumb"

Appendix A
Ouch! – A study of "Pop-Top Thumb" and the Cans That Caused It

Like most of us who were alive during the 1960s, I forgot about the phenomenon called pop-top thumb shortly after the pull ring arrived and my opposable digits healed. Writing the chapters on beer cans awakened a curiosity about the process. Martells (1976:15-16) discussed the sharp edges of the tabs, and that certainly played a role in injuries, but I began thinking about just *how* the thumb came into contact with those sharp edges. Looking at photos of the tabs, it is not intuitively obvious *why* they should be dangerous. So, I began to look at the mechanics of opening the cans. My high school physics teacher would be delighted to know that I still remembered the principles of leverage 52 years after I took his class at Bombay (now called Mumbai), India.

Punch-Top or Flat-Top Cans

As noted earlier in the book, the opening of beer cans went through four developmental stages. Initially, an external opener was required. Commercially produced openers (called can piercers) almost all created a triangular opening. We all soon learned that easy drinking required two holes, punched on opposite sides of the same end of the can. Back to the physics class, the second opening allowed air to enter, replacing the volume of liquid imbibed.


Figure A-1 – Pocket-knife opening

We often found ourselves in positions where we did not have openers handy, so we became quite adept at what I later leaned to call "field-expediency" in the Army. During the 1960s, almost every house had an ice pick, and many flat-top beer cans in today's collections exhibit two small round holes. Similarly, some cans have thin rectangular holes in the top – the result of a screw-driver opening. I always carried a pocket knife, and I quickly learned that I could make two stabbing incisions to create a triangle, then bend the remaining metal in using the knife point. A quick stab on the opposite side, and I was read to go. The result was ugly, but it worked (Figure A-1). I'm sure almost any other pointed device was also used.

Pull-Tab or Pop-Top Cans

Eliminating the external opener was a brilliant move. The 1962 invention of a built-in lift tab or pull tab created an instantly available opener as an integral part of the can. If you had the can, you also had an easy way to access the liquid (Figure A-2). Or, possibly easy. Sometimes the tab on the early tops broke off, leaving the drinker to either find something to poke the incised tear strip into the can or open the can the old-fashioned way – with the external opener.

Figure A-2 – Pull-tab can top

Figure A-3 – Pull-tab – ready to pull

I'm not sure anyone has really looked at the mechanics of opening these cans, before. It is pretty clear that the inventors never thought it all the way through. I suspect that there were other methods, but I – and everyone I ever watched – followed a two-step format. First, the tab itself had to be lifted in order to get a good grip. That, in itself, could be a problem. Unless you had really *strong* thumbnails, that was out. Even though some tabs were slightly bent on the end to facilitate slipping a finger under them, most of us held the can with the opening side toward our stomachs, wiggled the tip of the index finger under the edge of the tab, braced the thumb of the same hand against the edge of the can as a fulcrum, and pulled forward (Figures A-3e & A-4). This raised the tab with a slight popping sound – hence, the name "pop-top."

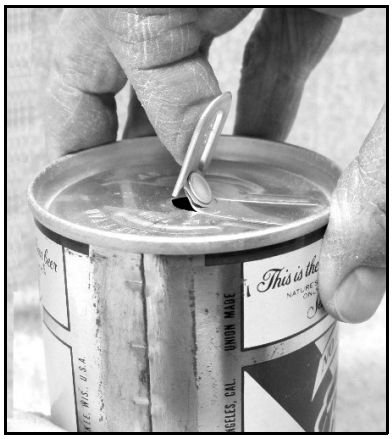


Figure A-4 – Popping the top

Now the tab was up, but ripping off the incised tear-strip required a shift of grip. The first time we tried it, most of us gripped the tab with the thumb and second knuckle of our dominant hand, braced the can with the non-dominant hand, and pulled the tab toward us. After all, the can was already facing that direction from lifting the tab. Except for Charles Atlas (the

Arnold Schwarzenegger of that era) and a few others with super-human strength, this resulted in what came to be known as the beer bath. Normal humans simply did not have the physical ability to hold the can and peel the tear strip in this position. We never tired of watching people open their first beer cans. The amusing results were entirely predictable.

After the initial baptism, most of us experimented with ways to open the can without getting the beer bath. Our plan, after all, had been to drink the beer – not wear it. After a few other interesting failures, most of us found the same method – one virtually guaranteed to create pop-top thumb. First, we turned the can 45 degrees – so that the opening (or what we hoped would soon become the opening) pointed to our right – for right-handers, that is. As in the initial attempt, the body of the can was gripped with the left hand).

Figure A-5 – Rolling the pull-tab – note the thumb contact with the sharp edge of the tear-strip


Figure A-6 – Rolling the pull-tab, second phase

You must understand that the tear strip did not come off easily; it required a significant amount of pressure to pull the tab. Gripping the tab with the ball of the thumb and the ball of the first finger (or any other) only resulted in pulling the can onto its side. Shifting the grip to the ball of the thumb and the second joint of the index finger helped, but – if you could create enough pressure, the beer usually sloshed out over your hand.

The only really effective grip was with the *joint* of the thumb and the second joint of the index finger. This created a firm grip on the entire surface of the tab. Meanwhile, the second knuckles of the middle and index fingers (or just the index finger on those with large hands) acted as a fulcrum, allowing you to effectively sever the tear strip in a smooth, rolling motion – while still holding the beer can upright (Figures A-5, A-6, & A-7). The can was finally successfully opened without spilling the beer.


Figure A-7 – Freeing the tab

However, the positioning of the second joint of the thumb at the bottom end of the lower side of the tab also meant that rolling off the tear strip placed the thumb in jeopardy. As the tear

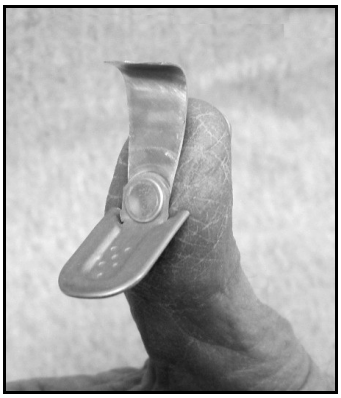


Figure A-8 – Tab stuck to the thumb by sheer pressure of opening

Figure A-9 – Bottom of pull-tab

Figure A-8 – Tab stuck to the thumb by sheer pressure of opening strip rolled off the can top, its sharp edges came into direct contact with the lower ball of the thumb, sometimes creating a sometimes bloody slice in the skin. The sheer pressure of forcing the opening often resulted in the tab-top being imbedded in the skin (Figures A-8 & A-9). Pop-top thumb was born.

During the period between 1962 and 1965, can manufacturers tried several ways to correct the problem. This included various forms of rib, ridges, embossed dots, and rolling the edges of the tab. None of these solutions addressed the actual problem – contact between the thumb and the sharp edges of the tear strip – not the tab. The inventors had to learn to think outside the tab.

The Ring Pull

Figure A-10 – Ring-pull can top

In 1965, both the American Can Co. and Continental Can Co. introduced the ring-pull or lift-ring cans (Figure A-10). These were a tremendous improvement – although they did not entirely eradicate the pop-top thumb phenomenon. On these cans, the lift tab had been replaced by a ring – eliminating the "gripping" problem of the earlier tabs.

As with the lift tab, opening a ring-pull can was a two-step process – with an occasional intermediate stage for people with small hands, less strength, or on an occasional stubborn tear strip. The first step was identical with the one described above – to pop the seal and get the ring into place for the actual pull (Figures A-11 & A-12). Both American Can and Continental Can had recognized the difficulty of inserting the finger tip under the ring.

Figure A-11 – Ring-pull – setting the finger


Figure A-12 – Popping the top

The trick was to keep the ring low enough so that it would not catch on anything and accidentally break the seal, while elevating it for easy access to the hopeful drinker. Each firm dealt with the issue in a different way. American built up a C-shaped plateau on the top of the can that elevated the ring pull and added a crescent groove to facilitate access. Continental punched two dents in the top of the ring, itself, making tiny "legs" in the bottom that raised the ring. Both ways may have helped, but the operation still required each step.

Figure A- 13 – Ring-pull – Pulling the ring

Figure A-14 – Freeing the ring

In step two, the thirsty individual grasped the can with the non-dominant hand (tear strip pointing at the stomach), inserted his or her index finger inside the pull ring, placed the thumb of the same hand on *rim* of the can, and pulled the ring toward the waiting stomach (Figures A-13, A-14, & A-15). For many people, this was all it took.


Figure A-15 – The pulled ring

For some, however, an intermediate step was required. Although each can of a specific style was made on the same (or a similar) machine, the results were not 100% identical. Some cans were just tougher to open. In addition, as I mentioned earlier, some people had less strength or smaller hands. For these three exceptions, the intermediate stage was to press the thumb of the dominant hand (the one with the finger in the ring) on the top of the tear strip and pull the strip partially open. The thumb was then repositioned as in step two to complete the opening process.

Of course, the intermediate stage placed the thumb again in a vulnerable position. Although the top edge of the tear strip was notably duller than the bottom edge – the edge that created the original pop-top thumb – it could still cut. Unlike the original wounds that were parallel to the sides of the thumb and were located at the base of the thumb pad, these tended to be diagonal and were confined to the upper area of the pad (Figure A-16).

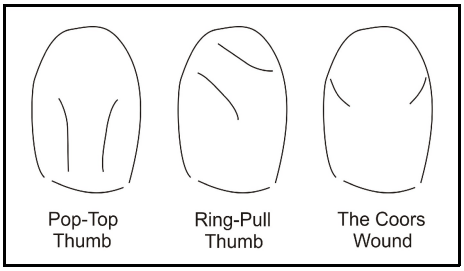


Figure A-16 – Types of wounds

The new ring pull method worked much better. Much less beer was spilled – at least by individuals who were still relatively sober – and the wounding decreased dramatically. In fact, many people who required the intermediate stage, simply asked individuals who were larger or stronger (or not very bright) to open cans for them. But the new ring pulls failed to address one final concern: litter.

Coors and the Push-Button Top

Bill Coors was very concerned with litter, so he adopted one of the earliest push-button or punch tops. Although other breweries also adopted cans of this type, Coors was the largest and best known. The top of the can had two raised circular areas with an indented circle in the center of each. Inside the indent, another circle – called a "button" – was incised about 96% of the way around. One of these was much smaller and was designed as an air inlet vent to facilitate easy pouring. The larger one was the actual pouring opening (Figure A-17). Each incised circle maintained a tiny untouched area, which acted as a hinge to keep the tear strip from falling into the can.

Figure A-17 – Press-tab can top

Tops I have seen had the words "PUSH FIRST" and an arrow pointing to the smaller circle. A push of the thumb opened this tiny circular tear strip with a minimum ejection of the contents – usually just a drop (occasionally even none) that remained on the top of the can (Figure A-18). The inevitable second step was to push in the larger button in a similar manner (Figure A-19). All this worked without any major spilling.

Figure A-18 – Pushing the vent "button"

It did not always work without cussing, however. The smaller button was virtually problem free. Most of us just licked the occasional drop of Coors off of the thumb. Unfortunately, the second button was large enough so that the end of your thumb pushed into the opening – with considerable force (Figure A-20). As you have probably guessed by now, this created an entirely different form of pop top thumb.

Figure A- 19 – Pushing the larger "button"


Figure A-20 – Grooves in the thumb from the force of pushing the larger "button"

Although this type of wound could generally be avoided by rolling the thumb onto the button instead of pushing straight down, many drinkers had a tendency to forget this method after imbibing a few too many cans of beer. Although these injuries were less common that pop top thumb, they tended to be more severe. The pressure involved frequently drew blood. Where tab tops tended to create lines that were parallel to the edge of the thumb, the push-button hole sliced the sides of the thumb – often both sides simultaneously (see Figure 16). While the litter problem was solved, the medical issues remained.

Stay Tabs

To deal with the issue of litter on a wider scale, the industry introduced "stay tabs" or what Martells (1976:18) called "stay-with-the-can-tabs" (Figure A-21). The essential difference with this technique is that when the lifter or tab is pulled upward, it depresses the outlined tear strip into the can. This essentially used the same principle as the push-button top, but it removed the thumb or fingers from direct contact with the tear strip edge.


Figure A-21 – Stay-tab can top

Figure A-22 – Stay-tab – setting the finger

Figure A-24 – Depressing the tear-strip

Figure A-26 – Pressing the tab back down

It was apparently impossible, however, to design a self-opening can that would work in less than two stages, and this final attempt takes three. Even this technology requires that the finger be wiggles under the edge of the tab prior to lifting it into a more-or-less upright position (Figure A-22). At this point, the thumb presses down on the top of the rivet to act as a fulcrum, and the second joint of the index finger pulls the tab forward depressing the tear strip into the can (Figures A-23 & A-24). As with the button-top, the back end of the tear strip is not incised (although this is entirely covered by the tab – therefore not visible to the drinker) and acts as a hinge, keeping the tear strip from falling into the beer.

Figure A-23 – Starting the push

Since the tab is now in the upright position (Figure A-25), the third step is to push the tab back to its original position (Figure A-26 & A-27). Failure to carry out step three causes the tab to be forcefully jammed into the end of the nasal passage, a condition I call "stay tab nose" – the 21st century equivalent of pop top thumb (Figure A-28). This condition is relatively rare; virtually everyone – except the very young, the mentally incompetent, and the notably inebriated – intuitively spots the protruding tab and presses it down. Those who fail to notice rarely repeat the error.

Figure A-25 – Tab in the upright position

Future Evolution

Figure A-27 – Can with the tab pressed down

Invented in 1935, the flat-top beer can has survived now for almost eighty years. Its only major rival, the cone-top can, used the crown cap in an attempt to copy bottles – and it has long vanished. Returnable bottles, too, have almost disappeared, although non-returnable glass containers continue to hold a market share. Who knows what great improvement – or what possible new injury – the next development may hold. Stay tuned.

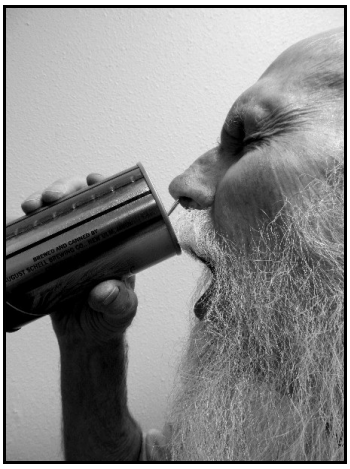


Figure A-28 – Ouch!

Sources

Martells, Jack

1976 *The Beer Can Collector's Bible*. Ballentine Books, New York.