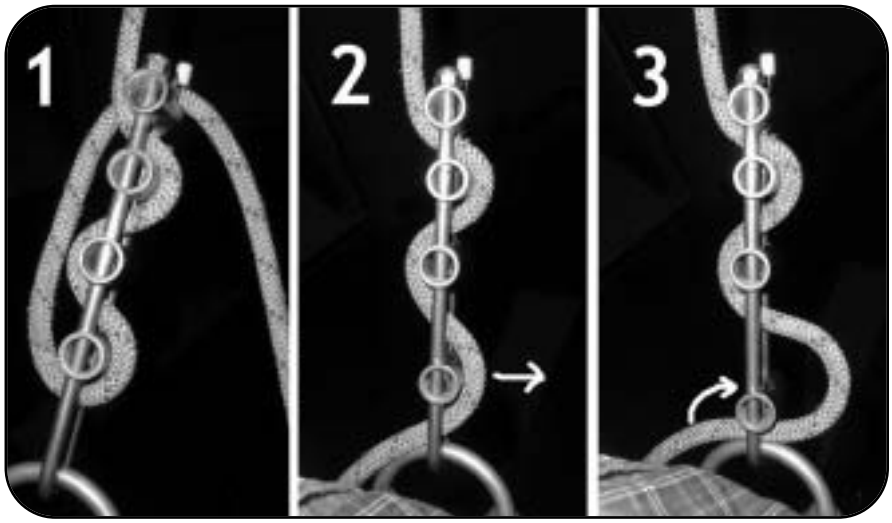
Danger! Don't feed the micro-rack! by Scott McCrea

Note from the editor: Scott McCrea is the moderator of the Caves.com Vertical Discussion Group which you can join online at http://groups.yahoo.com/group/cavescomverticalcaving/
I began vertical caving in 1993 with the Cleveland Grotto. I have been vertical in TAG, NC, VA, WV, OH and KY. Through this group, I hope to learn more and hopefully help others learn some stuff too.

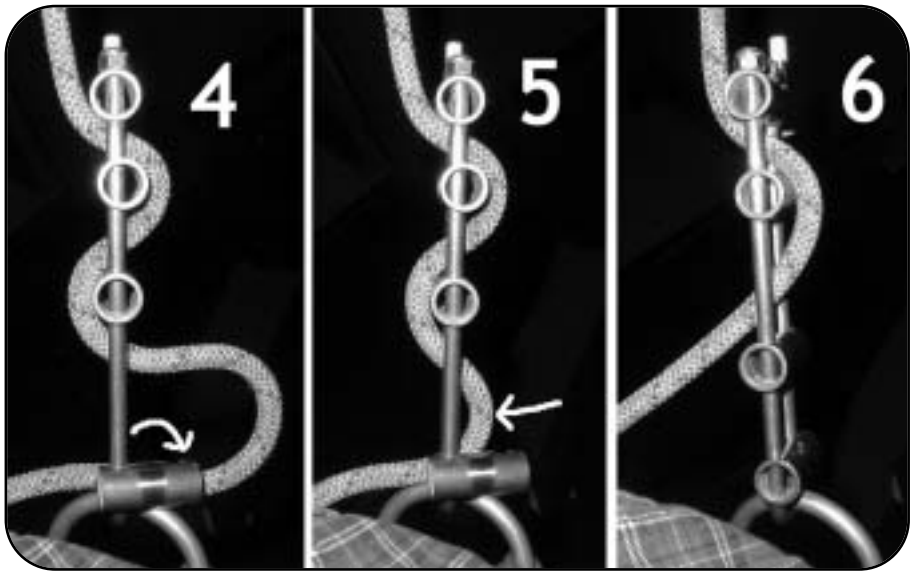
I love my micro-rack. It's great for most drops and works great with a frog system. However, there is a potential hazard with them. It is possible to accidentally drop to two of the four bars. This happens when there is too much friction and a rappeller resorts to feeding rope causing the bottom bar to pop off. It is possible to pop bars off of any rack while feeding, but since a micro-rack only has four bars, the margin for error is slight. The micro-rack is unique among racks in that very little variation in friction is available. Bars cannot be added or dropped like on a regular rack. There is only a small amount of space to spread the bars (there are long micro-racks available which increase the spreading space, but the feeding issue is still there). So, often the only option is to feed rope. Imagine a caver rigs his trusty but stiff and dirty rope to a tree about 20 feet from the lip. The approach to the lip is sloped but not steep. The rappeller rigs his micro-rack a safe distance from the lip, but as he begins to back down towards the edge there is too much friction. He struggles to inch down the rope. Even without the hyper-bar and the bars spread, it's tough going. Feeding some rope into the rack speeds things up. At the lip, he turns around to look down the pit and plan his next move. Still feeding rope, he removes his hand from the rack, maybe to adjust a pad, swat a bee or to help balance. A loop of rope gets fed into the rack and all of a sudden, he's on two bars and going a lot faster.



1. Micro-rack rigged with all bars including the hyper-bar.
2. Hyper-bar disengaged, rope being fed creating a loop.
3. The rope outside the rack will push up and in on the bar and pop it off.

So, how can this be prevented?
Simple, pay attention. Ok, that's a little obvious. The best way to prevent this is to follow a simple but often broken rule that applies to any and all unlocked racks–ALWAYS keep a hand, finger, thumb, or something on the last engaged bar. A bar that you are holding will not come off. Please note, there is nothing wrong with these racks. This can happen with any four bar, U-shaped rack. They all work just fine, as long as they are used correctly. I am definitely not giving up my micro-rack and neither should you. Just be aware of the hazards, be prepared, practice, simplify and think.

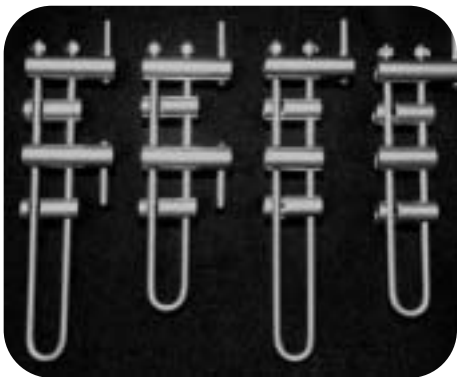
Scott McCrea Asheville, NC, USA
NSS 40839 scott@flittermouse.org



4. Bar swings open.
5. Rope slips out of the rack.
6. Rack is now rigged with only two bars.

Rack Safety

by Carroll Bassett



Pictured above: Long frame and short frame micro-racks.

Scott's point is well taken and his advice to use your other hand (aka balance hand, not your brake hand) to not only spread the bars but to hold the fourth bar closed when feeding stiff rope makes good sense. If you routinely find yourself feeding rope (either because your rope is very stiff, you are a light person, or the rope weight acts to create too much friction) we strongly suggest that you switch frames to the longer version (BMS will be happy to switch your frame for $20US plus $6US shipping). This adds only about an ounce and just over an inch in length to your Micro-Rack and seems to solve most feeding issues our customers have had in the past.

If your problem persists and you are still uncomfortable with either a mini-rack or Micro-Rack a bobbin type device or a full sized rack may well suit your needs better.

Another approach to solving this possible problem is to make the fourth bar latch harder. This will increase the force that it takes to open and close the fourth bar with the result of making it less likely to open inadvertently. This adjustment is quite easily made to your Micro-Rack without disassembly. Essentially all that is required to increase the latching force is a tap to the slotted end of the 4th bar thereby closing the slot a small amount. If you find after tapping the bar it is too hard to engage with the frame properly you have probably closed the slot a bit too much and will need to open it a little. A rod slightly larger than the slot can be lightly tapped into it with the effect of opening the slot slightly. Check the latching action after each adjustment to make sure of the bar's proper functioning. Older racks should be checked periodically as wear from use can lessen this latching force. Anyone who feels uncomfortable with making these adjustments themselves is welcome to return their Micro-Racks to BMS along with the return shipping (see above) for a free tune up.

Mini-racks made by other manufacturers with aluminum bars may have some issues with cracking so the manufacturers should be consulted first before any adjustments are made. Using a QAS (quick attachment safety) is highly recommended when approaching an edge especially before one has fully loaded the rope. For those of you unfamiliar with this technique I will briefly describe its components and their use. A QAS generally consists of a personal ascender or rope grab which has the ability to be attached to a rope quickly with one hand and a tether that securely connects it to the users harness. The length of the tether should allow attachment above your descender but not be so long as to not allow easy reach when fully loaded on rope. It is generally clipped to the balance hand side of the rappelers harness to make it easy and fast to attach to the rope when on rappel. As one moves down the rope towards the lip the cam is held slightly open with the balance hand to allow progress. To stop progress the cam is allowed to engage the rope. This adds somewhat to the complexity of a system but is easily mastered with a minimum of practice and adds another level of safety when negotiating a lip, generally accepted to be the riskiest part of a rappel. After passing the lip the QAS can be removed and the rappel completed. This is especially good for beginners to gain confidence and can be taught on steep slopes for gaining experience before a real drop.

The auto-block is another rappel safety technique worth knowing and simply puts the ascender below the rappel device. Rather than a mechanical ascender a small prussic (6-7mm acc. cord) is tied onto the rope below the descender and then attached to the leg loop on the rappelers brakehand side usually with an oval or triangular quick link . Be sure to tie your prussik carefully and dress it properly. This should be rigged as short as possible so not to allow the prussik to ride up into your descender when loaded. To move down the rope the prussik is broken with the brakehand and rope allowed to slide through. To stop simply let go of the prussic and it will grab the rope stopping progress. Since the prussic only receives a small proportion of the users total weight (most of the users weight is on the descender above) it is relatively easy to continue a rappel after stopping by breaking the grip of the prussic. Again, practice with this technique on a steep slope to gain expertise and confidence. This is especially useful for the first person into a pit to use as there will be no one to bottom belay you in the event of an emergency.

Readers should be careful to understand these concepts fully before using them and always practice the highest standards of safety when on rope. Whenever in doubt seek out competent training and advice. Be safe and enjoy.

Carroll Bassett for BMS

BMS HC 68 Box 64B
Friars Hill, W.V. 24938
(304) 497-4311
omc01207@mail.wvnet.edu