Feature

Out of This World Chaps

Kevin Roche*

A fresh interpretation of Wild West chaps shows out-of-this-world style. The man with the idea talks about the concept and how he created them.

When Costume-Con 31 announced that one of the patterns selected for their Single Pattern Competition was the Tandy Leather Factory Chaps 6023, I knew I was going to have to make a pair. I'd previously owned two pair of chaps – a very sharp looking pair of black "bar chaps" (styled after motorcycle chaps, but tighter on the leg and with the zippers in the inseams rather than the back of the leg), and a set of slate blue with grey fringe western chaps I'd bought as a lucky find in a second hand shop.

Neither pair was wearable any more, as they both zipped around the legs and when my workouts with a trainer paid off I couldn't wear them any more without crushing my quadriceps. Leather stretches, but not that much!

(As an aside, and for the record, all chaps are by definition "assless". Chaps are guards that wrap around a rider's legs to protect them from trail hazards that might injure them while riding, whether on horseback or on a motorcycle. Because they are typically made of heavy leather, you don't want them to be a complete set of trousers because they'd be whackingly uncomfortable.)

"Red Chaps of Mars" as entered in the Costume-Con 31 Single Pattern Contest, modeled by Andrew Assarattanakul.

I've also, for the last decade, been a supporter of the Bay Area Gay Rodeo, and really liked some of the amazingly showy chaps worn by many contestants in the rough stock (bronc, bull and steer riding) events. I decided to build a pair of "batwing" Western chaps, because I really liked the fringe on that pair of chaps I'd outgrown. I also decided immediately to use the "chap snap" fastening option in the pattern rather than zippers; this would give me room to modify and adjust the fit as years go by. I wanted these to be functional chaps that could actually be used for riding, and tough (and comfortable) enough to wear to the rodeo.

As it happened, I ended up building these in two phases; the main construction in time for a Western saloon-themed party ("A Room Party Called Mercy") we held at Gallifrey One in February 2013, and the embellishment in time for the Single Pattern Competition at CC31 in Denver. They then were incorporated into my costume for our Saucer Country entry at LoneStarCon 3 (the 2013 Worldcon in San Antonio).

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When I went shopping for hide for the legs of the chaps, I found this wonderful orange-red hide for the bodies of the chaps; it's the color of the red clay that is in many parts of California. There were other, less showy hides in the shop, but I kept being drawn back to the red (which is not a common color in my wardrobe). The second or third time I was handling it, the phrase "The Red Chaps of Mars" popped into my head, and I knew I was going to work a pulp SF theme into my design, starting from that wonderful brick-red.


Brick-red hide for bodies.

I had just enough of a heavy purple leather to do the yokes (I really liked the contrast of the purple oxhide against the reddish cowhide). The original pattern featured a traditional, somewhat floral scallop in the yoke. Since I was already planning on a pulp science fiction theme, I knew there would be rockets, so I decided to junk the original scallop in the pattern yoke for a reverse flame motif, with the red-orange leather showing through as flames.

The basic construction of these chaps is fairly simple: the leg pieces, the rear (wide) waistband pieces, which overlap and lace together to create the basic fit of the chaps, the front (narrow) waistband/belt pieces to buckle them on, the yoke pieces to reinforce and hold all the bits together, and the fastening straps that fasten behind your legs. Since each leg is constructed independently, and opens flat when unfastened, there is plenty of room for embellishment.

The three variations in the pattern differ in the shape of the leg piece: shotgun chaps are the simplest, forming a simple “c” shaped wrap around the legs. Batwing chaps extend the outside edge several inches backwards, and the trailing edge is frequently fringed. “Chink” chaps end just below the knee, and are usually fringed along the trailing and lower edge. The batwing chaps offer the most real estate for embellishment.

A number of websites detail the history and variety of chaps; one I like in particular is at the Cochise Leather Co. website.

The first step in building the chaps is to make a mockup to see what modifications are required. While chaps lack a center front and back, so can be quite forgiving with respect to variations in one’s waist, crotch and buttocks conformation, the top edge of the “inseam” can chafe your inner thigh if they are sized improperly. I banged out the leg and waistband pieces from some heavy twill I had to hand and tried them on; I was happy to discover that the Tandy pattern as is would fit my build.


Cut legs on large work table at Tech Shop in San Jose, California.

The next step is to cut all the pieces. Taking the time to make the canvas dummy made it much easier to cut into that quite expensive piece of cowhide with confidence.

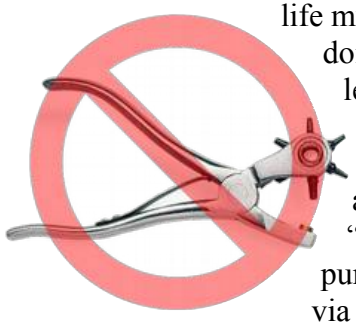
After the legs were cut (above), I could redesign and cut the yoke pieces. I did much of the main assembly of my chaps at TechShop San Jose, which features very large work tables and some industrial sewing machines in the textiles area. I laid paper across one of the chaps legs and sketched the flame I wanted, then trimmed the edges of the paper to match the shape of the leg hide.


Purple oxhide yoke trimmed to match shape of leg hide.

Once I had a design I was happy with, I made two mirror-image copies of it as cutting templates for the yoke.(I only had enough of the purple oxhide to attempt cutting it one time.) I discovered after doing so that when the purple hide was dyed, the color had not penetrated to the center of the leather protein matrix, so the center of each edge was white. The cut edge of the red leather was also noticeably lighter than the tanned surface. Fortunately I had a large set of multicolor Sharpie permanent markers, which I used to color the edges of all the large cut pieces.

After the yoke pieces had been cut, the next step is to attach the waistband components, which will be trapped between the leg and yoke for additional durability. The rear waistband pieces are riveted in place, then the front waistband (buckle and tongue pieces) are punched, assembled, and also riveted in place.

A few high-quality tools make one's life much easier when doing this sort of leather work. For my earliest projects, I used a multi-size "rotary" leather punch, which works via a scissors action.



Avoid rotary punches!

The problem with that particular tool is that most use a metal "anvil" behind the hide, into which the cutting edge of the punch tube is driven every time you punch a hole. That quickly dulls the cutting edge.

I now have a pair of punch sets (mine happen to be from Tandy) with a large variety of screw-in punch tubes. I use an old oak cutting board or hard rubber mat (1⁄4 inch thick) as the backing plate, and do my punching on the floor or a solid table.

Use punch with screw-in punch tubes.

I use a wrapped rawhide-headed maul as my punching and riveting mallet (there are polyester-headed mallets now that would work as well). In addition, an oblong punch (a slot with round ends) cuts very clean slots for the buckles and the chap straps. Be sure to get the correct setting tool and anvil for the rivets, as well. If you have access to an arbor press and the appropriate punches and dies for it, that is an even better solution.

Once the waistband sections are riveted in place (top right), the yoke pieces can be applied over them.

Waistband section riveted, ready for yoke.

For maximum durability, I do most of my leather construction with a mixture of gluing, stitching and riveting, using a contact cement for the gluing step. This lets me make very flexible but strong strapwork, as, for instance, gluing and folding a light garment-weight hide into a two- or three-layer strap and edge stitching the laminate to discourage it from peeling apart. (The rear waistband, front buckle and strap for this project were made of a heavier hide, so they were done as single layers.)

The glue-and-stitch method is also terrific for leather-on-leather appliqué. By gluing the pieces in place first they will not shift while you edge-stitch them down.


Sticky-back paper used as a guide for applying glue.

When stitching leather, the needle cuts through the tanned surface of the hide (as opposed to, one hopes, slipping between the fiber strands of a textile), so satin-stitching around the edges is inadvisable because it essentially perforates the hide enough to make the appliqué a tear-out patch. Instead, with this technique, the glue holds the applied piece in place, and the edge stitching discourages the edges from peeling away.

For best results with leather, using contact cement requires that you apply a thin coat to each surface, let it dry to the touch (binding to the applied surface), then join the two pieces. While the dried cement feels only slightly tacky to the touch, that tacky surface will bond aggressively to itself and hold tight. For a detailed curve like the flame yoke, this required some cleverness to avoid slopping excess cement onto the main part of the leg piece while gluing the yoke.

One of the resources in the TechShop textiles area is a roll of moderate-tack sticky-back paper. It's normally used for helping to register and apply precision cut adhesive vinyl to surfaces, but it can also be used as a masking material. I traced the yoke pieces to create a negative mask for each leg (left), so that I could apply the cement to the red leather, including all the fiddly bits, and not have any slop over.


Legs and yoke pieces with applied adhesive drying.

Shown above are the legs and yoke pieces with the applied adhesive drying. It starts milky, and turns clear when it is dry enough for assembly.


Edge-stiching yoke after gluing.

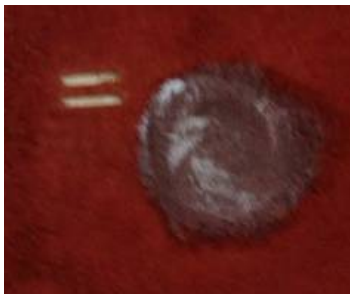
Once the yokes were glued on, they could be edge stitched. (left) Most of my leather projects are in lighter, garment weight leather. For stitching that, my good ol' 1980's Kenmore 17830 with a (blade edged) leather needle is adequate. To stitch through the oxhide and cowhide, however, was going to require a bit more oomph.

One of the industrial machines available in the textiles area at the TechShop is a needle-feed machine – the materials move in unison while the needle is piercing all layers. The smallest size needle it accepts is a size 20 gauge needle. It has more than enough power to cope with the oxhide/chaps side combination. Using it, I edge stitched each yoke piece after gluing. The big machine even had enough power to stitch through all four layers for the buckle strap.

While prepping the chap legs for riveting, I also punched the holes for the

fasteners (each strap used a pair of parallel oblong punches). Working on this before all the pieces were assembled was much simpler. It also gave me a definite wakeup call on checking my workspace, because I punched one pair of holes without completely unfolding the chaps, and punched an extra pair in the main open area of the leg. Fortunately, I had some lightweight scrap leather, and used my contact cement to patch and glue the punched pieces back in from behind.

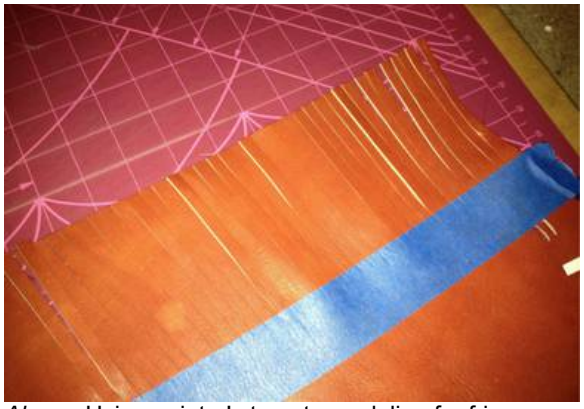

Oblong punch


Punched holes for fasteners.

Once the yokes were done, it was time to cut the fringe. I used blue painters tape to demarcate the inner limit of the cut (4"), and a rotary cutter and mat to cut 1⁄4" fringe along the outer edge of each leg. This was a total of about 60" of fringe, or just under 240 cuts. I had a ruler handy, but actually eyeballed the cuts. The result was quite pleasing to my eye.

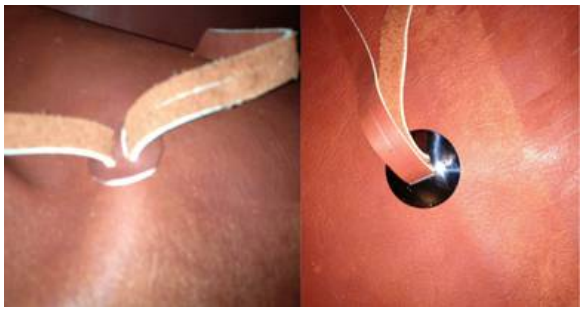
Unfortunately, the effect when I removed the painters tape was less esthetic, as it pulled a noticeable stripe of pigment out of the tanned surface. Since it was such a uniform width, I decided to declare it a design feature rather than a flaw.

The final step was to attach the straps and fasteners. These used a technique new to me, called a "blood knot." Once I figured out how it worked, it was very simple. You will recall that for each strap, I had punched a pair of parallel slots in the hide. The strap itself was about 1⁄2" wide, with a longitudinal slit at the center, with the long ends cut at a 45° angle. To make the "knot" is a four step process.


Above: Using painter's tape to mark line for fringe.
Below: Stripe left by tape became a design feature.

You first thread the strap through the chap snap or a D-ring, then through the two slits in the hide.

On the other side, the ends of the strap pass through a concho or through a leather disk with an identical pair of slots in it.



At this point, you spread out the exposed slit in the top layer of the strap and pull the lower layer through the slit.

Then repeat that procedure, spreading the slit in the new top layer and pulling the lower layer through.

Once you tug and neaten the wraps, you end up with a “braided” looking exposed strap.

The outside (fringe) edge of the chaps has D-rings inside it, with a concho on the outside held in place by the blood knot. The inner edge has a chap snap on the outside of the leg piece, with a leather disk and the blood knot on the inside.

I was skeptical of how secure the blood knots might be until I finished making a couple of them. Unlike a traditional knot, if these get wet and subsequently dry, the knot can still be easily undone even if the leather has stiffened. If a strap or piece of snap hardware breaks, because they are not stitched in place, the broken piece can be replaced without weakening the main part of the chaps leg. They also look really cool.

Brick-and-purple flame-detailed chaps worn at Gallifrey One.

Chaps laid out flat showing fringe and blood knots.

At this point, I had a pair of wearable brick-and-purple flame-detailed chaps, which I wore to our saloon-themed party in February. Unlike the previous chaps I’d owned, with the D-rings and chap hooks, instead of zippers, they proved to be as much more comfortable as I’d hoped, and will survive future changes in my leg size. The overlapped and laced rear waistband also means they can be adjusted if my waist size changes.

Once we returned home from Gallifrey One, I taped together several sheets of white paper and traced the edges of the opened chap leg (between the fastener lines), including the edge of the yoke. While I do lots of design work on my computer, sometimes I still prefer to use paper and

Left: Hand-drawn design concept sketch shows city on a tower, rising through the mists above the red plains of Mars.
Right: Computer test using digital image from photos of sketch, with hide textures used to fill shape.

pen/pencil, because I can feel the sweep of the lines I am drawing. I also wanted to do the design full-scale so I have a real feeling for placement of the design elements.

My vague design concept called for a "mysterious city on a tower, rising through the mists above the red plains of Mars, with a spaceship sweeping from above on a trail of fire." The result is above, on the left.

Once I'd sketched it, I snapped overlapping photos and stitched them together into a digital image, so I could play with color schemes. I had picked up several complementary and contrasting pieces of pig suede that I thought would work on the brick red, and always have a small stash of interesting colored "exotic" hides in my costume materials. One splurge was a blue-overdyed piece of stingray hide which just looked so alien it had to be incorporated into the embellishment.

After stitching the image, I played with several different layouts by photographing the different pieces of hide and using the images as textures to fill in the outlines in the design (left, on the right).

Once I was happy with the layout, I could move to working with the actual hides. I briefly experimented with the idea of adding an illuminated and animated exhaust flame to the rocket ship with a piece of electroluminescent film, but it proved to be too fussy a material to work with. I planned to take the chaps to the rodeo – not a good place for fussy electronics.

Experimenting with placement on actual chaps legs.

Shapes cemented in place to chaps legs and trimmed.

After the basic shapes were cut, I experimented with placement on the actual chaps legs. You'll note in the picture (previous page) that I did not pre-cut the yoke flame shape in the rocket trail; I wanted to have the freedom to move things around. You can also see the striped stringray hide in the photo.

The actual appliqué was done with the glue-and-edgestitch technique.

I used tailor's chalk to mark the outline of each piece onto the chaps leg so I could see where to apply the contact cement on the surface. Once everything was cemented in place, I trimmed the excess from the bottom of the tower, and very carefully cut out the flame silhouette from the yoke with embroidery snips.

Shapes edge-stitched with matching thread.

I did the edge-stitching after everything was glued and trimmed. The bobbin thread was a close match to the brick-red hide, and I changed needle thread to match whatever hide I was stitching down. All this work was done on my Kenmore, as the appliquéd leather was quite lightweight.

The stingray (blue striped skyline at right) was a bit more of a challenge, as the pebbles (calcium carbonate scales) are very tough and can snap a needle. I used a microtex sharp needle and invisible monofilament thread for the needle thread, working very slowly (hand cranking a number of places) to let the needle seek the soft spots between the pebbles. Where applied pieces crossed each other, I stopped and started the edge-stitching as appropriate. I did not want to risk snagging and tangling one line of stitching with another.

This is one of the most satisfying leatherwork projects I've done to date. I expanded my techniques a bit (the blood-knot attachment technique in particular is a very useful addition to my repertoire), but the design came together almost exactly as I visualized it when I first found the hides.

Edge-stitching blue stingray skyline was a challenge.

The Red Chaps of Mars are comfortable to wear (if a bit heavy) and have already survived multiple conventions and visits to two rodeos (one was a campout).

While I could not attend Costume-Con 31, they were ably modeled for me by Andrew Assarattanakul (see page 30) and received a Judges Choice award. They were also incorporated into my "Space Cowboy" outfit for LoneStarCon 3 in San Antonio, with the addition of a holographic fringed western yoke shirt, light up hat and bolo tie (below) That ensemble received very positive comments from the judges for the Wearable Art Competition at the 2013 Pacific International Quilt Festival.

I hope all my costume projects are this fulfilling to complete!

Kevin Roche *is a sci-fi/fantasy and historical costumer with extensive experience entering, judging, and running masquerades. He was Chair of Costume-Con 26 in 2008. Kevin received the ICG's Lifetime Achievement Award in 2007. He is a past ICG vice-president, and is currently president of SiW. Visit his website to read his blog and view his album of costume photos.*

Author wearing finished "Red Chaps of Mars."

Author in LoneStarCon 3 "Space Cowboy" outfit; chaps, holographic fringed western yoke shirt, light-up hat, bolo.tie.