

or hoist

BY SEAN O'SKEA

IF YOUR THEATRE SPACE features a fly system, you are fortunate. As we all know, many school performance facilities—built with graduation and band concerts in mind—have neither fly space nor theatrical rigging. But the truth is, you don't need a fly system to create interesting scenery. There are lots of fun and simple rigging tricks you can do yourself to create exciting scenery that is safe and imaginative.

The rigging examples I'm going to suggest are for *extremely light-weight* scenery fabric drops or other small objects. In all scenery applications, you always need to imagine what would happen if the thing you are rigging were to fall out of the sky. Before you proceed any farther, please take the time to read the sidebar about rigging and safety on page 30.

Prior to hanging anything in your space, first identify appropriate anchor points for whatever rigging you're going to use. It does no good to have a well-designed system of excellent hardware hanging from a suspended ceiling or screwed into sheetrock. In most cases, even the simplest spaces typically have lighting positions or masking drapery attached somewhere overhead. Investigate these to find load-bearing locations in your space to attach your rig. If you're not sure, ask your building manager, or even better, the architects or contractors who worked on the space. Once you have identified appropriate anchor points, you can use them again and again.

The 2011 Broadway Rose Musical Theatre production of *Joseph and the Amazing Technicolor Dreamcoat*, featuring a cut scenery drop of pyramids.

There are infinite creative variations of rigging magic but, for the most part, scenery movement can be divided into three basic categories: scenery that trips (drops in) from above, scenery that travels horizontally, and scenery hoisted up from the stage. For a recent production of *Joseph and the Amazing Technicolor Dreamcoat* at Tigard, Oregon's Broadway Rose Musical Theatre, technical director Jonathan "Bearclaw" Hart and I employed all three. Broadway Rose's new home stage is a great venue, but like many theatres, it has no fly loft. That didn't stop us from filling the stage with all kinds of fun, simple, and inexpensive tricks.

Trip drops

The most common and useful scenery rigs are trip drops. A trip drop is simply a rig for holding an object overhead until a trigger line is pulled allowing the object to drop into the scene. For simplicity's sake, I'll use the term "drop" in describing this rig, but don't limit your imagination to a traditional fabric drop. You could, as we did for *Joseph*, release a series of one-foot wide, white ribbons in front of a black drape to suddenly stripe the dark jail cell and give the lighting designer a great canvas on which to throw fabulous colors and patterns for the Act One "Go Go Go Joseph" finale. Or you could release a blood-red banner at a particularly dramatic moment in your next Shakespeare production. It's also a great way to introduce and then get rid of a sail for the opening of *The Tempest*, or to fill the stage with signs for the act break of *Evita* or *Urinetown*. At Southern Oregon University we used a trip-rig to drop four ropes to suggest King Ceyx's doomed ship in *Metamorphoses*.

If you want a better sense of how a trip drop works, try this exercise. Pick up a hard-backed book and open it to the middle. Now pinch the back half of the book between your thumb and all but your index finger. Close it on your fingers and use your index finger to hold the front cover closed. Next, hold up the book so its spine is facing down. There's your rig in the "loaded" position. Finish by lifting your finger and letting the front half of the book flop open. You just tripped your rig. Imagine the two covers of the book as a pair of 1 x 3 boards connected by hinges. Essentially what you do with a trip drop is secure the "back cover" to your batten or anchor points and attach whatever you want to trip to the "front cover."

Here's another example of how to use a trip drop: if you attach a shelf to the moving board so that it sits horizontally, you can set all kinds of objects on the shelf—coils of ribbon, ropes, or a piece of ceiling plaster. When you trip the drop, the shelf will pitch forward dumping anything resting on it. The dropped object may or may not be attached to the batten. In the case of our scary ceiling, the plaster will simply slide off the shelf and fall. But for *Joseph's* go-go stripes and King Ceyx's ropes, the top ends were attached to the fixed batten (the back cover) with Velcro. Binder clips work well too. This way the dancers could pull down the stripes on the last "go go go Joe!" and Ceyx's sailors could evoke the doomed vessel's destruction by pulling down the ropes one at a time.

If you want a big red banner to flutter in dramatically and then fall on its own, on cue, at the end of the scene, you need a two-stage trip drop. The first stage is simply a shelf or sling with the rolled-up drop tucked inside (see the illustration on page 31). The ends of the sling are held up by tie-line fixed to a washer or similar ring. A nail with the trigger line tied to it is inserted into the washer. The trigger line (more tie line or even plain string) then runs along the batten and through a light-duty pulley down to the operator in the wings. When the stagehand tugs on the string, the nail is pulled out of the washer and the sling falls open, spill-

ing its cargo. The top of the banner is attached to the second stage (our book cover). While not absolutely necessary, grommets along the top of the banner will ensure a smooth second-stage release. The grommets are hung on finishing nails driven into the front of the trip board so when the first-stage sling is released the banner hangs from the nails. When you're ready for the banner to come down, a second trigger line is pulled, releasing the trip board. As the board swings forward, the grommets slip off the nails and the banner flutters to the stage floor!

Vertically rising scenery

Imagine scenery rising like magic off your stage floor. That's really what we're talking about with vertical rigging. For instance, in the Broadway

Rose production of *Joseph*, three Egyptian slave-girl dancers carried on a rolled-up palace drop as a backstage crew member let three lines with carabiner clips attached to their ends slowly descend from overhead. Choreographed with the music, the dancers set down the rolled-up drop, attached the clips to a batten at the top of it, and then stepped back as the stagehand raised the palace by simply pulling on a line she had just let in. Picture an old-fashioned window blind upside-down.

Initially, we thought we would need some kind of apparatus to allow the drop to unroll as the batten lifted, but the rolled drop uncoiled perfectly by itself. The three clip-lines passed through pulleys overhead and were tied together to one line that dropped backstage through another pulley over

the stagehand's position in the wings. The line was, of course, tied off to keep the palace in place through the end of the show. We did attach the batten at the bottom of the drop to the stage floor so we could put tension on the line and pull the drop tight and flat, but this final step may not always be required.

I've done similar rigging with tulle and ribbons to create the French Princess's pavilion for *Love's Labors Lost*. You could easily create Maria's Alps in *The Sound of Music* by starting with puddles of silk onstage and then suddenly floating them into multiple peaks as the fabric is lifted by nearly invisible fishing line.

Traveling scenery

Joseph also employed horizontally traveling scenery. Most auditoriums have

Playing it safe with rigging

REGARDING RIGGING, try to imagine what would happen if the thing you are hanging above the stage were to fall out of the sky—and weigh your risks accordingly. To paraphrase Jay O. Glerum from his book *Stage Rigging Handbook* (an absolute must-read if you manage a rigging system in your theatre), a ten-pound sack of feathers falling from eight feet is far less dangerous than a ten-pound brick falling from eighteen feet. You need a pessimist's imagination to picture all the things that could go wrong in your design. In the end it's the safety of your students and your audience at stake. If you are pushing the boundary of your skills or your space too far into the unknown, it's just not worth it.

Even after you imagine all kinds of worst-case scenarios there still is a "factor of ignorance." That's the name for all the things you couldn't imagine or that are too difficult to calculate. Here we're talking about things that could fall and hurt someone. You can hang paper snowflakes with a staple and thread and not worry about design factors, but don't underestimate the danger of even relatively light objects. A crescent wrench may weigh

only a pound, but you know how dangerous it can be falling from the top of a ten-foot ladder.

A design factor (or safety factor) is the number of times stronger all the components of your rigging need to be to accommodate the factor of ignorance. In overhead rigging where a failure would mean someone could get hurt, that design factor should be 10x. In other words, the rope, the hardware, and everything involved in hanging the object needs to support weight ten times heavier than the object. For example, if you hang a ten-pound chandelier over the stage, the rope and hardware you use needs to have a working load limit of a hundred pounds. There are a lot of factors putting stress on your rope and hardware beyond the ten pounds of the chandelier: the kind of knot you use, the age and wear on the rope, whether or not the object moves during the show, even the weather can affect the stresses on your rigging. That's why being ten times more cautious is essential.

The terms, "working limit," "breaking strength," "maximum load" all have similar but different meanings. Glerum's book is a good

source for understanding each of these. "Working limit" is a term used frequently in the hardware industry. Look for it either on the package or stamped into the hardware itself. The product's working limit already has some safety factor built in, but for amateur rigging we need all the cushion we can get, so use the working limit in your calculation. Look for rope with a hundred pound working limit to hang that ten pound chandelier. If the product doesn't list a rating don't use it. Ratings are incredibly common these days. In our local hardware store even the postal twine has a working limit (one pound, so I wouldn't recommend it). Eye-bolts, turnbuckles, rope, chain, even fishing line will list some kind of rating.

No matter what kind of flat or drop you're considering for your next production, give some careful thought about whether or not the weight and the rigging that will meet the parameters I'm suggesting above. And ask yourself whether you have the skill and time needed to carry out the work that is technically and educationally sound. If the answer to either of these questions is no, step back and find another approach to your scene needs.

—S.O.

A trip drop in action

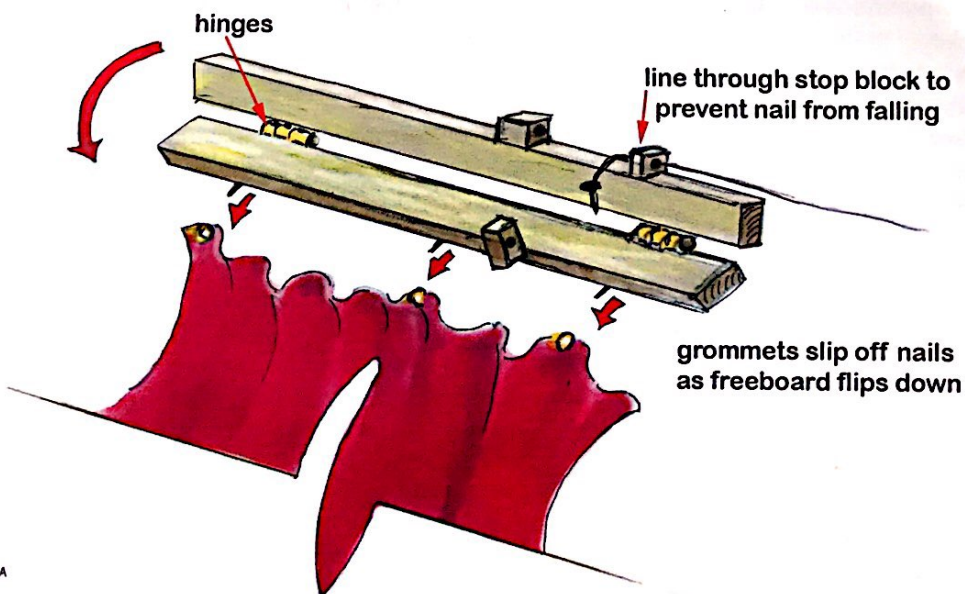
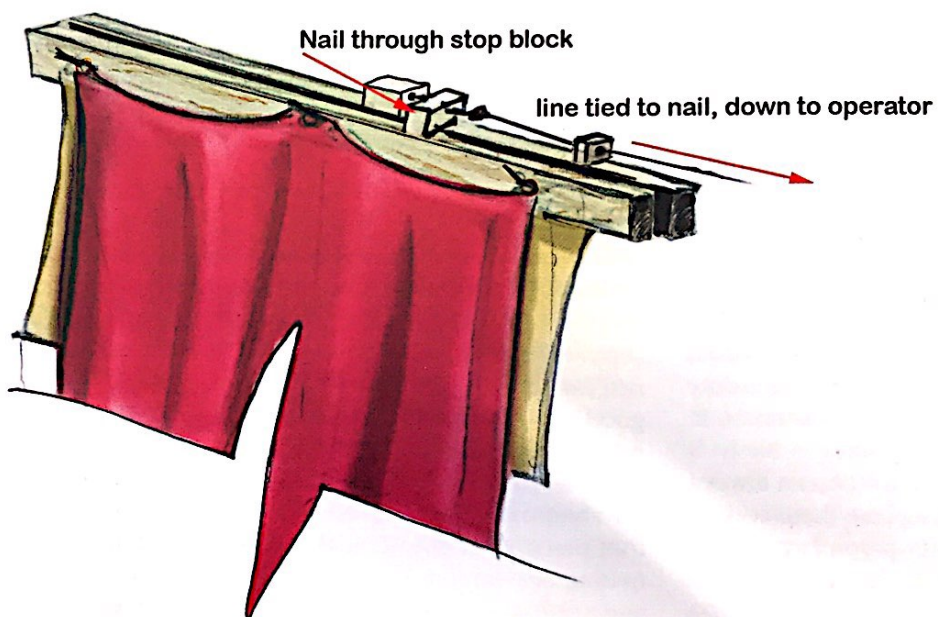
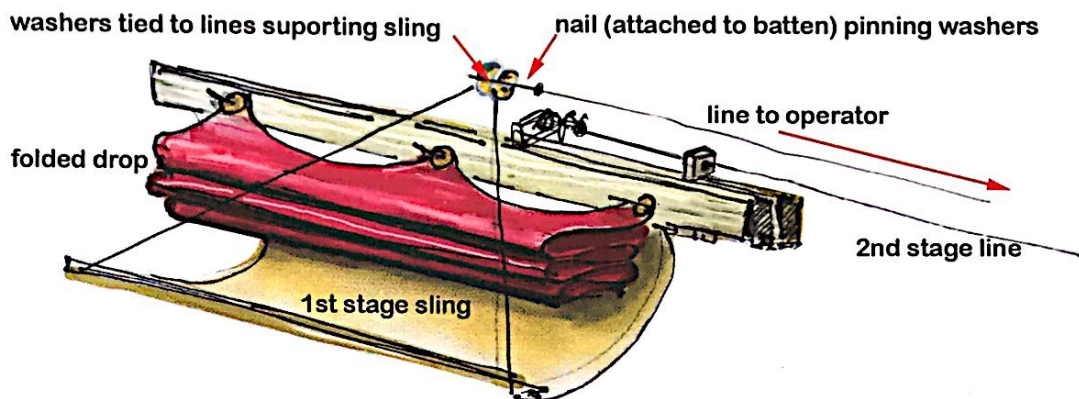
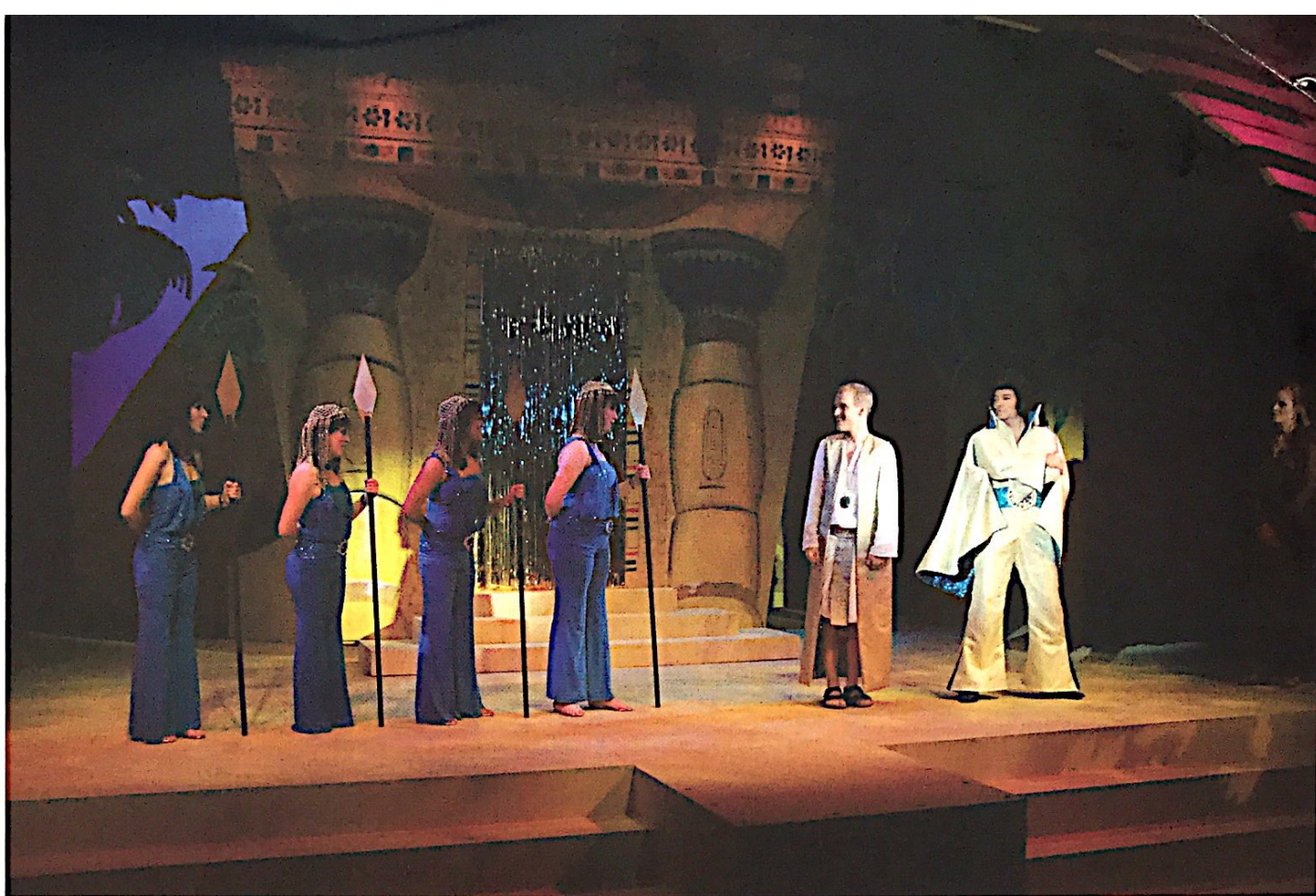


ILLUSTRATION BY SEAN OSKEA



The ten-foot-tall pyramids in *Joseph* were moved onstage on a traveler track. PVC deer netting was used to support the fabric.

at least one traveler track. If yours does not, you can make your own light-duty version out of inexpensive materials. If you do have a traveler track, it likely has black drapes on it. You can always remove those and replace them with whatever scenery drop you have. For *Joseph*, I wanted the pyramids to travel on as Joseph is taken to Egypt. Unfortunately there was only a tiny corridor of room between the onstage band and the cyc. So we built a cut drop (more on that in a moment) of the pyramids and hung it from the traveler.


As the name suggests, a cut drop has portions of the fabric cut away, often supported by a net. They are great for trees or archways, or any time you want holes in your drop. In *Joseph* I wanted the three pyramids to be silhouetted against the cyc. We simply painted muslin (it doesn't even need to be one contiguous piece) then cut it out and glued it to net. The net was attached to the traveler so when it was offstage the pyramids just bunched up like drapes. When it came time to arrive in Egypt the ten-foot tall pyramids simply glided out from the wings. The netting is so fine it's virtually invisible from the front row. Theatrical fabric

suppliers can provide you with opera net, but it is extremely expensive. A good alternative is PVC deer or bird netting. This can be found at garden centers or hardware stores, usually for about twenty dollars for a 7 x 50 foot piece. Plan ahead, as this kind of netting is a springtime seasonal item and your store may not stock it year round.

The PVC net can be hot-glued to the fabric and then attached to a muslin or jute border before it's stapled or grommeted to your hanging position. Place your cut drop face down and stretch the net over it. If you can, stapling both layers to the floor while you work will give you better results. Don't try to glue every little grid; it will take forever, and directly applying the hot glue risks melting the delicate net. Instead, squeeze ribbons of glue as you slowly wave the gun a foot or so above the net. Alternately, you can sandwich the net between two layers of fabric. Liberally brush white glue onto the back of the drop and the net and then press a second piece of fabric on top. When the glue dries the net will be trapped between the two layers of fabric.

Just like the trip drop, what you send out on the traveler doesn't have to be a drop. It could be streamers or ribbons or vine-like tendrils of erosion cloth. I've seen exciting effects created by a rain curtain made from old VHS tape. How about a string of lit paper lanterns? Get creative. Once you have a safe place to attach some wood battens and pulleys above your stage you have opened the door to all sorts of theatrical magic tricks. Just remember, if you keep your scenery light, you'll keep everyone safe.

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TEACHING
theatre

WEB EXTRA

You can access detailed plans for building a quick-release drop rig and two traveler tracks on the website at Schooltheatre.org. Go to the Publications page and click on Teaching Theatre journal.