

How Manual & Fire Curtain Rigging Works

Round Weights

The motorized fire curtain system includes two sets of round weights that balance against each other. One tensions the fire line, while the other weight exerts pressure against the clutch lever in the opposite direction. If line tension is lost, the second weight set trips the clutch lever, allowing the traction block to spin.

Traction Drive Hoist

The fire curtain lift lines pass over a V-grooved traction block that grips them. The block is connected to an electric drive hoist through a clutch mechanism that keeps it from turning. If the fire line slackens suddenly, a lever opens the clutch, the traction block spins and the fire curtain falls.

Lattice Track

The fire curtain counterweight arbor rides a lattice track which is attached to the front wall of the stage and is totally separate from the counterweight arbors used to control other elements.

Fire Lines

The fire line engages the mechanical clutch of the traction drive hoist during normal operation. When the fire line is cut or released or the fusible link opens, the fire curtain falls automatically.

Fusible Links

Fire lines are joined by fusible links, which are basically flat pieces of steel that have been soldered together with a low-melting-point (165°F, 74°C) metal mixture. In the event that temperatures exceed this level, the fusible link gives way and releases the clutch, which then releases the curtain.

Lattice Track Arbor

The lift lines supporting the fire curtain are attached to this arbor. The arbor counterbalances some of the curtain's weight, so the curtain's descent is powered by the most reliable force of all, gravity.

Sure Guard® II Release System

The fire line can also be released by J.R.Clancy's **Sure Guard® II** system, an electro-mechanical device that can be connected to fire detection systems or rate-of-rise temperature sensors. When the **Sure Guard® II** system circuit is broken, the fire line is automatically released.

Manual Release

Fire lines also have a manual release lever located at each side of the opening. When the release lever is pulled, the fire curtain falls in a controlled fashion.

Dashpot

The dashpot is a simple hydraulic braking mechanism that starts slowing the curtain before it reaches head height and provides a soft landing at the floor.

Safety Chains

These heavy steel chains are attached to the stage structure and support the curtain if the lift lines fail during a fire. Their extra weight also helps the curtain drop once it has been released.

Automatic Fire Safety Curtain

The automatic fire safety curtain, first patented by J.R. Clancy in 1904, is designed to block the spread of an on-stage fire without human intervention or electricity. Our curtains feature ZetexPlus[†], a coated fabric that spreads the heat, preventing "hot spots" from forming that could burn through and allow the fire to spread.

Trim Chain

With multiple lift lines attached to each pipe batten, it is inevitable that their lengths will have to be adjusted to keep the batten parallel to the stage. The easiest way to adjust lines is with a trim chain. We recommend J.R. Clancy **Alpha Chain™** which has a black finish for fewer distracting reflections.

Idler Blocks

Despite the weight they carry, lift lines will sag as they cross the stage unless they are supported by small idler blocks attached to the loft block sideplates.

Loft Block

The loft block is a simple pulley that turns the lift lines 90° toward the stage. Mounted overhead or at grid level, our loft blocks feature sealed precision ball bearings so the sheave turns smoothly and quietly on the shaft. To minimize wear, double depth grooves in the sheaves should also be precisely molded so they support the line through at least 150° of its circumference.

Head Block

Individual lift lines are collected by the head block and turned downward in their own grooves toward the floor. There is also a larger center groove for the hand line. Head blocks carry the entire load attached to the batten, so it's imperative that they be sturdy. Tapered roller bearings are also a must.

Loading Gallery

The gallery provides a place to stand while adding or removing weights from the arbor. It must be extremely rugged since it stores the weights for all the arbors, which can often be several tons!

J-Guide™ System

J-guides prevent the arbor from swinging side to side as it moves up and down through the guide shoes, which are attached to the back of each counterweight arbor.

Counterweight Arbor

Counterweight arbors carry the weights and should be manufactured with heavy steel top and bottom to support the weights. Each rod has a retaining collar with an easy-to-grip plastic knob for convenience.

Hand Line

A flyman uses the hand line to raise and lower the batten. J.R. Clancy **SureGrip®** hand lines are stronger and easier to use than manila and have a wear indicator for added safety.

Outrigger Batten and Bracket

Fastened to the wall with triangular brackets, the outrigger batten is a convenient rest for ladders, scenery, and other equipment, ensuring they won't interfere with the hand lines and counterweight arbors.

Rope Lock

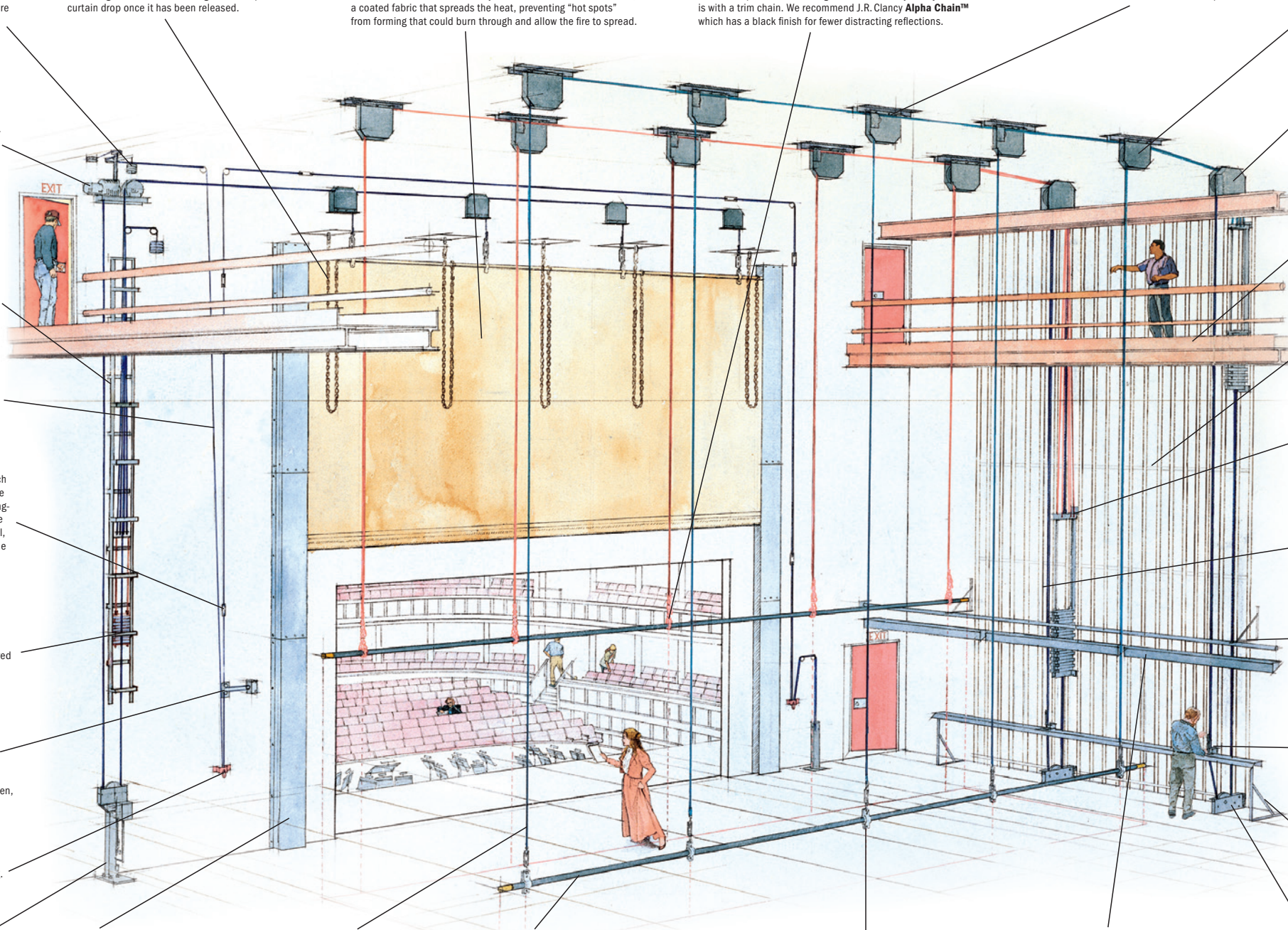
Once a batten is positioned, the rope lock holds the hand line in place. Rope locks can also be padlocked for added safety.

Locking Rail

Rope locks are attached to the locking rail. You can also use the locking rail to label lines, so crew members can quickly identify the purpose of each line for various performances.

Floor Block

The hand line runs over the head block and under the floor block for extra control. The floor block is adjustable to keep the hand line taut.



Manual rigging consists of a balanced set of weights that are controlled by pulling on ropes to raise and lower scenery, lighting, and other equipment with minimal effort.

Manual rigging can be found in nearly every theatre worldwide. First introduced in the early 1900s, it's still a practical solution for new theatres of all sizes. Manual systems can also be upgraded to include "push button" or "touch screen" control. To learn more or discuss your rigging needs visit us online or contact us today.

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