Just Giving Account Now Open for 45-Ton Lift Steam Crane!

http://www.justgiving.com/SteamCrane

Photo by Martin Lawrence

Many thanks for your donations; they will help us commence and continue the work of cleaning, preparing, and painting Bluebell Railway's steam crane, and later repair and renew it as necessary.

Here's some more on how the crane works …

We have already looked (in a previous e-newsletter) at the relieving bogies on either side of the crane carriage, detachable when working, coupled-up when travelling to reduce the overall axle loading on the main line when in-train.

http://www.bdca.org.uk/gallery/index.php/Ransomes-and-Rapier/ADRR95214/95214-York-March-1986-John-Turner-photo

(The crane illustrated, unless otherwise stated is from same batch as ours, built for the LNER, now based at North Yorkshire Moors Railway.)

In the above photo of our own crane seen at Horsted Keynes, in the cab area, under the green cloth where our cab roof should be, imagine the crane driver

standing at the controls looking forward at crane jib and hook, with the Spencer-Hopwood coal-fired, vertical, cylinder-shaped cross-tube boiler behind him; its firebox door, water gauge, coal bunker to hand behind him; and the three operating levers in front.

http://www.bdca.org.uk/gallery/index.php/Ransomes-and-Rapier/ADRR95214/Photo0048

Direction of engines—forward, reverse, and mid gear.

Clutch selector and neutral for either hoist or derrick (moving jib) The nearest cable drum to the driver winds tight the wires and wheels, seen toward the middle of the jib, raising or lowering it accordingly.

http://www.bdca.org.uk/gallery/index.php/Ransomes-and-Rapier/ADRR95214/95214-at-Newbridge-3-3-2008

With hoist clutch engaged, attention switches to the further-away drum from driver. There's much more rope on this larger drum, the hoist or burden wire runs over jib head pulleys or sheaves and takes four falls through these to allow the ramshorn-shaped hook to deliver the lifting range without having to have a much larger diameter wire rope.

http://www.bdca.org.uk/gallery/index.php/Ransomes-and-Rapier/ADRR95214/95214-NYMR-Newbridge-March-2008-2

The regulator admits steam to cylinders and by regulating the supply of same, it controls rotation speed at the crankshaft and functions that are all driven from the crankshaft by connecting relevant mechanical clutches.

http://www.bdca.org.uk/gallery/index.php/Ransomes-and-Rapier/ADRR95216-Album/95216-as-DS1580-Ropley-MHR-22-09-2004-5-Roger-Cooke

The link above is an excellent view of the crankshaft (of the very active Ransomes & Rapier 45-ton crane based at the Mid-Hants), driven by the cylinders (see below).

http://www.bdca.org.uk/gallery/index.php/Ransomes-and-Rapier/ADRR95216-Album/95216-MHR-3-7-2008-15

The slewing, or rotation, of the crane is engaged by driving one or other of the cone clutches on either side of the centre of the crankshaft, which the driver engages on a horizontal transverse threaded shaft on his right.

We can also see the jib brake on the driver's right, and in the foreground the rotary boiler feed pump, with which, in conjuction with a small live steam injector, they feed water to the boiler.

http://www.bdca.org.uk/gallery/index.php/Ransomes-and-Rapier/ADRR95216-Album/95216-MHR-3-7-2008-12

The drive engages with a slewing ring fixed to top of crane carriage, and the crane walks itself round, or slews about its kingpin as required. Both slewing and hoist functions have individual foot brakes at the driving position.

The crane can self-travel to a limited extent, by engaging travel clutches to the two central axles from ground level.

I hope this leaves you more aware of the crane's mechanisms. There is more to say, and I look forward to sharing that with you at a later time. When we have received sufficient donations to order materials and services to start the work—at the £1k mark—there will be more to report.

You will have gathered these mighty machines are in active use elsewhere, as ours was at Bluebell Railway between 1985 and 1992.

By Neil Cameron