



Photo: J. Mackett

Ryde train crossing the Medina bridge, headed by "02" class 0-4-4 tank engine No. W24, "Calbourne"

The MEDINA DRAWBRIDGE

J. MACKETT

THERE are many unusual items of railway architecture and engineering to be found hidden away on our fast-disappearing network of branch lines, and some deserve to be better known. One example is the unique hand-operated drawbridge over the River Medina at Newport Station, Isle of Wight. At first sight the Medina Drawbridge looks like an ordinary girder bridge. It was designed and built in about 1875 by Vospers of Gosport for the Ryde & Newport Railway and it then carried the single line to Ryde. In 1877 a second track was added for the Isle of Wight (Newport Junction) Railway from Sandown and it remained in this form until December, 1963, when the Sandown side was dismantled. The proceeds of the sale of the Sandown side as scrap are to be used to repair the remaining side!

Each of the three bridge spans is approximately 26 ft. 6 in. long and two of the spans are fixed. The third span can be tilted up and then drawn back into a cavity under the track bed. This span was originally in two parts, one for each track, and each section could be opened and closed independently. These movable sections were each supported on a pair of rollers at the shore end and were prolonged on to the embankment for a further 36 ft. The outer ends were each supported on a pair of cams which could lower the bridges on to two other pairs of rollers. A chain was attached to the underside of the outer end of each bridge and ran over a driving sprocket to a 10-cwt. counterweight housed in a pit. The drive from a

windlass was transferred to either pair of cams or to either driving sprocket by a four-position clutch. At least three men were needed for the windlass and four was the optimum number for very speedy operation.

At the time of construction the bridge had to be opened and closed many times a day and it needed its own signalbox to control it, the bridge mechanism being interlocked with the lever frame and with the tablet and token instruments. Following the closure of the Sandown line in 1956, this South Signalbox was closed too and the Ryde line bridge only was controlled. The bridge bolt lever is now housed with the bridge mechanism and is locked by its own release lever. The latter is locked in its turn by the bridge bolt release lever in the North Signalbox. This lever requires the insertion of the single-line token before it can be moved. The Sandown bridge remained free until its removal but it was normally kept closed.

Preparing to open the bridge is quite a complicated procedure. The first job is the disconnection of the signal wires and the unbolting of the fishplates. Meanwhile, the signalman withdraws a token, inserts it into the bridge bolt release lever and pulls it. This enables the bridge to be unbolted and allows the cams to be rotated, tilting the far end of the span upwards. The drive is then transferred to the sprocket and the counterweight is raised. The bridge runs back beneath the track by gravity. In later years there has been a tendency for the bridge to stick at times and it has been found



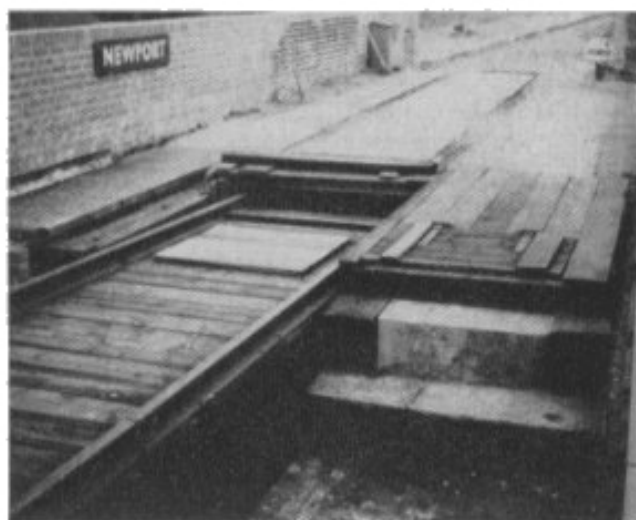
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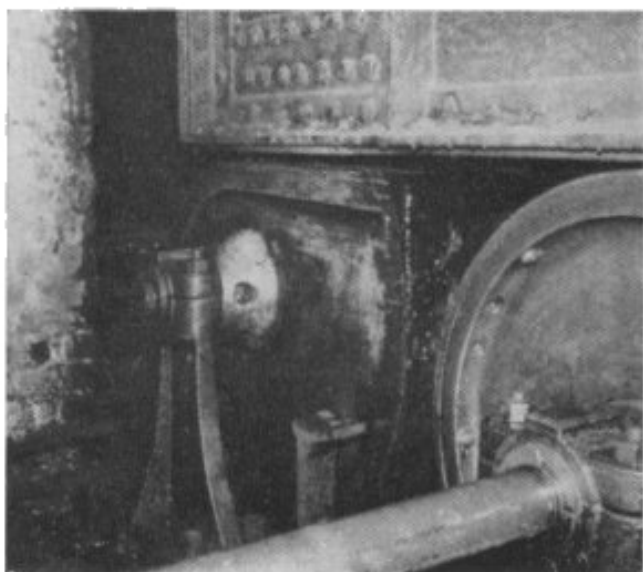
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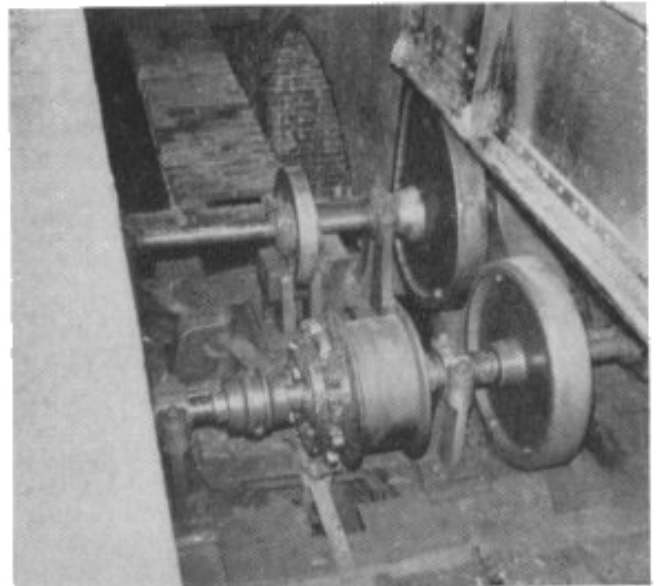
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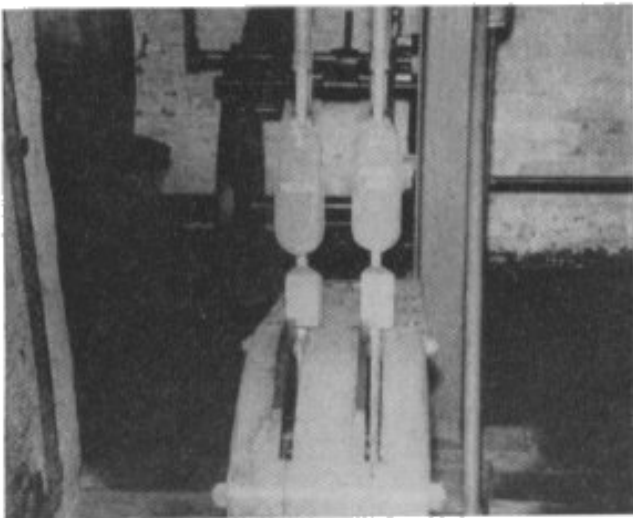
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Sequence of events in opening the bridge

The fishplates are unbolted (1) and the signal wires unhooked (2). The cams are rotated, lowering the bridge on to the rollers (3) and tipping up the other end (4). The bridge then runs back under the track bed (5) when the counterweight is raised. The procedure is repeated for the Ryde bridge and the way is now clear for the river traffic (6)

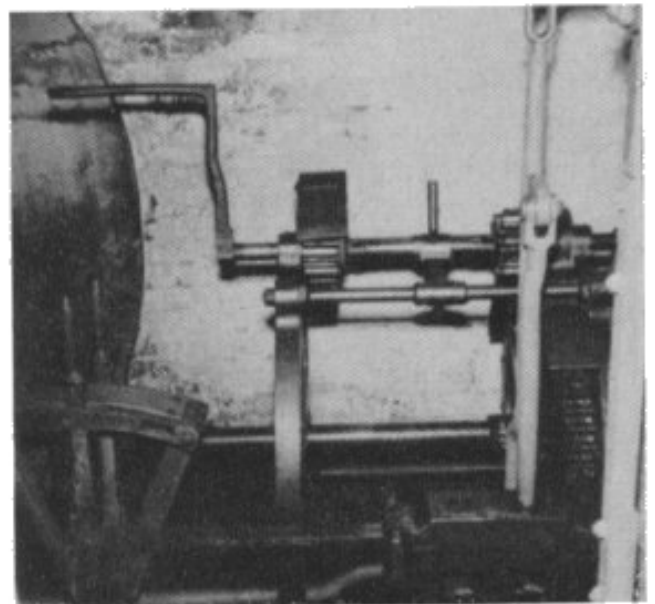


The Sandown Bridge and mechanism partially dismantled. In front is the driving shaft with clutch, sprocket drum for wire rope and free-running roller. Below the sprocket is the counterweight pit. Behind the camshaft is the cavity into which the bridge used to run



The bridge bolt mechanism

The release lever in the signalbox and (lower) the small lever frame under the bridge



The windlass with the clutch levers in the left foreground and part of the bridge bolt mechanism on the right

necessary to assist it by having a wire rope running from a drum by the driving sprocket to the far end. Until recently the whole process had to be repeated for the Sandown side.

When the bridge was first built the upper reaches of the River Medina were much used by small craft and it had to be opened as often as hourly through the day. As the lines had to be clear as far as 2½ miles towards Ryde and 4 miles on the Sandown line, it was no mean feat to fit the river traffic into a busy schedule on two single lines without causing delays to trains. Careful timing and speedy operation were essential. Nowadays, vessels

are larger and tend to berth downstream from the bridge so that it is a rare sight to catch it opening. In fact, there are few people living in Newport who even know that it can open at all! Soon, if the proposed closure of the Ryde to Cowes line takes place, it may be lost for ever from the railway scene.

I am indebted to Mr. G. H. R. Gardener, British Railways Assistant for the Isle of Wight, for his help, and to Mr. A. W. G. Smith, Stationmaster, Mr. A. L. Pullinger, formerly Station Foreman, and the staff of Newport Station who kindly arranged a special demonstration opening of the bridge for me.