

c/o Permanent Way Maintenance
Engineer's Office,
Bournemouth S.R.

31st January 1985

I am very amiss in not replying much sooner, at least acknowledging your very erudite letter on joint chairs, or more particularly 'bracket chairs'.

Since then, of course, I discovered L.S.W. examples on most of the older stopblocks! This Company, ever using up old rail, and every sort of iron and for all sorts of purposes, obviously found a good use for bracket chairs to attach buffer beams. There seems to be two types - photograph of one enclosed (for your retention). No more stopblocks have been scrapped recently, as we seem to have run short of them. So I have not been able to rescue a set. The L.S.W. did not cease using bracket chairs until 1860, I read somewhere, and this is borne out by Inspecting Officers' Reports - referred to as "wrought iron split chairs".

I have not seen any joint chairs with fishplates. The L.S.W. did not have a use for them, unusually, for another purpose. They did use old slide chairs (PS) for the doubled rails at the stopblock feet. Some of the rails is 75 lb, but 82 lb is more usual. The lift plates into adjacent sidings have to be seen to be believed!

Do I understand the earliest joint chairs were just that? The rails simply rested in them, no bolts, and not even keyed before Locke's time? Errington, the S.W. Resident Engineer (as he was called), said in the 1850s that the men were 'unaccustomed' to using nuts and bolts. I have a sketch of a joint chair with the rail ends held by one key. The base measures 12" x 4" - not very substantial for holding things together. One has to be very careful about referring to joint chairs, later on they referred to those chairs (heavier than intermediates) placed each side of a fishplated joint. Also, bracket plates re-appeared in the 1890s, this time meaning bracket fishplates! There is no doubt the Companies went rapidly over to fishplates as soon as they proved themselves reliable. The G.N.R. did this in 1856 I read.

LSWR (per Wilschaw 1842)

Gauge 4' 8 1/2" Intermediate space 6' 5" (6' 0" + 2 1/2" + 2 1/2" r.e.s)

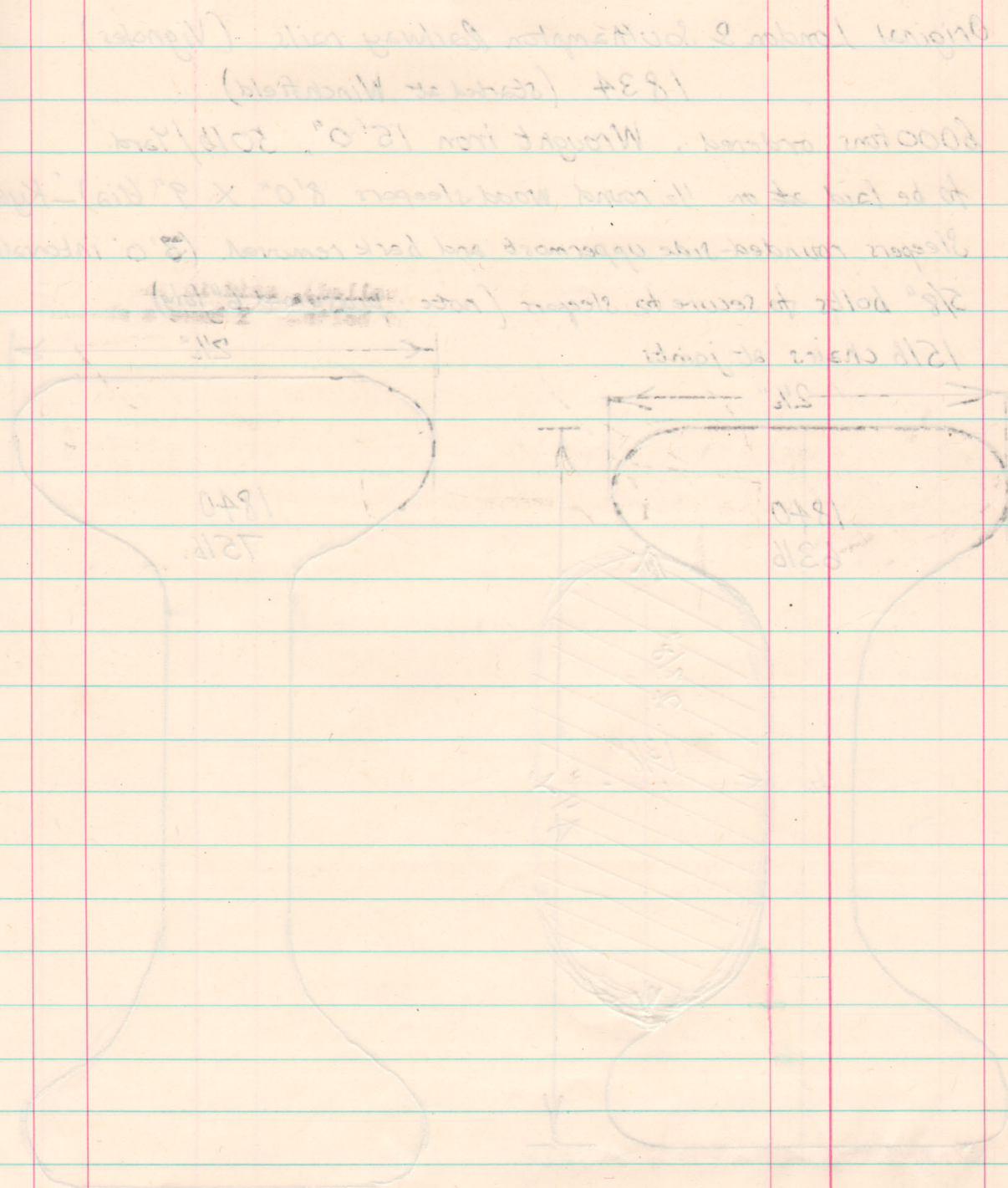
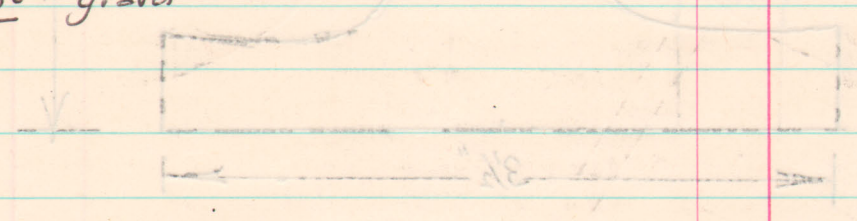
"Side" spacing 4' 7"

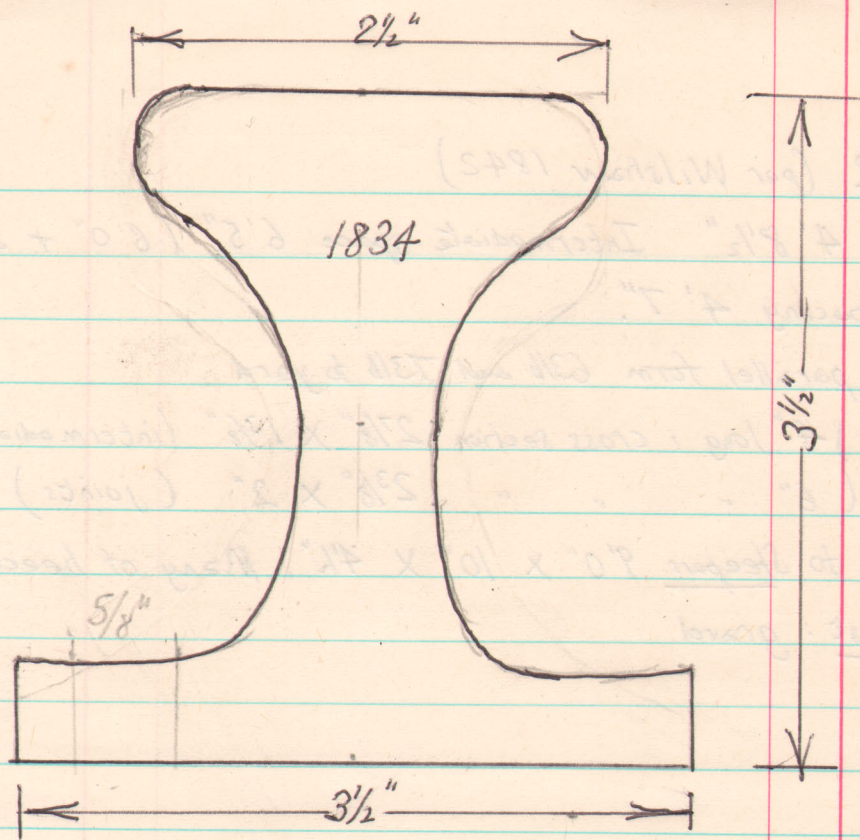
Rails: parallel form 63lb and 73lb to yard

Chairs } 4" long; cross section 2 7/8" x 1 3/8" (intermediate)
Key? { 6" " " " 2 3/8" x 2" (joints)

Spiked to Steepers 9' 0" x 10" x 4 1/2". Many of beech

Ballast: gravel





Original London & Southampton railway rails (Vignoles)
1834 (started at Winchfield)

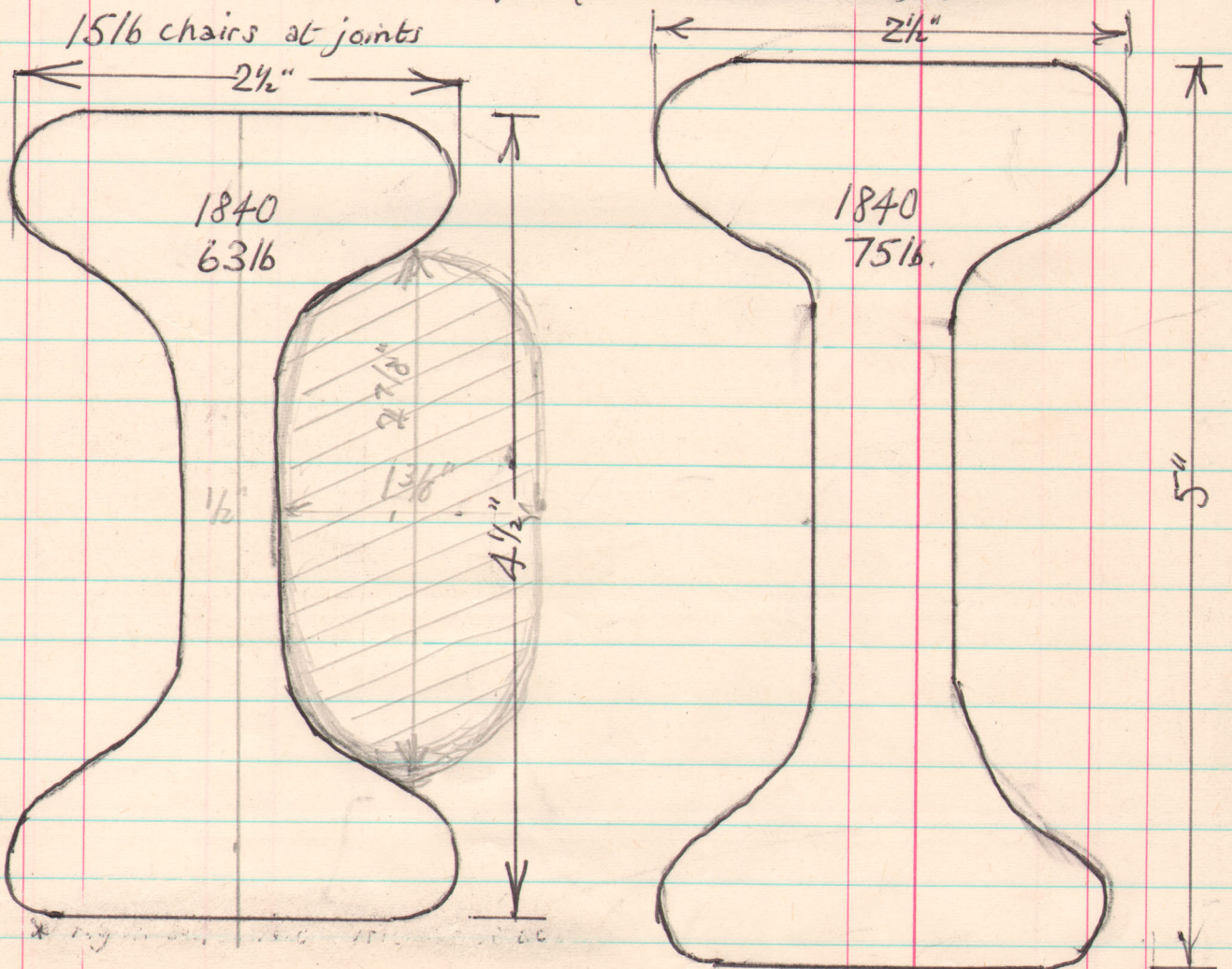
6000 tons ordered. Wrought iron 15' 0", 50 lb/yard.

to be laid ~~at~~ on 1/2 round wood sleepers 8' 0" x 9" (dia) - Kyanised*

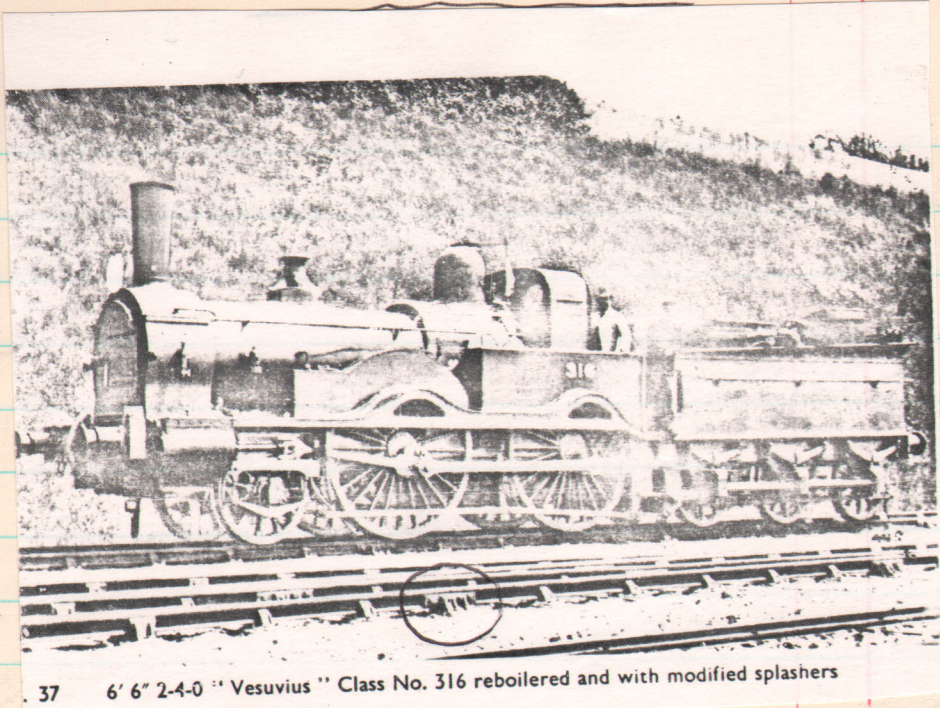
Sleepers rounded-side uppermost and bark removed. (3' 0" intervals)

5/8" bolts to secure to sleepers (note: presumed 6" long)

15 lb chairs at joints



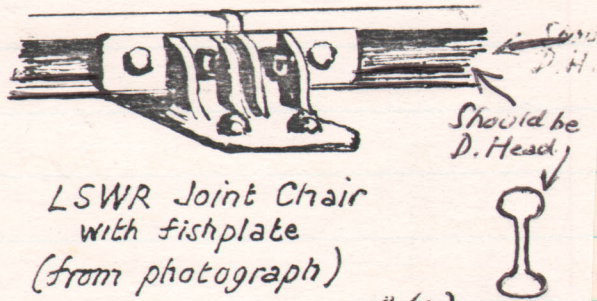
JOINT CHAIRS



37 6' 6" 2-4-0 "Vesuvius" Class No. 316 reboilered and with modified splashers

Rare photograph of joint chair: 21' 0" rails, c. 1850 in origin.

(1) material for Redbridge-Beaulieu Road
and Brockenhurst-Christchurch Road (Holmsley)
doubling. 1857.

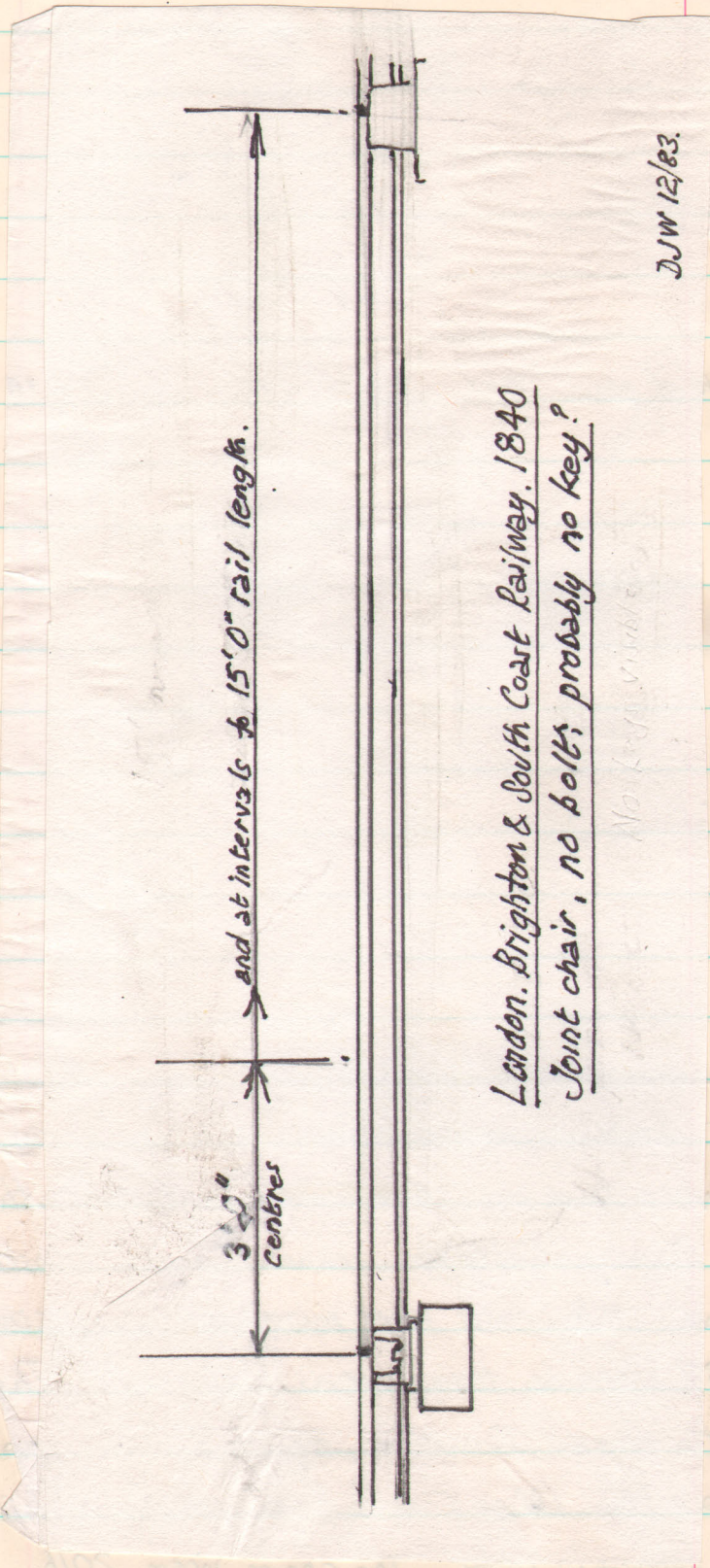
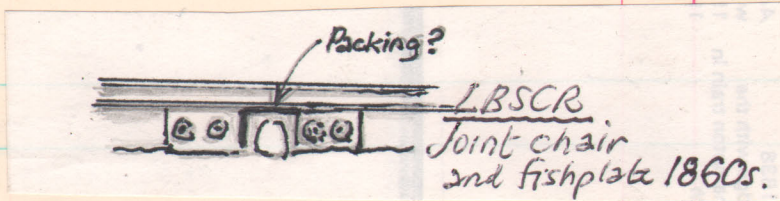


LSWR Joint Chair
with fishplate
(from photograph)

15" long: plates 22" (?)

'Brackets are bolted to rails by
four wrought iron bolts' (2)

◀ The Vignoles rails were reported replaced at an early date. It is understood some were laid on stone blocks[#] and that they were transferred to the Woking-Guildford branch on its construction. However 63lb and 75lb rails were introduced very soon (probably by Locke from 1837 when he took over as Engineer). These weights were used by him on the Grand Junction, together with chairs and keys. The completed main line (Nine Elms to Southampton) was laid in D.H. rail (CI) (?at 75lb) on final opening in 1840. The chairs were 20lb

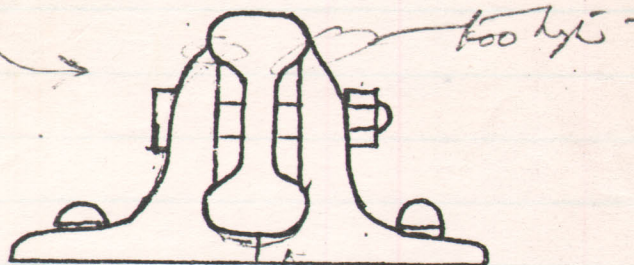
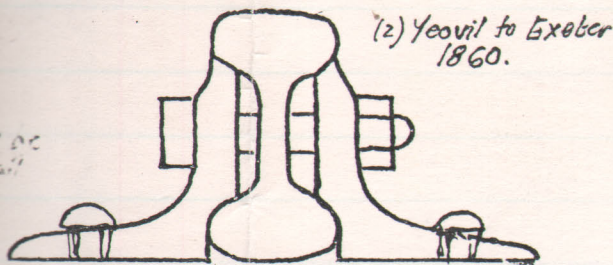




GWR Joint chairs at Weymouth 1905

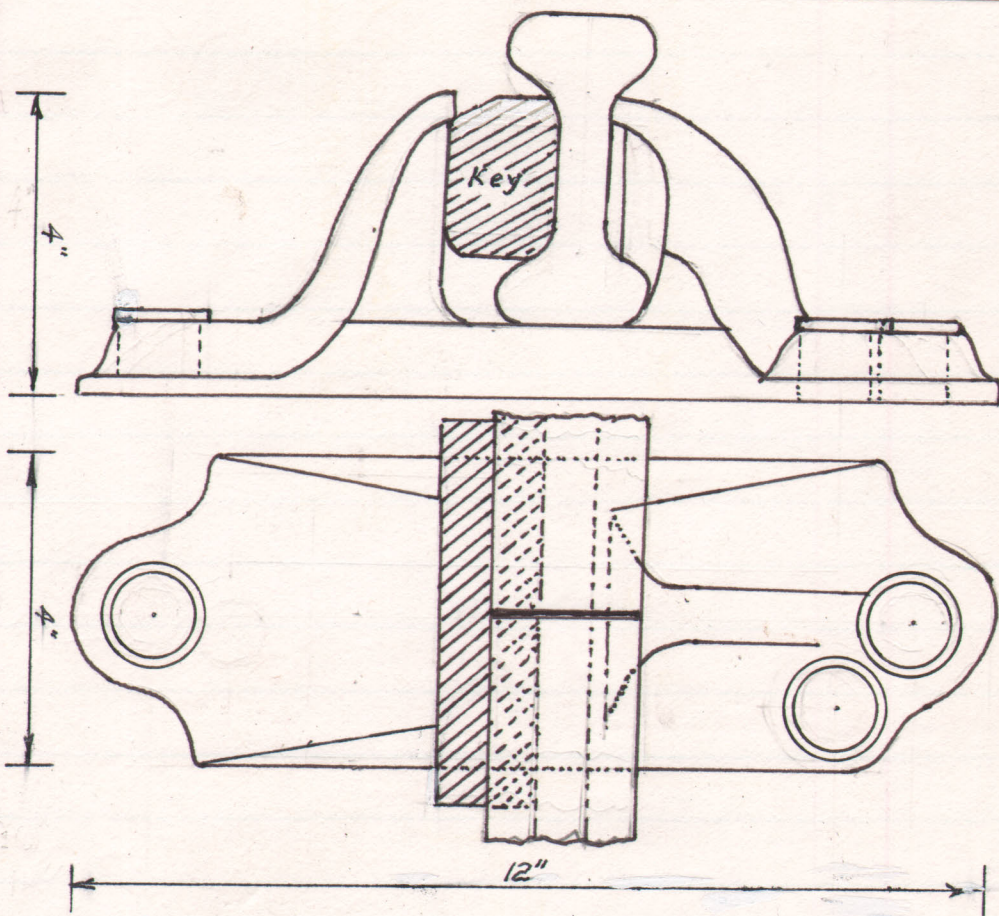
Wrought iron split chairs
 "each bracket is 20lbs (2)

First used Kingston 1855



Adams bracket chair
 W. Bridges Adams c 1853
 (not used by L.S.W.R. - see →)

L.S.W.R. full bottom (conjecture)
 2 parts
 underlying
 is thinner
 than shown

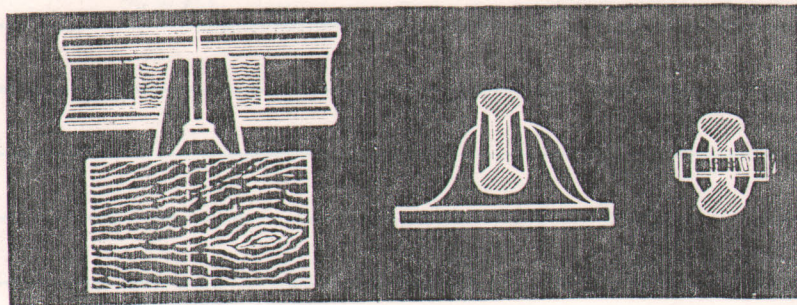


JOINT CHAIR c. 1840

See over page (Item 1)

DJW 1-84

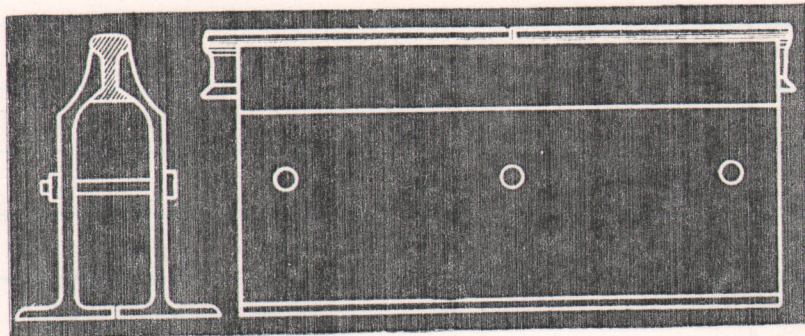
ILLUSTRATIONS OF EARLY JOINTS.



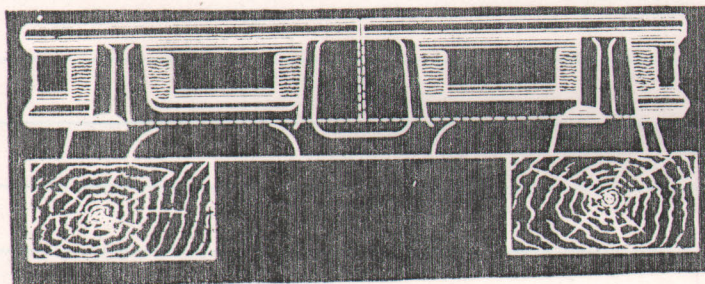
1.

3.

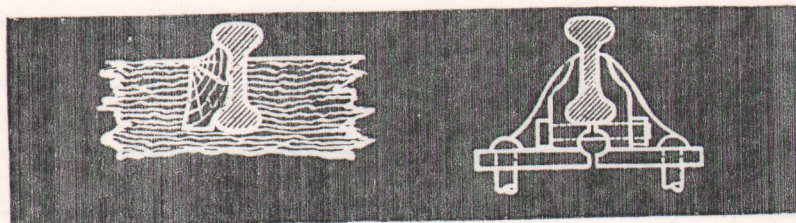
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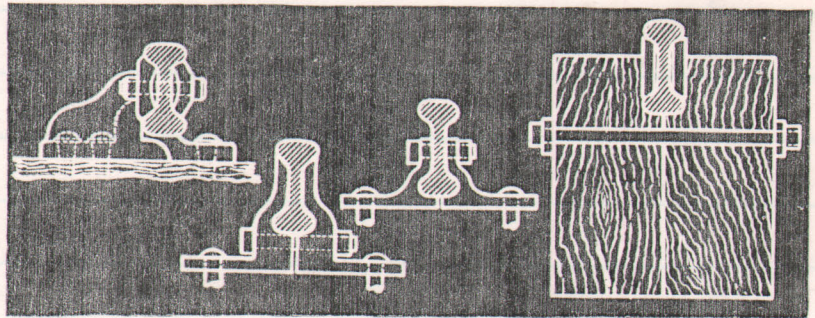
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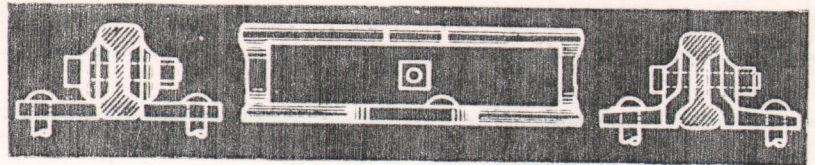
1. PRIOR TO 1835. JOINT CHAIR WITH WOODEN KEY. *Similar to previous page 15*
2. JOHN DAY, 1835. CHAIRS IN 2 HALVES BOLTED BELOW THE RAILS AND USED ON BALLAST OR ON SLEEPERS.
3. ADAMS & RICHARDSON'S, 1847. FISH JOINT, FISHPLATES SUPPORTED IN IRON CHAIRS.
4. D.H. RAIL WITH 4 BOLTS AND FISHPLATES.
5. FOWLER, 1849. JOINT CHAIR WITH THREE WOODEN KEYS.
6. PARSON'S, FEB. 1849. RAIL FIXED IN CROSS SLEEPERS WITHOUT CHAIRS.
7. BARLOW, JUNE 1849. HALF CHAIRS BOLTED BELOW THE RAIL, AND CLIPPING THE WEB AND BASE OF THE RAIL.

'Rails were not joined to each other in any way, further than having their ends resting in the same chair" W.B. Patey, 'Gentleman's Magazine' 1897 Vol 59, p.247. Referring to London & Greenwich Railway.

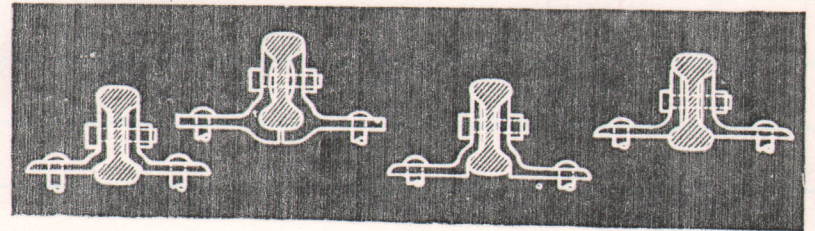
Illustrations of Early Joints—continued.



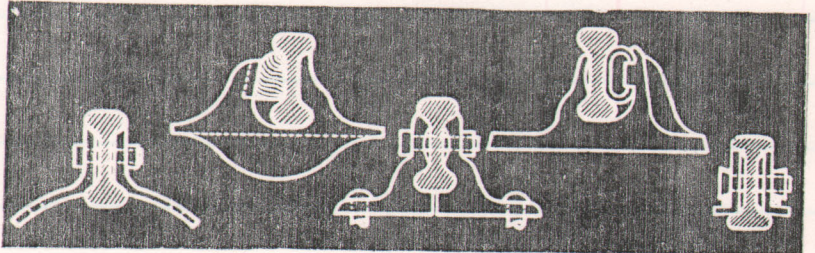
8. 9. 10. 11.



12. 13.



14. 15. 16. 17.

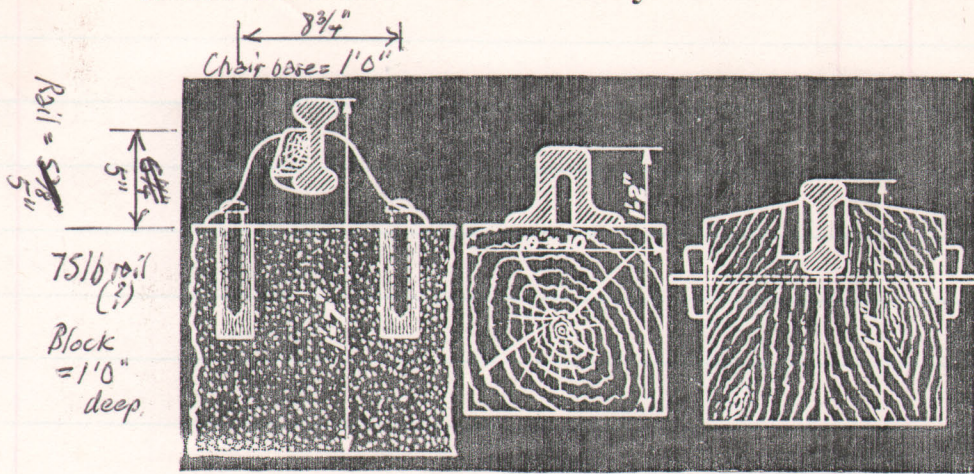


18. 19. 20. 21. 22.

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| 8. | APRIL, 1850. | SAMUEL'S FISH CHAIR. |
| 9. | ADAMS, JUNE, 1851. | HALF CHAIR SUPPORTING THE UPPER LIP OF THE RAIL AND BOLTED BELOW. |
| 10. | DOULL, OCT., 1851. | W.I. HALF CHAIRS BOLTED THROUGH RAIL, CLIPPING THE LOWER PORTION. |
| 11. | MANSELL, 1852. | WOOD FILE JOINT WITH SIDE PLATES. |
| 12. | MANSELL, 1852. | SOCKET JOINT OR COMBINATION OF 3 PARTS FORMING A DOUBLE JOINT WITH |
| | | OUT HOLES THROUGH RAILS. |
| 13. | ADAMS, FEB., 1853. | BRACKET JOINT BOLTED THROUGH RAILS AND FIXED TO SLEEPERS. * |
| 14. | ADAMS, 1853. | RAILS RECESSED IN W.I. SLEEPERS. |
| 15. | ADAMS, 1853. | BRACKET WITH UNDER LIPS FORMING A CHAIR. |
| 16. | WILD, MARCH, 1853. | D.H. RAIL WITH ANGLE PLATES: BOLTED THROUGH RAIL AND BASE. |
| 17. | LIDDELL, 1854. | SIMILAR TO NO. 16. BUT WITH SHALLOWER PLATES. |
| 18. | 1854. | D.H. RAIL, BOLTED BY C.I. SLEEPERS. |
| 19. | 1854. | WOOD LINE CHAIR. |
| 20. | 1855. | BARNINGHAM. |
| 21. | 1855. | BURLEIGH ELASTIC KEY. |
| 22. | 1856. | RECESSED RAIL SECTION FOR FISHES OR BRACKETS. |

* LSWR but with under lip - see previous page 15

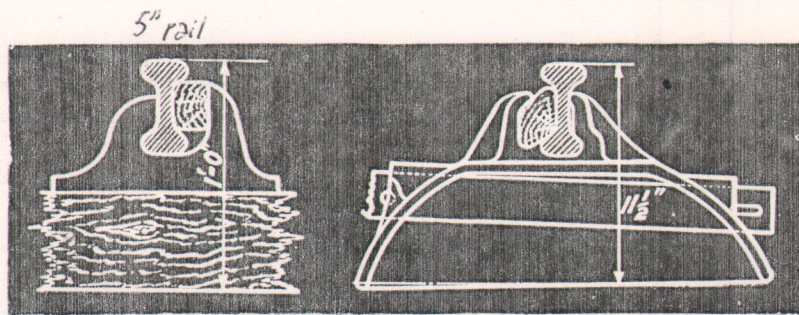
Head: 2½"
Illustrations of Early Joints—continued.



23

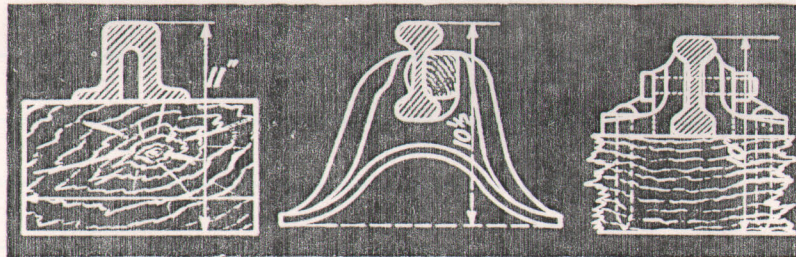
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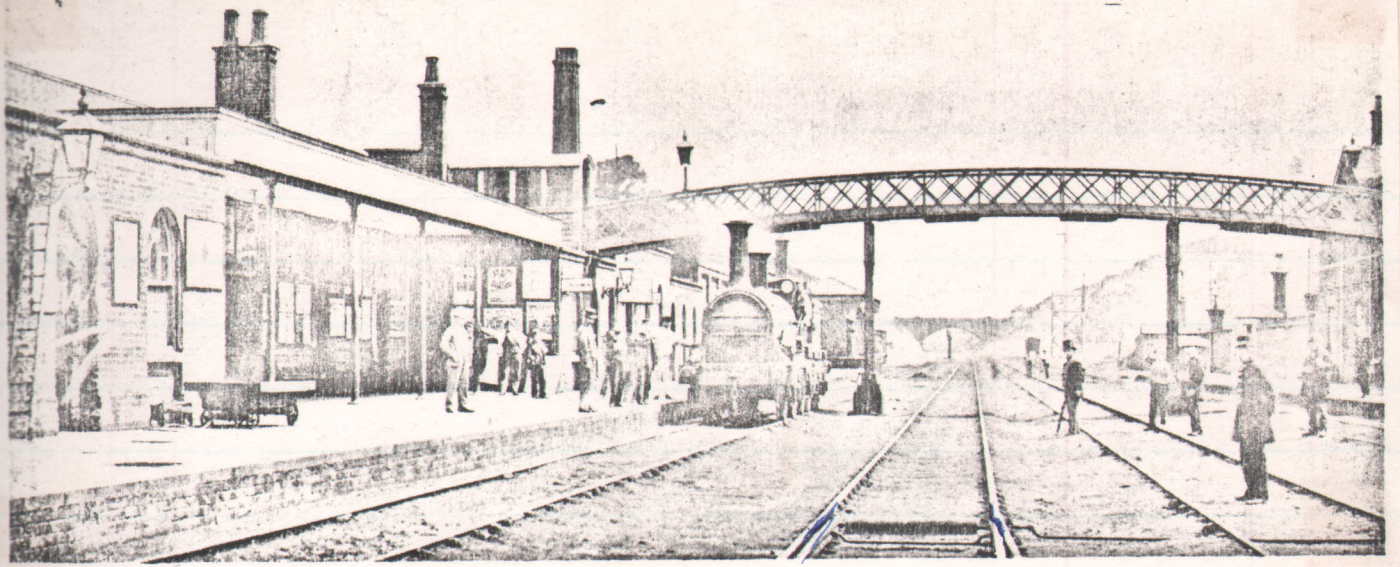
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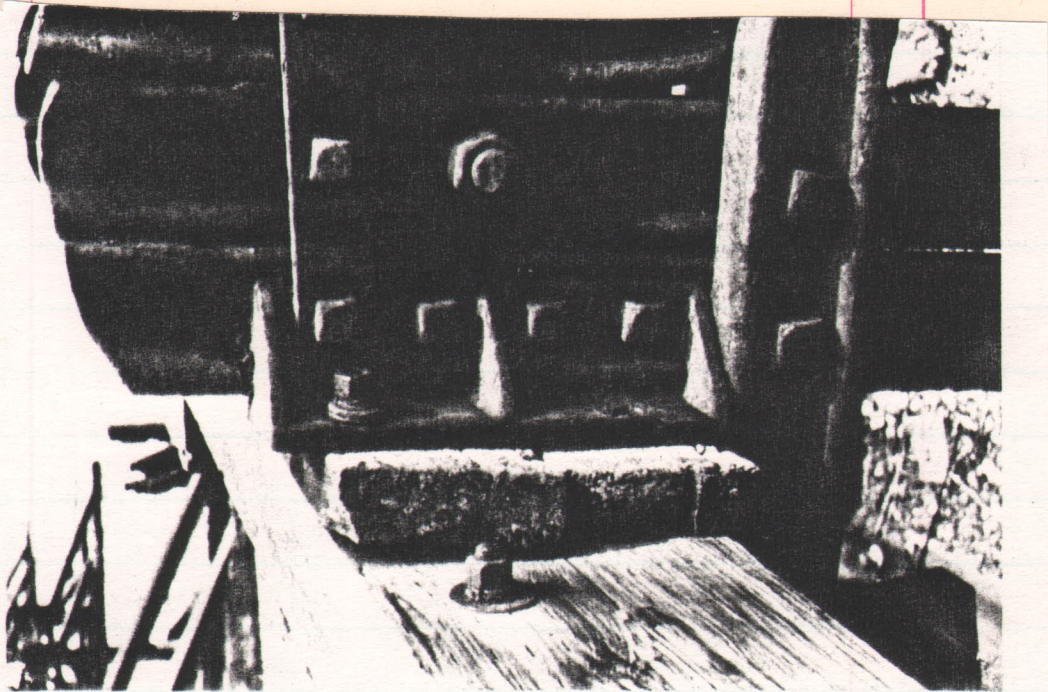
30

- | | |
|-----|---|
| 23. | STONE BLOCK SYSTEM. |
| 24. | BRIDGE RAIL. |
| 25. | MANSELL'S WOOD PILE. |
| 26. | CROSS SLEEPER AND CHAIR. |
| 27. | GREAVES, 1846. SPHEROIDAL CAST SLEEPERS OR POT-BOWLS. |
| 28. | BRIDGE RAIL. |
| 29. | BARLOW, 1849. C.I. SLEEPER AND WOODEN KEYS. |
| 30. | ADAMS. C.I. BRACKETS ON CROSS SLEEPERS. * |

* Similarly LSWR but with exp under lip. see p. 15



Great Northern Railway, Hitchin 1855-65 15' rails wrought iron
joggled rails at switches



Joint fishplate - bracketed under rails (82lb - but 75lb
originally) on single sleeper. Used up to 1860s. Buffers at Poole 1984

See p. 15
See p. 19
(Drawing)



20lb chair found at Totton, dating from 1850s.