

No. 141.



**TRAMWAY  
WORK  
SPECIALITIES**

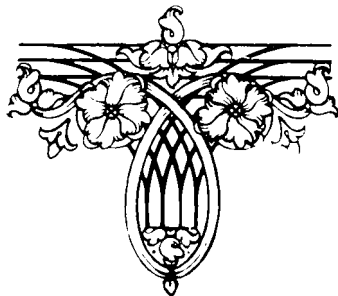
**HADFIELDS LTD**

*Hecla & East Hecla Works,*

**SHEFFIELD**

ENGLAND

# HADFIELD'S TRAMWAY WORK SPECIALITIES



1. Standard Points and Crossings. :: :: ::
2. New Layouts. :: 3. Replacements.
4. Curved Rails. 5. Car Wheels & Axles.

## HADFIELDS L<sup>TD</sup>

HECLA & EAST HECLA WORKS.

Telegrams  
HADFIELD SHEFFIELD.

### SHEFFIELD,

Telephone  
750 SHEFFIELD.

ENGLAND

WORKS AREA:  
OVER **200** ACRES.

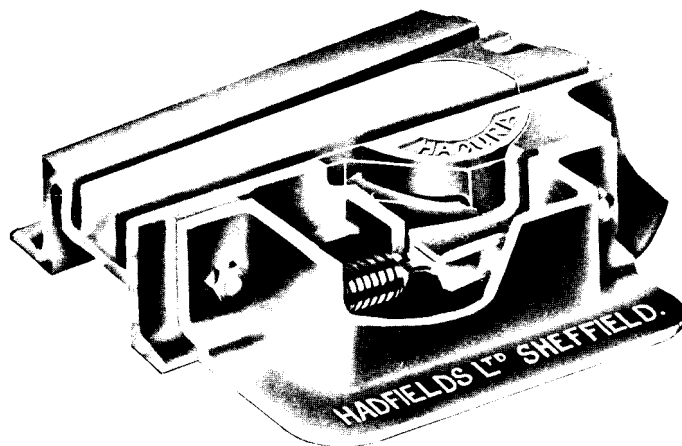
LONDON OFFICE:  
Norfolk House, Laurence Pountney Hill, E C 4.

WORKMEN EMPLOYED  
OVER **15,000**



# Hadfield's Patent "Hadura" Point

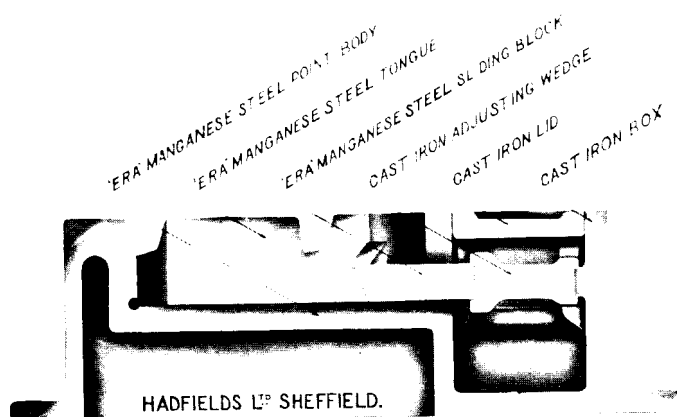
MADE OF HADFIELD'S PATENT "ERA" MANGANESE STEEL.



Shows Arrangement at Heel End of Tongue for automatically taking up any wear

## ADVANTAGES.

- (a) The heel end of the tongue has a larger bearing surface than that of any other point on the market, and, the tread being carried through the centre, the weight of the rolling load is better distributed and the wear more uniform.
- (b) The tongue is increased in depth from 2" to 3", thereby ensuring greater strength and rigidity.
- (c) The introduction of a sliding block, adjusting wedge, and spring at the heel end, which will automatically take up any wear.
- (d) The box containing the sliding block, &c., is also used for drainage purposes, so that the point is drained at both ends, and this, of course, facilitates the keeping of the tongue recesses free from silt, &c.
- (e) The heel or hinged end of the tongue is securely held down on its bearing surface by means of the sliding block.

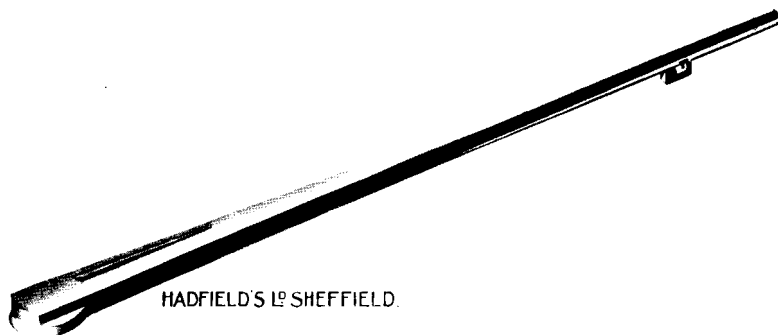
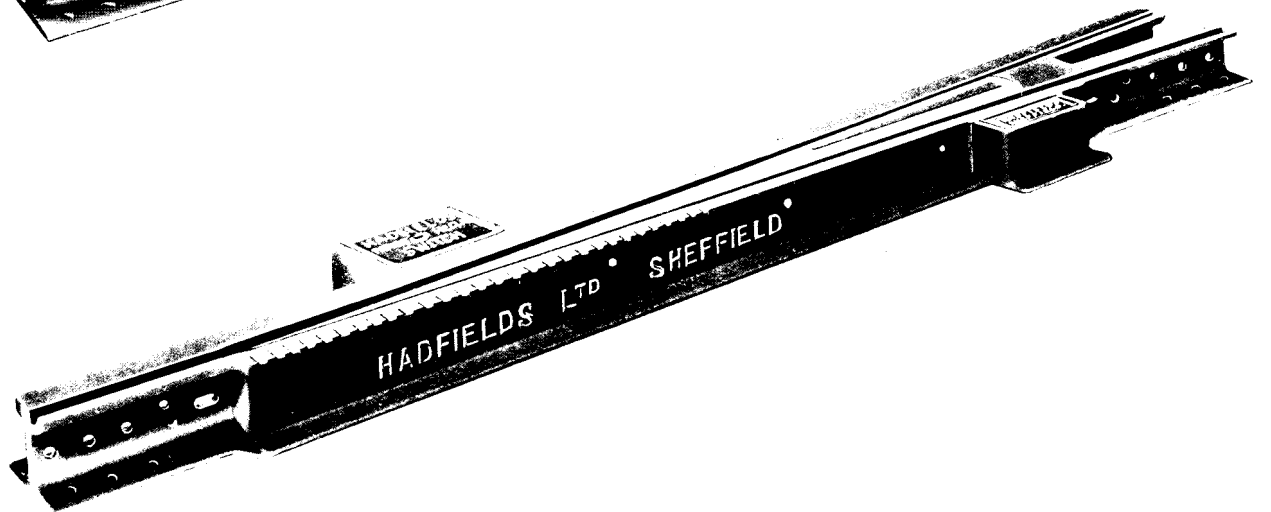
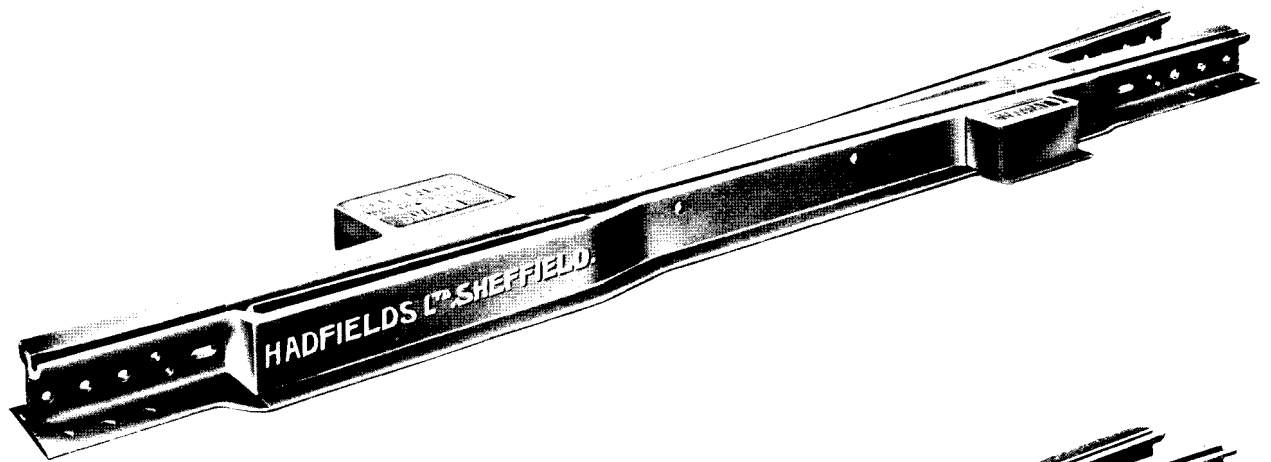


Section of "HADURA" Point at Heel End of Tongue.

# Hadfield's Patent "Hecla" Point

MADE OF HADFIELD'S PATENT "ERA" MANGANESE STEEL.

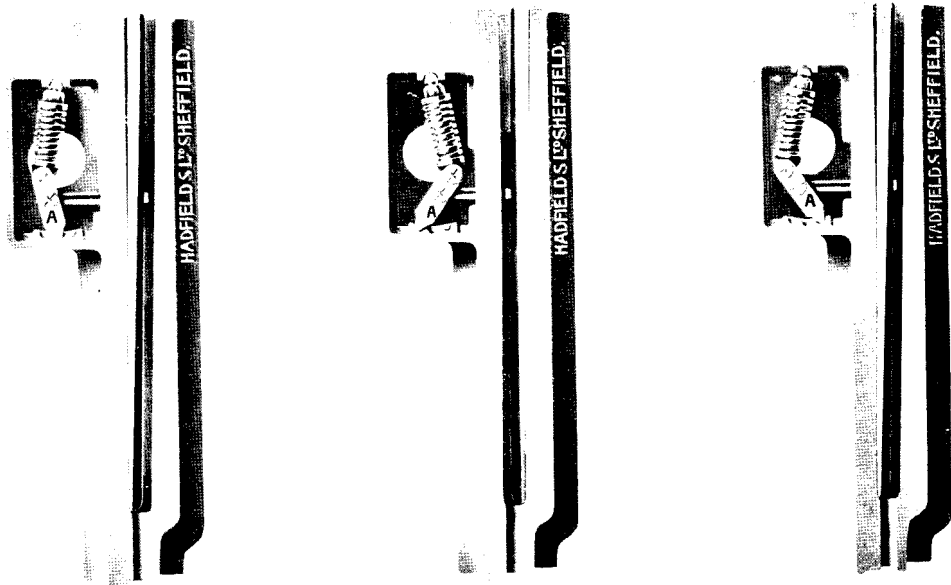
POINTS ARE FITTED WITH HADFIELD'S PATENT UNIVERSAL MECHANISM, AND CAN BE SUPPLIED WITH EITHER PLAIN OR GROOVED TONGUES AS DESIRED.



It was the custom at one time to fit a pin at the heel end of the tongue to prevent it lifting. This practice has now been discontinued in all Hadfield's movable points, as it was found that, owing to the small bearing area, this portion of the tongue wore very rapidly and, in time, sank below the level of the rest of the point.

# Hadfield's Patent Universal Tramway Point Mechanism.

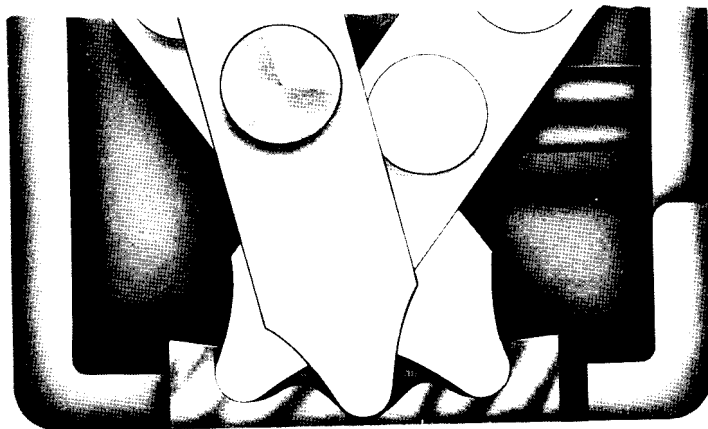
The mechanism can be altered to suit either of the three operations shown, by merely shifting the rocking lever into the required pocket with an iron bar. This mechanism is the perfection of simplicity and cannot easily get out of order.



MOVABLE POSITION.

AUTOMATIC PUSHING POSITION.

AUTOMATIC PULLING POSITION.



HADFIELD'S L<sup>TD</sup> SHEFFIELD.

MOVABLE POSITION.

AUTOMATIC PUSHING POSITION.

AUTOMATIC PULLING POSITION.

# Standard Tramway Points and Crossings.

Crossovers, Turnouts and Loops necessitate considerable numbers of STANDARD POINTS and CROSSINGS, and for all the British Standard Tramway Rails Hadfields can usually supply from existing patterns, e.g.:—

Points 12' 0" long	·	100'	lateral radius.
.. 12' 6" ..	·	150'	.. ..
.. 13' 6" ..	·	200'	.. ..
.. 12' 0" ..	·	200'	equilateral radius.
.. 13' 0" ..	·	300'	.. ..

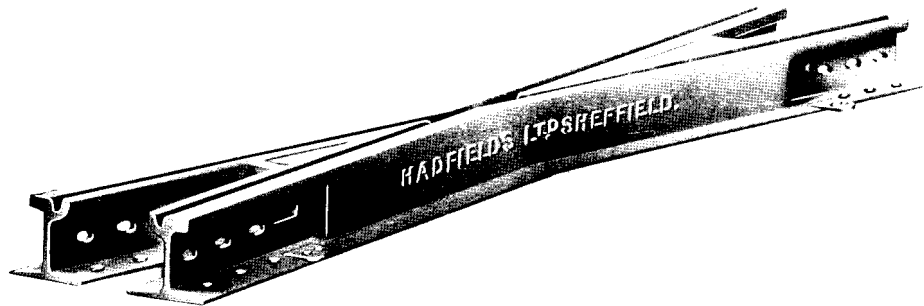
Crossings, angle 1 in 5
.. .. 1 in 5½.
.. .. 1 in 6.

Therefore prompt delivery can be relied upon, and in many cases HADFIELDS are able to illustrate how standards may be successfully utilized and expensive new patterns avoided. HADFIELDS can be of considerable assistance to tramway authorities in standardizing their track.

# Tramway Crossings.

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SOLID CAST CROSSINGS IN  
HADFIELD'S PATENT "**ERA**" MANGANESE STEEL  
ARE EXTREMELY DURABLE. AND GIVE LONG LIFE.



N.B. "**ERA**" MANGANESE STEEL CASTINGS AND FORGINGS · RECEIVE · SPECIAL · HEAT · TREATMENT, AND MUST NOT BE RE-HEATED IN ANY MANNER.



# Unbroken Main Line Crossings

OF

HADFIELD'S PATENT "**ERA**" MANGANESE STEEL

ARE RECOMMENDED FOR CROSSINGS  
:: THAT ARE INFREQUENTLY USED ::



NOISE & JOLTING OF CARS ARE ENTIRELY AVOIDED.  
LIFE OF CAR WHEELS CONSIDERABLY INCREASED.

# Special Tramway Track-work

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HADFIELDS are splendidly equipped for dealing with the most intricate Tramway Track-work, and they are in a position to manufacture and supply complete the largest lay-outs ready for placing on the site.

They have:—

- A. A large Drawing Office with a competent staff, several members of which have had years of experience in Tramway Work—in fact, they are specialists in this particular line.
- B. A number of experienced surveyors.
- C. A large “setting-out” floor.
- D. A modern Pattern Shop.
- E. The largest Steel Foundry under one roof in the world.
- F. Machine Shops with plant specially designed for dealing with Tramway Work.
- G. An extensive Lay-out Ground.

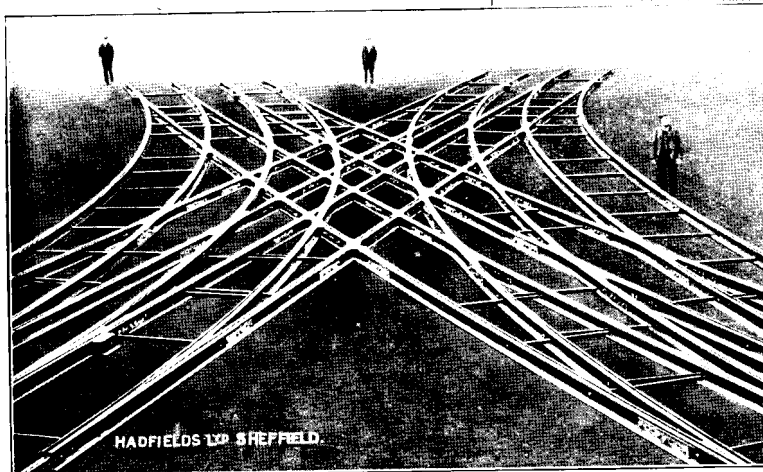
HADFIELDS can advise in all permanent way problems, and enquiries and orders have expert attention.

# Special Tramway Track-work.

HADFIELD'S PATENT "**ERA**" MANGANESE STEEL COMBINES EXTREME HARDNESS WITH GREAT TOUGHNESS, AND IS THE SUPREME MATERIAL FOR POINTS, CROSSINGS, CURVED RAILS, Etc., WHICH ARE SUBJECTED TO SEVERE SERVICE.

SPECIAL TRAMWAY TRACK WORK FOR CAR DEPOT AS SUPPLIED TO THE GLASGOW CORPORATION TRAMWAYS.

ALL THE POINTS & CROSSINGS ARE OF HADFIELD'S PATENT "**ERA**" MANGANESE STEEL.

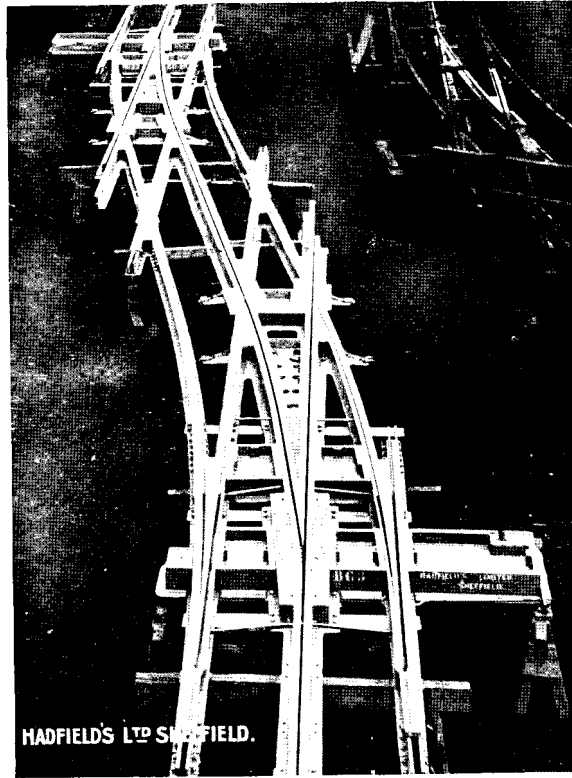


See illustration on page 16 of Sheffield's largest and most important Junction.

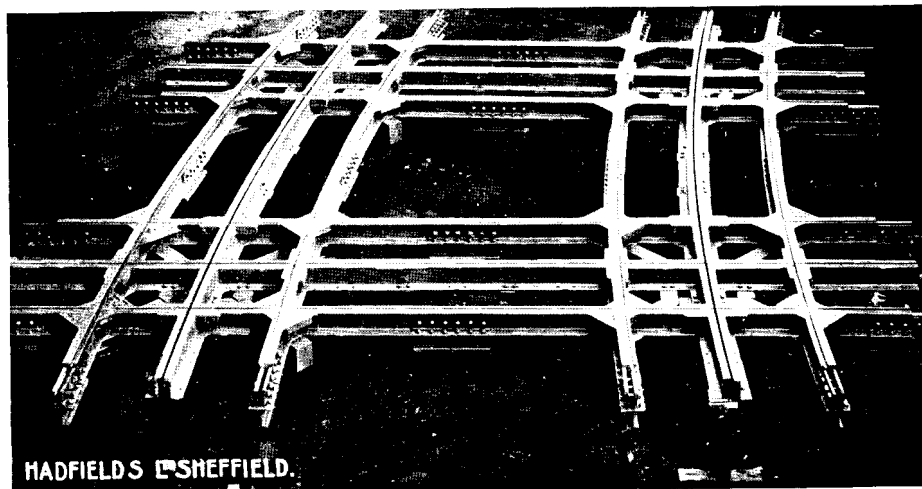
SPECIAL TRACK-WORK OF HADFIELD'S PATENT "**ERA**" MANGANESE STEEL, CONSTRUCTED FOR NEWCASTLE-UPON-TYNE TRAMWAYS.

# Special Tramway Track-work.

LEFT-HAND  
CROSSOVER  
FOR  
LONDON  
COUNTY  
COUNCIL  
TRAMWAYS.

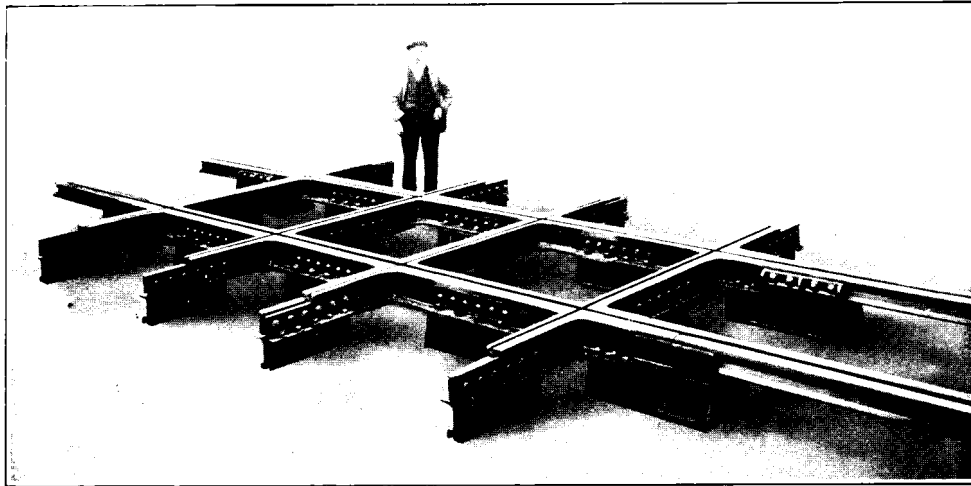


POINTS AND  
ALL INSERTS  
ARE MADE OF  
HADFIELD'S  
PATENT  
"ERA"  
MANGANESE  
STEEL.

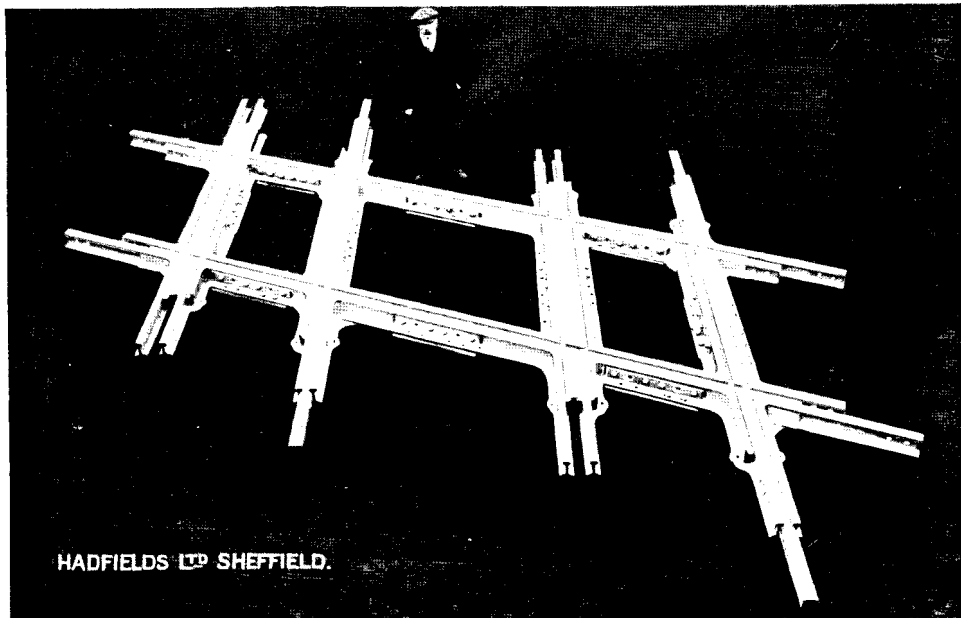


COMBINED TRACK AND SLOT CROSSINGS FOR LONDON  
COUNTY COUNCIL TRAMWAYS. CONSTRUCTED  
BY HADFIELDS AT THEIR WORKS.

# Special Tramway Track-work.



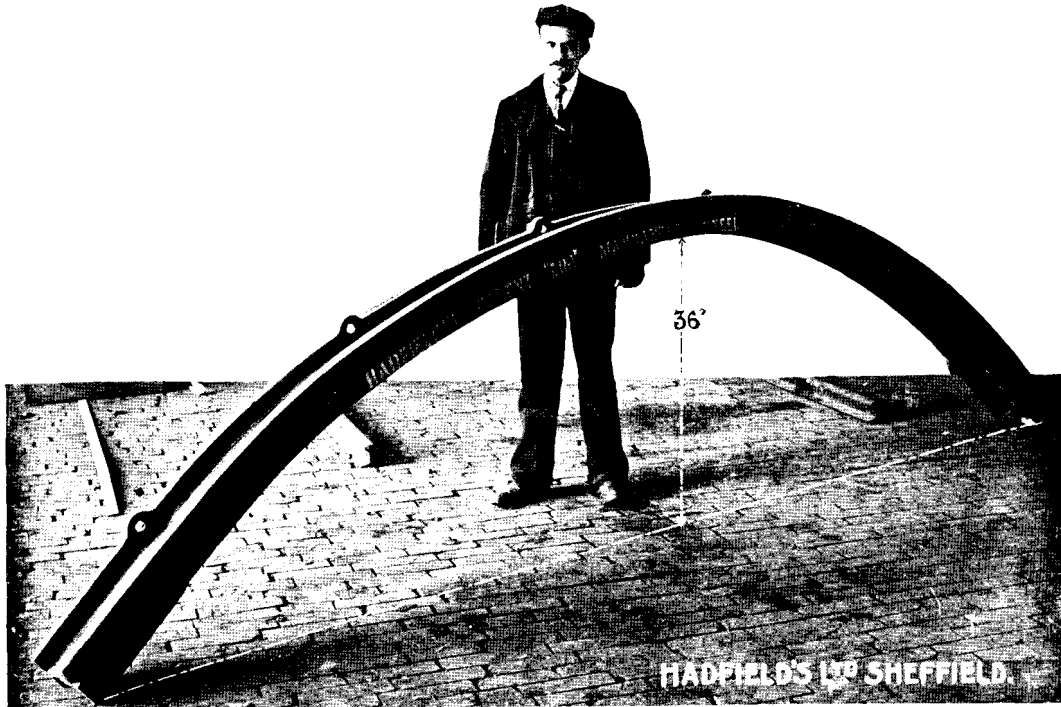
SPECIAL TRAMWAY AND RAILWAY CROSSING OF  
HADFIELD'S PATENT "**ERA**" MANGANESE STEEL.



SPECIAL CROSSING OF  
HADFIELD'S PATENT "**ERA**" MANGANESE STEEL  
FOR THE ANTWERP TRAMWAYS.

# HADFIELD'S Patent "ERA" Manganese Steel

IS SUPREME FOR SHARP CURVES.



RAIL 15 FEET IN LENGTH. BENT COLD.

HADFIELDS construct and supply curves complete ready for the site. The Rails are of HADFIELD'S PATENT "**ERA**" MANGANESE CAST STEEL, and where there are severe traffic conditions they give a maximum life with a minimum of upkeep expenses.

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*Extract from a Customer's recent letter:*

"This curve was supplied in 1911, and in my opinion has been very satisfactory."

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N.B. "ERA" Manganese Steel Castings and Forgings receive special heat treatment, and must not be re-heated in any manner.

HADFIELD'S STEEL-TYRED  
Tramway Wheels and Axles.



HADFIELD'S LTD SHEFFIELD.

The Tyres are secured by Hadfield's "Lock-fast" Method.

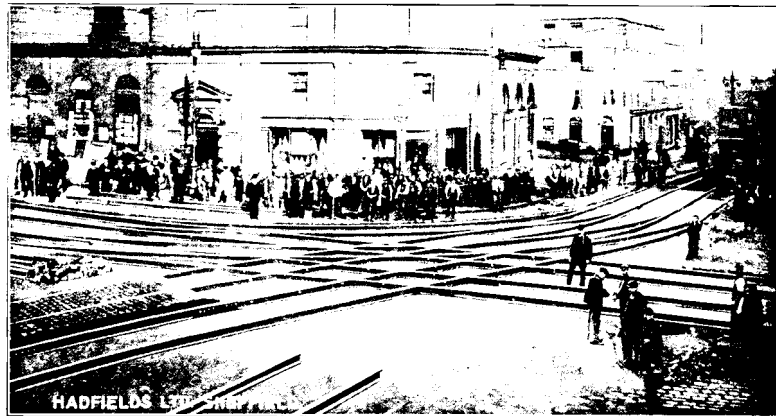
HADFIELDS manufacture CAR WHEELS AND AXLES, and can give reasonable deliveries. The centres are of an improved design, and made from a grade of BEST TOUGHENED CAST STEEL which years of experience has proved to be entirely suitable for the purpose. The tyres, as well as the axles, can be relied upon to give the maximum life.

HADFIELD'S STEEL-TYRED WHEELS—

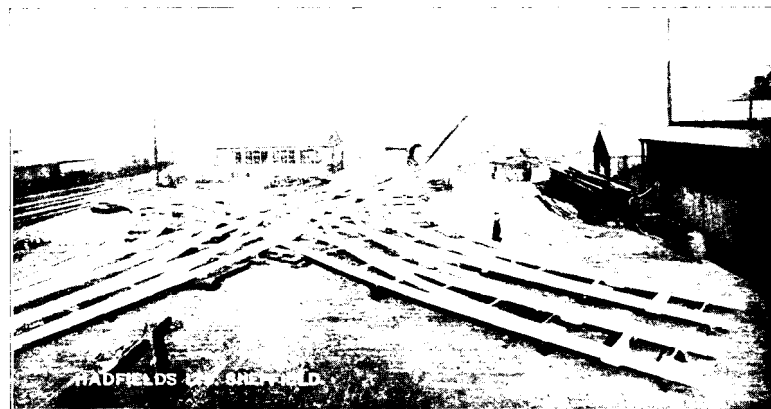
- (a) Are absolutely reliable.
- (b) Are resilient and give very sweet running.
- (c) Keep free from flats.
- (d) Have a great braking efficiency.
- (e) Keep the cars in constant service.
- (f) Have tyres that are interchangeable and renewable.
- (g) Reduce the cost of maintenance per car mile to a minimum.

# Sheffield's Largest and Most Important Junction.

These Junctions were constructed by HADFIELD'S at their works, and are made entirely of HADFIELD'S PATENT "**ERA**" MANGANESE STEEL, the Supreme Material for Tramway Track-Work, &c.



This photograph was taken prior to the lay-out being dismantled after undergoing service for a period of over SIX YEARS. It was laid down in SEPTEMBER, 1901 (the first car passing over on the 30th of the same month) and taken up on OCTOBER 5th, 1907. During that time 5,524,312 cars had passed over this particular junction. The average weight of cars was 10 TONS each, which makes an aggregate of 55 MILLION TONS of traffic.



Photograph taken in HADFIELD'S WORKS, showing REPLACE JUNCTION ready for placing in position. CONSTRUCTED OF HADFIELD'S PATENT "**ERA**" MANGANESE STEEL.