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MADRAS RECORD OFFICE

Government of Madras

Public works.

DEPARTMENT

G.O. No.	718	Press
B.P. No.		Mis.
436-437		
Dated	16-3-1874	195-

Not to be folded or roughly handled

*Proceedings of the Madras Government, Public Works Department,
16th March 1874.*

No. 436. Read the following letter from W. J. ADDIS, Esq., C.E., to Colonel G. W. WALKER, R.E., Secretary to Government, Public Works Department, dated 33, Meadow Street, Bombay, 19th February 1874:—

WITH a view to meet any immediate want of the famine districts in the Madras Presidency, I take the liberty of forwarding to your address a few papers in connection with my system of single rail tramway for your consideration.

2. I am prepared to undertake the supply of a few miles of rails from 20 to 28 lbs. per yard, as this is the section I have made use of for my tramway. If, however, a large quantity be required, I will be able to supply a longitudinal wooden sleeper, combining rail chair, key, and fish plate at from 2 to 3 miles per day, and at a cost of Rupees 3,700 per mile, delivered at the Bombay Railway Station, or at any bundar for transmission by steamer or boat. Carts or vans to suit the several kinds of goods can also be supplied at Rupees 325 each.

3. You will be pleased to observe that a cart on my system can be drawn by one pair of bullocks with a load of 3 tons.

4. The tramway can be laid down at the rate of a mile a day by forty ordinary coolies, and can be constructed where no road exists.

5. In case of there being no return traffic the guide wheels can be at any time worked up by the screw attached to the bogee wheel so as to be clear of the rail by 6 or 12 inches, taking advantage of the ordinary road or common cart track.

6. Another very great advantage in my system of tramway is that the rail being laid, so to speak, in the middle of a track, does not in any way interfere with the feet of the cattle, as they walk on either side, or follow the usual old cart track.

7. I may here mention that more than 60 miles of tramway on my system (single rail) has been laid in Lisbon, and is at present being worked by steam power.

No. 437. ORDER THEREON, 16th March 1874, No. 718.

CIVIL WORKS, No. 41.

MR. ADDIS's offer is declined with thanks, as the Government are not prepared to lay out Rupees 4,000 a mile or upwards (without rolling stock) for a tramway of the description he recommends.

(True Extract.)

Colonel, R.E.,
Secretary to Government.

To Mr. W. J. Addis.

Exd. E. C. Shunker.
Spare Copies

ADDIS'S SINGLE-RAIL TRAMWAY.

Bombay, June 20th 1870.

DEAR SIR,

I have much pleasure in bearing my testimony to the value of your Single-Rail Tramway.

It is absurd to compare it with a Railway. Its merit appears to me to be that, for a sum not exceeding that of an ordinary metalled road, a Tramway on your principle can be laid on which one pair of bullocks can draw a load equal to or exceeding that which three pairs can draw upon an ordinary metalled road.

I have seen the Tramway repeatedly in operation under unfavourable circumstances, and it appeared to me to work with no difficulties and with perfect success.

Yours faithfully,

W. G. PEDDER, B. C. S.

To

W. J. ADDIS, Esq., C. E.

ADDIS'S SINGLE-RAIL TRAMWAY.

ADDIS'S SINGLE-RAIL TRAMWAY.

Extract from "ENGINEERING," 18th March 1870.

"MR. W. J. ADDIS, Civil Engineer in the Bombay Presidency, has somewhat distinguished himself by his inventions connected with the laying of Permanent-way, and quite recently he has gone ahead far in advance of the advocates of light railways and narrow gauges by the construction of a short railway having only a single line of rail, and, although it hardly appears to possess great capabilities for any high rate of speed, it may claim, to a limited extent, the advantage of a Tramway for lightening draught, whilst the expense of laying it down is but small compared with the advantages which it seems to possess."

* * * * *

[wear and tear of frame on the road, will be

ADDIS'S SINGLE-RAIL TRAMWAY.

No. 85.

To

W. J. ADDIS, Esq., C.E.,

Dated Callian, 22nd June 1870.

SIR,

I am in receipt of your letter of the 21st instant, requesting a report from me on the practical success of your Single-Rail Tramway at this place.

In a few words, I have to state that, in my opinion your invention is a complete success. Situated as I am, I have frequently witnessed the working of your Tramway, and I have observed an ordinary pair of bullocks convey with ease the load of four country carts. This I can testify to as an eye-witness. Another very great advantage in this Tramway is that it confines itself to a very limited space, and thus avoids any possibility of the road being blocked by excess of traffic, so that whilst one portion of the road is devoted to the transit of goods, the rest is left entirely free for passengers' traffic. This I consider to be the chief recommendation, for it is not only a source of convenience to passengers of all descriptions, but it is a security against accidents through the overcrowding of the road.

There are other advantages in connection with your Tramway, which can be better described by an Engineer; but nevertheless it is obvious, that since the entire weight of the cart used on this Tramway does rest on the Single Rail, the wear and tear of traffic on the road will be very much reduced, and I think I am not wrong in surmising, that in emergent cases, your Tramway can be laid down at a very short notice, and worked across country, and over fields, with the assistance of a very little levelling, provided the soil is not unusually soft or sandy.

I have the honour to be, &c,

G. COSSERAT,

Imperial Inland Customs Department.

ADDIS'S SINGLE-RAIL TRAMWAY.

No. 85.

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W. J. ADDIS, Esq., C.E.,

Dated Callian, 22nd June 1870.

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I have the honour to be, &c,

G. COSSERAT,

Imperial Inland Customs Department.

ADVANTAGES
OF
ADDIS'S SINGLE-RAIL TRAMWAY.

1. It can be laid down on one or both sides of any existing road, at a distance of from three to four feet from the edge of the road.

2. Where no road exists, it can be laid down very well, and quite good enough for ordinary traffic, by ballasting a strip eighteen inches wide.

3. It can be laid down very rapidly: forty men can lay a mile of it down per day with the greatest ease.

4. It is very cheap: the cost on an existing road, including rails, sleepers, nails, &c. &c., and four carts—each capable of carrying three tons—being not more than Rs. 5,000 (five thousand) per mile. The cost on a road to be made on purpose would be very little more, the extra cost being necessary on account of the little ballasting noticed in para. 2.

5. Upon it, a single pair of bullocks can draw from four to six times as much as in a common cart on an ordinary road.

~~It is not necessary to have any special machinery for laying the rails, as they can be laid by hand, and the carts can be used for the purpose.~~

7. Should it get out of repair the most ordinary village workman can put it to rights. Should the carts also get out of order the same thing is true.

8. It can accommodate itself to the sharpest curves ever met with in ordinary roads, and even in those which would be met with in the streets of a town.

W. J. ADDIS, C.E.,
Patentee.

~~Patent~~ 1st January 1870.

Bombay.

ADDIS'S SINGLE-RAIL TRAMWAY.

Extract from "THE ENGINEER."

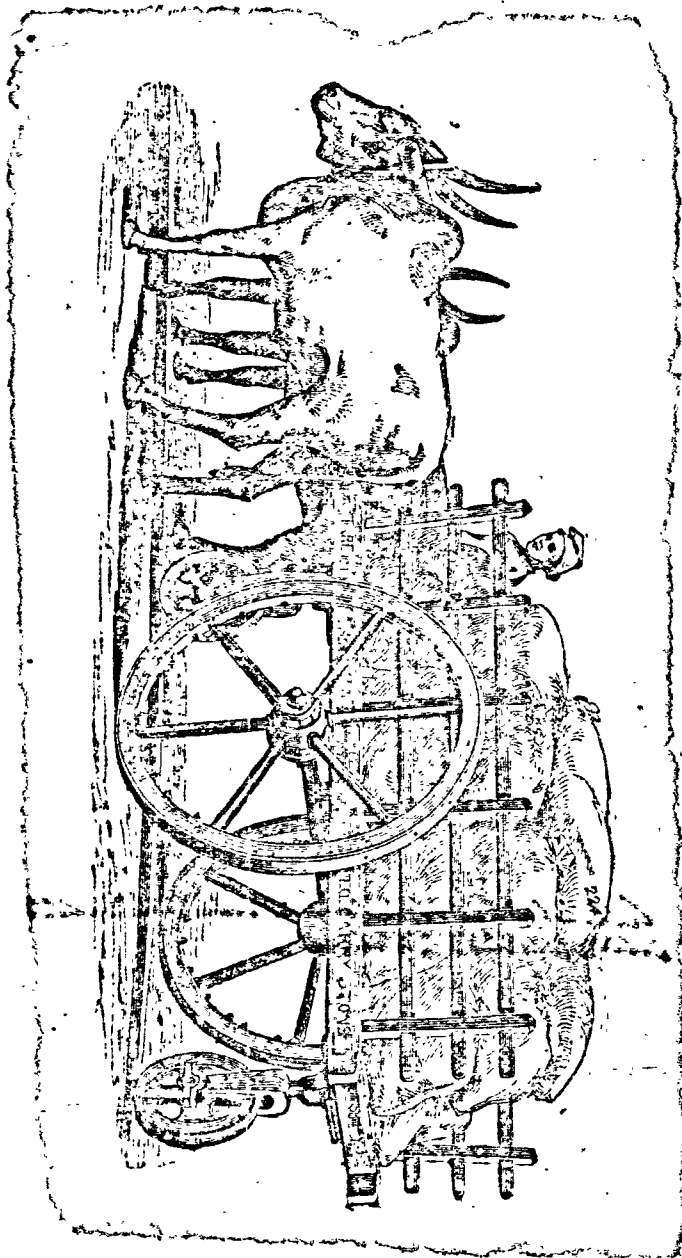
Dated 17th June 1870, page 377.

"We have much pleasure in calling the attention of our readers to the very ingenious arrangement of Tramway and vehicle, the invention of Mr. W. J. Addis, C.E., of Bombay. We have here an Indian bullock cart of peculiar construction, loaded with three tons, and drawn with ease by two of the little country bullocks, equal each to about half a pony-power. The principle involved is excessively simple. A Tramway is laid with a single rail, and on this are run vehicles of all kinds, fitted with two bearing wheels, which take all, or nearly all, the weight; and ordinary wheels, which hardly serve to steady the machine, and prevent overturning.

The advantages are that the cost of the Tramway and the cost of the haulage is reduced absolutely to a minimum. The plan is to lay down the rails at the sides of roads, one for up traffic and the other for down traffic, leaving the centre part of the road for ordinary traffic. On any road where there is a very large traffic bullocks could be dispensed with, and traction engines could pass along the line with trains of wagons. The cost of Tramway will be Rs. 4000 or Rs. 5000 per mile.

Mr. Addis has laid down a length of rail in the grounds of his ironworks, upon which he has placed two carts or wagons specially constructed by him for the Tramway. A portion of the rail is laid at an incline of 1 in 40, and another portion, on level ground, describes a 10ft. radius curve. This experimental line has been visited by a large number of gentlemen, Government officials, and others, who have seen with satisfaction the ease with which a pair of bullocks draw three tons along the Tramway. The flanged centre wheels are attached to a screw, by which the framework of the cart is raised, so that on level ground the ordinary side wheels may be an inch or two above the surface of the road, and the entire weight of the burden may rest on the rail. The side wheels of course occasionally touch the ground, but really the weight is borne by the centre wheels. In some experiments, tried recently, a large log of wood was placed on the ground over which one of the side wheels would pass, and the wagon put into rapid motion; on passing over the log the jerk was severe, but failed to throw the wagon off the rail. A small hole was then dug in the line of a side wheel, and over this also the wheel passed without accident.

It is unnecessary for us to add one word to commend a system so admirably adapted to colonial use to our readers. Mr. Addis has really done a good work in introducing the single-rail Tramway."



SPECIFICATION
OF
WILLIAM JUDSON ADDIS'S
SINGLE RAIL TRAMWAY.

This invention has for its object the laying down of a Single Rail on any existing Road or any Road made specially for the purpose of a Tramway.

I first form a Single Rail for my Line, making use of any existing Rail either of Steel or Iron, and of any size or description. This Rail to be ballasted up to the level of the Road.

It is purposed to run upon this line vehicles of every kind and description, constructed after the ordinary ones now in use, with an additional Wheel or Wheels, varying with the length of the vehicles. This same Wheel or Wheels to be attached to the bottom of the platform or framework of the vehicles, and to be flanged on both sides in order to prevent any moving off the Rail.

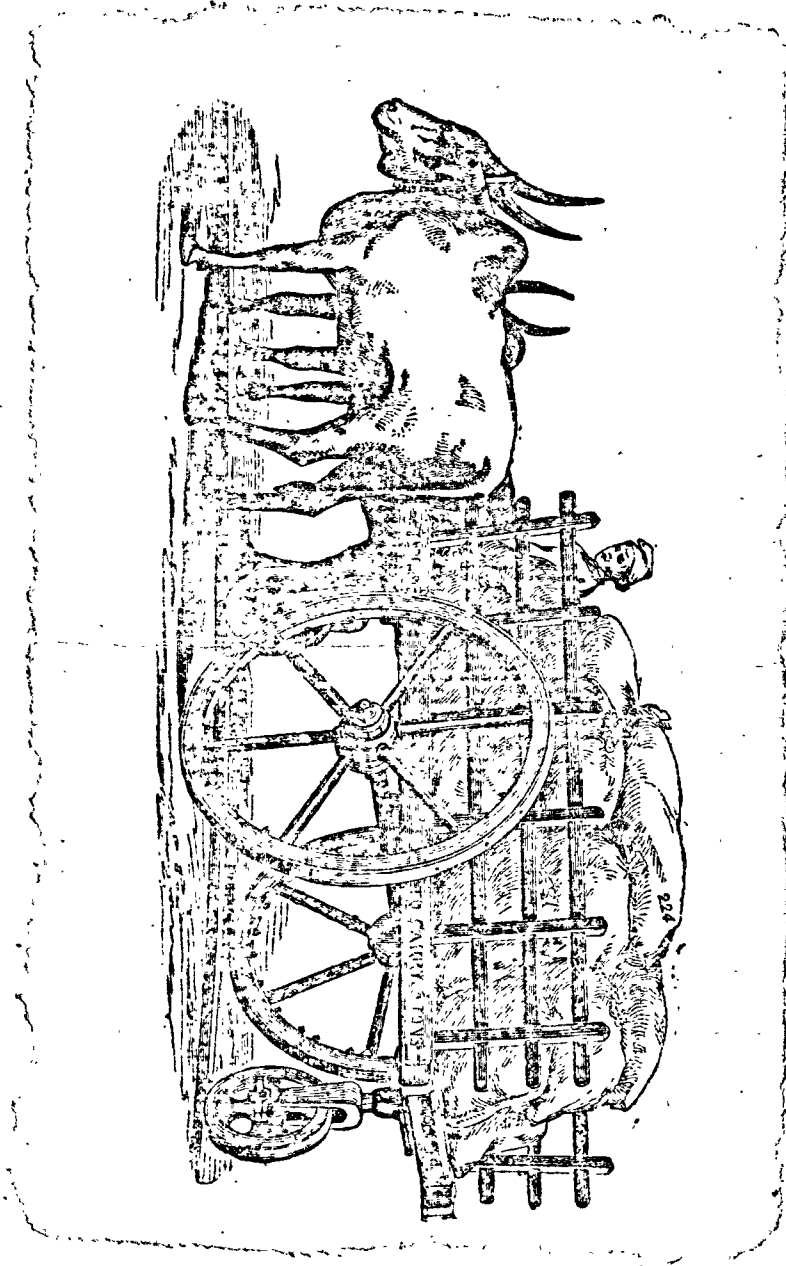
The Vehicles themselves will have two or more Wheels, and will run on the Road on either side of the Rails, while the centre double flanged Wheel or Wheels run on the Rail. These Wheels work on a Swivel attached to a Screw, in order to raise or lower the body or framework of the vehicles above the surface of the ordinary road on either side, so that the whole of the weight of the vehicles and their contents would rest on the Rail, and their balance would be supported on either side by their own ordinary wheels.

The Wheels will have further attached to them Springs on either side in order to prevent jarring and jolting, and to give them a fair amount of play to suit the irregularities of the road, which would naturally tell upon the ordinary wheels of the vehicles.

The Vehicles can be worked over the proposed Tramway either by Steam or Cattle Power.

W. J. ADDIS, C.E.,
Patentee.

*1st November 1869, Tanna,
Bombay Presidency.*



49-February 1874. 15
33: Reader Street Fort
Bombay

The Secretary to Government
Public Works Department
Madras.

Sir,
With a view to meet any im-
mediate want of the famine
distress in the Madras Presidency
I take the liberty of forwarding
to you a few papers in
connection with any system of
Single Rail Tramway for pro-
vision.

2. I am prepared to under-
take the supply of a few miles
of Rails from 20 to 28 lbs per yard,
as this is the Section I have made
use of for my Tramway. If however
a large quantity be required I
will be able to supply a large tubular
wrought Iron, combining Rail &

Sham, Key, or Fish-Plat. at from 2 to 3 miles per day, and at a cost of Rupees 3700 per mile delivered at the Bombay Railway Station, or at any other place for transmission by steamer or boat. Lark or Vans & sent the several kinds of goods can also be supplied at Rupees 325 each.

3. You will be pleased to observe that a Cart on my system can be drawn by one pair of Bullocks with a load of 1000 lbs.

4. The Tramway can be laid down at the rate of a mile a day by 40 ordinary coolies and can be constructed where no road exists.

5. In case of there being no return traffic the guide wheels can be at any time raised up by the screw attached to the guide wheel so as to be clear of the Rail by 6 or 12 inches taking advantage of the ordinary road or

common Cart track. 17
6. Another very great advantage in my system of Tramway is, that the Rail being laid in the middle of a track does not in any way interfere with the feet of the Cattle, as they walk on either side, or follow the usual old cart track.

7. I may here mention that more than 60 miles of Tramway on my system (Single Rail) has been laid in Lisbon and is at present being worked by Steam power.

I am Sir, Dear Sir,

Your most obedt Servant

W. J. Adams Esq.

P. M. 1874 Newark
(6) No 1083.
Sum.

W. J. State Capt
Bamberg
Killed 19' 3" July 1904.
Age 23' 3" July 1904.

Approximately
between September
and September 1904
necessary, and
has been prepared
to supply a few
miles of rails if
required -
Note in order

20 10/2/12

W. J. State Capt

Rec'd 18/3/14.

7/18
The Addresser is desirous to be placed with the
no the Government are not prepared to pay \$25,000
a mile or upwards without rolling stock for
a haulage of the description he recommends.

436-437

436-437

1083

V

Govt. of 1874 Madras.
PUBLIC WORKS.

To

Mr. W. J. Addis.

Dated

7/8

Recd.

Encl.

G. O. 16th Dec 74, No. 718.

Nos. 436 & 437.

Tramway

The offer of Mr. Addis
for the construction of a
Tramway of the de-
scription recommended
by him, declined with
regards.