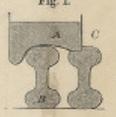
BURLEIGH'S PATENT SWITCHES AND CROSSINGS

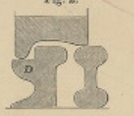
FOR RAILWAYS.

Fig. 1.



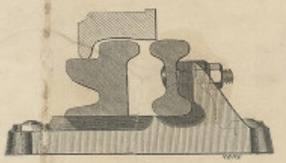
It is well known to practical Engineers that the repairs and renewal of the Switches and Crossings of a Railway form a very serious item of the expenditure incidental to the maintenance of the Permanent Way, and many means have been devised for improving and rendering them more durable. The parts most liable to failure are the Wing Rails of Crossings, and the outer or Main Rail of Switches. Both alike suffer from the crushing action of the outer edge of the wheel, which crosses them in a diagonal direction—this action being especially injurious in the case of a tire worn hollow, the outer edge of which soon forms a channel in its path, and crushes the upper table of the rail. This will be seen on reference to the annexed diagram (Fig. 1), in which a hollow tire (A) is represented as resting on the Tongue-rail (B), with its outer edge bearing upon the adjoining rail at C; it is obvious that a channel will soon be formed in the latter rail as described.

Fig. 2.



To remedy this defect, a projecting piece D (Fig. 2), inclined at each end, is rolled upon the Tongue-rail of the Switch, to give support to the flange of the wheel, while passing over, which relieves the outer rail from the blow that would otherwise be felt. This projecting piece, or flange-bearer, also gives additional lateral stiffness to the Tongue-rail, and prevents it from springing and opening at the point.

Section of Switch.

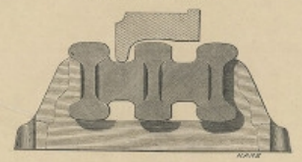


A filling piece, or flange-bearer, steeled on the top and bottom surfaces, is introduced for a similiar purpose in the Crossing; being bolted between the Point and Wing Rails, it protects them from injury. This filling piece has also another use—it effectually braces the Wing and Point Rails, and renders the whole crossing as rigid as a beam. The importance of this is evident, as the movement which ordinarily takes place between the various parts of a Crossing when trains are passing over, and which causes a series of severe blows both on the Permanent Way and the Rolling Stock, is entirely avoided. These Flange-bearers are also made reversible, so that when one side is worn out, the whole Crossing, or any part thereof, may be turned over.

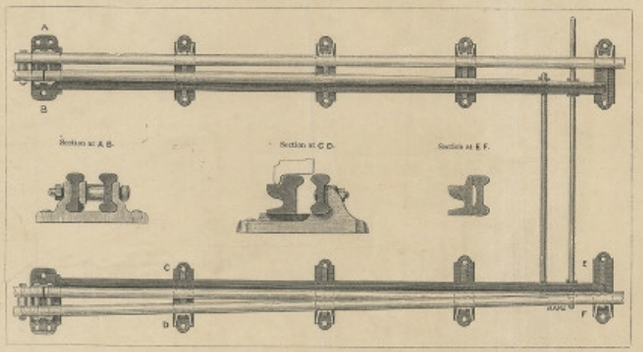
The first cost of these Switches and Crossings is about the same as that of the kind in ordinary use, and it is evident that the ultimate saving both in labour and material will be very considerable.

The Rolling Stock of a Railway will also derive considerable benefit from their adoption, as it is on all hands admitted that the defective state of the Permanent Way tells most injuriously upon the springs, axles, and machinery.

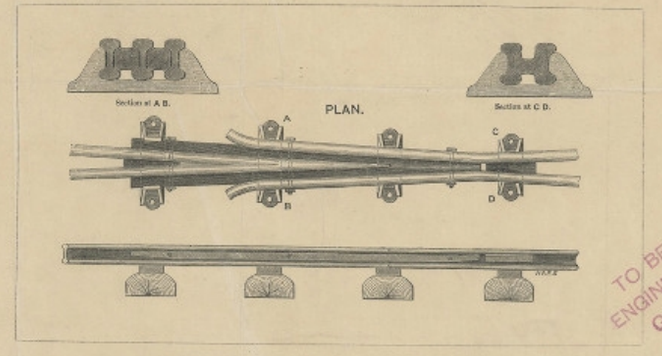
Section of Crossing at A B.



BURLEIGH'S PATENT SWITCH.



BURLEIGH'S PATENT CROSSING.



The annexed Letters from Engineers, who have fully tested these Switches and Crossings, clearly show the advantage of the principle upon which they are constructed:—

6, Great George Street, Westminster,
10th July, 1856.

My dear Sir,

I am able to state, and do so with much pleasure, that I am acquainted with the details of your Switches and Crossings; that I caused several of them to be put down on the Great Northern Railway in situations which would expose them to the most severe tests, and am fully satisfied, from those experiments, that a very considerable saving in cost of maintenance will result from their adoption, in comparison with the cost of maintenance and renewal of those of the ordinary kind in use.

I remain, very truly yours,
(Signed) JOSEPH CUBITT.

B. Burleigh, Esq.,
26, Great George Street, Westminster.

3, Great George Street, Westminster,
London, July 12th, 1856.

My dear Sir,

I have at various times examined your Switches and Crossings in actual wear, and am quite satisfied that they are an improvement on any with which I am acquainted; and I am now putting down seventeen sets in a position that makes it desirable to have the most durable construction to be found.

The form and strength of the Tongue-rails of the Switches I consider as calculated to prevent accidents, as well as to preserve the main rails; and the firmness of the whole structure of the Crossings will, I have no doubt, so greatly increase their durability in every case as to make them in actual use cheaper by far than those I have been used to manufacture when a partner in the firm of Ransomes and May, Ipswich.

Believe me, yours truly,
(Signed) CHARLES MAY.

B. Burleigh, Esq.

The Great Northern Railway Locomotive Department,
Engineer's Office,
Doncaster, 10th May, 1856.

Dear Sir,

I have received yours of the 9th relative to your Patent Crossings and Switches; which are so packed that the flange of the wheel does not touch the bearer unless more than 1¼ inch from the tread.

I have observed these Switches and Crossings, and they seem to stand well. I am of opinion that their peculiar construction is beneficial to the rolling stock.

I remain, yours faithfully,
(Signed) ARCH^D STURROCK,
Locomotive Engineer,
Great Northern Railway.

B. Burleigh, Esq.,
26, Great George Street, Westminster.

The Great Northern Railway,
Engineer's Office,
King's Cross, London, 19th April, 1856.

Dear Sir,

I have pleasure in forwarding the following statement relative to your Patent Crossings and Switches. In the beginning of July, 1854, one of your Crossings was laid in the up road near Welwyn Station, and is still in good condition. The express trains pass over this Crossing commonly at a speed of fifty miles an hour, and the stopping trains pass over it with the breaks on. Near to this and on the same line of rails is an ordinary Crossing, which has been renewed three times, and the wing rails six times since yours was laid in, both kinds being subject to the same amount of wear.

In the London Goods Yard is another of your Patent Crossings, laid in the line leading to the Locomotive Stables, Coke Shed, and Engine Turntable. This Crossing has been laid down nineteen months, and is still in serviceable condition; in the same place the previous ordinary Crossing points lasted only two months, and the wing rails one month, the traffic here being very heavy.

At the Junction of the Goods and Coal sidings a Switch was put in fifteen months since, of which one of the Tongue-rails was your Patent, and the opposite one "Wild's." Your Tongue-rail is still in use, and the Stock-rail was renewed a month ago, the opposite Tongue-rail (Wild's Patent) has been renewed *twice*, and the Stock-rail *fourteen times*. This Switch has by far the heaviest work of any in the London Terminus.

I think these facts render any remarks unnecessary, as they clearly show the advantage of your principle.

I am, dear Sir,
Faithfully yours,
(Signed) ROBERT GASTINEAU,
Resident Engineer,
Great Northern Railway.

B. Burleigh, Esq.

9, Dowgate Hill, London,
May 20th, 1856.

Dear Sir,

For the last eighteen months I have narrowly watched your Switches and Crossings, and so satisfied am I of their superiority over all others I have seen, that I have determined to use them, and am now sending out a quantity both to Egypt and Spain. I have no doubt when they become known they will be more generally adopted.

I am, dear Sir,
Yours faithfully,
(Signed) W. HUMBER.

B. Burleigh, Esq.

B. BURLEIGH, C.E.
26, Great George Street, Westminster.