

Plan for Dispensing with Railroad Switches.

The improvement which we here illustrate dispenses with railroad switches and the trouble and expense of switch tenders. It has for months past been in successful operation upon many city passenger railways in Philadelphia, Baltimore and Boston.

The result is obtained by having one line of cars use wheels, A A, with an extra tread, *c c*, in addition to the common tread, and a short inclined supplementary rail, D D, so placed at the turn-off that the extra tread shall run gently upon it, the wheels being gradually raised off their usual bearing, running on the extra tread alone, and passing over and above the usual grooved rail, E E, without touching it. Directly after the point of divergence is passed, the wheels, in the same gradual manner, come down again to their usual bearing on the common tread, and the cars proceed on the straight track, as before; the change of bearing from the common tread to the extra tread, and *vice versa*, being so smoothly accomplished as to be scarcely perceptible.

The other line of cars, provided with wheels, B B, of the ordinary form, will, of course, follow the ordinary grooved rails, E E, as usual, and be gradually deflected from the straight line, just as if the straight track did not exist beyond that point.

By varying the position and diameter of the extra tread, many combinations may be obtained, and thus a number of different lines of cars may use the same track in common; each line as it arrives at the point of diversion from the other lines, will follow its own course.

The whole arrangement is entirely solid; the frog is cast in one piece, and there is nothing to get out of repair or to be affected by ice. The pavement is laid flush with the inclined rail, as seen at F, and the greatest elevation is merely enough to raise the flange of the double tread wheel over the grooved rail, and permit it to go straight on. Of course, the extra tread is only brought into use at turn-outs.

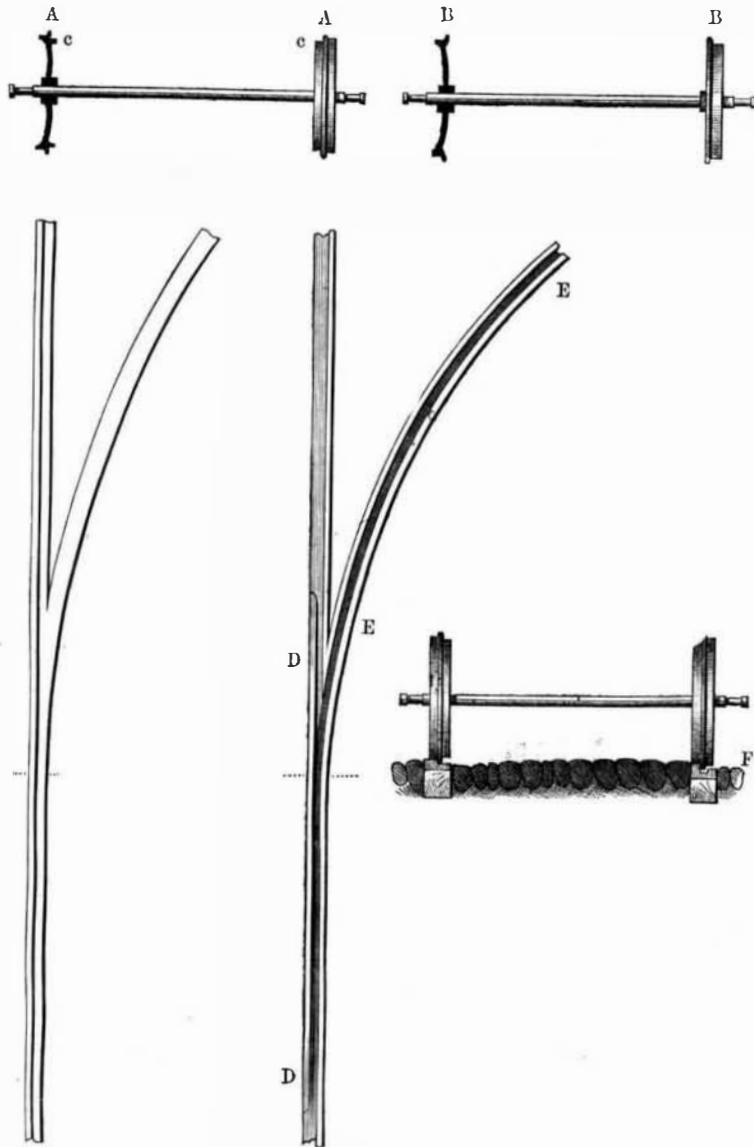
The cost of the frog casting is no more than that of the tongue switch heretofore in use, and it will last much longer. The cost of the double tread wheel is only one dollar more than the ordinary wheel; it is but little heavier and considerably stronger, the only difference being the extra tread, *c c*, one and a half inches wide, of unchilled iron, giving a lateral strength and stiffness.

When two lines of railroad intersect each other, it is only necessary to furnish the cars of one line with double tread wheels, the other line requiring no change whatever, and it is only necessary to have the patent wheels upon one side of the cars. The extra expense would therefore, in such cases, be only two dollars per car of the one line, and nothing for those of the other line. It seems to us that there could be no mechanical device to effect the purpose more compact, light and strong than this.

Of the numerous railway companies using this arrangement, it will be understood that a *portion only* have changed their wheels, or been put to any other expense; among them, some very complicated inter-

lacing of railway lines exist. It is not necessary that the cars should be equipped with patent wheels all at one time; but as the old wheels wear out (city passenger railroad wheels last, on the average, about one year), they may be replaced by new wheels of the new construction at a trifling expense. When it is done, the patent frogs can be laid down without the cars losing a trip or the regular business of the road being in any way disturbed.

If, at any time, owing to the obstruction of the streets by fires or from other causes, it is desired to



WHARTON'S PLAN FOR CITY RAILROADS.

run the cars temporarily upon other routes than their own, it is effected by means of a short bar of wrought iron, weighing about eight pounds, which may be carried in the car for that purpose.

That the economy of dispensing with switch tenders can be successfully accomplished, is fully demonstrated by the experience of the railway companies now using the invention.

Patents for this invention were secured in Europe through the Scientific American Patent Agency. Date of American patent, Dec. 13, 1859; re-issued April 3, 1860.

The inventor will grant licenses, upon favorable terms, to other railroad companies to use this improvement; and, when desired, will contract to do the work, guaranteeing its success. For further particulars, address William Wharton, Jr., inventor and patentee, No. 28 South Third-street, Philadelphia, Pa.

RED RAIN.—A paper has lately been published by M. Giovanni Campani, professor of chemistry at Sienna, in which he describes two falls of red rain, which occurred in that place on the 23th of December last. He states that the red rain was confined to a particular quarter of the town, near the Meteorological Observatory, and that it was not general. A shower of red rain is recorded to have fallen in 1819 at Blankenburg, when the rain, upon analysis, was found to contain cobalt. But none of this substance, has been discovered with rain which fell lately at Sienna.

ELECTROTYPING WATER FOUNTAINS.—The cast iron fountains of the Place de la Concorde, which are admired by all visitors to Paris for the richness and elegance of their designs, and the sparkling effect of the volume of water they daily throw up, are being taken to pieces in order to receive yet further improvements from one of those scientific proceedings which have lately been so much used in the decoration of the avenues and boulevards of the metropolis. On their first erection, these fountains, with the figures of the Tritons, Nereids, and other allegorical personages which adorn them, were painted to imitate Florentine bronze, the draperies simulated bronze verd-antique, and the ornaments and other accessories were gilt. This painting, however, was obliged to be renewed every two years, and even so, from exposure to the inclemencies of the weather and the action of the water, it proved very insufficient. It is now intended to apply galvanism in order to give the appearance and duration of bronze to all these figures and ornaments, as well as to the twenty columns and figures which decorate the Place de la Concorde, and the two hundred and twenty candelabras which serve to light it and the adjoining avenue, the Champs Elysées. Three million pounds of iron castings are thus to be electroplated with copper.

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