

Railway Cattle-Guards.

The commissioners appointed by the Minister of Railways to enquire into the question of cattle-guards for railways, F. W. Holt, C.E., and G. Robertson, of St. John, N.B., issued a circular to designers and inventors stating that a good guard to be accepted by the commissioners would be judged by the following qualities:—

1. It must be tried by actual experience on some railway, to discover its adaptability as a track appliance.

2. It must then fulfil, as near as possible, the following conditions:—

(a) It must not be of such form or construction as to cause the derailment of rolling stock of a railway, or if derailed and passing over it, to cause any greater risk to the train and its contents than if it were not in place.

(b) It must be as efficient as is practicable in turning stock. When condition (a) is complied with this is the leading requirement.

(c) Quietness under a rapidly running train is a very desirable quality; that is, it should not rattle or give other audible noises when a high speed train is passing it.

(d) It should not be liable to disarrangement under the conditions of use, and consideration should be given to the fact that brake and other gear at times is dropped so low as to be in danger of tearing up projecting parts if not guarded against.

(e) The matter of expense of first cost and maintenance should be given careful consideration, including facility of repair by section men under ordinary conditions, and further as to the facility of keeping the track at the point occupied by the guard in equally good condition with that of the adjoining track and road-bed.

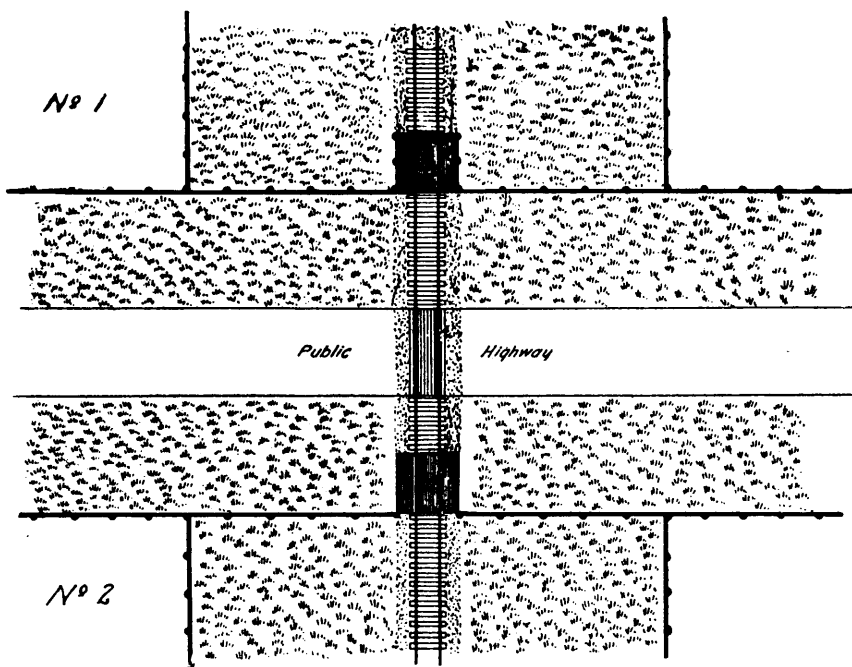
(f) To be easily and safely passed by trainmen on foot.

(g) Not to entrap animals by catching and holding their feet.

The commissioners also issued diagrams, copies of which are given on this page, showing a proposed change of location of cattle-guards at highway crossings, accompanied by the following memorandum:—

"Diagram 1 represents a cattle-guard of any type as it is usually set relative to the highway fence, the only difference being that in some cases the highway fence is brought to the middle of the guard instead of the highway end as shown.

"Diagram 2 shows the proposed change in the location of fences and guards, i.e., place the guard within 4 or 5 ft. of the ends of the crossing plank of the travelled way and bring the highway fence to within 7 ft. or 8½ ft. of the centre of track and return parallel with track to highway end of guard. The object being—In case of wandering animals feeding along the roadside, their attention will be directed away from the right of way of the railway, instead of finding an opening into which their curiosity tends to lead them, as now. It reduces the length of crossing upon which animals may gather, as is their tendency in some localities. At the same time it does not impair the usefulness of the highway in the least, since the part thus fenced is not used for travel. It will be additionally effective as a crossing signal and prevent teams under the guidance of irresponsible drivers from turning down the track. Of this there are several disastrous instances, particularly in reference to the old pit guard, as well as others. It offers no inducement for the animals to go on the right of way, because there is apparently only the track ties and ballast, protected by a guard, to the right or left, while there is the regular highway with no hindrance, left open to them, with further apparent open gateway which curiosity will tend to lead them to choose. In case of cattle being met on the crossing by a train, as is frequent, the fences will act as a shelter be-



ARRANGEMENT OF CATTLE GUARDS AND FENCE.

hind which the animals will dodge, instead of, as now, making a rush for the opening which the guard is called upon to protect."

The commissioners have been devoting considerable time to testing appliances offered by manufacturers and inventors at the exhibition buildings, Ottawa. A section of standard gauge track was laid for the purpose, and the invention put in place. A tempting feed of hay is put near one end of the guard, and half-a-dozen cattle are led into the area on the other side and left to their own devices. The efficiency, or otherwise, of the guard is thereby put to the test. The commissioners, railway men, inventors and others make note of the result. It is a question whether the later tests, at any rate, are just exactly fair, as the cattle have become "experts" in this line of business.

Color Sense, Sight and Hearing.

The C.P.R. Manager of Transportation, Thos. Tait, has issued a circular stating that the management recognizing the need of a uniform system of testing the color sense, sight and hearing of employees connected with the movement and handling of engines and trains and for the further safe-guarding of life and property, have, after careful consideration, adopted a standard of tests which are as simple as it is possible to have them, consistent with accuracy. On and after Jan 1, 1903, a standard of color sense, sight and hearing will be adopted, and everyone appointed to the occupations hereinafter named must be provided with a certificate showing that his color sense, sight and hearing measures up to this standard. R. J. E. Scott, Chief Inspector or Time Service, has been appointed Chief Examiner, and the certificate must be signed by him, or his designated representative, after he has tested the candidate in the manner prescribed.

COLOR SENSE will be tested by Prof. Holmgren's wools and Dr. Williams' lantern, but not by the matching of colors, as some have wrongly supposed. The purpose is not to find out how much technical knowledge of shades of color a man has, but simply to determine if he is dangerously defective in his perception of red or green. Sight will be tested by the reading of various test cards at a distance of 20 ft., each eye being tested sep-

arately. An employee requiring glasses to read a train order or a newspaper, may not be at all disqualified for seeing at a distance. Hearing will be tested by counting the ticks of a ratchet acoumeter at a distance of 20 ft., each ear being tested separately. Any employee who on being tested by the Chief Engineer is found to be seriously defective in color sense, sight or hearing, may appeal to a designated oculist specialist, and the cost of such examination will be paid by this Co. Re-examinations will be made every three years, or after a serious illness or accident; or yearly (for sight) in Class A if one eye is found to have less than half of normal vision. Employees will be notified locally as to dates on which the Chief Engineer will be at divisional headquarters for the purpose of making examinations and issuing certificates. The following standards of sight will be considered as satisfactory for the different classes of employees mentioned. These standards must be strictly observed, but if in the opinion of the Superintendent any exception should be made the matter must be referred to the General Superintendent for final decision, with full report containing the reasons therefor.

CLASS A—Engineers, firemen, signalmen. On entering the service, 20/20 in each eye tested separately without glasses. Re-examination of those in the service: not less than 20/30 with both eyes open, without glasses. Glasses not to be worn on duty, except for reading train orders, or similar use.

CLASS B—Conductors, train baggagemen, brakemen, yardmasters, yard foremen, yardmen, switchmen, road crossing flagmen. On entering the service, 20/20 in one eye, and not less than 20/40 in the other, tested separately, without glasses. Re-examination of those in the service: not less than 20/40 with both eyes open, without glasses. Glasses not to be worn on duty by men whose work requires them to be out of doors in all weather, but they may be worn for reading or similar use.

The Duluth, South Shore and Atlantic Ry., owing to the scarcity of fuel, has ceased hauling the dining cars of the Chicago and Northwestern Ry. and the Chicago, Milwaukee and St. Paul Ry. to Calumet and Marquette, but will do so again when navigation is reopened.