

Fig. 1 is a perspective view, showing the portion of a bridge and the application of the instrument to measure the compression stresses, while Fig. 2 is a plan view, partially broken away.

In the drawings like letters of reference indicate corresponding parts in each figure.

A is the end post of a bridge or other truss, B is the top chord, C the vertical member, and D the diagonal member. The instrument is shown applied to the end post and the top plate. E is the base of the instrument, having the supports E¹ extending out at right angles thereto and projecting bent lugs E² at one end by which it is held on the post by set screws E³ extending through the same. The opposite end of the base E is provided with an end projection E⁴, held in place by a suitable set screw. E⁵ is a clip which fits over the edge of the plate and the base E, such clip being held in position by suitable screws E⁶ so that it may be readily removed.

F is a stationary rod which is held in the supports E¹. G is a pin projecting inwardly from the rod F into a hole in the plate A, the hole being, of course, drilled previously to the instrument being set in place. The pin G extends through a slot 2 in the base E. H is a support intermediate of the length of the base E, and through this the rod F extends. On the end of the rod F is a cylinder I, to which is attached a supplemental cylinder I¹ as indicated. The cylinder is partially filled with oil and other fluid, and is provided with a piston J, having the piston rod J¹, which extends through the head I². On the rod J is an index mark J².

The rod J¹ is made in two parts—J³ and J⁴, which are connected by a coupling J⁵, provided with a right and left-hand internal thread to fit into the corresponding threads of the portions J³ and J⁴. The rod J¹ is also held in supports E¹, and is provided with a pin G¹, which extends through a slot E⁸ in the base plate E into a hole in the top plate of the end post.

K is a piston fitting into the minor piston I¹ and connected by a rod K¹ to a crank pin K² on the gear-wheel L, which is held on a suitable anchor L², journaled in suitable bearings K³. L¹ is a helical spring attached at one end to the gear-wheel L and at the other end to the arbor, the normal tendency of such spring being to force the gear-wheel in a direction contrary to what the liquid in the piston I will force the piston K, or, in other words, to compensate the pressure of the liquid on the piston.

N is an arbor journaled in the support H, and having a pinion N¹ secured thereto, which meshes with the gear-wheel L. O is a dial plate in which the arbor N is centrally disposed, such dial plate being suitably held in position on the top of the support H. P is a hand secured on the top of the arbor by means of a set screw P¹, whereby the position of the hand may be altered as hereinafter explained.

Each half of the dial plate is divided from zero to forty, thus indicating thousands of pounds to the square inch. It will be noticed that the index numbers ten, twenty and thirty when the dial is in the normal position are located on each side of the centre line of the rods F and J¹, and that the cypher 0 and number 40 are arranged diametrically opposite each other on a line with the rods F and J¹.

The instrument is placed in position as indicated in the drawing on the end post of the structure. As soon as the load is transmitted to the end post the indicator will show the additional stress upon the same, and the percentage of recovery from such loading after the load is removed.

If the instrument is placed on a lower member of a bridge or structure in which it is desired to ascertain the

tensile strength of the member, the hand will move in an opposite direction.

The advantage of this invention will be that the stresses in bridges or structures may be ascertained as erection work progresses. If affixed to a member of an incompleting building, the stresses due to an imposed, stationary or moving load would be registered.

RAILWAY ORDERS.

(Continued from page 508).

8404 to 8406—October 19—Authorizing the United Fuel Company, Ltd., to lay and thereafter maintain gas pipe under the track of the P.M.R.R. and M.C.R.R. in the Tp. of E. Tilbury, Tp. of Raleigh, and Tp. of Moore, Ont.

8407—October 20—Authorizing the C.P.R. to construct, maintain, and operate branch line of railway, or spur, in the city of Fort William, Ont., on Hardisty Street.

8408—October 20—Approving by-law of the C.P.R. authorizing Jas. Kent the manager of telegraphs of the company to prepare and issue tariffs of telegraph tolls.

8409—October 13—Dismissing complaint of Houghton Lennox, M.P., that the G.T.R. has closed up its freight shed at Allandale, Ont., and that the freight formerly received and delivered at that point has to be received and delivered at Barrie, Ont.

8410—October 12—Granting leave to the C.P.R. to construct its railway across the highways on its main line grade revision, on the Medicine Hat section of its railway, in Province Saskatchewan, from mileage 49.34 to 57.29.

8411—October 13—Dismissing complaint of Township of Seneca, re working of the electric bells installed by the Grand Trunk Railway Company where its line of railway crosses the Port Dover and Hamilton Road, town of Caledonia, Ont.

8412—October 13—Dismissing complaint of J. W. Freeman, of Burlington, Ont., alleging that the watercourse on his property has been blocked by the building by the G.T.R. of a new siding.

8413—October 12—Dismissing complaint of the Municipal Council of the Township of Esquesing, Ont., against dangerous condition of the crossing of the G.T.R. on the 7th line in said township.

8414—October 12—Directing that the Michigan Central Rail Road and the P.M.R.R. install each upon its own railway, within 45 days from date of Order, electric bell, at point to be approved by Chief Engineer of the Board, on town-line between Townships Southwold and Dunwich, Ont.

8415—October 15—Directing that the G.T.R. install, within 60 days from date of Order, single arm gate on each side of crossing on Church Street, Police Village of Mimico, Ont.

8416—October 19—Authorizing the C.P.R. to construct, maintain, and operate an industrial spur for Messrs. P. Burns & Company, Dist. Lot 182 C New Westminster District now in the city of Vancouver, B.C.

8417—October 19—Approving proposed change of location of station and the re-arrangement of tracks of the G.T.R. at Jeannetts's Creek, Ont.

8418—October 14—Directing that the trains and cars of the G.T.R. Company be brought to a full stop before reaching crossing over the track of the Windsor & Tecumseh Electric Railway in Township of Sandwich East; and be flagged across; and that the cars of the Windsor & Tecumseh Electric Railway be operated across diamond at a rate of speed not exceeding four miles per hour, Township Sandwich East, Ont.

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