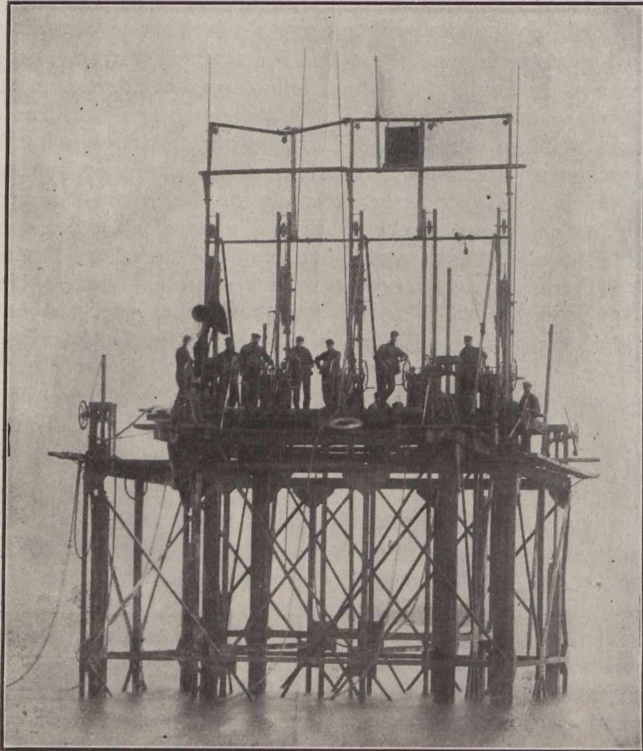


Two larger stages are now in use at Whitby on the north-east coast of England for the work of extending two piers or breakwaters. The estimated cost of ordinary stages for this job was \$35,000.00, whereas, the cost of the two locomotive stages was only \$18,000.00, showing a saving in cost of staging alone of \$17,000.00 apart from doing the work better and quicker.



**Locomotive Stage with Working Appliances and Crew.**

Mr. Chas. Guest Norris of Manchester, England, brought a working model of the stage complete with winches, etc., and is negotiating for working of the invention both in Canada and the United States. Mr. Norris has been staying at the Russell House, Ottawa, and has brought the matter before the government engineers who consider the invention may be of material service to them.

### MANAGING A CLAY BOTTOM IN A TUNNEL.

Tunnel work for sewers, being usually near the surface, often encounters very troublesome obstacles in a combination of different materials, and sometimes in clays which seem to leave no foundation fit, or possible, to work on.

An interesting example from a piece of tunnel work in connection with the new sewerage work in Louisville, Ky., is given in the report of the chief engineer, J. B. F. Breed, and Harrison P. Eddy of Boston, consulting engineer.

This was a tunnel nearly 1,300 feet long, the driving of which was made difficult, among other causes, by the variation in the depth of rock. In some places the headings were entirely in rock, in others, entirely earth, while for about one-fourth of the distance the roof was in earth and the lower part of the tunnel was in rock. The method of construction adopted by the contractor was to first drive the entire length of tunnel between two shafts, then to start the concrete in the centre of the drift, working in each direction toward the shafts. In the headings, which were wholly in

earth, the wet, blue clay encountered was rendered soft and unstable by the continual disturbance caused by working upon it and by the passage of men and cars over it. This condition was avoided by building a sub-invert of concrete five inches in thickness as fast as the tunnel was driven and upon and over which the employees could work and pass back and forth without causing any softening of the material underneath.

In some places the clay was found to be particularly soft so that the upward pressure of the clay in the floor of the tunnel due to the weight of the surrounding material, caused some trouble in placing the concrete sub-invert. In such places a three-inch oak platform was placed on the clay bottom and on this the sewer was built. Under Mellwood Avenue similar conditions were encountered, and much trouble was experienced in attempting to drive a tunnel. The attempt to tunnel was finally abandoned and this portion was built in open cut, by which method no difficulty was experienced, apparently because of the reduced amount of walking over the clay bottom. In the open trench the clay was removed to a depth of twelve inches below sub-grade, this excavation being refilled with gravel which provided a satisfactory foundation for the concrete structure.

### RODGERS vs. C.P.R.

This was an action tried at London on October 3rd, before Mr. Justice Teetzel and a jury, in which the plaintiff claimed \$20,000 damages for injuries received through the negligence of the defendant company in maintaining, at Ayr station of the line of the company, a stand pipe in such close proximity to the track as to endanger the employees of the company.

It was shown in evidence that the plaintiff was fireman on the engine of a passenger train running between London and Toronto, on the day of the accident; that as the train was approaching Ayr station an explosion was heard under the engine; that the fireman, who was standing between the engine and the tender, leant out to look under the engine to see what the trouble was; that he was struck by a stand pipe placed between the main line and the passing track, and that he was thrown from the engine to the ground, and that the distance between the cab of engine and stand pipe was 18 inches. Evidence was given by the plaintiff who described his actions prior to the accident, by the Hon. Adam Beck, who was on the train, and helped to lift the plaintiff, by the surgeon of the hospital at Ayr, who described the injuries as being a severe wound on the head, and the fracture of two vertebrae of the back-bone and injury to the spinal column, and who also described the operation he has performed to reduce the fracture which had caused severe paralysis of a large part of the body, but which as a result of the operation was now confined to the legs. He and other surgeons who had examined the plaintiff doubted whether he would ever be able to use his legs, the most optimistic saying that perhaps he might at some time be able to move for short distances assisted by crutches.

Evidence was also given by Mr. Hall, superintendent of water service on the M.C.R., and by Mr. F. L. Somerville, consulting engineer of Toronto, as to the distance other railways placed water columns away from the tracks.

After addresses by Mr. G. E. Gibbons, K.C., for the plaintiff, Mr. Hellmuth for the defendant company, and by the judge, the jury returned a verdict for the plaintiff assessing the damages at \$13,500.