Safety Appliance Act.

The first session of Congress passed a sundry civil appropriation act containing a provision which will doubtless increase the work of the Interstate Commerce Commission. The commission had previously been directed to investigate and report on the use and necessity of block signal systems and appliances for the automatic control of railway trains. However, the limited scope of this resolution prevented the board of experts appointed by the commission from considering many devices intended to promote safe operation, and in order that such devices might be placed on the same footing as block signal systems and automatic stops, the recent Congress incorporated in the sundry civil bill a provision authorizing the commission hereafter to investigate and experiment with any apparatus designed to promote safe railway operation. It is thought that the inventor of safety apparatus can now submit plans and specifications to the commission for investigation and receive expert opinion as to the value of his apparatus, which would be followed by a practical test if the apparatus impressed the commission favorably.

Reorganization of Store Department on Illinois Central Railroad.

Effective June 1st, the Illinois Central Railroad Company reorganized their Store Department, a divisional organization now being in force. Heretofore Division Signal Foreman have had charge of all signal material carried in stock on their respective divisions, but under the new arrangement signal material, as well as all other materials, will be taken care of by the Division Storekeeper. The Division Storekeeper will make requisition on the General Storekeeper for material to replenish stock and the General Storekeeper will in turn issue his requisition which will pass through the usual channel. Mr. John M. Taylor, General Storekeeper, will in the future report to the General Manager.

The First Signal Department.

Twenty-nine years ago the Pennsylvania Railroad Company established the nucleus of what was undoubtedly the first signal department. Unfortunately it is not possible to fix the exact date on which the department was created, but Mr. H. F. Cox is known to have borne the title of engineer of signals as early as 1883, as his name appears in the first printed list of officials of the Pennsylvania, which was issued in that year.

Mr. Cox was in charge of signals on the Pennsylvania from December 1, 1879, to August 1, 1887, at which time he was succeeded by Mr. George D. Fowle. In 1893 the title then borne by Mr. Fowle was changed to "Signal Engineer."

Mr. Cox was born December 26, 1854, and was educated at Pennsylvania College, Gettysburg. In 1871 he entered the service of the Pennsylvania at the West Philadelphia shops, Mechanical Engineer's Office. About the latter part of 1878 he was employed at the Edge Moor Steel Works inspecting steel for the Pennsylvania bridge at Downington. In 1879 he was sent to the New York Division to put in some interlocking switches, and a little later in the same year was placed in charge of all signals in the Pennsylvania.

In 1882 Mr. Cox made a three months' tour of Europe in search of information pertaining to signaling, and in 1884 was attached to the chief engineer's office, in charge of the signal department.

A Graphical Method for Finding Resistance of Divided Circuits.*

BY W. E. WINES.

The following is a simple method of obtaining graphically the combined resistance of any number of resistances joined in multiple. Suppose, for example, that it is required to find the resistance of a circuit composed of two branches whose resistance r_1 and r_2 are known. Draw a line AB of any convenient length, and at A erect a perpendicular AC equal, on any suitable scale to R_1. At B erect another perpendicular equal, on the same scale, to r_2. Join AD and BC and from their intersection E draw EF perpendicular to AB. Then EF equals the resistance required.

The truth of this result may be readily proved by proportions resulting from the similarity of the triangles. Putting EF equal to X.

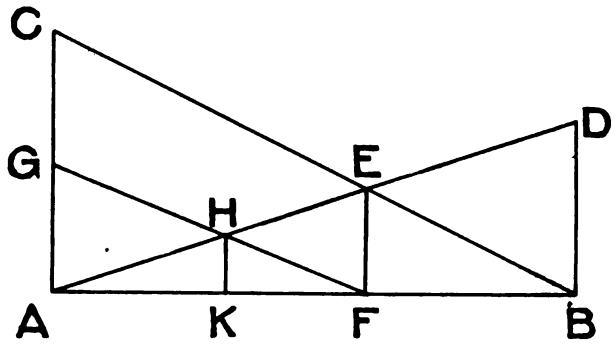
$$\frac{x}{r_1} = \frac{FB}{AF + FB};$$

$$\frac{x}{r_2} = \frac{AF}{AF + FB};$$

$$\frac{x}{r_1} + \frac{x}{r_2} = \frac{AF + FB}{AF + FB} = 1;$$

and $x = \frac{r_1 r_2}{r_1 + r_2}$, which is the well-known formula.

To extend this method to three branches, lay off, on AC, AG equal to r_3 and draw GF, giving HK as the required result. This may be repeated for any number of branches. It is apparent that although a diagram of six lines is necessary for two resistances, each additional branch of the circuit necessitates the drawing of only two extra lines, while the arithmetical solution of the problem becomes more and more complicated as the number of branches increases.



If the joint resistances and that of one branch are given the resistance of the other branch may be found by a slight modification of the same diagram.

*In answer to question No. 24 of the June issue.

Interlocking Versus Viaduct.

Some months ago a bill was introduced in the Senate of South Carolina, the object of which was to compel the Atlantic Coast Line Railroad to elevate its tracks over Meeting street at its junction with the Magnolia avenue and State Road in Magnolia, a suburb of Charleston, S. C.

The crossing is located about two miles from the union station, and all street traffic between Charleston, Magnolia and the Navy Yard crosses over the A. C. L. main tracks at grade. The trolley service is frequent throughout the day, and there is a steady stream of vehicles and pedestrians crossing at this