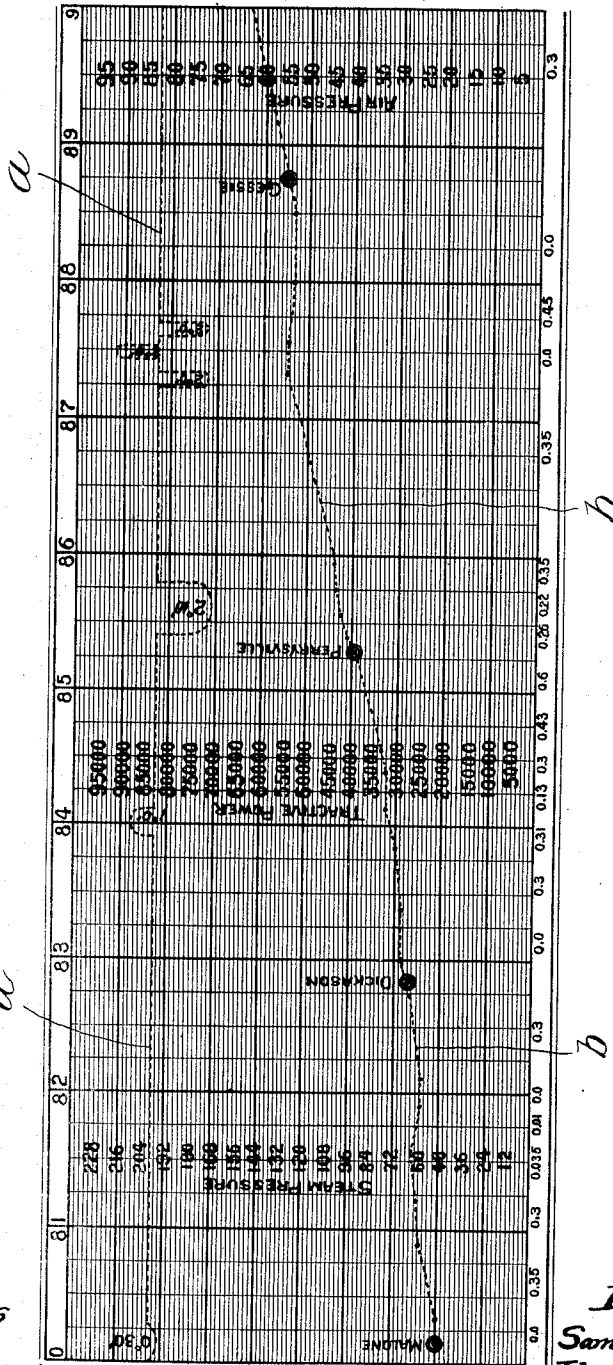


946,265.

2 SHEETS—SHEET 1.



John Enders.
Chas. H. Buell.

Inventors:
Samuel T. Park
John E. Phillips

By Sheridan & Wilkinson.
1855.

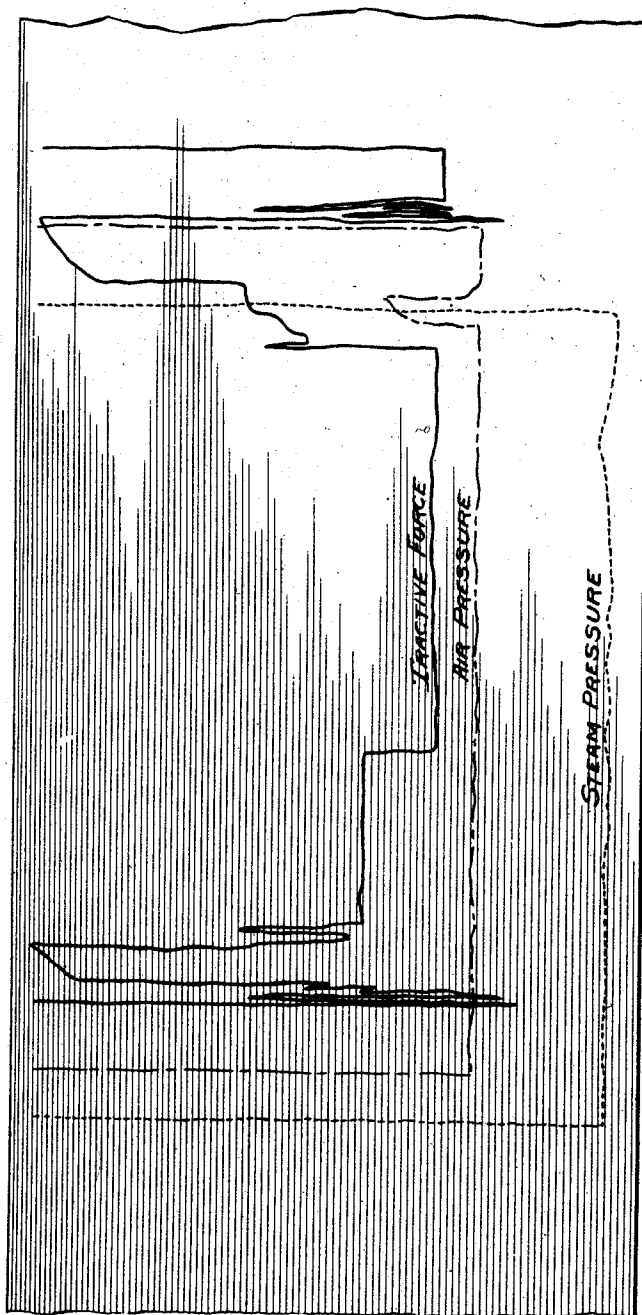
S. T. PARK & J. E. PHILLIPS.
DATUM AND RECORDING SHEET.
APPLICATION FILED NOV. 27, 1908.

946,265.

Patented Jan. 11, 1910.

2 SHEETS—SHEET 2.

Fig. 2.



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UNITED STATES PATENT OFFICE.

SAMUEL THOMAS PARK AND JOHN EMMET PHILLIPS, OF DANVILLE, ILLINOIS, ASSIGNORS TO LOCOMOTIVE RECORDING DYNAMOMETER COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF MAINE.

DATUM AND RECORDING SHEET.

946,265.

Specification of Letters Patent.

Patented Jan. 11, 1910.

Application filed November 27, 1908. Serial No. 464,751.

To all whom it may concern:

Be it known that we, SAMUEL THOMAS PARK and JOHN EMMET PHILLIPS, citizens of the United States, residing at Danville, in the county of Vermilion and State of Illinois, have invented certain new and useful Improvements in Datum and Recording Sheets, of which the following is a specification.

The object of our invention is to provide convenient and efficient means for reading records produced by locomotive recording instruments and for conveniently comparing such records with the road-bed traversed.

Our present invention is designed more especially for use in connection with apparatus which we have previously devised, in which apparatus means are provided for recording upon a web of paper the tractive force exerted by a locomotive, the boiler steam pressure, and the air pressure prevailing in the brake system. In this apparatus the record is made upon a web of paper which travels at a speed proportional to that of the locomotive, the paper being propelled by means of suitable gearing actuated by one of the track wheel axles. For the purpose of reading such records, it is, of course, necessary that they be compared with suitable graduations, and that the records should appear alongside of graphic representations of the various characteristics of the road-bed, such as gradients, curves, etc. We have found, however, that it is both inconvenient and expensive to prepare the web of paper used in a recording instrument with such graduations and curves representing the characteristics of the track. The inconvenience attached to the use of such prepared record sheets arises from the fact that it frequently occurs that an engineer's orders will be changed after he has started or prepared to make a certain run. Such changes in orders necessitate placing a new record web in the instrument, as otherwise the profile line printed thereon and the lines representing curves, etc., would have no relation to the records made of tractive pull, air and steam pressure. In order to avoid these difficulties, we have devised the instrumentalities shown in the accompanying drawings, in which—

Figure 1 represents a transparent datum sheet, and Fig. 2 represents a part of a record

sheet as produced in the recording instrument carried upon the locomotive.

The datum sheet shown in Fig. 1 may be made upon any suitable transparent medium, but we prefer to use some flexible substance, such as celluloid or gelatin. The datum sheet is ruled with transverse or vertical lines separated by a distance equal to the movement imparted to the record sheet in the instrument mounted on the locomotive by a travel of one mile, and for convenience lighter lines indicating quarter miles are also provided. These vertical lines may be numbered to indicate the distance in miles from such fixed point, such as the end of the railway division to which the datum sheet is applied. The datum sheet is also provided with longitudinal or horizontal lines designed for use in reading the tractive force, air and steam curves upon the record sheet over which the datum sheet may be laid. The horizontal lines bear three sets of graduations, one for steam pressure, one for tractive power and one for air pressure, as indicated upon the drawing.

The curves in the track are graphically represented by a line *a*, each curve being indicated by an offset in said line, and the degree of curve may be indicated, if desired, as shown upon the drawing. The offsets representing the curves are, of course, placed in their proper position as indicated by the vertical distance or mile lines. The profile of the road is represented by the line *b* and the percentage of the grades may, if desired, be indicated by numerals placed opposite said line. We have also found it convenient to indicate the stations in connection with the profile line, and any other convenient landmarks may be similarly designated.

By superposing the transparent datum sheet shown in Fig. 1 upon the record sheet produced by the instrument upon the locomotive and represented in Fig. 2, it will be apparent that the pressures recorded by the curves upon the record sheet may be instantly read by means of the graduations appearing upon the transparent datum sheet, and that the steam pressure, air pressure and tractive force prevailing at any given instant may be compared with the curvature and grade of the track upon which the train was located at the time in question, thus affording a convenient means for investigat-

ing the degree of efficiency with which the locomotive has been handled.

In the datum sheet and in the record produced in the recording instrument, the abscissæ of points in the curves appearing thereon are proportional to the distance of the corresponding points in the road-bed from a fixed point, such as the end of the railway division, and the ordinates of the pressure curves upon the record sheets will be proportional to the pressures recorded thereby.

Our invention is equally applicable to an instrument which records only one or more than one of the forces shown upon the record sheet illustrated, as we would have it understood that we do not desire to limit ourselves to the precise arrangement shown in the drawings and herein described, as various modifications or alterations may be made without departing from our original invention.

We claim:

1. A transparent datum sheet for a railway track, said datum sheet bearing indications of characteristics of the track, the abscissæ of such indications being proportional to the distance of the characteristics indicated from a fixed point in the track.

2. In combination, a transparent datum sheet for a railway track bearing a graphic representation of the characteristics of said track arranged lengthwise of said sheet upon a reduced scale, and a railway train pressure record sheet bearing a curve graphically representing pressures recorded during the passage of the train over said track, said curve being disposed lengthwise of said sheet upon the scale of said datum sheet above referred to.

3. In combination, a transparent datum sheet for a railway track, said datum sheet bearing indications of characteristics of the track, the abscissæ of such indications being proportional to the distance of said characteristics from a fixed point in the track, and a railway train record sheet bearing a curve representing pressures prevailing during the passage of a train over said track, the abscissæ of points in said curve being proportional to the distances of corresponding points in the track from said fixed point therein and the ordinates of said curve being proportional to the pressures recorded thereby.

4. A transparent datum sheet for a railway track, said datum sheet bearing a curve graphically representing the gradients of said track and a line graphically indicating the curvature of said track, the abscissæ of points in said curve and line being proportional to the distances of the corresponding points in the track from a fixed point therein.

5. In combination, a transparent datum

sheet for a railway track, said datum sheet bearing a curve graphically representing the gradients of said track and a line graphically indicating the curvature of said track, the abscissæ of points in said curve and line being proportional to the distance of the corresponding points in the track from a fixed point therein, and a railway train record sheet bearing a curve representing pressures prevailing during the passage of a train over said track, the abscissæ of points in said curve being proportional to the distances of corresponding points in the track from said fixed point therein and the ordinates of said curve being proportional to the pressures recorded thereby.

6. In combination, a transparent datum sheet for a railway track, said datum sheet bearing a curve graphically representing the gradients of said track and a line graphically indicating the curvature of said track, the abscissæ of points in said curve and line being proportional to the distance of the corresponding points in the track from a fixed point therein, and a railway train record sheet bearing a curve graphically representing the tractive force exerted by the locomotive during its passage over said track, the abscissæ of points in said curve being proportional to the distances of corresponding points in the track from said fixed point therein, and the ordinates of said curve being proportional to the force recorded thereby.

7. In combination, a transparent datum sheet for a railway track bearing a graphic representation of the characteristics of said track arranged lengthwise of said sheet upon a reduced scale, and a railway train pressure record sheet bearing a curve graphically representing pressures recorded during the passage of the train over said track, said curve being disposed lengthwise of said sheet upon the scale of said datum sheet above referred to, said datum sheet also bearing graduations indicative of the magnitudes recorded by the curve on said record sheet.

8. In combination, a transparent datum sheet for a railway track bearing a graphic representation of characteristics of said track, and also bearing graduations for the reading of pressure curves upon which said sheet may be superimposed.

In testimony whereof, we have subscribed our names.

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JOHN EMMET PHILLIPS.

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