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PATENTED SEPT. 26, 1905.

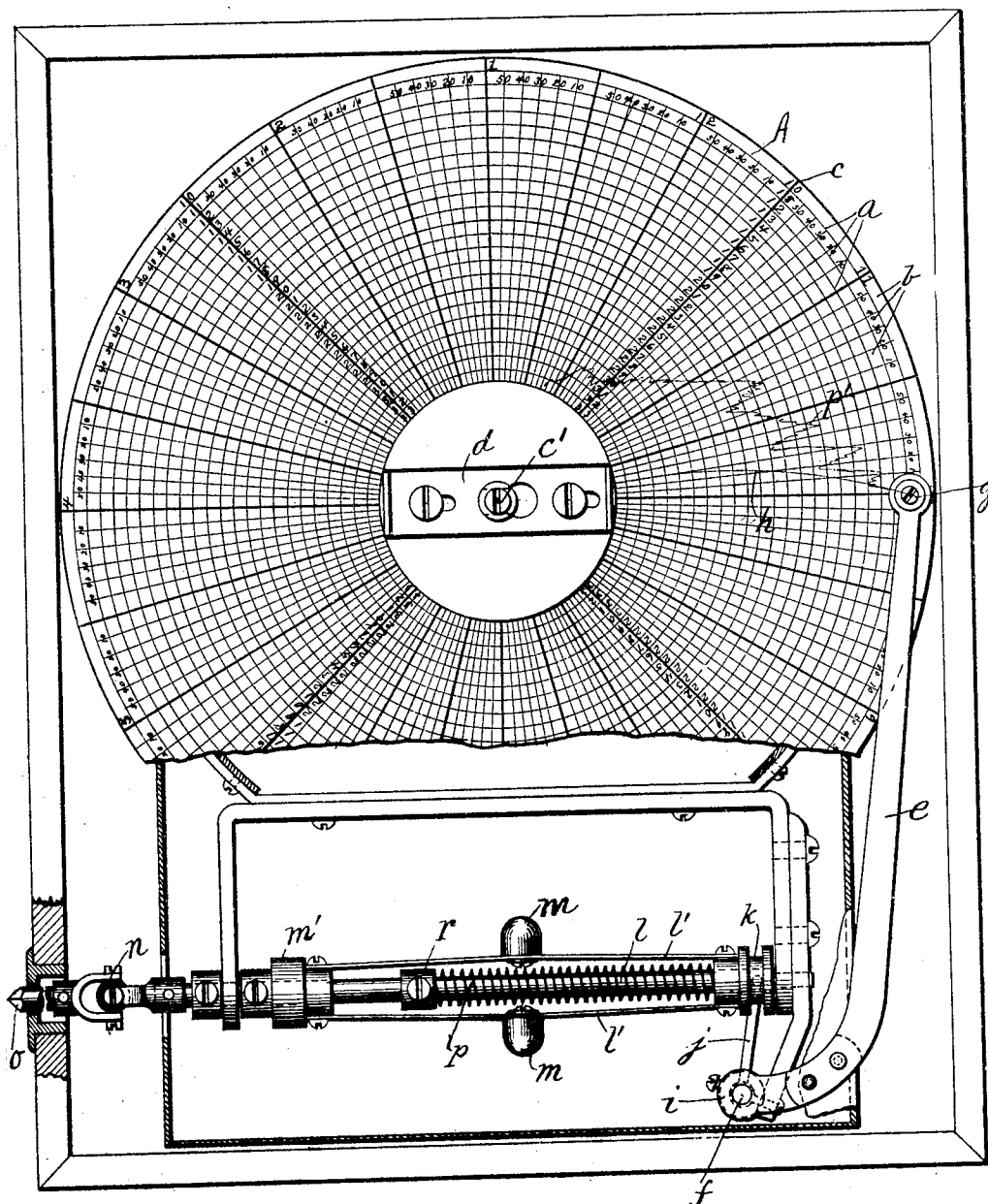
J. S. MORSE & C. E. DENSMORE.

SPEED RECORDER.

APPLICATION FILED JULY 19, 1904.

2 SHEETS—SHEET 1.

Fig. 1.



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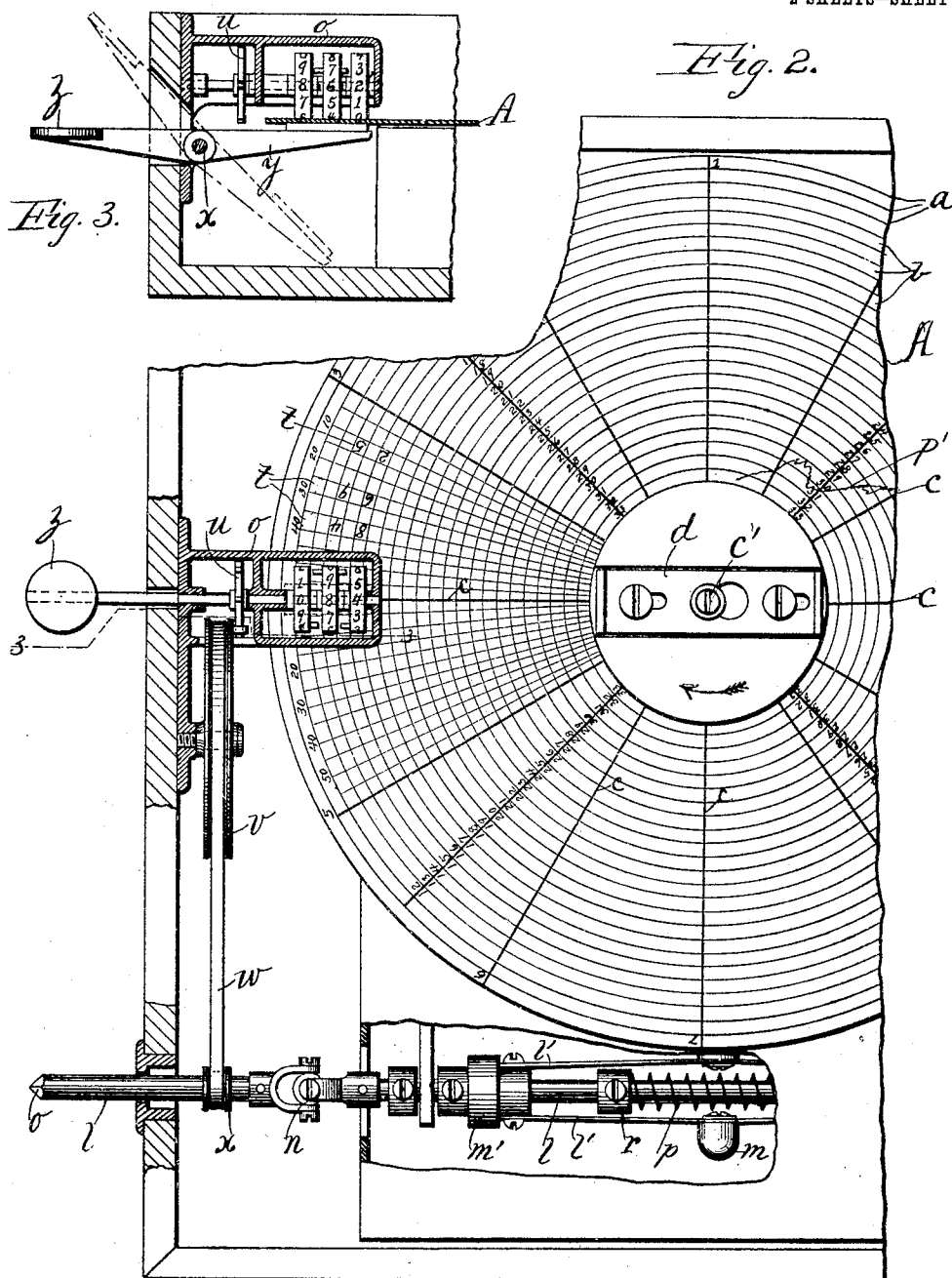
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2 SHEETS—SHEET 2.



WITNESSES:

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UNITED STATES PATENT OFFICE.

JAMIN SETH MORSE AND CARL E. DENSMORE, OF NEW YORK, N. Y.

SPEED-RECORDER.

No. 800,617.

Specification of Letters Patent.

Patented Sept. 26, 1905.

Application filed July 19, 1904. Serial No. 217,229.

To all whom it may concern:

Be it known that we, JAMIN SETH MORSE, a resident of the borough of Manhattan, and CARL E. DENSMORE, a resident of the borough of Brooklyn, New York city, and State of New York, citizens of the United States of America, have invented certain new and useful Improvements in Speed-Recorders, of which the following is a specification.

Our invention consists of improved apparatus in combination with a time-clock in a simple and comparatively inexpensive arrangement for recording speed and distances of running machinery, as automobiles, locomotives, revolving shafting, and the like, as hereinafter described, reference being made to the accompanying drawings, in which—

Figure 1 represents, partly in face view and partly in horizontal section, a time-clock with the speed-recording apparatus applied. Fig. 2 represents in part some of the apparatus of Fig. 1 with the distance-recording attachment in horizontal section. Fig. 3 represents a detail in vertical section of the distance-recording attachment, the sections being taken on line 3 3 of Fig. 2.

A represents a paper disk divided by numerous circular lines a into corresponding circular spaces b , with numerous radial time-dividing lines c , along some of which the said spaces are consecutively numbered from circumference to center or nearly thereto, said disk being detachably clamped onto the hour-hand arbor e' of a clock by any suitable clamp, as d , so as to run in unison with it.

e represents a vibrating arm pivoted at f and carrying a pencil g , so as to vibrate from center to circumference of the disk, or practically so, in a radial line h , the hub i of said arm carrying a lever j , the free end of which engages with a grooved hub k , slidable on a rotating governor-shaft l , carrying the fixed hub m' , to which sliding hub k is connected by the centrifugal springs l' , having the usual weights m , said shaft having the usual swivel-joint n and angular point o for connecting with the center socket in the end of the shaft the speed of which is to be noted. Thus the governor-shaft and the pointer-carrying arm are connected in a simple and efficient arrangement of inexpensive construction.

The governor has the usual spring p for return of the arm e and pencil g to or toward the zero-point near the periphery of the disk.

It will be seen that as the arm e and pointer g are made to traverse the disk by the gov-

ernor when running, a record, such as indicated by the staggered line p' , will be made on the disk, which, taken in connection with the radial time-divisions c and the numbers of the circumferential spaces b , constitutes the notation of the speed, the notation of the circumferential spaces b being in this case of low grade for comparatively slow speeds.

For higher speeds the tension of spring p will be increased by properly shifting the tension-adjusting collar r on shaft l , and disks A, with correspondingly-graduated speed-denominators in connection with lines c , will be employed.

In addition to the speed-record we also provide for a distance-record on the same disk A by employing a cyclometer-counter o , suitably placed over the margin of the paper disk A for impressing the distance-record thereon from time to time, as shown at t , the said cyclometer apparatus being geared by the star-wheel u , star-wheel-actuating pulley v , belt w , and pulley x , or other approved means with the shaft l for rotating in unison with said shaft and the rotating part with which said shaft is connected and an impression-lever y being arranged to reach under the disk A to be operated by hand or other means from time to time to thrust the disk against the impression-dies of the cyclometer-counter o to make the impressions, said lever being arranged on a pivot x' , and in this example having a finger-piece z , to be pressed when it is desired to make a record. Any suitable inking device may be employed in connection with the figures of the cyclometer for inking them from time to time.

As the cyclometer cannot well be placed in such relation to the pointer g as to make its record coincident with the record of said pointer without interference of one with the other, we have arranged it diametrically opposite to the normal position of the pointer to simplify the mental calculations of the pointer-record and cyclometer-record relatively to the clock-time when it is desired to verify the records of the cyclometer and the pointer by each other.

It will be seen that the cyclometer distance and time record can be seen and read as the machine runs along, while the pointer-record has to be calculated for distance.

It is obvious that the record-paper may consist of a straight web and be made by clock apparatus to run in a straight line, and the paper may be made to run its course in

six hours instead of twelve, as for automobile use the machines would seldom be out more than six hours.

What we claim as our invention is—

5 1. The combination in a speed-recorder, of a clock-actuated timed record-disk-carrying device, a pointer for traversing said disk and making the record thereon, a centrifugal governor connected with said pointer for operating it, the said connection consisting of the
10 grooved sliding hub of the governor and the arm of the hub of the pointer-carrying lever engaging said grooved sliding hub, and means connecting the governor with the machine of
15 which the record is to be made for operating it.

2. The combination in a speed and distance recorder, of a clock-actuated timed record-

disk-carrying device, a pointer for traversing said disk and making the record thereon, 20 a centrifugal governor connected with said pointer for operating it, means connecting the governor with the machine of which the record is to be made, and a cyclometer also geared with said machine and adapted for 25 periodically marking distance-records on said disk whereby time, distance and speed records are made on the one record-sheet.

Signed at New York this 30th day of June, 1904.

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Witnesses:

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