

No. 849,884.

PATENTED APR. 9, 1907.

R. P. BROWN.
RECORDING SPEED INDICATOR.
APPLICATION FILED FEB. 13, 1905.

Fig. 1.

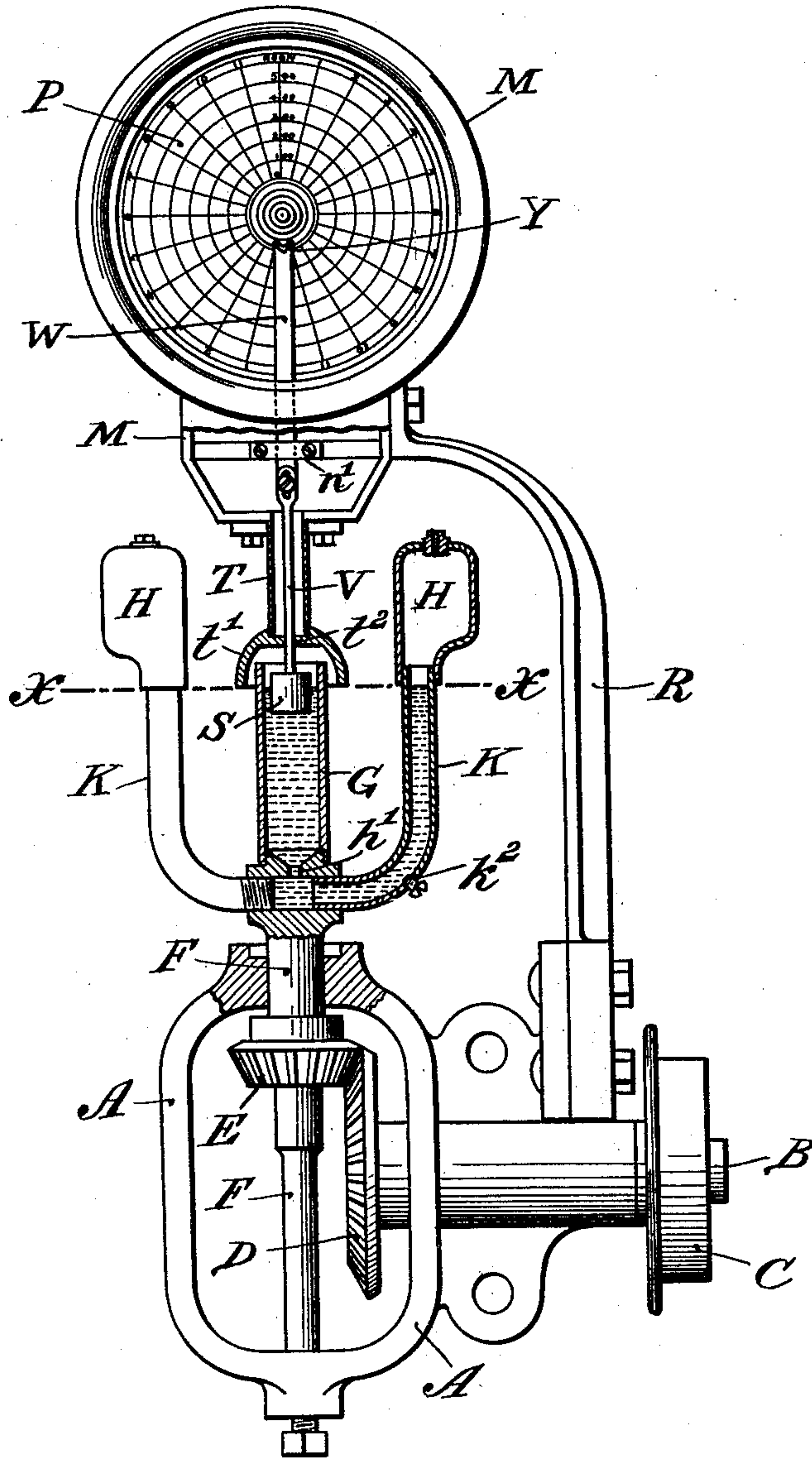
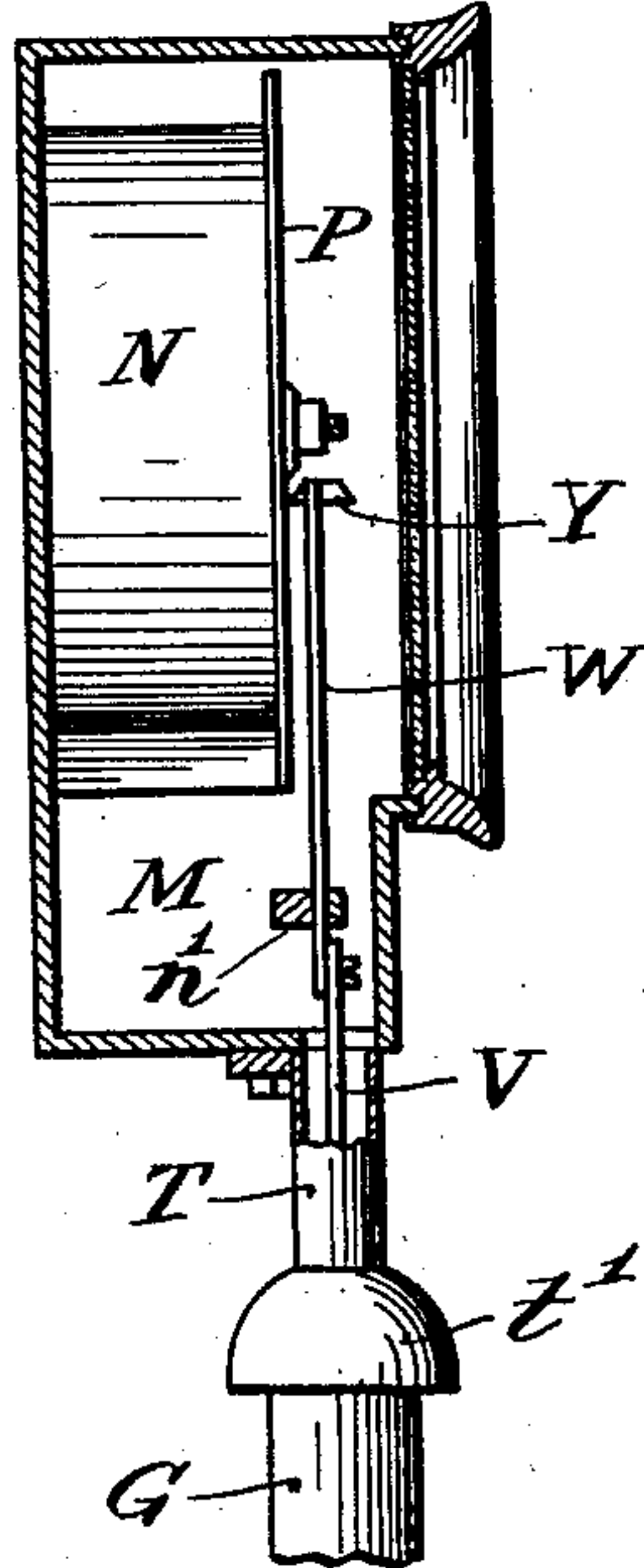


Fig. 2.



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UNITED STATES PATENT OFFICE.

RICHARD P. BROWN, OF PHILADELPHIA, PENNSYLVANIA.

RECORDING SPEED-INDICATOR.

No. 849,884.

Specification of Letters Patent.

Patented April 9, 1907.

Application filed February 13, 1905. Serial No. 245,514.

To all whom it may concern:

Be it known that I, RICHARD PERCY BROWN, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Recording Speed-Indicators, of which the following is a specification.

My invention relates to an improvement in speed-recording instruments in which a variation of speed causes, by centrifugal force, a rise or fall of a column of liquid, preferably mercury, which movement is communicated by a float and a rod to a stylus, which is in operative contact with a chart moved by clockwork; and the object of my invention is to furnish an efficient instrument of this nature with a minimum number of parts.

In the accompanying drawings, forming part of this specification and in which similar letters of reference indicate similar parts throughout the several views, Figure 1 is a front elevation, partly in section, of my recording speed-indicator; Fig. 2, a central vertical sectional view of the case inclosing the clockwork, chart, &c., and a side elevation of the stylus-carrying arm, stylus, and connections.

A is a metal frame which carries the several parts of my machine.

B is a horizontal shaft carrying the pulley C, which is driven from the shaft of the engine, (not shown,) the revolutions or speed of which it is desired to indicate.

D is a bevel-gear carried by shaft B, which meshes with a bevel-gear E carried by a vertical shaft F.

G is a central tube or fluid-chamber carried by shaft F and connected to the reservoirs H by the bent tubes K. The connection between the central chamber G and the tubes K is a very small hole h' , the purpose of which is to prevent sudden fluctuations in the level of the mercury, which otherwise might occur on the dead-centers of slow-moving engines.

The reservoirs H are so constructed that they may be secured eccentrically to the tubes K. Hence by rotating these reservoirs upon the tubes their centers may be brought toward or away from the central reservoir G, and thus the centrifugal action for any given speed may be diminished or increased. When the machine is at rest, the stylus is normally at the zero-mark on the chart. When the chamber G and tubes K are rotated,

the mercury falls in chamber G and rises in tube K. As the mercury falls in chamber G the float S, which rests upon the top of the mercury in this chamber, falls and draws down the rod V, which is carried by the float, and the flexible spring-arm W, which carries the stylus, drawing the latter down across the face of the chart P, which is carried and rotated by a clock mechanism carried in a case N. The case N is inclosed in a box M, similar to boxes and for a like purpose in steam-gages, &c. The box M is secured to frame A by the arm R.

The chart P is suitably graduated. In the drawings it is shown furnished with concentric circles representing each a speed of one hundred revolutions and with radial lines each representing an hour of the day. The pulley-wheel C, which is belted to or otherwise suitably driven from the engine, and the bevel-gears D E are so proportioned in relation to the chart P that a given number of revolutions of the driving-engine are, through the action of the mercury in the chamber S and tubes K, recorded upon the chart by the stylus; but as it is not always possible to get the several parts in exactly the right proportion to obtain accurate results I have provided the reservoirs eccentrically secured to the tubes K. By turning these reservoirs in or out a wide variation in the movement of the mercury may be had for the same number of revolutions of the chamber G, the reservoirs acting to increase or decrease the width of the tubes K as they may be turned in or out.

The stylus-carrying arm W is guided in its movements by the guide n' .

T is a tube which is bolted to the box M and t' a cap carried by the tube T, which covers the top of the chamber G and extends down along the sides thereof to prevent the access of dust. In the tube T or cup t' is a guide t^2 for the rod V.

The line X X represents the normal level of the mercury in the chamber G and tubes K.

k^2 is a plugged orifice through which the mercury may be drawn off when desired.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

In a recording speed-indicator, in combination, a frame having bearings for a horizontal and a vertical shaft, said shafts, connections for said shafts, a central rotating fluid-chamber having a contracted opening therein

carried by the vertical shaft, oppositely-arranged hollow arms the lower ends of which communicate with the fluid-chamber, eccentrically-adjustable reservoirs carried by the upper ends of said arms, a float carried in said central fluid-chamber, a rod carried by said float, a flexible stylus-arm adjustably connected to the rod, a stylus, a clock-operated chart adapted to be engaged by said stylus, and an arm carried by said shaft-carrying frame for carrying said clock mechanism and connected parts. 10

In testimony whereof I affix my signature in presence of two witnesses.

RICHARD P. BROWN.

Witnesses:

JOHN F. GRANT,
J. FRED DE HART.