

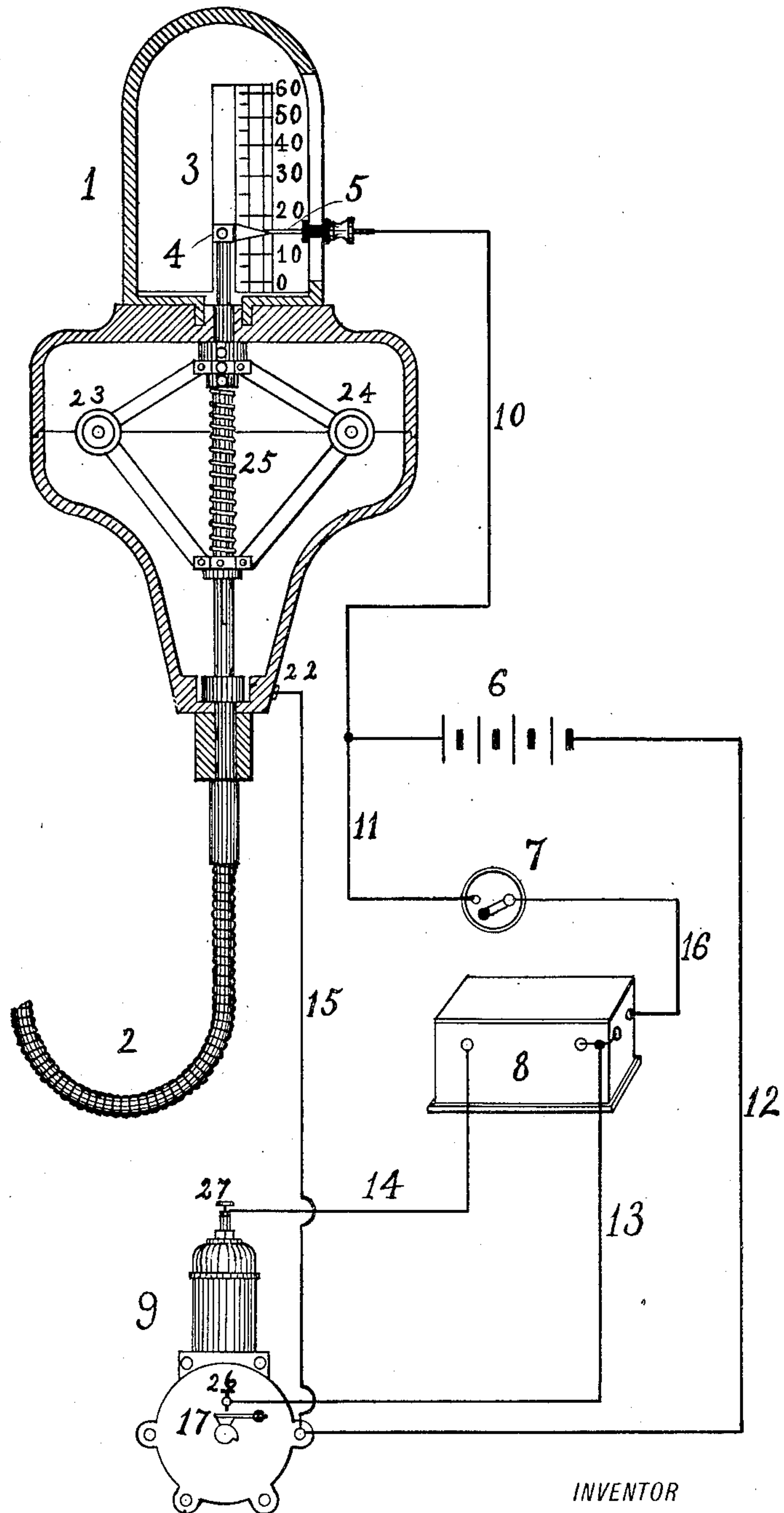
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PATENTED FEB. 25, 1908.

F. S. PERRIN.

SPEED LIMITING DEVICE FOR ELECTRICALLY IGNITED EXPLOSIVE ENGINES.

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WITNESSES:

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SPEED-LIMITING DEVICE FOR ELECTRICALLY-IGNITED EXPLOSIVE-ENGINES.

No. 880,093.

Specification of Letters Patent.

Patented Feb. 25, 1908.

Application filed January 9, 1907. Serial No. 351,489.

To all whom it may concern:

Be it known that I, FREDERIC STANTON PERRIN, a citizen of the United States, and a resident of the city of New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Speed-Limiting Devices for Electrically-Ignited Explosive-Engines, of which the following is a specification.

My invention relates to improvements in devices for limiting the speed of electrically ignited explosive engines; and the object of my improvement is to prevent such an engine, or vehicle propelled thereby, from exceeding a desired speed.

I attain my object by the mechanism and electric circuits illustrated in the accompanying drawing, in which—

Figure 1 is a vertical section of a speed indicator commonly in use upon automobiles to show the miles traveled per hour, and an electrically ignited explosive engine with electric circuits necessary for its operation.

Similar numbers refer to similar parts throughout the view.

The numeral 1 represents a sectional view of a speed indicator operated by centrifugal force. The flexible shaft 2 extends any desired length and has a small pinion attached to its extreme end (not shown in the drawing) that meshes with a gear upon the vehicle wheel, or engine shaft, which causes the flexible shaft 2 to revolve at a speed proportional to the speed of the wheel, or engine shaft, and swing the weights 23 and 24 at a speed necessary to raise them by centrifugal force against the tension of the spring 25 and cause the index 4 to rise upon the scale 3 and indicate the number of miles the vehicle is traveling, or the speed of the engine, according to the divisions upon the scale.

5 is an insulated contact point adapted to be clamped upon the frame of the speed indicator, at any point of the scale, in the path of the index 4; 6 indicates a battery; 7 is a switch; 8 represents an induction coil, and 9 represents an explosive engine.

10, 11, 12, 13, 14, 15 and 16 represent metallic electric circuits connecting the different apparatus.

In all electrically ignited explosive engines it is necessary to have an electric spark produced in the cylinder, at the proper time, to explode the mixture of gases, and to produce

this spark requires a source of electrical energy in connection with a low tension or high tension coil, according to the form of engine. In the drawing I have shown the engine operated by a high tension non-vibrating coil, 8, connected with a battery, 6, whose current flows through the line 11 to the switch 7, thence by the line 16 through the primary winding of the coil 8 and the line 13 to the insulated contact 26 upon the engine 9, thence through the movable contact 17, when the cam upon the engine shaft raises 17 and causes the two to meet, to the engine frame; and from this frame through the line 12 back to the battery 6, forming a complete circuit through the coil 8. When the cam upon the engine shaft passes the contact 17 and allows it to separate from the stationary point 26 this circuit through the primary coil of the induction coil is suddenly broken and a momentary current of high potential is induced in the secondary windings of the coil that flows through the line 14 to the spark plug 27, in the engine, and jumps across the gap in the plug to the frame of the engine, thence completing the high potential circuit from the frame through the line 12 to the battery 6, thence through the line 11, switch 7, line 16 to the primary winding of the coil 8, then to the secondary winding connection, producing a spark within the cylinder at the proper time to ignite the mixture and operate the engine. This spark of ignition is produced at each separation of the contacts 17 and 26 and causes the engine to run continuously until the switch 7 is opened and the battery circuit broken, or the current from the battery is diverted from the coil 8.

To the contact 5, which is insulated from the speed indicator 1, is attached the conductor 10, which extends to the pole of the battery, 6, that is not directly connected with the frame of the engine; and the metallic casing of the speed indicator is connected with the engine frame by the conductor 15, forming a circuit in shunt with the initial or battery circuit when the index 4 is touching the contact point 5, or as is commonly expressed, "short circuiting the battery." If the contact point 5 is set upon the scale 3 at the indicated speed of 25 miles per hour, and the engine is propelling the vehicle at a speed below 25 miles, the index 4 will not reach the contact point 5; but should the speed be in-

creased until a rate of 25 miles is reached then the index 4 will meet the contact point 5, close the shunt circuit and short circuit the battery. As the resistance of the initial or
5 coil circuit is much greater than the shunt or short circuit, the amount of current flowing through the initial circuit, when the shunt circuit is closed, will not be sufficient to operate the coil, hence there will not be any spark.
10 within the cylinder and the engine will be deprived of its power. The moment the power is cut off the engine begins to slow down, and when its speed has been reduced below the rate of 25 miles per hour the index 4 separates from the contact point 5, opens the shunt
15 circuit and allows the battery current to flow through the coil and produce the spark in the engine; thus reproducing the power before the engine has had time to stop or be reduced very much in speed. By this means the engine
20 will be enabled to keep an approximate speed of 25 miles per hour and never exceed this speed.

It will be understood that the index, its
25 supporting rod, and all connecting parts in the speed indicator are of metal, and form a conductor for the shunt circuit when the index meets the contact point 5.

What I claim as my invention and desire to secure by Letters-Patent is—

1. In an electrically ignited explosive engine, a primary circuit, means for shunting the primary current from its circuit, consisting of a speed indicator; a movable index, a contact point adapted to be set at any point
35 upon the indicator scale, in the path of the index; and an electric circuit, in multiple with the primary circuit, including the contact point and the index.

2. In combination with an instrument for
40 indicating the speed of a vehicle propelled by an electrically ignited explosive engine, a movable index, a contact point adapted to be set at any point upon the indicator scale, in the path of the index; a primary circuit,
45 an electric circuit, in multiple with the primary circuit, including the contact point and the index, the index shunting the primary current when it meets the contact point.

Signed at the city of New York in the
50 county of New York and State of New York this 8th day of Jan. A. D. 1907.

FREDERIC STANTON PERRIN.

Witnesses:

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HAROLD C. DAYTON.