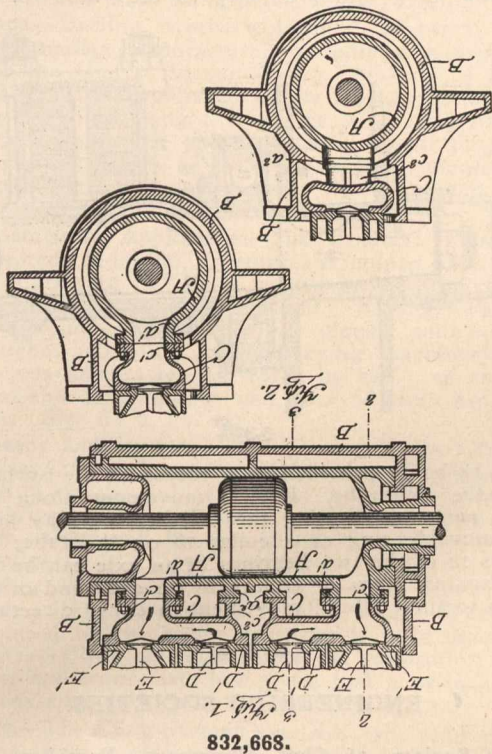


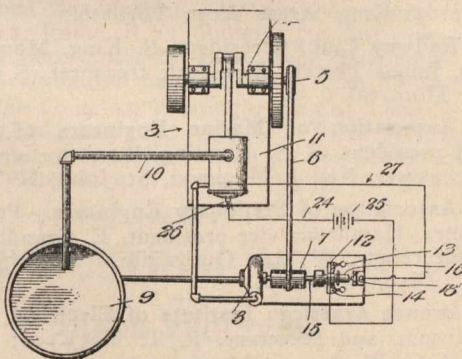
form cooling of the cylinder-covers or ends, and it not infrequently happens that they split, owing to unequal expansion. Now, this invention, therefore, is designed to provide a valve-gear which shall not possess the disadvantages above cited. The desired end is attained substantially by placing all the inlet and exhaust valves upon the back of the cylinder. It consists of a working cylinder having a rib and



832,668.

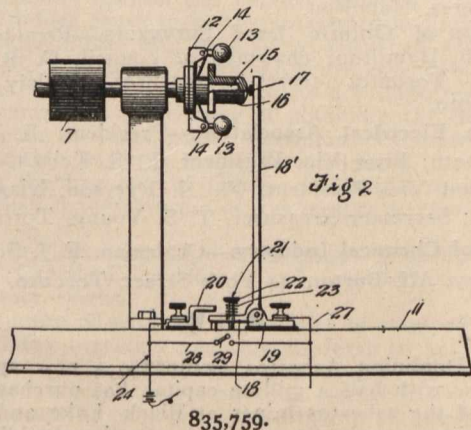
a flanged junction, a water-jacket surrounding the working cylinder and extending above the flanged junction and the rib, and a valve-chest provided with a rib and a flanged junction supported respectively on the rib and the flanged junction of the working cylinder in such a manner as to permit relative expansion movement between the chest and the cylinder and located within but spaced from the walls of the water-jacket.

**Gas Engine.**—Thomas N. Kellett, Los Angeles, Cal.—835,759.—1906. This invention relates to the sparking-circuit of the engine.



835,759.

In operating a gas-engine where the combustion is accomplished by means of an electric sparking apparatus it



835,759.

often happens that the circulating-pump which controls the flow of water to the engine-jacket and which derives its

power from the engine sometimes stops—for instance, when the belt from the engine-pulley slips off or is broken. When such an accident occurs, the flow of cool water to the engine-jacket is cut off and the water in the jacket stops circulating, the engine continues to work and becomes so hot that it often sustains a great injury.

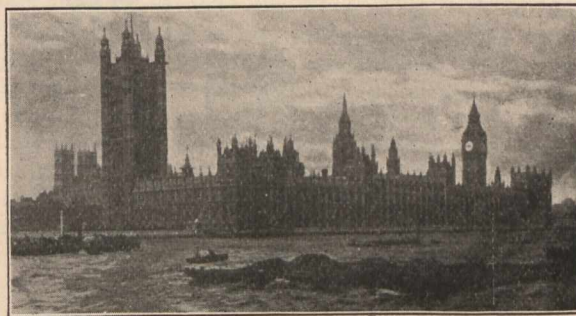
It is the object of this invention to obviate such accidents, and to this end there is provided mechanical means whereby when the circulating-pump is thrown out of action from any cause whatever the supply of current to the sparking apparatus is instantly cut out and the engine is brought to a stop, thereby preventing any injurious effects. It comprises a circulating-pump; a normally open sparking-circuit connected to a spark-plug in the cylinder of the engine; a switch in said sparking-circuit; a spring secured to said switch to hold the same normally open; and means secured to the circulating-pump to close the switch and keep the same closed during the operation of the circulating-pump.

**Illuminated Sign.**—William T. Bradshaw, Oakland, and Charles H. Townsend and Oscar E. Erickson, Berkeley, Cal.—836,915.—1906.—The sign body has sides apertured in the form of the letters to be displayed, inner surfaces of



836,915

the walls of the sign body being suitably faced to reflect the light. Lamps are placed in the sign body, and concave apertured reflectors are secured on the outside of the sign body, each around one of the apertures in the sides thereof.



British Houses of Parliament.

GREAT BRITAIN.

**Flexible Coupling.**—Albion Motor-Car Company, Limited, and T. B. Murray, Scotstoun.—23,469.—1905.—This invention has for its object to provide a flexible coupling more particularly adapted for use in connection with motor vehicles, and which, while very compact, is simple, effective, and not readily damageable. According to the invention, there is provided loose upon the driven shaft a sleeve operatively connected to the driving shaft and carrying at its end remote from this connection one member of a jaw-clutch. The other member of this jaw-clutch is formed upon a sleeve keyed to the driven shaft. In the example shown there is provided, loose upon the driven shaft A, a sleeve B operatively connected by a universal coupling to the driving shaft, and carrying at its end remote from this coupling one member E of a jaw-clutch. The other member G of this jaw-clutch is formed upon a sleeve H keyed to the driven shaft A. The clutch members E, G are always in engagement, but their jaws permit of a small definite relative rotation of the two parts. Within this amount of rotation a spring J acts in the manner to be described, and the jaws E, G of the clutch have such clearance as not to encounter each other when the spring is free, so that the spring acts to some extent as a cushion even if the direction of drive is reversed. The spring J is of helical form