

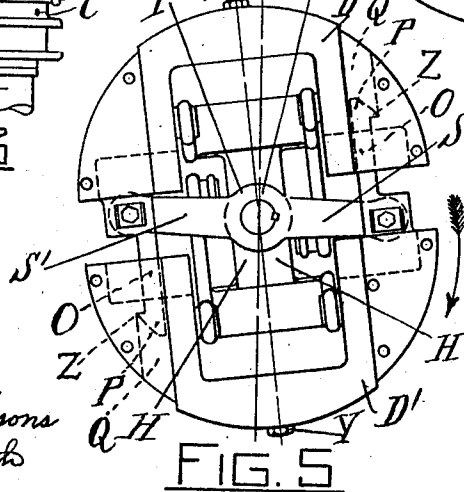
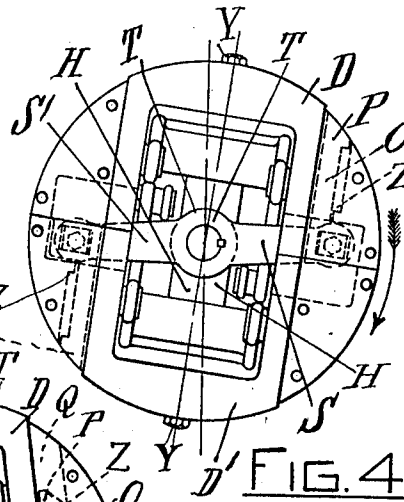
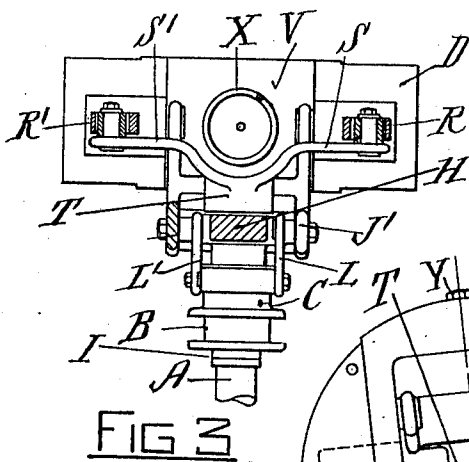
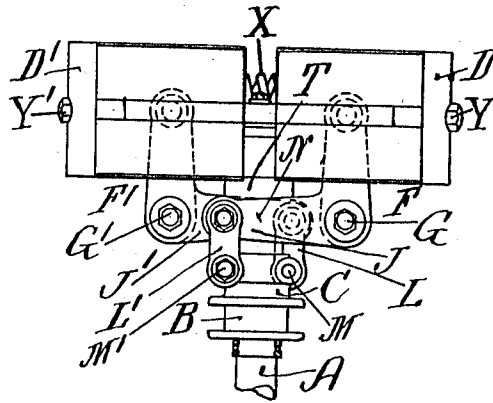
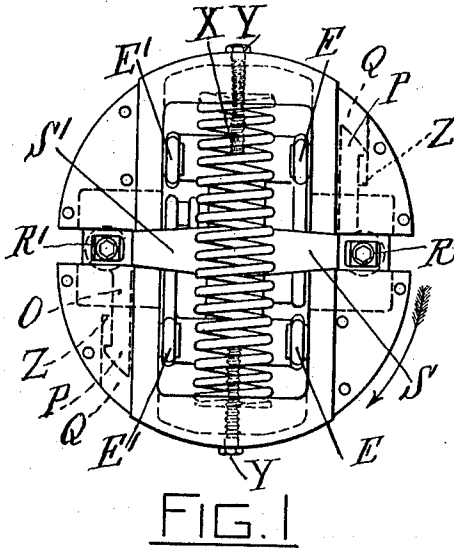
J. W. SARGENT.
ENGINE GOVERNOR.

APPLICATION FILED JUNE 20, 1910. RENEWED OCT. 27, 1911.

1,020,225.

Patented Mar. 12, 1912.

2 SHEETS—SHEET 1.



WITNESSES

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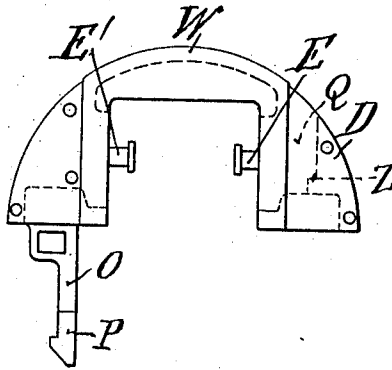


FIG. 6.

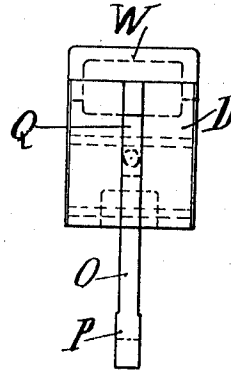


FIG. 7.

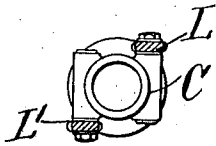


FIG. 12.

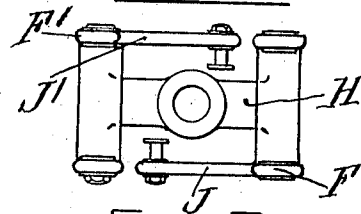


FIG. 8.

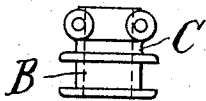


FIG. 13.

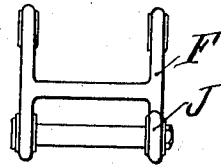


FIG. 11.

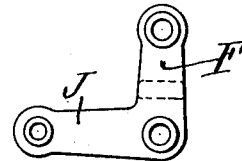


FIG. 10.

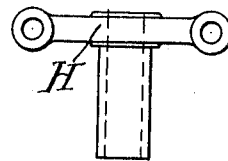


FIG. 9.

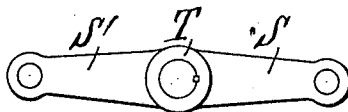


FIG. 14.

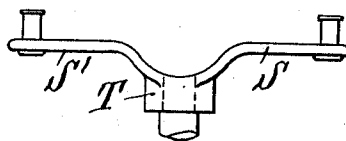


FIG. 15.

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ENGINE-GOVERNOR.

1,020,225.

Specification of Letters Patent.

Patented Mar. 12, 1912.

Application filed June 20, 1910, Serial No. 568,035. Renewed October 27, 1911. Serial No. 657,185.

To all whom it may concern:

Be it known that I, JOHN W. SARGENT, a citizen of the United States, residing at Providence, in the State of Rhode Island, have invented a new and useful Improvement in Engine-Governors, of which the following is a specification.

My invention consists in an improved form of the inertia governor, and in the improved construction of governor weights, and their jointed arrangement on bell-cranks; whereby the weights are suitably guided, and the center of gravity of each weight is brought near enough to the center of rotation so that a spiral spring in tension, may be attached directly between the two opposing weights, thereby avoiding the tension of the spring on any of the joints.

In the accompanying drawings: Figures 1, 2 and 3, show a general plan, and two elevations of the governor. Fig. 4 represents a plan view showing the governor at its innermost position. Fig. 5 shows the same at its outermost position. Figs. 6 and 7, show details of the governor weights. Fig. 8 represents a plan view of the bell-crank and the swiveled bracket. Fig. 9 represents an elevation of the swiveled bracket. Figs. 10 and 11 represent elevations of the bell-cranks which carry the governor weights. Figs. 12 and 13 represent a plan and elevation of the sliding sleeve. Fig. 14 represents a plan view of the driving bracket keyed to the shaft. Fig. 15 represents an elevation of the same.

The governor is mounted at the end of shaft A revolving in a stand, the said shaft being preferably held in a vertical position, and in this description, the shaft is supposed to be vertical. Suitable connection is made to the valve gear or throttle valve, through a collar in the circular slot B, of the sliding sleeve C in the usual manner. The governor weights D, D', are pivoted at E and E', to the vertical bell-crank arms F, F', the said bell-crank arms being pivoted at G G', to a swivel bracket H, turning freely on the governor shaft A. This swivel bracket H, is prevented from moving endwise by the hub T of the driving bracket at the top, and by a ball bearing I at the bottom, which latter also carries the weight of the governor. The said bell-cranks F, F', have horizontal arms J, J', extending inwardly by the swiveled bracket H, and on the opposite sides as shown in Fig. 8, and

are connected at K, K', by means of links L, L', to the sliding sleeve C, at the points M, M'. The said bell-cranks connecting through the sleeve C, in the manner shown to form a "couple" whereby the weights will be caused to move in and out together radially and with both weights always equidistant from the center of the governor.

The spiral spring X is connected between the weights D, D', by means of the bolts Y, Y', which extend from the peripheries of the said weights inwardly the centers of gravity of the two weights lying in the center line of the spring; the centrifugal force of each weight is thereby resisted directly by the other weight.

Heretofore it has not been considered practicable to use a single spiral spring of ordinary construction in tension directly between two opposite governor weights, where the spring alone is depended upon to resist the centrifugal force; on account of the difficulty in getting sufficient length of spring within the limits of the weights and at the same time have the center of gravity of each weight near enough to the center of rotation for a suitable relation in its movement to the scale of the spring. But I find in practice, that by making each weight of a semi-cylindrical form as shown in Figs. 6 and 7, with a space V cored out for the spring, and that portion of the periphery W where the spring bolt Y is located, lightened as much as due strength will allow, that the mass of weight will be brought sufficiently near to the center of the governor to obtain the desired features above mentioned. The construction of the weight also gives it a smooth exterior without dangerous projections for safety in running, small air frictional resistance, and a good appearance.

The pivots E, E', of each weight, are located in the line of the center of gravity, and to insure that the two weights and spring will always be in parallel, each weight has an arm O, guided by the opposing weight at P in the slot Q. This arm O also acts as a dog to limit the outward movement of the weights, the hook at P striking the shoulder Z of the opposite weight.

The driving of the governor weights through the swivel blocks R, R', is accomplished by means of the bracket arms S, S', which extend up and out from the hub T, which is keyed to the shaft A. Fig. 1

shows the weights in their middle position. Fig. 4 shows them at their innermost position and being rotated forward in the direction of the revolution of the governor. Fig. 5 shows the weights in their extreme outer position in which they are being rotated backward from the direction of revolution. In ordinary running; if more load is thrown on suddenly, the engine slows down, but the weights by their inertia tend to move forward in the direction they have been moving, and thus come nearer together, thereby giving more steam supply. And vice-versa if the engine speeds up suddenly. The inertia feature thus causes more prompt regulation. An important feature of these weights for inertia purposes is, that most of the mass of metal is located near the circumference, and the diameter of the outer circular portion of the governor may be made to give the desired inertia factor.

I claim as my invention:

1. In a governor, a pair of centrally recessed segmental weights having the preponderance of their mass at their adjacent sides, a spiral spring in tension connecting said weights and having its ends secured within the recesses of the said weights, whereby the centrifugal force of each weight will be resisted directly by the opposite weight, and means for guiding said weights parallel with each other, consisting of a projecting arm on each weight guided by the opposite weight, and valve actuating bell-crank levers upon which the said weights are supported.

2. In a governor, a pair of centrally recessed segmental weights having the preponderance of their mass at their adjacent sides, a spiral spring in tension connecting said weights, and having its ends secured within the recesses of said weights, where-

by the centrifugal force of each weight will be resisted directly by the opposite weight, and a projecting arm extending from each weight to the other perpendicularly to the inner adjacent sides of the weights and serving to maintain the proper parallelism of the said weights.

3. In a governor, a pair of centrally recessed segmental weights having the preponderance of their mass at their adjacent sides, a spiral spring in tension connecting said weights, and having its ends secured within the recesses of said weights, whereby the centrifugal force of each weight will be resisted directly by the opposite weight and bell-crank levers jointed to the weights within the spring holding recess and upon which the weights are supported.

4. In a governor, a pair of centrally recessed, segmental inertia weights, having the preponderance of their mass at their adjacent sides, a spiral spring in tension connecting the said weights and having its ends held in the said central recesses of the weights, means for positively guiding the said weights parallel with each other in the same plane of rotation, the said weights being pivoted to bell-crank levers mounted on a revoluble sleeve on the governor shaft, which sleeve is controlled in its revolution by the movement of the weights, the said bell-crank levers being jointedly connected together through a revoluble and sliding sleeve, around the governor shaft, and a driving bracket having rigid connection with the governor shaft and jointedly connected to said weights.

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Witnesses:

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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."