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THE ALLEN GOVERNOR.

During the last fifty years, it has been the constant effort of thoughtful engineers and machinists in all the world to discover the best mode of maintaining a uniform speed in the working of steam engines while variations occur in the amount of work done by them. It is well known that machinery cannot produce its most profitable results without being run at the highest rate of speed consistent with its durability and the production of a perfect fabric, and that no machinery can be run at or near its highest rate when subjected to uncontrolled variations.

The ordinary Watt governor, though capable of effecting this object with a close approximation to accuracy when the variation in the power is confined within narrow limits, fails in maintaining the speed of the engine when sudden changes occur in the resistance to be overcome. The defect becomes of serious consequence in some cases, such as in the engines driving rolling mills in iron works, where the whole power of the engine has to be exerted suddenly while the iron is passing through the rolls, and the work then ceases, leaving only the resistance of the friction of the machinery to be overcome. The object sought for in the peculiar construction of the Allen governor is the thorough and accurate regulation of steam engines, and especially those with adjustable cut-offs.

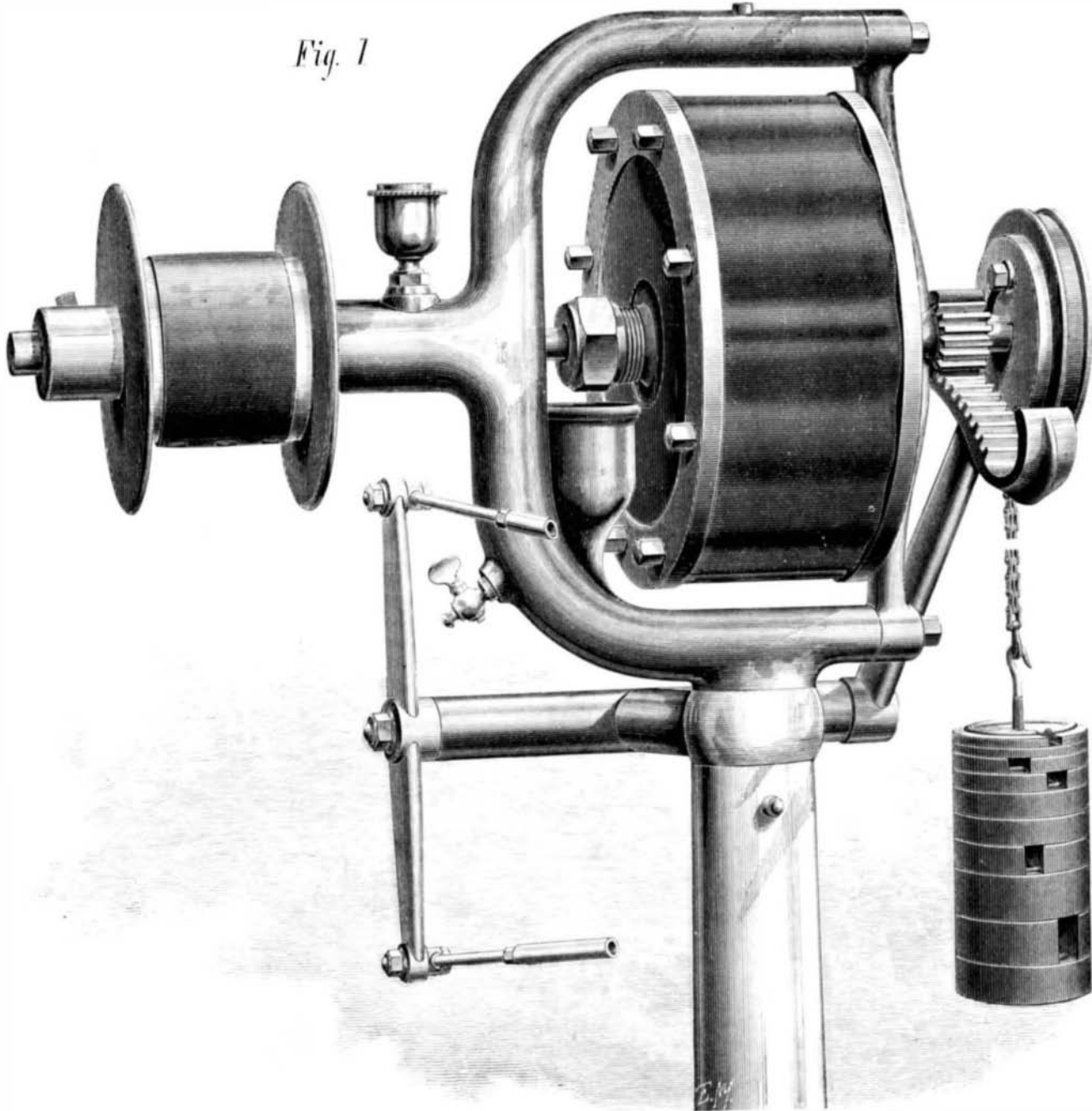
This governor was invented by R. K. Huntton, of Boston,

well known among engineers as the inventor of the old Huntton governor, who has given nearly thirty years' study to regulating steam engines. It is patented in this and several foreign countries, and has come largely into use. It

the same at every point of their suspension. The high rate of speed used acts advantageously in making the governor very sensitive; and all parts being lubricated, it works with the smallest amount of friction. This governor, in doing its work, makes an entire circuit, passing through 360°.

The peculiar action of this governor allows the use of a valve of large area, thereby admitting to the engine cylinder a large boiler pressure at each stroke of the piston, and this produces, we are informed, excellent results when applied to old engines, in increasing their power or effecting a direct saving in fuel, or both. In running an engine with this governor, with high or low pressure of steam and with all variations of power, the throttle is opened wide in the morning and remains so until closed at night, thus relieving the engineer and giving him time for other duties. The governor valve, when the apparatus is not attached to a variable cut-off engine, is constructed with a double disk in a tubular form, and is perfectly balanced, there being no spindle as in the ordinary throttle valve, to interfere with its equilibrium. The valve is moved by means of a lever, and is opened and closed by a rocking motion of a steel spindle, which is covered with brass, insuring durability. This arrangement we shall probably illustrate in a future number. Upon the least

Fig. 1



THE ALLEN STEAM ENGINE GOVERNOR.

was awarded grand gold medals, at Moscow, in 1872, at Leeds, England, and at Lyons, France, in 1872, and at Vienna, in 1873.

The construction of the Allen governor will be clearly understood from Fig. 1, which represents an elevation of the governor when complete, and Figs. 2 and 3, which show sections of the cylinder and frame. Within a corrugated cylinder, A, which has small projecting ribs on its interior periphery, and which is partially filled with oil, a paddlewheel, B, is caused to revolve by a spindle (Fig. 1) passing through one end of the cylinder, driven by a belt communicating with the fly wheel shaft.

The tendency of the revolving paddlewheel is to cause the cylinder to move in the same direction. On the opposite side of the revolving spindle is a trunnion, or short spindle, fixed to the cylinder, attached to which is a wheel, C, carrying a set of movable weights suspended by a chain, the speed of the engine being regulated by the number of weights. Attached to the wheel and keyed on the end of the short spindle is a pinion, D, revolving with the cylinder and working in a toothed sector, E, the arm of which, being fixed on the spindle of the throttle valve, opens or closes it as the oil cylinder moves with the paddle, according to the variation of load thrown on the engine. When used with the variable cut-off engine, the arm is attached direct to the cut-off, as shown in Fig. 1. For other engines, a throttling valve is combined with the governor.

From the above description of the Allen governor, it will be seen that the weights are raised and lowered in a nearly vertical line, and, unlike those of other governors, remain

variation from the required speed, we are informed, the governor can instantly exert, upon the valve or cut-off, all necessary force, up to a thousand pounds, if required.

Fig. 2

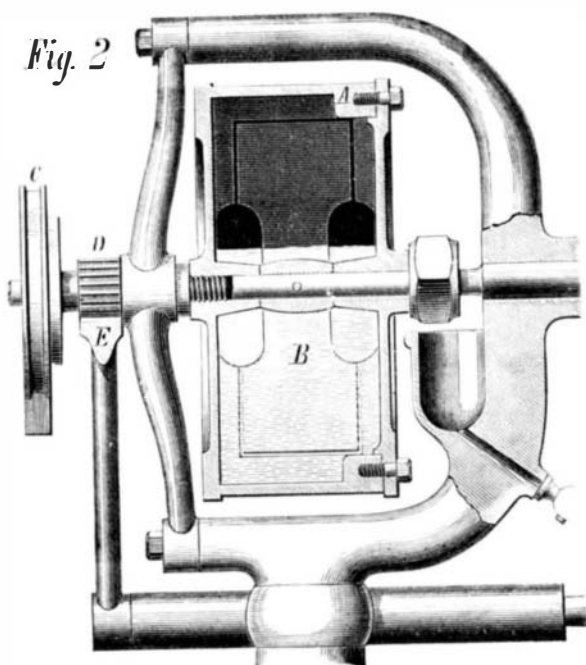
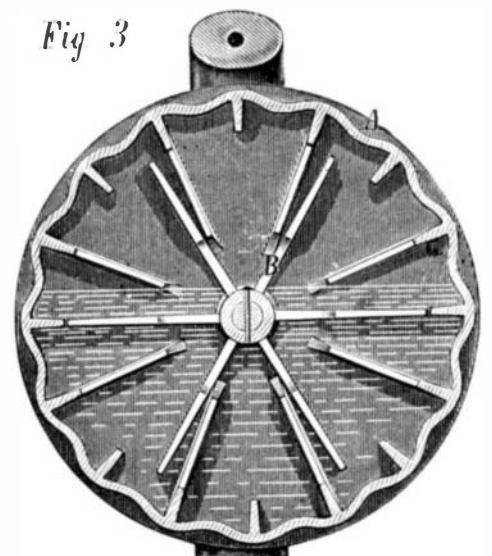


Fig. 3



A large number of highly commendatory reports upon its working are submitted. Further information may be obtained by addressing the patentee, Mr. Stillman B. Allen, 5 Tremont street, Boston, Mass.