

FIG. 4.

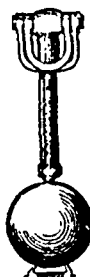


FIG. 5.

HORIZONTAL ENGINE WITH RADINGER'S VALVE GEAR.

slots, and therefore its rotation corresponds exactly with that of the governor spindle. When, however, the governor balls move out or in, the cross piece is raised or lowered, and in consequence of the oblique slots just mentioned, the expansion valve receives a small angular motion relatively to the governor spindle. We know that the angular motion of the induction valve is equal and opposite to that of the spindle, and therefore it is obvious that as long as the expansion valve moves exactly with the spindle, the cut off must always take place at the same time. But by the action of the governor just described the relative positions of the expansion valve and the spindle can be altered, and consequently the precise point in the revolution of the induction valve at which the edge of its opening passes the edge of the expansion valve, in other words, the precise point at which the cut-off takes place, is altered also, thus leaving the cut-off entirely under the control of the governor. The governor itself is of the ordinary type; it is connected with an index (Figs. 1 and 4), which shows at any moment the degree of expansion at which the engine is working. The two exhaust valves are driven by spur gearing from a wheel fixed upon the bush of the induction valve. Upon the top cover of the centre valve chest, which is made in halves, is cast a bracket, which supports an elaborately constructed nut, by means of which the induction

and exhaust valves can be adjusted vertically relatively to each other, and relatively to the seat in which the former works, in this way it is intended that the wear should be taken up. The lower end of the governor spindle is carried in an adjustable socket bearing, so that whenever the wear on the valves renders it necessary to bring them down a little, the governor spindle may be lowered too, otherwise the action of the governor would be rendered less perfect.

Professor Radinger's system of valves and valve gear is certainly ingenious, it is quite correct in theory, and has been very carefully worked out. By means of it the engine will have a constant lead, an expansion accurately controlled by the governor, a very quick cut-off, and points of release and compression entirely independent of lead or cut-off—all of them matters of considerable importance. It cannot be denied, however, that the apparatus by which these advantages are gained is complicated and expensive, will require careful attention, and is awkward to take to pieces. On these accounts we are afraid it will not come into general use, certainly not for engines so small as the present, where even if a large percentage of saving in fuel is possible, the money value of this saving is still insignificant.

The engine is well made and beautifully finished, though without superfluous polishing. The cylinder is 265 millimetres