

Fig. 1.

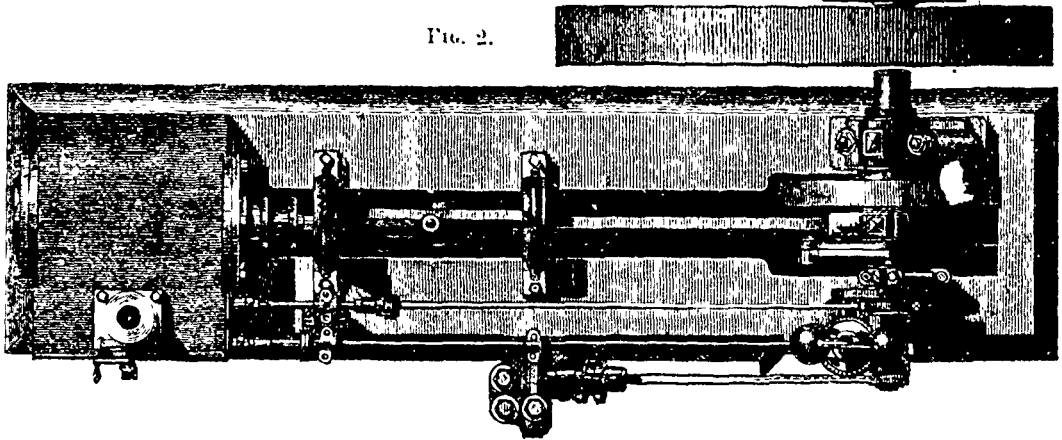


Fig. 2.

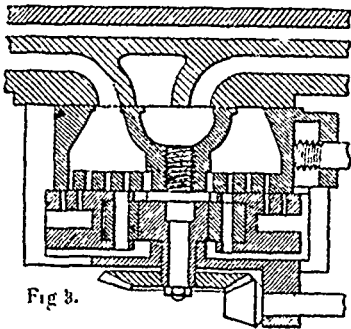


Fig. 3.

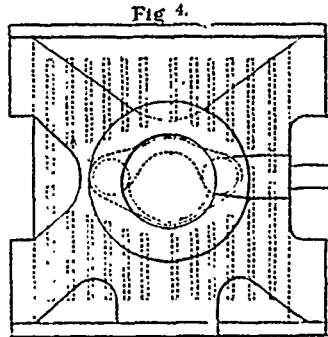


Fig. 4.

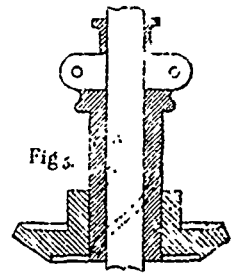


Fig. 5.

DE NEGRI AND HERMANN'S ENGINE.

one revolution of the engine as it has recesses on its periphery, in the present case only once, the governor being so arranged as to cause, when up, a lead to the revolutions of the disc piece.

In Figs. 1 and 2 are shown the eccentric rod from which both the main and back valves are worked. The extension of the rod has both a revolving and a reciprocating motion as it is geared into a wheel which revolves the disc piece, and which also travels with it. The rod is square at the rear end, which works in a square collar, which allows of its following the travel of the valve. Fig. 5 shows a section through the governor stand, which has a screwed bush *e*, and as the governor balls are extended they lift this bush, causing a twist or lead between the wheel which gives motion to the side rod *c* and the wheel which takes the motion for the governor. The indicator *d* a rams, show the great range of cut-off given by the

gear we have described, which gear, we may add, acts very promptly

Apart from the novelties we have described, there are several special features in this engine which are deserving of notice. One peculiarity is that the guide bars are cast in one, and bored out, the crosshead carrying slippers at top and bottom, which are turned to fit the guide. The wear can readily be taken up by means of keys between the crosshead and slippers. The engine has a disc crank and a small countershaft to carry the valve and pump eccentrics as well as driving the governors, thus allowing that part of the gear to be kept as small as possible. This countershaft is driven from the crank pin by a drag link. It will also be seen that in this engine the centres are kept very low, by which arrangement the strain usually thrown on the bedplate and on the bolts, by which the various parts are attached to the bedplate, is reduced.