[Second Edition.]

PATENT SPECIFICATION

Application Date: Feb. 24, 1920. No. 5604/20. **151,209**

Complete Accepted: Sept. 23, 1920.

COMPLETE SPECIFICATION.

Improvements in or relating to Multi-cylinder Explosion Engines.

I, VINCENZO LANCIA, Manufacturer, of 99, Via Monginevro, Turin, Italy, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

This invention relates to multi-cylinder explosion engines constituted by two series of cylinders at an angle, and it has for its object to provide a construction of this type in which the upper end of the cylinders which all open in one plane, is closed by a single head which is independent of the block of cylinders.

It is already known to close the upper ends of adjacent cylinders by a single block in which the valves are mounted, and it is further known to cause the upper ends of all the cylinders of a multi-cylinder V-engine to open in one plane.

In the present construction the cylinders of the two V-series are very close together, so as to end in adjacent zones. They are all closed by a single head secured to the block of cylinders and which, in addition to the valves, is provided with supply and discharge conduits for all the cylinders, as well as with the valve gear parts.

The accompanying drawing shows by way of example a construction according to the invention.

Figure 1 is a cross-section of the engine on the axis of one of its cylinders.

Figure 2 is a sectional plan of the head on line A—B of Figure 1, and

Figures 3—6 are cross-sections of modified constructions of the head.

As will be seen in Figure 1, the engine comprises two sets of cylinders 1 and 1^1, the axes of which form together a small angle so that the upper ends of the two series are adjacent.

According to the invention, the top of the cylinder block and the upper ends of the cylinders lie in one plane. To the top of the cylinder block a head 2 is bolted by bolts 3 (Figure 2).

The head 2 is cast and comprises a lower wall 4 which closes the upper mouths or openings of all the cylinders 1 and 1^1, but leaves holes for the valves. Through the said head pass conduits through which suction and discharge take place, and between which are provided bearings for mounting the stems of the valves 5. Finally, the head 2 has an upper wall 6 in which is mounted the cam shaft 7 with its accessory parts.

The head thus formed affords sufficient space for arranging therein the conduits for admission and discharge. The said conduits can be arranged in various ways, provided that they do not interfere with such an arrangement of bolts 3 as to ensure a proper connection between the head and the cylinder block.

In the construction shown in Figure 1, in the central zone comprised between the valves 5, are arranged four discharge conduits 8, with each of which three cylinders communicate through passages 9 whilst at the two sides are arranged conduits 10 for suction, connected to the cylinders by passages 11.

The discharge conduits can be of any desired number for instance two or even one of large cross-section occupying the central region of the head (Figure 6).

In the central zone of the head suction conduits 10 can be arranged, in which

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case two discharge conduits 8^{1} would be provided at the sides (Figure 3). Finally, the discharge conduits can be constituted by two conduits 8^{11} secured to the two lateral walls of the head, as shown in Figure 4.

The head can be further modified as regards its shape and constructional details. Thus, for facilitating the casting, it can be made in two or more pieces as shown for instance in Figure 5 where the head is constituted by two adjacent elements 2^{1} and 2^{11}. The essential point is that the mouths or openings of all the cylinders of the engine should open in a single plane, and that their closing should be effected by a head independent of the cylinder block in which the valves are mounted and the suction and discharge conduits are arranged.

Close to the lower edges of the head inclined holes 12 can be provided for receiving the sparking plugs as shown in Figure 1.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is:—

1. A multi-cylinder explosion engine of the type with V-cylinders in which the two series of cylinders form a very small angle, the ends of all the cylinders, which all open in the same plane, being closed by a single head secured to the block of cylinders and in which, in addition to the valves, admission and discharge conduits are arranged for all the cylinders, as well as the valve gear parts.

2. An engine as set forth in Claim 1, characterised by the suction and discharge conduits being arranged partly in the central zone of the head, and partly at the two sides, so as to leave between them bosses or bearings for carrying the valve stems and for the fixing bolts.

3. An engine as set forth in Claims 1 and 2, characterised by the head being made in one or more parts.

4. An engine as set forth in Claim 1, characterised by the head providing at its upper part supports or bearings for carrying the cam shaft.

5. An engine as set forth in Claim 1, characterised by the arrangement, close to the bottom edges of the head, of inclined holes for receiving the sparking plugs.

6. The engine substantially as described or substantially as illustrated in Figures 1 and 2 or in Figure 3 or in Figure 4 or in Figure 5 or in Figure 6 of the accompanying drawings.

Dated this 23rd day of February, 1920.

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E.C. 1,
Chartered Patent Agents.

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Fig. 1

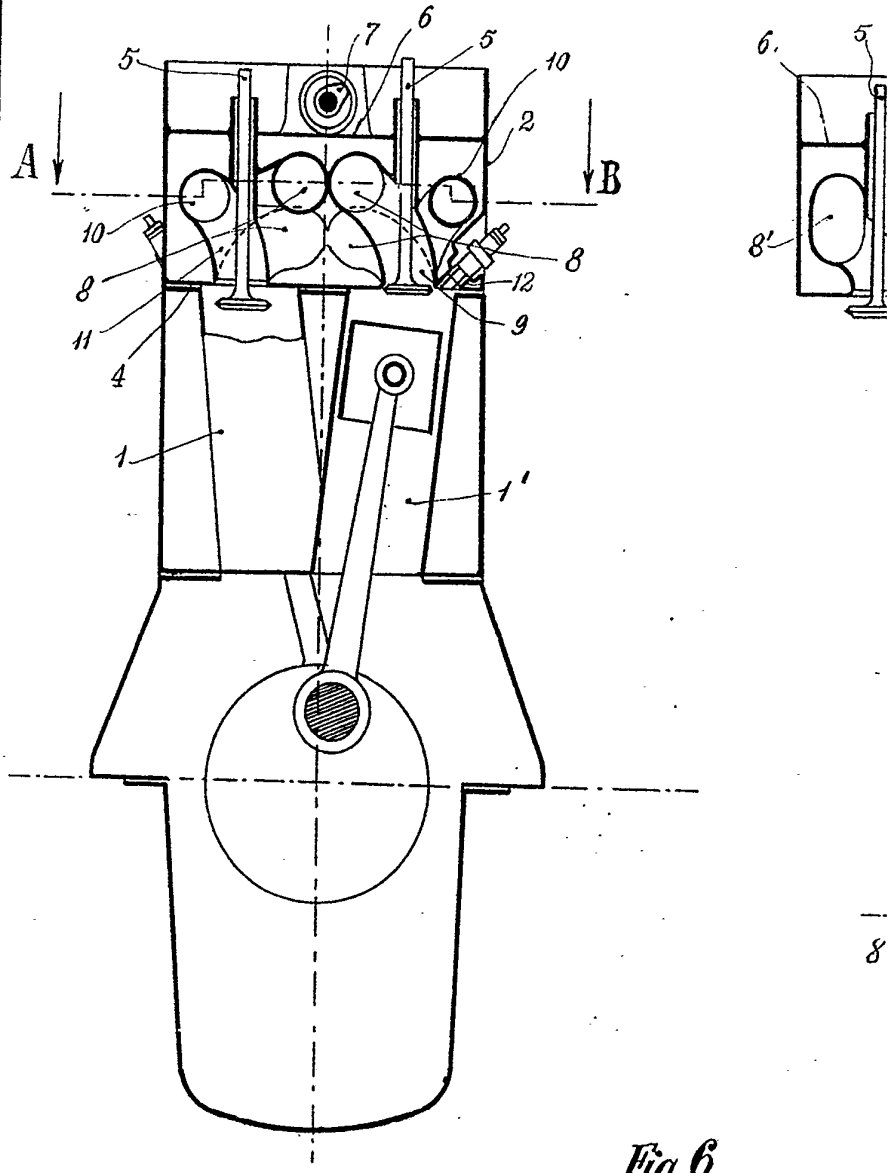

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Fig. 6

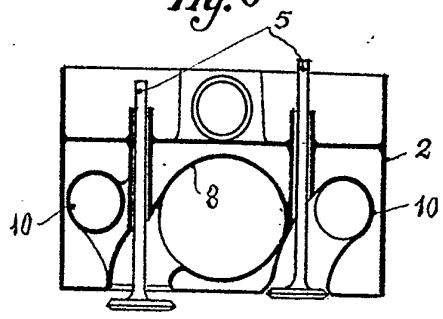

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Fig. 5

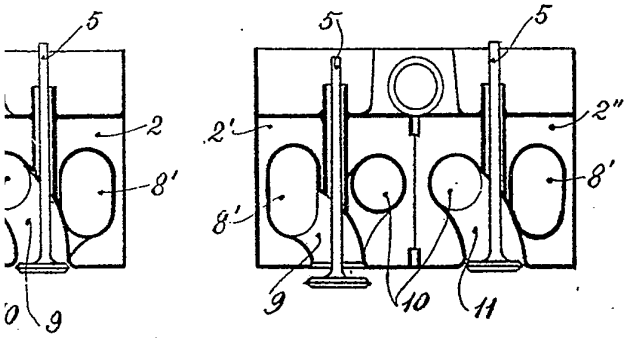

Fig. 4

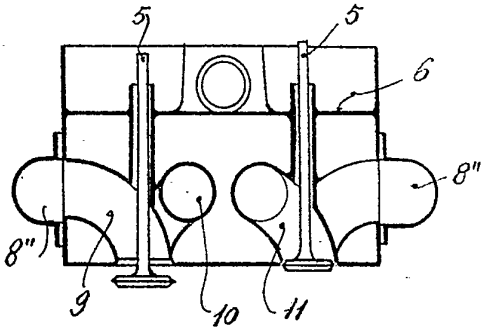

Fig. 2

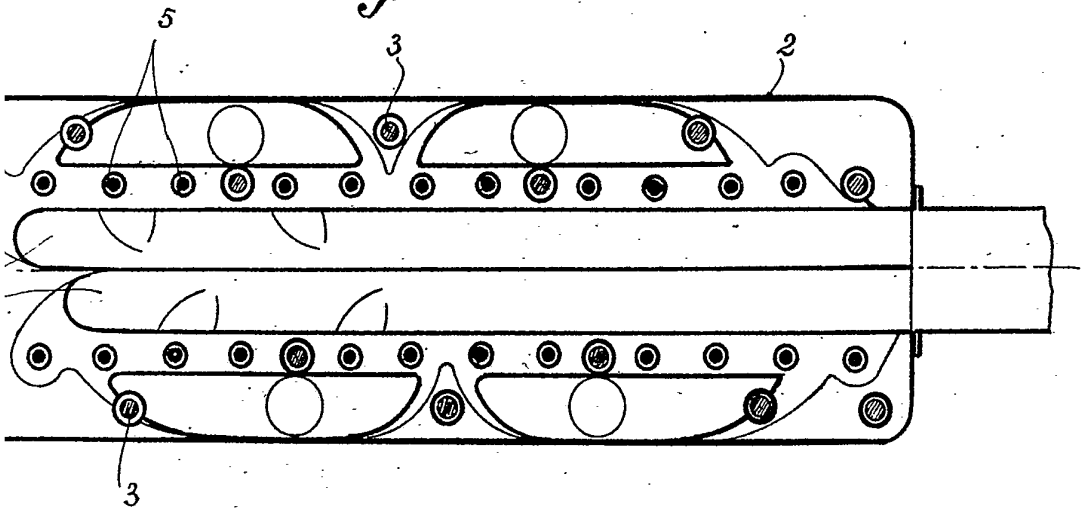

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Fig. 1

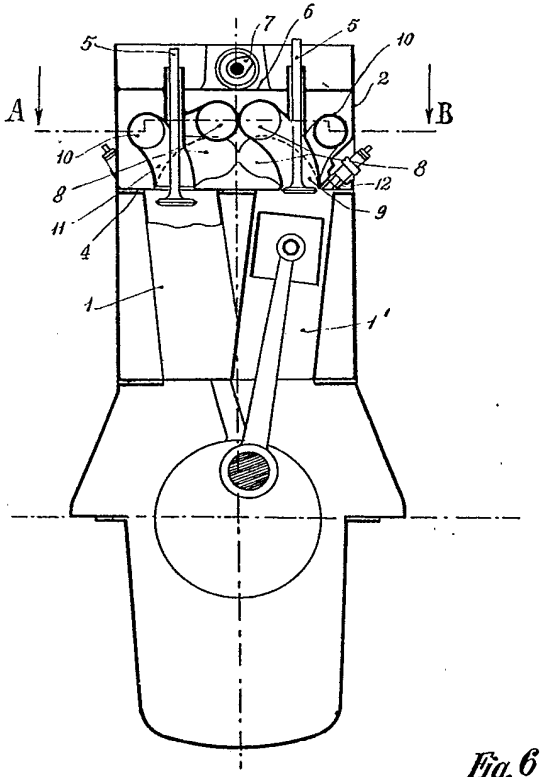


Fig. 3

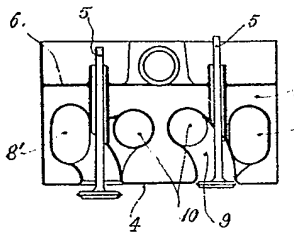


Fig. 5

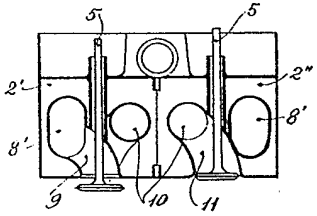


Fig. 4

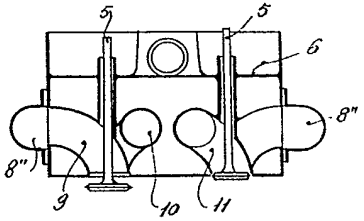


Fig. 2

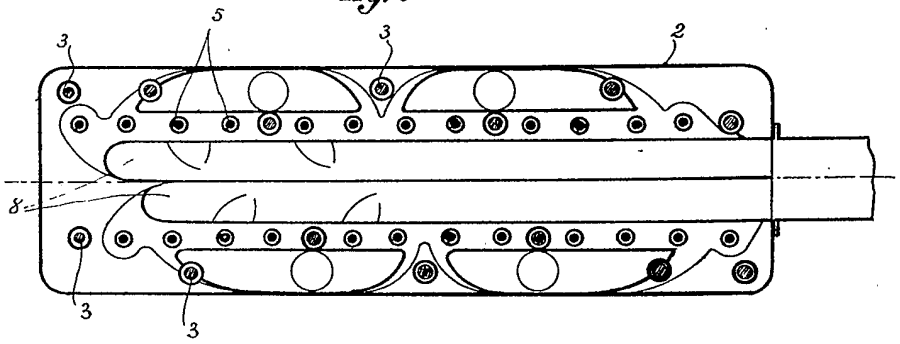
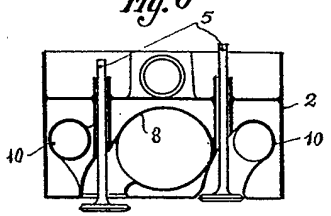


Fig. 6



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