July 15, 1924. 1,501,596

M. GÜTTNER

ROTARY BLOWER AND ROTARY ENGINE

Filed July 11, 1922

Fig. 1.

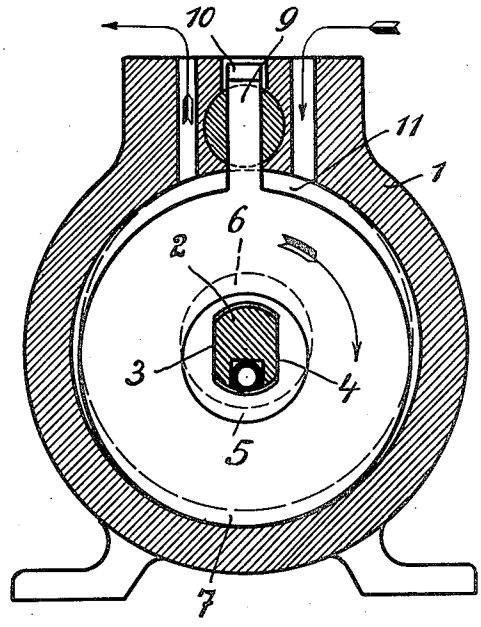
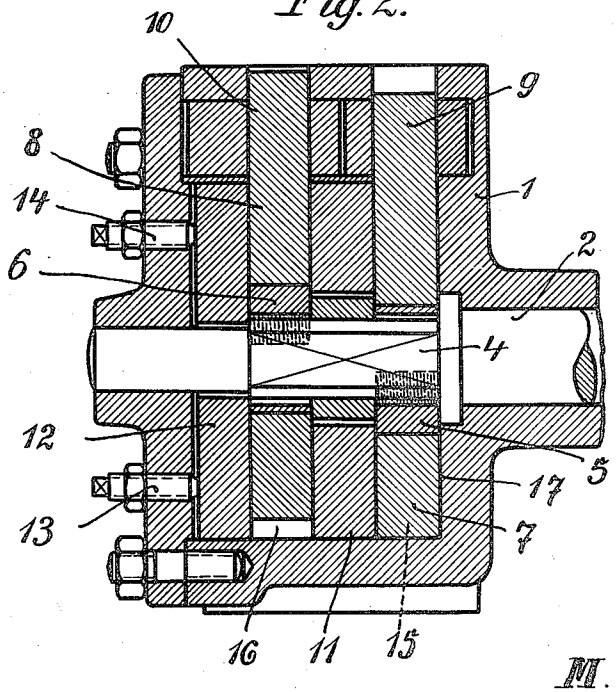


Fig. 2.



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UNITED STATES PATENT OFFICE.

MAX GUTTNER, OF SCHMOLLN, GERMANY.

ROTARY BLOWER AND ROTARY ENGINE.

Application filed July 11, 1922. Serial No. 574,215.

To all whom it may concern:

Be it known that I, MAX GÜTTNER, a citizen of the German Republic, residing at Schmolln, Germany, have invented certain new and useful Improvements in Rotary Blowers and Rotary Engines (for which application for patent has been filed in Germany on the 12th of July 1921), of which the following is a specification.

Rotary blowers, gas compressors and similar machines or rotary engines with working piston eccentrically driven in a cylindrical casing must be directly coupled with the driving engines or with the machine tools to be driven or they must be adapted for high numbers of revolutions and for high pressures, if they have to fulfill the requirements of modern technics. Rotary blowers have been used hitherto only for low numbers of revolutions and for low pressures, amongst other reasons, on account of the one-sided load to which the eccentric piston is submitted at high speed and great pressures. The consequences which result herefrom are quite evident.

This invention has for its object to avoid the inconveniences by arranging in a common casing with movable partition two pistons displaced of 180° the one with regard to the other.

The invention is illustrated by the accompanying drawing, wherein:—

Fig. 1 is a cross section through the engine, and

Fig. 2 is a longitudinal section through the same.

In the casing 1 the piston shaft 2 is mounted which has two parallel surfaces 3, 4 upon which the two eccentrics 5, 6 are movably arranged displaced at 180° the one to the other. These eccentrics are mounted upon the driving shaft preferably by means of straight elastic bodies, for instance helical springs, thin walled tubes or the like, so that the stress on the same acts perpendicularly to the longitudinal direction. The eccentrics carry the pistons 7 and 8 which are articulated in the casing by links 9 and 10 so that they can oscillate but not rotate. As the eccentrics 5, 6 are displaced at 180° the one with regard to the other the two pistons work alternately and the centrifugal forces and working pressures which occur at high speeds compensate each other. In order to obtain a positive work of the engine the two pistons 7 and 8 are separated from one another by a partition 11 which tightly fits into the casing and which is movable in axial direction. By the arrangement of an axially movable lid 12 which is well adjusted by means of pressure screws 13, 14 provided in the cover of the casing, the casing for the pistons is separated into two absolutely tight chambers 15, 16. The packing of the two chambers 15, 16 is effected in such a manner that by screwing up the pressure screws 13, 14 the pressure is transferred from the movable lid 12 upon the lateral surfaces of the piston 8 and from there upon the movable partition 11 which transmits the pressure upon the lateral surface of piston 7, said piston being pressed against the second lid 17 of the cylinder which is fixed. A perfect lateral packing of both chambers is thus ensured by one single pressure.

It is evident that, instead of the arrangement with two pistons as described, an arrangement can be used which comprises three and more pistons mounted upon shaft 2 so that they are displaced the one with regard to the other in accordance with the number of pistons used.

I claim:—

1. In a high speed rotary blower and engine, a casing provided with end walls, a shaft journalled in said casing, a plurality of axially movable pistons arranged in said casing and displaced relative to one another, extensions carried by said pistons pivotally mounted in said casing, eccentrics movable longitudinally on said shaft and coacting with said pistons, removable partitions between the pistons and between the latter and the end walls of the casing, and adjustable members adapted to vary the mutual pressure exerted between the partitions, pistons and casing end wall.

2. A blower and engine as claimed in claim 1 characterized in that the adjustable members are mounted for adjustment in an end wall of the casing.

In testimony whereof I affix my signature in presence of two witnesses.

MAX GÜTTNER.

Witnesses:

LEXINRUM FREITAG,

SMITH LINKN.