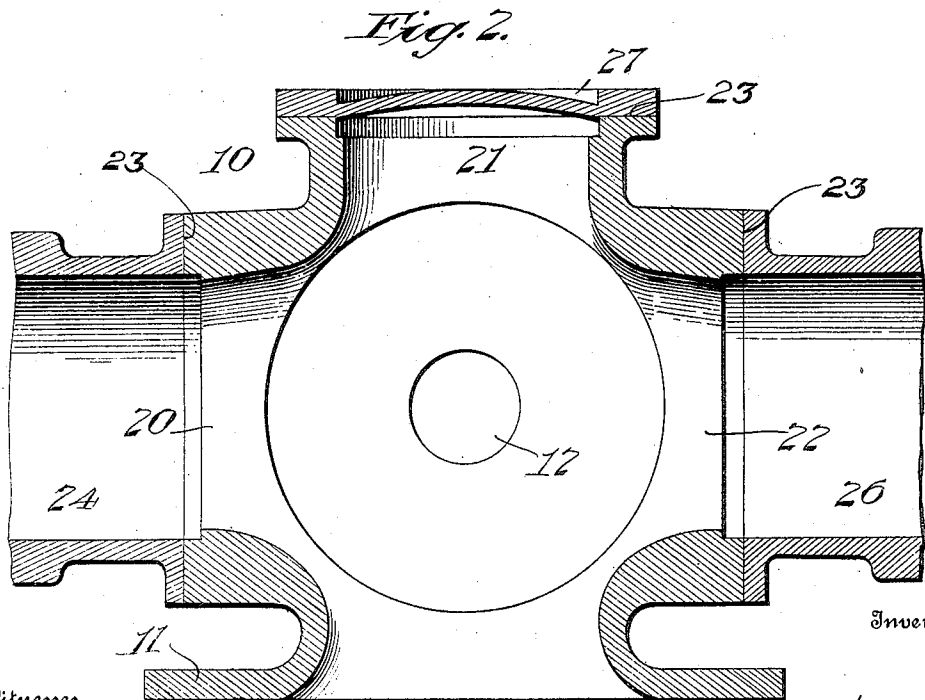
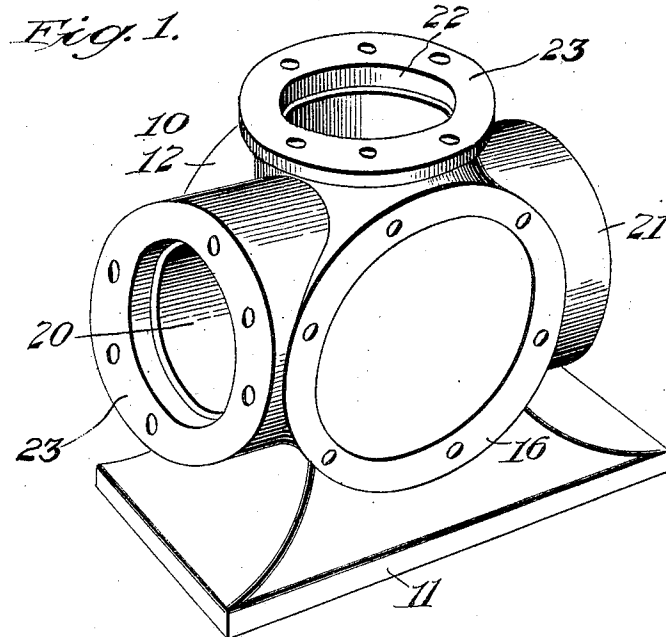


J. P. LANDGRAF.
CRANK CASE FOR ENGINES.
APPLICATION FILED APR. 17, 1909.

934,675.

Patented Sept. 21, 1909.
2 SHEETS—SHEET 1.



Witnesses
P. L. Moorehead
R. Jones.

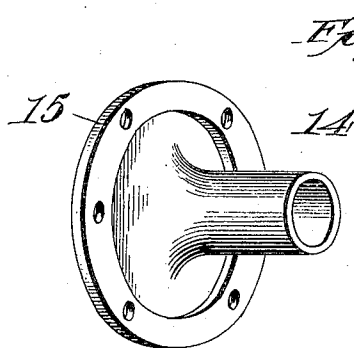
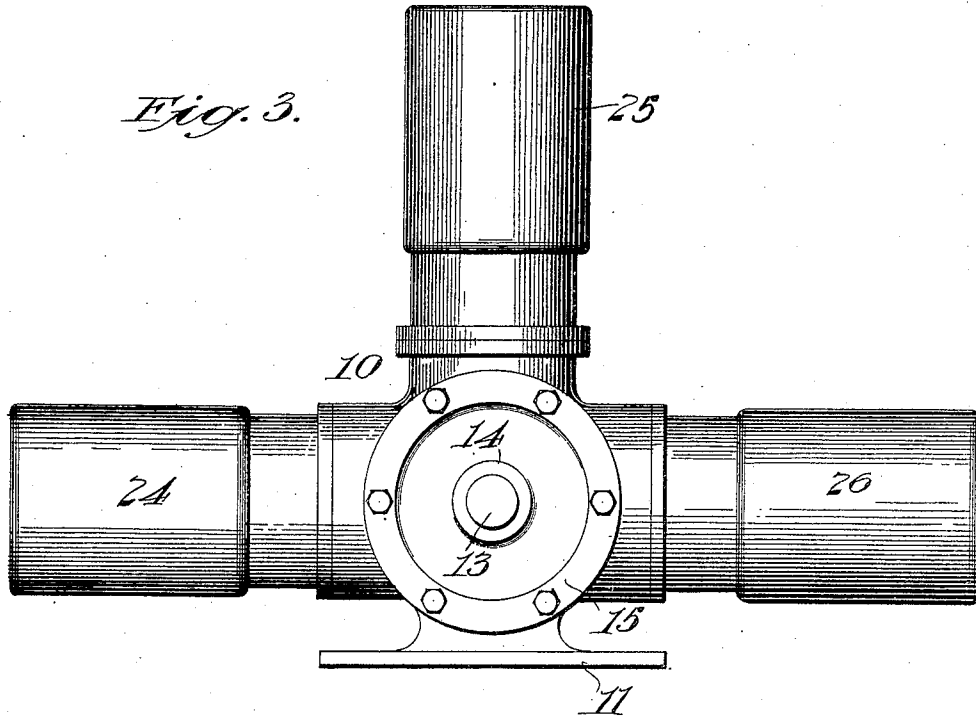
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John P. Landgraf
Geo. Du Shane
Attorney

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Witnesses
T. A. Macdonald
R. H. Jones

By

Inventor
John P. Landgraf
Gas. Du Shane
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UNITED STATES PATENT OFFICE.

JOHN P. LANDGRAF, OF MISHAWAKA, INDIANA.

CRANK-CASE FOR ENGINES.

934,675.

Specification of Letters Patent. Patented Sept. 21, 1909.

Application filed April 17, 1909. Serial No. 490,623.

To all whom it may concern:

Be it known that I, JOHN P. LANDGRAF, citizen of the United States, residing at Mishawaka, in the county of St. Joseph and State of Indiana, have invented certain new and useful Improvements in Crank-Cases for Engines, of which the following is a specification.

This invention relates to certain new and useful improvements in crank cases for engines.

The invention has for its object the production of a crank case of simple construction adapted for use without alteration for an engine of one, two or three cylinders.

The invention will be hereinafter fully set forth and particularly pointed out in the claim.

In the accompanying drawing:—Figure 1 is a perspective view illustrating my improved crank case. Fig. 2 is a substantially central vertical longitudinal section. Fig. 3 is a side elevation illustrating the manner of securing cylinders to said crank case. Fig. 4 is a detail.

Referring to the drawing, 10 designates my improved crank case resting upon a base 11 and having one bearing 12 for the crank shaft 13 cast solid therewith. The other bearing 14 for said shaft is provided with a flange 15 whereby it may be removably secured to a corresponding flange 16 carried by the casing 10. By this arrangement the crank shaft may be inserted or removed at will.

The casing 10 is provided with a plurality of openings 20, 21 and 22 each surrounded by a flange 23, whereby the cylinders 24, 25 and 26 may be secured in position. A plate 27 is employed to close the unused openings.

By closing the openings 20 and 22 with plates 27 and bolting the cylinder 25 in position over opening 21 a single cylinder engine is provided. By closing the opening 21 with a plate 27 and bolting cylinders 24 and 26 over openings 20 and 22, respectively, a double opposed engine is provided. By bolting all of the cylinders 24, 25 and 26 over the openings 20, 21 and 22, a three cylinder engine is procured.

From the foregoing it will be observed that I have produced a crank case of simple construction which is adapted for use, without alteration, with an engine of one, two or three cylinders, and that the change from one form to another can be readily and quickly made at will.

I claim as my invention:—

An improved crank case for engines comprising a casing with a base and one bearing for the crank shaft formed solid therewith in the outer wall, the opposite wall being provided with an exterior flange, a separately formed removable bearing for the other end of the crank shaft in axial alignment with the first-named bearing and provided with a flange removably secured to said flange of the casing, said casing being provided with a plurality of horizontal openings and a vertical opening, all intercommunicating, and each surrounded by a flange, and a flanged plate for detachably closing the unused opening.

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

JOHN P. LANDGRAF.

Witnesses:

A. E. DUSHANE,
J. DUSHANE.