

J. G. UTZ.

CRANK CASE FOR COMBUSTION ENGINES.

APPLICATION FILED JUNE 18, 1910. RENEWED JAN. 14, 1914.

1,114,554.

Patented Oct. 20, 1914.

2 SHEETS—SHEET 1.

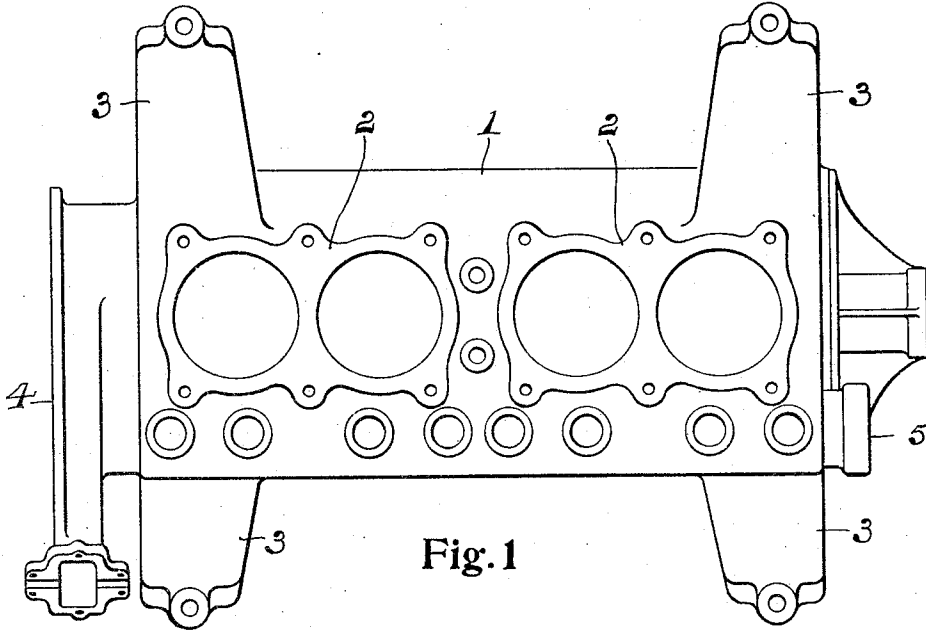


Fig. 1

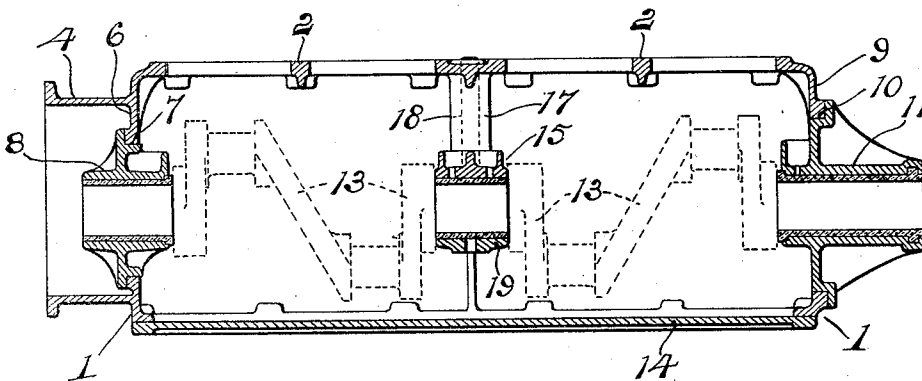


Fig. 2

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Fig. 3

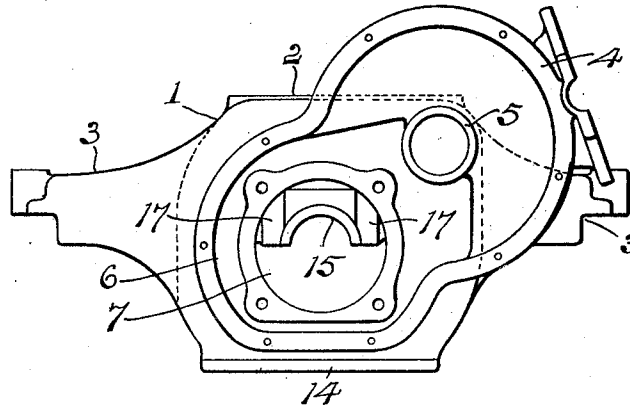


Fig. 4

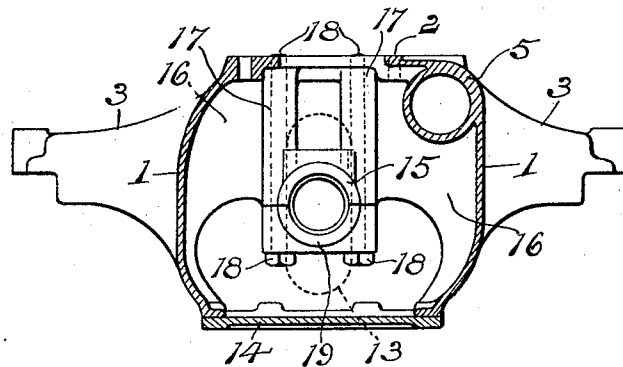
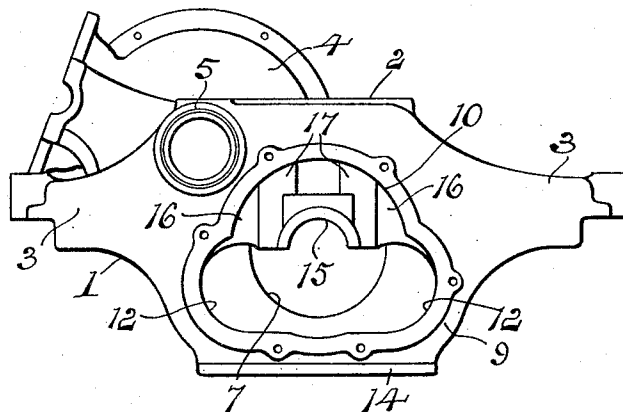


Fig. 5



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UNITED STATES PATENT OFFICE.

JOHN G. UTZ, OF DETROIT, MICHIGAN, ASSIGNOR TO THE PERFECTION SPRING COMPANY, OF CLEVELAND, OHIO, A CORPORATION OF OHIO.

CRANK-CASE FOR COMBUSTION-ENGINES.

1,114,554.

Specification of Letters Patent.

Patented Oct. 20, 1914.

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To all whom it may concern:

Be it known that I, JOHN G. UTZ, a citizen of the United States of America, residing at Detroit, in the county of Wayne and State of Michigan, have invented certain new and useful Improvements in Crank-Cases for Combustion-Engines, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to a crank case for motors and more particularly to a crank case and crank shaft bearings for internal combustion engines.

The object of the invention is to provide a one piece or barrel type of crank case having removable end plates for the bearings, with a center bearing cast integral with the crank case, said crank case being so constructed that the crank may be inserted or removed with facility and the bearings constructed and arranged to facilitate and cheapen the manufacture of the device, the same being provided with certain other new and useful features all as hereinafter more fully described reference being had to the accompanying drawings in which,

Figure 1 is a plan view of a crank case embodying the invention; Fig. 2 a longitudinal vertical section through the same with the crank shaft shown in dotted lines; Fig. 3 is an end elevation of the crank case with its end plate and the lower half of its center bearing removed; Fig. 4 is a transverse vertical section through the crank case adjacent to the center bearing; and Fig. 5 is an end elevation showing the end opposite to that shown in Fig. 3 with its end plate and the lower half of its center bearing removed.

As shown in the drawings 1 represents the walls of the crank case which is cast in one piece or what is commonly known as of the "barrel type." At its upper side the casing is provided with seats 2 for a plurality of cylinders (not shown). Extending laterally from the casing near each end thereof are integrally formed supporting arms 3 provided with openings to receive bolts for securing the engine in place upon an automobile frame or other support. Cast integral with one end of the casing 1 is a suitably formed gear casing 4 for gears (not shown) adapted to transmit motion from a crank shaft to a cam shaft (not shown), the casing

being provided with bearings 5 for the latter shaft. The end wall 6 of the casing is provided with a circular opening 7 to receive an end plate provided with a bearing 8 for a crank shaft, which plate is turned up to fit within the opening and suitably flanged to provide means for bolting the plate in place. The opposite end wall 9 of the crank case is provided with an opening 10 to receive an end plate provided with a bearing 11 for the opposite end of a crank shaft. The opening 10 may if desired, be enlarged laterally as shown at 12 to permit the insertion therethrough of the cranks 13 of the crank shaft shown in dotted lines in Fig. 2 and the plate is formed to fit the opening and is suitably flanged to provide openings to receive bolts for bolting the bearing in place. The crank case is open at its lower side and this open side is closed by a bottom plate 14 bolted in place upon the casing. The center bearing 15 for the crank shaft is cast integrally with the upper part of a crank case, suitable strengthening and supporting webs 16 connecting the bearing with the casing and these webs are thickened at 17 and bored vertically to receive bolts 18 for securing the lower removable half 19 of the center bearing in place. A perfect alinement of the three bearings for the crank shaft is insured by this construction which permits, in machining the casing, of turning up both of the end openings 7 and 10 and also the upper half of the center bearing, all at the same time. The end plates for the bearings are then turned up to fit the openings and are thus perfectly alined with the upper half of the center bearing. This also greatly facilitates the manufacture and cheapens the construction.

In assembling, the crank shaft may be inserted within the crank case through its open bottom or the crank may be inserted endwise through the end opening 10 which opening is formed with the lateral extensions 12 to permit the cranks to pass there-through. After the crank shaft has been so inserted in the crank case the end plates provided with the bearings 8 and 11 are slipped upon the ends of the shaft and bolted to the casing. The bottom half of the center bearing is then secured in place by the bolts 18 which are inserted upward

through the open bottom of the crank case and said bottom then closed by bolting the bottom plate 14 in place.

Having thus fully described my invention what I claim is:—

1. A crank case of the barrel type having an open bottom throughout its length and an opening in each end wall, a bearing for a crank shaft, the upper half of which is formed integral with the crank case intermediate its ends, a detachable lower half for said bearing, means for detachably securing said lower half to the upper half, detachable end plates fitting within the said openings in the ends of the crank case and secured thereto and provided with bearings in alinement with said intermediate bearing, and means for closing the bottom of the crank case.

2. A crank case of the barrel type having an open bottom throughout its length and

an opening in each end wall, a center bearing, the upper half of which is formed integral with the upper part of the crank case intermediate its ends, a lower half for the center bearing, bolts extending through openings in the lower half of the center bearing and through openings in said upper half of the center bearing to secure the lower half to the upper half, removable end plates formed to fit within the openings in the end walls of the crank case and secured therein and provided with bearings in alinement with the center bearing, and a plate to close the bottom of the crank case.

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

JOHN G. UTZ.

Witnesses:

OTTO F. BARTHEL,
ANNA M. DORR.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."