Aug. 30, 1932. S. F. EVELYN 1,874,261

INTERNAL COMBUSTION ENGINE ATTACHMENT

Filed Oct. 15, 1927 4 Sheets-Sheet 1

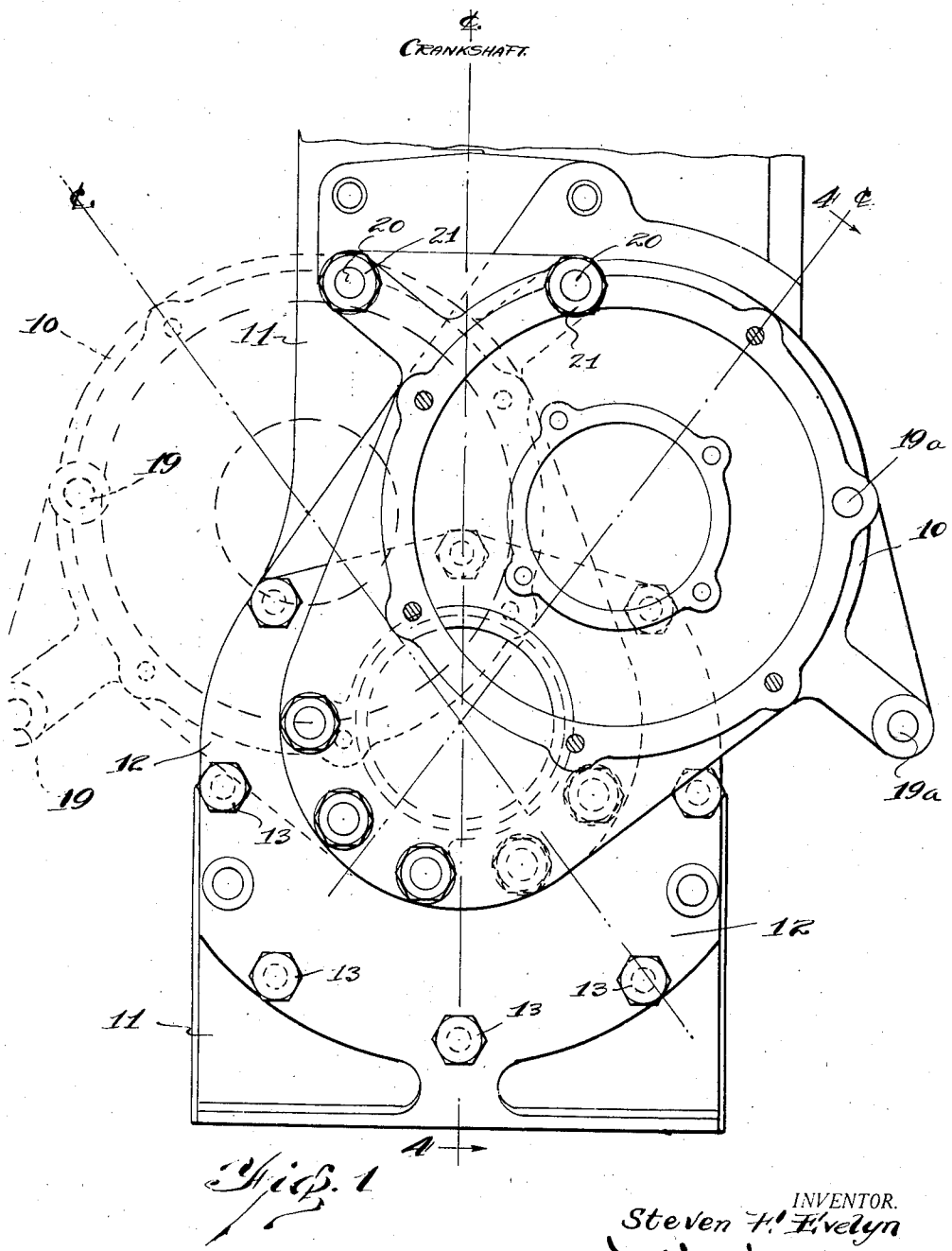


Fig. 1

INVENTOR.
Steven F. Evelyn
BY W. W. Harris
ATTORNEY.

Aug. 30, 1932. S. F. EVELYN 1,874,261

INTERNAL COMBUSTION ENGINE ATTACHMENT

Filed Oct. 15, 1927 4 Sheets-Sheet 2

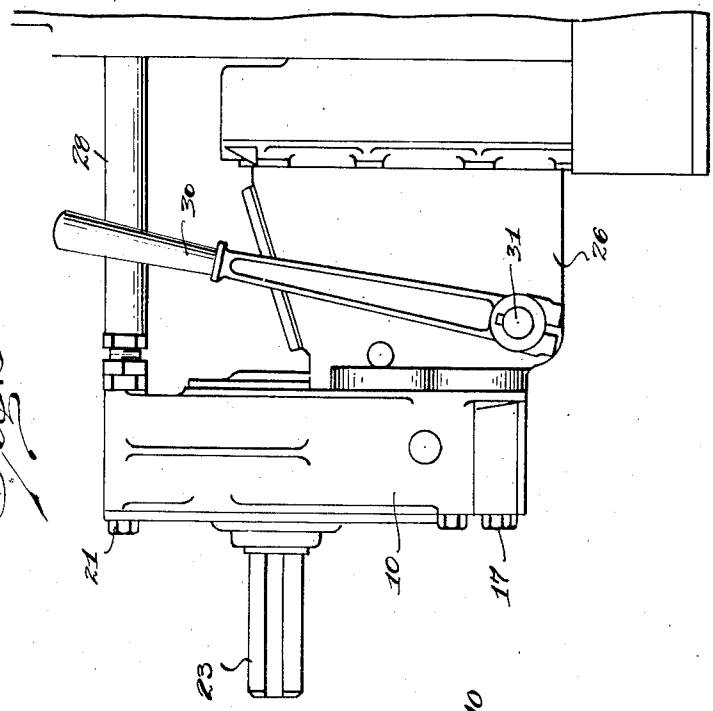


Fig. 1

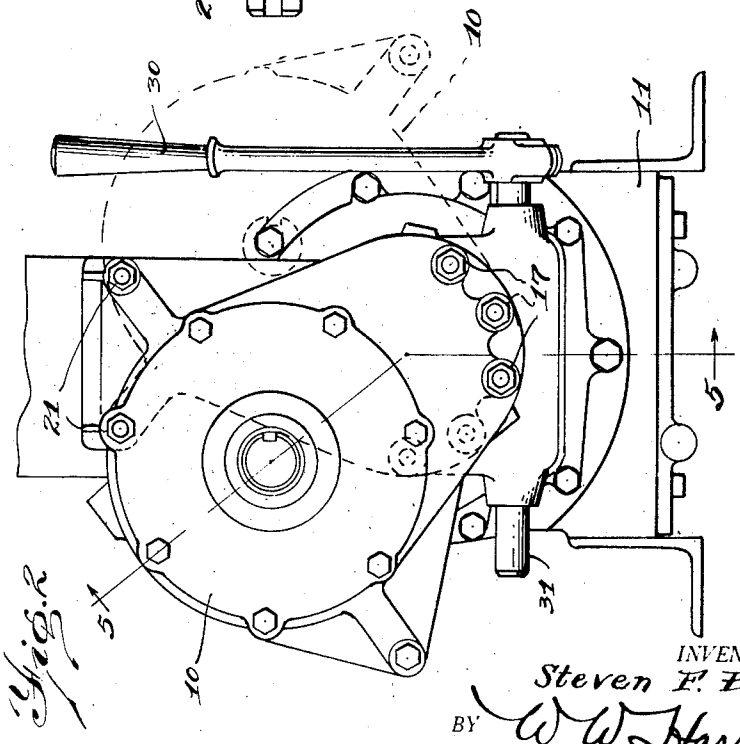


Fig. 2

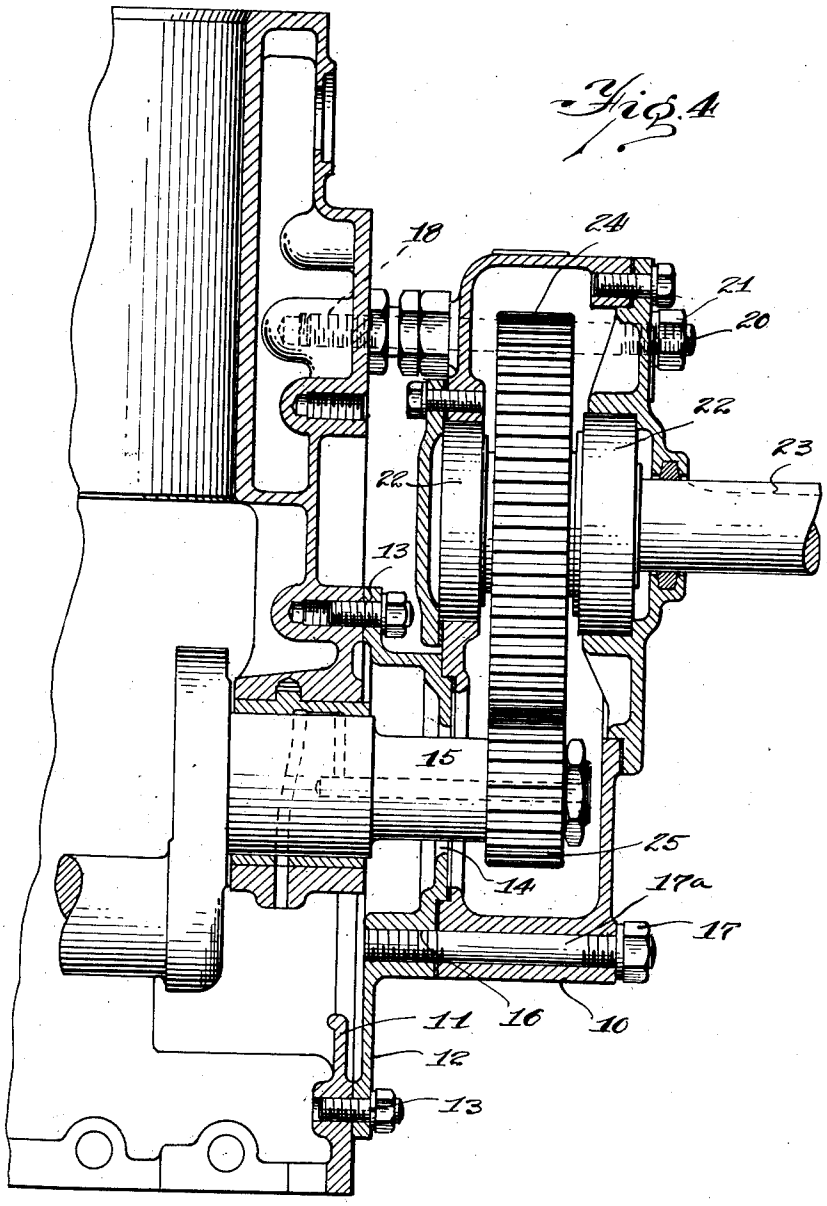
INVENTOR.
Steven F. Evelyn.
BY W. W. Harris
ATTORNEY.

Aug. 30, 1932. S. F. EVELYN 1,874,261

INTERNAL COMBUSTION ENGINE ATTACHMENT

Filed Oct. 15, 1927 4 Sheets-Sheet 3

Fig. 4



INVENTOR.
Steven F. Evelyn.
BY W. W. Harris.
ATTORNEY.

Aug. 30, 1932. S. F. EVELYN 1,874,261

INTERNAL COMBUSTION ENGINE ATTACHMENT

Filed Oct. 15, 1927 4 Sheets-Sheet 4

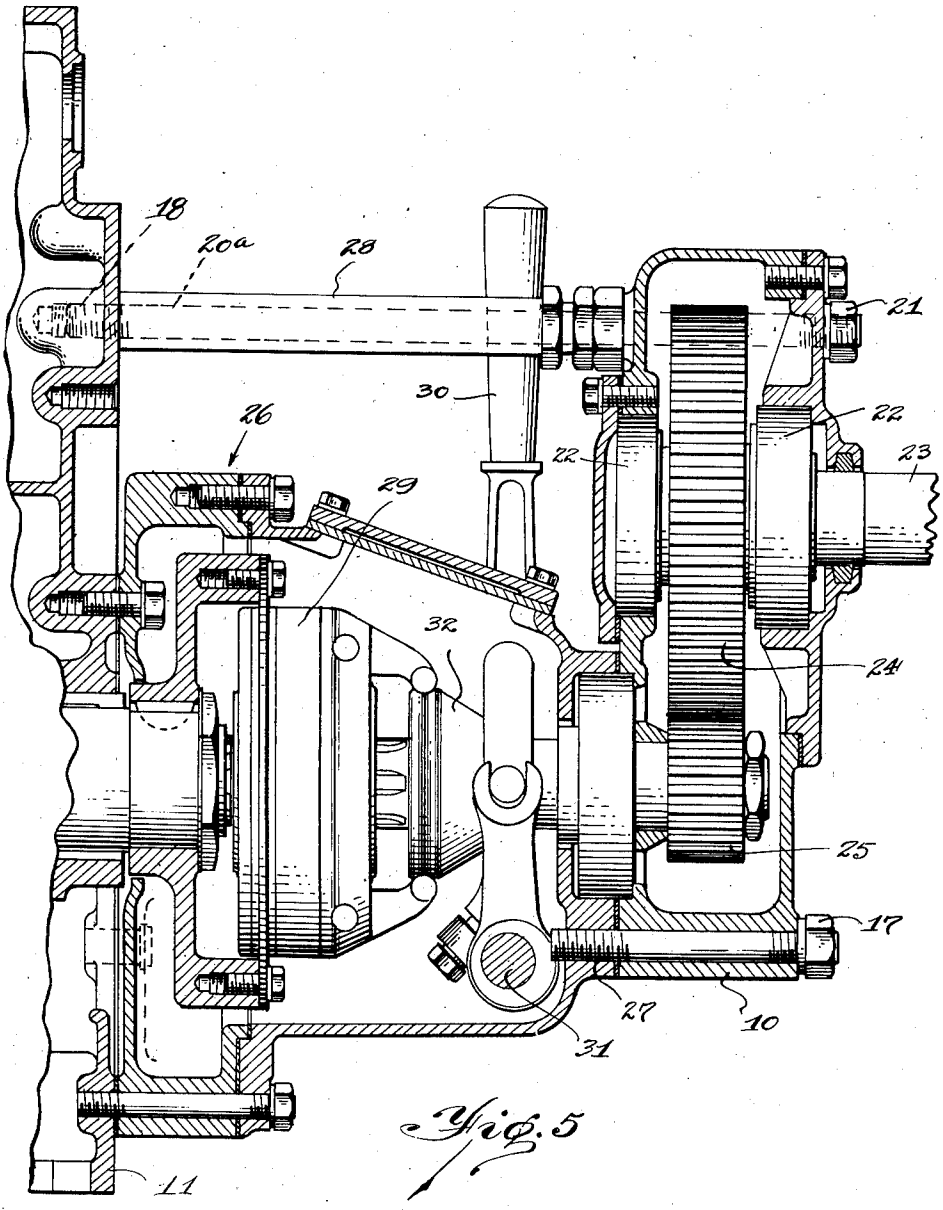


Fig. 5

INVENTOR.
Steven F. Evelyn.

BY

W. W. Harris
ATTORNEY.

Patented Aug. 30, 1932 1,874,261

UNITED STATES PATENT OFFICE

STEVEN F. EVELYN, OF DETROIT, MICHIGAN, ASSIGNOR TO CONTINENTAL MOTORS CORPORATION, OF DETROIT, MICHIGAN, A CORPORATION OF VIRGINIA

INTERNAL COMBUSTION ENGINE ATTACHMENT

Application filed October 15, 1927. Serial No. 226,379.

This invention relates to internal combustion engines and is more particularly related to the assembly of the transmission structure with the engine block. More particularly my invention is adapted for use with stationary industrial engines provided with suitable speed reducing mechanism assembled together as a single power unit.

It is an object of my invention to facilitate the production of power units of this type by providing a structure which may be economically adapted to various factory conditions.

Another object of my invention is to provide an engine of this type which may be readily and economically manufactured and very easily set up to provide a power take off at either side of the center line of the engine, thus permitting either side of the engine to be set up close to one of the factory walls or other obstruction. With such an arrangement the power take off may be located to one side of the engine away from the adjacent wall or obstruction as the case might be, economizing on floor space as much as possible.

A further object of my invention is to provide an engine block so designed as to permit the attachment thereto of different engine elements, such as a gear case housing containing any suitable type of speed reducing mechanism or an intermediate housing containing a clutch mechanism. This makes it possible to utilize the same engine block with either or both arrangements of elements, thereby materially reducing the manufacturing costs of such power units, and permitting the manufacturer to economically supply the trade with engines of proper design as required.

These and other objects of the invention will be more apparent as the description progresses. In the accompanying drawings which illustrate a preferred embodiment of my invention, and in which similar reference characters illustrate corresponding parts,

Fig. 1 is an end elevation of an engine block constructed in accordance with my invention showing a transmission case secured thereto and illustrating by dotted lines the manner in which the said transmission case may be positioned to one side or the other of the center-line of the engine block,

Fig. 2 is an end elevation of an engine in which a clutch mechanism is mounted between the engine block and the transmission case,

Fig. 3 is a side elevation of what is shown in Fig. 2,

Fig. 4 is a vertical section taken on the line 4—4 of Fig. 1, and

Fig. 5 is a vertical section taken on the line 5—5 of Fig. 2.

Referring to Figs. 1 and 4, I have shown an engine of the industrial type in which the transmission case 10 is secured closely adjacent to the end of the engine block 11. An end plate 12 is secured to the engine block by the bolts 13, said end plate being provided with an aperture 14 through which the crank shaft 15 of the engine projects. The end plate is provided with a series of tapped holes 16 arranged equidistant from an axis coinciding with the longitudinal axis of the crank shaft. The transmission case 10 is secured to this end plate by the nuts 17, which are screwed down on the studs 17ª which are externally threaded and arranged to engage in the tapped holes 16. The engine block is provided with tapped holes 18, and preferably two of such holes may be located as shown in Fig. 1. The transmission case 10 is provided with the holes 19 and 19ª, there being preferably two holes 19 and two holes 19ª. These holes 19 and 19ª are arranged to register with the tapped holes 18 in the cylinder block, and as shown by the full lines in Fig. 1 the transmission case is positioned to bring the holes 19 into registration with the holes 18. Studs 20 are screwed into the tapped holes 18 and pass through the holes 19, the transmission case being tightly held in position when the nuts 21 are screwed down.

The transmission case 10 is provided with suitable bearings 22 for supporting a jack shaft 23 which projects through an aperture in the end wall of the case. This jack shaft has keyed thereon a gear 24 which meshes with a gear 25, keyed to the end of the crank shaft which projects into the interior of the

transmission case, the power being thus transmitted directly to the jack shaft on which any suitable power take-off mechanism may be mounted.

It will be noted by referring to Fig. 1 that the jack shaft or driven member is located to the right of the center line through the crank shaft. By removing the nuts 17 and 21 the transmission case 10 may be bodily removed and positioned as shown by the dotted lines in Fig. 1, thus positioning the jack shaft or driven member 23 to the left of the center line through the crank shaft. The purpose of this construction is to permit the power to be taken off from either side of the engine, the engine thus being permitted to be positioned, close to a wall or other obstruction without interfering in any way with the driving mechanism.

In Figs. 2, 3, and 5 I have shown a construction whereby a clutch mechanism may be assembled between the engine and the transmission case. This permits adaptation of a clutch to operate on the high speed shaft where a more effective clutch action may be obtained. This is accomplished by constructing the engine block, end plate, transmission case and clutch housing, so that the same engine elements may be used either with or without a clutch. The inner face of the clutch housing 26 is designed in such a manner that it can be secured to the end of the cylinder block by utilizing the same tapped holes which serve to receive the bolts 13 which secured the end plate 12 to the engine block, the clutch housing being provided with holes which register with these tapped holes in the engine block. The outer face of the clutch housing is constructed similarly to the end plate so that the transmission case may be secured to the outer face of the clutch housing in the same manner as it was secured to the end plate 12. The clutch housing is provided with a series of tapped holes 27 similar to the tapped holes 16 in the end plate so that the transmission housing may be positioned to locate the jack shaft 15 at either side of the center line through the crank shaft. Relatively long studs 20^a are provided in place of the studs 20 when inserting a clutch housing between the transmission case and the engine block, suitable spacers 28 being provided to span the gap between the transmission case and engine block.

Suitable clutching mechanism 29 is contained with the clutch housing 26, the clutch being operated by means of the clutch lever 30 which rocks the shaft 31, said shaft carrying the clutch actuating mechanism 32 which moves the clutch into or out of engagement.

It will be seen that by locating the clutch intermediate of the transmission mechanism and the engine, I am able to associate a clutch with the high speed shaft of the power unit, thereby obtaining a more effective clutching action and materially reducing wear on the speed reducing mechanism, as with this arrangement the speed reducing gears are only in motion when the clutch is thrown in. This will add considerable to the life of the power unit as well as conserving energy with the subsequent lowering of power costs, thus materially adding to the usefulness of the engine.

It will be understood that various changes and modifications of the structure shown may be made without departing from the spirit of my invention as set forth in the appended claim.

What I claim as my invention is:

In an internal combustion engine including a crankshaft and a driven shaft and operative connections therebetween, a housing for supporting said driven shaft, an end plate secured to said engine and provided with a series of internally threaded holes arranged concentrically with respect to the longitudinal axis of the crankshaft, fastening devices engaging in some of said holes for securing said housing to said end plate in various predetermined positions with respect to said engine element and other means for securing said housing directly to said engine.

In witness whereof, I hereunto subscribe my name this 12th day of October, A. D. 1927.

STEVEN F. EVELYN.