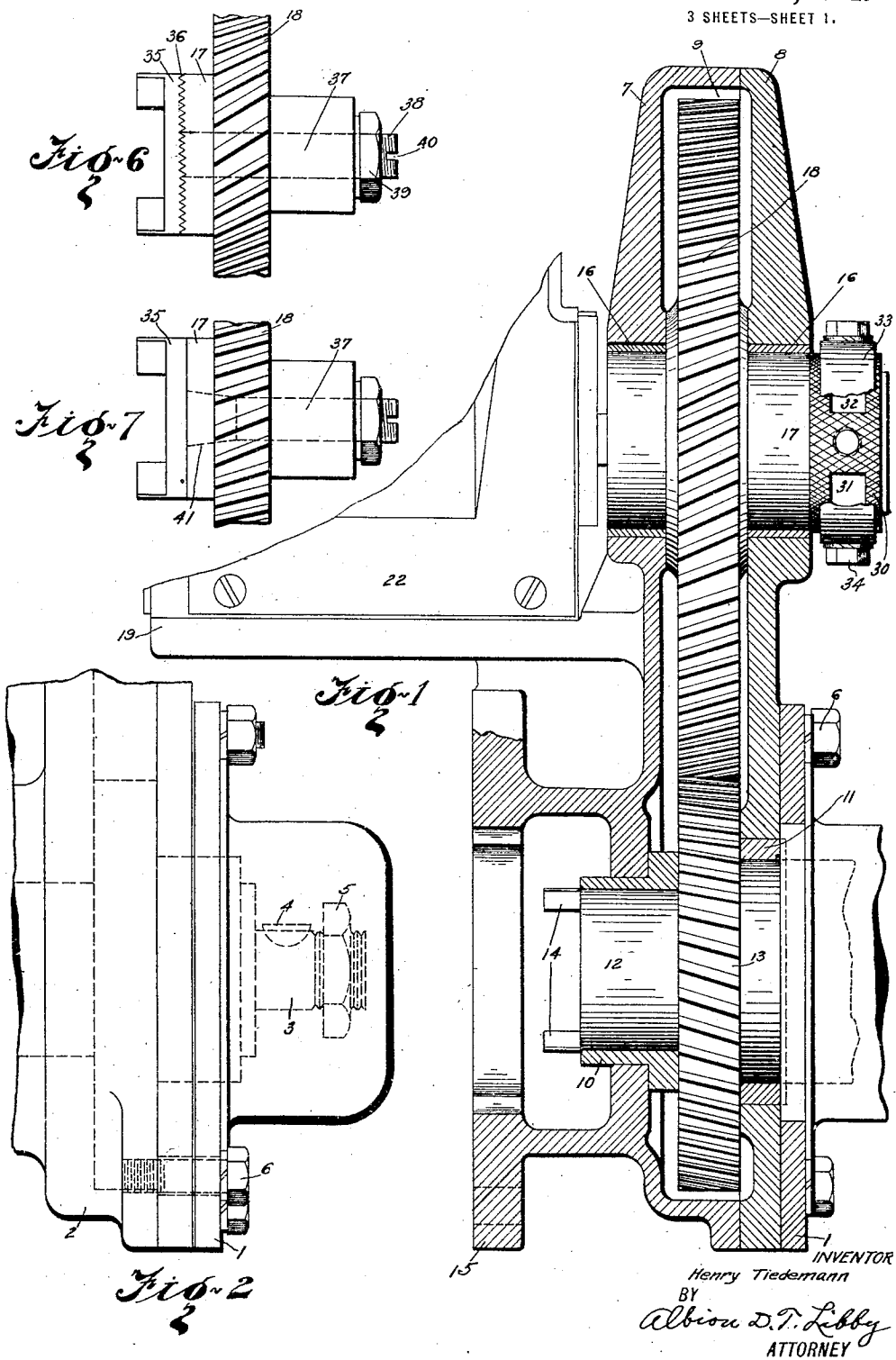


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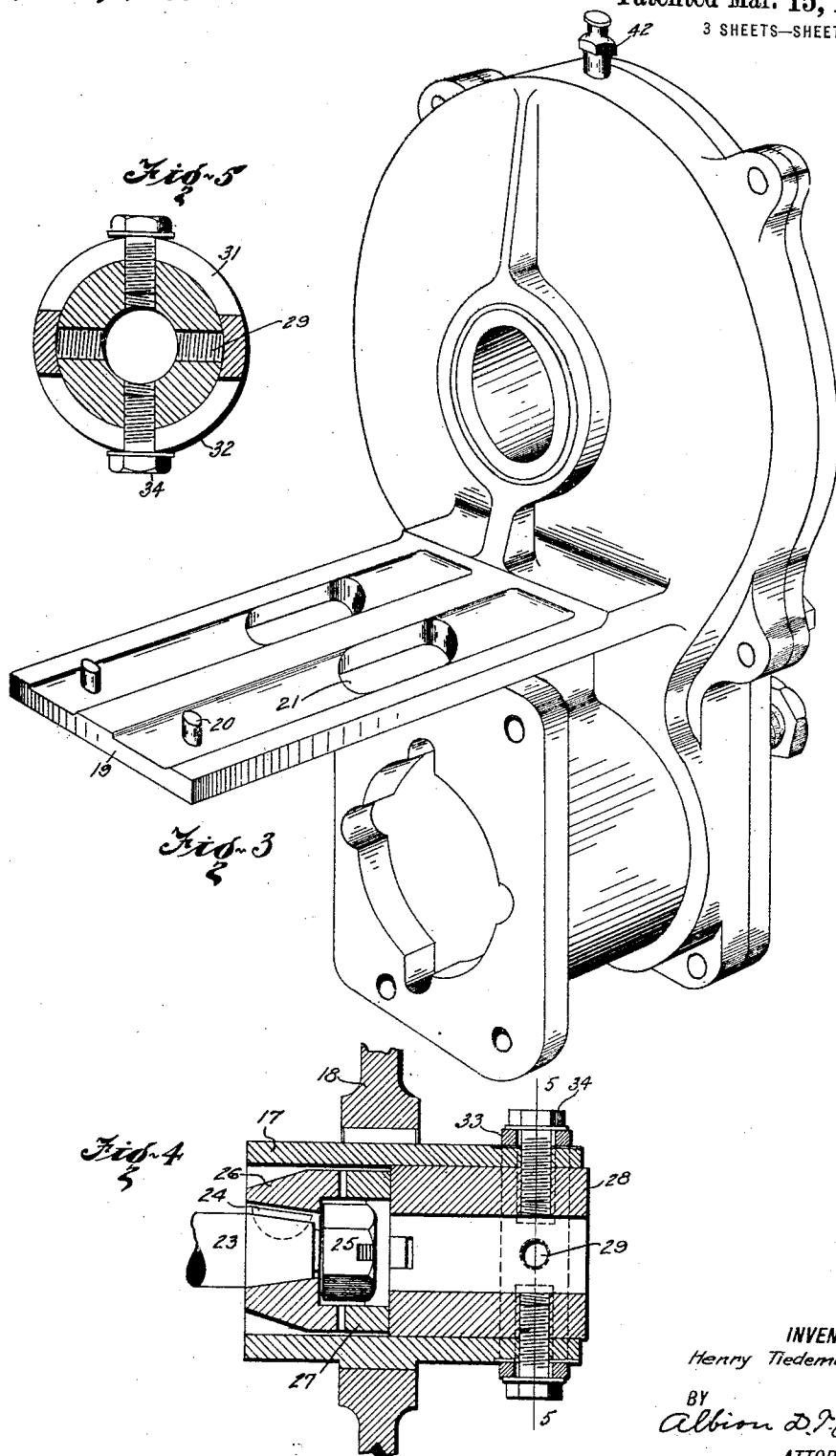
INVENTOR
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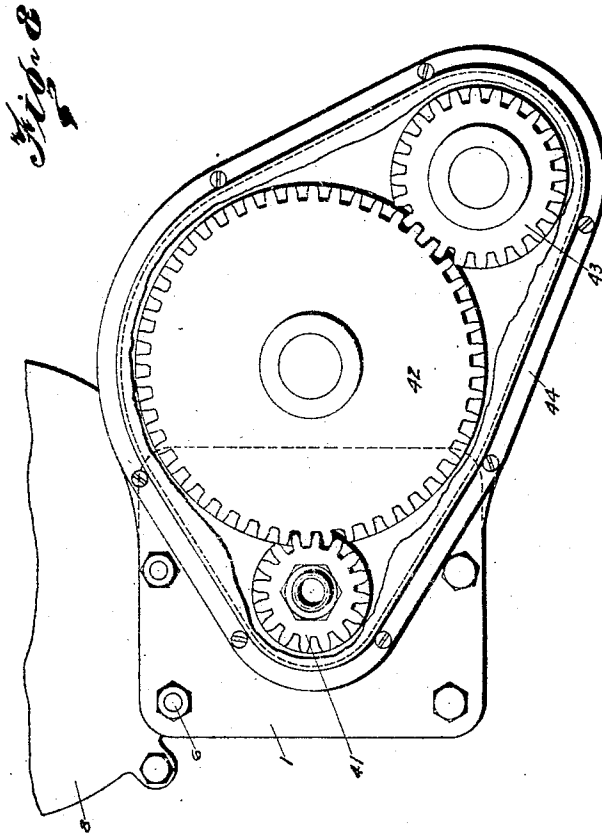
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UNITED STATES PATENT OFFICE.

HENRY TIEDEMANN, OF NEWARK, NEW JERSEY, ASSIGNOR TO SPLITDORF ELECTRICAL COMPANY, OF NEWARK, NEW JERSEY.

GENERATOR ATTACHMENT AND TIMING MEANS FOR GAS-ENGINES.

1,371,276.

Specification of Letters Patent. Patented Mar. 15, 1921.

Application filed January 6, 1920. Serial No. 349,809.

To all whom it may concern:

Be it known that I, HENRY TIEDEMANN, a citizen of the United States, residing at Newark, in the county of Essex, State of New Jersey, have invented certain new and useful Improvements in Generator Attachments and Timing Means for Gas-Engines, of which the following is a description, reference being had to the accompanying drawing and to the figures of reference marked thereon.

In the operation of internal combustion engines, particularly as used on automobiles, it very frequently happens that the operator desires to have magneto ignition in place of the less expensive battery ignition system which may be installed on the automobile. It usually happens that where the battery system is furnished no means are provided for driving the magneto as the only extra drive provided is a drive for the generator used for charging the storage battery and furnishing current for the lights.

My invention is directed to means for making an installation of a magneto on an engine equipped with a battery system including a charging generator. It is, therefore, the principal object of my invention to provide an attachment means for the ignition generator which will be comparatively simple in construction and easy to install.

It is another object of my invention to provide means for readily timing the ignition generator after it has been placed on the engine.

Other and further objects will be apparent after a study of the specification and attached drawings, wherein—

Figure 1 shows a part elevation and sectional view of such an installation.

Fig. 2 is a part plan view showing the installation of the charging generator.

Fig. 3 is a perspective view of the mounting plate used in connection with such an installation.

Fig. 4 is a sectional view through the ignition generator bearing showing one form of timing mechanism.

Fig. 5 is a sectional view on the line 5—5 of Fig. 4.

Fig. 6 is a modified form of timing means for the ignition generator.

Fig. 7 is a further modification of such timing means.

Fig. 8 is a view of the engine driving

means with the gear case broken away and showing the flange behind which the generator attachment means is mounted.

Referring now to the details, wherein like numbers refer to corresponding parts in the various views, 1 is a plate on the engine to which, in the original installation, is fastened the head 2 of a charging generator having a shaft 3 with suitable gear or sprocket wheel held thereon, as by a key 4 and nut 5. Plate 1 in the illustration shown corresponds to the front gear case of an engine of the Chevrolet "490" type. In order to apply a magneto to an engine of this type, I remove the generator 2 which is held to the case 1 by bolts 6 and put in place thereof a mounting plate 7 having a cover 8, both of which are so constructed and fitted as to form a chamber 9 between them. At the bottom of the plate 7 and cover 8 line with the pinion for the charging generator shaft, I mount bearing bushings 10 and 11 which support the two units of a stub shaft 12 having gear 13 fastened thereto. The inner end of the stub shaft 12 is formed to receive the same sprocket or gear wheel 41 as was taken off the generator shaft 3 on its removal from the engine. As shown in Fig. 8, the gear 41 is driven by the cam shaft gear 42 which in turn is operated by gear 43 on the crank shaft, all three of said gears being inclosed by a flange cover 44 fastened to the plate 1, which extends beyond the cover 44 to form a bearing for the lower part of cover plate 8. The outer end of the stub shaft 12 has shoulders 14 used in connection with the Oldham coupling member which is an old and well known device and will not be described further except to say that one member of the Oldham coupling will be fastened to the shaft 3 of the generator and the head 2, after the plate 7 and cover 8 have been fastened to the engine casing 1 by bolts 6, will be fastened to the vertical flange 15 by suitable bolts. Carried on the top part of the plate 7 and cover 8 are bearing bushings 16 which support a hollow stub shaft 17 to which is fastened a gear 18. The bushings 16 are lubricated by means of oil cup 42. Plate 7 carries an integral horizontal flange 19 which has dowel pins 20 and elongated slots 21 for the purpose of mounting a magneto ignition generator 22 thereon. The shaft 23 of the magneto extends within the hollow

stub shaft 17 and has fastened thereto, by means of key 24 and nut 25, one member 26 of an Oldham coupling, the floating or intermediate member being indicated by 27. The outer member of the Oldham coupling is indicated by 28, which has preferably four threaded holes 29 arranged 90 degrees apart. The outer end of the stub shaft 17 is knurled as indicated by 30 and arcuate slots 31 and 32 are cut therein. Positioned over the arcuate slots 31 and 32 is a clamping ring 33 through which pass a pair of set screws 34. These set screws go through the stub shaft 17 in the Oldham coupling 28.

From this construction of the magneto drive, it will be seen that in timing the magneto the screws 34 may be loosened and the Oldham coupling member with the magneto shaft can be turned to get proper setting of the magneto with respect to the engine cylinders. After the correct timing is obtained set screws 34 are tightened up, which act fastens the Oldham coupling member to the stub shaft 17.

It frequently happens that in making installations for magnetos on engines the amount of space available is exceedingly limited and where the ordinary coupling is used a length distance of about 2 $\frac{3}{4}$ " is required for the coupling, it will therefore be appreciated that my method of attaching the magneto and means for timing the same shortens the overhanging of the magneto on the mounting plate 7 by an amount equal to the length of the ordinary commercial coupling. Furthermore, where the timing mechanism projects through the mounting plate and cover it can be gotten at with more ease.

As an alternative arrangement for timing the magneto, I have shown two other methods, both of which are adapted for timing in front of the cover plate, as heretofore described in connection with the device shown in Fig. 1.

In Fig. 6, 35 is one part of an Oldham coupling member which has serrated teeth 36 to correspond with similar serrations in the stub shaft 17. The Oldham coupling member 35 has a stem 37 extending through the stub shaft 17 and is threaded at its outer end 38 to receive a lock washer and nut 39. It will be readily seen that the magneto can be timed by loosening the nut 39 and turning the spindle 37 by means of a screw driver in the slot 40 so that the magneto shaft can be moved any number of serrations 36 after which the timing is fixed by tightening the nut 39. The form shown in Fig. 7 is similar to that shown in Fig. 6 except that taper 41 is used at the junction of spindle 37 and the member 35. The operation of this form will be readily understood without further explanation.

It will be understood that various changes

may be made in the details of my invention without departing from the spirit of the same and the scope of the appended claims.

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

1. Means for attaching a pair of generators to an engine consisting of, a mounting plate adapted to be fastened to the engine and having two flanges extending therefrom, a generator mounted on each of said flanges and having their shafts extending into said plate, a cover for the mounting plate, bearings carried in said plate and cover and means connected to each generator shaft carried by said bearings and operated by said engine for driving said generators.

2. Means for attaching a pair of generators to an engine consisting of, a mounting plate adapted to be fastened to the engine and having two flanges extending therefrom in planes substantially at right angles to each other, one flange adapted to be fastened to the base of its generator and the other flange adapted to be fastened to the driving head of its generator, a cover for the mounting plate, bearings carried in said plate and cover and means connected to each generator shaft carried by said bearings and operated by said engine for driving said generators.

3. Means for attaching a pair of generators to an engine consisting of, a mounting plate adapted to be fastened to the engine and having two flanges, a bottom vertical flange to receive the driving head of a charging generator and a top horizontal flange to receive the base of an ignition generator, a cover for the mounting plate, bearings carried in said plate and cover, intermeshing gears having stub shafts carried by said bearings, means for connecting one stub shaft to the ignition generator shaft and means for connecting one end of the other stub shaft to the charging generator shaft and the opposite end to an engine driving shaft.

4. Means for attaching a pair of generators to an engine consisting of, a mounting plate adapted to be fastened to the engine and having two flanges, a bottom vertical flange to receive the driving head of a charging generator and a top horizontal flange to receive the base of an ignition generator, a cover for the mounting plate, bearings carried in said plate and cover, one for the operation of the ignition generator, the other for the operation of the charging generator, a hollow stub shaft carrying a gear thereon supported by the ignition bearing, a coupling member seated within one end of said stub shaft and fastened to the ignition generator shaft, a coupling member cooperating with the first coupling member seated within the other end of said stub shaft both said

stub shaft and last mentioned coupling member extending through said cover and means cooperating with said stub shaft and coupling member exterior to the cover for adjusting their relative angular position, a stub shaft carrying a gear meshing with the first gear supported by the generator bearing, means for connecting one end of the last mentioned stub shaft to the charging generator and the other end to an engine operated shaft.

5. Means for attaching a pair of generators to an engine consisting of, a mounting plate adapted to be fastened to the engine and having two flanges, a bottom vertical flange to receive the driving head of a charging generator and a top horizontal flange to receive the base of an ignition generator, a cover for the mounting plate, bearings carried in said plate and cover, one for the operation of the ignition generator, the other for the operation of the charging generator, a hollow stub shaft carrying a gear thereon supported by the ignition bearing, a coupling member seated within one end of said stub shaft and fastened to the ignition generator shaft, a coupling member cooperating with the first coupling member seated within the other end of said stub shaft both said stub shaft and last mentioned coupling member extending through said cover, arcuate slots in said extended end of the stub shaft, a clamping ring positioned over said slots and carrying set screws adapted to engage the coupling end and adjustably fasten the same to the hollow stub shaft, a stub shaft carrying a gear meshing with the first gear supported by the generator bearing, means for connecting one end of the last mentioned stub shaft to the charging generator and the other end to an engine operated shaft.

6. Means for attaching a pair of generators to an engine consisting of mounting plate and cover so constructed and joined as to form a chamber, means for bolting the cover and plate to the engine case, bearings carried by said plate and cover one above the other, stub shafts supported in said bearings and carrying intermeshing gears, a flange integral with the bottom of the plate for supporting a charging generator and means for connecting one end of the bottom stub shaft to the charging generator shaft and the opposite end to an engine operating shaft, a second flange integral with the plate above the first flange for supporting an ignition generator, means for connecting one end of the top stub shaft to the ignition generator shaft and means cooperating with the other end of the stub shaft exterior to said

cover for adjusting the angular relation of the stub shaft with the ignition generator shaft.

7. Means for attaching a charging generator and an ignition generator to an engine consisting of; a mounting plate and cover with means for fastening both together and to the engine frame, a flange on the plate for carrying the charging generator and a second flange on the plate for carrying the ignition generator, a set of intermeshing gears supported by and between the plate and cover, one of which gears being connected to the ignition generator shaft and the other to the charging generator shaft and an engine driving shaft for the purpose described.

8. Means for attaching a charging generator and an ignition generator to an engine consisting of; a mounting plate and cover with means for fastening both together and to the engine frame, a vertical flange integral with the plate for carrying the charging generator and a horizontal flange integral with the plate for carrying the ignition generator, a set of intermeshing gears supported by and between the plate and cover, one of said gears being adjustably connected, by means operable from the front of the cover, with the ignition generator shaft and another gear of the set to the charging generator shaft as well as to an engine driving shaft.

9. Means for attaching a charging generator and an ignition generator to an engine consisting of; a mounting plate and cover with means for fastening both together and to the engine frame, a flange on the plate for carrying the charging generator and a second flange on the plate for carrying the ignition generator, a set of intermeshing gears supported by and between the plate and cover, one of which gears being adjustably connected, by means operable from the front of the cover, with the ignition generator shaft and another gear of the set to the charging generator shaft as well as to an engine driving shaft.

10. Attachment means for generators of electric current including an ignition magneto comprising a support plate with a cover therefor and means for fastening both together and to an engine frame, a flange integral with the plate for supporting the magneto and means carried by the plate and cover for driving and adjusting the timing of the magneto with respect to the engine driven member.

In testimony whereof I affix my signature.

HENRY TIEDEMANN.